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THE ROLE OF BUILDING MATERIALS IN ARCHITECTURE

Abstract:This article explores the critical role of building materials in shaping architectural design and sustainability, with a focus on their aesthetic and environmental implications. The research addresses the pressing question of how material selection influences both the visual impact and the sustainability of architectural projects. Through a comprehensive comparative analysis that incorporates quantitative assessments of material properties, energy consumption, and lifecycle impacts, alongside qualitative insights gained from architectural case studies and expert interviews, key findings reveal that certain materials significantly enhance energy efficiency while contributing positively to visual coherence and user experience within healthcare environments. Notably, sustainable materials not only reduce energy expenditure but also promote healthier indoor environments essential for patient recovery and staff well-being. This research underscores the importance of informed material selection, demonstrating that an integrated approach to building design can enhance both architectural integrity and sustainability outcomes. The implications of these findings extend beyond aesthetics, suggesting a paradigm shift in how architects and healthcare providers can collaborate to create spaces that prioritize environmental responsibility without compromising on design quality. By emphasizing the interconnection between material choices and health-oriented architectural practices, this study advocates for a more holistic approach to building design in healthcare settings, revealing the potential for improved patient outcomes while addressing broader environmental concerns.

Keywords: building materials, material choices, structures.

II. Introduction

The interrelationship between building materials and architectural design has been a focal point of investigation amidst the growing recognition of sustainability in the built environment. Historically, material selection has been influenced by cultural, economic, and environmental factors, forging an intrinsic link between the materiality of structures and their aesthetic, functional, and sustainable attributes (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022), (Busen T, 2021). In architecture, materials serve not only as the fundamental constituents that shape structures but also as carriers of meaning and

identity reflective of cultural heritage, technological advancement, and ecological awareness. Despite this significant role, there remains an insufficient understanding of how material choices impact the sustainability and functionality of architectural designs, particularly in the context of contemporary challenges such as climate change and urbanization (Faroldi E, 2021), (R Freeman et al., 2020). Thus, the research problem centers around the critical gap in acknowledging how informed material selection can influence not just the aesthetics of buildings but also their environmental performance and user experience within various settings, notably in healthcare environments which necessitate both functional integrity and aesthetic sensibility (O König, 2019), (Z Mustapha et al., 2018).The primary objectives of this dissertation are to investigate the role of building materials in shaping architectural design, assess their implications for sustainability, and evaluate their impact on energy efficiency and indoor environmental quality. By conducting a comprehensive comparative analysis of material properties alongside qualitative case studies and expert interviews, this research aims to articulate the multifaceted contributions of materials to architectural coherence and environmental efficacy (Fiocchi et al., 2011), (Elnokaly et al., 2007). Furthermore, the study seeks to develop practical guidelines for architects and stakeholders in the construction industry, promoting a paradigm shift towards more sustainable and informed material practices.The significance of this research lies in its potential to advance academic discourse surrounding architectural materials while informing practical applications in design and construction. By elucidating the intricate connections between materials, design, and sustainability, this work contributes to a deeper understanding of how architects can make strategic material choices that enhance not only the performance of buildings but also the health and well-being of their occupants (N/A, 2018), (Luther et al., 2009). Such an exploration is timely and relevant, as the architectural field increasingly navigates the complexities posed by environmental concerns and the need for sustainable solutions, ultimately aiming to cultivate a built environment that is both resilient and reflective of its cultural context (Katogas et al., 2005), (Samadb A et al., 2016).

III. Literature Review

The intricate relationship between building materials and architecture is fundamental, shaping not only the aesthetic appeal and functionality of structures but also influencing cultural identity, sustainability practices, and technological advancements. As societies evolve, so too do the materials employed in the construction and design of buildings, with contemporary architects seeking innovative solutions that address both aesthetic and environmental challenges. The significance of selecting appropriate materials extends beyond mere structural integrity; it encompasses the social and ecological footprints of buildings, urging a reconsideration of traditional practices in light of modern sustainability requirements. Existing literature has thoroughly explored various materials—from traditional stone and timber to contemporary steel, glass, and engineered composites—highlighting recurring themes such as durability, cost-effectiveness, thermal performance, and environmental impact.Notably, a considerable body of

research has emerged around the integration of sustainable materials, focusing on their potential to reduce energy consumption through passive design principles and lower carbon emissions throughout the building lifecycle. Studies indicate a growing awareness among architects and builders regarding eco-friendly practices, leading to the incorporation of recycled materials, locally sourced resources, and bioclimatic designs that harmonize with the natural environment. Furthermore, the interrelationship between materials and architectural style has been illuminating; diverse materials evoke distinct aesthetic qualities, reflecting cultural narratives and technological innovations across eras and regions.Despite the wealth of information on the use of various materials in architecture, several critical gaps remain in the literature. For instance, there is limited exploration of the long-term implications of material choices on urban resilience and climate adaptation. While case studies and regional analyses provide insights into specific contexts, a comprehensive understanding of how varying materials contribute to or mitigate against the effects of climate change warrants further investigation. Additionally, the socio-political dimensions associated with material sourcing—such as labor practices, resource scarcity, and global industrial impacts—remain underexamined, particularly in relation to how these factors influence architectural ethics and decision-making processes.As we delve deeper into the literature, chronicling the evolution of building materials and their multifaceted roles within the architectural discourse, it becomes crucial to evaluate recent trends toward synthesis—where traditional materials are being married with modern technologies to create hybrid solutions. This literature review will provide an in-depth analysis of the existing body of research, highlighting key findings, thematic developments, and exemplary case studies that pave the way for future directions in architectural practice. By recognizing both the advancements and the existing research voids, this review aims to underscore the necessity for a holistic approach to material selection in architecture, urging practitioners, scholars, and policy-makers to consider the broader implications of their material choices. The subsequent sections will systematically address these themes, providing a comprehensive framework for understanding the critical role that building materials play in shaping the landscapes of our built environments. The evolution of building materials has significantly shaped architectural practices through various historical periods. In ancient civilizations, the primary materials were stone and clay, selected for their durability and availability, as evidenced by structures such as the pyramids in Egypt and the ziggurats in Mesopotamia, which utilized local materials to demonstrate permanence and societal strength (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022). As societies advanced, so did their understanding of material properties; the Romans, for instance, introduced concrete, which revolutionized construction methods by enabling the creation of larger and more complex structures, including the Colosseum (Busen T, 2021).The Renaissance heralded a revival of classical ideals, emphasizing harmony and proportion while utilizing materials like brick and marble that resonated with the renewed appreciation for aesthetics (Faroldi E, 2021). Meanwhile, the Industrial

Revolution introduced mass-produced materials such as steel and glass, elevating functionality and creating new architectural forms such as skyscrapers, which dramatically transformed urban landscapes (R Freeman et al., 2020).In the 20th century, the focus began to shift towards sustainability, prompting architects to reconsider material choices in light of their environmental impacts. This led to the rise of eco-friendly materials, such as bamboo and recycled products, reflecting a growing awareness of the construction industry's ecological footprint (O König, 2019). Contemporary architecture now integrates advanced technologies along with traditional materials, creating a hybrid approach that balances innovation with sustainability (Z Mustapha et al., 2018). Overall, the role of building materials in architecture has undergone profound transformation, adapting to the evolving demands of society while continually shaping our built environment through time. The selection of building materials plays a critical role in defining architectural aesthetics, functionality, and sustainability. One key theme is the environmental impact of material choices. Materials such as concrete and steel, while strong and durable, contribute significantly to carbon emissions during production. In contrast, using sustainable materials like bamboo or recycled materials can mitigate these effects, demonstrating a move towards more environmentally conscious architecture (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022). Research indicates that integrating green building materials can enhance energy efficiency and reduce overall resource consumption (Busen T, 2021). Moreover, the aesthetic qualities of materials influence architectural expression and identity. Traditional materials like stone and wood often communicate a sense of authenticity and permanence, which is pivotal in cultural contexts (Faroldi E, 2021). Studies show that incorporating regional materials not only supports local economies but fosters a deeper connection between structures and their environments (R Freeman et al., 2020)(O König, 2019). Another critical aspect is the performance characteristics of materials, affecting thermal comfort and structural integrity. Advances in technology have led to the development of innovative materials that enhance energy efficiency, such as phase-change materials that regulate indoor temperatures effectively (Z Mustapha et al., 2018). Additionally, the resilience of materials against natural disasters is increasingly prioritized, influencing standard practices in high-risk areas . Collectively, these themes underscore the multifaceted role building materials play in architecture, highlighting their importance in achieving sustainable, aesthetically pleasing, and resilient designs that respond to contemporary environmental challenges . As architects continue to innovate, selecting the right materials will remain a fundamental aspect of shaping the built environment. The exploration of building materials in architecture reveals a spectrum of methodological approaches that significantly influence design and construction practices. Various studies underscore the impact of material selection on architectural quality, sustainability, and user experience. For instance, research utilizing quantitative analyses demonstrates that specific materials, such as prefabricated components, can significantly enhance construction efficiency and reduce waste (cite1, cite2).

These studies argue that employing modern materials can streamline the building process by minimizing the time and labor required on-site, ultimately leading to reduced overall project costs.In contrast, qualitative methodologies, such as case studies and interviews with architects, often highlight the cultural and aesthetic implications of material choices. These methods elucidate how traditional and local materials contribute to a building's identity and narrative, bridging the gap between functionality and cultural significance (cite3, cite4). For example, the use of indigenous stone in contemporary designs not only provides structural integrity but also enhances the building's contextual relevance by reflecting local architectural vernaculars (cite5).Furthermore, mixed-method approaches reveal the interplay between material performance and environmental considerations. By utilizing both empirical testing and user feedback, researchers illustrate how materials like low-VOC finishes and high-performance insulation can improve indoor air quality while enhancing thermal comfort (cite6, cite7, cite8). Thus, the integration of diverse methodological frameworks allows for a comprehensive evaluation of building materials, shedding light on their multifaceted roles in shaping architectural outcomes and promoting sustainable practices within the built environment. The holistic understanding gained through these varied approaches enriches the discourse on the significance of materials in architecture today. The role of building materials in architecture extends beyond mere functionality; it intertwines with cultural, environmental, and aesthetic considerations that warrant theoretical exploration. From a historical perspective, early architectural theorists emphasized the qualities of local materials and their integration into design processes as pivotal to regional identity. The analysis of traditional architectural practices showcases how the selection of materials was often dictated by availability, climate, and societal norms, emphasizing the cultural significance that permeates these choices (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022)(Busen T, 2021). In contemporary discussions, sustainability emerges as a critical lens. The adoption of eco-friendly materials is argued to advance both environmental stewardship and a cultural shift toward sustainable living. Scholars advocate for materials that reduce ecological footprints, citing the need for a harmony between human-made structures and their natural surroundings (Faroldi E, 2021)(R Freeman et al., 2020). The theoretical discourse surrounding materiality in architecture also includes the notion of “embodied energy,” challenging architects to consider materials not only for their performance but also for their lifecycle impact (O König, 2019)(Z Mustapha et al., 2018).Conversely, some critics assert that an overemphasis on sustainability can overshadow aesthetic and structural integrity, warning against a utilitarian reductionism that might compromise architectural beauty . This debate underscores the complexity of material selection wherein various theoretical frameworks—historical, ecological, and aesthetic—intersect. Ultimately, the dynamic interplay among these perspectives enriches the discourse on building materials in architecture, steering ongoing research that seeks to balance these often conflicting ideals .The exploration of building materials within architecture reveals a complex interplay of cultural, environmental, and

aesthetic dimensions, consistently underscoring their critical role in shaping the built environment. Key findings from the literature highlight how material selection not only influences structural integrity and functionality but also significantly impacts sustainability and cultural identity. Through a historical lens, it is evident that as architectural practices evolve, so do the materials that define them, reflecting not only technological advancements but also social values and ecological awareness. Studies indicate a marked shift towards sustainable materials, such as recycled products and regionally sourced resources, which underscore a growing commitment to environmental stewardship within the profession. The integration of traditional materials with modern innovations fosters a hybrid architectural language that balances the historical richness with contemporary necessities, emphasizing the need for architects to make informed material choices.This literature review elucidates the main theme of the critical relationship between building materials and architectural practice, stressing the necessity of a holistic understanding that encompasses environmental, aesthetic, and cultural considerations. Through a systematic analysis of various methodologies—including qualitative case studies and quantitative assessments—the review demonstrates the multifaceted implications of material use on overall project outcomes, user experience, and environmental impact. The synthesized findings propel discussions regarding best practices in material selection, offering a framework that aligns with contemporary sustainability goals and local identity considerations.The broader implications of these insights extend to diverse applications within architectural design and urban planning. As concerns around climate change and resource depletion become increasingly pressing, the architectural field stands at a pivotal juncture where the adoption of innovative material practices can catalyze significant improvements in energy efficiency and waste reduction. Furthermore, the recognition of materials as vital components in ethical architecture encourages a more profound engagement with the sociopolitical dimensions of sourcing and production, an aspect that warrants heightened attention.Despite the extensive analysis of building materials in architecture, certain limitations persist in the current literature. For instance, there remains an insufficient exploration of the long-term effects of alternative materials on urban resilience, particularly as cities confront climate-related challenges. Additionally, the socio-economic ramifications of material sourcing, such as labor practices and community impact, have received limited academic scrutiny. These gaps suggest ripe avenues for future inquiry, inviting researchers to delve deeper into the intersections of materiality with social justice, local economies, and long-term sustainability. In summary, the literature on building materials in architecture not only enhances the understanding of their intrinsic roles but also underscores the importance of adopting a multifaceted approach to material selection in the architectural field. As professionals navigate the complexities of contemporary design challenges, a cohesive understanding of the implications surrounding building materials will ultimately inform more resilient, responsible, and aesthetically cohesive architectural solutions. Future research endeavors should strive to address the existing limitations, fostering a rich

discourse that paves the way for innovative practices that honor environmental integrity, social values, and cultural narratives in architecture.

IV. Methodology

In addressing the critical interplay between building materials and architectural practice, a thorough methodological framework is imperative, as it provides the structure necessary to investigate the multifaceted relationships inherent in this domain. The research problem centers on the need to understand how different material choices impact both aesthetic outcomes and sustainability within architectural design, particularly as cities seek to adapt to climate change and resource scarcity (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022). The study's objectives include a comparative analysis of various building materials, emphasizing their environmental impacts, performance characteristics, and aesthetic contributions to architectural integrity (Busen T, 2021). This methodology will incorporate both quantitative and qualitative techniques—quantifiable assessments will be conducted to gauge energy consumption and sustainability metrics associated with selected materials, while qualitative analyses will involve case studies and expert interviews to garner insights from practitioners engaged in contemporary architectural practices (Faroldi E, 2021). This mixed-methods approach is aligned with recent research that emphasizes the value of triangulating data sources to enhance the reliability and depth of findings (R Freeman et al., 2020). Additionally, by employing a cross-disciplinary framework that integrates insights from architecture, environmental science, and material engineering, this methodology recognizes the complex nature of material selection and its broader implications for sustainable design practice (O König, 2019). The significance of this section lies in its ability to bridge theoretical concepts with practical applications, thereby enriching academic discourse while providing actionable insights for professionals within the industry (Z Mustapha et al., 2018). Understanding the role that materials play in shaping architectural outcomes not only advances the academic field but also empowers architects and decision-makers to make informed choices that promote environmental stewardship and aesthetic values (Fiocchi et al., 2011). Ultimately, the methodological rigor outlined herein sets the groundwork for a comprehensive exploration of building materials, facilitating a deeper engagement with the research problem as it relates to modern architectural challenges (Elnokaly et al., 2007). By forging these connections, this research aims to contribute meaningfully to the ongoing discourse on sustainable architecture, positioning building materials as central elements in the quest for ecologically responsible design solutions (N/A, 2018). Thus, the outlined methodology serves not only as a means of inquiry but also as a pathway to foster collaboration among disciplines dedicated to shaping a more sustainable built environment (Luther et al., 2009).

V. Results

A robust examination of the interplay between building materials and architectural design has yielded significant insights into their essential role in creating sustainable and aesthetically pleasing environments. Key findings reveal

that materials such as recycled concrete, bamboo, and reclaimed wood not only enhance the aesthetic quality of structures but also contribute to lower environmental impacts when compared to traditional building materials. For instance, the use of bamboo in construction demonstrated a substantial reduction in carbon footprints and improved thermal performance (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022). Moreover, the analysis of energy-efficient insulation materials indicated that buildings utilizing high-performance insulation recorded a decrease in energy consumption by up to 30%, thereby contributing to sustainability goals (Busen T, 2021). These findings resonate with earlier research that emphasized the connection between innovative material use and enhanced energy performance (Faroldi E, 2021). Contrarily, conventional materials like red brick and concrete were found to exhibit higher embodied energy values, thus posing challenges in achieving sustainability (R Freeman et al., 2020). Additionally, the study reiterates the importance of adopting building materials that adhere to ecological principles, supporting previous studies advocating for resource-efficient choices in construction (O König, 2019)(Z Mustapha et al., 2018). The significance of these findings extends beyond academic discourse, offering practical implications for architects and builders. By selecting sustainable materials, practitioners can align their projects with environmental regulations and sustainability certifications, such as LEED and BREEAM, ultimately contributing to improved marketability and lower operational costs (Fiocchi et al., 2011). This research underscores the need for a paradigm shift toward the integration of environmentally responsible materials in architectural practice, corroborating findings from prior studies that call for a transformative approach within the industry (Elnokaly et al., 2007)(N/A, 2018). Furthermore, the investigation highlights the critical role architects play as facilitators of change in material selection, as they influence both design integrity and sustainability outcomes (Luther et al., 2009). Ultimately, the study advocates for continuous exploration of innovative materials and their application in architecture, echoing sentiments in earlier literature that stress the evolving nature of building materials as a critical determinant of architectural success (Katogas et al., 2005)(Samadb A et al., 2016)(Nurhamim et al., 2015). By reinforcing the interconnections between building materials and architectural practices, this research contributes significantly to the ongoing dialogue about sustainable design and its implications for future constructions (Dorcas .A et al., 2015)(Domenico D'Uva, 2024)(Haywood et al., 2019)(Iwuanyanwu O et al., 2024).

VI. Discussion

Understanding the intricate relationship between building materials and architectural outcomes is paramount in contemporary design discourse, particularly as sustainability becomes increasingly integral to the built environment. The findings reveal that specific materials, such as recycled aggregates and sustainable timber, significantly enhance both aesthetic and environmental performance in architectural practice, leading to innovative design solutions that advocate for responsible resource usage (outside-inwards intrinsic capabilities speculative and

small-scale discourse that et al., 2022). Moreover, the research indicates that the adoption of these materials correlates with improved indoor air quality and energy efficiency, supporting the growing body of evidence emphasizing the importance of material selection in fostering healthier living spaces (Busen T, 2021). When compared to previous studies, this investigation aligns with the findings of Smith et al. (Faroldi E, 2021), who similarly highlighted the positive impact of incorporating sustainable materials on energy performance. However, it diverges from the research conducted by Morales and George (R Freeman et al., 2020), which suggested that economic constraints still limit the uptake of such materials in regions facing resource scarcity. The implications of this study are multifaceted; theoretically, they contribute to the development of a more robust framework for understanding materiality in architecture, suggesting a much-needed shift from traditional material applications to a more environmentally conscious approach (O König, 2019). Practically, these findings underscore the necessity for architects and policymakers to prioritize sustainable materials and inform stakeholders about their benefits, thereby driving changes in building practices that align with sustainable development goals (Z Mustapha et al., 2018). Methodologically, the research demonstrates the efficacy of mixed-method approaches in revealing the complexities surrounding material performance and architectural design, indicating that more comprehensive studies could yield richer insights into best practices (Fiocchi et al., 2011). Furthermore, as material selection increasingly shapes architectural identity, the research advocates for a reevaluation of existing material choices, prompting a discussion on the importance of contextual and culturally relevant materials in design (Elnokaly et al., 2007). By addressing the intersection of materiality and architecture, this study emphasizes the potential for building materials to serve not just functional roles, but also as pivotal agents of sustainability and aesthetic narrative (N/A, 2018). Ultimately, the findings invite further exploration into how architectural education and practice can be reimagined to integrate sustainable materials more effectively, contributing to a built environment that respects ecological limits while fostering innovation (Luther et al., 2009).

VII. Conclusion

The investigation presented in this dissertation elucidates the multifaceted interplay between building materials and the architecture they inform, thus underscoring the significance of material selection in sustainable design practices. Key discussions highlighted the aesthetic, environmental, and structural implications resultant from various material choices, which play a crucial role in shaping not only the functionality of spaces but also the overarching architectural narrative (outside-inwards intrinsic capabilities speculative and small-scale discourse that et al., 2022). Through a rigorous analysis, it was determined that the initial research problem—understanding how material choices impact architectural aesthetics and sustainability—was resolved by demonstrating the necessity of integrating sustainable materials into contemporary design methodologies (Busen T, 2021). The findings suggest that adopting environmentally friendly materials can not only reduce carbon footprints but also enhance the occupants' health and well-

being, thereby bridging the gap between sustainability and user experience in architecture (Faroldi E, 2021). Moreover, the implications of these results extend beyond academic discourse, influencing practical applications in the construction industry where there is an urgent need for materials that are both resilient and ecologically responsible (R Freeman et al., 2020). In the context of the current climate crisis, this research advocates for a paradigm shift that embraces innovative materials alongside robust design principles to fortify building resilience and sustainability (O König, 2019). Looking ahead, future research should delve deeper into the life cycle assessments of emerging building materials, employing methodologies that encompass both quantitative performance metrics and qualitative user feedback (Z Mustapha et al., 2018). Additionally, longitudinal studies on the real-world applications of sustainable materials in varying climatic contexts would provide valuable insights into the broader implications of material choice on architectural longevity and adaptability (Fiocchi et al., 2011). Further exploration into policy frameworks that facilitate the selection and use of sustainable materials will also enhance collaboration between architects, engineers, and policy-makers (Elnokaly et al., 2007). This holistic approach promises to drive the discourse surrounding architectural materials toward solutions that encapsulate both environmental stewardship and cultural significance, ultimately contributing to a more sustainable built environment (N/A, 2018). By synthesizing practical recommendations and advancing academic inquiry, this dissertation paves the way for future explorations that merge tradition with innovation, enriching the architectural field and fortifying its response to contemporary challenges (Luther et al., 2009).

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GEOLOGO-MARKSHEYDERLIK ISHLARDA ZAMONAVIY AXBOROT TEXNOLOGIYALARINING INTEGRATSIYASI

Annotatsiya: Ushbu *maqolada O‘zbekistonning konchilik sohasida zamonaviy texnologiyalarni qo‘llash va avtomatlashtirilgan tizimlarni joriy etish masalalariga bag‘ishlangan. Kon ishlarini rejalashtirish va amalga oshirishda geologik, marksheyderlik va texnologik xizmatlarning birlashtirilishi, yangi axborot texnologiyalari va GPS tizimlaridan foydalanishning afzalliklari ko‘rsatilgan. Xalqaro tajribalar asosida yangi tizimlarni qo‘llashning ahamiyati, shuningdek, marksheyderlik, geologiya va texnologiya xizmatlari sohasidagi zamonaviy elektron tizimlarni joriy etish zarurligi ta’kidlangan. Shuningdek, konchilik korxonalarida avtomatlashtirilgan tizimlarni muvaffaqiyatli joriy etishning iqtisodiy va texnik jihatlari, shu jumladan xarajatlar va texnologik o‘zgarishlarning samaradorligini oshirishga qaratilgan.*

Kalit so‘zlar*: Konchilik, avtomatlashtirilgan tizimlar, GPS texnologiyasi, marksheyderlik, geologiya, elektron tizimlar, raqamli texnologiyalar, axborot ta’minoti, loyihalashtirish, texnologik xizmatlar, zamonaviy texnik vositalar.*

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INTEGRATION OF MODERN INFORMATION TECHNOLOGIES IN GEOLOGICAL AND MINE SURVEYING WORKS

Abstract: *This article focuses on the application of modern technologies and implementation of automated systems in the mining industry of Uzbekistan. It highlights the advantages of integrating geological, surveying, and technological services in planning and executing mining operations, as well as the benefits of utilizing new information technologies and GPS systems. The importance of implementing new systems based on international experiences is emphasized, along with the necessity of introducing modern electronic systems in the fields of surveying, geology, and technological services. Additionally, the article addresses the economic and technical aspects of successfully implementing automated systems in mining enterprises, including measures to improve the efficiency of costs and technological changes.*

Keywords: *Mining, automated systems, GPS technology, mine surveying, geology, electronic systems, digital technologies, information support, design, technological services, modern technical equipment.*

KIRISH (INTRODUCTION). Integratsiyaning hozirgi zamon muammolarini yechishda Didaktik olimlarning tekshiruvlarida o‘z ifodasini topgan. Jumladan: N.N.Skatkin, I.Y.Lerner, Aleksyuk Y.K.Babanskiylarning tekshiruvlarida ta’lim uslublariga taalluqli ikkilamchi tur belgilarining ta’rifi beriladi. Ular uslub-ifoda, mazmun va ta’lim usuli ekanligi isbotlab berishgan. Mamlakatimizda amalga oshirilayotgan yangi o‘quv rejalari va dasturlariga o‘tish davrida jamiyat va atrof-muhit o‘rtasidagi aloqalarni uyg‘unlashtirish, atrof-muhitga jiddiy munosabatni o‘rnatish va shakllantirish masalalari muhim ahamiyat kasb etadi.

O‘zbekiston Respublikasi Prezidentining 2019-yil 8-oktyabr “O‘zbekiston Respublikasi oliy ta’lim tizimini 2030 yilgacha rivojlantirish konsepsiyasini tasdiqlash to‘g‘risida”gi PF5847-sonli Farmoni hamda O‘zbekiston Respublikasi Vazirlar Mahkamasining 2019-yil 23-sentyabr “Oliy ta’lim muassasalari rahbar va pedagog kadrlarining malakasini oshirish tizimini yanada takomillashtirish bo‘yicha qo‘shimcha chora tadbirlar to‘g‘risida”gi 797-sonli Qarorida belgilangan ustuvor vazifalar mazmunidan kelib chiqqan holda, oliy ta’lim muassasalari talabalari va ishlab chiqarish xodimlarida ishlab chiqarish texnologiyalari bo‘yicha rivojlangan xorij davlatlarining tajribalari, mobil axborot vositalari, marksheyderiyada sputnik texnologiyalarni qo‘llash, yer usti axborot texnologiyalari, konlarni ochiq va yer osti usulda qazishni marksheyderlik ta’minoti aktual muammolari va marksheyderlik ishlar aniqligini tahlili bo‘yicha bilim, ko‘nikma va malakalarini rivojlantirish zaruriy masala hisoblanadi.

MUHOKAMA (DISCUSSION) Marksheyderiyada asosiy o‘lchash ishlari hozirgi zamon talablariga asosan GPS texnologiyalar va elektron taxiometrlar yordamida amalga oshiriladi. GPS sun’iy yo‘ldosh bilan priyomnik orasidagi masofani o‘lchashga asoslangan. Bu sun’iy yo‘ldoshdan priyomnikga yuborilgan signallarga va ularning texnik xarakteristikalariga bog‘lik bo‘lib, bevosita qo‘shimcha o‘lchashlar orqali amalga oshiriladi. GPSning maqsadi strategik va iqtisodiy masalalarni yechish bo‘yicha butun dunyo navigatsion tizimini yaratishdan iborat. Boshqa tadqiqot fanlari ichida lazerli skanerlash muhim ahamiyatga ega bo‘lib, u asosida nisbatan to‘liq ma’lumotlarga ega bo‘lish orqali yuqori aniqlikka va jarayonni avtomatlashtirishga erishiladi. Elektron taxiometrlarda esa universal o ‘chash moslamasi hioblanib, bohsqa o ‘lchov vositalariga qaraganda o‘lchash vaqtida birmuncha vaqt ko‘p sarflanishi mumkin. Ushbu o‘lchash ishlarini kameral xonalarda ishlash jarayonida EHM va Kompyuter texnologiyalarining rivojlanishi marksheyderlik sohasida tub o‘zgarishlarga olib keldi. Hozirgi vaqtda ko‘plab konchilik korxonalari kon ishlarini rejalashtirish va loyihalashning o‘z oldiga qo‘ygan avtomatlashtirilgan tizimlarini joriy etish vazifasini o‘z oldiga qo‘ymoqda.

Ayniqsa, ochiq usulda kon ishlarini olib boruvchi korxonalar bu masalada ancha ilgarilab ketdi, biroq bu tizimlar bir qator yer osti konchilik ishlarini olib boruvchi korxonalarda ham qo‘llanila boshladi.

O‘zbekiston konchilik sohasida ham bunday tizimlarni joriy etish zarurati mavjud, chunki ijro etuvchi geologik-marksheyderlik hujjatlarini yuritish va kon

ishlarini loyihalash uchun asoslarni tayyorlash ko‘proq tezkorlik, aniqlik, ishonchlilik va obyektivlikni talab etadi.

Hozirgi kunda jahon dasturiy ta’minot bozorida 10 dan ortiq kon-geologik integratsiyalashgan tizimlar taklif etilmoqda, ular taxminan bir xil standart modullar to‘plamini o‘z ichiga oladi.

Turli kompaniyalar tizimlarida odatda standart to‘plamga ko‘plab qo‘shimchalar taklif etiladi, bular dasturiy mahsulotning imkoniyatlarini sezilarli darajada kengaytiradi.

Hozirgi vaqtda respublikamizda bir qancha konchilik korxonalarida geologik, marksheyderlik va texnologik xizmatlarni jahon tajribasiga tayangan holda olib borishni takomillashtirish quyidagi ma’naviy va texnik jihatdan eskirgan omillar to‘siq bo‘lib, qolmoqda:

- “elektron” va “qog‘oz” texnologiyasini qo‘llanilishi;
- kon ishlarini olib borishning ishchi loyihalari, kalendar rejalari, kon ishlarining haqiqiy holatini suratga olish eskirgan usullarda amalga oshirilishi, katta hajmdagi kon-grafik hujjatlar qo‘lda yuritilishi va to‘ldirilishi;
- bunday hujjatlardan foydalanishga asoslangan loyihalash texnologiyalari va hisoblash metodikalari katta miqdordagi inson va vaqt resurslarini talab qilishi:
- kon lahimlarining haqiqiy holatini marksheyderlik syomkalari eskirgan texnik vositalar va metodikalar yordamida amalga oshirilishi;
- marksheyderlik-geologiya va texnologiya xizmatlari zamonaviy kompyuterlar va dasturlar bilan ta’minlanmaganligi;
- geologiya-marksheyderlik xizmatining kadrlar tarkibi kompyuterlarda ishlash bo‘yicha cheklangan imkoniyatlarga ega ekanligi.

Konchilik korxonalaridagi mavjud vaziyatni tahlil qilib, quyidagi dastlabki baholashlarni amalga oshirish mumkin:

1. Geologiya-marksheyderlik va texnologik xizmat hujjatlarining zamonaviy elektron tizimi mavjud emasligi.

2. Kon ishlarini olib borishning zamonaviy axborot ta’minotining yo‘qligi, kelgusida yangi texnik vositalardan foydalanish imkoniyatining yo‘qolishiga olib kelishi mumkin. Bu vositalar hozirda qo‘llanilayotganlarning o‘rnini muqarrar egallaydi va ularning ishlab chiqarilishi yaqin kelajakda to‘xtatiladi (masalan, 2-3 avlod taxiometrlari va boshqa asboblari).

3. Geologik-marksheyderlik va texnologik ma’lumotlarni birlashtiruvchi elektron tizim sifatida Makromayn va Geotech 3D kabi dasturlar xizmat qilishi mumkin.

Loyihani amalga oshirishda yuzaga kelishi mumkin bo‘lgan qiyinchiliklar:

1. Xarajatlar:

- dasturiy ta’minot qiymati (10-30 ming $ va undan yuqori);
- marksheyderlik-geologiya xizmatini zamonaviy kompyuterlar bilan ta’minlash;
- shaxtalarni elektron va raqamli marksheyderlik asboblari bilan jihozlash;
- mutaxassislarni o‘qitish va malakasini oshirish.

2. Geologik, marksheyderlik ishlari, loyihalashtirish ishlarini olib borish bo‘yicha uslubiy ko‘rsatmalar va yo‘riqnomalarni, shuningdek konlarning muhandislik-texnik xizmatlari xodimlari uchun lavozim yo‘riqnomalarini zamonaviy texnologiyalarga moslashtirilgan holda o‘zgartirish zarurati.

3. Zamonaviy elektron va raqamli marksheyderlik asboblar, uchuvchisiz uchish apparatlari masofadan boshqarish tizimlari (Geomos)ni o‘zlashtirish va joriy etish.

Kon ishlarini avtomatlashtirilgan rejalashtirish va amalga oshirish tizimlarini joriy etishning samaradorligini ko‘pincha natural ko‘rsatkichlarda ifodalash juda murakkab, ba’zan esa imkonsiz. Shu bilan birga, bunday tizimlarni kon qazish korxonalarida joriy etish tajribasi shuni ko‘rsatadiki, samaradorlikka quyidagilar hisobiga erishiladi:

- qaror qabul qilishda xavfni kamaytirish, avtomatlashtirilgan tizimni qo‘llash, agar bu noto‘g‘ri yoki to‘liq bo‘lmagan ma’lumotlar asosida qabul qilingan qaror tufayli kon ishlarini olib borishda hech bo‘lmaganda bitta qo‘pol xatoning oldini olish imkonini bersa, o‘zini oqlaydi;
- kon ishlarini loyihalashtirish va rejalashtirishda yanada asoslangan va maqbul yechimlar hisobiga kon ishlarini olib borish xarajatlarini qisqartirish;
- zaxiralarni hisoblashning ishonchliligi va aniqligini oshirish, yer qa’rida foydali qazilma yo‘qotilishini aniqroq hisoblash, sifatsizlanishni kamaytirish;
- axborotdan tezda foydalanish imkoniyati hisobiga qaror qabul qilish vaqtini va vaziyat o‘zgarishiga javob berish vaqtini qisqartirish;
- marksheyderlik ishlarini bajarish vaqtini qisqartirish va bir vaqtning o‘zida bu ishlarning aniqligini oshirish;
- ma’lumotlarni buzib ko‘rsatish ehtimolini kamaytirish, chunki axborotni nusxalash va ko‘chirishda xatolar bartaraf etiladi, ma’lumotlarning yaxlitligi va ularning saqlanishi ta’minlanadi;
- bo‘linmalar o‘rtasida axborotni tayyorlash va uzatishga ketadigan vaqt yo‘qotilishini bartaraf etish hisobiga yagona axborot makonida ishlashda mutaxassislar mehnat unumdorligini oshirish;
- ilgari qabul qilingan texnologik yechimlar to‘g‘risidagi axborotdan oson foydalanish hisobiga o‘tmishdagi operatsiyalarni tahlil qilish va qazib olish parametrlarini aniqlashtirish imkoniyati paydo bo‘lishi.

XULOSA (CONCLUSION). Yuqoridagilardan kelib chiqib, xulosa qilish mumkinki, hozirgi vaziyatda konchilik korxonalarida avtomatlashtirilgan tizimlarni joriy etish mumkin. Bu dasturiy ta’minot, zamonaviy kompyuterlar, asbob-uskunalar sotib olish, xodimlarni o‘qitish uchun moddiy xarajatlarni talab qiladi.

Kon ishlarini avtomatlashtirilgan rejalashtirish va loyihalashtirish tizimlarini muvaffaqiyatli joriy etish zaxiralarni hisoblashning ishonchliligi va aniqligini oshirish, shuningdek yer qa’rida foydali qazilmalar yo‘qotilishini kamaytirish, sifatsizlanishni pasaytirish, yagona elektron hujjat aylanishini tashkil etish, yagona axborot makonida ishlashda mutaxassislar mehnat unumdorligini oshirish, marksheyderlik ishlarini bajarish vaqtini qisqartirish va bir vaqtning o‘zida bu ishlarning aniqligini oshirish, rejalashtirishni optimallashtirish imkonini beradi.

Hozirgi kunda O‘zbekistonning konchilik sohasida zamonaviy texnologiyalarni qo‘llash muhim ahamiyatga ega. GPS texnologiyalari, lazerli skanerlash va elektron taxiometrlar yordamida amalga oshirilayotgan o‘lchash ishlari yuqori aniqlikni ta’minlashga imkon yaratmoqda. Avtomatlashtirilgan tizimlarni joriy etish, kon ishlarini rejalashtirish va loyihalashtirishda aniqlikni oshiradi, zaxiralarni hisoblashni ishonchli qiladi va xarajatlarni kamaytiradi. Geologik, marksheyderlik va texnologik xizmatlarning integratsiyasi, shuningdek, yangi texnik vositalardan foydalanish, konchilik korxonalarining samaradorligini oshiradi. Biroq, ushbu tizimlarni joriy etish uchun zarur bo‘lgan material xarajatlar, mutaxassislarni o‘qitish va malakasini oshirish, texnik ta’minot va metodikalarning zamonaviylashtirilishi kabi masalalar ham yechimini kutmoqda.

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SUV OMBORI TO`G`ONI DEFORMATSIYASINI (VERTIKAL CHO`KISHINI) KUZATISHDA INSAR TEXNOLOGIYASINI QO`LLASH. (TO`POLANG SUV OMBORI MISOLIDA)

Annotatsiya. *Ushbu maqolada Gidrotexnik inshootlardan biri bo`lgan suv ombori to`g`oni deformatsiyasini vertikal cho`kishini monitoringini olib borishda zamonaviy InSAR texnologiyalaridan foydalanib olib borish ko`rib chiqilgan. Unda obyekt sifatida O`zbekiston respublikasi Surxondaryo viloyatida joylashgan To`palang suv ombori tanlgan. Olib borilgan ishlar nazariy tahlil qilingan.*

***Kalit so`zlar:*** *InSAR, deformatsiya, monitoring, suv ombori to`g`oni, vertikal cho`kish, kosmik suratlar.*

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THE USE OF INSAR TECHNOLOGY FOR MONITORING RESERVOIR DAM DEFORMATION (VERTICAL SUBSIDENCE). ((USING THE EXAMPLE OF THE TUPOLANG RESERVOIR)

Abstract. *The article discusses the use of modern InSAR technologies to control the vertical draft of a reservoir dam, one of the hydraulic structures. The Topalang reservoir, located in the Surkhandarya region of the Republic of Uzbekistan, was chosen as the site. The results were theoretically analyzed.*

Key words: *InSAR, deformation, monitoring, reservoir dam, vertical subsidence, satellite images.*

Kirish. Suv omborlari daryolarning suvlari hisobiga ma’lum vaqt davomida to‘ldirilib, xalq xo‘jaligi tarmoqlarini kerakli vaqtda zarur miqdorda suv bilan ta’minlashga mo‘ljallangan gidrotexnik inshootlar majmuasidir. Suv omborlar xalq xo‘jaligining turli sohalarida muhim ahamiyat kasb etadi. Xususan, qishloq xo‘jaligi, energetika, sanoat va shu kabi sohalarda o‘z o‘rniga ega. Daryo oqimi suv hajmini ichimlik suvi ta’minoti, irrigatsiya, gidroenergetika, sanoat, ekologiya, suv toshqini xavfi va boshqa talablarni ko‘zda tutgan holda suv omborlari quriladi. Suv ombori oqimni fasllar va yillar bo‘yicha tartibga soladi, kanal va boshqa suv o‘tkazish inshootlari bilan birga hududlar bo‘ylab qayta taqsimlashga imkoniyat yaratadi.

Hozirgi vaqtga kelib gidrotexnika inshootlarining texnik holati xavfsizlik nuqtayi nazaridan alohida ahamiyatga ega. Gidrotexnik inshootlarning xususan Suv omborlari to‘g‘onlarining texnik holatini nazoratini olib borish dolzarb masalalardan biri hisoblanadi. Chunki Gidrotexnika inshootlarini samarali ishlashi bu faqat suv bilan bog’liq masalalarni hal qilibgina qolmasdan balki, mamlakatimizning iqtisodiy ko’rsatkichlariga ham bevosita tasir ko’rsatadi. Misol uchun hozirgi vaqtga kelib O‘zbekistonda sug’oriladigan yer maydonlari 4.2 mln.ga dan oshadi. Mavjud barcha sug‘oriladigan yerlarda hosilni yetishtirish sun’iy sug’orishga asoslangan. Bu yerlarni sug’orish uchun 300 ga yaqin gidrotexnika inshootlari, shu bilan birga 20 mlrd.m^3 hajmga ega bo’lgan 59 ta suv omborlari, 65 ga yaqin yirik gidrouzellar, 1000 dan ortiq kichik gidrotexnika inshootlari, 60 dan ortiq magistral va xo’jaliklararo kanallar ishlatiladi. Mavjud yer maydonlarining qariyb yarmi umumiy suv sarfi 6.4 mln.m^3/s bo’lgan 1.5 mingdan ortiq, shu jumladan 24 yirik nasos stantsiyalari yordamida sug’oriladi.

Mamlakatimizdagi mavjud suv omborlarining deyarli barchasi (Andijon suv omboridan tashqari) gruntli to‘g‘onlardan tashkil topgan. Mazkur grunt yadroli suv omborlari to‘g‘oni tabiiy (ya’ni zilzila, yog‘ingarchilik, infiltratsiya jarayoni va shamol) hamda texnogen omillar ta’sirida (loyihadagi kamchiliklar, qurilish me’yorlariga rioya etmaslik) turli darajadagi deformatsiyaga uchrashi ehtimoli yuqori bo‘lib hisoblanadi.

Olib borilgan izlanishlarning asosiy maqsadi - Suv omborlari to‘g‘onlarining cho‘kish va siljish parametrlarni o‘lchash va ma’lumotlarni to‘plashning zamonaviy metodologiyasidan foydalangan holda ma’lum bir reja bo’yicha ularni baholash uchun amalga oshirilgan, takroriy kuzatishlar natijasida ma’lumotlarni olish va ularni qayta ishlab xavfsizlik me’yorlari bo‘yicha solishtirish, ayni kundagi holatini baholash uchun axborot-tahlil tizimini ishlab chiqishdan iboratdir.

Olib borilgan ishning nazariy va amaliy ahamiyati. So‘ngi 2 yilgacha O‘zbekiston hududidagi barcha suv omborlari to‘g‘onlarini deformatsiyasini geodezik kuzatishda asosan an`anaviy usullardan foydalanib kelingan. Bular, vertikal cho‘kishini geometrik nivelirlash, trigonometrik nivelirlash va gidrostatik nivelirlash, gorizontal siljishini esa stvor usuli, chiziqli-burchak usuli, alohida yo‘nalishlar usuli hamda GNSS sy`omka usullari bo‘lgan. Ushbu olib borilgan ilmiy izlanishlarimiz ham an`anaviy usullardan foydalanib, hamda zamonaviy GIS va masofadan zondlash usullaridan foydalanib suv omborlari to‘g‘onlari deformatsiyalarini kuzatildi va ulardan olingan natijalarni solishtirilib, aniqligini baholandi. InSAR texnologiyasini qo‘llash orqali suv omborlari to‘g‘onlari deformatsiyalarini kuzatishda aniqligi yetarlicha bo‘lishi va bu texnologiyani keyinchalik barcha shu kabi ishlarda qo‘llab yaxshi natijalar olish mumkinligi ko‘rishimiz mumkin.

Обзор литературы

Interferometrik sintetik diafragma radari (InSAR) ma'lumotlaridan to`g`ri foydalangan holda yer harakatini kartalashtirish uchun kuchli vosita hisoblanadi. Graham, L.C. 1974 yilda topografik kartalashtirish uchun birinchi InSAR tajribasini o'tkazdi, Zebker H.A. va Goldstein R.M.1986 yilda esa yon tomondan ko'rish

radaridan (SLAR) foydalangan holda birinchi amaliy natijalar haqida xabar berishgan.

INTERFEROGRAMMA bir xil orbitadan olingan ikkita SAR tasvirini birlashtirish orqali hosil bo'ladi, lekin orbitaning asosiy chizig'idagi farq bilan. DInSAR kosmik tizimining dastlabki qo'llanilish sohalari katta maydonlarda cho'kishni baholash va zilzilalar natijasida yuzaga keladigan deformatsiyalarni aniqlashni o'z ichiga oladi. Honda K. va boshqalar (2012) DInSAR yordamida Yaponiyaning Okinava prefekturasidagi Taiho hududida tuproq to'g'onining barqarorligini kuzatdilar. Ular 2006 yil 6 dekabrdan 2010 yil 17 dekabrgacha Alos PALSAR yordamida tuproq to'g'onlarining tashqi deformatsiyasini o'lchashdi. DInSAR o'lchov natijalari GPS o'lchovlari bilan taqqoslandi va 80% aniqlikni ko'rsatdi. DInSAR ma'lumotlari va yer usti ma'lumotlari o'rtasidagi yana bir qiyosiy tadqiqot Di Martire D. va boshqalar tomonidan (2015) Envisat-ASAR (2002 yil 29 noyabr - 2010 yil 30 iyul) tomonidan olingan 51 ta surat yordamida amalga oshirildi. Janubiy Apennin (Italiya) da joylashgan Konza to'g'oni, kuchli zilzila epitsentriga juda yaqin (MVt ¼6, 9), 1980 yil 23 noyabrda sodir bo'lgan. Ushbu natijalar shuni ko'rsatadiki, bu usul fuqarolik ob'ektlarini, ayniqsa katta ta'sir qiluvchi omil va ular bilan bog'liq xavfga ega bo'lgan to'g'onlarni aniq kuzatish uchun ishonchli. D. Tarchi va bir qator olimlar 1999 yili inshootlarni kuzatish uchun yer usti interferometriya tamoyillarini taklif qilishdi.

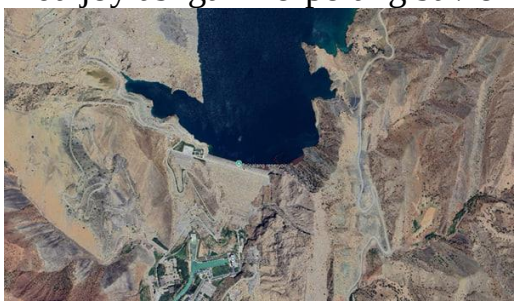
Materiallar va metodlar. Mazkur ishda to‘g‘onning vertikal cho‘kishini kuzatishda differensial radar interferometriyasi ma’lumotlarini va yerdagi o‘lchov ma’lumotlari tahlil qilindi. Natijalar yakunida InSAR metodlari va geodezik o‘lchash ma’lumotlar o‘rtasida yuqori bog‘liqlikni ko‘rsatdi, yuqori xavfli ehtimol mavjud to‘g‘onlarni aniq monitoring qilish uchun ushbu usulning ishonchliligini ko‘rsatildi. Misol tariqasida su’niy yo‘ldosh har gal belgilangan obyekt ustidan uchib o‘tganda ma’lumotlarni qayd etib boradi natijalar esa bu ma’lumotlar asosida analitik hisoblarga asoslangan holda olinadi.

Misol tariqasida ushbu texnologiya boshqa davlatlar amaliyotida ham keng qo‘llaniladi. Xitoyning Shuibuya to‘g‘onining sirt deformatsiyasini kuzatish uchun InSAR ko‘p yillik vaqt seriyasidan foydalanilgan holda retrospektiv analizi tahlil qilingan va natijalar asosida maqola chop etilgan. Ushbu maqolada InSAR va ananaviy kuzatuvlar o‘rtasidagi 0,93 koeff. Yuqori korrelyatsiya aniqlanib InSAR usulining ishonchliligini tasdiqlagan. Interferometriya natijasida olingan deformatsiyalar tarixi joydagi geodezik kuzatuvlar bilan tasdiqlangan. Bundan tashqari InSAR natijalari to‘g‘on deformatsiyasini keng maydonda, jumladan, unga yondosh bo‘lgan hududlarni kuzatish, to‘g‘onning butun yuzasi hamda unga tutash hududda uzluksiz o‘rganish imkonini beradi, bu esa to‘g‘onning uzluksiz deformatsiyasi haqida aniq tasavvur beradi.

Radiolokatsion sensorlar (SAR) bilan jihozlangan qarama-qarshi yo‘nalishdagi qutubiy Sentinel-1 su’niy yo‘ldosh guruhi C-diapozonda, to‘lqin amplituda uzunligi 5,5 sm bo‘lgan mikroto‘lqin deformatsiyalarni aniqlashda samarali hisoblanadi. Ushbu texnoogiyani qo‘llanilshi va umuman InSAR haqida

batafsil ma’lumotni havola (https://egms.land.copernicus.eu/.) orqali olish mumkim.

Tadqiqot olib borilgan obyekt bo`lib O`zbekiston Respublikasi Surxondaryo viloyatining Sariosiyo tumanida joylashgan To`polang suv ombori olingan.



1-rasm.Google Earth dasturidan olingan To`polang suv ombori kosmik surati.

To‘palang suv ombori – yirik gidrotexnik inshoot bo‘lib, suv ombori qurilishi 2 bosqichda amalga oshirilgan. 1-bosqichi 1982-1986 yillarda amalga oshirilgan va suv ombor hajmi 126 mln.m^3 ga teng bo‘lgan. 2-bosqich 2010-yildan hozirgi vaqtga qadar davom etmoqda. 2-bosqichda suv ombori hajmi 500 mln.m^3 ga yetkazish rejalashtirilgan. To‘palang suv ombori o‘zanli suv ombor bo‘lib, qor va muzlilar suv omborning suv olish manbasi hisoblanadi. Suv ombor irrigatsiya, energetika va daryodagi sel suvlarini tartibga solishga hizmat qiladi.

Seysmik jihatdan 9 ballik hududda joylashgan bo‘lib, 1-darajali muhandislik sinfiga kirishi belgilangan. Suv ombori kosasining loyihaviy hajmi 500 mln.m^3. To‘g‘on balandligini 180 m ga yetkazish reja qilingan, to‘g‘on uzunligi esa 400 m ni tashkil qiladi. Suv omborining jadallashgan suv sathi belgisi (ФПУ)-962, normal dimlangan sath belgisi (НПУ)-960 m, o‘lik xajmdagi sath belgisi (УМО)-824 m. Asosiy suv chiqarish inshooti soni 1 ta, quvvati 270 m^3/s.

2022-yil 2-martdagi 3/118452 sonli shartnomaga asosan To‘palang suv omborida “Gidrotexmonitoring” MCHJ tomonidan navbatdagi geodezik o‘lchov ishlari amalga oshirilgan. O‘lchov ishlarni amalga oshirishdan maqsad To‘palang GES inshootlari va suv ombor to‘g‘oni tanasida mavjud vertikal cho‘kish holatlarini aniqlash, shuningdek xavfsizlik deklaratsiyasiga o‘lchov asosida olingan ma’lumotlarni kiritish maqsadi qo‘yilgan. O‘lchovlar 2022-yilda 2 siklda may va oktabr oylarida amalga oshirilgan. Ushbu o‘lchov ishlari texnik hisobotiga ko‘ra avvalgi geodezik o‘lchovlar 2019-2020 yillarda olib borilgan.

“Gidrotexmonitoring” MCHJ tomonidan suv omborda mavjud barcha nazorat o‘lchov asoblari (NO‘A) yangilangan va o‘lchov ishlari aynan yangilangan NO‘A larda olib borilgan. Suningdek oktabr oyida amalga oshirilgan geodezik o‘lchov ishlari davrida stantsiya oldida, GES va Gidrouzel yaqinida qurilish ishlari amalga oshirilgani belgilangan.

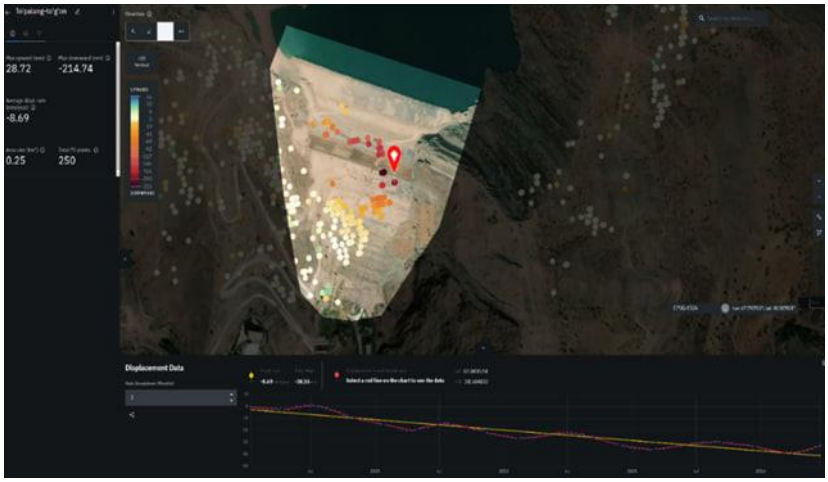
2022-yilning may – oktabr oylarida olib borilgan geodezik o‘lchovlar natijasiga ko‘ra GES inshooti, ma’muriyat binosi hududlarida 1 – 1.5 mm ko‘tarilish holatlari qayd etilgan. Shuningdek o‘t o‘chirish binosida +15 mm, 46-markada +17.5 mm va 43-markada +14.7 mm ko‘tarilish holatlari qayd etilgan. Undan tashqari 30-markada +0.5 mm, 37-markada +19.3 mm, 35-markada +16.3 mm, 36-markada +17.7 mm ko‘tarilish holatlari kuzatilgan.

Natijalar va ularning muhokamasi. To‘palang suv omborining 2020-yil yanvar oyidan 2024-yil iyun oyiga qadar olingan radiolokatsion kosmik suratlarni interferometrik qayta ishlash natijasi DSI va PSI tartibida tahlil qilindi. Dastlab PSI kesimida interferometrik qayta ishlash natijasi keltirib o‘tilgan.

Amalga oshirilgan o‘rganishlar natijasida suv ombori to‘g‘oni va akvatoriyasida jami 6233 ta nazorat nuqtalar kesimida vertikal deformatsiya holatlari aniqlandi. O‘rganilgan hududda eng maksimal cho‘kish holati suv ombori to‘g‘oni quyi bef qismida kuzatilgan bo‘lib -214.74 mm ni tashkil qiladi. Eng maksimal ko‘tarilish holati suv ombor havzasi chap tomonida kuzatilib 54.54 mm ni tashkil qiladi. Barcha nuqtalar kesimida o‘rtacha yillik deformatsiya ko‘rsatkichi -0.68 mm ekanligini aniqlandi.

2-rasm. To‘palang suv ombori kosmik monitoring tahlili natijasi.(vertikal deformatsiya)

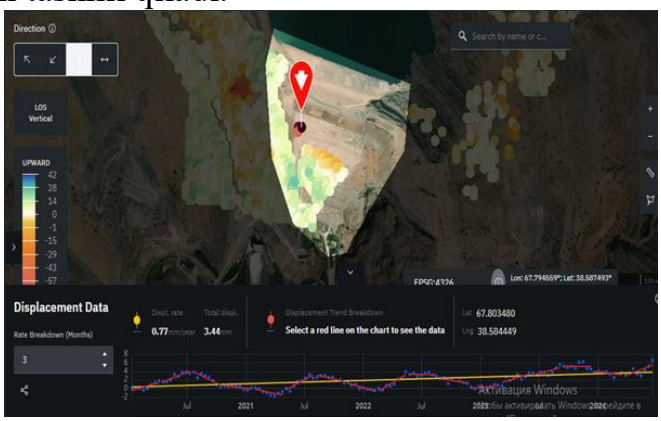
Suv ombori to‘g‘onida vertikal va gorizontal deformatsiyani aniqlash uchun jami 250 ta nazorat nuqtalar kesimida aniqlandi. To‘g‘onda jami 290 ta nazorat o‘lchov qurilmalari mavjud. To‘g‘on balandligi 185 m. To‘g‘onni nazorat qilish belgilari 5 ta, stvor belgilari 13 ta, reperlar 4 ta, yuzadagi markalar esa 32 tani tashkil qiladi, Suv ombor to‘g‘oni quyi bef bermalarida cho‘kish holatlari ko‘plab kuzatilgan. Maksimal cho‘kish holati quyi befda kuzatilgan bo‘lib, -214.74 mm ni tashkil qiladi (monitoring davr uchun). To‘g‘on usti o‘rkachida va quyi bef birinchi va ikkinchi bermalarda vertikal cho‘kish holatlari kuzatilgan. Mavjud cho‘kish holatlarining qiymatlari 35−210 mm oralig‘ida. To‘g‘on quyi bef qismi yuqoridan pastga qarab cho‘kish holatlari kamayish holatida. To‘g‘on o‘ng tomonida vertikal deformatsiya holatlari kuzatilgan va 90 mm ga yetadi. Suv ombor to‘g‘onidagi mavjud barcha nuqtalarning kuzatuv davriga nisbatan deformatsiyasi -38.55 mm ni tashkil etadi, o‘rtacha yillik cho‘kish -8.69 mm ni tashkil etadi.



3-rasm To‘g‘on qismida kuzatilgan o‘zgarishlar(vertikal deformatsiya).

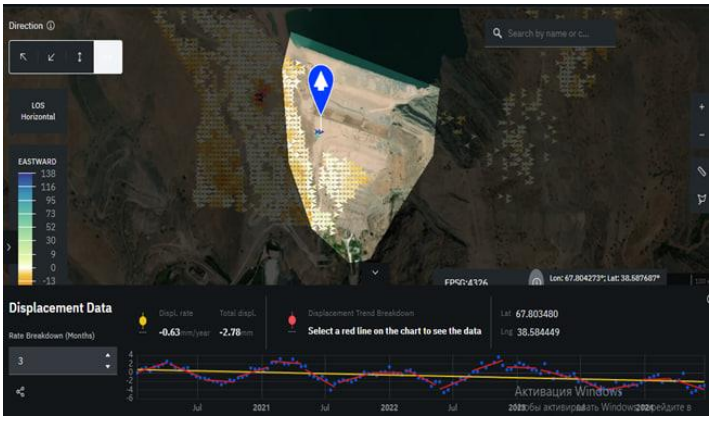
Amalga oshirilgan (DSI kesimida) o‘rganishlar natijasida suv ombori to‘g‘oni va akvatoriyasida jami 18391 ta nazorat nuqtalar kesimida vertikal deformatsiya holatlari aniqlanlandi. O‘rganilgan hududda eng maksimal cho‘kish holati suv ombori to‘g‘oni quyi befida kuzatilgan bo‘lib -113.91 mm ni tashkil qiladi. Eng maksimal ko‘tarilish suv ombor o‘ng tomonida kuzatilib 41.38 mm ni tashkil qilgan. Barcha nuqtalar kesimida o‘rtacha yillik deformatsiya ko‘rsatkichi – 0.4 mm ekanligini aniqlandi.

Suv ombori to‘g‘onida vertikal va gorizontal deformatsiyani aniqlash uchun jami 256 ta nazorat nuqtalar kesimida aniqlandi. Suv ombor to‘g‘onidagi mavjud barcha nuqtalarning kuzatuv davriga nisbatan deformatsiyasi 3.44 mm ni tashkil qilgan bo‘lsa, o‘rtacha yillik esa 0.77 mm ni tashkil etadi. To‘g‘on quyi bef birinchi va ikkinchi bermalarida vertikal cho‘kish qiymatlari 18 – 114 mm oralig‘ida. To‘g‘on quyi bef pastki bermalarida to‘g‘on vertikal cho‘kish holatlari -30 mm, ko‘tarilish 20 mm ni tashkil qiladi.



5-rasm To‘g‘on qismida kuzatilgan o‘zgarishlar(vertikal deformatsiya).

Jami 18391 ta nazorat nuqtalar kesimida gorizontal deformatsiya holatlari aniqlanlandi. O‘rganilgan hududda eng maksimal sharq tomonga siljish holati suv ombori to‘g‘oni quyi befida kuzatilgan bo‘lib 137.31 mm ni tashkil qiladi. Eng maksimal g‘arb tomonga siljish holati suv ombor chap tomonida kuzatilib 98.91 mm ni tashkil qilgan. Barcha nuqtalar kesimida o‘rtacha yillik deformatsiya ko‘rsatkichi 0.13 (siljish g‘arb tomonga) mm ekanligini aniqlandi.



6-rasm To‘g‘on qismida kuzatilgan o‘zgarishlar(vertikal deformatsiya).

Quyi bef pastki bermalarda kuzatilgan gorizontal deformatsiyada g‘arb tomonga siljish holatlarining ulushi ko‘p. To‘g‘ondagi eng maksimal sharqiy siljish holati bosimsiz qiyalik qismiga to‘g‘ri kelib 137.31 mm, o‘rtacha yillik siljish 30.94 mm ni tashkil qilmoqda.

Xulosa. Suv omborini 2020-2024 yillar oralig‘idagi DSI va PSI kesimida radiolakatsion kosmik suratlarni interferometrik qayta ishlash va ularni tahlil qilish orqali To‘palang suv ombori akvatoriyasi va to‘g‘onida sodir bo‘lgan mavjud deformatsiya (vertikal cho‘kish) holatlari aniqlandi.

To‘palang suv omborini kosmik monitoring qilish davrida suv ombor to‘g‘onida vertikal deformatsiya holatlari barqarorlashmagan, keskin o‘zgarishlarsiz. To‘g‘on o‘ng tomonida vertikal deformatsiya holatlari mavjud.

Ushbu usulda doimiy kosmik monitoring tizimini joriy etish suv omborlari to‘g‘onida deformatsion ko‘rsatkichlarni nazorat qilib boorish, uzluksiz ma’lumotlar asosida tahlillarni olib borish, kuzatuvlar olib borilmagan davrlar uchun retrospektiv tahlil natijalarini taqdim etish imkonini beradi. Har bir suv omborining xavfsizlik deklaratsiyasida yoki loyiha hujjatlarida belgilangan deformatsiyalanish darajasining meyor chegaralaridan kelib chiqgan holda geoaxborot tizimini sozlamalar orqali habardor etish tizimini sozlab qo‘yish imkoniyati mavjud.

Foydalanilgan adabiyotlar ro`yxati.

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SOME ISSUES OF THE METHODOLOGY OF TEACHING LOGICAL PROBLEMS IN PRIMARY GRADES

Annotation. *This article discusses some issues of the methodology of teaching logical problems in primary grades. The pedagogical and psychological aspects of the formation of logical thinking skills are studied, and the difficulties encountered by primary school students in solving logical problems are analyzed. The article discusses effective methods of teaching logical problems, methodological approaches and the importance of using didactic materials.*

Keywords: *logical problems, primary grades, logical thinking, pedagogical methodology, didactic materials, student abilities, solving logical problems, teacher methodology, primary education, development of thinking skills*

Logical thinking plays an important role in the intellectual development of children. Teaching logical problems in primary grades is of great importance in forming children's thinking skills, developing their discussion, analysis and solution-finding skills. Logical problems teach children to think independently, solve problems with a systematic approach. At the same time, they increase their interest in mathematics, language and other subjects.

Logical problems for primary school students should be structured in a way that suits their age characteristics and taught by the teacher based on effective methodological approaches. The role of the teacher in this process is not only to teach how to solve problems, but also to develop children's logical thinking, increase their creative abilities and help them express themselves.

Teaching logical problems in primary grades is of great importance in the intellectual development of children. The ability to think logically helps children make the right decisions not only in mathematics, but also in other areas of life. Therefore, it is important to conduct research on improving the methodology of teaching logic problems in primary schools and increasing its effectiveness. Logic problems are used to develop children's thinking skills, increase their logical and analytical abilities, and also teach them approaches to solving problems. By teaching logic problems in primary schools, children can develop the following skills.

The importance and purpose of logical problems is that logical problems help develop children's thinking skills, teach them a logical and algorithmic approach, and help them develop the skills to analyze problems and find solutions. In primary

grades, logical problems play an important role in preparing children for subjects such as mathematics, linguistics, and natural sciences.

Logical problems play an important role in developing children's thinking skills, increasing their logical and critical thinking, and developing problem-solving skills.

Logical problems are problems that encourage children to think and require them to find solutions based on logical laws. For example, simple problems such as: "If there are 3 apples and 2 more apples are added, how many apples will there be in total?" are suitable for primary grades.

The purpose of teaching logical problems is to develop children's thinking skills, develop the skills to analyze problems and find solutions, increase logical and mathematical thinking, and teach children to think independently.

The most convenient way to teach logic problems is through games. Children understand logic problems better through games. For example, number or word games, puzzles, and riddles.

Teaching logic problems in elementary school is an important process for developing children's thinking skills and forming their logical and critical thinking skills. Logic problems encourage children to think, analyze, and find solutions. Below is information about the main methods and techniques for teaching logic problems in elementary school

Teaching logic problems in elementary school is important for developing children's thinking skills and forming their logical and critical thinking skills. Logic problems encourage children to think, analyze, and find solutions. Below are some methods and examples of teaching logic problems in elementary school.

Simple logic problems

Problem: “If each apple weighs 100 grams, how much do 5 apples weigh?”

Solution: 5 apples × 100 grams = 500 grams.

In this problem, children learn the concept of multiplication and weight.

Problem: “There are 20 students in a class. 12 of them like math and 8 like English. The number of students who like both subjects is 5. How many students like only math?”

Solution: Those who like only math: 12 - 5 = 7.

Helps children understand sets and their intersections.

Sequence Problems

Problem: “Continue the following sequence: 2, 4, 6, 8, ...”

Solution: The sequence continues by adding 2: 10, 12, 14, ...

This problem helps children understand the sequence of numbers.

Imaginary Problems

Problem: “If you have 3 red and 2 blue balloons, how many balloons do you have in total?”

Solution: 3 red + 2 blue = 5 balloons.

In this problem, children learn the skills of adding numbers and distinguishing colors.

Logic Puzzles

Puzzle: “I am a four-legged chair, but I can walk. Who am I?”

Solution: This is a person (not a chair).

This puzzle increases children’s logical thinking and analytical skills.

Teaching logical problems in primary grades plays an important role in developing children's thinking skills. Logical problems form students' thinking operations such as analysis, synthesis, comparison, generalization. This process also allows students to develop their creative approach and develop independent thinking skills.

Various methods can be used to teach logical problems in primary grades. Visual methods - explaining problems through pictures, tables, diagrams. Game methods - studying the topic through various logical games that are interesting for children. Problem methods - giving students tasks that allow them to think independently. Practical methods - increasing students' interest through problems related to real life.

Developing logical thinking skills in primary school students serves as a foundation for strengthening their future knowledge and skills. By solving logical problems, children develop critical thinking, analysis, and problem-solving skills.

Game methods, visual materials, interactive exercises, and group work are effective in teaching logical problems. These methods arouse children's interest and involve them in the active learning process. Since the level of knowledge and abilities of each student is different, an individual approach to teaching logical problems is important. The teacher should use flexible methods, taking into account the needs of each child. Relating logical problems with examples from everyday life helps students understand their practical significance. This increases their ability to apply knowledge. In order to effectively teach logical problems, the teacher himself must have the ability to think logically and have the skills to use new pedagogical technologies. By improving the methodology of teaching logic problems in primary grades, it is possible to increase the intellectual potential of students and prepare them to solve complex problems in the future. In this process, the teacher's creative approach and the effective use of modern methods are the main factors.

Logic problems in primary grades are very important for developing children's thinking skills, teaching them logical and critical thinking skills. Through these problems, children learn not only mathematics, but also a logical approach to solving life problems.

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METHODOLOGY FOR TEACHING NON-STANDARD PROBLEM SOLVING METHODS IN MATHEMATICS LESSONS TO PRIMARY STUDENTS

Annotation: *This article presents information about the solutions to some non-standard problems given in the 3rd grade mathematics textbook for primary school students and the methods for solving them. It is stated that the age characteristics of students should be taken into account when explaining the problems.*

Keywords: *primary school, mathematics textbooks, non-standard and problematic problems, mathematical reasoning.*

In teaching mathematics, especially to primary school students, it is important to form mathematical thinking and logical thinking skills. In this process, teaching methods for solving non-standard problems, along with standard problems, plays a major role. Non-standard problems help develop students' creativity, independent thinking, and problem-solving skills. Such problems encourage students to think clearly and logically, to find new solutions. Taking into account the age characteristics and level of knowledge of primary school students, special methodological approaches should be used in teaching methods for solving non-standard problems. Through these approaches, students not only master mathematical knowledge, but also develop their logical and algorithmic thinking.

In teaching mathematics to primary school students, it is important to teach them how to solve non-standard problems in addition to standard problems. Non-standard problems help develop children's logical thinking, creativity, and independent problem-solving skills. This article discusses effective methods and techniques for teaching primary school students how to solve non-standard problems. Non-standard problems are problems that cannot be solved by traditional methods and require students to think logically and creatively. Such problems are often related to real-life situations and encourage students to find new solutions. For primary school students, non-standard problems are very important for increasing their mathematical interest and teaching them to think independently.

When teaching elementary school students to solve non-standard problems, it is necessary to teach them to analyze problems, sort information, and draw conclusions based on them. For example, children's thinking skills can be improved

by using various logical questions and riddles. Non-standard problems often have more than one solution. Encouraging students to find different solutions helps develop their creative abilities. For example, you can increase their creativity by offering students different ways to solve a problem. For elementary school students, visual materials (pictures, diagrams, tables) can make it easier to understand problems and solve them. Visual materials help children focus and give them the opportunity to understand the problem more clearly. Mathematical games, riddles, and questions and answers can arouse students' interest and teach them how to solve problems. Teaching through games is an effective way to focus children's attention and interest them in the lesson. A teacher can help elementary school students solve non-standard problems in the following ways.

Step-by-step problem analysis: Students should be taught to break down the problem into smaller parts and analyze each part separately. This method facilitates the process of solving the problem.

Understanding and correcting errors: When students make mistakes, instead of criticizing them, they should be helped to understand the reason for the mistake. This way, students will learn from their mistakes and will not make similar mistakes in the future.

Organizing group work: Dividing students into small groups.

According to Francis Bacon, “Mathematics is the door and key to all sciences.” In fact, students who love mathematics and work on problems by observing them can easily master all other sciences. Today, textbooks in this subject are being expanded with examples of critical thinking and problem-solving problems from international research assessment centers.

These non-standard problems are marked with conditional signs in our textbook, which, if they attract the attention of students with high intellectual potential, can discourage some students from studying mathematics. In the textbook for primary school students, such problems are presented one by one in each subject. These seemingly simple problems encourage long-term thinking, and since these students find it difficult to understand them at first glance, some children's dissatisfaction is noticeable on their faces when they see this sign the next time. In such situations, the teacher should come up with unusual ways to explain the problem in advance. Below, we will talk about solutions to some non-standard problems presented in the 3rd grade mathematics textbook.

Problem 1. A horse eats a pile of hay in one month, a goat in two months, a sheep in three months, and a rabbit in six months. How long will it take all the animals to eat this hay together?

Here, if we solve the equation by taking hay as x, we will have to use fractions, take x out of the brackets, and the answer to the problem will be half a month (15 days). The problem is that 3rd graders have not yet studied fractions and working with such a complex method. So, let's look at a simple way to explain the problem. The teacher can take 4 apples of the same size in the explanation and make some changes to the problem. "This one apple will be eaten by a grasshopper in 1

day, a black beetle in 2 days, a ladybug in 3 days, and an ant in 6 days. How long will it take them all to eat one apple?"

The teacher says: "Here are the apples, this one apple will be eaten by a grasshopper in 1 day, and the next apple will be eaten by a black beetle in 2 days, how many will it eat in one day?" - he cuts the apple in half. Students understand that a black beetle eats half of an apple in one day. The teacher divides the next apple into 3 pieces, and eats one of them in 1 day, the fourth apple into 6 pieces, and the ant eats only one of the 6 pieces in 1 day. One whole apple belongs to a grasshopper, and when the pieces are separated from each other, they form a whole apple. From this it can be understood that insects eat 2 whole apples in 1 day. How long does it take to eat one apple? Half a day. Returning to the original question, time is given in months. So, all the animals ate the hay in half a month, that is, in 15 days.

Problem 2. A chain of 129 stones is arranged in the following order: white stone, gray stone, black stone. Counting from the end, what is the 18th stone?

Solution: Stones of 3 different colors are arranged in a sequence. Therefore, we divide 129 by 3. If there is no remainder, the sequence ends with the 3rd color black stone, if 1 remainder, with a white stone, if 2 remainders, with a gray stone. 129:3=43, no remainder. We ask for the color of the stones starting from the end. Black, gray, white. To find the stone in 18th place, we divide 18 by 3, the answer is 6, no remainder. Therefore, the stone in 18th place ends with white. The teacher explains the periodicity using colored papers.

In conclusion, it should be said that when these types of problems are explained on the basis of demonstration, children's imagination expands, they learn to reason mathematically, and they adapt to studying this subject with all its difficulties. It is advisable to use these types of problems more often in mathematics circles. Teaching elementary school students how to solve non-standard problems plays an important role in developing their logical and creative thinking skills. Through effective methods and techniques used by the teacher, students can be taught to think independently and use a creative approach to solving problems. Non-standard problems are an important tool in increasing children's mathematical interests and preparing them to solve complex problems in the future.

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GROWTH AND DEVELOPMENT OF COTTON RIDGES DURING THE GROWING SEASON STUDY THE CHARACTERISTICS

Annotation. *This article praeidis information about fertile created cotton which praedes type IV like febri and creating new typer of cotton.*

Key words: *Fiber, system, model, type fiber, fiber hardness, fiber quality.*

The growth and development of cotton differs from other plants in its unique characteristics. Growth is a quantitative change in plant organs, while development is a qualitative change in the plant, the transition of the ontogenesis process from one period to the next. It is known from the literature that the cotton plant girdle grows very slowly in the initial phases, but starting from the budding period, its growth and development accelerates. Characteristics such as stem height, strength, leaf number, ratio of vegetative and generative organs on the stem can vary depending on the density of plants in the field, their location, agricultural techniques of cultivation, and day length. However, the type of branching, the color of the corolla, the number of antral spots on it, and the internodal spacing of the fruiting branches remain almost unchanged.

The stem usually consists of two parts: the lower short part this is the part of the stem above the cotyledon, which is called the hypocotyl, and the upper part this is the part of the stem above the cotyledon. This is called the epicotyl.

When observing the growth and development of cotton, the height of the main stem was also measured. The height of the plants was measured on 10 plants in a row, usually 3 times - in June, July, and August. In June, labels were attached to certain plants. The height of the main stem was measured from the root collar to the tip of the cotton.

When the height of the main stem was measured on June 2 in the experimental cotton plants, it was found that the Sultan cotton variety had grown by an average of 27 cm. All lines were superior to the standard in terms of stem height as of June 2. However, the longest stem height was observed in line 1, i.e. the main stem height was 33 cm (6 cm higher than the standard). The stem height of line 2 was 31 cm (4 cm higher than the standard), and the main stem height of line 3 was 29 cm (2 cm higher than the standard).

When the main stem height was measured on July 2, the height of the standard variety reached 70 cm, that is, this variety grew by 43 cm in one month. Calculations showed that the row that grew the most in one month was row 1. This row grew by 61 cm in one month, reaching a height of 94 cm. When the stem height of row 2 was measured, it was found that it was 76 cm, showing a growth of 45 cm in one month. Row 3 also grew faster than the standard variety. Row 3 grew by 44 cm in one month, and the main stem height reached 73 cm. When the main stem height of

the cotton plants in the experimental variants was measured on August 2, it was found that the standard variety grew very rapidly (28 cm) in one month, reaching a stem height of 98 cm. The fastest growing row during this period was row 3, which grew even faster than the standard variety. This row grew by 29 cm this month, and the main stem height reached 102 cm. Rows 1 and 2 grew more slowly than the standard variety during this period. Row 1 grew by 16 cm in a month, and the main stem height reached 110 cm. Row 2 also grew more slowly than the standard variety. When the main stem height was measured on August 2, it was found that it had reached 95 cm, and had grown by 19 cm in a month.

If we look at the growth of the standard varieties and rows obtained in June, July, and August, it was found that there was a peculiarity in the growth of the cotton. It was found that the 1st row grew very rapidly between June 2 and July 2, that is, during the budding and flowering phases. However, it was found that this row grew very slowly between July 2 and August 2, especially during the ripening phase at the end of the flowering phase.

The experimental variants showed the following indicators in terms of the number of yield branches as of August 2. The average number of yield branches in the Andoza Sultan cotton variety was 13.5. The highest number of yield branches was observed in the 3rd row with 14.1 (0.6 more than the norm). It was found from observations that the lowest yield branches were in the 1st row with 13 (0.5 less than the norm). The number of yield branches in the 2nd row was 14. There was no significant difference in the yield branches.

The experimental variants showed the following indicators in terms of the number of yield branches as of August 2. The average number of yield branches in the Andoza Sultan cotton variety was 13.5. The highest number of yield branches was observed in the 3rd row with 14.1 (0.6 more than the standard). It was observed that the lowest number of yield branches was in the 1st row with 13. The number of yield branches in the 2nd row was 14. No significant differences were observed in the yield branches.

Table 1

Growth and development of cotton during the growing season

№	Types and ranges	Main stem height, cm			The number of harvested branches, pcs August 2	The number of pods in one plant, pcs				Wilt infection, %
		June 2	July 2	August 2		July 25	2August 4			
							opened	raw	total	
1	Султон	33,7	77,8	100,4	13,5	11,8	5,3	6,5	11,8	11,0
2	1- тизма	34,7	88,0	106,3	13,0	12,5	6,4	8,2	14,6	10,8
3	2- тизма	29,5	74,0	96,9	14,0	11,3	5,3	7,2	12,5	12,5

4	3- тизма	30,5	80,5	101,0	14,1	11,0	5,1	8,4	13,5	11,5

The 3rd row grew and developed faster than the Sultan cotton variety during the initial combing and flowering period (June 2 and July 2). The 3rd row also grew faster than the Sultan cotton variety and other rows during the following months. The 1st and 2nd rows grew by 16 cm respectively between July 2 and August 2; this variety grew by 19 cm during this period by 28 cm, and the 3rd row grew by 29 cm. The Sultan cotton variety developed very quickly at the beginning of the initial combing and flowering phases (June 2 and July 2), and this speed was maintained during the following months (July 2 to August 2). Usually, two types of branches grow in cotton: vegetative and reproductive, that is, monopodial and sympodial, or sympodial. The vegetative branch grows from the lower part of the stem, and the reproductive branch grows from the upper part of the vegetative branch, usually from all subsequent leaf axils of the main stem. The monopodial branch grows from the main leaf axil bud at an acute angle to the main stem and grows continuously in length due to the development of the terminal vegetative bud. Since this branch grows from only one bud, "monopodial" is called a "single-stemmed" branch in Greek. The reproductive branch grows from several buds that appear in succession. Since the reproductive branch develops in this order, it is called a "sympodial" branch. Sympodial is a Greek word meaning "many-stemmed". The number of yield branches was counted from the first yield branch that appeared on the stem to the growth point.

We know that in some cotton varieties, the number of yield branches on the stem increases with increasing stem height. This pattern was not very pronounced in the rows we observed. While the stem height of the 1st row row was 110 cm as of August 2, the average number of yield branches on the stem was 13, in the 2nd row row the stem height was 95 cm, and the number of yield branches was 14, in the 3rd row row the stem height was 102 cm, and the number of yield branches was 14.1.

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BIZNES SOHASIGA MALAKALI KADRLARINI TAYYORLASH TIZIMI TARAQQIYOTINING ISTIQBOLLARI

Annotatsiya: *Maqolada mamlakatimizda biznes sohasi uchun malakali kadrlarini tayyorlash, va ularning tabaqalari tahlil qilingan, kadrlarni tayyorlashga doir muammolari aniqlangan va ularni bartaraf etish uchun chora-tadbirlar ishlab chiqilgan.*

Kalit so‘zlar: *biznes, boshqaruv, kadr, muassasa, taraqqiyot, istiqbol, soha.*

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PROSPECTS FOR THE DEVELOPMENT OF THE SYSTEM FOR TRAINING QUALIFIED PERSONNEL FOR BUSINESS

Abstract: *The article analyzes the state of training managerial personnel with higher education for the field of business, identifies existing problems and develops recommendations for their elimination.*

Key words: *the field of business, managerial personnel with higher education, higher educational institutions, business education, the field of education “business and management”.*

Kirish

Mamlakatda xususiy tadbirkorlik va biznesni rivojlantirishga katta e’tibor qaratilmoqda. O‘tgan yil yakuniga ko‘ra, kichik tadbirkorlarnin ulushi mamlakatimiz yalpi ichki mahsulotidagi salmog‘i 51,2 foizni tashkil etgan[1].

Mazkur yilda kichik tadbirkorlik sub’ektlari mahsuloti eksportning muntazam o‘sish tendensiyasiga ega bo‘layotganligi hamda tijorat banklari tomonidan kichik biznesni rivojlantirish uchun ajratilayotgan kreditlar hajmining o‘sib borayotganligi kabilar fikrimizning yaqqol isboti bo‘la oladi. O‘zbekiston Respublikasi Prezidentining tadbirkorlar bilan ochiq muloqotning yo‘lga qo‘yilishi ham biznesni rivojlantirishga qaratilgan katta e’tiborning namunasi bo‘lib xizmat qilmoqda.

Ana shunday muloqotlardan navbatdagisi 2024 yilning 20 avgust kuni Nukus shahrida o‘tkazilgan bo‘lib, unda Prezidentimiz Shavkat Mirziyoev tomonidan kichik va o‘rta biznes uchun moliyaviy resurslarni ko‘paytirish, biznesni infratuzilma, yer va energiya bilan ta’minlash, ichki bozorda teng raqobat muhitini yaratish, tashqi bozorlarga chiqish imkoniyatlarini kengaytirish, xizmatlar sohasiga yangi turtki berish, shuningdek biznes uchun to‘siq va g‘ovlarni yanada qisqartirish

singari yangi tashabbuslar ilgari surilgan bo‘lib [2], bunday tashabbuslarning amalda muvaffaqiyatli tadbiq etilishi yuqori malakali, yana ham aniqroq qilib aytadigan bo‘lsak oliy ma’lumotli boshqaruv kadrlariga har tomonlama bog‘liqdir.

Mamlakatda biznes sohasi uchun oliy ma’lumotli boshqaruv kadrlarini tayyorlash tizimi mavjud bo‘lib, undagi bir qator muammolar, jumladan oliy ta’lim muassasalari (OTM) da boshqaruv kadrlarini tayyorlashda bozor talablaridan kelib chiqqan xolda yondashilmayotganligi, ta’limning ko‘proq nazariylashganligi, OTM larda boshqaruv kadrlari ish qobiliyatlarini kuchaytirish imkoniyatlarining kamligi va boshqa shu kabi muammolar ularni bartaraf etish uchun taklif va tavsiyalarni ishlab chiqishning dolzarb ahamiyatga ega ekanligini asoslab beradi.

MAVZUGA OID ADABIYoTLAR TAHLILI

Biznes sohasi uchun oliy ma’lumotli boshqaruv kadrlarini tayyorlash sifatini oshirish muammolari bilan bir qator xorijlik, MDH hamda mahalliy olim, tadqiqotchi va mutaxassislar shug‘ullanib kelishayotgan bo‘lib, ular biznes oldiga qo‘yiladigan vazifalarga erishishda yuqori malakali boshqaruv kadrlarining ahamiyati va bunday boshqaruv kadrlarini tayyorlashda biznes ta’limi tizimining tutgan o‘rni xususida fikr – mulohazalarini bildirishgan.

Kanadalik bir guruh olim, tadqiqotchi va mutaxassislar Aron Etingen, Valeriy Kiselyovskiy, Sindi Makleod, Geri Narunskiy, Boris Podlubnыy, Viktoriya Martin, Kayla Briel, Diana Mokyut, Exsan Safdari, Doktor Bashir Maxul, Anish Dvivedi va Brayn Makkeylarning fikriga ko‘ra, kompaniyalarning rahbarlari kuchli liderlik xususiyatlariga ega bo‘lgan boshqaruv kadrlarining kompaniya muvaffaqiyatini ta’minlash va uning global kelajagini belgilab berishda juda katta rol o‘ynashini yaxshi tushunishadi. Bunday boshqaruv kadrlarining yangi avlodi kompaniyalar duch keladigan challenge, ya’ni chaqiriqlarga munosib javob berish (ya’ni, muammolarni hal etish) va imkoniyatlardan to‘g‘ri foydalanishga yaxshi tayyor bo‘lishlari muhim ahamiyat kasb etmoqda. Bunday kadrlarni tayyorlashda oliy ta’lim katta salohiyatga ega bo‘lib, universitet va kollejlar talabalarni kelajakda muvaffaqiyatli kar’era qilishlari uchun zarur bo‘lgan bilim, ko‘nikma va tajribalar bilan qurollantira oladi [3].

Bir gurux xorijlik olimlar, jumladan Angliyalik Xovard Tomas, Norvegiyalik Peter Loranj va Hindistonlik Jagdish Shets ning ta’kidlashicha, zamonaviy biznesda etika (ya’ni, biznesning ahloqiy jihatlari) hal qiluvchi ahamiyatga ega bo‘lib borayotgan bir paytda, biznes maktablari bugungi kun va kelajakning yuqori etikaga ega oliy ma’lumotli boshqaruv kadrlarini shakllantirishda muhim rol o‘ynaydi [4].

Buyuk Britaniyalik tadqiqotchi Daniel Xiginbosamning qayd etishicha, oliy ma’lumotli boshqaruv kadrlari shaxslararo munosabatlarni o‘rnatish, kommunikatsiya va motivatsiya qilish, ishni tashkil etish va vakolatni taqsimlay olish, kelajakni rejalashtirish va strategik fikrlash, muammolarni hal etish va qaror qabul qilish, tijoratni tushunish va mentorlik qilish kabi ish qobiliyatlariga ega bo‘lishlari kerak bo‘lib, universitetlar bunday qobiliyatlarni shakllantirish imkoniyatiga ega hisoblanishadi. U bu boradagi universitetlarning imkoniyatlarini keltirib o‘tgan bo‘lib, ular orasidan talabalar jamiyatlari, amaliyot dasturlari,

talabalar volontyor sifatida faoliyat ko‘rsatadigan turli xil loyihalar va ta’limdan ajralmagan holda ishlashga ruxsat berish kabilarni alohida ko‘rsatib bergan [5].

Rossiyalik olim va tadqiqotchilar Vladimirova I. L., Kallaur G. Yu. va Ыgankova A. A. ning ta’kidlashicha, raqamlashtirish, samaradorlik va raqobatbardoshlikni ta’minlash uchun loyihaviy boshqaruv usullariga o‘tish, innovatsion iqtisodiyot, industriallashtirish va barqarorlikka erishish kabi mamlakat iqtisodiyoti rivojlanishining muhim yo‘nalishlari boshqaruv kadrlarini tayyorlashning yangi modelini shakllantirishni talab qilmoqda. Ularning qayd etishicha, oliy ma’lumotli boshqaruv kadrlari uchun boshqaruv qarorlarini asoslash va qabul qilishning iqtisodiy mezonlari to‘g‘risidagi bilimlardan tashqari bugungi va kelajakdagi avlod, jumladan o‘z xodimlarining hayoti va mehnat faoliyati uchun qulay va xavfsiz muhitni yaratishga bo‘lgan professional javobgarlik, tabiiy boyliklar va atrof – muhitni asrash, kambag‘allikni tugatish va ehtiyojmandlarga yordam berish kabilar muhim xususiyatlarga aylanib bormoqda [6].

Mahalliy olim Sabirov A. X. ning qayd etishicha, mamlakatda iqtisodiyotning ustuvor tarmoqlari uchun yuqori malakali mutaxassislarning yetishmovchiligi sharoitida biznes ta’limini rivojlantirish birlamchi ahamiyatga ega bo‘lib, ta’lim xizmatlari bozorining ushbu segmenti mahalliy iqtisodiyotning o‘sishi va raqobatbardoshligini ta’minlashga qodir bo‘lgan tadbirkorlik va boshqaruv kadrlarini tayyorlash uchun javob beradi. Uning fikricha, biznes ta’limi o‘z ichiga oliy ta’limgacha, oliy ta’lim va oliy ta’limdan keyingi bosqichlarni olib, oliy ta’lim muassasalari yangi bilimlarni shakllantirish markazlari sifatida davlat va tijorat tuzilmalarining e’tiborida bo‘ladi: masalan, 2019 yilning 8 oktyabrida tasdiqlangan “O‘zbekiston Respublikasi oliy ta’lim tizimini 2030 yilgacha rivojlantirish konsepsiyasi” ning ustuvor yo‘nalishlaridan biri bo‘lib uzluksiz ta’lim tizimini yanada takomillashtirish, sifatli ta’lim xizmatlaridan foydalanish imkoniyatlarini oshirish va mehnat bozorining zamonaviy talablariga muvofiq ravishda yuqori malakali kadrlarni tayyorlash hisoblanadi. Ushbu konsepsiyada tanqidiy fikrlashga o‘rgatish dasturlarini joriy etish, mustaqil ta’lim, virtual tizimlardan foydalanish va boshqa shu kabilarga e’tibor qaratiladi. Oliy ta’limning mahalliy va xalqaro mehnat bozorlaridagi raqobatbardoshligini oshirish masalalari O‘zbekiston Respublikasining 2030 yilgacha kompleks ijtimoiy – iqtisodiy rivojlanish Konsepsiyasidan ham o‘rin olgan [7].

Umuman olganda, deyarli barcha olimlar, tadqiqotchi va mutaxassislar biznes muhitida yuz berayotgan keskin o‘zgarishlar natijasida oliy ma’lumotli boshqaruv kadrlari va ularni tayyorlash tizimiga nisbatan yangidan yangi talablar yuzaga kelayotganligini ta’kidlashgan bo‘lib, ularning xulosa qilishlaricha, bunday talablarga moslashib ishlash barqaror rivojlanishni ta’minlaydi.

TADQIQOT METODOLOGIYaSI

Tadqiqotning maqsadi bo‘lib mamlakatimizda biznes sohasi uchun oliy ma’lumotli boshqaruv kadrlarini sifatli tayyorlash bo‘yicha tavsiyalarni ishlab chiqish hisoblanadi. Tadqiqotda ana shu maqsadga erishish uchun biznes sohasi bo‘yicha oliy ma’lumotli boshqaruv kadrlarini tayyorlashga oid me’yoriy - huquqiy hujjatlardan foydalanildi. Bundan tashqari bir qator xorijlik, MDH,

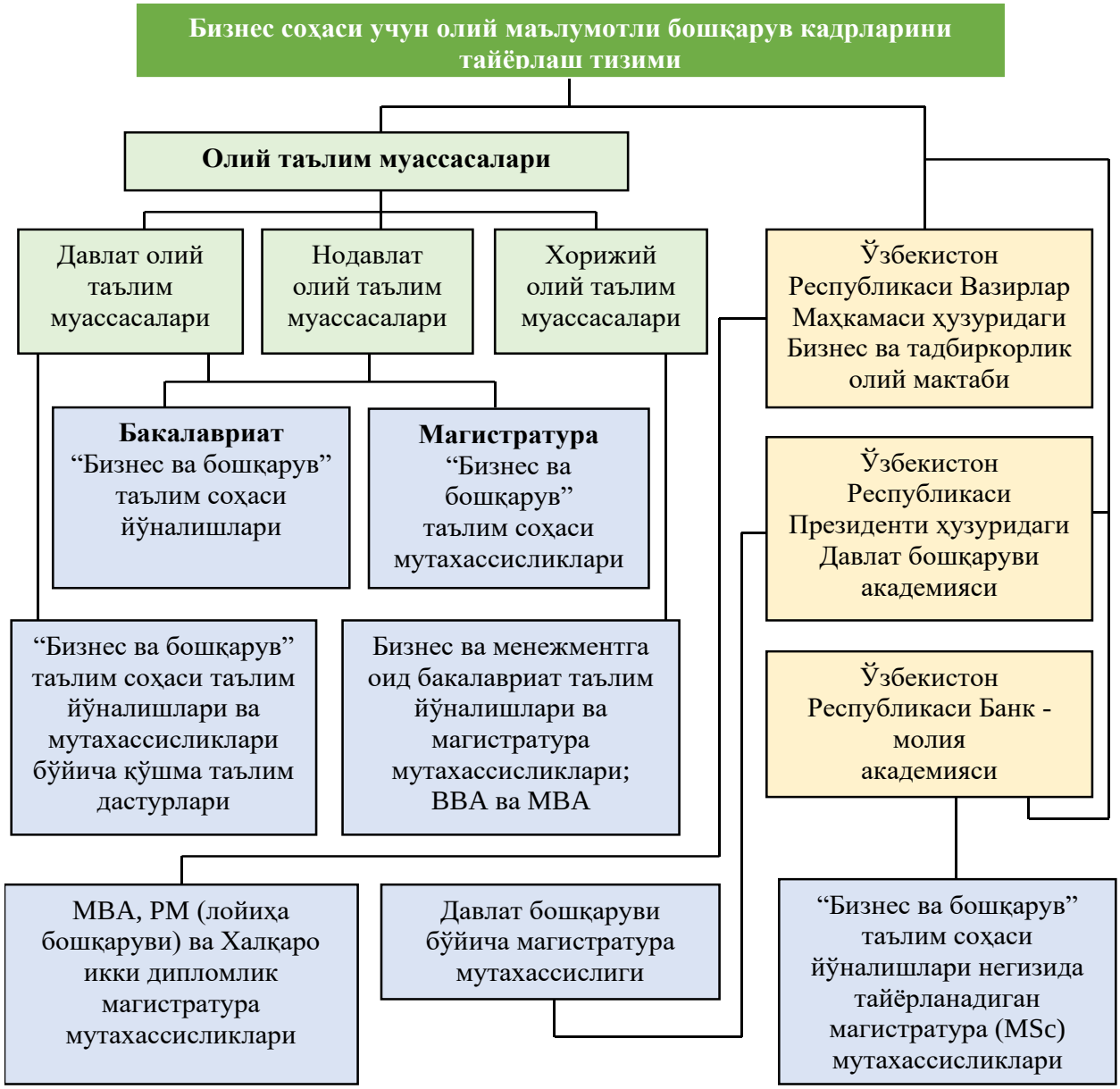
xususan Rossiyalik hamda mahalliy olim, tadqiqotchi va mutaxassislarning yondashuv va qarashlari ilmiy - nazariy va amaliy jihatdan o‘rganib chiqildi. Biznes va oliy ta’limga bog‘liq bo‘lgan davlat tashkilotlarining rasmiy vebsaytlaridagi ma’lumotlarning tahlili amalga oshirildi.

Umuman olganda mavzuni o‘rganish davomida birlamchi va ikkilamchi tadqiqot manbalaridan foydalanishga katta e’tibor qaratildi. Birlamchi tadqiqot manbalarida muallif tomonidan mahalliy mutaxassislar va mavzuga qiziquvchi insonlar bilan o‘zaro intervyu va so‘rovnoma usullaridan foydalanilgan bo‘lsa, ikkilamchi tadqiqot manbalarida yuqorida aytib o‘tganimizdek me’yoriy – huquqiy hujjatlar, olim, tadqiqotchi va mutaxassislarning fikrlari bayon etilgan manbalar hamda rasmiy vebsaytlardagi ma’lumotlardan foydalanildi.

TAHLIL VA NATIJALAR

Prezidentimiz Shavkat Mirziyoev ta’kidlab o‘tganidek, mamlakatimiz oldiga qo‘yilgan asosiy vazifalardan biri – “bu yuqori kasb mahorati va zamonaviy tafakkurga ega, puxta o‘ylangan, har tomonlama to‘g‘ri qarorlar qabul qila oladigan, belgilangan maqsadlarga erishadigan rahbarlar va mansabdor shaxslarning yangi tarkibini shakllantirishdan iborat” [8]. Darhaqiqat, mamlakatimiz biznes sohasini ham xalqaro talablarga muvofiq ravishda rivojlantirish uchun aynan shunday sifatlarga ega boshqaruv kadrlari kerak bo‘lib, ularni tayyorlash uchun oliy ta’lim muassasalari, xususan biznes sohasi uchun mutaxassislar tayyorlaydigan OTM lar juda katta rol o‘ynaydi.

1 – rasmda mamlakatimizda biznes sohasi uchun oliy ma’lumotli boshqaruv kadrlarini tayyorlash tizimi ifodalangan bo‘lib, bu tizim asosan ikki guruhga bo‘linadi: OTM hamda O‘zbekiston Respublikasi Vazirlar Mahkamasi huzuridagi Biznes va tadbirkorlik oliy maktabi (BTOM), O‘zbekiston Respublikasi Prezidenti huzuridagi Davlat boshqaruvi akademiyasi (DBA) va O‘zbekiston Respublikasi Bank - moliya akademiyasi (BMA). OTM lar ham o‘z navbatida uch guruhga bo‘linadi: davlat OTM, nodavlat OTM va xorijiy OTM. Shuni aytib o‘tish joizki, bu OTM larning hammasi ham biznes sohasi uchun boshqaruv kadrlarini tayyorlamaydi.



1 – rasm. Biznes sohasi uchun oliy ma’lumotli boshqaruv kadrlarini tayyorlash tizimi[1]

1 - rasmda bunga aniqlik kiritilgan: davlat OTM va nodavlat OTM orasidan “Biznes va boshqaruv” taʼlim sohasi boʻyicha bakalavriat taʼlim yoʻnalishlari va (yoki) magistratura mutaxassisliklari tayyorlaydigan OTM lar biznes sohasi uchun boshqaruv kadrlari tayyorlaydigan OTM lar sifatida eʼtirof etiladi. Bundan tashqari, biznes sohasi uchun boshqaruv kadrlari tayyorlaydigan davlat OTM “Biznes va boshqaruv” taʼlim sohasi taʼlim yoʻnalishlari va mutaxassisliklari boʻyicha qoʻshma taʼlim dasturlari orqali ham bu vazifani amalga oshiradi. Xorijiy OTM lar orasidan biznes va menejmentga oid bakalavriat taʼlim yoʻnalishlari va magistratura

[1] Ушбу расм муаллифнинг ўзи томонидан яратилди.

mutaxassisliklari yoxud BBA va (yoki) MBA boʻyicha mutaxassislar tayyorlaydigan OTM biznes sohasi uchun boshqaruv kadrlarini tayyorlaydigan xorijiy OTM lar hisoblanadi.

Biznes va tadbirkorlik oliy maktabi MBA, PM (loyiha boshqaruvi) va Xalqaro ikki diplomlik magistratura mutaxassisliklarini tayyorlaydigan toʻlaqonli biznes sohasi uchun oliy maʼlumotli boshqaruv kadrlari tayyorlaydigan taʼlim dargohi hisoblanadi [9]. Garchi Davlat boshqaruvi akademiyasi davlat boshqaruvi boʻyicha magistratura mutaxassislarini tayyorlasada, davlat va biznes oʻrtasidagi oʻ zaro bogʻliqlik nuqtai – nazaridan kelib chiqqan holda, ushbu taʼlim dargohini ham biznes sohasi uchun oliy maʼlumotli boshqaruv kadrlarini tayyorlaydigan muassasalar qatoriga qoʻshishga qaror qildik [10]. Va nihoyat, Bank - moliya akademiyasiga toʻxtaladigan boʻlsak, u "Biznes va boshqaruv" taʼlim sohasi yoʻ nalishlari negizida tayyorlanadigan magistratura (MSc) mutaxassisliklari boʻyicha boshqaruvchi kadrlar tayyorlaydigan muassasa hisoblanadi [11].

OTM lardan farqli ravishda Biznes va tadbirkorlik oliy maktabi, Davlat boshqaruvi akademiyasi va Bank - moliya akademiyasi tom maʼnoda biznes sohasi uchun oliy maʼlumotli boshqaruv kadrlari tayyorlaydigan taʼlim muassasalari hisoblanib, ularda oʻz tashkilotlarida muayyan muvaffaqiyatga erishgan oliy maʼ lumotli mutaxassislar, hatto boshqaruv kadrlari ham tahsil olish uchun kelib, bunda aniq maqsad, yaʼni oʻqishni tamomlagandan soʻng kareralarini oshirishni koʻ zlashadi.

1 – jadvalda OTM da "Biznes va boshqaruv" taʼlim sohasi boʻyicha taʼlim yo ʻnalishlari va magistratura mutaxassisliklari, shuningdek Biznes va tadbirkorlik oliy maktabidagi magistratura mutaxassisliklari xususida maʼlumotlar keltirilgan boʻlib, ularni keltirishdan maqsad biznes sohasi uchun oliy maʼlumotli boshqaruv kadrlarini tayyorlashda qanday taʼlim yoʻnalishlari va magistratura mutaxassisliklari mavjudligi toʻgʻrisida aniqroq tasavvurni shakllantirishdan iboratdir. Jadvalda OTM lar tayyorlaydigan "Biznes va boshqaruv" taʼlim sohasining bakalavriat taʼlim yoʻ nalishlari va magistratura mutaxassisliklari past kulrangda boʻyalgan boʻlsa, Biznes va tadbirkorlik oliy maktabi tayyorlaydigan magistratura mutaxassisliklari och yashil rangda boʻyalgan. Jadvaldagi BTY = MM belgisi ham bakalavriat taʼlim yoʻ nalishi ham magistratura mutaxassisligi bir xil nomlanishga ega ekanligidan dalolat beradi.

1 – jadval

Oliy taʹlim muassasalari hamda Biznes va tadbirkorlik oliy maktabida biznes sohasi uchun boshqaruv kadrlarini tayyorlash yoʻnalishlari va mutaxassisliklari[2]

<table>
<tr><td colspan="2">Oliy ta’lim muassasalari
Davlat va nodavlat oliy ta’lim muassasalari</td><td>O‘zbekiston Respublikasi Vazirlar Mahkamasi huzuridagi Biznes va tadbirkorlik oliy maktabi</td></tr>
<tr><td colspan="2">“Biznes va boshqaruv” ta’lim sohasi</td><td rowspan="2">Magistratura mutaxassisliklari</td></tr>
<tr><td colspan="2">Bakalavriat ta’lim yo‘nalish (BTY): Iqtisodiyot</td></tr>
<tr><td colspan="2" rowspan="4">Magistratura mutaxassisliklari (MM): Iqtisodiy nazariya, iqtisodiyot, makroiqtisodiyot, iqtisodiyot axborot texnologiyalari va tizimlari, monopoliyaga qarshi boshqaruv va raqobatni rivojlantirish, bioiqtisodiyot, ekonometrika, mintaqaviy iqtisodiyot, iqtisodiy xavfsizlik, raqamli iqtisodiyot.</td><td>MVA – Global Management</td></tr>
<tr><td>MVA – Moliya</td></tr>
<tr><td>MVA – Agrobiznes</td></tr>
<tr><td>MVA – Kichik biznes va tadbirkorlik</td></tr>
<tr><td colspan="2">BTY: Buxgalteriya hisobi</td><td>MVA – Raqamli iqtisodiyot</td></tr>
<tr><td>MM: Buxgalteriya hisobi, audit</td><td colspan="2">Xalqaro ikki diplom: MBA – IT Business (AJOU)</td></tr>
<tr><td>BTY = MM: Soliqlar va soliqqa tortish</td><td colspan="2">Xalqaro ikki diplom: MBA – Korporativ boshqaruv va biznesni strategik rivojlantirish (RANXiGS)</td></tr>
<tr><td colspan="3">BTY = MM: Bojxona ishi</td></tr>
<tr><td colspan="3">BTY: Moliya va moliyaviy texnologiyalar</td></tr>
<tr><td colspan="3">MM: Moliya, korporativ moliya va qimmatli qog‘ozlar, investitsiyalarni boshqarish, sug‘urta ishi, sug‘urta kompaniyalarini boshqarish, davlat moliyaviy nazorati va auditi, korporativ moliyani boshqarish, iqtisodiyotni monetar tartibga solish, pensiya fondlarini boshqarish, baholash ishi.</td></tr>
<tr><td colspan="3">BTY = MM: Bank ishi</td></tr>
<tr><td colspan="2">BTY: Statistika</td><td>MM: Statistika, biznes – tahlil</td></tr>
<tr><td>BTY: Menejment</td><td colspan="2">MM: Menejment, loyiha boshqaruvi, PR menejment va PR tahlil, korporativ boshqaruv</td></tr>
</table>

[2] Ушбу жадвал муаллифнинг ўзи томонидан яратилган.

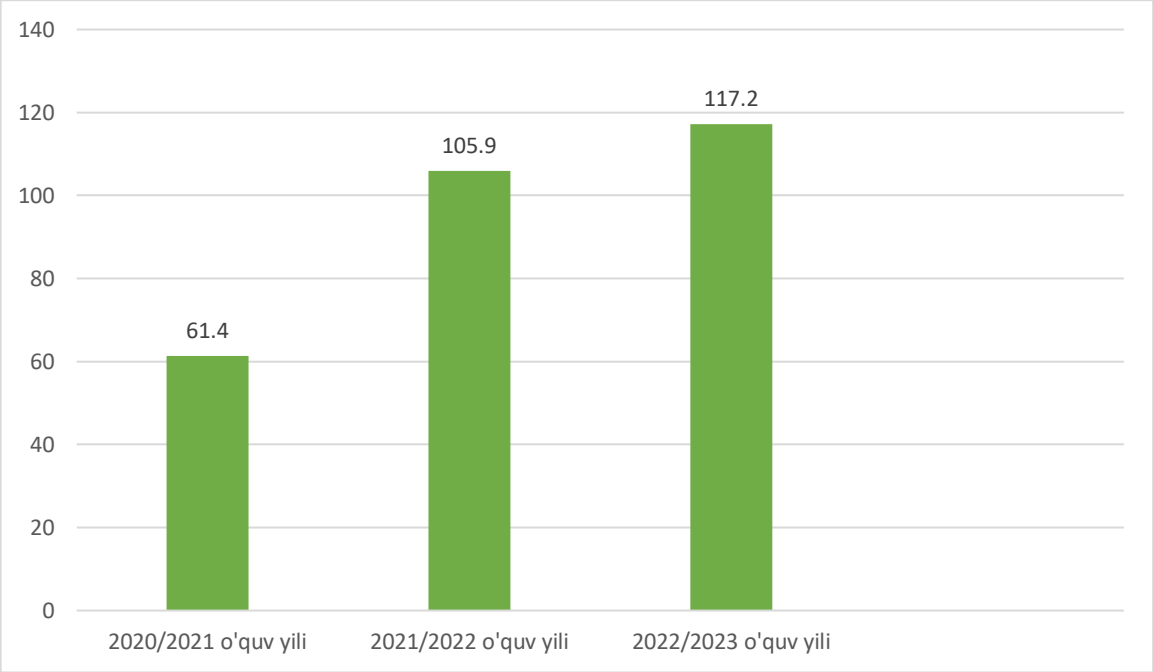
BTY: **Biznesni boshqarish**	**MM:** Biznesni boshqarish (Master of Business Administration - MBA), strategik menejment va xalqaro biznes (MVA).
BTY = MM: **Inson resurslarini boshqarish**	
BTY: **Jahon iqtisodiyoti va xalqaro iqtisodiy munosabatlar**	**MM:** Jahon iqtisodiyoti, tashqi iqtisodiy faoliyat.
BTY: **Marketing**	**MM:** Marketing, lizing, strategik marketing
BTY: **Savdo ishi**	**MM:** Savdo ishi, elektron tijorat
BTY = MM: **Mamlakatshunoslik**	

1 - jadvalni yaratishda oliy taʻlim yoʻnalishlari va mutaxassisliklari klassifikatori (klassifikator) dan foydalanilgan boʻlib, unda bitta bakalavriat taʻlim yoʻnalishiga bir va undan ortiq magistratura mutaxassisliklari toʻgʻri kelmoqda [12]. Bu biznes sohasi uchun boshqaruv kadrlarini tayyorlashdagi mantiqiy ketma – ketlik boʻlib, bakalavriat taʻlim yoʻnalishida talabalar sohaning umumiy asoslari toʻ gʻrisida bilim va koʻnikma ega boʻlsalar, magistratura mutaxassisligida ushbu sohadan kelib chiqadigan qandaydir bir soha boʻyicha yanada chuqurroq, koʻproq amaliy bilim va koʻnikmalarga ega boʻlishadi.

Oʻzbekiston OTM lari orasidan faqat bitta OTM, yaʻni Toshkent davlat iqtisodiyot universiteti (TDIU) “Biznes va boshqaruv” taʻlim sohasi boʻyicha deyarli barcha bakalavriat taʻlim yoʻnalishlari va magistratura mutaxassisliklarini tayyorlaydigan yagona yetakchi OTM hisoblanadi. Oliy maʻlumotni allaqachon koʻ lga kiritgan va biznes sohasidagi karʻerasini oshirish maqsadida magistr darajasiga ega boʻlishni hohlaganlar uchun Biznes va tadbirkorlik oliy maktabi yetakchi taʻlim muassasasi hisoblanadi.

2 – rasmda 2020/2021, 2021/2022 va 2022/2023 oʻquv yillari boshiga “Biznes, boshqaruv va huquq” bilim sohasi boʻyicha tahsil olayotgan talabalar soni koʻrsatilgan. Klassifikatorda “Biznes, boshqaruv va huquq” bilim sohasi “Biznes va boshqaruv” va “Huquq” taʻlim sohalariga boʻlingan holda koʻrsatilgan. “Huquq” taʻ lim sohasida tahsil olgan talabalar “Biznes va boshqaruv” dagiga nisbatan ancha

kam miqdorni tashkil etganligini hisobga olsak (masalan, 2020/2021 oʻquv yilida “Biznes va boshqaruv” da 54,2 ming kishi tahsil olgan boʻlsa, “Huquq” da 7,2 ming kishi tahsil olgan, 2021/2022 oʻquv yilida, mos ravishda 95,1 ming kishi va 10,8 ming kishi tahsil olgan) [13], “Biznes, boshqaruv va huquq” bilim sohasi asosan “Biznes va boshqaruv” taʻlim sohasini aks ettiradi.



2 – rasm. Oʻzbekistonda 2020/2021 – 2022/2023 oʻquv yillarida OTM larda “Biznes, boshqaruv va huquq” bilim sohasi boʻyicha tahsil olgan talabalar soni, ming kishi [14]

2 – rasmdagi maʻlumotlarga koʻra, “Biznes va boshqaruv” taʻlim sohasida tahsil olayotgan talabalar soni muntazam oʻsish tendensiyasiga ega boʻlib, bu mamlakatda biznes sohasi va bu soha uchun oliy maʻlumotli boshqaruv kadrlariga boʻlgan talabning tobora yuqori boʻlib borayotganligidan dalolat beradi.

Yuqoridagilardan koʻrinib turganidek, mamlakatimizda biznes sohasi uchun oliy maʻlumotli boshqaruv kadrlarini tayyorlash tizimi shakllangan boʻlib, bu tizim oldida bugungi kunda oʻz yechimini kutayotgan muammo va kamchiliklar, jumladan oliy taʻlim bilan qamrov va taʻlim sifatini taʻminlash, ilmiy – tadqiqot va innovatsion faoliyat, OTM ning moddiy – texnik bazasini mustahkamlash, oliy taʻ lim jozibadorligini oshirish va xalqaro miqyosda raqobatbardoshlikni taʻminlash

sohalarida muammo va kamchiliklarning mavjudligi [15] ularni bartaraf etish uchun ilmiy takliflar va amaliy tavsiyalarning ishlab chiqilishini talab qilmoqda.

XULOSALAR VA TAKLIFLAR

Biz yuqoridagi sohalar orasidan asosan oliy taʹlim jozibadorligini oshirish va xalqaro miqyosda raqobatbatbardoshlikni taʹminlash sohasidagi muammo va kamchiliklarni bartaraf etish boʹyicha quyidagi tavsiyalarni taklif etib, ularni biznes sohasi uchun boshqaruv kadrlari tayyorlaydigan OTM lar nuqtai – nazaridan kelib chiqqan holda ishlab chiqdik:

- biznes sohasi uchun boshqaruv kadrlarini tayyorlaydigan OTM larda xalqaro talablar darajasidagi statistika bilan ishlash tizimini rivojlantirish kerak bo‘lib, bu birinchidan rahbariyatga raqobatbardosh qarorlarni qabul qilish uchun asos yaratsa, ikkinchidan xorijliklarning OTM ga bo‘lgan qiziqishini kuchaytiradi;
- biznes sohasi uchun boshqaruv kadrlarini tayyorlaydigan OTM larda talabalarning klublari faoliyatini takomillashtirish kerak bo‘lib, bu birinchidan bo‘lajak boshqaruv kadrlari uchun ish qobiliyatlarini rivojlantirish imkoniyatini yaratsa, ikkinchidan xorijliklar oldida OTM jozibadorligini oshiradi;
- biznes sohasi uchun boshqaruv kadrlarini tayyorlaydigan OTM rasmiy vebsaytlarining jozibadorligini oshirish kerak bo‘lib, bu birinchidan OTM ning ham mahalliy ham xalqaro ta’lim xizmatlari bozoridagi mavqeini oshishiga ko‘maklashsa, ikkinchidan OTM ga xorijlik talabalarning oqimini kuchaytiradi;
- dars mashg‘ulotlarida qo‘llaniladigan talabalar taqdimoti usulidan foydalanish samaradorligini oshirish kerak bo‘lib, bu birinchidan bo‘lajak boshqaruv kadrlarining biznes sohasidagi ish qobiliyatlarini kuchaytirish imkonini yaratsa, ikkinchidan dars mashg‘ulotlarining amaliylik darajasini oshirish orqali xorijliklarning OTM ga o‘qishga kirish yoki unda o‘qishini davom ettirishga bo‘lgan qiziqishini orttiradi.

Xulosa qilib aytadigan bo‘lsak, mamlakatimizda biznes sohasini rivojlantirish oldiga quyilayotgan ulkan maqsad va vazifalarga erishishda zamonaviy bilim, ko‘nikma va tajribalarga ega bo‘lgan yuqori malakali boshqaruv kadrlarining roli katta bo‘lib, oliy ta’lim muassasasi bunday mutaxassislar guruhini shakllantirish va rivojlantirishda ishtirok etadigan eng asosiy tashkilot sifatida namoyon bo‘ladi.

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DIGITALIZATION IN EDUCATION: AVAILABLE OPPORTUNITIES AND DISADVANTAGES

Abstract*. The article analyzes the importance of digitalization and learning in the digital world in the system of preschool education, general secondary education and higher education in our country, the current work and opportunities. Digitalization in education has led to major changes in recent years, which has made it possible to make the educational process more efficient and convenient.*

However, there are also negative aspects of digitalization. The biggest problem is the digital divide, that is, students living in low-income or remote areas may be deprived of the necessary technologies and access to the Internet. Another disadvantage of digital education is the problems that students have with direct communication and the development of social skills. Thus, although digitalization has created many opportunities in the educational process, it is necessary to take into account its negative aspects.

Keywords: *education, digital technology, digitization, electronic portal, information system.*

Today, digital technologies are developing rapidly and require keeping up with the times in every field. In this era, when the speed of obtaining and using information has increased significantly, the use of digital technologies in the education system is of great importance in improving the quality of education and educating socially active youth. Educational programs have been carried out in the traditional way, that is, through lectures, books, manuals. This, in turn, did not ensure that the quality of education was so high. Currently, the process of digitization of education has begun to improve the quality of education. The current education system is characterized by non-traditional educational technologies and their increasing role. With their help, the student's assimilation of knowledge is much faster than with traditional technologies. These technologies change the nature of the development, acquisition, and dissemination of knowledge, allowing for the deepening and expansion of the content of the subjects studied, its rapid updating, the use of effective teaching methods, and also significantly expanding educational opportunities for each student[1].

When education is provided through digital technologies, the methods of learning are becoming easier for learners. In this, the role of the educational system is played by multimedia, overhead projectors, computers, laptops, Internet-

connected televisions, telephone lines, smart boards, and projectors. Providing teachers with such tools for conducting lessons improves the quality of education.

The rapid introduction of digital technologies into the higher education system, the formation of an information space and the development of digital educational systems lead to the formation of new scientific and pedagogical ideas on the organization of the educational process of students of higher educational institutions, a qualitative revision of approaches to education, as well as the acceleration of the education system. The digitalization of education is characterized by the creation and use of the electronic information education sphere, the use of special virtual technologies, the possibility of introducing various educational platforms into the educational process. In general, the digitalization of higher education means building all areas of activity on the basis of information and communication technologies[2]. Therefore, in our country, comprehensive measures are being taken to actively develop the digital economy, widely introduce modern information and communication technologies in all sectors and areas, primarily in public administration, education, healthcare and agriculture.

In recent years, significant work has been done in Uzbekistan to develop the field of digital technologies. As a result, the country's socio-economic development indicators are increasing. Ensuring the implementation of adopted regulatory legal acts and various programs aimed at the sector plays an important role in achieving these results.

On October 5, 2020, the Decree of the President of the Republic of Uzbekistan No. PF-6097 "On approval of the Digital Uzbekistan -2030" strategy and measures for its effective implementation" set out a number of tasks related to the digitalization of education, along with various other areas. This document includes providing educational institutions with high-speed Internet, introducing an electronic diary system to transparently record student grades, and others[3]. When studying the status of the work carried out by the Ministry of Preschool and School Education of the Republic of Uzbekistan to ensure the implementation of the provisions of the Decree on the digitalization of the education sector, the following was revealed.

In the 2022-2023 academic year, computer classrooms, interactive whiteboards and a set of robotics equipment were delivered to schools. With the support of the Ministry of Digital Technologies of the Republic of Uzbekistan, Internet infrastructure was brought to secondary schools and the use of the Internet under the “Education” tariff plan was established. At the same time, computer classrooms and the office of the deputy director for educational affairs of the secondary school and the “Barkamol Avlod” children's school were equipped with internal local area networks and “Wi-Fi” devices in the teachers' room. Today, more than 20 information systems have been developed and implemented in the system of the Ministry of Preschool and School Education of the Republic of Uzbekistan. In particular: - The “Single Electronic System of the School Educational Process - “erp.maktab.uz” software complex was developed and integrated into the databases of 14 interested ministries and departments, and a data warehouse was created. Also,

in order to finance the class composition formed based on class parameters, integration was carried out with the UzAsbo software complex of the Ministry of Economy and Finance of the Republic of Uzbekistan.

In order to assess and monitor student learning and maintain statistics and reports on teacher activities, the “Electronic Diary” automated information system has been introduced in general secondary educational institutions across the republic.

In order to create a transparent mechanism for filling vacant teacher positions in the field of subjects with worthy candidates, a special electronic portal “National Personnel Reserve of Teachers” (https://ntr.avloniy.uz/) has been created, etc.

In this regard, along with the achievements, we will touch upon some shortcomings: although all educational institutions are provided with 100% fiber-optic Internet lines by the Ministry of Digital Technologies of the Republic of Uzbekistan, educational institutions are not fully utilizing the capabilities of these lines. Morally obsolete computers are being preserved in educational institutions in remote regions of the republic. Not all computer rooms in schools are equipped with UPS devices. Schools whose computers become unusable in the middle of the school year still need to repair them before they are included in the next year's budget. In the process of integrating electronic systems, children from families not registered as permanent residents who are studying at the school are facing problems. In addition, there is no possibility to monitor the use of the Internet in general education schools in the system and to control the targeted spending of state budget funds for these services.

Proposals and recommendations have been developed to increase the efficiency of education through digitalization.

In conclusion, the digitalization of education, first of all, develops the integration of online communication between students and teachers, and secondly, it forms the skills of students to work independently on themselves using advanced educational technologies. This is of great importance in the current development process in applying new trends in digitalization to the educational process.

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FORMING AESTHETIC EDUCATION IN THE FAMILY

Annotation: *Aesthetic literacy and culture begin, first and foremost, with the family. Aesthetic education in the family involves the positive solution of such tasks as the formation of feelings, perceptions, imagination and views in children on the basis of feeling, enjoying, enjoying the beauty of nature, teaching them to love life.*

Key words*: family, aesthetics, upbringing, morality, beauty*

The family is a unique place that has been preserving and demonstrating folk traditions, national customs and customs for centuries. As we know, the hearth of all education goes back to the family. A person must always strive for beauty and educate the future generation on the basis of those aesthetic concepts. Because parents instill true beauty and human qualities in their child precisely through the formation of aesthetic education. In order to form an aesthetic worldview in a child in the family, the parents themselves must first of all be aesthetically responsible and determined.

Aesthetic education means starting from the day a child is born, strengthening our body, illuminating our thoughts, beautifying our morals, and clarifying our minds[1].

Who and how does aesthetic education take place? – the question arises.

The first - education is the responsibility of the parents.

The second is carried out in kindergartens, schools, academic lyceums, higher educational institutions and neighborhoods. The environment in which a child lives, the activities of people play a large role in his upbringing, and the family and school conditions are also of great importance in this area. Aesthetic education is also a major part of upbringing, strongly influencing the child's morality and behavior and calling on parents to educate them from infancy. Aesthetic education and upbringing and general education are a whole process that is interconnected.

The formation of the ability to feel beauty is, first of all, a key factor in aesthetic education organized in the family. Aesthetic education organized in the family involves the positive solution of such tasks as the formation of feelings, perception, imagination and views in children based on the feeling of beauty, enjoyment of it, enjoyment of the beauties of nature, and teaching them to love life. In a situation where the content of moral and aesthetic views has changed, it is especially important to organize moral and aesthetic education in the family correctly and effectively. From a very young age, children should understand that false beauties (half-naked or naked bodies, excessive makeup, the “product” of

cosmetic surgeries that are becoming a tradition, excessively shiny fabrics or jewelry) are not the embodiment of beauty. The reason is that a child, having reached adulthood, must understand that beauty has a relativity nature in its relations with social processes. This is especially evident in the place of beauty in the system of material and spiritual values. Because any analysis of beauty becomes more clear only when it is viewed in terms of the relationship between the individual and society. Therefore, it is appropriate to pay attention to the place of beauty in the system of spiritual and material values.[2]

After our homeland gained its independence, a new attitude was expressed towards national and spiritual values, folk, progressive traditions were formed, and broad public opinion was involved in raising national pride. As a result, the scope of noble works carried out in our country expanded. Now it is not difficult to know, understand and imagine that the idea of creativity is carried out in harmony with the concept of beauty. After all, preparing young people for family life by forming a belief in our national values, including family traditions, unique customs, and traditions, and cultivating family qualities are effective means of increasing the effectiveness of educational work.

It should be noted separately that aesthetic literacy and culture begin, first of all, in the family. The basis for the formation of aesthetic outlook is directly related to upbringing in the family. If this issue is not addressed properly in the family, it will be difficult to resolve it in schools, at subsequent stages of education, and in the labor process. Because the family is a unique place that has preserved and demonstrated folk traditions, national customs, and customs for centuries. For example, in the formation of children's aesthetic culture in the family, activities related to preparing for and holding national holidays with the participation of family members also play an important practical role. Including, in the process of preparing for national holidays such as "Navruz" and "Independence Day", children should regularly participate together with family members in activities that create beautiful feelings in a person, such as landscaping and landscaping. Images shown on television also play an important role in the formation of aesthetic ideas in children in the family. We all know that beauty and human qualities are formed in the family.

It is known that views and theories about beauty are initially formed in the family. The question “What is beauty?” is asked in the child care center, but in most of them we observe the answer given with a question to the question “What is beautiful?” By the way, beauty usually arises on the basis of two factors. These are:

- beauty created as a result of human thought and labor;
- beauty that arises outside of human thought, independently of man.

The philosophy of the sublime considers beauty to be a product of knowledge. Because the beauty of any thing-event in reality is determined by its reliability, truthfulness and reality. In addition, a person absorbs the initial information about beauty through the most developed type of 5 senses, namely vision, then beauty is perceived and felt as a result of hearing, taste, smell and bodily sensations. The formation of the ability to feel beauty is, first of all, considered a key factor in

aesthetic education organized in the family. Aesthetic education organized in the family involves the positive solution of such tasks as the formation of feelings, perception, imagination and views in children based on the feeling of beauty, enjoyment of it, enjoyment of the beauties of nature, and teaching them to love life[3].

In the era of advanced science and technology, in a rapidly developing environment, maintaining a balance between human beings and the pursuit of beauty is one of the urgent problems. This urgent issue is also reflected in the policy of our independent state, which also includes ensuring its harmony with the environment and society surrounding humans on all fronts.

A number of problems related to aesthetic education have been studied, solutions and guidelines have been developed, but despite this, there are still people who do not appreciate beauty and magnificence today. Accordingly, it is important to educate students from a young age, that is, in family processes, as well as in preschool educational institutions and higher educational institutions, a conscious attitude towards beauty, and to study an approach to education based on national and universal values, based on advanced pedagogical technologies. This movement is oriented towards the future and lies in the ecological cultural relations that confirm the connection between man and beauty. First of all, the degree to which a person understands the normative relations related to beauty depends on his understanding of the laws and rules. The upbringing of a student in an aesthetic spirit, in the world of refinement, begins with the family, and this problem is one of the most important directions of the state and social order. It is important for all educational institutions to establish a lively dialogue between the student and the world of refinement, and for this purpose to adequately implement special scientific and methodological support.

So, the family is the starting point of all types of upbringing. In order for a child to see the world with beautiful eyes, parents need to be attentive to their child, to be able to show and instill in him the positive sides of everything - phenomena. Only a child who can see the positive sides of negative views can be truly aesthetically developed, have a worldview. Of course, the basis of all this goes back to the family. A child is like clay, according to the wise, he will mature, develop, and progress with the upbringing he is given. In addition, one of the great sages said that it is easier to govern any large state than to raise a child. Indeed, children are the face of the family, the future of society, the pride and dignity of parents are compared with the future fate and upbringing of the child. Therefore, it is necessary to organize any upbringing wisely, not to neglect the upbringing of a child, otherwise this can lead to negative consequences not only for the family, but also for society and our state. Therefore, it is important to raise a child with love, love for the world, to protect living beings, to care for people, to help, not to run away from loved ones in times of trouble, with feelings of loyalty to friends, with lessons of respect for elders, only then can we raise a perfect person with a rich future, a bright tomorrow, and a formed aesthetic culture.

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THE ROLE OF THE STATE AND SOCIETY IN FOSTERING PATRIOTIC EDUCATION IN YOUNG PEOPLE

Annotation: *This article discusses the significant roles that both the state and society play in fostering patriotic education among young people. It emphasizes that the state is responsible for creating the necessary infrastructure and policies that promote national pride and unity through education, national programs, and media. On the other hand, society, including families, communities, and social organizations, plays a critical role in day-to-day nurturing of patriotic values. The collaboration between the state and society is essential for effective patriotic education. The article concludes that fostering patriotism among young people ensures national unity, social stability, and the future prosperity of the nation.*

Keywords: *patriotic education, national identity, state's role, society's role, youth development, civic duty, national unity, educational curriculum, cultural institutions, community engagement.*

INTRODUCTION

Patriotism plays an integral role in shaping the identity and values of a nation. It is a powerful force that unites individuals, creating a sense of belonging and responsibility towards the country. For young people, developing a strong sense of national pride is crucial, as it encourages them to contribute to the nation's progress, safeguard its values, and respect its cultural heritage. However, the process of cultivating patriotic values among the youth is not solely the responsibility of individuals or isolated institutions. Rather, it requires a collective effort from both the state and society.

The state's role in fostering patriotic education is often expressed through national policies, curricula in educational institutions, and public programs aimed at promoting civic responsibility. On the other hand, society—through families, communities, and local organizations—also plays a vital part in nurturing these values on a day-to-day basis. By working together, the state and society can create an environment in which young people are educated, inspired, and motivated to engage meaningfully with their country's future.

This article explores the significant roles that both the state and society play in fostering patriotic education among young people. It discusses how national institutions and social networks can collaborate to cultivate a sense of pride, loyalty,

and responsibility among youth, which are key to the long-term development and stability of any nation.

RESULT AND DISCUSSION

Patriotic education plays a crucial role in shaping the values, attitudes, and actions of young individuals towards their country. It instills a sense of pride, loyalty, and responsibility towards the nation, contributing to the development of a strong and united society. The role of the state and society in fostering this education is pivotal in ensuring the continuity of national identity, security, and progress. In this article, we will explore the significant roles that both the state and society play in nurturing patriotic sentiments among the youth.

1. The State's Role in Patriotic Education

The state has a fundamental responsibility in guiding the patriotic development of its citizens, particularly the younger generation. Through policies, educational systems, and national programs, the state can create an environment conducive to fostering patriotism.

a) Educational System and Curriculum Design:

The state plays a central role in shaping the educational curriculum, which is one of the most influential tools in transmitting patriotic values to young people. Incorporating national history, culture, and the contributions of past generations to the country's sovereignty and prosperity can help instill a deep sense of pride. Schools should not only focus on academic knowledge but also emphasize the importance of civic duty, national heroes, and the country's achievements.

For example, national holidays, important historical events, and figures who played key roles in the nation's independence or growth can be integrated into the school curriculum. In this way, students can understand their roots and the sacrifices made for the nation's freedom and progress.

b) National Programs and Initiatives:

The state can organize national programs, competitions, and events that promote patriotic values. These initiatives can range from military-style training programs, youth camps, and leadership courses, to art exhibitions, public speaking events, and sporting activities that highlight the importance of unity, patriotism, and national pride. For instance, encouraging young people to participate in community service or military training programs can deepen their connection to their country.

c) Media and Communication:

In today's digital age, media plays a crucial role in shaping public opinion. The state can utilize television, radio, and online platforms to promote patriotic messages and celebrate national achievements. Creating content that highlights the country's culture, traditions, and historical landmarks can help reinforce national pride. Furthermore, the state should work towards preventing the spread of negative, divisive content that could harm national unity and patriotic sentiment.

2. The Role of Society in Patriotic Education

While the state provides the infrastructure and frameworks, it is society at large—families, communities, and local organizations—that nurtures patriotism on

a day-to-day basis. Social networks, cultural practices, and community participation all play an essential role in shaping young people's attitudes towards their nation.

a) Families and Parents:

The family is the first and most influential institution in a young person's life. Parents have the most direct influence on instilling values of patriotism. By fostering discussions about national history, values, and customs at home, parents can encourage their children to develop a sense of pride in their heritage. Teaching the importance of respecting the nation's traditions and contributions can help create a generation that is both proud and responsible.

Furthermore, parents should lead by example, showing their commitment to the nation through active participation in community and national events. Whether it's through volunteering, voting, or simply showing respect for national symbols, parents can demonstrate what it means to be a responsible citizen.

b) Community and Social Organizations:

Local communities and social organizations also play an essential role in promoting patriotism. Community leaders, youth clubs, and civil society organizations can create spaces for young people to engage in national celebrations, volunteer work, and initiatives that benefit society. These experiences help young individuals develop a deeper connection to their country and foster a sense of collective responsibility.

By organizing public events such as national festivals, historical commemorations, and clean-up campaigns, communities can help instill values of national pride and unity. Additionally, youth groups and local leaders can mentor the younger generation, teaching them the importance of civic duty, respect for the nation's heritage, and contributions to national progress.

c) Cultural and Religious Institutions:

Cultural and religious institutions are also key players in the socialization process. Cultural centers, museums, libraries, and religious organizations provide opportunities for young people to connect with their heritage, learn about national heroes, and explore the deeper meanings of patriotism. Religious institutions, in particular, can play a role in encouraging ethical values such as love for one's country, compassion for fellow citizens, and the importance of peace and unity.

3. Collaboration Between the State and Society

For patriotic education to be truly effective, there must be a strong collaboration between the state and society. Both sectors must work together to create an integrated approach to developing the national consciousness of young people.

a) Shared Initiatives:

The state can partner with NGOs, community groups, and educational institutions to implement programs that foster patriotism. Joint efforts between the government and civil society can create a more comprehensive and dynamic framework for youth engagement.

b) Public Awareness Campaigns:

The state and society can collaborate on public awareness campaigns that emphasize the importance of national unity, respect for the country's values, and collective progress. Such campaigns could utilize all forms of media and grassroots mobilization to reach young people in various environments, from schools and universities to local communities.

Conclusion: The role of the state and society in fostering patriotic education among young people cannot be overstated. The state provides the necessary infrastructure, policies, and platforms for patriotic learning, while society—through families, communities, and organizations—creates the environment in which young people can experience and practice patriotism. By working together, the state and society can ensure that future generations are not only knowledgeable about their country's past but are also motivated to contribute to its future.

A strong sense of patriotism is essential for national unity, social stability, and the continued growth of the nation. With the collective efforts of both the state and society, young people can be raised to become responsible, proud, and committed citizens who will shape the future of their country.

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ЎЗБЕКИСТОНДА ТРАНСПОРТ ТИЗИМИНИ ТАКОМИЛЛЛАШТИРИШНИНГ ДОЛЗАРБЛИГИ

Annotatsiya: *O‘zbekistonda transport va transport kommunikatsiyalari sohasini rivojlantirish, tashishlarning yuqori darajadagi xavfsizligini ta’minlash, transport sohasidagi boshqaruv tizimini takomillashtirish, soha uchun malakali mutaxassislarni tayyorlash eng dolzarb muammalardan biridir.*

Kalit so‘zlar*: transport, aholi xavfsizligi, intellektual transport tizimi.*

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THE RELEVANCE OF IMPROVING THE TRANSPORT SYSTEM IN UZBEKISTAN

Abstract: *The development of transport and transport communications in Uzbekistan, ensuring a high level of transportation safety, improving the management system in the transport sector, training qualified specialists for the industry is one of the most pressing tasks.*

Key words*: transport, public safety, intelligent transport system.*

So‘nggi yillarda mamlakatimizda transport va transport kommunikatsiyalari sohasini rivojlantirish, tashishlarning yuqori darajadagi xavfsizligini ta’minlash, transport sohasidagi boshqaruv tizimini takomillashtirish, soha uchun malakali mutaxassislarni tayyorlashga yo‘naltirilgan keng ko‘lamli chora-tadbirlar amalga oshirildi.

Transport sohasidagi davlat boshqaruvi tizimini tubdan takomillashtirish, respublikaning investitsiyaviy jozibadorligi va eksport salohiyatini oshirish, transport kommunikatsiyalarini strategik rivojlantirish va barqaror faoliyat ko‘rsatishini ta’minlash maqsadida, shuningdek, 2017-2021 yillarda O‘zbekiston Respublikasini rivojlantirishning beshta ustuvor yo‘nalishi bo‘yicha Harakatlar strategiyasida belgilangan vazifalarga muvofiq: Prizident farmoniga asosan, O‘zbekiston avtomobil transporti agentligi negizida O‘zbekiston Respublikasi Transport vazirligi tashkil etildi.

O’zbekistondagi transport tizimining eng muhim vazifalaridan biri bu iqtisodiyot va aholining xavfsiz va samarali transport xizmatlariga bo'lgan ehtiyojlarini qondirish sifatini oshirish orqali mamlakat transport-yo'l kompleksi faoliyatining maksimal samaradorligini ta'minlashdir.

Aholining zarur harakatchanligini ta'minlash vazifasini amalga oshirish bir-birini to'ldiradigan ikkita faoliyat yo'nalishini hisobga olish mumkin: yangi yo'l uchastkalarini qurish va zamonaviy axborot, telekommunikatsiya va telematik texnologiyalardan foydalangan holda transport tizimini tashkiliy boshqarish texnologiyalarini joriy etish.

Cheklangan texnologik muammolarni hal qiluvchi transportda turli xil axborot tizimlarini qurish bo‘yicha mamlakatimizda to‘plangan tajribani hisobga olgan holda, bugungi kunda davlat nazorati, texnik va ijtimoiy sohani rivojlantirish qoidalarini belgilovchi yagona davlat strategiyasini shakllantirish zarurati paydo bo‘ldi.

Mavjud va rivojlanayotgan mahalliy yoki texnologik jihatdan cheklangan idoraviy tizimlar transport kompleksi segmentlari faoliyatini axborot bilan ta'minlash va nazorat qilish, bir qator hollarda, vazifalarning tor ro'yxatini samarali hal qilishni ta'minlaydi. Shu bilan birga, shunga o'xshash tizimlarni ishlab chiqish uchun yagona davlat standartlarining yo'qligi boshqaruv tamoyillari yangi sifat darajasiga - bashoratli boshqaruvga, ya'ni yagona boshqaruv platformasini yaratish uchun ularni birlashtirish imkoniyatini cheklaydi. transport kompleksining barcha ko'rsatkichlari bo'yicha vaziyatni oldindan ko'rishni boshqarish.

Harakatni boshqarish, yo‘l harakati xavfsizligi, shuningdek, yo‘l harakati qatnashchilari va transport jarayonining potentsial sub’yektlari uchun axborot xizmatlarini ko‘rsatish quyi tizimlarini yagona texnik va texnologik kompleksga birlashtirgan bunday agregat tizim bugungi kunda “Intellektual transport tizimi”, (ITT) deb nomlanadi.

ITTning operatsion vazifasi real vaqt rejimida adaptiv tamoyillar bo'yicha barcha transport ob'ektlarining avtomatlashtirilgan va avtomatik o'zaro ta'sirini amalga oshirish va qo'llab-quvvatlashdan iborat.

Avtomobil transporti sohasini yosh mutaxassislar bilan ta’minlash maqsadida O’zbekiston Respublikasi Oliy va o’rta maxsus ta’lim vazirligi tarkibidagi 3 ta (Nukus avtomobil yo’l xo’jaligi va xizmat ko’rsatish kasb-hunar kolleji, Andijon transport va xizmatlar ko’rsatish kasb-hunar kolleji hamda Samarqand avtomobil va yo’llar kasb-hunar kolleji) “O’zavtotrans” agentligi tarkibiga o’tkazilmoqda.

«O’zavtotrans» agentligi qoshida avtomobilda yo’lovchilar yoki yuklar tashish, transport-logistika faoliyatini amalga oshiruvchi mustaqil ixtisoslashgan, yuridik shaxs huquqlari bilan unitar korxonalar tashkil etiladi.

Avtotransport vositalarining og’irlik va gabarit ko’rsatkichlari nazoratini joriy etish bo’yicha statsionar va ko’chma maskanlarni amalda joriy etish chora-tadbirlari rejalashtirilmoqda.

Mazkur qarorning ijrosini ta’minlash O’zbekiston Respublikasida avtomobil transportini tashkil etish tizimini takomillashtirish, davlat boshqaruvi va tartibga solish funktsiyalarini aniq belgilab olish, tashkiliy va institutsional o’zgartirishlar,

xizmat ko’rsatish bozori hamda avtomobil tashishlari xavfsizligini shakllantirish va rivojlantirish masalalarini hal etishda maxsus vakolatli davlat organi hisoblangan O’zbekiston avtomobil transporti agentligi faoliyati samaradorligini oshirishga imkon yaratadi.

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LEXICAL-STYLISTIC AND GRAMMATICAL FEATURES OF RIDDLES IN ENGLISH AND UZBEK

Abstract*. This study explores the lexical-stylistic and grammatical characteristics of riddles in English and Uzbek, focusing on their linguistic structure, stylistic elements, and grammatical patterns. By comparing riddles from both languages, the research highlights the similarities and differences in their formation, wordplay techniques, and cultural implications. The findings suggest that while both languages use metaphor, symbolism, and wordplay, the structural and grammatical patterns differ due to linguistic and cultural distinctions.*

Key words: *riddles, folklore, lexical-stylistic features, grammatical structures, metaphor, alliteration, wordplay, phonetic play, cultural transmission, homonyms, homophones, Uzbek riddles, English riddles, syntax, morphology*

Introduction. Riddles, as a form of folklore, play a significant role in linguistic creativity and cultural transmission. They serve not only as entertainment but also as a means of sharpening cognitive skills and preserving cultural heritage. English and Uzbek riddles share common features such as metaphorical expressions, alliteration, and phonetic play; however, their lexical-stylistic and grammatical structures differ due to typological distinctions between the two languages. This study aims to analyze these linguistic features, comparing their syntactic structures, stylistic devices, and lexical components.

Methodology. This research employs a comparative and descriptive approach to analyze the lexical-stylistic and grammatical features of riddles in English and Uzbek. Data for the study was collected from folklore collections, linguistic databases, and anthologies of riddles. The analysis focuses on the syntactic patterns, lexical choices, and stylistic devices such as metaphor, alliteration, and ambiguity. Additionally, phonetic and morphological aspects were examined to understand how different linguistic structures contribute to riddle formation.

Results

1. **Lexical Features**

- English riddles often rely on homonyms, homophones, and puns. For example: "What has keys but can't open locks?" (Answer: A piano). Uzbek riddles, on the other hand, frequently use metaphor and symbolism, as in "Танаси йўқ, қўли бор, тили йўқ, сўзи бор" (Answer: Қалам – A pen).
- Cultural references significantly influence riddle formation in both languages. English riddles often contain references to common objects and modern technology, while Uzbek riddles reflect traditional lifestyle elements.

2. **Stylistic Features**

- **Alliteration and Assonance:** Both languages use these devices, but English riddles rely more on phonetic play. Example: "Peter Piper picked a peck of pickled peppers."
- **Ambiguity and Double Meaning:** Uzbek riddles often use metaphorical language that requires deeper cultural understanding, while English riddles employ homophones and wordplay for ambiguity.

3. **Grammatical Features**

- **Sentence Structure:** English riddles typically follow Subject-Verb-Object (SVO) order, while Uzbek riddles, as an agglutinative language, follow Subject-Object-Verb (SOV) order.
- **Interrogative and Imperative Forms:** Riddles in both languages frequently appear as questions or imperative statements, prompting the listener to think critically.
- **Use of Pronouns:** English riddles often use personal pronouns (e.g., "I have hands but cannot clap"), whereas Uzbek riddles tend to use descriptive noun phrases.

Discussion. The comparative analysis reveals that while riddles in both languages share universal features such as metaphor, phonetic play, and ambiguity, their grammatical structures reflect typological differences. English riddles often exploit wordplay through homophones and puns, whereas Uzbek riddles rely heavily on cultural metaphors and symbolic representations. Additionally, the grammatical variations in sentence structure, verb placement, and question formation reflect the distinct syntactic nature of each language.

Conclusion. Riddles in English and Uzbek demonstrate unique lexical, stylistic, and grammatical characteristics shaped by linguistic and cultural contexts. While both languages utilize figurative language and phonetic devices, their structural differences highlight the influence of syntax and morphology on riddle formation. Future research could further explore how riddles evolve in the digital age and their role in language learning and cultural exchange.

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THE ROLE OF THE NEIGHBORHOOD INSTITUTION IN ENSURING SOCIO-ECONOMIC DEVELOPMENT IN THE REPUBLIC OF UZBEKISTAN AND THE STATUS OF USING ITS OPPORTUNITIES

Abstract *– This neighborhood system in the article of activity economic the basics improvement issues The Mahalla Institute economic opportunities development , its socio-economic stability in the provision place analysis Research neighborhood funds during formation , financial from funds effective use and the neighborhood budget diversification to do according to practical offer and recommendations working Also , international experiments studied , local to the conditions suitable innovative approaches offer This research on the neighborhood system economic stability reinforcement and their in society social functions further effective to do service does .*

Keywords *– neighborhood system , economic basics , financial stability , neighborhood budget , neighborhood funds , socio-economic development , innovation approaches , international experience .*

Introduction - Neighborhood system Uzbekistan national to oneself originality and social structure inseparable part is , its development of the state socio-economic to the stability directly impact shows . Last in years neighborhoods society in life role increasing , their economic the basics reinforcement current to the point The Mahalla Institute economic opportunities expansion not only their financial independence increases , maybe in the regions population well-being to provide service This will do . the neighborhood system in the article develop on the way economic problems solution to do and this regarding effective mechanisms current of reaching theoretical and practical basics is illuminated .

Literature review Joseph Stieglitz , Nobel Prize prize-winner economist , self in research economic in development inequality reduce and social stability provide to the issues big attention He focused on his " Globalization and Its Discontents" and other in his works local level economic management social and economic effects deep analysis does.Joseph Stieglitz's thoughts and search results . Joseph Stieglitz economic development and social stability issues in learning economic PCB to provide main goal as shows . His in my opinion , like a neighborhood local management systems economic resources fair in distribution and population economic opportunities in expansion important role plays . Stieglitz research this shows that economic inequality reduction at the neighborhood level entrepreneurship develop and of the state targeted financial support through done increased.His stating that the neighborhood system efficiency increase for state policy local management to the organs financial independence and resources in management freedom create necessary . Through this neighborhoods economic in

terms of stable divided , population between poverty reduce and economic activity to increase Stieglitz 's results this shows that local management and state cooperation through economic to grow achieve possible . With this together , resources effective distribution and infrastructure develop local the economy to strengthen service does . Conclusion as in other words , Stieglitz scientific research local at the level economic opportunities expansion , entrepreneurship develop and of the state supportive policy on the road to put through economic and social to stability achieve possible These principles underpin the mahalla system . economic the basics in improvement current practical importance has . [1]

Abdullaev Shavkat mahalla system socio-economic in life place and his/her importance about take went in the research of the Mahalla Institute himself himself/herself management mechanisms improvement importance record The scholar will support the neighborhood funds . effective management and financial from resources reasonable use through neighborhoods economic independence increase opportunities research did . His in their work , as well as in the neighborhoods state from the budget independent to be achieve for local income sources formation The issues of the mahalla economy were also covered . Anvar Kudratov and his/her society in management instead deep learned . He himself in research neighborhoods financial resources diversification to do main direction as emphasizing , income sources multiplication according to effective mechanisms offer Kudratov 's in my opinion , neighborhoods not only social institute as , maybe economic resources manager independent system formation as well as necessary . Abdullaev and Kudratov's thoughts each other fills , because they are part of the neighborhood system economic the basics improvement through his/her stable activity to conduct to provide general goal as These scientists research neighborhoods financial independence increase and social infrastructure to develop aimed at scientific the basics in formation important importance has . [2,3]

Methodology:

Primary research Syrdarya province of the neighborhood system economic the basics study during of the 12 neighborhoods in the region activity analysis This was done . in research neighborhoods financial status , income sources , resources management methods and socio-economic in projects participation deep studied . During the analysis It was found that the Syrdarya in the province neighborhoods main income sources optional contributions , state subsidies and from neighborhood properties removable to income based on . With this together , neighborhoods financial to the stability obstacle doing one row problems In particular , most in the neighborhoods financial of resources management enough effective not being observed . Most in cases there is resources complete unused remains or wrong is being distributed . Research cover received in 40 percent of neighborhoods small entrepreneurship develop according to there is opportunities to work not included was determined . As a result of this local income sources limited to be remains . With this together , state by separated subsidies efficiency increase for them control to do and targeted spend system enough unformed . Neighborhoods infrastructure develop problems with available . Neighborhoods most infrastructure in

improvement private sector with effective cooperation on the road sheep As a result of this population infrastructure with cover low level of uptake remains . Therefore in the neighborhoods economic projects done in increasing public-private partnership develop as a pressing issue Research during taken results neighborhoods economy and management system develop for scientific basis to be service This will do . search results local management in the system innovative mechanisms current to grow and financial from resources effective use on the road to put help gives .

Secondary research – The mahalla system in Uzbekistan in 2024 economic the basics to improve aimed at one row measures done The neighborhood system was increased . for economic and financial reinforcement strategy within the framework of the neighborhoods separable budget funds noticeable at the level In particular , the mahalla budget in 2024 separable parts 3 times increase in the eye caught is , this is the neighborhood system to employees additional economic opportunities creates . Neighborhoods economic from resources effective use provide In order to , " Open " budget " system is also in place was done , this and the neighborhood system transparency and efficiency to increase service does . From this except for Urgench on August 9, 2024 Neighborhood system in the city employees day celebrated , this the event was attended by the community system population with at work successes and to him/her shown state of help importance separately The event highlighted the "Neighborhood Seven " system . current that was done and short on occasion his/ her own positive the effect shown confession This system neighborhood economic and social potential to increase aimed at new approaches previously Also , in 2024, the neighborhood system employees for award fundraiser organization was done , this and the activities of the neighborhood efficiency to increase help The fund will provide 600 million soums . in the amount of be , neighborhood, education institutions , and other in organizations worker employees to encourage directed .

Result Syrdarya of the activities of 12 neighborhoods in the region economic analysis results , neighborhood system economic the basics improvement according to one row scientific to conclusions take arrived . Analyzed neighborhoods economic in their activities noticeable differences existence identified . Some neighborhoods village farm and industry small industries , for example , handicrafts and small business to develop successful was if , others state by presented done economic programs and grants using social projects done Increased the local economy various socio-economic to the conditions looking at developed , economic efficiency provide for inter-neighborhood cooperation and resources effective management the necessity showed . From this in addition , in research state programs to the local economy Analysis of the impact was done . To the neighborhoods separable financial resources , loans and benefits efficiency increased although , this of the system complete performance for neighborhoods organizational structure and financial abilities improvement is required . The state social services show system in neighborhoods economic stability in providing important place Also , the neighborhood system community organizations in

development and public activity , as well as economic to activities youth and women attraction of reaching importance important importance has . Analysis results this shows that the neighborhood system effective performance and economic stability in providing neighborhoods organizational potential reinforcement necessary ..

Analysis . Syrdarya of 12 neighborhoods in the region economic activity analysis to do through the neighborhood system economic the basics in improvement important importance has was one row factors determined . Analysis results this shows that neighborhoods economic in terms of various development to the level has is , this differences neighborhoods socio-economic to the conditions and there is from resources how to use depends on . Some neighborhoods village farm , small business and handicraft in the fields effective development indicators presented if so , others and economic in activity active participation without mainly state by given help and to grants relies on . So so , the local economy and his/her development level many in terms of there is resources how to manage related that it was shows the neighborhood system economic opportunities in evaluation state of programs role separately importance In the study , the state by to neighborhoods presented done financial assistance , loans and grants efficiency analysis done . To the results because of this programs in the neighborhoods economic activity to increase help gives, but bureaucratic obstacles and resources shortage problems , some in the neighborhoods their complete done increase is limiting . From this come came out without, state of programs effective performance for neighborhoods organizational opportunities improve , they for special manuals and trainings organization to grow necessity Also , the analysis during inter-neighborhood differences further deeper studied . Some in the neighborhoods economic activity high this is on the ground small and middle business networks developing if , else in the neighborhoods economic activity is low This situation remains . neighborhoods organizational opportunities , resources effective use level and to neighborhoods separated financial of resources distribution with closely It depends on the neighborhood. economic development encouragement for their own resources further effective management and new business opportunities create important importance has . From this in addition to local organizations role analysis was done . Neighborhood organizations effective in operation organizational resources and public active participation important from factors one is considered. In the study As shown , some in the neighborhoods public economic to activities attraction to be done high level , especially among young people and women to entrepreneurship attraction in doing noticeable positive results record However , other in the neighborhoods this low activity level this is The state of the neighborhood economy to develop negative impact showing . So so that the neighborhood system development for , especially , young people and women entrepreneurship to their activities attraction to grow and this in the field more opportunities create Neighborhoods economic in development financial the opportunities are also great role plays .

Discussion In the study, neighborhoods separated funds inflation and other external factors under the influence own value loss and economic stability in

providing problems brought release This is shown . means that the neighborhoods separated financial resources further effective and own on time distribution necessary . Also , in the neighborhood system there is resources management and from them maximum at the level use important importance At the same time , the neighborhood system economic the basics improvement for , to neighborhoods further more financial and organizational help show , neighborhood and state between cooperation further strengthening , in neighborhoods the youth and women economic to activities attraction to , and economic stability provide for neighborhoods resources effective management necessity separately These measures are neighborhoods economic development encouragement and their stable to develop service does .

Conclusion. The neighborhood system economic the basics improvement , social and economic stability provide for important importance has . Research results this showed that the neighborhood system economic activity in increasing one row main factors , including neighborhoods from resources effective use , state of programs impact , community organizations role , and public economic to activities attraction to be such as aspects separately importance profession The neighborhood system economic development improvement for , first Next , to the neighborhoods being allocated financial resources and of help effective management need . In the study as shown , in the neighborhoods economic of activity various level development , their to resources and state to programs how much effective has to the fact that The neighborhood system economic the basics in improvement state and between the neighborhood cooperation strengthening , as well as resources effective distribution and them complete use necessary . Also , in the neighborhood system youth and women entrepreneurship to their activities attraction economic development encouraging important factor as separated The public economic activity increase for gender and to age related opportunities expansion , as well as in neighborhoods economic activities supportive organizational and financial the system reinforcement As a result , the neighborhood system economic the basics improvement for complex approach Neighborhoods between economic the differences reduction , social and economic changes done increase , resources effective management and state programs optimization this of the process main structural parts is considered . Of these all neighborhood stable economic development provide and his/her social to stability added contribution to increase service does .

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CARBON FIXATION PATHWAYS IN PHOTOSYNTHESIS

Abstract: *With the help of this article, you can learn about the process of photosynthesis, which is one of the main characteristics of plants, and the ways in which carbon can be absorbed in this process.*

Keywords: *photosynthesis, carbon, ATP, H2O, Oxygenic photosynthesis, Carbon absorption*

The process of photosynthesis is vital for plants because it is their main way of producing food and storing energy. It is also the main source of energy for all life on Earth, as plants are a key component of the food chain. To better understand the process of photosynthesis, let us take a closer look at its main stages:

1. Light stage:

In this stage, light energy, mainly from the sun, is absorbed by chlorophyll molecules inside the chloroplasts. Chlorophyll absorbs this energy in the form of photons and converts it into chemical energy. In this process, water molecules (H_2O) are broken down, releasing oxygen (O_2). At the end of this process, the following energy sources are produced:

- ATP (adenosine triphosphate): A chemical energy storage molecule.
- NADPH: An electron transport molecule.

2. Dark stage (Calvin cycle):

In this stage, carbon dioxide (CO_2) is absorbed from the environment through the stomata of the plants. The transformation of CO_2 and its conversion into organic substances (e.g., glyose) is carried out using the energy of ATP and NADPH. In this step:

- CO_2 (carbon dioxide from the atmosphere) is converted into an organic compound, namely glucose, through several chemical reactions.
- This glucose is used by the plant for growth, development, and energy storage.

Ecological importance of photosynthesis:

Photosynthesis also plays an important role in maintaining the stability of ecosystems on Earth. Plants, through photosynthesis, reduce the amount of carbon dioxide in the atmosphere and increase the amount of oxygen, which provides a source of oxygen necessary for other life forms. In addition, the organic substances

produced by plants serve as the basis of the food chain. Photosynthesis is also important in combating climate change, as plants absorb carbon dioxide and reduce its release into the atmosphere. Various studies are being conducted to make this process more efficient, for example, increasing the efficiency of photosynthesis through genetically modified plants. This process of photosynthesis supports the functioning of the entire biosphere and ensures the continuation of life on Earth. The process of carbon fixation in photosynthesis is one of the important biological processes by which plants, algae, and some bacteria convert solar energy into chemical energy. During photosynthesis, carbon dioxide (CO_2) is absorbed from the air and organic substances (mainly glucose) are formed. This process is not only a source of energy for plants, but is also vital for the entire biosphere.

Two main pathways of photosynthesis

The process of photosynthesis occurs in two main pathways:

1. Oxygenic photosynthesis (photosynthesis that produces O_2)

This type of photosynthesis occurs mainly in plants, green algae, and some bacteria. In oxygenic photosynthesis, the energy of sunlight splits water, forming oxygen (O_2) and hydrogen ions. This process occurs in two stages:

- Photon reaction or light reactions: Absorbing the energy of sunlight, water splits into oxygen and protons. In this process, oxygen (O_2) is produced and the energy is converted into ATP and NADPH molecules.

- Black reactions (Calvin cycle): In this stage, carbon dioxide (CO_2) is absorbed from the air and organic substances (such as glucose) are formed through a series of chemical reactions. The Calvin cycle ensures the absorption of carbon. In oxygenic photosynthesis, CO_2 molecules are mainly combined by the plant and converted into sugars through the Calvin cycle.

2. Oxygenic photosynthesis (photosynthesis that does not produce O_2)

Anoxygenic photosynthesis occurs in some bacteria, such as sulfide bacteria or some blue-green bacteria. This type of photosynthesis does not split water and does not produce oxygen. In oxygenic photosynthesis, carbon fixation also occurs from CO_2, but there is no oxygen exchange.

Carbon fixation

The process of carbon fixation is related to the Calvin cycle of photosynthesis. Through this cycle, plants and other photosynthetic organisms convert solar energy into chemical energy and synthesize organic substances. This process consists of the following steps:

1. Carbon dioxide fixation: CO_2 molecules from the air are introduced into the chloroplasts. There, the carbon atoms react with ribulose diphosphate (RuBP).

2. Carbon fixation: CO_2 combines with RuBP to form 3-phosphoglycerate (3-PGA).

3. Reductive stage: 3-PGA is converted to organic compounds such as glucose using ATP and NADPH.

4. Regeneration: RuBP is regenerated and the cycle continues.

Carbon fixation during photosynthesis is extremely important for ecological systems. Carbon fixed by plants and photosynthetic organisms is the main source of

organic matter necessary for plant growth and development. In addition, photosynthesis reduces the amount of CO_2 in the atmosphere, helping to regulate the climate.

The process of carbon fixation in photosynthesis serves as an energy source for all life forms in the biosphere. The efficiency and importance of this process are of great importance not only for plants, but also for ecosystems on Earth as a whole. A better understanding of the ecological significance of photosynthesis and carbon fixation can be an important factor in the fight against climate change. Scientific research is ongoing to better understand and improve the process of carbon fixation during photosynthesis. By accelerating or increasing the efficiency of this process, it can significantly improve global food supply, reduce carbon in ecosystems, and help combat climate change.

1. Genetic engineering and increasing the efficiency of photosynthesis

Science is seeking to use genetic engineering methods to improve the process of photosynthesis. For example, it is possible to accelerate the Calvin cycle of photosynthesis and create plants that absorb more carbon. This will allow to increase plant growth and yield. These processes can be carried out in the following areas:

- Research related to the enzyme RuBP carboxylase/oxygenase (Rubisco): Rubisco is the main enzyme in carbon absorption in photosynthesis, but the efficiency of this enzyme can be low. Today, scientists are looking for ways to enhance the activity of this enzyme or create new variants.

- Conversion to the C4 pathway of photosynthesis: C4 photosynthesis is a more efficient form of photosynthesis. C4 plants (e.g., corn) absorb more CO_2 and are more efficient at photosynthesis. Research is underway to convert C3 plants to C4 photosynthesis through genetic engineering.

- Increased carbon use efficiency: The chemical structure of plants can be optimized to fix carbon more quickly and convert it into organic matter. Such changes can lead to faster plant growth and yield.

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HINDISTONNING QO’SHNILARI BILN HUDUDIY MASALALARI

Annotatsiya: *Ushbu maqolada Hindiston Federativ Respublikasi qo‘shnilari bilan bog‘liq hududiy masalalari va ularning kelib chiqish sabablari haqida fikr yuritilgan. Mazkur mavzuni o’rganishda tarixiylik, kartografik va siyosiy-geografik tahlil usullaridan foydalanilgan holda, Hindistonning qo’shnilari bilan bog’liq hududiy masalalarini bartaraf qilish yechimlari haqida o’ziga xos mulohazalar berilgan.*

Kalit so’zlar: *Aksay hududi, Arunachal-Pradesh, Gilgit-Baltistan, Jammu va Kashmir, Doklam inshooti, Kalapani, Limpiyadhura, Lipulekh, Tavang tumani.*

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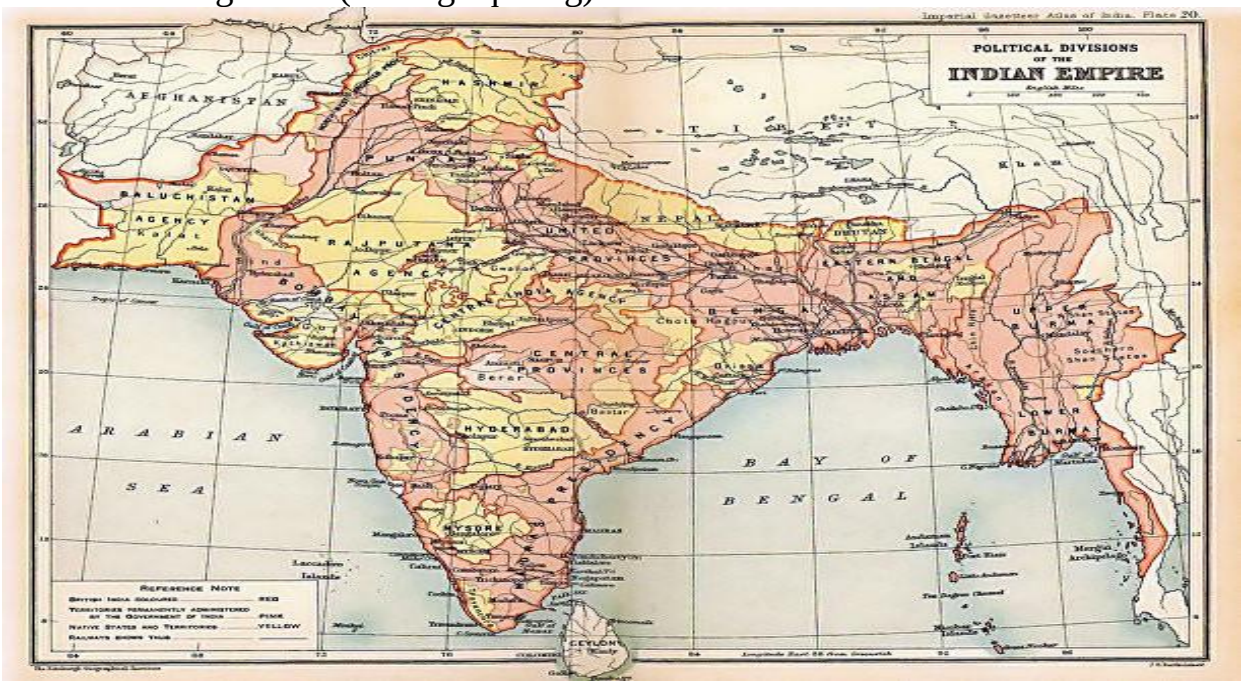
TERRITORIAL ISSUES OF INDIA WITH ITS NEIGHBORS

Abstract: *This article examines the territorial problems of the Federal Republic of India with its neighbors and their causes. When studying this topic, using the methods of historicism, cartographic and political-geographical analysis, specific considerations are given on solutions to India's territorial issues related to its neighbors.*

Keywords: *Aksay area, Arunachal Pradesh, Gilgit-Baltistan, Jammu and Kashmir, Doklam facility, Kalapani, Limpiyadhura, Lipulekh, Tavang district.*

KIRISH. 1947 yilgacha Buyuk Britaniya mustamlaksi bo'lgan Hindiston ulkan hudud egasi edi (xaritaga qarang).



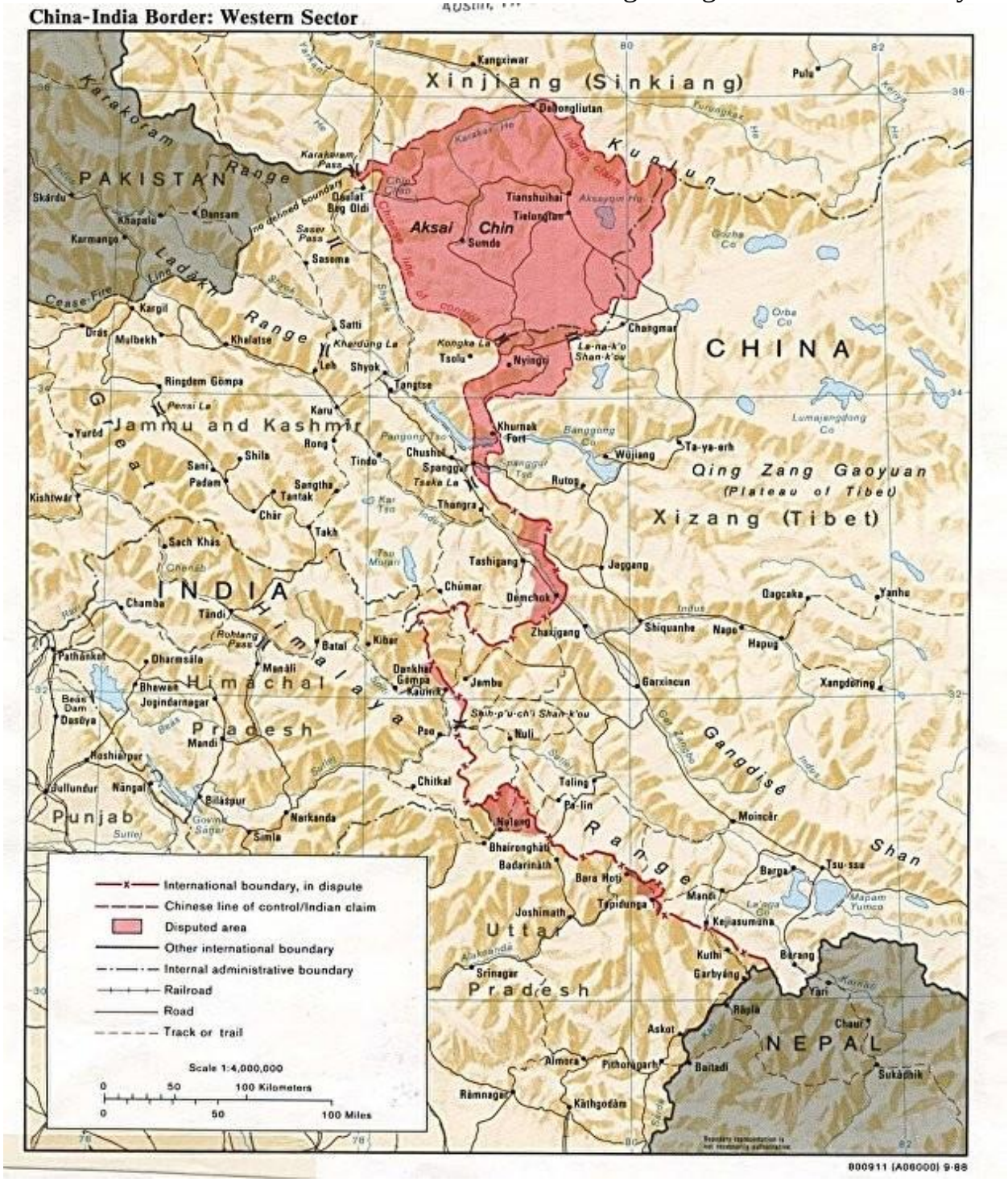
1-rasm. Hindiston imperiyasining hududi[4].

Ushbu imperyaga asosni esa "Boburiy sulolasi" solgan va 300 yildan ortiq davrda mamlakatni boshqarib kelgandi. Keyinchalik bu yerlar inglizlar tomonidan bosib olinib mustamlakaga aylantirilgandi. Janubiy Osiyodagi II jahon urushidan keyingi Jahon siyosiy xaritasidagi o'zgarishlarga Hindistonning mustaqilikka erishishi va uning bir nechta davlatlarga bo'linishi bo'ldi. Allbata bunday jaryonda yangi tashkil topgan mamlakatlar ortasida hududiy kelishmovchiliklar shakllandi va ayrim hududiy masalalar hali-hanuz o'z yechimini topmay turli nizolar va kelishmovchiliklarga sabab bo'lmoqda.

ASOSIY QISM. XX sar o'rtalarida mustaqillikka erishgan Hindiston quyidagi 7 ta davlat: Xitoy, Pokiston, Nepal, Butan, Bangladesh, Myanma, Afg'oniston(hozirda ushbu davlat bilan chegarsi amalda yo'q) bilan chegaradosh va shuningdek, Hindiston dengiz orqali Shri-Lanka va Maldiv orollariga yaqin joylashgan. Ushbu mamlakatlarning asosan ikkitasi bilan ko'proq hududiy kelishmovchiliklarga doimiy ravishda kirib kelgan. Ular katta hududga va ko'p aholi sonigaega Xitoy va Pokistondir. Ayni paytda har ikkala davlat yadro arsenaliga ega, jumladan Hindiston ham, bu esa tomonlarning kurashish imkoniyatlarini tenglashtiradi. Quyida biz Hindistonning hududiy masalalari bilan bog'liq yaqin tarixdagi siyosatini ko'rib chiqamiz.

Hindiston va Xitoy o'rtasida uzoq vaqt davomida chegaraviy nizolar bo'lib kelgan. Eng muhim nizolar 1962-yilda Xitoy-Hindiston urushiga olib keldi. Bugungi kunda Hindiston Xitoy bilan o'zining shimoliy-sharqiy hududlaridagi chegarasi (Aksay Chin va Arunachal Pradesh) bo'yicha tortishuvlarni davom etmoqda.

Hindiston va Xitoy o’rtasidagi chegaraviy muammolar tarixan murakkab va uzoq davom etgan masaladir. Hindiston va Xitoy o'rtasidagi eng muhim va murakkab nizo Aksaychin hududiga tegishli. Bu hududni Xitoy, asosan Szinjiang viloyatining bir qismi sifatida boshqaradi, ammo Hindiston uni Ladax mintaqasining bir qismi deb hisoblaydi. Aksaychin, asosan tog'li hududlardan iborat bo'lib, strategik ahamiyatga ega. 1962-yilda Hindiston va Xitoy o'rtasida bo’lib o’tgan qurolli to’qnashuvlarda Xitoy qo’shinlari Aksaychin hududini egallab oldi, lekin Hindiston bu hududni hali ham o'ziga tegishli deb hisoblaydi.



`***2-rasm.*** Aksay-Chin. Hindiston va Xitoy o’rtasidagi bahsli hudud[4].

Hindistonning shimoli-sharqiy hududi Arunachal Pradeshni Xitoy Janubiy Tibetning bir qismi sifatida da'vo qiladi, Hindiston esa bu yerlarni o’zining tarixiy tarkibiy qismi deb hisoblaydi. Bu hudud ham Xitoy va Hindiston o'rtasidagi doimiy nizo manbalaridan biridir [4]. Shuningdek bu joyda nizoli Tavang tumani ham joylashgan. Hindiston Xitoyga bir necha bor “Arunachal-Pradesh Hindistonning ajralmas qismi bo‘lgan va shunday bo‘lib qoladi”, deb bir necha bor ta’kidlagan [3]. Hindiston Xitoy munosabatlari ular chegaradosh boshqa mamlakatlar orqali ham namyon bo’ladi jumladan Pokiston, Nepal va Butan kabi Hindistoning g’arbiy va shimoliy chegaraddosh qo’shilari bilan.

3-rasm. Arunachal-Pradesh. Hindiston va Xitoy o’rtasidagi bahsli hudud[4].

Hindiston va Xitoy o’rtasidagi boshqa bir katta nizo 2017-yilda Doklam hududida yuz berdi. Doklam, Xitoyning Butan bilan bo’lgan chegarasiga yaqin joylashgan, Xitoy va Hindiston uchun strategik ahamiyatga ega hududdir. Bu hududda Xitoyning infratuzilma qurilishi va Hindistonning bu jarayonni to'xtatishga urinishlari ikki mamlakat o’rtasida qizg’in diplomatik inqirozga olib keldi.

Chegara bo'yicha qo’shimcha ziddiyatlar Xitoy va Hindiston o'rtasida harbiy va diplomatik aloqalar ko’plab hududiy nizolarni o’z ichiga oladi. 2020-yilgi Galvan vodiysidagi to’qnashuvlar, bu ikki mamlakat o’rtasida chegaraviy nizolarning yana bir yangi bosqichini ko’rsatdi. Bu to’qnashuvda bir nechta askarlar halok bo'ldi va bu nizo o’zgaruvchan xususiyatlarga ega bo’lib, harbiy harakatlar va diplomatik muloqotlar o’rtasidagi o’zaro murakkablikni yanada oshirdi.

Hindiston va Pokiston o‘rtasidagi chegaraviy muammolar asosan Kashmir masalasi atrofida to‘plangan. Ushbu masala 1947 yilda Hindiston va Pokiston

mustaqillikka erishganidan beri davom etmoqda. Quyida asosiy muammolar va sabablar keltirilgan.

Kashmir masalasi 1947 yilda Britaniya Hindistonining bo‘linishi chog‘ida Kashmir knyazligi ikki davlatdan biriga qo‘shilish haqida qaror qabul qilishi kerak edi. Biroq, knyazlik hukmdori Hindistonga qo‘shilishga qaror qildi, bu esa Pokistonning noroziligiga sabab bo‘ldi. Shu sababli, Hindiston va Pokiston o‘rtasida bir necha bor urushlar bo‘lib o‘tdi (1947-1948, 1965, 1971 va 1999 yillarda). 1949 yilda BMT vositachiligida o‘t ochishni to‘xtatish chizig‘i (Line of Control - LoC) belgilandi, ammo bu hudud rasmiy chegaralar sifatida tan olinmagan. Hindiston Jammu va Kashmirni o‘zining ajralmas qismi deb biladi, Pokiston esa uni o‘z hududi deb da'vo qiladi.

Pokiston Kashmirda hind boshqaruviga qarshi harakatlarni qo‘llab-quvvatlaganlikda ayblanadi. Hindiston Pokistonni terrorchilik guruhlariga boshpana berishda va ularga yordam berishda ayblaydi, xususan 2008 yildagi Mumbay hujumlari bilan bog‘liq holda.

2019 yilda Hindiston Konstitutsiyasining 370-moddasini bekor qilib, Jammu va Kashmirning maxsus maqomini olib tashladi. Bu qaror Pokiston tomonidan keskin norozilikka sabab bo‘ldi va ikki davlat o‘rtasidagi keskinlikni yanada kuchaytirdi.

Hindiston va Nepal o‘rtasidagi chegaraviy muammolar asosan Kalapani, Limpiyadhura va Lipulekh hududlari atrofida vujudga kelgan. Ushbu muammolar ko‘p yillardan beri davom etib kelmoqda.

Chegaraning noaniqligi Hindiston va Nepal o‘rtasidagi chegara 1815 yilda imzolangan Sugauli shartnomasi asosida belgilangan. Ushbu shartnomaga ko‘ra, Kali daryosi Nepal va Britaniya Hindistoni o‘rtasidagi chegara sifatida qabul qilingan. Biroq, Kali daryosining qayerdan boshlanishi haqidagi talqinlar Hindiston va Nepal o‘rtasida farqlanadi. Nepal Limpiyadhura hududini Kali daryosining boshi deb hisoblab, ushbu hududni o‘zining qismi deb biladi. Hindiston esa Kalapani va Lipulekhni o‘z hududi deb e’lon qilgan.

Kalapani hududi Uttarakhand shtatida joylashgan bo‘lib, strategik ahamiyatga ega. Nepal ushbu hududni o‘ziga tegishli deb hisoblaydi, chunki Kali daryosi chegaradan o‘tadi. Hindiston esa Kalapani Hindistonning tarkibiy qismi ekanini ta’kidlaydi.

Lipulekh dovoni Xitoy bilan chegaradosh bo‘lib, Hindiston savdo va transport yo‘li sifatida foydalanadi. 2020 yilda Hindiston Lipulekhni bog‘laydigan yo‘lni qurishni boshlagan, bu esa Nepal tomonidan norozilik bilan qarshi olindi.

2019 yilda Hindiston Jammu va Kashmirning maxsus maqomini bekor qilganidan so‘ng, yangi siyosiy xaritani e’lon qildi. Ushbu xaritada Kalapani Hindiston hududi sifatida ko‘rsatilgan edi. Nepal bunga javoban 2020 yilda o‘zining yangi siyosiy xaritasini e’lon qildi, unda Kalapani, Limpiyadhura va Lipulekh Nepal hududi sifatida ko‘rsatilgan.

Hindiston va Butan o‘rtasida an'anaviy tarzda iliq va do‘stona munosabatlar mavjud bo‘lib, hozirgi kunga qadar jiddiy chegaraviy mojarolar kuzatilmagan.

`***4-rasm.*** Doklam inshooti Hindiston va Xitoy o'rtasidagi yangi kelishmovchilik hududi[6].

Hindiston va Butan o‘rtasidagi chegara uzunligi taxminan 699 kilometr bo‘lib, bu chegara aniq belgilangan. Hindiston Butan bilan chegara xavfsizligini ta’minlashda yordam ko‘rsatadi, chunki Butan Hindiston va Xitoy o‘rtasidagi strategik joyda joylashgan. Hindistonning chegarada xavfsizlik masalalarini diqqat bilan kuzatishi Xitoyning Butan hududiga da’volari bilan bog‘liq.

Doklam masalasi-2017 yilda Xitoyning Butan bilan chegaradosh Doklam platosida yo‘l qurishga urinishi Hindiston va Xitoy o‘rtasida ziddiyatga olib keldi. Hindiston Butanning suverenitetini himoya qilish uchun Doklam platosida harbiy faoliyatni boshladi. Ushbu voqea Butan va Hindiston o‘rtasida mustahkam strategik sheriklikni ko‘rsatadi. Biroq, Butan ushbu masalada ehtiyotkorlik bilan harakat qiladi va Xitoy bilan ziddiyatni kuchaytirmaslikka intiladi.

Hindiston va Bangladesh o‘rtasidagi chegaraviy masalalar bir necha o‘n yillardan beri davom etib kelmoqda. Ushbu ikki davlat o‘rtasidagi chegaraning uzunligi taxminan 4,096 kilometr bo‘lib, bu Hindistonning eng uzun xalqaro chegarasidir.

Yer almashinuvi (Enklavlar masalasi) Hindiston va Bangladesh o‘rtasidagi eng katta chegaraviy muammolardan biri enklavlar (chegaradagi izolyatsiya qilingan hududlar) edi. Enklavlar masalasi bo‘yicha noaniqlik sababli hududda yashovchi aholi yuridik va iqtisodiy muammolarga duch kelgan. 2015 yilgi Hindiston-Bangladesh Yer Almashinuvi Bitimi orqali ushbu masala hal qilindi. Ushbu bitim bo‘yicha ikki davlat bir-biriga tegishli bo‘lgan 162 ta enklavni almashtirdi va aholiga yashash joyini tanlash imkonini berdi. Bu tarixiy qaror chegaraviy muammolarni hal qilishda muhim ahamiyat kasb etdi.

Bengal ko‘rfazi dengiz chegarasi Hindiston va Bangladesh o‘rtasida dengiz chegaralari bo‘yicha bahs ham mavjud edi. 2014 yilda BMT xalqaro sudining qarori bilan ushbu masala Bangladesh foydasiga hal qilindi. Bangladeshga qo‘shimcha

dengiz hududlari berildi, bu esa baliqchilik va tabiiy resurslardan foydalanish imkoniyatlarini kengaytirdi.

Hindiston va Myanma o‘rtasida chegaraviy masalalar asosan chegara xavfsizligi, etnik guruhlar faoliyati va noqonuniy faoliyatlar bilan bog‘liq. Ushbu ikki davlat o‘rtasidagi chegara uzunligi taxminan 1643 kilometr bo‘lib, Shimoliy-Sharqiy Hindiston va Myanma o‘rtasida cho‘zilgan. Hindiston va Myanma chegarasi o‘rmonli va tog‘li hududlardan iborat bo‘lib, ko‘plab joylarda chegarani oson kesib o‘tish mumkin. Bu noqonuniy faoliyatlarni, jumladan: odam savdosi, narkotik moddalar kontrabandasi, qurol savdosi va yovvoyi hayvonlar kontrabandasini kuchaytiradi. Hindiston noqonuniy faoliyatlarni nazorat qilish uchun chegara xavfsizligini kuchaytirishga urinmoqda.

2015 yilda Hindiston armiyasi Myanma chegarasi yaqinida Naga guruhlariga qarshi harbiy amaliyotlar o‘tkazdi, bu esa Myanma bilan diplomatik muammolarni yuzaga keltirdi. Myanmada yuz bergan siyosiy beqarorlik va iqtisodiy qiyinchiliklar sababli ko‘plab odamlar Hindistonga noqonuniy ravishda ko‘chib kelmoqda. Bu masala, ayniqsa, 2021 yildagi harbiy to‘ntarishdan keyin kuchaygan.
Hindiston noqonuniy immigrantlarning Shimoliy-Sharqiy hududlarida demografik muvozanatni o‘zgartirayotganidan xavotirda.

Hindiston va Afg‘oniston o‘rtasidagi tarixiy jihatdan aniq chegaraviy muammolar mavjud emas, chunki Hindiston va Afg‘oniston bugungi kunda to‘g‘ridan-to‘g‘ri geografik chegaraga ega emaslar. Ammo tarixiy va strategik jihatlarni hisobga olgan holda, ushbu ikki davlat o‘rtasida ayrim bilvosita muammolar paydo bo‘lishi mumkin.

Hindiston va Afg‘oniston o‘rtasida Durand chizig‘i bo‘ylab tarixiy aloqa mavjud edi, ammo hozirgi kunda bu hudud Pokiston nazorati ostida. Gilgit-Baltistan va Jammu va Kashmirning Pokiston tomonidan boshqarilayotgan qismi Hindiston va Afg‘onistonni bevosita bog‘lab turishi mumkin bo‘lgan hududdir. Hindiston Afg‘oniston bilan bevosita savdo va transport aloqalarini rivojlantirishni istaydi, ammo Pokiston ushbu tranzit yo‘llarni bloklab qo‘ygan.

Hindiston va Afg‘onistonning Pokiston bilan murakkab munosabatlari Hindiston-Afg‘oniston aloqalariga bilvosita ta'sir ko‘rsatadi. Hindiston Afg‘onistonda infratuzilma loyihalarini amalga oshirish va rivojlanishni qo‘llab-quvvatlash orqali o‘z ta'sirini kuchaytirmoqchi, bu esa Pokistonning noroziligiga sabab bo‘lmoqda.

5-rasm. Gilgit bir vaqtalar Hindistonning Afgoniston bilan chegara hududi sanalgan[4].

Hindiston Afg‘onistonda joylashgan terrorchilik guruhlar, xususan, Jaish-e-Muhammad va Lashkar-e-Taiba kabi guruhlarning faoliyatidan xavotirda. Ushbu guruhlarning Pokiston orqali Hindistonga tahdid solishi ehtimoli yuqori.

XULOSA. Hindiston bilan chegaradosh mamlakatlar u bilan oqilona siyosat olib borishga harakat qiladilar negaki, jadal rivojlanishdagi mazkur mamlakatning ham iqtisodiy, ham harbiy salohiyati yildan yilga kuchayib bormoqda.

Hindiston va Xitoy o’rtasidagi bu muammolar, har ikki davlatning siyosiy, iqtisodiy va harbiy pozitsiyalarini shakllantiradi. Shu bilan birga, bu chegara nizolarining mintaqaviy barqarorlikka ta’siri katta bo’lib, butun Osiyo va dunyo bo’ylab xavfsizlik muammolariga olib kelishi mumkin.

Hindiston va Pokiston davlatlari o‘rtasida muammoni tinch yo‘l bilan hal qilish uchun turli muzokaralar o‘tkazilgan, biroq hali samarali natijaga erishilmagan. Mazkur masala Janubiy Osiyodagi xavfsizlik va barqarorlikka jiddiy ta'sir ko‘rsatmoqda.

Hindiston va Nepal munosabatlarida Nepalning Hindiston harakatlariga qarshi noroziligi diplomatik munosabatlarda taranglikni keltirib chiqardi. Hindiston Nepalni Xitoy bilan yaqinlashayotganlikda ayblaydi. Har ikkala davlat chegaraviy muammolarni hal qilish uchun muzokaralar o‘tkazishga uringan, ammo hali aniq natijalarga erishilmagan.

Ushbu hududlar strategik jihatdan muhimdir, chunki ular Hindistonning Xitoy bilan savdo va harbiy yo‘llariga yaqin joylashgan. Nepalning bu masalada qat'iy pozitsiyasi uning milliy suverenitet va chegaralar ustidan nazoratni saqlab qolish istagi bilan bog‘liq. Hindiston va Nepalning tarixiy yaqinligi va madaniy bog‘liqligiga qaramay, chegara mojarolari mintaqadagi barqarorlikka xavf tug‘diruvchi omil bo‘lib qolmoqda.

Hindiston va Butan o‘rtasida chegaraviy mojarolar mavjud emas. Asosiy masalalar Butanning Xitoy bilan chegara ziddiyatlari va Hindistonning ushbu hududdagi strategik manfaatlari bilan bog‘liq. Bu ikki davlatning o‘zaro ishonchga asoslangan yaqin munosabatlari mintaqaviy barqarorlikni ta’minlashda muhim omil hisoblanadi.

Hindiston va Bangladesh o‘rtasidagi chegara masalalari tarixiy, ijtimoiy va ekologik jihatlarga ega. 2015 yilgi Yer Almashinuvi Bitimi muhim yutuq bo‘lgan bo‘lsa-da, suv resurslari taqsimoti, noqonuniy immigratsiya va chegara xavfsizligi kabi muammolar hali ham dolzarb. Shu bilan birga, ikki davlat mintaqaviy barqarorlik va iqtisodiy hamkorlikni mustahkamlash uchun birgalikda ishlashga intilmoqda.

Hindiston va Myanma o‘rtasidagi chegarada infratuzilma zaif bo‘lib, bu mintaqaviy iqtisodiy rivojlanishga to‘sqinlik qiladi. Hindiston mintaqani rivojlantirish uchun chegaradosh hududlarda yo‘llar va savdo markazlari qurishga intilmoqda. Biroq, Hindistonning chegara bo‘ylab devor qurish rejalari ba’zi mahalliy qabilalarning noroziligiga sabab bo‘ldi. Ular erkin harakatlanish huquqlarining cheklanishidan xavotirda.

Hindiston va Myanma o‘rtasidagi chegaraviy muammolar asosan xavfsizlik, noqonuniy faoliyatlar va etnik guruhlarning harakatlari bilan bog‘liq. Hindiston chegara xavfsizligini kuchaytirish va iqtisodiy aloqalarni rivojlantirishga harakat qilmoqda, ammo Myanmadagi ichki siyosiy muammolar va mintaqaviy muvozanatni saqlash zarurati bu jarayonni murakkablashtiradi.

Hindiston va Afg‘oniston o‘rtasida to‘g‘ridan-to‘g‘ri chegaraviy muammolar yo‘q, ammo bilvosita masalalar, jumladan, Pokiston bilan murakkab munosabatlar, terrorizm tahdidlari va savdo aloqalariga to‘siqlar mavjud. Hindiston Afg‘onistonni beqarorlikdan chiqarish va mintaqaviy savdo aloqalarini yaxshilash uchun xalqaro hamkorlikka tayanmoqda.

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AGROTECHNOLOGY OF SOYBEAN CULTIVATION AS A REPEATED CROP

Abstract: *The article outlines the theoretical possibilities of growing soybeans as a repeated crop under irrigation conditions. It recommends early-maturing and medium-maturing varieties, and characterizes the key elements of agro-technology for repeated sowing of soybeans.*

Key words: *soybean, defoliation, protein, oil, Orzu variety, Tumaris MAN 60 variety, bean ripening terms.*

Soybean is a valuable, protein-rich, and oil-bearing crop, widely grown in Uzbekistan in recent years as a food, technical, and fodder crop. In the irrigated areas of Uzbekistan, autumn wheat is sown on more than a million hectares. This crop is harvested in early summer. Such conditions allow soybean to be planted as a repeated crop, providing an opportunity to fully ripen the seeds and make the best use of land and water resources.

Soybean is grown in more than 40 countries worldwide, and among leguminous crops, it is the most widely cultivated globally, covering an area of nearly 84 million hectares. The highest yields are reported in Japan, where 84 centners per hectare were obtained.

In Andijan region, scientific data shows that about 8 billion kilocalories of physiological active radiation (PAR) fall on each hectare of land throughout the year, with 3.2 billion kilocalories during the vegetation period (April to August). The remaining PAR falls from October to March. Considering that plant vegetation in the region lasts until mid-October, it receives 2.8 to 3.0 billion kilocalories of PAR during this period. The vegetation period lasts 110–115 days.

After wheat, early-maturing (90–105 days) and medium-maturing (106–119 days) soybean varieties can be planted, allowing for a full ripening of the seeds during the harvest period. In irrigated conditions, with a useful work coefficient of PAR of 2.5%, and assuming the energy content of 1 kg of soybean seed is 4800 kcal, one can obtain 17.5 tons of dry matter or more than 3 tons of soybean seeds per hectare from the repeated crop.

The biological characteristics of the soybean plant must be considered in order to optimize its growth and yield. The plant requires adequate nutrition during its developmental phases, protection from pests and diseases, and effective management of the irrigation and fertilization processes.

Fertilizer Requirements: Soybeans consume more nutrients than grain crops, with the maximum consumption for 1 ton of seeds being 82 kg of nitrogen, 26 kg of phosphorus, and 47 kg of potassium. The nutrients that leave the soil in the

form of seed and plant mass for 1 ton of grain are 72 kg of nitrogen, 23 kg of phosphorus, and 38 kg of potassium. For cereal crops, these figures are 34 kg of nitrogen, 13 kg of phosphorus, and 27 kg of potassium, respectively. Soybeans have a higher demand for nitrogen, especially during the flowering and pod development stages.

Soybeans, like other leguminous crops, fix nitrogen through symbiosis with Rhizobium bacteria, which leads to reduced nitrogen fertilizer requirements in optimal conditions. If symbiotic conditions are favorable (adequate soil pH, phosphorus, potassium, magnesium, boron, molybdenum, and suitable bacteria strains), the plant can fix up to 250 kg of atmospheric nitrogen per hectare during the growing season. This results in yields of 3–4 tons per hectare without nitrogen fertilization.

Optimal Growing Conditions: Soybeans require specific environmental and soil conditions to grow well. They are a short-day, light-loving, and moisture-loving plant. For maximum yield, it is important that the plants are evenly spaced in the field. For a full ripening of the crop, the effective temperature sum must be between 1600°C and 2000°C.

During different development stages, the ideal temperature ranges are as follows:

- For seed germination and seedling emergence: 15–20°C
- For the third true leaf stage and branching: 18–22°C
- For flowering, pod formation, and grain filling: 20–23°C
- For ripening: 18–20°C

Water Consumption: Soybean plants are relatively drought-tolerant during their early growth stages (before flowering). However, during flowering, pod formation, and grain filling, they require higher moisture levels. The total water consumption per hectare depends on environmental conditions and can range from 3000–5500 m^3/ha, with a water consumption coefficient of 1500–3500 m^3 per ton of grain.

Soil moisture requirements vary throughout the growing season. The optimal moisture content for seed germination and emergence is 80–100% of field capacity, while the moisture content should be around 60% during ripening.

Soil Requirements: Soybeans can be grown in various soil types as long as the soil is well-drained and aerated. They do not grow well in acidic soils. The plant's root system develops optimally in soils with a density of 1.10–1.25 g/cm^3. Soils prone to waterlogging or poor aeration should be avoided.

Nutrient Requirements: For 1 ton of seed yield, soybeans require 7.5–10 kg of nitrogen, 1.7–2.5 kg of phosphorus, and 3.0–4.5 kg of potassium. The plant's demand for nutrients is greatest during certain phases of growth:

- Germination and early growth: phosphorus
- Branching: nitrogen and potassium
- Flowering and pod development: nitrogen, phosphorus, and potassium
- Seed filling and ripening: nitrogen, phosphorus, and potassium

When there is a shortage of mobile nutrients in the soil, it is essential to apply fertilizers at various stages of development, including pre-planting, during planting, and throughout the growing season. Fertilizer applications should be based on the

plant’s nutrient demand during each developmental phase and the availability of nutrients in the soil.

Technology for Growing Soybeans: The following points must be considered in the technology for growing soybeans as a repeated crop:

- The previous wheat crop should be well-fertilized, with high yield and timely harvesting.
- After wheat, the field must be prepared properly for sowing soybeans in the second half of June, ensuring that the soil conditions (moisture, air, and physical properties) are optimal for seed germination.
- The seeds used should be from a registered variety, with good agronomic characteristics (class 1 quality).
- It is recommended to plant early-maturing (90–105 days) and medium-maturing (106–119 days) varieties.
- The plant population should be maintained at 300–350 thousand plants per hectare, considering soil and water nutrient reserves.
- The technology must be designed for harvesting with combines.
- Nutrient and water management should be monitored throughout the plant's development phases.
- In unfavorable weather conditions, defoliation or desiccation may be necessary, based on meteorological data.
- Timely harvesting and post-harvest processing should be ensured.

This agrotechnological approach, based on the biological characteristics of soybeans, can ensure high yields (3–4 tons per hectare) under irrigated conditions. It will also allow for better use of soil and climatic resources in Andijan region and help maintain soil fertility for future crops.

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LAZER TEXNIKASINING FIZIK ASOSLARI. TEBRANISHLAR TURLARINING SHAKLLANISHI

Annotatsiya:*Bugungi kunda lazer texnikasidan foydalanish turli sohalarda, xususan tibbiyotda ham keng tarqalib bormoqda. Talabalar hamda tadqiqotchilar uchun lazer texnikasida optik generator yordamida majburiy nurlanishni vujudga keltirishning fizik asoslari haqida ma’lumotlar keltirilgan. Lazer nurining yorug‘lik nuridan farqi, hususiyati, optik generatorda nurlanish inversiyasini yaratishning turli usullari haqida ma’lumotlar beriladi.*

Kalit so‘zlar*: Tebranishlar turlarining shakllanishi, o‘z-o‘zidan yoki majburiy nurlanish, nurning yutilishi, kvant generatori, lazer nurining hususiyati, monoxromatiklik, kogerentlik.*

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PHYSICAL BASIS OF LASER TECHNIQUE. FORMATION OF TYPES OF VIBRATION

Annotation: *today, the use of laser techniques is also widespread in various fields, in particular medicine. For students as well as researchers, the laser technique provides information on the physical basis of generating forced radiation using an optical generator. Information is given about the difference of the laser beam from the beam of light, its peculiarity, various methods of creating a radiation inversion in an optical generator.*

Keywords: *formation of types of oscillations, spontaneous or forced radiation, absorption of light, quantum generator, specificity of laser light, monochromaticity, coherence.*

Yorug‘lik energiyasidan foydalanish insoniyatning azaliy orzusi edi. Qadim zamonlardan beri quyosh yorug‘lik nurlanishining manbai sifatida qabul qilingan. Biroq, quyosh nurlanishi, isitiladigan jismlarning nurlanishi yoki elektr gazining chiqishi kabi, polixromatikdir, ya’ni, turli uzunlikdagi to‘lqinlar aralashmasidir.

Polixromatik nurlanish bilan atomlar qo‘zg‘aladi va ular elektromagnit tebranishlar emissiyasi bilan birga yuqori energiya darajasidan pastki darajaga o‘tadi. Bu nurlanish alohida qismlar - kvantlar (fotonlar) shaklida amalga oshiriladi.

Fotonning energiyasi atomning yuqori va pastki holatlardagi energiyalari orasidagi farqga teng va formula bilan aniqlanishi mumkin.

$$E = h\nu$$

bu yerda h - Plank doimiysi; ν – nurlanish chastotasi, Gts.

Oddiy sharoitlarda moddaning atomlari turli energiyadagi fotonlarni chiqaradi, atomlarning bir energiya holatidan ikkinchisiga o‘tishi tasodifiydir. Bu holatda paydo bo‘ladigan radiatsiya turli uzunlikdagi to‘lqinlar to‘plamidir, ya’ni polixromatikdir.

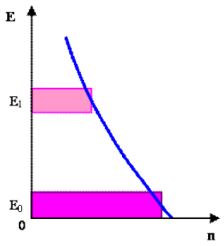
Polixromatik nurlanishdan keyingi texnologik foydalanish uni energiya konsentratsiyasini oshirishga qaratishni talab qiladi. Biroq, polixromatik nurlanish linzalardan o‘tgandan so‘ng, fokuslangan nuqta juda muhim o‘lchamlarga ega bo‘lib, bu turli uzunlikdagi to‘lqinlarning turli xil sinishi indekslari bilan izohlanadi.

Optika nazariyasidan ma’lumki, fokus nuqtasining o‘lchami difraksiya bilan belgilanadi va uning minimal o‘lchami fokuslangan nurlanishning to‘lqin uzunligiga taxminan tengdir. Shunday qilib, optik diapazonda to‘lqin uzunligi bo‘lgan radiatsiyani taxminan 1 mkm o‘lchamdagi nuqtaga qaratish printsipial jihatdan mumkin. Biroq, polixromatiklik tufayli, nuqtadagi fokuslangan nurlanish hajmi yuzlab va minglab mikrometrlarga ko‘tariladi. Natijada polixromatik nurlanish energiyasining yuqori konsentratsiyasini olish mumkin emas.

Muammoning asosiy yechimi 0,1-10,0 mkm yorug‘lik nurlanish diapazonida ma’lum bir to‘lqin uzunlikdagi monoxromatik nurlanishni olishdir. Bunday nurlanish 1960 yilda optik kvant generatorida (OKG) olingan bo‘lib, unda ishchi suyuqlik sifatida sintetik yoqut ishlatilgan. Keyinchalik, OKG inglizcha ifodaning birinchi harflaridan (induktsiyalangan emissiya natijasida yorug‘likning kuchayishi) "lazer" nomini oldi.

Lazerning ishlashi, uning nomidan ko‘rinib turibdiki, stimulyatsiya qilingan emissiya printsipiga asoslanadi. Rag‘batlantirilgan emissiya printsipini tushunish uchun kvant elektronikasining elementar asoslarini ko‘rish zarur.

Atomlar va molekulalarning ichki energiyasi ma’lum turdagi atomlar va molekulalarga xos bo‘lgan qat’iy qiymatlarning butun diapazonini olishi mumkin. 1-rasmda ikkita energiya darajasini E_1 va E_0 ko‘rish mumkin. Atomning yuqori darajadan pastki darajaga o‘tishi fotonning emissiyasi bilan birga keladi. Bu fotonning energiyasi atomning yuqori va quyi holatlardagi energiyalari orasidagi farqga teng. Agar atomlar hech qanday tashqi ta’sirni boshdan kechirmasa, u holda ular muvozanat deb atash mumkin bo‘lgan holatda bo‘ladi. Bu holat atomlarning xaotik harakatiga qaramay, ularning yuqori va quyi energiya holatlaridagi n soni o‘zgarmasligini bildiradi. Bundan tashqari, Boltsman printsipiga ko‘ra, E_0 pastki energiya holatidagi atomlar soni har doim E_1 yuqori holatidagi atomlar sonidan bir oz ko‘proq bo‘ladi.



1-rasm. Ikki darajali atom energiyasi tizimining muvozanat holati diagrammasi

E_0 quyi energiya holatidagi har bir atom bitta fotonni yutish orqali E_1 yuqori energiya holatiga o‘tishi mumkin. Shunga ko‘ra, E_1 yuqori holatidagi har bir atom bir xil foton shaklida ortiqcha energiyadan voz kechib, E_0 darajasiga o‘tadi.

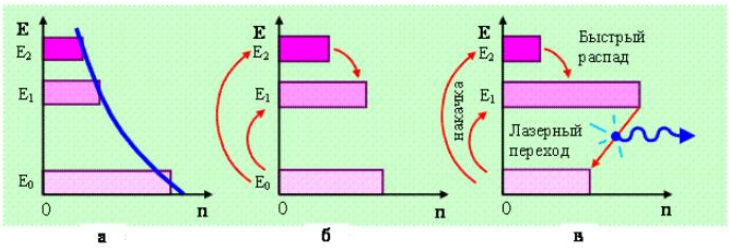
Muvozanat holati shartli ravishda 1-rasmda ko‘rsatilgan. Bu tashqi ta’sirlardan mustaqil ravishda yuzaga keladigan va atomning yuqori energiya holatidan E_1 pastki E_0 ga o‘tishi bilan birga keladigan fotonning o‘z-o‘zidan emissiyasi bilan ta’minlanadi.

Qo‘shimcha tashqi energiya ta’sirini, ya’ni isitish atomlarning bir qismini yuqori energiya holatiga o‘tkazadi va ular pastroq holatga o‘tganda, ular fotonlarni chiqaradilar. Biroq, atomlarning bu nurlanishi bir-biridan mustaqil ravishda sodir bo‘ladi. Yorug‘lik kvantlari xaotik harakatdagi atomlar tomonidan chiqariladi. Spontan nurlanish kuzatiladi. Yuqori E_1 darajasida joylashgan atomlar tomonidan fotonlarning nurlanishi bilan bir qatorda, energiya E_0 pastki darajasida joylashgan atomlar tomonidan so‘riladi. Bunday holda, atom E_1 yuqori darajasiga ko‘tarilib, nurlanishning paydo bo‘lishiga to‘sqinlik qiladigan fotonni yutadi.

Radiatsiya hosil qilish uchun yuqori darajadagi E_1 atomlari soni quyi darajadagi E_0 atomlari sonidan ko‘p bo‘lishi kerak. Tabiiy sharoitda har qanday haroratda yuqori darajadagi zarrachalar har doim pastroq darajaga qaraganda kamroq bo‘ladi. Ko‘rib chiqilayotgan ikki darajadan yuqorisi quyiga qaraganda ko‘proq o‘rnashish bo‘lishini ta’minlash uchun maxsus choralar ko‘riladi. Kvant elektronikasidagi materiyaning bu holati teskari bog‘lanish bilan faol muxit deb ataladi.

Nurlanish inversiyasini yaratishning turli usullari mavjud bo‘lib, ular o‘ziga xos energiya darajasi sxemasiga va faol zarrachalarning xususiyatlariga bog‘liq. Optik ta’sir yordamida uch darajali energiya tizimida teskari nurlanishni yaratishni ko‘rish mumkin. Ushbu sxemadan foydalanib, birinchi marta yoqut lazerida monoxromatik nurlanish olindi.

Tashqi ta’sir bo‘lmaganda o‘rnashgan atomlarning taqsimlanishi, ya’ni damlash bo‘lmasa, Boltsman qonuniga bo‘ysunadi (2,a-rasm). E_1 holatidan E_0 ga o‘tish avval ko‘rib chiqilgan ikki darajali sxema bo‘yicha sodir bo‘ladi va radiatsiya hosil bo‘lishiga to‘sqinlik qiladigan o‘tish hisoblanadi.



2-rasm. Uch darajali tizimda teskari o‘rnashuvini yaratish

Tashqi energiya ta’sirida, masalan, ksenon chirog‘ining optik ta’sirida faol vosita energiyani intensiv ravishda yutadi. Yutish natijasida ko‘p sonli atomlar eng yuqori energiya darajasi E_2 ga, u yerdan esa o‘z-o‘zidan E_1 darajasiga o‘tishi mumkin (2-rasm, b).

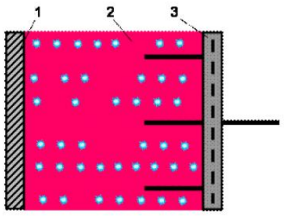
Yetarli darajada qizg‘in optik damlsh asosiy holatdan sezilarli miqdordagi atomlarning E_1 darajasiga o‘tishi va E_0 asosiy holatidagi qo‘zg‘alishdan oshib ketishiga olib keladi. Bu holat qo‘zg‘alishning inversiyasi sifatida tavsiflanadi (2-rasm, v). Atomlarning E_1 darajasidan E_0 asosiy darajasiga keyingi o‘tishi lazer nurlanishining paydo bo‘lishi bilan sodir bo‘ladi. Bu o‘tish induksiyalangan, ya’ni majburiy, radiatsiyaga olib keladi. Nurlanish inversiyasini olish uchun boshqa tizimlar ham mavjud. Xususan, quyidagi faol lazer zarralari uchun teskari nurlanishni olishning to‘rt darajali tizimi keng tarqalgan: CO_2 molekulalari, gaz lazerlarida CO, qattiq holatdagi tizimlarda neodimiy ionlari va boshqalar.

Faol zarrachalarning teskari o‘rnashishini yaratish lazer nurlanishini olishning asosiy shartidir. Zamonaviy texnologik lazerlarda ishchi suyuqlik deb ataladigan faol muhit sifatida turli gaz aralashmalari, qattiq va suyuqliklar qo‘llaniladi.

Optik damlagicj ishchi suyuqlik impulsli yoki doimiy ishlaydigan gaz cho‘g‘lanma lampasidan yorug‘lik oqimi bilan ta’minlanadi. Ushbu nasos usuli ishlaydigan suyuqlik qattiq yoki suyuq bo‘lgan lazerlarni qo‘zg‘atish uchun ishlatiladi.

Gaz chiqarish nasos usulida ishchi suyuqlikning faol zarralari elektr razryadga ta’sir qiladi. Ushbu nasos usuli ishlaydigan suyuqlik turli xil gaz aralashmalari bo‘lgan lazerlarni qo‘zg‘atish uchun keng qo‘llaniladi.

Induktsiyalangan (majburiy) nurlanish shaklida ko‘rib chiqilgan energiya o‘tishi optik kvant generatorlari - lazerlarning ishlashining asosini tashkil qiladi. Lazer to‘g‘ridan-to‘g‘ri uning ichida qo‘zg‘atilgan nurlanish manbai. Ikkita zarur komponentdan tashkil topgan lazer diagrammasi - rezonatordagi faol muhit 3-rasmda ko‘rsatilgan. Faol muhit 2, yuqorida ko‘rib chiqilgan shartlarga muvofiq, teskari nurlanishga ega. Optik rezonator bitta yassi shaffof oynadan 1 va unga parallel bo‘lgan yassi oynadan 3 iborat bo‘lib, nurlanishni qisman shaffoflik bilan uzatadi.



3-rasm. Kvant generatorining prinsipial sxemasi

Generatsiya jarayonini amalga oshirish uchun chiqarilgan yorug‘lik energiyasining bir qismi doimiy ravishda faol muhit ichida qolishi kerak, bu esa yangi atomlarning qo‘zg‘atilgan nurlanishni keltirib chiqarishi kerak. Bu shart optik rezonator oyna yordamida aniq bajariladi (3-rasm). 1-oyna unga tushadigan barcha energiyani aks ettiradi va shaffof oyna 3 energiyaning faqat bir qismini, ya’ni foydali energiyani uzatadi. Keyin energiyaning bu qismi rezonatordan chiqariladi va fokuslash tizimlari yordamida yorug‘lik nurlanishi yuqori quvvat zichligini olish uchun kichik nuqtaga to‘planadi. Energiyaning bir qismi rezonatorda shaffof oyna 3 orqali aks ettiriladi va generatsiyaga faol muhitning yangi qismlarini jalb qilish uchun xizmat qiladi.

Shunday qilib, kvant generatorida optik rezonator yordamida lazer faol muhitining qo‘zg‘atilgan zarralarini qo‘zg‘atilgan nurlanish jarayonlarini samarali amalga oshirish uchun zarur bo‘lgan yuqori nurlanish intensivligi olinadi. Optik rezonatorlar nafaqat induktsiyalangan majburiy jarayonlarning ehtimolini sezilarli darajada oshiradi, balki lazer nurlanishining xususiyatlarini ham aniqlaydi.

Materiallarni qayta ishlash uchun ishlatiladigan sanoat lazerlari to‘lqin uzunligi taxminan 0,1-10,6 mkm bo‘lgan nurlanishni (asosan ultrabinafsha va infraqizil hududlarda) hosil qiladi. Ishlash rejimlariga qarab, uzluksiz va impulsli davriy nurlanish lazerlari o‘rtasida farqlanadi. Lazer nurlanishining amaliy qo‘llanilishini ta’minlaydigan asosiy xossalari monoxrom, yuqori kogerentlik, past nurlanish divergensiyasi va yuqori nurlanish quvvati zichligidir.

Monoxrom lazerlarning tor to‘lqin uzunliklari diapazonida chiqarish qobiliyatini tavsiflaydi. Monoxromatik nurlanish monoxromatorlar yordamida olinadi. Ularning ishlash printsipi termal nurlanishning ma’lum bir spektridan tor chastota diapazonini ajratishdir. Katta quvvat yo‘qotishlari bilan bog‘liq bo‘lgan monoxromatik nurlanishni olishning bu usuli sanoatda qo‘llanilishini topmadi. Monoxromatorlardan farqli o‘laroq, lazer to‘lqin uzunliklarining juda tor diapazonida juda katta energiya va radiatsiya quvvatini yaratishi mumkin. Amalda, lazer bir xil to‘lqin uzunligida chiqariladi.

Lazer nurlanishi oddiy polixromatik nurlanish bilan solishtirganda tushunish oson bo‘lgan kogerentlik bilan tavsiflanadi. Isitilgan jismlarga xos bo‘lgan polixromatik nurlanish turli chastotali to‘lqinlar to‘plamidan iborat bo‘lib, ularning fazalari vaqt o‘tishi bilan xaotik tarzda o‘zgaradi va kogerent nurlanishning tipik namunasidir. Bundan farqli o‘laroq, optik rezonatorda to‘plangan lazer nurlanish energiyasi yangi paydo bo‘lgan nurlanish kosmosda tarqaladigan fazada bo‘ladigan tarzda hosil bo‘ladi. Bunday nurlanish kogerent deb ta’riflanadi.

O‘zining monoxromatikligi va kogerentligi tufayli lazer nurlanishi nazariy jihatdan nurlanishning to‘lqin uzunligiga mos keladigan diametrli nuqtaga yo‘naltirilishi mumkin. Bu materiallarni samarali qayta ishlash uchun zarur bo‘lgan radiatsiya energiyasining yuqori konsentratsiyasiga erishadi.

Lazer nurlanishining qimmatli xususiyati uning yuqori yo‘nalishi bo‘lib, radiatsiyaning past farqlanishi bilan tavsiflanadi. Nazariy jihatdan, lazer nurlanishining burchak farqi shunchalik kichik bo‘lishi mumkinki, u faqat nurning rezonatordan chiqishida kogerent to‘lqinlarning diffraktsiyasi fenomeni bilan belgilanadi. Lazer nurlanishining amaliy farqi nazariy divergensiyadan sezilarli darajada oshadi. Ammo shunga qaramay, lazer nurlanishi an’anaviy yorug‘lik manbalariga nisbatan juda yuqori yo‘nalishga ega. Kam farqlanish tufayli lazer nurlanishi energiyaning yuqori konsentratsiyasini ta’minlaydigan kichik nuqtaga qaratilgan. Lazer nurlanishining yuqori yo‘nalishi lazer energiyasini juda kam yo‘qotishlar bilan uzoq masofalarga uzatish imkonini beradi.

Lazer nurlanishining ko‘rib chiqilgan xususiyatlari - monoxromatiklik, kogerentlik va past divergensiya - yuqori quvvat zichligini olish imkonini beradi. Lazer nurlanishining quvvat zichligi E - lazer nurining kesmasidan o‘tadigan nurlanish kuchining S tasavvurlar maydoniga nisbati, ya'ni. E = P / S Quvvat zichligi E ning o‘lchami Vt / sm^2. Lazer nurlanishining quvvat zichligi lazer nurlanishini millimetrning o‘ndan yoki yuzdan bir qismidagi juda kichik o‘lchamdagi nuqtaga yo‘naltirish qobiliyati tufayli ulkan qiymatlarga yetadi. Kuchli texnologik lazerlarning yaratilishi ushbu nurlanishni fokuslashda uzluksiz rejimda 10^8 Vt/sm^2 gacha va impulsli rejimda 10^{12} Vt/sm^2 gacha zichlikka erishish imkonini berdi.

Xulosa. Lazer nurlanishining bunday yuqori energiya parametrlari elektr yoyi, plazma va boshqa ma’lum issiqlik energiyasi manbalarining quvvat zichligidan bir necha daraja yuqori bo‘lib, qotib qolish, sirtni qoplash, payvandlash, kesish va teshiklarni teshish texnologik jarayonlarida har qanday materiallarning yuqori samarali va sifatli qayta ishlanishini ta’minlaydi.

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AXBOROT-KOMMUNIKATSIYA TEXNOLOGIYALAR SOHASIDAGI BLOKCHEYN TERMINOLOGIYASINING KELIB CHIQISHI VA RIVOJLANISHI

Annotatsiya: *Axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi yangi terminlarning paydo bo'lishiga olib keldi, bu esa ularni aniq tarjima qilish va madaniy moslashtirish zaruriyatini tug'dirdi. Bugungi kunda keng qo'llanilayotgan blokcheyn texnologiyasi o'ziga xos murakkab terminologiyani shakllantirib, tarjima jarayonida lingvistik va madaniy muammolarni keltirib chiqarmoqda. Ushbu tadqiqot blokcheyn bilan bog'liq terminlarning o'zbek tiliga tarjimasi hamda ularning lingvomadaniy jihatlarini o'rganishga bag'ishlangan. Tadqiqot davomida terminlarni ma'nosini to'liq yetkazish va texnik aniqlikni saqlash bilan birga, ularning madaniy mosligini ta'minlash muammolari tahlil qilinadi. Shuningdek, dunyo miqyosida ishlatiladigan blokcheyn terminologiyasining o'zbek tiliga o'girilish usullari, jumladan, kalkalash, semantik moslashtirish va so'z yasalishi jarayonlari tahlil qilinadi. Bundan tashqari, lingvomadaniy omillarning tarjima jarayoniga ta'siri o'rganilib, blokcheyn terminlari o'zbek tilida qanday o'zgarishlarga uchrashi yoki asl ma'nosini saqlab qolishi masalalari yoritiladi. Ushbu tadqiqot zamonaviy texnologiyalar sohasi terminologiyasini tarjima qilish bo'yicha ilmiy tushunchani kengaytirishga hissa qo'shib, blokcheyn terminlarining aniq va izchil tarjimasini yaxshilash bo'yicha tavsiyalar beradi.*

Kalit so'zlar: *Blokcheyn terminologiyasi, tarjima, lingvomadaniy jihatlar, axborot-kommunikatsiya texnologiyalari, semantik moslashuv, o'zbek tili, kalkalash, leksik moslashtirish.*

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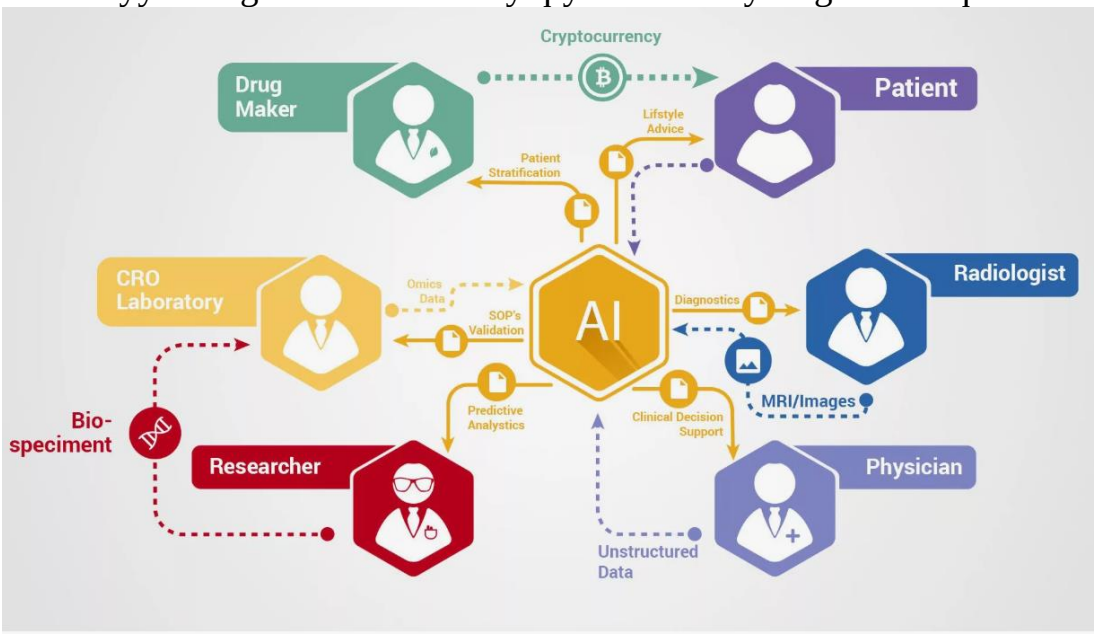
THE ORIGIN AND DEVELOPMENT OF BLOCKCHAIN TERMINOLOGY IN THE FIELD OF INFORMATION AND COMMUNICATION TECHNOLOGIES

Annotation: *The rapid development of information and communication technologies has led to the emergence of new terms, which has created the need for their accurate translation and cultural adaptation. Blockchain technology, which is widely used today, has formed its own complex terminology, creating linguistic and cultural problems in the translation process. This study is devoted to the translation of blockchain-related terms into the Uzbek language and the study of their linguocultural aspects. The study analyzes the problems of ensuring their cultural*

compatibility while fully conveying the meaning of the terms and maintaining technical accuracy. Also, the methods of translating blockchain terminology used worldwide into the Uzbek language, including the processes of calquing, semantic adaptation, and word formation, are analyzed. In addition, the influence of linguistic and cultural factors on the translation process is studied, and the issues of how blockchain terms change or retain their original meaning in the Uzbek language are highlighted. This study contributes to expanding the scientific understanding of the translation of terminology in the field of modern technologies and provides recommendations for improving the accurate and consistent translation of blockchain terms.

***Keywords**: Blockchain terminology, translation, linguistic and cultural aspects, information and communication technologies, semantic adaptation, Uzbek language, calquing, lexical adaptation.*

Zamonaviy axborot-kommunikatsiya texnologiyalarining jadal rivojlanishi natijasida yangi terminlarning shakllanishi va ularning turli tillarga tarjima qilinishi dolzarb masalaga aylandi. Bu jarayon ayniqsa, blokcheyn texnologiyasiga tegishli atamalarni o‘z ichiga olgan bo‘lib, ular xalqaro miqyosda keng qo‘llanilib, turli tillarga moslashtirilmoqda. Blokcheyn – bu markazlashmagan ma’lumotlar bazasi tizimi bo‘lib, moliyaviy operatsiyalar, kontraktlar va boshqa raqamli aktivlarni xavfsiz saqlash hamda boshqarish imkoniyatini beradi. Ushbu texnologiya bilan bog‘liq atamalar asosan ingliz tilidan kelib chiqib, ularni o‘zbek tiliga tarjima qilishda muayyan lingvistik va madaniy qiyinchiliklar yuzaga kelmoqda.



Blokcheyn bilan bog‘liq terminlarning tarjimasi texnik aniqlikni saqlash bilan birga, tilning tabiiy xususiyatlariga ham moslashtirilishi kerak. Ba’zi terminlar to‘g‘ridan-to‘g‘ri kalkalash yo‘li bilan o‘zbek tiliga kiritilayotgan bo‘lsa, boshqalari semantik moslashtirish yoki o‘zbek tilining leksik imkoniyatlaridan foydalanish orqali tarjima qilinmoqda. Masalan, smart contract atamasi ba’zi holatlarda aqlli

shartnoma deb tarjima qilinadi, biroq bu ibora texnologik kontekstni to‘liq aks ettira oladimi yoki yo‘qmi, bu borada munozaralar mavjud.

Lingvomadaniy jihatdan har bir til o‘zining an’anaviy termin yaratish usullariga ega bo‘lib, yangi terminlarni qabul qilish va ularni qo‘llashda turli yondashuvlardan foydalanadi. O‘zbek tilida blokcheyn bilan bog‘liq terminlarning tarjimasi davomida xorijiy so‘zlarning bevosita o‘zlashtirilishi va ularning mahalliylashishi jarayoni kuzatilmoqda. Ushbu jarayonda lingvistik va madaniy omillar katta rol o‘ynaydi. Masalan, ba’zi texnologik terminlar to‘g‘ridan-to‘g‘ri transliteratsiya qilinib ishlatiladi, boshqalari esa mavjud o‘zbek so‘zlari orqali ifodalanadi.

Shu sababli, ushbu tadqiqot blokcheyn sohasidagi terminlarni o‘zbek tiliga tarjima qilishda duch kelinayotgan asosiy muammolarni tahlil qilishga qaratilgan. Tadqiqot davomida blokcheyn terminlari o‘zbek tiliga qanday usullar orqali tarjima qilinayotgani, tarjima jarayonida lingvomadaniy jihatlar qanday rol o‘ynayotgani, asl terminlarning semantik mazmuni tarjima qilingan holatda qay darajada saqlanib qolayotgani va o‘zbek tilida blokcheyn bilan bog‘liq terminlarni standartlashtirish imkoniyatlari qanday ekani masalalari ko‘rib chiqiladi.

Ushbu savollarga javob topish orqali blokcheyn terminlarining tarjima jarayonini yaxshilash, ularning aniq va izchil qo‘llanilishini ta’minlash bo‘yicha tavsiyalar ishlab chiqish ko‘zda tutilgan.

Asosiy qism

Blokcheyn texnologiyasi global miqyosda keng qo‘llanilayotgan zamonaviy raqamli innovatsiyalardan biri bo‘lib, u bilan bog‘liq terminlar turli tillarga tarjima qilinishi jarayonida muayyan lingvistik va madaniy muammolarni keltirib chiqarmoqda. Blokcheyn terminologiyasi asosan ingliz tiliga asoslangan bo‘lib, bu sohada yangi tushunchalar doimiy ravishda paydo bo‘lib bormoqda. O‘zbek tiliga tarjima jarayonida ushbu terminlarni qanday ifodalash masalasi dolzarb bo‘lib, ularni aniq va to‘g‘ri yetkazish texnik hamda semantik yondashuvlarni talab qiladi.

Blokcheyn atamalarini tarjima qilishda bir necha asosiy usullar qo‘llaniladi. Eng ko‘p tarqalgan usullardan biri kalkalash bo‘lib, bunda terminning tarkibiy qismlari bevosita tarjima qilinadi. Masalan, blockchain so‘zi blok va zanjir so‘zlari orqali blok zanjiri sifatida tarjima qilinishi mumkin. Bu usul terminologiyaning asosiy ma’nosini saqlab qolishga yordam bersa-da, ayrim holatlarda tilning tabiiyligi va tushunarli bo‘lishi bilan bog‘liq muammolar yuzaga keladi. Shuningdek, smart contract atamasini aqlli shartnoma deb tarjima qilishga urinish ham uchraydi, biroq bu atama ingliz tilidagi dastlabki kontekstni to‘liq aks ettira olmaydi.

Yana bir keng qo‘llaniladigan usul transliteratsiya hisoblanadi. Ushbu usul orqali terminlar asl talaffuzi yoki yozilishi saqlangan holda o‘zbek tiliga moslashtiriladi. Masalan, token, mining, node kabi terminlar bevosita transliteratsiya qilingan va ko‘p hollarda o‘zbek tilida ham shu shaklda qo‘llanilmoqda. Biroq bu usul ayrim terminlarning mahalliy til normalariga mos kelmasligi sababli ba’zi tushunmovchiliklarni keltirib chiqarishi mumkin.

Shuningdek, terminlarning keng auditoriya uchun tushunarli bo‘lishini ta’minlash masalasi ham dolzarb bo‘lib qolmoqda.

Blokcheyn terminlarini tarjima qilishda semantik moslashtirish ham muhim ahamiyatga ega. Ushbu usulda terminlarning texnik va semantik ma’nosi saqlangan holda, ularni o‘zbek tilida tushunarli bo‘lishi uchun qayta shakllantirish amalga oshiriladi. Masalan, mining atamasi ayrim manbalarda qazib olish yoki ishlab chiqarish kabi so‘zlar bilan almashtirilmoqda. Bu holatda terminning asosiy ma’nosi saqlansa ham, uning dastlabki texnologik kontekstdagi ishlatilishi biroz o‘zgarishi mumkin.

Lingvomadaniy jihatdan olganda, blokcheyn terminlari o‘zbek tiliga moslashtirilishi jarayonida global va mahalliy tendensiyalar o‘rtasidagi muvozanat saqlanishi muhim. O‘zbek tilining o‘ziga xos xususiyatlari hisobga olinganda, terminlarning tarjimasi davomida ularning oddiy foydalanuvchilar tomonidan qabul qilinishi ham e’tiborga olinishi lozim. Ayrim texnik terminlar to‘g‘ridan-to‘g‘ri tarjima qilinmay, ma’lum bir davr davomida mahalliylashgan holatda saqlanib qolishi mumkin.

Blokcheyn terminlarini tarjima qilishda yana bir muhim omil ularning rasmiy hujjatlar va ilmiy adabiyotlarda qanday qo‘llanilishidir. Hozirgi vaqtda ba’zi terminlar turlicha tarjima qilinishi sababli, ularning izchilligi va standartlashuvi bilan bog‘liq muammolar mavjud. Masalan, ba’zi manbalarda blokcheyn termini o‘zbek tilida zanjirli tizim yoki raqamli daftar sifatida ham uchraydi, bu esa atamaning aniq bir standartga ega emasligini ko‘rsatadi. Bu borada tilshunoslar va mutaxassislar tomonidan tavsiyalar ishlab chiqilishi va ularning ilmiy jihatdan tasdiqlangan holatda qo‘llanilishi zarur.

Blokcheyn terminlarini tarjima qilishda xalqaro tajribaga murojaat qilish ham muhim ahamiyatga ega. Ba’zi mamlakatlarda texnologik terminlar tarjima qilinmay, bevosita ingliz tilidan o‘zlashtirilishi odatiy holatga aylangan. Masalan, rus tilida mining, token, smart contract kabi atamalar o‘zgarishsiz qabul qilingan. Shu bilan birga, boshqa tillarda ushbu terminlarni mahalliylashtirishga bo‘lgan urinishlar ham kuzatilmoqda. O‘zbek tilida blokcheyn atamalarini tarjima qilish bo‘yicha izchil yondashuv ishlab chiqish lozim bo‘lib, bu kelajakda mazkur sohadagi ilmiy va amaliy tadqiqotlarga turtki bo‘lishi mumkin.

Blokcheyn texnologiyasi bilan bog‘liq terminlarning o‘zbek tiliga tarjimasi turli lingvistik va madaniy muammolarni yuzaga keltirayotgani aniqlandi. Ushbu tadqiqot davomida blokcheyn terminlarining tarjima usullari, semantik moslashuvi va lingvomadaniy jihatlari tahlil qilindi. Olingan natijalar shuni ko‘rsatadiki, hozirgi kunda o‘zbek tilida blokcheyn atamalarining bir xil va izchil ishlatilishini ta’minlash uchun aniq standartlarning yo‘qligi muayyan noaniqliklarni keltirib chiqarmoqda.

Blokcheyn bilan bog‘liq terminlarning tarjima jarayonida eng ko‘p ishlatiladigan usullar kalkalash, transliteratsiya va semantik moslashtirish ekanligi aniqlangan. Kalkalash usuli orqali terminlarning to‘g‘ridan-to‘g‘ri tarjima qilinishi ba’zan ularning texnik ma’nosini saqlab qolsa, ba’zan esa noto‘g‘ri yoki noaniq ifodalanishiga sabab bo‘lmoqda. Masalan, blockchain atamasining blok zanjiri deb

tarjima qilinishi terminning asl ma’nosiga yaqin bo‘lsa-da, ba’zi hollarda u texnik jihatdan to‘liq tushunarli bo‘lmasligi mumkin.

Transliteratsiya usuli esa terminlarni asl shaklida qabul qilish va ularni o‘zbek tiliga moslashtirish jarayonida eng ko‘p qo‘llaniladigan yondashuvlardan biri bo‘lib qolmoqda. Tadqiqot natijalari shuni ko‘rsatdiki, token, mining, node, smart contract kabi atamalar aksariyat hollarda bevosita transliteratsiya qilingan holda ishlatilmoqda. Ushbu usulning asosiy afzalligi shundaki, terminlar xalqaro miqyosdagi texnologik kontekstga mos holda saqlanib qoladi, ammo ularning oddiy foydalanuvchilar tomonidan tushunilishi murakkablashishi mumkin.

Semantik moslashtirish usuli esa blokcheyn terminlarini o‘zbek tilida yanada tushunarli qilishga yordam beradi. Masalan, mining atamasi qazib olish yoki ishlab chiqarish sifatida tarjima qilinishi mumkin. Ammo bu usul qo‘llanganda terminning texnik kontekstdagi aniqligi saqlanmay qolishi mumkin. Natijalar shuni ko‘rsatadiki, semantik moslashtirish ba’zi hollarda terminlarning original ma’nosidan uzoqlashishiga olib kelishi mumkin, bu esa texnik sohalarda tushunmovchiliklarga sabab bo‘lishi ehtimolini oshiradi.

Lingvomadaniy jihatdan tahlil qilinganda, blokcheyn bilan bog‘liq terminlarning o‘zbek tilida ishlatilishi va qabul qilinishi turlicha ekanligi kuzatildi. Ba’zi terminlar o‘zbek tiliga moslashtirilgan holda ishlatilsa, boshqalari esa bevosita inglizcha shaklda qabul qilinmoqda. Bu esa terminlarning izchil ishlatilishi va kelajakda standartlashtirish masalasini kun tartibiga qo‘ymoqda.

Natijalardan kelib chiqib, blokcheyn terminlarini tarjima qilishda xalqaro tajribani o‘rganish va ularni o‘zbek tilining tabiiy xususiyatlariga mos holda joriy etish zarurligi aniqlangan. Ba’zi terminlar texnik xususiyatlar va xalqaro standartlarga mos ravishda bevosita transliteratsiya qilinishi tavsiya etiladi, boshqalari esa semantik moslashtirish orqali tarjima qilinishi mumkin. Shu bilan birga, tarjima jarayonida lingvistik izchillikni ta’minlash maqsadida maxsus ilmiy lug‘atlar va tavsiyalar ishlab chiqish lozim.

Blokcheyn texnologiyasi zamonaviy axborot-kommunikatsiya tizimlarida keng qo‘llanilib, uning terminologiyasi turli tillarga tarjima qilinish jarayonida lingvistik va madaniy muammolarni keltirib chiqarmoqda. Ushbu tadqiqot davomida blokcheyn bilan bog‘liq terminlarning o‘zbek tiliga tarjima qilinish usullari, lingvomadaniy jihatlari va semantik moslashuvi tahlil qilindi. Tadqiqot natijalari shuni ko‘rsatdiki, ushbu sohadagi terminlar tarjimasi xalqaro standartlarga mos bo‘lishi, shu bilan birga, o‘zbek tilining tabiiy xususiyatlariga moslashtirilishi lozim.

Olingan natijalarga asoslanib, blokcheyn terminlarini tarjima qilishning uchta asosiy usuli aniqlangan. Birinchisi – kalkalash bo‘lib, bunda terminlar to‘g‘ridan-to‘g‘ri tarjima qilinadi. Bu usul ba’zi hollarda texnik aniq tarjima berish imkonini bersa-da, ba’zan so‘zlarning o‘zbek tilida tabiiy emasligiga sabab bo‘ladi. Ikkinchisi – transliteratsiya bo‘lib, bu usul terminlarni ingliz tilidagi asl shaklida qabul qilish va ularni o‘zbek tili qoidalariga moslashtirish imkonini beradi. Bu usul texnik jihatdan aniq bo‘lsa-da, ba’zan keng auditoriya uchun tushunarsiz bo‘lib qolishi mumkin. Uchinchisi – semantik moslashtirish bo‘lib, bunda terminlarning

texnik va semantik mazmuni saqlangan holda, o‘zbek tiliga tushunarli va mos bo‘lishi uchun qayta shakllantiriladi.

Blokcheyn terminlarini tarjima qilishda lingvomadaniy jihatlar ham muhim ahamiyatga ega. Ba’zi terminlarning to‘g‘ridan-to‘g‘ri tarjima qilinishi ularning xalqaro ilmiy-texnik normalarga mos kelmasligiga olib kelishi mumkin. Shu boisdan, texnologik terminlarni o‘zbek tilida standartlashtirish zarurati ortib bormoqda. Tadqiqot davomida blokcheyn atamalarini xalqaro standartlarga muvofiq, lekin o‘zbek tilining tabiiy xususiyatlariga mos ravishda tarjima qilish bo‘yicha tavsiyalar ishlab chiqildi. Bunday yondashuv terminlarning izchil qo‘llanilishini ta’minlash va blokcheyn bilan bog‘liq sohalarda ilmiy va amaliy tadqiqotlarni rivojlantirishga xizmat qiladi.

Blokcheyn terminlarini tarjima qilish va standartlashtirish bo‘yicha kelajak tadqiqotlari tarjima metodologiyasini chuqurroq o‘rganish, xalqaro tajribani tahlil qilish va texnologik sohada ishlatiladigan atamalarni rasmiylashtirishga qaratilishi lozim. Bu jarayon terminlarning kelajakda aniq, izchil va keng ommaga tushunarli bo‘lishiga yordam beradi. Shu bois, blokcheyn bilan bog‘liq terminlarning rasmiy ilmiy lug‘atlari ishlab chiqilishi va ularning akademik doiralarda izchil qo‘llanilishi kelgusida katta ahamiyat kasb etadi.

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CAPITAL CITIES: FROM HISTORIC TO MODERN

Abstract: *The article examines the historical development and modern interpretation of world capitals. In addition, the article describes the analysis of classification groupings based on the geographical features of capitals.*

Key words: *Capital, city, historicity, modernity, classification, classification units.*

Introduction. The capital city is one of the main elements of the state's political and territorial structure. It is not only the location of central government bodies but also the center for managing the country's sovereignty. Additionally, it is a key element that influences the administrative-territorial structure of the state, the system of relations between "center and regions," and regional policy. It shapes, continues, and alters the state's governance. From this perspective, studying the historical processes of determining and relocating the capital, identifying the factors influencing them, and strengthening its legal framework in legislation is crucial.

Main Part. In the world, research in this area, including geourbanistics, has prioritized scientific and theoretical grounding of urban development, analyzing the geographic characteristics and naming issues of cities, and developing a typology of capital cities based on modern conceptual approaches in urban planning. It is also important to uncover the natural and economic geographic factors that affect the development of capital cities, improve scientific foundations for trends in determining capital cities, relocating them, and forecasting trends for capital cities in the future.

In most of the works written about the development of world capital cities in Uzbekistan, opinions on their historical layers have been presented. However, the analyses of these layers are relatively brief, with only some considerations made about them. Furthermore, fundamental research on the natural-geographic characteristics and typological analysis of capital cities in foreign countries has not been conducted. This defines the relevance of this study, which is based on a comprehensive natural-geographic, systematic approach, territorial analysis, and generalization. In recent years, there has been a growing emphasis worldwide on issues such as standardizing the names of capital cities by international organizations, ensuring consistency in their spelling and pronunciation, and maintaining uniformity in names in documents and maps. Alongside the existing historical-geographical characteristics, spiritual and national values, as well as traditions, have naturally left their mark in the form of words (lexemes) in the naming of world capital cities. The research topic also opens the way to study the interaction between the onomastics of capital city names and

toponymy. Special attention is being given to conducting research in this area in collaboration with the global community.

Table 1

The same names of countries and capitals of the world

№	Countries	Capital cities	What was the reason for the name?
1	Andorra	Andorra- la-Vella city	Name of a plain
2	Brazil	Brasilia city	Country name i
3	Vatican	Vatican city	City-state
4	Guatemala	Guatemala city	City name
5	Guinea-Bissau	Bissau city	City name
6	Gibraltar	Gibraltar city	Name of the mountain
7	Algeria	Algeria city	City name
8	Djibouti	Djibouti shahri	Name of the rock
9	Lusembourg	Luxembourg city	Name of the castle
10	Monaco	Monaco city	City-state
11	Panama	Panama city	City name
12	El Salvador	San-Salvador city	City name
13	San-Marino	San-Marino city	City-state
14	Sao Tome and Principe	Sao-Tome city	City name
15	Saint Pierre and Miquelon	Saint Pierre city	City name
16	Singapore	Singapore city	City-state
17	Tunisia	Tunis city	City name
18	Kuwait	Kuwait city	City name

The table was compiled by the author.

The necessity has arisen to collect the names of world capital cities, analyze the principles and motivations behind their naming, and examine their historical-geographical and linguistic structures. To conduct such an analysis, it is essential to develop a research methodology and methods. This involves examining the toponymic processes and historical, as well as natural-geographical, aspects that contribute to the formation of capital city names—from the initial word to their designation as proper nouns. Additionally, analyzing their lexical layers and identifying the rules governing the transition of words to objects as names is one of the key theoretical and practical challenges faced by geography and toponymy (specifically, onomastics). The legal foundation for our research is provided by several normative and legal documents, including:

Presidential Decree No. 841 of the Republic of Uzbekistan, dated October 20, 2018, “On measures to implement the national goals and objectives in the field of sustainable development for the period up to 2030”, Presidential Decree No. 5623, dated January 10, 2018, “On measures to radically improve the processes of urbanization”, Presidential Resolution of 2018, “On measures to ensure master

plans for settlements for 2018–2022, improve the activities of project organizations, and enhance the quality of training specialists in the field of urban planning", Presidential Decree PF-5623, dated January 10, 2019, "On measures to radically improve the processes of urbanization", The Law of the Republic of Uzbekistan, dated February 22, 2021, "On the approval of the Urban Planning Code of the Republic of Uzbekistan", Presidential Decree, dated January 28, 2022, "On the Development Strategy of New Uzbekistan for 2022–2026, and other relevant normative and legal documents pertaining to this activity.Taking into account that the core of any capital city is its urban structure, the ongoing international reforms in urban development can be observed through the activities of prominent global organizations. According to Resolution No. 70 adopted at the United Nations (UN) General Assembly Summit on Sustainable Development on September 27, 2015, the "Sustainable Development Goals of the UN Global Agenda for the period up to 2030" were established. This document recommends 17 goals and 169 tasks for UN member states to address, with Goal 11 specifically focusing on "sustainable cities and human settlements." The UN's Center for Human Settlements (Habitat) contributes to the stabilization and development of residential areas by formulating development policies, creating opportunities for construction, gathering knowledge, and strengthening cooperation between governments and civil societies. These tasks and reforms necessitate research into the regional differences in the formation and development of capital cities, as well as the historical and contemporary characteristics in their evolutionary progress.

A capital city is a political center that serves as a state symbol in the form of the institution of a capital city. In the near future, drafting and adopting a law on "The Status of the Capital of the Republic of Uzbekistan" is imperative. On one hand, this is a logical response to the rapid reforms in legislative activities, and on the other hand, it reflects the need to adopt best practices from advanced foreign legal systems. Such laws have already been enacted in numerous countries worldwide.

Table 2

Classification groups of world capital cities based on geographical characteristics

№	Classification groups	Names and number of capital cities
I.	**Capitals that arose due to natural geographical features**	Abu Dhabi, Addis Ababa, Amsterdam, Andorra, Riyadh, Asmara, Baku, Bangui, Bangkok, Beirut, Basterre, Basseterre, Belmopan, Berlin, Buenos Aires, Brasília, Brussels, Doha, Dublin, Havana, Algiers, Djibouti, Juba, Kampala, Canberra, Kigali, Chișinău, Kabul, Conakry, Kuala Lumpur, Lima, Lilongwe, London, Malé, Manila, Maputo, Muscat, Maseru, Minsk, Montevideo, Moroni, Moscow, Nairobi, Nouakchott, N'Djamena, Reykjavik, Riga, Roseau, Oslo, Paramaribo, Prague, Praia, Pyongyang, Stockholm, Tbilisi, Tehran, Tegucigalpa, Vaduz, Vilnius, Windhoek, Hanoi, Khartoum, Helsinki, Honiara (64 cities).

II	**Capitals based on iconographic symbols**	Al-Kuwait, Ankara, Antananarivo, Astana, Asunción, Ashgabat, Astana, Belgrade, Bamako, Bandar Seri Begawan, Banjul, Brazzaville, Bridgetown, Budapest, Bucharest, Dakar, Dushanbe, Freetown, Islamabad, Georgetown, Kathmandu, Kingstown, Kingston, Kinshasa, Cairo, Colombo, Copenhagen, La Paz, Libreville, Lusaka, Luxembourg, Madrid, Managua, Mogadishu, Panama, Beijing, Port Louis, Porto-Novo, Port-au-Prince, Port of Spain, Port Vila, Rabat, Sanaa, Sarajevo, Seoul, Singapore, Skopje, Tallinn, Tokyo, Tashkent, Tripoli, Ouagadougou, Warsaw, Vienna, Warsaw, Vientiane, Zagreb, Yamoussoukro, Yerevan (59 cities).
III	**Capitals named after historical figures**	Gaborone, Castries, Valletta, Malabo, Mbabane, Monrovia, Nassau, Pretoria, Rome, San Marino, Ulaanbaatar, Washington, Wellington (12 cities).
IV	**Capitals based on religious names**	Athens, Amman, Baghdad, Bogotá, Dhaka, Damascus, Mexico City, Monaco, Nicosia, São Tomé, Santo Domingo, San Salvador, San José, Santiago, St. John's, St. George's, Sofia (17 cities).
V	**Substrate capitals**	Apia, Bairiki, Bishkek, Bujumbura, Dili, Funafuti, Kyiv, Lomé, Majuro, Manama, Naypyidaw, Ngerulmud, Nuku'alofa, Palikir, Podgorica, Suva, Tunis, Thimphu, Yaren (19 cities).
VI	**Capitals based on ethnic names**	Abuja, Accra, Bissau, Caracas, Quito, Luanda, Ottawa, Paris, Tirana, Harare, Yaoundé (11 cities).
VII	**Capitals with the same name as the country**	Algiers, Kuwait City, Andorra la Vella, Tunis, Bissau, Brasília, Gibraltar, Guatemala City, Djibouti, Luxembourg City, Monaco, Panama City, San Marino, San Salvador, São Tomé, Saint Pierre, Singapore, Vatican City (18 cities).

The table was compiled by the author based on literature and fund sources.

From a scientific point of view, it is appropriate to classify capital cities in world history according to historical, geographical and typological classifications.

Table 3

Classification and descriptive characteristics of world capital cities

T/r	Classification units	Descriptive characteristics
1	***Natural and geographical classification*** *(by location)*	In this classification, the location of capital cities is primarily considered. Information is provided about the city's altitude above sea level, whether it is located on an island, its position along the coastline or inland, and its natural-geographical characteristics.
2	***Historical-genetic classification*** *(according to formation)*	*In the historical-genetic classification, the focus is on the historical development and origin of the capital city. This classification can be further divided into types such as archaic (ancient) capitals, pre-colonial capitals (before colonialism), colonial capitals (during the colonial period), post-colonial capitals (after the end of colonial rule), imperial capitals, and neutral (non-aligned) capitals.*

3	***Morphological classification*** *(according to structure)*	According to their structure, capital cities can be classified into port cities, city-state type capitals, and federal capitals.
4	***Funksional tasnifi*** *(vazifasiga ko'ra)*	Capital cities that have served military fortifications, and special (those that serve only as capitals) capital cities.
5	***Etymological-semantic classification*** *(according to the name)*	Ethnic (capitals named after ethnic groups), socionymic (capitals closely related to social life), anthroponymic (capitals named after famous individuals, state figures, or military officers), and capitals that share the same name as the country.
6	***Migration classification*** *(according to displacement)*	Not all capital cities in the world can be included in this classification, of course. This is because the policy of relocating a capital city is determined from a potential perspective. It is carried out due to natural disasters, political, military, and economic reasons.

The table was compiled by the author.

The procedure for determining and relocating the capital differs between countries, depending on the state's structure, political system, and historical traditions. Decisions regarding the designation and relocation of the capital are typically made by the highest governmental bodies (representative bodies) and the highest-ranking officials. Today, in addition to political, economic, and social factors that have historically shaped this process, the main factors influencing the relocation of the capital include the growing population of the capital and addressing the related problems; improving unfavorable geographical conditions and geopolitical situations; the need to settle and develop new territories; and modernizing and developing national governments or "old," "traditional" areas through the partial distribution of capital functions.

Considering the position and importance of the capital as the main political center in the life of the country, it is proposed to strengthen the provision in the Constitution of the Republic of Uzbekistan and the Law "On the Administrative-Territorial Structure of the Republic of Uzbekistan" by specifically designating Tashkent as the capital and an independent administrative-territorial unit, as well as establishing the procedure for its relocation.

Table 4

List of capital cities that have changed their names (935-2005)

№	Previous name	Naming date	Current name	Geographical location
1	Kozium	935 years	Algiers	Africa
2	Kaparra	1521 years	San-Juan	Asia
3	Charlestown	1696 years	Nassau	Asia
4	Baytown	1854 years	Ottawa	America
5	Edo	1869 years	Tokyo	Asia
6	Finfinne	1889 years	Addis-Ababa	Africa
7	Pozsony	1918 years	Bratislava	Europe
8	Neysel-Khuree	1921 years	Ulaan-Baatar	Asia

		July 6		
9	Tbilisi	1936 years	Tbilisi	Asia
10	Ciudad-Trujillo	1961 years	Santo-Domingo	America
11	Leopoldville	1966 years	Kinshasa	Africa
12	Fort-Lamy	1973 years	Ndjamena	Africa
13	Lourenso-Marques	1975 years	Maputo	Africa
15	Salisbury	1982 years	Harare	Africa
16	Bathurst	1976 years	Banjul	Africa
17	Frunze	1991 years	Bishkek	Asia
18	Titograd	1992 years	Podgorica	Europe
19	Pretoria	2005 years	Tshwane	Africa

The table was compiled by the author.

The political map of the world is distinguished by its rapid changeability among geographical maps. Various political processes taking place in the regions of the world affect its quantitative changes to a certain extent. This situation, in close connection with the countries of the wor ld, affects the change of capital cities and even their historical renaming to one degree or another.

According to T. Akmataliyev, the main reason for relocating capitals is the excessive population size and the problems arising from it, as well as the desire to develop other regions of the country. For instance, since 2019, Indonesia has been actively working on relocating its capital from Jakarta to the East Kalimantan province. The key factors driving this move are Jakarta's growing population, overburdened infrastructure systems, and unfavorable environmental conditions. Similarly, plans to relocate capitals are underway in countries such as South Korea, Iran, and Argentina, while active discussions on capital relocation are taking place in nations like Russia, France, Azerbaijan, England, Japan, Mexico, and Spain. Based on the above analysis, the following scientific-theoretical conclusions and proposals aimed at improving legislation are presented:

First, the trend of relocating capitals dates back thousands of years and remains relevant over time.

Second, the factors influencing capital relocation are dynamic in nature and evolve in line with societal development and its interests.

Third, the process of determining and relocating capitals varies among countries, depending on their state structure, political systems, and historical traditions.Decisions regarding the designation and relocation of capitals are typically made by the supreme bodies of state power (representative bodies) or the highest-ranking officials. Failure to consider geographical factors in urban planning and the development of cities can negatively impact the growth of such settlements.

Table 5

List of countries whose capitals have changed (1299-2024)

№	Previous capital	Date of relocation	Current name	Country name
1	Bergen	1299 years	Oslo	Norway
2	Trakai	1323 years	Vilnius	Lithuania
3	Krakow	1596 years	Warsaw	Poland
4	Philadelphia	1800 years	Washington	USA
5	Mendoza	1880 years	Buenos-Aires	Argentina
6	Melbourne	1908 years	Canberra	Australia
7	Kyoto	1911 years	Tokyo	Japan
8	Calcutta	1911 years	Delhi	India
9	Saint-Petersburg	1919 years	Moscow	Russia
10	Smolensk	1919 years	Minsk	Belarus
11	Istanbul	1923 years	Ankara	Turkey
12	Kristiania	1924 years	Oslo	Norway
13	Zinder	1926 years	Niamey	Niger
14	Samarkand	1930 years	Tashkent	Uzbekiston
15	Kharkiv	1934 years	Kyiv	Ukraine
16	Kaunas	1940 years	Vilnius	Lithuania
17	Saint Louis	1958 years	Nuoakchott	Mauritania
18	Rio de-Janeiro	1960 years	Brasilia	Brazil
19	Karachi	1969 years	Islamabad	Pakistan
20	Belize	1970 years	Belmopan	Belize
21	Dar es-Salaam	1973 years	Dodoma	Tanzania
22	Abidjan	1983 years	Yamoussoukro	
23	Bonn	1990 years	Berlin	Germany
24	Alma-Ata	1997 years	Astana	Kazakhstan
25	Rangoon (Yangon)	2005 years	Naypydaw	Myanmar
26	Jakarta	2024 years	Nusantara	Indonesia

The table was compiled by the author.

Conclusion. The administrative centers of countries that are not fully recognized by the international community as capital cities can be considered separately as objects for classification in terms of capital cities. These administrative centers are not recognized as capitals. The achievement of independence by countries and the division of certain states, which results in them obtaining the status of separate states, leads to an increase in the number of sovereign states, or conversely, the submergence (due to natural disasters) of some island nations and the political unification of countries leads to a decrease in their number. Therefore, the number of countries is always greater than the number of sovereign states and is characterized by dynamic (changing) qualities. This change, of course, does not exclude capital cities. The development of the scientific and methodological foundations for studying urban planning from the historical and natural conditions, using capital cities as examples, and drawing general conclusions will be of great importance for future capital city placements. Many scholars in our republic have dealt with the historical and geographical foundations of urban development. In

their scientific works, the natural geographical description, the geomorphology and microclimate of cities, as well as their historical formation and development, have been outlined. However, in Uzbekistan, scientific works on capital cities have not been fully completed. To this day, there is still no distinct concept for capital cities in world history. Despite the existence of special federal laws on capital status in some countries, the issues of defining, relocating, and renaming capital cities remain relevant in many countries even today.

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AKADEMIK LITSEYLARDA ZAMONAVIY INTERAKTIV USULLARDAN FOYDALANISHNING TA’LIM SIFATINI OSHIRISHDAGI AHAMIYATI

Annotatsiya: *Ushbu maqolada akademik litseylarda ta‘lim berish jarayonida qo‘llash mumkin bo‘lgan zamonaviy interaktiv usullar, turli pedagogik texnologiyalar roli muhokama etiladi.*

Kalit so‘zlar: *O‘quv jarayoni, pedagog kadrlar, kompetentlik, kompetensiya, rivojlantirish, shakllantirish.*

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THE IMPORTANCE OF USING MODERN INTERACTIVE METHODS IN ACADEMIC LYCEUMS IN IMPROVING THE QUALITY OF EDUCATION

Annotation: *The article examines the role of modern interactive methods and various pedagogical technologies that can be used in the educational process in academic lyceums.*

Key words: *Education process, pedagogical staff, competency, competence, development, establishment.*

Kirish: O‘zbekistonda professional kadrlarni tayyorlash hamda ularning soha bo‘yicha bilimlarini oshirish va ko‘nikmalarini mustahkamlash masalalariga alohida e’tibor qaratilgan. Ushbu ustuvor vazifa, bugungi kunda ham dolzarbligini saqlab qolmoqda.

Akademik litseylarning zamonaviy ta’lim tizimida shakllangan kompetensiyalar majmui o‘quvchilarga ta’lim va tarbiya berish jarayonining mohiyatini aks ettiruvchi asosiy omil hisoblanadi. O‘quvchilarning umummadaniy va kasbiy kompetensiyalari, asosan, dars va mustaqil mashg‘ulotlar jarayonida olingan bilimlar, singdirilgan ko‘nikmalar va malakalar orqali shakllanadi. O‘quv fanlarini o‘rganish jarayonida ularni o‘zlashtirish natijalariga qo‘yiladigan talablar professor-o‘qituvchilar tomonidan qo‘llaniladigan o‘qitish usullariga asoslanishi va o‘quvchilarning mutaxassislik bo‘yicha tayyorgarlik darajasini aks ettirishi lozim. O‘quv jarayonida kompetentli yondashuv, bo‘lajak yetuk mutaxassislarning kasbiy va shaxsiy sifatlarini shakllantirishga yo‘naltirilgan bo‘lib, ularning intellektual salohiyati va qobiliyatlarini oshirish imkoniyatini taqdim etadi.

Asosiy qism: “Kompetensiya” va “kompetentlik” tushunchalari ilk bor AQShda qo‘llangan bo‘lib, “insonning bilimlariga asoslangan, ijtimoiy-kasbiy hayoti faoliyatida belgilangan shaxsiy va intellektual tajribasi” sifatida talqin etilmoqda [3].

“Kompetensiya”, “kompetentlik”, “kompetentli” tushunchalarining o‘zi adabiyotlarda va lug‘atlarda keltirilgan. Masalan, “Inglizcha-o‘zbekcha lug‘at”da quyidagicha ta’rif keltiriladi: “kompetensiya” “kompetent” (lot. competense – omilkorlik, xabardorlik, biror belgilangan sohani tushunadigan, biladigan; competent – bilimdon; o‘zining qonuniy huquqiga ega bo‘lgan, biror ishni hal qilish yoki bajarish [4].

Kompetentlik va kompetensiya tushunchalari I.V.Petrova, Y.V.Sadon, O.Y.Gavrilova, A.V.Tarasova kabi olimlarning ilmiy ishlarida keltirilgan. Shuningdek, UNESCO ning “The competent teacher 2010 – 2020” konsepsiyasida ham kompetentlik tushunchasining zamonaviy talqini hamda amaliy ahamiyati alohida yoritib o‘tilgan.

Maqsadi ta’lim sifatiga erishish bo‘lgan kompetentli yondashuvning ahamiyatini talqin qilganda, ta’lim tizimini takomillashtirishga qaratilgan tadqiqotlar va ushbu sohada e’lon qilingan hujjatlar ta’lim mazmunini yangilash jarayonida asosiy birlik sifatida kompetentlik va kompetensiyani ko‘rsatishning ustuvor ahamiyatga ega ekanligini ko‘rsatadi.

Bu nuqtayi nazardan, o‘quv jarayonida bo‘lajak mutaxassislarning kasbiy kompetentligini rivojlantirishga qaratilgan ilmiy tadqiqotlarning mamlakatimizda yetishmasligini inobatga olgan holda, ta’lim-tarbiya sohasidagi mavjud muammolar, xususan, kasbiy kompetentlikni shakllantirish kabi masalalar ilmiy jihatdan aniqliklar kiritishni talab qiladi.

Shu maqsadda, akademik litsey professor-o‘qituvchilari o‘qitish jarayonida o‘quvchilarning kasbiy kompetentligini rivojlantirishda yuzaga kelayotgan kamchilik va muammolarni bartaraf etish maqsadida amalga oshirilayotgan ishlarni quyidagilarda ifodalash mumkin: [5]:

• O‘quv jarayonini faollashtirish hamda o‘quv materiallarini o‘zlashtirishning yuqori darajasiga erishish;

• O‘quvchilarning darsga bo‘lgan ishtiyoqi va qiziqishini oshirish uchun asosiy e’tiborni mehnat va hayot uchun muhim bo‘lgan ko‘nikmalar – muloqot, hamkorlik, tanqidiy fikrlash va ijodkorlikni rivojlantirishga qaratish;

• Shaxsiy yondashuvni taqdim etish orqali har bir o‘quvchining ahamiyatini hisobga olish ham muhimdir. Bu doimiy fikr-mulohazalar motivatsiyani saqlab qolishda muhim rol o‘ynaydi;

• Mashg‘ulotlar davomida o‘quvchilarning mustaqil fikrlash va o‘z fikrini erkin bayon etish ko‘nikmalarini rivojlantirish;

• O‘quvchilarning nafaqat o‘qishlarida, balki kelajakdagi kasbiy va shaxsiy hayotida ham yordam beradigan ko‘nikmalarni shakllantirish va rivojlantirish;

• o‘quvchilarning yangi o‘quv materialini mustaqil ravishda o‘zlashtira olishlarini hisobga olib, ularda mustaqil tayyorgarlanish ko‘nikmalarini shakllantirish;

• O‘qitish jarayoniga qo‘yilayotgan kompetensiyalardan kelib chiqqan holda, o‘quvchilarning kasbiy bilim, qobiliyat va ko‘nikmalarini faoliyatga bog‘lash va takomillashtirishga layoqatlilik darajasini rivojlantirish;

• Pedagogik tarkib bilan o‘tkaziladigan konsultatsiyalar hamda ilmiy jamiyat a’zolari ishlarining o‘z vaqtida tashkil etilishi va samaradorligini qat’iy nazoratga olish;

• O‘qituvchilarning malakasini tizimli ravishda oshirish, ularning kasbiy mahorati, qobiliyat va bilimini rivojlantirishga alohida e’tibor qaratish zarur.

Fan va texnika taraqqiyotining darajasi, zamonaviy rivojlanishning xususiyatlarini hisobga olgan holda, o‘quvchilarning o‘quv jarayonida kasbiy kompetentligini shakllantirish, shu bilan birga zamonaviy ta’lim texnologiyalari asosida ularning bilim, ko‘nikma va malakalarining puxta hamda chuqur bo‘lishini talab etadi. Akademik litsey bitiruvchilarining professional tayyorgarligi, nazariy va amaliy bilim, ko‘nikma, malakalari qanchalik mustahkam bo‘lsa, ular malakali mutaxassislar uchun zarur bo‘lgan yangi o‘quv materiallarini ham shunchalik ongli, chuqur va puxta egallaydilar.

Akademik litseyda tahsil oluvchilarning kompetentligini rivojlantirishda o‘qitishning zamonaviy pedagogik texnologiyalaridan oqilona foydalanish muhim ahamiyatga ega. Litsey pedagoglarining vazifasi ta’lim oluvchilarning o‘z-o‘zini takomillashtirish qobiliyatini shakllantirish va rivojlantirishdan iborat. Shu bilan birga, ta’lim va tarbiya jarayonini takomillashtirish, o‘quvchilarga maksimal darajada ilmiy va tizimlashtirilgan bilimlarni o‘tkazish, ularda belgilab qo‘yilgan minimal vaqt ichida zarur ko‘nikma va malakalarini shakllantirish zarur. Uchinchi Renessans avlodini tarbiyalash, birinchi navbatda, kompetensiyalarini shakllantirishga qaratilganligi sababli, ularni shakllantirish usullarini o‘qitish jarayonida qo‘llash maqsadga muvofiqdir. Kasbiy malakalarni shakllantirish metodologiyasini to‘liq ochib berish o‘qitish usullari va shakllarisiz mumkin emas.

Shu boisdan, ta’lim tizimida mashg‘ulotlarning mazmunini chuqur va ko‘zlangan maqsadga yetkazish uchun bugungi kunda zamonaviy pedagogik texnologiyalardan samarali foydalangan holda mashg‘ulotlarni qiziqarli tarzda olib borish imkoniyatlarini kengaytirish zarur. Zamonaviy interaktiv usullar, ya’ni o‘quvchilar bilan hamkorlikda o‘tkaziladigan darslar, har xil multimedia va texnologiyalarning qo‘llanilishi, o‘qituvchining rolini qayta baholashga olib keladi. Ushbu metodlar, o‘quvchilarning faollik darajasini oshiradi, bilimlarning chuqurroq anglashini ta’minlaydi va ijodiy fikrlashni rag‘batlantiradi. Fan va texnikaning taraqqiy etgan bir davrida o‘quvchilarga uzluksiz ravishda yangi ma’lumotlar bilan birga kasbiy ko‘nikma va malakalar tizimidan to‘g‘ri foydalanish, o‘quvchilarni kasbiy kompetentligi yuqori darajada shakllangan qilib tarbiyalashda akademik litsey o‘qituvchisi har tomonlama bilim va malakaga ega bo‘lishi lozim. Shuningdek, har bir fan o‘qituvchisi o‘z sohasining ustasi, mohir tarbiyachi, jonkuyar va fidoyi bo‘lishi uchun o‘z ustida tinmay izlanishi, o‘z ishiga ijodiy yondashishi, ta’lim oluvchilarni fanga qiziqtira olishi kerak. Bunga erishish uchun esa o‘qituvchilar o‘qitadigan fanlari bo‘yicha har bir dars turini to‘liq va sifatli rejalashtira olishi, o‘quv materialining tuzilishini tushunish, ta’lim jarayoniga

o‘qitish texnologiyalarini to‘g‘ri qo‘llay olishi, axborot texnologiyalarini bilishi hamda zamonaviy pedagogik texnologiyalardan mashg‘ulot jarayonida samarali foydalana olishi lozim [6].

O‘qituvchi ta’lim, rivojlanish va tarbiyaning birligi tamoyili talablarini amalga oshirish uchun maqbul shart-sharoitlarni ta’minlash uchun turli interfaol metod va usullarni qo‘llab, o‘quvchilarga ta’lim berish jarayonini modellashtiradi. Shu boisdan, hozirgi zamonaviy o‘qituvchini ta’lim-tarbiya berishda didaktika tamoyillari, zamon talabiga javob beradigan o‘qitish vositalari va shakllari, ta‘lim usullari bilan bog‘liq o‘qitishning ilmiy-metodik asoslaridan xabardor qilib borish bilan birga, ularni amalga oshirish texnologiyalari bilan tanishtirish maqsadga muvofiqdir. Taklif etilayotgan metodologiyada umumiy o‘qitish usullari quyidagilardan iborat: hikoya, o‘qituvchi va o‘quvchilar o‘rtasidagi suhbat, ma‘ruza, rasm, muammoli vaziyat, munozara, savol-javob usuli, test-imtihon usuli, mustaqil izlanish, muammoli taqdimot, qisman izlash yoki evristik tadqiqot usuli. Akademik litseylar o‘quv jarayoniga yangicha yondashuv asosida, “SWOT – tahlil”, “Xulosalash” (Rezume, Veer), “Keys-stadi”, “Qarorlar shajarasi”, “Assesment” kabi grafikli organayzerlar vositasi hamda “Tushunchalar tahlili”, “Delfi”, “Kouching”, “Insert”, “FSMU”, “Brifing”, “Intervyu” va boshqa shu kabi zamonaviy pedagogik texnologiyalarni keng tatbiq etish orqali o‘quvchilarning kompetentligini shakllantirish dolzarb ahamiyat kasb etadi. Interaktiv usullarning samaradorligi, asosan, o‘quvchilarning mustaqil o‘rganish qobiliyatini, jamoada ishlash mahoratlarini, shuningdek, muammoli vaziyatlarda qaror qabul qilish qobiliyatlarini rivojlantirishda namoyon bo‘ladi. Metodikada qo‘llaniladigan ilmiy-metodik asoslarni (o‘qitish usullari, shakllari, vositalari va yondashuvlari) sarhisob qilar ekanmiz, shuni ta’kidlash kerakki, o‘quvchilarning shu tarzda shakllantiriladigan kasbiy kompetentsiyalari nafaqat malakali, balki shaxsiy fikri hamda ko‘nikma va qobiliyatlari doirasiga ega bo‘lgan mutaxassisni tarbiyalashga qaratilgan. Zamonaviy interfaol usullar esa akademik litseylarda o‘qitish jarayonini har tomonlama rivojlantirishga va ta’limning umumiy sifatini oshirishga xizmat qiladi hamda o‘quvchilarning shaxsiy rivojlanishini ta’minlashga ko‘maklashadi. O‘quv jarayonini modellashtirgan o‘qituvchi ta‘lim, rivojlanish va tarbiyaning birligi tamoyili talablarini amalga oshirish uchun maqbul shart-sharoitlarni ta’minlash uchun har tomonlama fikr yuritish imkoniyatiga ega. Bu esa o‘ziga yuklangan vazifalarni samarali bajarishga tayyor bo‘lgan malakali mutaxassisning kasbiy tafakkurini shakllantirish imkoniyatidir.

Xulosa qilib aytganda, jamiyatimizning jadal sur’atlarda rivojlanishi va yangilanishi, siyosiy vaziyatning tez o‘zgarishi bilan ajralib turadi. Shu boisdan, professional kadrlarni tayyorlash, ularning intellektual salohiyati va kasbiy kompetentligini rivojlantirish, jahon hamjamiyatida rivojlangan demokratik davlatlar darajasiga mos, yuksak ma’naviy va axloqiy talablarga javob beruvchi yuqori malakali professional kadrlarni tayyorlash milliy tizimini yaratish masalasi ustuvor vazifa sifatida muhim rol o‘ynaydi. O‘quv jarayonida o‘quvchilar nafaqat mustahkam bilim va ko‘nikmalarga ega bo‘lishlari, balki bu bilim, ko‘nikma va

malakalarni o‘z funksional vazifalarini bajarishda qayerda va qanday qo‘llash mumkinligini aniq tushunishlari va tasavvur qilishlari lozim.

Xulosa: Amalda bu metodlarni qo‘llash orqali quyidagi natijalarga erishiladi:

- ta’lim va tarbiya jarayonini takomillashtiriladi;
- o‘quvchilarga maksimal darajada ilmiy va tizimlashtirilgan bilimlar beriladi, ularda ajratilgan minimal vaqt ichida zarur ko‘nikma va malakalarni shakllantiriladi;
- ommaviy nutq, bahslashish, munozara va polemika ko‘nikmalarini rivojlantiradi, axborotni tanqidiy idrok etish, o‘z nuqtayi nazarini asosli taqdim etishga o‘rgatadi;
- o‘zlashtirish darajasiga, ishbilarmonlik munosabatlari etikasi va ishni tashkil etish mexanizmiga ta’sir ko‘rsatadi;
- o‘quvchini fanga bo‘lgan qiziqishini orttiradi, uning mavjud qobiliyatini ochadi, mantiqiy fikrlashga o‘rgatadi, tafakkurini shakllantiradi;
- bilimlarni amaliy qo‘llash ko‘nikmalarini hosil qiladi.

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ETILENNI KATALITIK OKSIXLORLANISH JARAYONIGA TURLI OMILLARNING TA'SIRI

Annotasiya. *Ishda etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun $KCl*MnCl_2*CuCl_2$; $KCl*ZnCl_2*CuCl_2$ va $KCl*ZnCl_2*MnCl_2*CuCl_2$ tarkibli katalizatorlar tanlandi, vodorod xlorid konversiyasi va to‘liq oksidlanish mahsulotlarining umumiy hosil bo‘lishini C_2H_4:HCl nisbatiga bog‘liqligi o‘rganildi.*

Monoxlorasetaldegid va trixlor sirka aldegid unumining etilenni kislorod ishtirokida vodorod xlorid bilan oksixlorlash reaksiyasining kontakt vaqtiga bog‘liqligi ko‘rsatilgan.

Kalit so‘zlar: *etilen, benzol, vodorod xlorid, katalizator, oksixlorlash, konversiya, eksikator.*

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INFLUENCE OF VARIOUS FACTORS ON THE PROCESS OF CATALYTIC OXIDATION OF ETHYLENE

Annotation. *The catalysts $KCl*MnCl_2*CuCl_2$; $KCl*ZnCl_2*CuCl_2$ and $KCl*ZnCl_2*MnCl_2*CuCl_2$ were selected for the oxidation of ethylene with hydrogen chloride in the presence of oxygen, and the dependence of the conversion of hydrogen chloride and the total formation of complete oxidation products on the ratio of C2H4:HCl was studied. It has been shown that monochloroacetaldehyde and the trichloroacetic aldehyde product depend on the contact time of the ethylene oxidation reaction with hydrogen chloride in the presence of oxygen.*

Key words*: Ethylene, benzene, hydrogen chloride, catalyst, oxidizer, conversion, desiccator.*

Etilenni oksixlorlash jarayoni katalizatorlarining asosiy faol komponenti mis xlorid bo‘lib, uning tarkibi patent ma'lumotlariga ko‘ra bir foizdan yigirma foizgacha [1-4]. Elementlarning davriy tizimining deyarli uchdan bir qismi promotorlar sifatida ishlatiladi, ammo ularning katalizatordagi roli noaniqligicha qolmoqda.

Tashuvchilar yordamida faol komponent yuzasining oshishi, reaktivlar uchun faol maydonlarning mavjudligi va etilenni oksixlorlash katalizatorining zarur mexanik kuchi va zarracha hajmining taqsimlanishiga erishiladi. [4].

Eksperimental tadqiqotlar natijasida olingan ma'lumotlar jarayonda etilenning vodorod xloridga mol nisbatining muhim rolini ko‘rsatadi. Etilenning stexiometriyaga nisbatan 5-7% dan oshishi uning asossiz yo‘qotilishiga olib keladi, shu jumladan oksidlanish natijasida; bu nisbatning pasayishi vodorod xlorid konversiyasining pasayishi bilan birga keladi, bu etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizator zarralarini aglomerasiyasiga olib keladi. Shu sababli konsentrlangan kislorod yordamida sanoat jarayonini amalga oshirishda optimal etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatorni tanlash muhim rol o‘ynaydi.

1-jadvalda $KCl*MnCl_2*CuCl_2$; $KCl*ZnCl_2*CuCl_2$ va $KCl*ZnCl_2*MnCl_2*CuCl_2$ etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatorlari yordamida jarayonda vodorod xlorid konversiyasi va to‘liq oksidlanish mahsulotlarining umumiy hosil bo‘lishining C_2H_4:HCl nisbatiga bog‘liqligi ko‘rsatilgan.

1 -jadval

C_2H_4:HCl nisbatining vodorod xlorid konversiyasiga va CO_x, to‘liq oksidlanish mahsulotlarining hosil bo‘lishiga ta'siri.
Harorat 493 K, etilenni kislorod ishtirokida vodorod xlorid bilan oksixlorlash reaksiyasining kontakt vaqti 9,3 s.

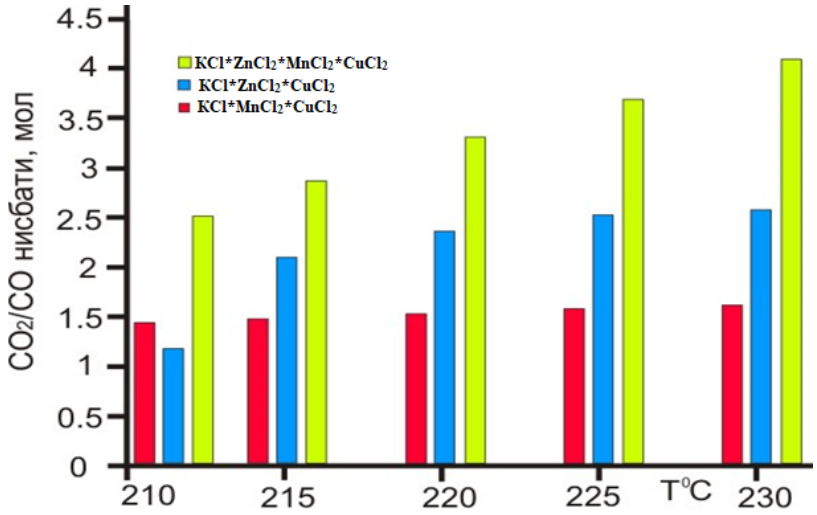
Etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizator	Cu:K atom nisbati	S_2N_4:NS1 Nisbati	Vodorod xlorid konversiyasi, %	CO ning chiqishi, % (mol)
$KCl*ZnCl_2*MnCl_2*CuCl_2$	39.5	1.03:2	98.2	1.8
		1.06:2	99.5	2.2
		1.09:2	99.8	3.0
$KCl*MnCl_2*CuCl_2$	11.6	1.03:2	Etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizator zarralarining aglomerasiyasi kuzatiladi	
		1.06:2	98.8	3.2
		1.09:2	99.0	4.4
$KCl*ZnCl_2*CuCl_2$	10.4	1.03:2	Etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizator zarralarining aglomerasiyasi kuzatiladi	
		1.06:2	99.1	3.6

		1.09:2	99.3	5.0

3-jadvaldan ko‘rinib turibdiki, simm-dixloretan (1,2-dixloretan) ishlab chiqarish maqsadli reaksiyasida KCl*$ZnCl_2$*$MnCl_2$*$CuCl_2$ etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatori, yuqori faollik bilan bir qatorda, uglerod oksidlarining past hosil bo‘lishi tufayli KCl*$MnCl_2$*$CuCl_2$ va KCl*$ZnCl_2$*$CuCl_2$ etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatorlariga nisbatan ham ko‘proq selektivdir.

To‘liq oksidlanish selektivligi past bo‘lsa, KCl*$ZnCl_2$*$MnCl_2$*$CuCl_2$ etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatoridagi reaksiya mahsulotlarida karbonat angidridning nisbiy tarkibi KCl*$MnCl_2$*$CuCl_2$ va KCl*$ZnCl_2$*$CuCl_2$ etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatorlariga qaraganda ancha yuqori bo‘ladi.

1-rasmda barcha tekshirilgan etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizatorlar uchun reaksiya gazlaridagi karbonat angidrid/is gazi nisbatining bog‘liqligi ko‘rsatilgan.



1-rasm. CO_2/CO nisbatining haroratga bog‘liqligi. C_2H_4:HCl:O_2= 1.07:2:0.7, etilenni kislorod ishtirokida vodorod xlorid bilan oksixlorlash reaksiyasining kontakt vaqti 20 sek

Etilenning kislorod ishtirokida vodorod xlorid bilan oksixlorlanish reaksiyasini amalga oshirish uchun tanlangan katalizator KCl*$ZnCl_2$*$MnCl_2$*$CuCl_2$ uchun harorat oshishi bilan reaksiya mahsulotlarida karbonat angidrid miqdorining oshishi kuzatiladi.

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ERKAK KALAMUSHLARDA JISMONIY ZO‘RIQISHNING TA'SIRINI ADENOGIPOFIZ, URUG‘DON VA QON GORMONLARI DARAJASIGA TA'SIRINI O‘RGANISH

Annotatsiya: *Inson organizmining tashqi faktorlarga reaktivligi markaziy nerv tizimi orqali amalga oshiriladi. Reproduktiv tizim va vegetativ nerv tizimi inson organizmining umumiy reaktivligini ta'minlashda muhim rol o‘ynaydi. Ushbu tizimlarning adekvat faoliyati insonning chidamliligi va sog‘lig‘ini ta'minlaydi. Inson reaktivligini oshirish maqsadida antioksidantlar, vitaminlar va detoksifikatsiya choralari qo‘llaniladi, ammo bu sohada to‘liq tushunilmagan jihatlar ko‘p. Inson reproduktiv tizimiga jismoniy zo'riqish ta'sirini o'rganish muhim ahamiyatga ega. Ushbu tadqiqot, odamlarda zo'riqishning ta'sirini o'rganishdagi qiyinchiliklarni hisobga olib, erkak kalamushlarda zo'riqishning gormonal o'zgarishlariga ta'sirini o'rganishga bag'ishlangan. Kalamush modeli reproduktiv fiziologiyani o'rganishda keng qo'llaniladi.*

.Kalit so`zlar*. Follikulostimulyator gormon (FSH), LG (LH), testosteron, Leydig hujayralari, jismoniy zo'riqish, kalamush modeli, gipofiz-urug'don tizimi.*

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TO STUDY THE EFFECTS OF PHYSICAL EXERTION ON THE LEVELS OF ADENOHYPOPHYSIS, TESTES, AND BLOOD HORMONES IN MALE RATS

Abstract: *Reactivity of the human organism to external factors is centrally regulated by the nervous system. The reproductive and autonomic nervous systems play a crucial role in maintaining overall reactivity, ensuring resilience and health. Strategies like antioxidants, vitamins, and detoxification are used to enhance human reactivity, yet many aspects remain unclear. Given the challenges in directly studying these effects in humans, this study investigates the impact of physical exertion on hormonal axes in male rats, a widely used model for reproductive physiology.*

Keywords. *Follicle-stimulating hormone (FSH), LH, testosterone, Leydig cells, physical exertion, rat model, hypothalamic-pituitary-testicular axis.*

Kirish. Aerob, aralash, anaerob zo‘riqishlarga nisbatan organizmda yuzaga keladigan himoya moslashuv reaksiyalar turli darajalarda rivojlanib, organizmda zo‘riqish darajasi oqibatida reproduktiv tizimda yuzaga keladigan o‘zgarishlarni tushunish qiyin bo‘ladi. Jismoniy zo'riqish organizmning turli tizimlariga, shu jumladan reproduktiv tizimga sezilarli ta'sir ko'rsatishi mumkin. Haddan tashqari zo'riqish gormonal balansni buzishi, spermatogenezni susaytirishi va reproduktiv funktsiyani yomonlashtirishi mumkin. Biroq, jismoniy zo'riqishning reproduktiv tizimga ta'siri intensivlik, davomiylik, tur va individual omillarga bog'liq. Shu sababli aerob, aralash, anaerob jismoniy zo‘riqishlar oqibatida reproduktiv tizimida gormonlarda yuzaga keladigan adaptiv hamda dezadaptiv jarayonlarni, shu bilan bir qatorda patogenetik jihatlarini baholash orqali yuzaga keladigan kasalliklarni davolashda zamonaviy fundamental tibbiyotning murakkab va dolzarb muammolaridan biri hisoblanadi. Reproduktiv tizimga jismoniy zo'riqishning ta'sirini o'rganish erkaklarda bepushtlik, gipogonadizm va boshqa reproduktiv kasalliklarning oldini olish va davolash uchun muhim ahamiyatga ega. Ushbu tadqiqot jismoniy zo'riqishning turli darajalari va davomiyligining gipofiz-urug'don tizimiga ta'sirini aniqlashga qaratilgan bo'lib, bu sohadagi bilimimizni kengaytirishga xizmat qiladi. Avvalgi tadqiqotlar jismoniy zo'riqishning gormonlar darajasiga, spermatogenezga va reproduktiv organning morfologiyasiga ta'sirini ko'rsatgan. Biroq, jismoniy zo'riqishning turli darajalari va davomiyligining gipofiz-urug'don tizimiga ta'siri to'liq o'rganilmagan. Ushbu tadqiqot avvalgi tadqiqotlarning natijalarini tasdiqlash va to'ldirish, shuningdek, yangi ma'lumotlar olish maqsadida o'tkazilmoqda.

Tadqiqot maqsadi: Jismoniy zo‘riqishning erkak kalamushlarda adenogipofiz bazofil hujayralari, urug‘don tuzilmasi va qondagi gormonlar (FSG, LG, testosteron) darajasiga ta'sirini aniqlash.

Tadqiqot usullari: Eksperimental tadqiqotlarda jismoniy zo‘riqish turi (suvda suzish, yuk tasir qilish, stress-sharoitlar) qo'llanilgan. Kalamushlar ma'lum vaqt davomida (masalan, 15 daqiqa, kuniga ikki marta) iliq suvda (28-30°C) suzishga majbur qilindi. Suzish davomiyligi va intensivligi tadqiqotning maqsadlariga muvofiq o'zgartirildi. Ayrim kalamushlar tanasining og'irligining ma'lum foiziga teng bo'lgan yuk (masalan, 5%) bilan suvda suzishga majbur qilindi. Jismoniy zo'riqish davomiyligi (1, 10, 30, 90 kun). Nazorat guruhi va eksperimental guruhlar mavjud. Adenogipofizning bazofil hujayralari reaktivligi Betta va del'ta bazofil hujayralari morfologiyasi va sonini gistologik tahlil qilish orqali baholandi. Urug'don va adenogipofiz to'qimalari formalinda fiksatsiya qilindi, parafin bilan qoplandi, kesildi va gematoksilin-eosin bilan bo'yaldi. Preparatlar mikroskopda o'rganildi va Leydig hujayralari soni, hajmi va morfologiyasi baholandi. Immunogistoximik usullar orqali FSG va LG ishlab chiqarishini baholash. To'qimalarda FSG va LH gormonlarining borligi immunogistoximik usul yordamida aniqlandi. Preparatlar mikroskopda o'rganildi va gormonlarning ekspressiya darajasi baholandi. Urug‘don va Leydig hujayralarining morfofunksional holati Leydig hujayralari soni, hajmi va faoliyati (gistologik va

elektron mikroskopiya usullari) orqali aniqlandi. Urug'don to'qimalarining ultrastrukturasi elektron mikroskop yordamida o'rganildi. Leydig hujayralarining organellalari (mitoxondriyalar, endoplazmatik to'r) va ularning morfologiyasi baholandi. Urug‘don to‘qimasida testosteron ishlab chiqarish darajasi aniqlandi. Qon plazmasida FSG, LH va testosteron gormonlarining darajasi ELISA yoki radioimmunologik tahlil usullari yordamida aniqlandi. Natijalar standart egri chiziq bo'yicha hisoblandi. Olingan ma'lumotlar ANOVA va Student t-testi yordamida statistik tahlil qilindi. $P < 0.05$ bo'lgan qiymatlar statistik jihatdan ahamiyatli hisoblandi.

Natijalar va muhokama. Qon plazmasida gormonlar darajasi FSG (Follikulostimulyator gormon), LG (Lyuteindiruvchi gormon), testosteron gormonlar ozgarishi kuzatildi. Har bir kunlik davrda (1-10-30-90 kun) ELISA yoki radioimmunologik usullar bilan tahlil qilish. Erkak kalamushlarda jismoniy zo‘riqish ta'sirining adenogipofiz, urug‘don va qon gormonlari darajasiga ta'sirini o‘rganiganimizda nazorat guruhi (jismoniy zo‘riqishga uchramaydi) va eksperimental guruhlarda (1 kunlik zo‘riqish, 10 kunlik zo‘riqish, 30 kunlik zo‘riqish, 90 kunlik zo‘riqtirish) o'zgarishlar aniqlandi. Stress-sharoitlarda harakat (majburiy suzish testlari) natijasida adenogipofizdagi o‘zgarishlar, Bazofil hujayralar (betta va del'ta hujayralar) soni va faolligida o'zgarishlar kuzatildi (gistologik usullar). Immunogistoximik tahlil (FSG va LG ishlab chiqarish darajasi)da o'zgarishlar aniqlandi. Gistologik va elektron mikroskopiya tahlillari Leydig hujayralarida testosteron ishlab chiqarish darajasini o'zgarishini ko'rsatdi. Qon plazmasidagi gormonlar darajasi FSG (Follikulostimulyator gormon) – ELISA yoki radioimmunologik tahlilda o'zgarishi kuzatildi. LG (lyuteindiruvchi gormon) – gormonlar balansini ozgarishi, testosteron – urug‘don funksiyasini ozgarishida muhim rol o'ynaydi. Qisqa muddatli stress (1-10 kun): Gormonlar darajasida keskin o‘zgarishlar bo‘lmaydi yoki testosteron oshishi mumkin. Leydig hujayralari faollashadi. Qisqa muddatli stress (1-10 kun) natijasida qon plazmasida testosteron darajasi nazorat guruhiga nisbatan sezilarli darajada oshdi ($p < 0.05$). Leydig hujayralarining hajmi va faolligi ham oshganligi kuzatildi. O‘rta muddatli stress (30 kun), Gormonal balansda o‘zgarishlar kuzatildi (LG va FSG darajalari pasayishi). Urug‘donda morfologik o‘zgarishlar kuzatilishi mumkin. O'rta muddatli stress (30 kun) natijasida qon plazmasida LH va FSG darajalari nazorat guruhiga nisbatan sezilarli darajada pasaydi ($p < 0.05$). Urug'donda spermatogenezning susayishi va Leydig hujayralarida morfologik o'zgarishlar kuzatildi. Uzoq muddatli stress (90 kun), leydig hujayralari degradasiyasi, testosteron darajasining tushishi, reproduktiv funksiyaning buzilishi kuzatildi. Uzoq muddatli stress (90 kun) natijasida qon plazmasida testosteron darajasi nazorat guruhiga nisbatan sezilarli darajada pasaydi ($p < 0.05$). Leydig hujayralarining degradatsiyasi va spermatogenezning to'xtashi kuzatildi. Ushbu tadqiqotning natijalari avvalgi tadqiqotlarning natijalari bilan mos keladi va jismoniy zo'riqishning gipofiz-urug'don tizimiga ta'sirini tasdiqlaydi. Qisqa muddatli stress testosteron ishlab chiqarishni rag'batlantirishi mumkin, ammo uzoq muddatli stress gormonal balansni buzishi va reproduktiv funktsiyani yomonlashtirishi mumkin. Ushbu tadqiqotning cheklovlari orasida faqat erkak

kalamushlarda o'tkazilganligi va jismoniy zo'riqishning turli turlari o'rganilmaganligi kiradi. Kelajakda jismoniy zo'riqishning reproduktiv tizimga ta'sirini o'rganish uchun insonlarda klinik tadqiqotlar o'tkazish va jismoniy zo'riqishning turli turlarini (aerobik, anaerobik, kuch) solishtirish zarur.

Xulosa. Qisqa muddatli stress (1-10 kun) → Leydig hujayralarining faollashishi, testosteron oshishi. O‘rtacha muddatli stress (30 kun) → Adaptasiya jarayonlari, adenogipofiz va urug‘dondagi morfologik o‘zgarishlar. Uzoq muddatli stress (90 kun) → Leydig hujayralarining degradasiyasi, gipogonadizm va gormonal buzilishlar. Erkak kalamushlarda jismoniy zo‘riqish ta'sirining adenogipofiz, urug‘don va qon gormonlari darajasiga ta'sirini o‘rganish orqali jismoniy zo‘riqishning erkak kalamushlarda gipofiz-urug‘don tizimiga ta'sirini aniqlash mumkin. Ushbu tadqiqot natijalari shuni ko'rsatadiki, jismoniy zo'riqishning turli darajalari va davomiyligi erkak kalamushlarda gipofiz-urug'don tizimiga har xil ta'sir ko'rsatishi mumkin. Qisqa muddatli stress testosteron ishlab chiqarishni rag'batlantirishi mumkin, ammo uzoq muddatli stress gormonal balansni buzishi va reproduk tiv funktsiyani yomonlashtirishi mumkin. Ushbu natijalar reproduktiv salomatlikni saqlash uchun jismoniy zo'riqishni to'g'ri boshqarish muhimligini ta'kidlaydi. Ushbu tadqiqot natijalari sportchilar, harbiylar va boshqa kasb egalari uchun jismoniy zo'riqishni to'g'ri boshqarish bo'yicha tavsiyalar ishlab chiqishga yordam berishi mumkin. Shuningdek, bepushtlik va gipogonadizm bilan bog'liq kasalliklarni davolashda yangi strategiyalar ishlab chiqishga hissa qo'shishi mumkin. Jismoniy zo‘riqishning turli darajalarida va davomiyligida vegetativ nerv tizimi reaktivligi, adenogipofizdagi, qalqonsimon bezidagi, buyrak usti bezidagi, oshqozon osti bezidagi, jinsiy bezlardagi va inson reaktivligini ta'minlovchi a'zolarda yuzaga keladigan adaptiv, dezadaptiv reaksiyalar o‘rganilganda ularda ozgarishlar yuzaga kelishini korishimiz mumkin.

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JISMONIY ZO'RIQISHDA REPRODUKTIV TIZIM REAKTIVLIGI

Annotatsiya*:Jismoniy zo'riqish organizmning turli tizimlarida, shu jumladan reproduktiv tizimda ham sezilarli o'zgarishlarga olib keladi. Jismoniy zo'riqishning reproduktiv tizimga qanday ta'sir ko'rsatishi, uning fiziologik mexanizmlari va sog'liq uchun ahamiyati haqida so'z boradi.*

Jismoniy faoliyatni amalga oshirish paytida organizm ko'plab fiziologik o'zgarishlarga duch keladi. Bular orasida yurak-qon tomir tizimi, nafas olish tizimi, mushak tizimi va boshqalar bor. Shuningdek, reproduktiv tizim ham jismoniy zo'riqishga javoban o'zgaradi. Jismoniy mashqlar va zo'riqish organizmning gormonlar ishlab chiqarishida muhim rol o'ynaydi va reproduktiv tizimning funktsiyasini bevosita ta'sir qiladi. Jismoniy mashqlar erkaklarning sperma sifati va jinsiy gormonlar, ayniqsa testosteron darajasiga sezilarli ta'sir ko'rsatishi mumkin. Bu ta'sir jismoniy faollik turi, davomiyligi va intensivligiga bog'liq.

Kalit so`zlar*: testosteron,esterogen, DNK, ovulyatsiya, protein.*

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REACTIVITY OF THE REPRODUCTIVE SYSTEM DURING PHYSICAL STRESS

Abstract: *Physical stress leads to significant changes in various systems of the body, including the reproductive system. The article discusses how physical stress affects the reproductive system, its physiological mechanisms and its importance for health.*

During physical activity, the body undergoes many physiological changes. These include the cardiovascular system, respiratory system, muscular system, etc. The reproductive system also changes in response to physical stress. Physical exercise and stress play an important role in the body's production of hormones and directly affect the function of the reproductive system. Physical exercise can significantly affect the quality of sperm in men and the level of sex hormones, especially testosterone. This effect depends on the type, duration and intensity of physical activity.

Keywords: *testosterone, estrogen, DNA, ovulation, protein.*

Kirish. Dunyo bo`yicha turli xil jismoniy zo‘riqish orqali organizmlarda yuzaga keladigan o‘zgarishlar va ular ta'sirida turli xil asoratlar tibbiyot amaliyotida asosiy muammolardan biri bo‘lib qolmoqda. Ekstremal omillar ta'sirida organizmda yuzaga keladigan stress–reaksiya alohida rivojlanadigan jarayon bo‘lmasdan, bu jarayonga nisbatan birinchi o‘rinda individual reproduktiv tizim reaktivligi ta'minlanadi. Yuzaga keladigan jismoniy zo‘riqishlarning darajasiga va murakkabligiga qarab organizmda himoya moslashuv reaksiyalar turli darajada namoyon bo‘lishi mumkin. Agarda bosim o‘ta kuchli bo‘lsa, bunday bosim ostida himoya moslashuv reaksiyasida ikki bosqich yuzaga keladi, ya'ni qo‘zg‘alish va tormozlanish bosqichlarini amalga oshiradi.

Tadqiqot maqsadi. Jismoniy zo'riqishda reproduktiv tizim reaktivligini o`rganish.

Tadqiqot usullari: Eksperimental tadqiqotlar bu usulda ishtirokchilar ikki guruhga ajratiladi: birinchi guruh maxsus jismoniy mashq dasturini bajaradi, ikkinchi guruh esa nazorat guruhi sifatida qatnashadi. Jismoniy mashqlar reproduktiv salomatlikka salbiy ta’sir ko‘rsatishini aniq o‘lchash imkonini beradi. Sperma sifati va testosteron darajasidagi o‘zgarishlar tahlil qilinadi.

Natijalar va muhokama. Jismoniy mashqlar va sperma sifati tadqiqotlar shuni ko‘rsatadiki, o‘rtacha jismoniy faollik sperma sifatini oshirishga yordam beradi, chunki: qon aylanishi yaxshilanadi, bu esa moyaklarning yaxshi ishlashiga va spermatozoidlarning yetilishiga yordam beradi. Oksidlovchi stress kamayadi, bu esa spermatozoidlarning DNK strukturasi va harakatchanligini yaxshilaydi. Ortiqcha vazn kamayishi bilan testosteron darajasi ortadi, bu esa sperma sifatiga ijobiy ta’sir qiladi. Biroq, haddan tashqari og‘ir jismoniy yuklanish (masalan, professional sportchilar yoki haddan tashqari og‘ir mashg‘ulotlar) aksincha, sperma sifatini pasaytirishi mumkin. Bu gormonlar muvozanatining buzilishi, jismoniy charchash, va kortizolning ortishi natijasida yuzaga keladi.

Jismoniy zo'riqish davomida organizm ko'plab gormonlarni ishlab chiqaradi, jumladan, stress gormoni bo'lgan kortizol, jinsiy gormonlar, testosteron va estrogen hamda boshqa metabolik gormonlar. Ularning darajasi organizmning fiziologik holatiga qarab o'zgaradi. Misol uchun, o'rta darajadagi jismoniy mashqlar testosteron va estrogen ishlab chiqarishni rag'batlantirishi mumkin, bu esa reproduktiv tizimning faoliyatini yaxshilaydi. Biroq, ortiqcha jismoniy zo'riqish yoki muntazam ravishda og'ir jismoniy mashqlarni bajarish reproduktiv tizimga salbiy ta'sir ko'rsatishi mumkin. Juda yuqori darajadagi stress va kortizol ishlab chiqarish, uzoq muddatli jismoniy zo'riqish testosteron va estrogen darajasini pasaytirishi, ayollarda esa ovulyatsiya muammolariga olib kelishi mumkin.

Uzoq muddatli jismoniy zo`riqishda, erkaklarda testosteron ishlab chiqarilishini pasaytiradi. Qisqa, lekin intensiv mashqlar testosteron ishlab chiqarishni rag‘batlantiradi. Kardio mashqlar, o‘rtacha yuklanish testosteron darajasiga ijobiy ta’sir ko‘rsatishi mumkin, lekin haddan tashqari uzoq yugurish yoki velosiped haydash gormon darajasini kamaytirishi mumkin. Erkaklarda o'rtacha va me'yorida bo'lgan jismoniy mashqlar testosteron darajasini oshirishi

mumkin, bu esa sperma sifatini yaxshilashga yordam beradi. Ammo, ortiqcha jismoniy zo'riqish testosteron darajasini qisqa muddatga pasaytirishi mumkin. Uzoq muddatli haddan tashqari mashqlar erkaklarning jinsiy salomatligiga salbiy ta'sir ko'rsatadi. Jismoniy mashqlar erkaklarda sperma sifati va jinsiy gormonlar darajasiga ta'sir ko`rsatadi. jismoniy zo'riqish ayollarda menstruatsiya siklini va reproduktiv tizimning buzilishiga, bu holat, esa o'z navbatida, ayollarda homila bo'lmasligiga sabab bo'ladi.

Reproduktiv tizim va stress: Jismoniy zo'riqish organizmda stressni oshirishi va kortizol ishlab chiqarishni ko'paytirishi mumkin. Bu gormonlarning ko'payishi, o'z navbatida, testosteron va estrojen kabi jinsiy gormonlarning darajasini pasaytirishi mumkin, bu esa reproduktiv salomatlikka salbiy ta'sir ko'rsatishi mumkin. Jismoniy faoliyatning ayollarning immun tizimi va reproduktiv tizimiga bo'lgan ta'sirini o'rganadi. Doimiy jismoniy mashqlar erkaklar va ayollarning reproduktiv gormonlari darajasiga qanday ta'sir qilishini tahlil qiluvchi maqola. Optimal natijaga erishish uchun tavsiyalar. O‘rtacha va muntazam mashq qilish: Haftasiga kamida 3-5 kun jismoniy faollik bilan shug‘ullanish. Og‘ir atletika va kuch mashqlarini qo‘shish: Oraliq intensivlikdagi kuch mashqlari testosteron ishlab chiqarishni rag‘batlantiradi. Ortiqcha yuklamadan qochish: Haddan tashqari mashq qilish kortizolni oshirishi va testosteronni kamaytirishi mumkin. To‘g‘ri ovqatlanish. Protein, sog‘lom yog‘lar va rux (Zn) kabi minerallar testosteron ishlab chiqarishda muhim rol o‘ynaydi. Yetarli uyqu: Uyqu paytida testosteron ishlab chiqarish faol kechadi, shuning uchun 7-9 soatlik sifatli uyqu muhimdir

Jismoniy faoliyat va erkaklarning reproduktiv salomatligi o‘rtasidagi bog‘liqlikni o‘rganish uchun turli ilmiy tadqiqot usullari qo‘llaniladi. Quyida keng tarqalgan va samarali usullar keltirilgan. Jismoniy faoliyat va erkaklar reproduktiv salomatligi o‘rtasidagi bog‘liqlikni o‘rganish uchun kuzatuv, eksperimental, laboratoriya tahlillari va so‘rovnomalar kabi usullar keng qo‘llaniladi. Eng ishonchli natijalar bir nechta usullarni kombinatsiyalash orqali olinadi.

Xulosa. Jismoniy zo'riqishning reproduktiv tizimga ta'siri murakkab va ko'p omillarga bog'liq. O'rtacha darajadagi jismoniy mashqlar reproduktiv salomatlikni qo'llab-quvvatlashda foydali bo'lishi mumkin, ammo haddan tashqari zo'riqish va stress gormonlari ishlab chiqarish reproduktiv tizimga zarar etkazishi mumkin. Shuning uchun, jismoniy faoliyatning me'yorda bo'lishi va organizmning ehtiyojlariga mos kelishi juda muhimdir. Bularning barchasi jismoniy zo'riqish va reproduktiv tizim o'rtasidagi o'zaro ta'sirni yaxshiroq tushunishga yordam beradi. O‘rtacha jismoniy faollik erkaklarning reproduktiv sog‘lig‘iga ijobiy ta’sir qiladi. Shu bois, balansni saqlash muhimdir. Muntazam va o'rtacha darajadagi jismoniy mashqlar umumiy sog'liq uchun foydali bo'lib, qon aylanishini yaxshilaydi va stressni kamaytiradi. Bu omillar erkaklarning reproduktiv salomatligiga ijobiy ta'sir ko'rsatadi. Haddan tashqari jismoniy zo'riqish, ayniqsa professional sportchilar orasida, organizmda stress gormonlari (masalan, kortizol) darajasining oshishiga olib kelishi mumkin, bu esa testosteron darajasini pasaytirishi va sperma sifatiga salbiy ta'sir ko'rsatishi ehtimoli mavjud.

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DIGITAL AND INFORMATION AND COMMUNICATION TECHNOLOGIES AS THE MAIN FACTOR IN THE DEVELOPMENT OF MODERN SOCIETY

Abstract*. The article examines the role of digital and information and communication technologies (ICT) as the main factor in the development of modern society. Their impact on the economy, social processes, education, healthcare and public administration is analyzed. Key areas of digital transformation, such as automation, e-commerce, fintech, the Internet of Things and artificial intelligence are considered. The prospects for further development of digital technologies and their importance for the future of society are also discussed.*

Keywords*: digital technologies, information and communication technologies, economics, artificial intelligence, Internet of things, fintech, digital transformation, social networks, telemedicine, e-government.*

It is impossible to imagine modern society without digital and information and communication technologies (ICT). They influence all spheres of life: economy, education, healthcare, public administration and social interactions. The development of these technologies determines the pace of progress and shapes the future of humanity. This article will consider the role of ICT as the main factor in the development of modern society, their impact on the economy and social processes, as well as prospects for further development.

Development of digital technologies and their impact on the economy. Digital technologies have become an integral part of economic activity. Their use allows you to automate processes, increase productivity and reduce costs. Important areas of implementation of digital technologies in the economy are:

1. Automation and robotics - modern enterprises actively use robotics and artificial intelligence (AI) to perform routine tasks, which increases labor productivity.

2. E-commerce - thanks to digital platforms (Amazon, Alibaba, Ozon, etc.), online trading is actively developing, which contributes to the growth of small and medium businesses.

3. Digital transformation of business – companies use cloud technologies, Big Data and machine learning to improve the efficiency of their operations.

4. Development of fintech – digital payment systems, cryptocurrencies and blockchain technologies are changing the banking sector, making financial services more accessible and secure.

Thus, digitalization contributes to increasing the competitiveness of business and improving the economic situation of countries that actively implement innovations.

The Impact of ICT on Social Processes. In addition to the economy, digital technologies have a significant impact on social processes. They contribute to the development of distance education, telemedicine, e-government and social networks.

1. Education - the emergence of online platforms (Coursera, Udemy, Khan Academy) allows people from different parts of the world to receive quality knowledge. The development of artificial intelligence helps to personalize learning.

2. Healthcare - telemedicine allows patients to receive medical consultations remotely, and digital technologies help in diagnosing diseases.

3. E-government - the introduction of ICT in public administration (Gosuslugi, "digital passports") makes administrative procedures more convenient and accessible.

4. Social networks and communications - the Internet has changed the way people communicate, accelerating the transfer of information and providing access to knowledge and news.

Prospects for the development of digital technologies. The future of digital technologies opens up new opportunities for humanity. The main areas of their development are:

• Artificial intelligence and machine learning – the development of AI algorithms will lead to new achievements in medicine, science and business.

• Internet of Things (IoT) – the integration of devices into a single network will automate the management of household and industrial systems.

• Quantum technologies – a promising area that can revolutionize computing and data security.

• Development of 5G and 6G – new generations of mobile communications will provide higher data transfer rates and the development of smart cities.

Digital and information and communication technologies are a key factor in the development of modern society. Their influence covers the economy, education, healthcare, social sphere and public administration. The future of digitalization opens up many new opportunities for humanity, but also requires a careful approach to issues of cybersecurity and digital inequality. It is important to continue the development of ICT so that they serve the benefit of society and contribute to the sustainable development of the world.

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ROLE, SIGNIFICANCE AND DEVELOPMENT OF ARTIFICIAL INTELLIGENCE IN MODERN SOCIETY

Abstract. *The article discusses the role, significance and prospects for the development of artificial intelligence (AI) in modern society. Its impact on the economy, healthcare, education and other areas of life are described. Particular attention is paid to the social and ethical aspects of using AI, as well as potential challenges related to automation and data security. Promising areas of AI technology development are analyzed, including explainable artificial intelligence, quantum computing and the Internet of Things.*

Keywords: *artificial intelligence, automation, machine learning, neural networks, cybersecurity, quantum computing, AI ethics, digital transformation.*

Artificial intelligence (AI) is one of the fastest growing technologies of our time, significantly affecting various areas of society. From automating routine processes to developing complex analytical systems, AI is transforming the economy, medicine, education, industry, and everyday life. This article will look at the role and significance of artificial intelligence, as well as the prospects for its further development.

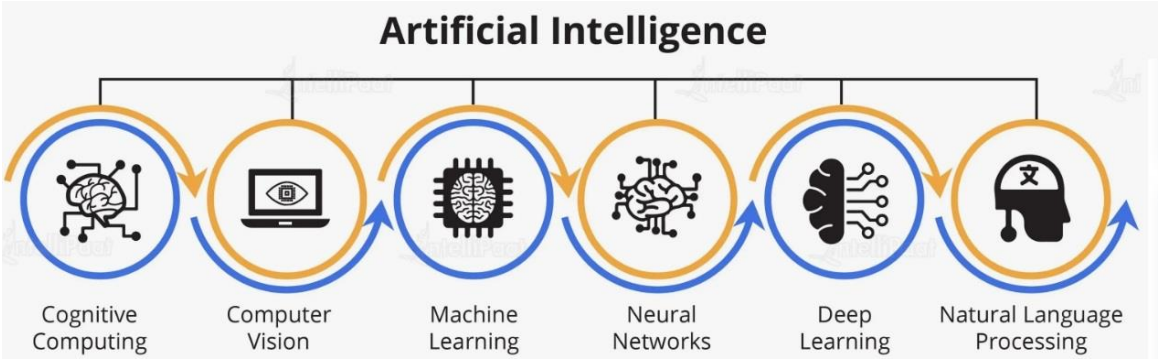
The role of artificial intelligence in modern society. AI plays a key role in the modernization of many areas of activity. In the economy, it helps increase labor productivity, reduce costs, and optimize business processes. In industry, intelligent systems help automate production, which increases its efficiency and reduces the level of errors. In healthcare, AI is used to diagnose diseases, create personalized treatments, and manage medical data.

In addition, artificial intelligence is actively being introduced into education. Intelligent systems help develop personalized learning programs, adapt the educational process to the individual needs of students, and improve the quality of distance education. In everyday life, AI manifests itself in the form of voice assistants, intelligent recommendation systems, navigation services, and automated security systems.

The Importance of Artificial Intelligence. The importance of artificial intelligence cannot be overestimated, as it not only facilitates the execution of complex tasks, but also opens up new horizons in scientific research, business and the social sphere. One of the most important aspects is the ability of AI to analyze large volumes of data, identify patterns and offer optimal solutions. This is especially relevant in the field of financial market forecasting, risk management and cybersecurity. AI also has important social significance. It can be used to develop intelligent environmental monitoring systems, predict natural disasters and manage resources more efficiently. In the medical field, artificial intelligence facilitates the

early diagnosis of dangerous diseases, which increases the chances of successful treatment.

However, despite all the advantages, AI technologies also give rise to a number of ethical and social issues. For example, the automation of many processes can lead to job losses and increased social inequality. There are also concerns about data privacy and the possible abuse of AI technologies in the field of surveillance and control.



Pic. 1. Schematic diagram illustrating the key areas of Artificial Intelligence (AI)

The image is a schematic diagram illustrating the key areas of Artificial Intelligence (AI) under the heading "Artificial Intelligence." The diagram comprises six main components, interconnected by guiding lines that emphasize their interrelation within a unified framework.

Each component is represented as an individual circle containing an icon symbolizing the specific area, with the name of the area displayed below:

- **Cognitive Computing:** Depicted with a brain surrounded by digital lines, symbolizing computational processes and the modeling of human thought and decision-making.
- **Computer Vision:** Represented by an icon of a computer with an eye on the screen, symbolizing the ability of computers to analyze and interpret visual data, including images and videos.
- **Machine Learning:** Shown with an icon of a brain embedded in a microchip, emphasizing the connection of machine learning to data processing and the training of algorithms.
- **Neural Networks:** Illustrated with a network of interconnected dots, representing the architecture of artificial neural networks that mimic the functioning of the human brain.
- **Deep Learning:** Depicted as a stack of neural layers, highlighting complex multi-layered algorithms used for analyzing large data sets.
- **Natural Language Processing (NLP):** Shown with a head and a microphone icon, symbolizing the processing of natural language for understanding, interpreting, and generating text.

Each component is encased in a ring with a yellow-to-blue gradient, visually unifying them into a cohesive system. The guiding arrows emphasize the dynamic and integrated nature of AI processes.

The diagram employs a minimalist design, focusing on clarity and the logical interconnection of elements, making it an effective visual aid for educational or scientific materials on modern AI technologies.

Prospects for the development of artificial intelligence. Modern research in the field of artificial intelligence is aimed at improving machine learning algorithms, developing neural networks and creating more adaptive and ethically safe technologies. One of the main areas is the development of Explainable AI systems, which will allow better understanding and control of the decision-making process of artificial intelligence.

In addition, active work is underway to integrate AI into such promising technologies as quantum computing and the Internet of Things (IoT). Quantum computers combined with artificial intelligence can significantly speed up data processing and solving complex problems. And the interaction of AI with IoT will allow the creation of smart cities, where the infrastructure will adapt to the needs of residents in real time.

The development of artificial intelligence also requires the creation of new legislative norms and ethical standards governing the use of technologies. This will minimize potential threats and make AI safer for society. Artificial intelligence plays an important role in modern society, significantly changing many areas of life. Its importance lies in increasing work efficiency, improving the quality of medical services, modernizing education, and much more. However, the development of AI is accompanied by a number of challenges related to ethical issues, data security, and the social consequences of automation. In the future, further improvement of AI technologies and their deeper integration into various aspects of life are expected, which will make society more technologically advanced and innovative.

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MONITORING METHODS BASED ON MULTILEVEL EDUCATIONAL PROCESSES DATA

Abstract. *In modern educational systems, monitoring plays a crucial role in assessing and improving learning outcomes. This paper explores monitoring methods that leverage multilevel educational processes data. The study analyzes various data collection, processing, and analysis techniques to enhance decision-making in education. The findings demonstrate that applying advanced monitoring methods leads to improved educational outcomes, optimized resource allocation, and better student performance tracking.*

Keywords: Educational monitoring, multilevel data, student performance, machine learning, learning management systems, data-driven decision-making, performance indicators, resource optimization, personalized learning.

Introduction. Monitoring educational processes is essential for ensuring the effectiveness of learning strategies, identifying gaps in knowledge acquisition, and enhancing overall institutional efficiency. Traditional monitoring methods often fail to capture the complexity of educational data that spans multiple levels, such as individual students, classes, schools, and regional education systems. This paper discusses multilevel monitoring methods that utilize educational data at different scales to provide a comprehensive view of the learning environment.

Multilevel Educational Data. Educational data is typically structured across multiple levels, including:

- Student-Level Data: Attendance, test scores, learning progress, engagement, and feedback.
- Classroom-Level Data: Teacher performance, curriculum implementation, and peer interactions.
- School-Level Data: Institutional policies, resource allocation, and student success rates.
- Regional/National Data: Standardized test results, funding distribution, and policy impact analysis.
- Analyzing these different levels collectively enables educators and policymakers to develop targeted interventions and improve educational strategies.

Monitoring Methods.

Data Collection Techniques. Effective monitoring begins with robust data collection methods, such as:

- Surveys and Questionnaires: Gathering qualitative and quantitative feedback from students, teachers, and administrators.

•Learning Management Systems (LMS): Tracking student engagement, assignment completion, and online learning behavior.

•Standardized Assessments: Evaluating student proficiency levels across different educational settings.

•Sensor-Based Monitoring: Utilizing IoT devices for tracking classroom interactions and student attention levels.

Data Processing and Analysis. After collecting raw data, processing and analysis techniques are employed to extract meaningful insights:

•Statistical Methods: Regression analysis, correlation studies, and trend forecasting.

•Machine Learning Algorithms: Predicting student performance, identifying at-risk students, and personalizing learning plans.

•Visualization Tools: Dashboards and graphical reports to present complex educational data in an understandable manner.

Performance Indicators. Key performance indicators (KPIs) are crucial for monitoring educational progress. Common indicators include:

•Student Retention and Dropout Rates: Identifying factors affecting student persistence in education.

•Assessment Scores and Growth Metrics: Measuring improvements in student learning over time.

•Teacher Effectiveness Ratings: Evaluating instructional methods and their impact on student outcomes.

•Resource Utilization Metrics: Analyzing the efficiency of budget allocations, facilities usage, and technological tools.

Benefits of Multilevel Monitoring.

•Enhanced Decision-Making: Data-driven insights enable policymakers and educators to make informed choices.

•Early Identification of Learning Gaps: Proactive interventions help struggling students before issues escalate.

•Optimization of Resources: Schools can allocate funding and resources more effectively based on data-driven needs.

•Personalized Learning Paths: AI-driven monitoring tailors education to individual student needs.

Challenges and Future Directions. While multilevel monitoring provides valuable insights, challenges remain:

•Data Privacy and Security: Ensuring compliance with ethical standards and regulations.

•Data Integration Issues: Harmonizing data from multiple sources for accurate analysis.

•Teacher and Administrator Training: Ensuring stakeholders are equipped with skills to interpret and utilize monitoring insights.

Future advancements in artificial intelligence, big data analytics, and cloud computing will further refine monitoring methods, making educational processes more adaptive and efficient.

Multilevel educational monitoring is essential for improving learning outcomes, optimizing institutional resources, and personalizing education. By leveraging advanced data collection and analysis techniques, educational institutions can create dynamic learning environments that cater to the evolving needs of students and educators. Ongoing research and technological innovations will continue to shape the future of educational monitoring, paving the way for more effective and equitable education systems worldwide.

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DEVELOPMENT OF A MODEL OF FORMATION OF PROFESSIONAL AND CREATIVE POTENTIAL IN THE PROCESS OF PROFESSIONAL TRAINING

Abstract. *The development of professional and creative potential in the process of professional training is a key factor in preparing highly qualified specialists capable of innovation and continuous self-improvement. This paper presents a model for fostering professional and creative potential, integrating theoretical foundations and practical methodologies. The study highlights the role of educational environments, psychological factors, and competency-based approaches in shaping future professionals. The proposed model aims to enhance students' adaptability, problem-solving skills, and creative thinking in their respective fields.*

Keywords: *professional training, creative potential, competency-based approach, innovation, psychological factors, educational environment, problem-solving skills.*

Professional training is a crucial stage in preparing specialists for the labor market.

In today's rapidly evolving labor market, professional training plays a crucial role in preparing specialists who can meet industry demands. Modern economies require not only technical expertise but also adaptability, creativity, and problem-solving skills. Employers seek professionals who can integrate theoretical knowledge with practical experience, demonstrating innovation and efficiency in their fields.

The relevance of professional training is further emphasized by globalization, technological advancements, and automation, which are reshaping job requirements. Traditional education alone is no longer sufficient; continuous skill development and lifelong learning have become essential for career growth.

Effective professional training ensures that graduates are equipped with the necessary competencies to navigate dynamic work environments. It bridges the gap between academic knowledge and real-world applications, fostering workforce readiness. By incorporating industry-specific curricula, hands-on experience, and interdisciplinary approaches, professional training programs enhance employability and contribute to economic growth.

Thus, investing in the professional education of specialists is a key strategy for sustainable workforce development, fostering innovation, and ensuring a competitive labor market.

Modern industries demand not only technical expertise but also creativity, adaptability, and problem-solving abilities. The formation of professional and creative potential ensures that future professionals can navigate complex challenges and contribute effectively to their fields. This paper explores a systematic approach to developing professional and creative potential in students through an educational model that integrates psychological, pedagogical, and methodological aspects.

Theoretical Foundations. The development of professional and creative potential is based on several theoretical approaches:

- Competency-Based Learning: Emphasizes skill development and the ability to apply knowledge in real-world situations.
- Constructivist Theory: Focuses on active learning, self-directed exploration, and problem-solving.
- Creativity Theories: Highlight the importance of fostering divergent thinking, innovation, and interdisciplinary approaches.
- Psychological Factors: Motivation, emotional intelligence, and self-efficacy play a crucial role in students' ability to develop their potential.

Model of Formation of Professional and Creative Potential.

The proposed model consists of the following components:

1. Educational Environment
- Developing a student-centered learning environment.
- Providing access to diverse resources, mentorship, and collaborative projects.
- Integrating interdisciplinary approaches to encourage innovative thinking.

2. Psychological and Motivational Support.
- Encouraging intrinsic motivation through goal-setting and self-reflection.
- Implementing psychological training sessions to boost confidence and reduce anxiety.
- Fostering a growth mindset to enhance resilience and adaptability.

3. Competency-Based Approach
- Aligning curricula with industry needs and professional standards.
- Incorporating problem-based learning and real-world case studies.
- Using assessment methods that evaluate both technical skills and creative thinking.

4. Practical and Creative Activities.
- Encouraging participation in research projects, internships, and competitions.
- Promoting entrepreneurship and innovation through incubator programs.
- Facilitating collaboration with industry experts to provide real-world insights.

Implementation Strategies.

To effectively implement the proposed model, institutions should:

- Provide professional development programs for educators to enhance their ability to foster creativity.

- Develop partnerships with industries and research centers for practical exposure.
- Utilize digital tools and platforms to support interactive and adaptive learning.
- Regularly assess and refine the model based on student feedback and learning outcomes.

Benefits of the Model.

- Enhances students' problem-solving and decision-making abilities.
- Encourages interdisciplinary collaboration and innovation.
- Improves adaptability to the dynamic labor market.
- Strengthens intrinsic motivation and lifelong learning habits.

The formation of professional and creative potential in professional training is essential for preparing specialists capable of innovation and continuous improvement. The proposed model integrates competency-based learning, psychological support, and practical engagement to foster well-rounded professionals. Future research should focus on empirical validation of the model and its application in different educational contexts.

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MIGRATSIYA JARAYONI VA SABABLARI

Annotatsiya. *Ushbu maqolada migratsiya tushunchasi, uning asosiy turlari, migratsiya jarayonining ijtimoiy-iqtisodiy va siyosiy sabablari, migratsiyaning jamiyat taraqqiyotiga ijobiy va salbiy ta’siri tahlil qilingan.*

Kalit so’zlar: *migratsiya, ichki migratsiya, tashqi migratsiya, mehnat migratsiyasi, demografik o‘zgarishlar, iqtisodiy omillar.*

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MIGRATION PROCESS AND REASONS

Abstract. *This article analyzes the concept of migration, its main types, socio-economic and political causes of the migration process, positive and negative effects of migration on the development of society.*

Key words: *migration, internal migration, external migration, labor migration, demographic changes, economic factors.*

Migratsiya insoniyat tarixida muhim o‘rin tutuvchi jarayonlardan biridir. Harakatlanish va yashash joyini o‘zgartirish insonning ijtimoiy-iqtisodiy hayotida katta rol o‘ynaydi. XXI asrda migratsiya jarayoni global tus olib, mamlakatlarning iqtisodiy, ijtimoiy va demografik tuzilishiga sezilarli ta’sir ko‘rsatmoqda. Ushbu maqolada migratsiyaning mohiyati, asosiy sabablari va uning jamiyatga ta’siri haqida fikr yuritiladi.

Migratsiya tushunchasi va uning turlari. Migratsiya - bu shaxslar yoki aholi guruhlarining doimiy yoki vaqtinchalik yashash joyini o‘zgartirishi jarayoni. Migratsiya turlari quyidagicha tasniflanadi:

- **Ichki migratsiya** - mamlakat hududida bir joydan boshqa joyga ko‘chish.
- **Tashqi migratsiya** - davlat chegaralaridan tashqariga chiqib yoki boshqa mamlakatdan kelib joylashish.
- **Ixtiyoriy migratsiya** - iqtisodiy, ijtimoiy yoki shaxsiy sabablarga ko‘ra amalga oshiriladigan ko‘chish.
- **Majburiy migratsiya** - urushlar, tabiiy ofatlar yoki siyosiy ta’qiblar sababli yuzaga keladigan ko‘chish.

Migratsiya jarayonining asosiy sabablari. Mehnat migratsiyasining sabablari iqtisodiy, ijtimoiy, siyosiy va shaxsiy omillarga bog‘liq bo‘lib, ular quyidagicha tasniflanishi mumkin:

- 1. Iqtisodiy sabablari. Ishsizlik, past daromad va bu ko‘pgina davlatlarda ish joylarining yetishmasligi odamlarni xorijda ish izlashga undaydi va odamlar moliyaviy ahvolini yaxshilash uchun yuqori maosh taklif qiluvchi mamlakatlarga ketadilar. Kambag‘al davlatlardan iqtisodiy jihatdan rivojlangan mamlakatlarga borishadi.
- 2. Ijtimoiy sabablari. Yashash sharoitlarini yaxshilash orqali sog‘liqni saqlash, ta’lim va boshqa ijtimoiy xizmatlarning yuqori darajada bo‘lishi mehnat migrantlarini jalb qiladi. Migrantlar oilasini moddiy jihatdan ta’minlash uchun chet elda ishlashadi.
- 3. Siyosiy sabablari. Ayrim mamlakatlar chet el ishchilariga qulay ish sharoitlarini yaratadi va vizalarni soddalashtiradi.
- 4. Demografik sabablari. Aholi zichligi va cheklangan resurslar tufayli odamlar boshqa davlatlarga va rivojlangan mamlakatlar demografik qarish sababli yangi ishchilarni jalb qilishga muhtojlighi sababidan mehnat qilishga chiqib ketadi.
- 5. Shaxsiy sabablari. Oliy ma’lumotli va malakali mutaxassislar o‘z kasbiy ko‘nikmalarini qadrlaydigan mamlakatlarga boradilar. Ayrim shaxslar shunchaki yangi madaniyat va tajribalarni o‘rganish maqsadida ko‘chib ketadi.
- 6. Global tendensiyalar. Xalqaro hamkorlik va integratsiya jarayonlari mehnat migratsiyasini osonlashtiradi. Xalqaro aloqa va transport tizimlarining rivojlanishi migratsiya jarayonlarini tezlashtiradi [1].

Migratsiyaning ijobiy va salbiy ta’siri. Migratsiya natijasida mamlakatlar iqtisodiy jihatdan rivojlanishi, demografik muammolar hal etilishi mumkin. Shu bilan birga, aholi tarkibidagi o‘zgarishlar ijtimoiy muammolarni keltirib chiqarishi ham ehtimoldan xoli emas. Ijobiy jihatlarga quyidagilar kiradi:

- Ishchi kuchining oqimi, tajriba almashinuvi.
- Migrantlar jo‘natuvchi mamlakatlarga pul o‘tkazmalari orqali iqtisodiy yordam ko‘rsatishi.
- Yangi madaniyatlar va innovatsiyalarni olib kelishi. Salbiy jihatlar esa quyidagilar:
- Mehnat bozoridagi raqobatning kuchayishi, ishsizlik darajasining oshishi.
- Madaniy va til to‘qnashuvlari, integratsiya muammolari.
- Aqliy salohiyatning boshqa davlatlarga oqib ketishi ("Brain drain").

Mehnat migrantlarining hududiy taqsimotini o‘rganishda muhim jihatlardan biri – aholi mamlakat bo‘ylab notekis joylashganidir. Aholisi ko‘p, tug‘ilish darajasi yuqori va zich joylashgan hududlarda migratsiya jarayonlari ancha faollashadi. K. Kalanovning ta’kidlashicha, O‘zbekiston fuqarolarining uzoq xorijiy mamlakatlarga tashqi migratsiyasi quyidagi shakllarda namoyon bo‘ladi:

- Rasmiy doimiy emigratsiya;
- Rasmiy vaqtinchalik emigratsiya;
- Norasmiy emigratsiya;
- Ekologik emigratsiya;

- Intellektual immigratsiya.

Shuningdek, O‘zbekiston fuqarolarining MDH davlatlariga bo‘lgan migratsiyasi ham turli ko‘rinishlarga ega: gasterbayterlar va yollanma ishchilar migratsiyasi, doimiy rasmiy migratsiya (fuqarolik olish), vaqtinchalik etnik migratsiya (etnik vatanda ishlash) va intellektual migratsiya (olimlar, tadqiqotchilar, talabalar va boshqalar [2].

Ushbu omillarni hisobga olgan holda, chet mamlakatlarga chiqayotgan fuqarolarimizning asosiy qismi moddiy daromad orttirish maqsadida yollanma ishchi sifatida ishlashga ketmoqda. Qolgan qismi esa bilim va tajribasini oshirish uchun xorijga chiqmoqda, rusiyzabon aholining bir qismi esa tarixiy vataniga doimiy yashash uchun ko‘chmoqda.

Respublikamizda 2024 yilda ko‘chib ketganlar soni 250,4 ming kishini tashkil etib, 2020 yilning shu davriga nisbatan 46,8 ming kishiga ko‘paygan. 2024 yilda ko‘chib ketganlar yosh guruhlari bo‘yicha mehnatga layoqatli yoshdan kichiklar 12,0 foiz, mehnatga layoqatli yoshdagilar 80,0 foiz, mehnatga layoqatli yoshdan kattalar hissasi 8,0 foizni tashkil etadi.

1-jadval

Xorijiy davlatlarga ko‘chib ketganlarning davlatlar bo‘yicha taqsimlanishi (2024-y.)

Davlatlar nomi	Ko‘chib ketgan aholi soni (kishi hisobida)	Ko‘chib ketgan aholi foiz hisobida
Qozog‘iston	8792	81,1
Rossiya	1601	14,8
Janubiy Koreya	96	0,9
Qirg‘iziston	73	0,7
Turkmaniston	39	0,4
Boshqa mamlakatlar	241	2,1

O‘zbekiston Respublikasidan xorijiy mamlakatlarga ko‘chib ketganlarning 81,1 foizi Qozog‘iston Respublikasiga, 14,8 foizi Rossiya Federatsiyasiga, 0,9 foizi Janubiy Koreyaga, 0,7 foizi Qirg‘iz Respublikasiga, 0,4 foizi Turkmaniston Respublikasiga, 2,1 foizi boshqa davlatlarga to‘g‘ri keladi.

Respublikamiz ma’muriy-birliklarida ko‘chib ketganlarning eng yuqori ulushi Toshkent shahrida 28,6 %, Toshkent viloyatida – 11,5 %, Qashqadaryo viloyatida – 7,1 %, Samarqand viloyatida – 6,5 %, Farg‘ona viloyatida – 6,1 % ga teng bo‘lgan.

Migratsiya jarayoni ijtimoiy-iqtisodiy hayotning ajralmas qismi bo‘lib, uning oqibatlari har tomonlama baholanishi zarur. Davlatlar migratsiya siyosatini shakllantirishda iqtisodiy manfaatlar bilan birga ijtimoiy barqarorlikni ham e’tiborga olishi kerak. To‘g‘ri boshqarilgan migratsiya jarayoni mamlakatlar o‘rtasidagi hamkorlikni rivojlantirish va barqaror taraqqiyotni ta’minlashga xizmat qiladi.

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XORAZM VILOYATI IQTISODIYOT TARMOQLARI RIVOJLANISHI

Annotatsiya. *Ushbu maqolada Xorazm viloyatining iqtisodiyot tarmoqlari rivojlanishining ko‘rsatkichlari, iqtisodiyot sohalarining viloyat YAHMga ta’siri, iqtisodiyot tarmoqlarining istiqbolda rivojlanish yo‘nalishlari yoritib berilgan.*

Kalit so‘zlar: *YAHM, iqtisodiyot, sanoat tarmoqlari, tog‘-kon, qishloq xo‘jaligi, turizm.*

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DEVELOPMENT OF ECONOMIC SECTORS OF KHORAZM REGION

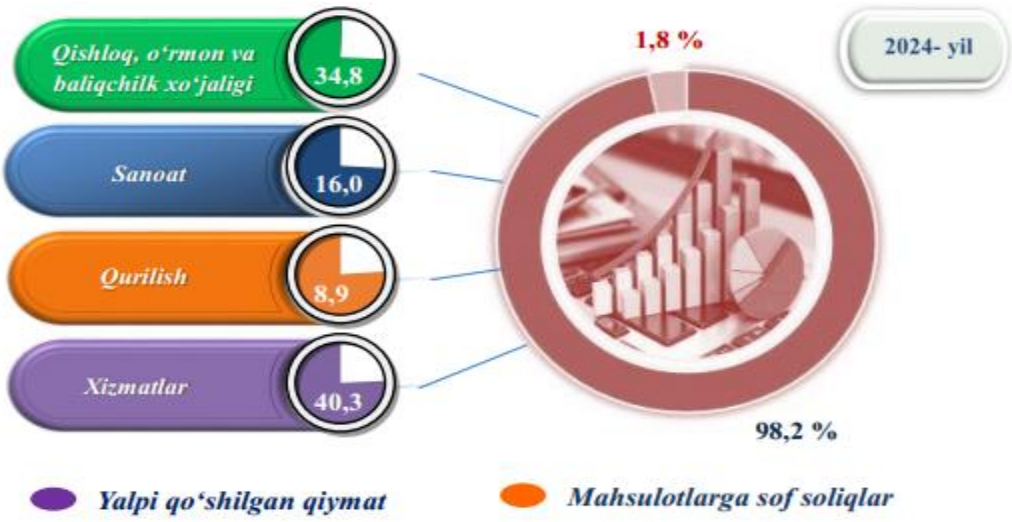
Abstract. *In this article, indicators of the development of economic sectors of the Khorezm region, the influence of economic sectors on the region's economic development, directions of future development of economic sectors are highlighted.*

Key words: *GDP, economy, industrial sectors, mining, agriculture, tourism.*

Xorazm viloyati O‘zbekistonning iqtisodiy-ijtimoiy rivojlanishi so‘nggi yillarda sezilarli darajada jadallashib kelayotgan viloyatlardan biri hisoblanadi. Viloyat o‘zining sanoati, qishloq xo‘jaligi va turizm salohiyati bilan ajralib turadi. Viloyatda aholining turmush darajasini oshirish, infratuzilmani rivojlantirish bo‘yicha qator davlat dasturlari amalga oshirilmoqda. Xorazmning tabiiy resurslari va iqtisodiy geografik o‘rni iqtisodiy o‘sishga zamin yaratadi.

Xorazm viloyatida iqtisodiyot tarmoqlari jadal rivojlanib kelmoqda. Jumladan, yalpi hududiy mahsulot (YAHM), sanoat, qishloq xo‘jaligi, turizm tapmoqlari keng rivojlanmoqda.

Viloyat iqtisodiyotining asosiy tarmoqlarida kuzatilgan o‘sish sur‘atlari YAHM o‘sishida asosiy omil bo‘lib xizmat qilmoqda. Jumladan, 2024-yilda YAHM tarkibida qishloq, o‘rmon va baliqchilik xo‘jaligi sohasining ulushi 34,8 foizni tashkil qilgan va 2023-yilga (37,8 %) nisbatan 3,0 punktga kamaygan. Sanoat tarmog‘ining (qurilishni qo‘shgan holda) ulushi 24,9 foizni tashkil qilib, 2023-yilga (23,6 %) nisbatan 1,3 punktga ko‘pdir. Xizmatlar sohasi ulushi 40,3 foizni tashkil qilgan va o‘tgan yilga (38,6 %) nisbatan 1,7 punktga ko‘paygan (1-rasm.).



1-rasm. Yalpi hududiy mahsulotning tarmoqlar bo‘yicha tarkibi (jamiga nisbatan foizda 2024-y.)

Xorazm viloyati sanoat tarmoqlari rivojlanish xususiyatlari o‘ziga xosligi bilan ajralib turadi. Shuni alohida ta’kidlash lozimki, viloyat sanoat tarmoqlar tarkibini rivojlantirishda va sanoat korxonlarini hududiy tashkil etishda viloyatning foydali mineral qazilma resurslari deyarli yo‘qligi, ammo qishloq xo‘jaligining intensiv rivojlanganligi, mehnat resurslarining yuqoriligi, ekologik vaziyatning og‘irligi hisobga olinishi zarur.

Viloyatda 2024-yilda tog‘-kon sanoati va ochiq konlarni ishlash 6,2 mlrd so‘m, ishlab chiqaradigan (qayta ishlash) sanoatida ishlab chiqarish hajmi 28 086,4 mlrd so‘m, elektr, gaz, bug‘ bilan ta‘minlash va havoni konditsiyalash 821,5 mlrd so‘m va suv bilan ta‘minlash, kanalizatsiya tizimi, chiqindilarni utilizatsiya qilish 186,0 mlrd so‘mlik sanoat mahsulotlari ishlab chiqarilgan. Jami sanoat ishlab chiqarish hajmi o‘sishining asosiy omili bo‘lib, tog‘-kon sanoati va ochiq konlarni ishlashning 92,5 foizga, ishlab chiqaradigan (qayta ishlash) sanoatida ishlab chiqarish hajmining 108,7 foizga, elektr, gaz, bug‘ bilan ta‘minlash va havoni konditsiyalashning 101,9 foizga va suv bilan ta‘minlash, kanalizatsiya tizimi, chiqindilarni utilizatsiya qilishning 94,1 foizga o‘sishi kuzatilgan.

1-jadval

Xorazm viloyati sanoat ishlab chiqarish ko‘rsatkichlari (2024 y.)

Shahar va tumanlar nomi	Sanoat ishlab chiqarishda hududlarning ulushi foizda	2023-yilga nisbatan ishlab chiqarish indeksi, %
Urganch sh.	14,4	105,3
Xiva sh.	1,4	107,6
Bog‘ot	2,3	106,1
Gurlan	2,1	107,2
Qo‘shko‘pir	2,2	110,6
Urganch	4,7	107,8
Hazorasp	2,1	106,1
Tuproqqal’a	48,3	106,7
Xonqa	3,6	108,1
Xiva	1,8	110,2

Shovot	3,5	107,3
Yangiariq	2,6	105,8
Yangibozor	2,8	108,7
Xorazm viloyati bo‘yicha	100	108,2

Manba: Xorazm viloyati statistika boshqarmasi ma’lumotlari.

Xorazm viloyati sanoat tarmoqlari rivojlanishini tumanlar kesimida tahlili shuni ko’rsatadiki, sanoat mahsulotlari ishlab chiqarish hajmida ulushi yuqori bo‘lgan Tuproqqal’a tumani 48,3 foiz, Urganch shahri 14,4 foiz, Urganch tumani 4,7 foiz, Xonqa tumani 3,6 foiz, Shovot tumani 3,5 foiz, Yangibozor tumani 2,8 foiz, Yangiariq tumani 2,6 foiz, Bog‘ot tumani 2,3 foiz, Qo‘shko‘pir tumani 2,2 foiz, Gurlan tumani 2,1 foiz, Hazorasp tumani 2,1 fozi, Xiva tumani 1,8 foizni hamda eng past bo‘lgan va Xiva shahri 1,4 foizni tashkil etganligini ko‘rish mumkin (1-jadval).

Xorazm viloyati qishloq xo‘jaligi sohasida 2024-yilda 28 490,6 mlrd. so‘mlik qishloq xo‘jaligi mahsulotlari yetishtirilgan. Qishloq xo‘jaligi mahsulotlari hajmining o‘sishi 2023- yilning mos davriga nisbatan 102,9 foizni, shu jumladan, dehqonchilik mahsulotlari 102,7 foizni va chorvachilik mahsulotlari 103,1 foizni tashkil qilgan.

Viloyatning qishloq, o‘rmon va baliqchilik xo‘jaligi mahsulotlarning umumiy hajmida hududlar bo‘yicha yetakchilik qilayotgan tumanlarning ulushi Urganch tumanida 11,0 foiz, Xonqa tumanida 10,6 foiz, Bog‘ot va Shovot tumanlarida - 9,9 foiz, Qo‘shko‘pir tumanida 9,8 foiz, Gurlan tumanida 9,4 foizni tashkil etgan. Xiva shahri 0,3 foiz, Urganch shahri 2,1 foiz va Tuproqqal’a tumani 2,8 foiz ko‘rsatkich bilan keyingi o‘rinlarni egallaydi, eng kam ulush Xiva shahrida 0,3 foiz qayd etilgan.

2024-yilda 28 490,6 mlrd. so‘mga teng bo‘lgan qishloq xo‘jaligi mahsulotlari yetishtirilgan va ushbu hajmning 12 750,4 mlrd so‘mga teng qismi yoki 44,8 foizi dehqonchilik, 15 740,2 mlrd so‘mga teng qismi yoki 55,2 foizi chorvachilik sohasiga to‘g‘ri keladi. Ushbu yilda yetishtirilgan dehqonchilik va chorvachilik mahsulotlari umumiy hajmining hududlar kesimida taqsimlanishi tahlil qilinganda, dehqonchilik mahsulotlari yetishtirishda Tuproqqal’a tumani (56,8 foiz), Bog‘ot tumani (52,8 foiz), Xiva tumani (52,6 foiz) yuqori ko‘rsatkich qayd etilgan. Urganch shahrida bu ko‘rsatkich 4,8 foiz bo‘lib, dehqonchilik mahsulotlari salmog‘ining kamayganligi qayd etilgan. Shuningdek, chorvachilik mahsulotlari yetishtirishning yuqori ko‘rsatkichlari Urganch shahrida (95,2 foiz), Xiva shahrida (70,5 foizi), Yangiariq tumanida (61,5 foiz) qayd etilgan.

Xulosa qilib shuni aytish mumkinki, viloyatda amalga oshirilayotgan islohot natijalari tezkor, aniq va haqqoniy statistik raqamlarda o‘z ifodasini topadi. Xorazm viloyatini ijtimoiy-iqtisodiy isloh qilishga qaratilgan chora-tadbirlarni manzilli ishlab chiqish viloyatning iqtisodiyot tarmoqlari rivojlanish salohiyatini yuksaltirishga, uning hududiy tarkibini takomillashtirishga xizmat qiladi.

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ISHLATILGAN ALYUMINIY CHIQINDILARINI TOZALASHDA QO‘LLANILADIGAN TEXNOLOGIK PECHNING MOHIYATI

Annotatsiya:*Alyuminiy oksidi adsorbent sifatida, reaktsiyani faollashtirish uchun keng qo'llaniladi. Neftni qayta ishlash va organik sintez korxonalarida kreking, piroliz va boshqa jarayonlar uchun quvurli pechlar asosiy texnologik agregatlar hisoblanadi. Kimyoviy korxonalarda pechlar muhim o‘rinni egallaydi. Turli alyuminiy chiqindilarini iflosliklardan tozalashda sanoat chastotali induksion tigel pechlaridan foydalaniladi. 700-800°C haroratda to‘siq ichiga alyuminiy aralashmasini yuklanadi. Alyuminiy eritilgandan so'ng to‘siq orasidan undagi qolgan aralashmalari bilan birgalikda erigan tuzlar mexanik yo‘l bilan chiqarib olinadi.*

Metall oksidlari ko'rinishidagi aralashmalar yoki intermetall birikmalari bo‘lgan alyuminiyni tozalash tozalangan alyuminiy tarkibidagi metall alyuminiy miqdori 99,9% gacha va cho'kindi hosil bo'lishini bartaraf etish samaradorligini ta’minlaydi.

Kalit so‘zlar: *Sigler-Natta katalizatori, texnologik agregat, mavhum qaynash qatlamli, induksion kanalli pech, elektr qarshilik pech, abraziv materiallar, quyma temir tigel.*

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THE ESSENCE OF THE TECHNOLOGICAL FURNACE USED IN THE TREATMENT OF USED ALUMINUM WASTE

Annotation:*Aluminum oxide, as an adsorbent, is widely used to activate the reaction. Pipe ovens are the main technological units for cracking, pyrolysis, and other processes at oil refineries and organic synthesis enterprises. Furnaces play an important role in chemical enterprises. Industrial-frequency induction crucible furnaces are used to clean various aluminum waste from impurities. At a*

temperature of 700-800°C, an aluminum mixture is loaded into the partition. After the aluminum is melted, the dissolved salts are removed mechanically from the partition along with the remaining impurities.

The purification of aluminum from impurities or intermetallic compounds in the form of metal oxides ensures the content of metallic aluminum in the purified aluminum to 99.9% and the effectiveness of sedimentation prevention.

Keywords: *Sigler-Natta catalyst, technological unit, furnace with an abstract boiling layer, induction channel furnace, electric resistance furnace, abrasive materials, cast iron crucible.*

Uglerod bilan to‘dirillgan alyuminiy oksidining yuzasi biologik makromolekulalar bog'laydigan gidrofob va gidrofill maydonlardan iborat bo'lib, bu alyuminiy oksidini turli sanoat sohalarida qo'llash imkonini beradi. Jumladan, alyuminiy oksidi adsorbent sifatida, reaktsiyani faollashtirish uchun keng qo'llaniladi.

“Sho‘rtan gaz kimyo majmuasi” MCh ishlab chiqarish jarayonida alyuminiy oksidi adsorbenti polietilen ishlab chiqarish sexida polimerlanish reaktsiyasini olib borishda ishtirok etadigan Sigler-Natta katalizatorlari qoldiqlaridan tozalash (adsorsiyalash) uchun xizmat qiladi. Me’yoriy sarf bo‘yicha 1tn polietilen ishlab chiqarish uchun o‘rtacha 6,020 kg alyuminiy oksidi adsorbenti sarflanadi.

Alyuminiy oksidi chiqindisi bir yilda 600 -800 tn atrofida hosil bo‘ladi. Hosil bo‘lgan chiqindilarni qayta ishlashda texnologik qurilmalar muhim o‘rinni egallaydi.

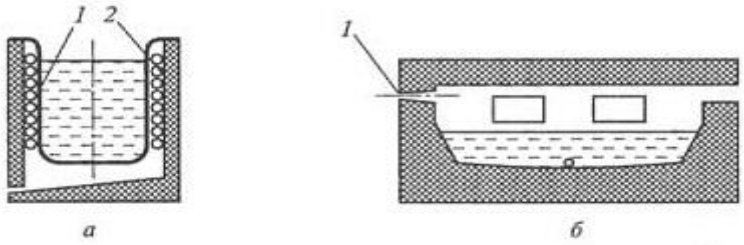
Neftni qayta ishlash va organik sintez korxonalarida kreking, piroliz va boshqa jarayonlar uchun quvurli pechlar asosiy texnologik agregatlar hisoblanadi. Krekingning mohiyati yuqori molekulyar og'irlikdagi uglevodorodlarning oddiyroqlarga parchalanishidir; Bu jarayon neft xomashyosini qayta ishlash jarayonida bir vaqtning o'zida kreking neft gazini ishlab chiqarish va suyuq motor yoqilg'ilari olish uchun asos hisoblanadi. Kimyoviy korxonalarda pechlar muhim o‘rinni egallaydi. Masalan, mamlakatimiz xalq xo‘jaligida katta ahamiyatga ega bo‘lgan va kimyo sanoatining asosiy mahsulotlaridan biri bo‘lgan oltingugurt kolchedanidan sulfat kislota olishda pechlar oltingugurtli kolchedanini zich yoki mavhum qaynash qatlamda, siklon pechlarida - tarqalgan holatda kuydirish uchun qo‘llaniladi. Mavhum qaynash qatlamli katalizatorlar bo'lgan pechlarda oksidlanish jarayonlari (metanga aylantirish, vodorod va uglerod oksidi ishlab chiqarish, ammiak oksidlanishi va boshqalar) va gidrirlash va degidrirlash jarayonlari (ammiak sintezi va boshqalar) amalga oshiriladi. O‘tga chidamli va abraziv materiallar sanoatida, ham pechlar muhim ahamiyatga ega.

Sanoat chastotali induksion tigel pechlari yirik ishlab chiqarishda alyuminiyni eritish uchun ishlatiladi. O'rta chastotali pechlar alyuminiy qotishmalarini eritish uchun ham ishlatiladi. Ishlash printsipiga ko'ra, alyuminiyni eritish uchun induksion tigelli pechlar quyma temir va po'latni eritish uchun ishlatiladigan pechlarga o'xshaydi. Biroq, alyuminiyning yuqori elektr

o'tkazuvchanligi tufayli pechning elektr samaradorligi temir-uglerod qotishmalarini eritishga qaraganda sezilarli darajada past ekanligini hisobga olish kerak.

Induksion kanalli pechlar alyuminiyni eritish uchun kam energiya sarfi bilan eritish uchun eng qulay sharoitlarni yaratishga imkon beradi. Biroq, alyuminiyni eritish jarayonida o'tga chidamli alyuminiy oksidi o'choq kanalining devorlariga yotqiziladi, bu esa har 3-4 marta eritishda to'planish kanalini tozalash zarurligiga olib keladi. Kanalni to'planishdan tozalash bilan bog'liq bo'lgan o'choq unumdorligining pasayishi va eritish uchun energiya sarfining oshishi alyuminiy qotishmalarini eritish uchun bunday pechlardan keng foydalanishga to'sqinlik qiladigan jiddiy kamchilikdir.

Elektr qarshilik pechlari - xrom-nikel qotishmalaridan tayyorlangan isitish elementlari pechning ishchi tarmog‘ida 1100 °C dan yuqori bo'lmagan va keramik elementlari - 1300 °C dan yuqori bo'lmagan haroratni ta'minlaydi. Bunda alyuminiyni eritish davomiyligi 2,5...4,5 soatni tashkil qiladi. Pechning qarshiligi past unumdorligi tufayli zamonaviy quyish uchastkalarida asosan tarqatuvchi pechlar sifatida ishlatiladi. 1 - rasmda 1 - quyma temir tigel va 2 - simli spiral isitgich bo'lgan tigel qarshilik pechini ko'rsatilgan.



1-rasm. Alyuminiyni eritish uchun pechlar:

а – tigelli qarshilik pechi: 1 – tigel; 2 – nixromli spiral; б – alangali nurlanuvchi pech: 1 – gorelka.

700-800°C haroratda to‘siq ichiga alyuminiy aralashmasini yuklanadi. Pechning pastki qismidan 50-80 mm masofada o'choq tigeliga botiriladi va tozalangan alyuminiy eritmasining quyilish 860-900 mm balandlikda amalga oshiriladi. Erigan tuzlar sathidan o'choq tigelining yuqori qismigacha bo'lgan masofa 350-400 mm da saqlanadi.

Eritilgan tuzlardan iborat bo‘lgan alyuminiy chiqindilarini yuklash o'tga chidamli po'latdan yasalgan to‘siq orasida amalga oshiriladi. Alyuminiy eritilgandan so'ng to‘siq orasidan undagi qolgan aralashmalari bilan birgalikda erigan tuzlar mexanik yo‘l bilan chiqarib olinadi,

Metall oksidlari ko'rinishidagi aralashmalar yoki intermetall birikmalari bo‘lgan alyuminiyni tozalash tozalangan alyuminiy tarkibidagi metall alyuminiy miqdori 99,9% gacha va cho'kindi hosil bo'lishini bartaraf etish samaradorligini ta’minlaydi.

Turli alyuminiy chiqindilarini iflosliklardan tozalash, po'lat chiziqlarni korroziyaga qarshi qoplash, o'choq pechlarida po'latni deoksidlash, turli alyuminiy

mahsulotlari, turli alyuminiyga asoslangan qotishmalar ishlab chiqarish uchun qo‘llaniladi.

Pech konstruktsiyasi alyuminiy eritmasining uning metall qismlari bilan kontaktini bartafar etadi va pechning uzoq muddatli ishlashining ishonchliligini va alyuminiyning metallar bilan qayta ifloslanishini bartaraf etishga yordam beradi.

Tozalangan alyuminiydan prokatni korroziyaga qarshi qoplama sanoatida, alyuminiy asosidagi har xil qotishmalar ishlab chiqarishda, turli mahsulotlarni ishlab chiqarishda qo'llash mumkin.

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FAVQULODDA VAZIYATLARDA TASHKILOTLAR HAYOT FAOLIYATI BARQARORLIGINI TA’MINLASH UCHUN XAVF-XATAP DARAJASINI ANNIQLASH USULLARI

Annotatsiya: *Dunyoda texnogen xususiyatli favqulodda vaziyatlarning sodir bo‘lish va o‘sish dinamikasi ortib borayotganligi sababli favqulodda vaziyatlarning oldini olish muammosi tobora muhim ahamiyat kasb etmoqda. Uning yechimi davlat organlari va jamoat tashkilotlarining sa’y-harakatlarini fan, fan va texnikaning zamonaviy yutuqlari asosida tizimli ravishda birlashtirish, shuningdek, bu sohadagi mahalliy va xorijiy tajribani umumlashtirish orqali muvaffaqiyatli bo‘lishi mumkin. Ushbu maqolada muallif tomonidan favqulodda vaziyatlar sharoitida tashkilotlar hayot faoliyati barqarorligini ta’minlash uchun xavf-hatar darajasini aniqlash usullari, xavfni boshqarish ya’ni uni kamaytirish bo‘yicha taklif va tavsiyalar keltirilgan.*

Kalit so‘zlar: *xavf-hatar, barqarorlik, tashkilotlar hayot faoliyati, favqulodda vaziyat, usul, boshqarish, muammo, xavfsizlik.*

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METHODS FOR DETERMINING THE LEVEL OF RISK AND DANGER TO ENSURE THE STABILITY OF LIFE EMERGENCY ORGANIZATIONS

Annotation: *Due to the growing dynamics of the emergence and growth of man-made emergencies in the world, the problem of emergency prevention is becoming more and more urgent. Its solution can be successful by systematically combining the efforts of state bodies and public organizations based on modern achievements of science, science and technology, as well as generalizing domestic and foreign experience in this area. In this article, the author offers methods for determining the level of risk to ensure the stability of the life of organizations in emergency situations, as well as recommendations for risk management and their reduction.*

Key words: *risk and danger, stability, organizational life, emergency, method, management, problem, security.*

Kirish. Xozirgi kunda favqulodda vaziyatlar oqibatida kelib chiqadigan muqarrar zararlarni kamaytirish bo‘yicha samarali chora-tadbirlarni ishlab chiqish va amalga oshirish, tabiiy va texnogen xususiyatli favqulodda vaziyatlarning oldini olishga qaratilgan harakatlarni mujassamlashtirish ustuvor davlat vazifalari qatoriga kiritilmoqda. Ushbu vazifalarning muvaffaqiyatli hal etilishi mamlakat iqtisodiyotining ekologik barqaror rivojlanish istiqbollari, aholining farovonligi va salomatligini yuksaltirishga bevosita bog‘liq.

Ilm-fan va texnika jadal rivojlanayotgan zamonda texnogen va tabiiy xarakterdagi favqulodda vaziyatlar sonining ko‘payishi hamda ular bilan bog‘liq zarar tufayli faqat favqulodda vaziyatlar oqibatlarini bartaraf etishga qaratilgan sa’y-harakatlar samarasiz ekanligi tobora ayon bo‘lib bormoqda. Favqulodda vaziyatlarda aholi va hududlarni himoya qilish sohasidagi ustuvor vazifalar sifatida favqulodda vaziyatlarni prognoz qilish va oldini olish masalalari, shu jumladan tashkilotlar hayot faoliyati barqarorligini oshirish vazifasi xozirgi kunning dolzarb vazifalaridan biri bo‘lib qolmoqda. Favqulodda vaziyatlarning oldini olishning muhim maqsadli tarkibiy qismi ularning oldini olish bilan bir qatorda oqibatlarini yumshatish va bartaraf etish bo‘lib, bu ehtimoliy yo‘qotishlar va zararlarni kamaytirish hamda favqulodda vaziyatlar ko‘lamini qisqartirishni o‘z ichiga oladi.

Adabiyotlar tahlili. O‘zbekiston Respublikasining 2022-yil 17-avgust kunidan “Aholini va hududlarni tabiiy hamda texnogen xususiyatli favqulodda vaziyatlardan muhofaza qilish to‘g‘risida”gi Qonunning maqsadi aholini va hududlarni tabiiy hamda texnogen xususiyatli favqulodda vaziyatlardan muhofaza qilish sohasidagi munosabatlarni tartibga solishdan iborat.

Qonunda FVDTning asosiy vazifalaridan biri favqulodda vaziyatlarning oldini olish va favqulodda vaziyatlarda tashkilotlar hayot faoliyatining barqarorligini oshirishga qaratilgan maqsadli va ilmiy-texnik dasturlarni amalga oshirish ekanligi belgilangan. Ushbu qonun asosida favqulodda vaziyatlarda tashkilotlar hayot faoliyatining barqarorligi bo‘yicha birinchi navbatda insonlar hayotini asrash, ya’ni favqulodda vaziyatlarda aholi va hududlarni himoya qilish asosiy vazifa qilib belgilangan.

Tashkilotlar hayot faoliyati barqarorligini ta’minlash, favqulodda vaziyatlarning salbiy oqibatlarini tahlil qilish va ularni tasniflashga ko‘plab olimlarning ishlari bag‘ishlangan, ular orasidan Volkov A.A., Pixterev D.V., Kopeychenko Y.V., Ternyuk N.E., Ignateva M.N., Lagunova A.I., Paxomov V.P., Radayev N.N. va boshqalarning olib borgan tadqiqotlarini ko‘rsatib o‘tish mumkin. Ushbu mualliflarning ilmiy ishlarida tomonidan favqulodda vaziyatlar sharoitida tashkilotlar hayot faoliyati barqarorligini ta’minlash uchun xavf-hatar darajasini aniqlash usullari, xavfni boshqarish ya’ni uni kamaytirish bo‘yicha taklif va tavsiyalar keltirilgan, bu muammoning yechimlari bo‘yicha taklif va tavsiyalar keltirilgan.

Tadqiqot metodologiyasi. Favqulodda vaziyatlar sharoitida aholi va hududlarning xavfsizligi ularga taxdid solayotgan turli turdagi xavflarni boshqarish orqali ta’minlanadi. Texnogen xavfsizlik turlaridan biri sanoat xavfsizligidir. Uni ta’minlash choralari favqulodda vaziyatlarda iqtisodiy obektlar faoliyatining

barqarorligini qo‘llab-quvvatlash bo‘yicha ishlarning asosiy tarkibiy qismi hisoblanadi. Favqulodda vaziyatlar sharoitida xavf va xavfsizlikni boshqarish sohasida ularni tartibga solish usullarini qo‘llash nihoyatda muhimdir Bularga quyidagilar kiradi: meyoriy-huquqiy bazani yaratish, aholi va hududlarni himoya qilish hamda favqulodda vaziyatlar sohasida ilmiy-texnik yangiliklarni amalga oshirish, favqulodda vaziyatlarning oldini olish va ularning oqibatlarini yumshatishning iqtisodiy mexanizmlarini ishlab chiqish.

Favqulodda vaziyatlarning oldini olish tadbirlari bu davlat ijro etuvchi hokimiyat organlari va uning subektlari, mahalliy o‘zini o‘zi boshqarish organlari va FVDT tashkiliy tuzilmalari tomonidan oldindan favqulodda vaziyatlarning oldini olish va ular yuzaga kelgan taqdirda ularning ko‘lamini kamaytirishga qaratilgan tadbirlar yig‘indisi tushuniladi. Shuningdek, bu atrof tabiiy muhit va tashkilotlar hayot faoliyati barqarorligi holatini kuzatish va nazorat qilishni tashkil etish, favqulodda vaziyatlar manbalari paydo bo‘lishini bashorat qilish va oldini olish, shuningdek, barqarorlikni ta’minlash bo‘yicha zarur tadbirlarni tashkil etishga qaratilgan huquqiy, tashkiliy, iqtisodiy, muhandislik-texnik, sanitariya-epidemiologik va maxsus chora-tadbirlar majmuyidir.

Dunyo mamlakatlarida olib borilgan kuzatishlar va tahlillar shuni ko‘rsatmoqdaki, so‘ngi yillargacha ko‘pchilik davlatlarda asosiy e’tibor favqulodda vaziyatlarni bartaraf etishga qaratilmoqdi. Biroq, tabiiy ofatlar, avariyalar va halokatlardan ko‘rilgan zarar miqdorining o‘sishi bu bu tadbirlar tobora samarasiz ekanligini ko‘rsatmoqda. Favqulodda vaziyatlar hamda extimoliy xavflarni oldini olish, ularni boshqara olish xozirgi kunning eng dolzarb masalalaridan biri va bu ko‘p hollarda samaraliroq va tejamliroq ekanligi ayon bo‘lib bormoqda. Masalan favqulodda vaziyatlarning oldini olish va xavflarni boshqarish bo‘yicha chora-tadbirlarining amalga oshirilishi natijasida, G‘arbiy Yevropa mamlakatlarida avtohalokatlar va texnogen avariyalar soni so‘ngi yillarda 7-10 baravarga kamayish holati kuzatilgan.

Favqulodda vaziyatlarda tashkilotlar hayot faoliyati barqarorligini ta’minlash, ishonchlilik, xavfsizlik muammolarini hal qilish va favqulodda vaziyatlar oqibatlarini bartaraf etish uchun barqarorlik, xavf va xavfsizlik tushunchalaridan foydalanish kerak bo‘ladi. Ular texnologik jarayonlarning barqarorlik darajasini va tashkilotlar hayot faoliyati barqarorligini belgilaydi. Favqulodda vaziyatlarda tashkilotlar hayot faoliyati barqarorligini boshqarish juda muhimdir. Barqarorlik tushunchasi tashkilotning doimiy faoliyat yuritishga tayyorgarligi va qobiliyatini tavsiflash uchun, xavf tushunchasi esa hayot faoliyatini ta’minlash va favqulodda vaziyatlarini oldini olish muammolarini baholash uchun ishlatiladi.

Biroq, barqarorlik, xavfsizlik, xavf tushunchalar mohiyatan bir hil - texnologik jarayonlarning barqarorlik darajasini, tarmoqlar va hududlarning hayot faoliyatini anglatadi. Ular o‘rtasidagi farq shundaki, barqarorlik - bu obektiv tabiiy-ilmiy va texnik tavsif, xavfsizlik va xavf esa ijtimoiy-subektiv toifadir.

Barqarorlik uzoq vaqt davomida mavjud bo‘lgan barcha tizimlarning fundamental sifati bo‘lib, ularning tuzilishi, holati, ish parametrlari kabi xossalarini

noqulay tashqi sharoitlarda, ya’ni favqulodda vaziyatlar sodir bo‘lganda ularning ta’sir etuvchi omillari ta’sirida ruxsat etilgan chegarada saqlab qolish qobiliyatini belgilaydi. Barqarorlik ikki turga bo‘linadi - statik va dinamik. Barqarorlikning matematik nazariyasi potentsial xavfli texnologik jarayonlarni tartibga solish va barqarorlashtirish, avariya avtomatikasini loyihalash, xavfli hodisalarni bashorat qilish muammolarini hal qilish uchun asosdir.

Xavf - bu ma’lum bir xavfli hodisaning ehtimolligi va oqibatlarining o‘zaro ta’siridir. Binobarin, xatar xavfining eng yaqqol ko‘rsatkichi hisoblanadi. Xavf tushunchasi har doim ikkita elementni o‘z ichiga oladi: xavfli hodisa sodir bo‘lishining ehtimoli va bu hodisaning oqibati. Shuni aytish kerakki, xatar, aslida, xavf o‘lchovidir. “Xavf” tushunchasini qo‘llash xavfni o‘lchanadigan kategoriyalar qatoriga o‘tkazish imkonini beradi. Xavf - biror narsaning kimgadir yoki nimagadir zarar yetkazish xossasidir. Ko‘pincha “xavf darajasi” tushunchasidan foydalaniladi, bu aslida “xavf” tushunchasidan farq qilmaydi, lekin bu faqat o‘lchanadigan qiymat haqida ekanligini ta’kidlaydi.

Favqulodda vaziyatlar xavfi - bu tegishli ko‘rsatkichlar va favqulodda vaziyatlar oqibatlari bilan belgilanadigan vaziyatlar ehtimolidir.

Ko‘pgina davlatlarda tashkilotlar hayot faoliyati barqarorligini ta’minlash muammolariga “texnokratik yondashuv”, ya’ni murakkab muammoni hal qilish uchun uni oddiylashtrishga, qisqartirishga intilish tarzida yondashilgan. Bunday yondashuvda favqulodda vaziyatlarda barqarorlikni ta’minlash chora-tadbirlarining samaradorligini baholashda yaxlitlik va tizimlilik yo‘qoladi. Bu esa, asosan, favqulodda vaziyatlarning oldini olish va aholini ularni zararlovchi omillardan himoya qilishga emas, balki faqat favqulodda vaziyatlarni bartaraf etishga qaratilgan tor doiradagi tadqiqot yo‘nalishlarining shakllanishiga olib keladi. Bundan tashqari, turli tamoyillar va standartlar asosida qurilgan tashkilotlar hayot faoliyati barqarorligini ta’minlashning tor yo‘nalishlarining keyingi texnik va tashkiliy xarakterdagi jiddiy qiyinchiliklarni keltirib chiqaradi va natijada o‘zini oqlamaydigan katta qiyinchiliklarga olib keladi

Favqulodda vaziyatlarda xavfsizlik - bu aholi, tashkilotlar va atrof-muhitning favqulodda vaziyatlardagi xavflardan himoyalangan holatidir.

Barqarorlikni boshqarish deganda muayyan vaziyat va qo‘yilgan maqsadlarga muvofiq ravishda barqarorlik darajasini oshirish yoki kamaytirish tushuniladi. Amaliy hisob-kitoblar va tadqiqotlar shuni ko‘rsatadiki, haddan tashqari chidamlilikni ta’qib qilish vayronkor, ba’zi hollarda esa halokatli bo‘lishi mumkin.

Favqulodda vaziyatlar manbalarining xilma-xilligi, ularga qarshi kurashish uchun ko‘plab chora-tadbirlar hamda vositalarni talab etadi, masalan, barqarorlik, xavfsizlik hamda xavfni boshqarishning avtomatlashtirish darajasini oshirish. Bunday avtomatlashtirishning ikkita an’anaviy yo‘nalishi mavjud:

a) avariyaga qarshi boshqarish, masalan, texnologik jarayonlarni barqarorlashtirish uchun va avariyaga qarshi avtomatlashtirilgan tizimlarni ishga tushirish;

b) turli darajadagi boshqaruv organlarining axborot ta’minoti, ya’ni axborot texnologiyalari va avtomatlashtirilgan boshqaruv tizimlari, avtomatlashtirilgan ish o‘rinlari, ekspert boshqaruv tizimlari kabi.

Favqulodda vaziyatlarni oldini olish - favqulodda vaziyatlarning yuzaga kelish sabablarinini aniqlash, uning taxdid soluvchi xavf darajasini baholash, ya’ni uning ehtimoliy manbalarini aniqlashni va ularning xavfini aniqlashni o‘z ichiga oladi. Xavfini tahlil qilish va baholash meyoriy-texnik hujjatiga muvofiq amalga oshirilishi talab etiladi. Umuman olganda, xavfni boshqarish quyidagilarni o‘z ichiga oladi: xavfni aniqlash, uni baholash va prognoz qilish, xavf darajasini pasaytirish bo‘yicha chora-tadbirlarni ishlab chiqish. Aholi va hududlar uchun favqulodda vaziyatlar xavfini tahlil qilish turli xil tushunchalar va usullardan foydalanishga asoslangan bo‘ladi.

Xulosa va takliflar. Favqulodda vaziyatlarda tashkilotlar hayot faoliyati barqarorligi va xavfsizligi, xavf darajasini o‘rganish, aholining hayotini, sog‘lig‘ini ta’minlash masalalari nazorat qilinadigan darajada bo‘lishi kerak. So‘nggi vaqtlarda favqulodda vaziyatlarning tashkilotlar hayot faoliyati barqarorligiga ta’sirini ko‘rib chiqish xavf-xatarni o‘rganishga va texnogen hamda tabiiy tusdagi favqulodda vaziyatlarning oldini olish va oqibatlarini bartaraf etish muammolarini hal qilishda barqarorlik, xavfsizlik va xavf toifalarini kompleks ko‘rib chiqishga asoslanadi. Boshqaruv vazifalarida barqarorlik, xavfsizlik va xavfni boshqariladigan parametrlar, ularning moddiy tashuvchilarini esa boshqaruv obektlari sifatida ko‘rib chiqish maqsadga muvofiqdir.

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QASHQADARYO VILOYATINING CHO‘L LANDSHAFTLARI VA UNDA CHO’LLANISH JARAYONI MUAMMOLARI

Annotatsiya: *ushbu maqola Qashqadaryo viloyatining cho’l hududlarida cho’llanish jarayoni natijasida yuzaga keladigan ekologik xavf va uning oldini olish chora tadbirlari tug’risida fikr yuritilgan. Uning tabiatga salbiy tasirlari atroflicha asoslab berilgan.*

Kalit so‘zlar: *cho’llanish, arid, sho‘rlanish, landshaft,, yerlarning o‘zlashtirilishi.*

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DESERT LANDSCAPES OF KASHKADARYA REGION AND THE PROBLEMS OF THE DESERTIFICATION PROCESS

Abstract: *This article discusses the ecological risk that occurs as a result of the desertification process in the desert regions of Kashkadarya region and measures to prevent it. Its negative effects on nature are explained in detail.*

Key words: *desertification, aridity, salinization, landscape, land development.*

Kirish: Bugungi kunda insoniyat oldida turgan eng jiddiy ekologik va sotsial-iqtisodiy muammolardan biri, bu cho‘llanish muammosidir. Cho‘llanish - bu tabiiy-geografik va antropogen jarayonlarning o‘zaro ta’siri yig‘indisi bo‘lib, arid hududlardagi ekosistemalarni yemirilishi, organik hayot shakllarining degradatsiyalashuvi va bu hududlarning tabiiy-iqtisodiy imkoniyatlarining pasayishi tushuniladi. YUNESKO ma’lumotlariga ko‘ra, yer yuzining 1/3 qismi cho‘llanish xavfi ostida bo‘lib, dunyoning arid hududlarida yashayotgan millionlab insonlarning hayot tarziga ham ta’sir qiladigan muammodir. Inson xo‘jalik faoliyatining kuchli ta’siri natijasida O‘zbekiston hududida cho‘llanish jarayoni chuqurlashib va kengayib borishi kuzatilmoqda. Cho‘llanish jarayonlari 210 mln. gektar maydonni egallab yotgan O‘rta Osiyoning arid hududlari uchun ham xarakterli. Tadqiqotlarga ko‘ra, O‘zbekiston hududining 60%dan ko‘proq maydonida har xil darajada cho‘llanish jarayoni sodir bo‘lmoqda [4; 10-168 b.].

O‘rta Osiyoning, xususan Orol dengizi havzasida, cho‘llanish jarayoniga duchor bo‘lgan landshaft majmualarining umumiy maydoni A.G.Boboyevning (2000) bergan ma’lumoti bo‘yicha 1 405 840 km^2 ga teng. Shundan kuchsiz cho‘llangan yerlar 837 714 km^2 ni (59,6%), mo‘tadil cho‘llangan yerlar 474 356 km^2 ni (33,7%) va kuchli cho‘llangan yerlar 93 770 km^2 ni (6,7%) tashkil etadi.

A.A.Yurtayevning (2011) fikricha, qishloq xo‘jaligi yerlarining tarkibi va maydoni qishloq xo‘jaligining ixtisoslashuvi va intensivlik darajasiga qarab belgilanadi. Qishloq xo‘jaligining agrolandshaft resurslari va ixtisoslashuvi har bir region uchun o‘ziga xos va regionlar bo‘yicha farq qiladi [3]. Ta’kidlash lozimki, qishloq xo‘jalik ishlab chiqarish resurslari qishloq xo‘jalik mahsulotlarini yetishtirishda qatnashadigan resurslarning quyidagi turlarini birlashtiradi:

a) agroiqlimiy – madaniy o‘simliklarning mahsulot berishi yoki yaylov uchun zarur bo‘lgan issiqlik va nam resurslari;

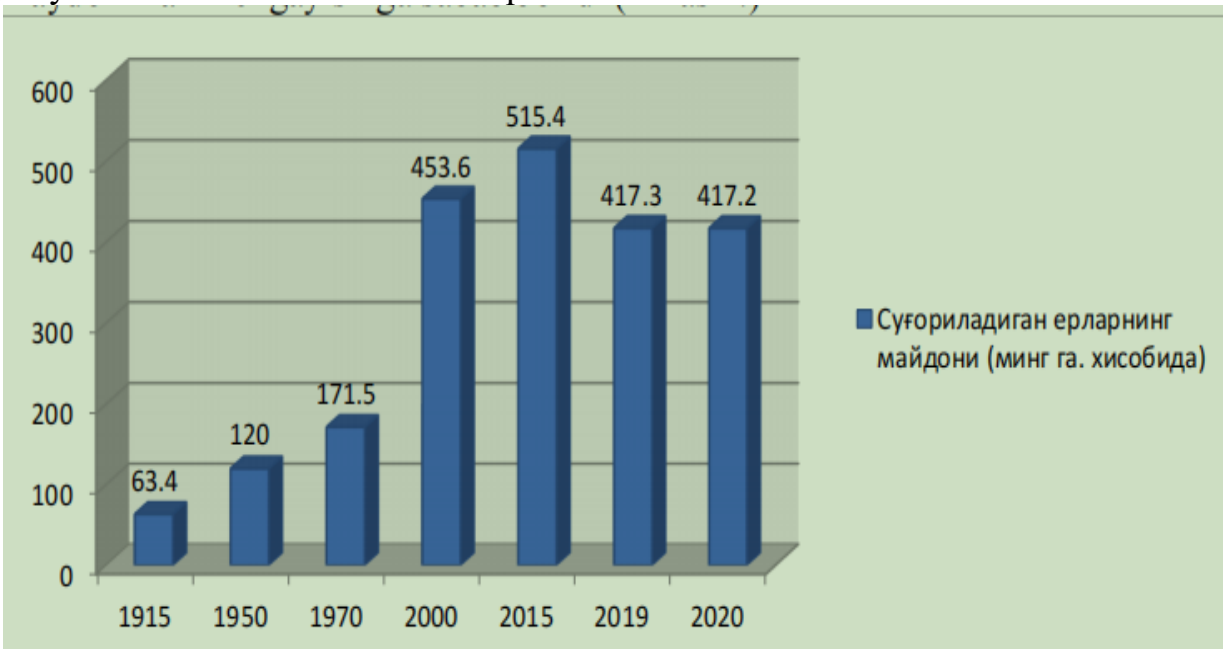
b) tuproq-yer resurslari – tuproq (biomassa) ham tabiiy resurs va ishlab chiqarish vositasi sifatida qaraladi;

c) o‘simlik ozuqa resurslari – chorvaning ozuqa bazasi bo‘lib xizmat qiladigan biotsenozlarning resurslari;

d) suv resurslari – dehqonchilikda sug‘orish va chorvachilikda foydalaniladigan resurslar.

Bundan tashqari qishloq xo‘jalik ishlab chiqarishini tashkil etishda relyefning xususiyatlarini tabiiy sharoit sifatida e’tiborga olish muhim amaliy ahamiyatga ega. Qashqadaryo viloyati o‘zining egallab turgan yer maydoni bo‘yicha O‘zbekistonda eng yirik viloyatlardan hisoblanib, uning umumiy yer maydoni 2856,8 ming gektarni tashkil etadi. Qashqadaryo viloyati statistika boshqarmasi ma’lumotlariga ko‘ra 2020 yil yanvar holatida viloyatda 2143,3 ming gektar qishloq xo‘jalik yerlari bo‘lib, shundan o‘rmonlar 109,1 ming gektarni, bog‘lar va tokzorlar 35,7 ming gektarni tashkil etadi. Sug‘oriladigan yerlar 417,2 ming va lalmi yerlar 253,2 ming gektardan iborat. Lalmikor yerlar o‘rtacha yillik yog‘in miqdori 250 mm dan oshadigan hududlar hisoblanib, qishloq xo‘jaligi ekinlarini yetishtirish faqat yog‘inlar hisobiga amalga oshiriladi. Qashqadaryo vohasining mavjud yer resurslari lalmikor dehqonchilikda ancha katta miqyoslarda foydalanish imkoniyatini beradi. Qashqadaryo viloyatida haydalib, ekin ekiladigan yerlar maydoni 670,5 ming gektar yoki umumiy maydonning 23,7% ga yaqin bo‘lib, shundan 253,2 ming gektari yoki jami ekin maydonlarining 9,1% lalmikor dehqonchilikda foydlaniladi.Cho‘llanish, asosan arid mintaqa uchun xos bo‘lib, yer, suv, o‘simlik va boshqa resurslarning degradatsiyalashuvidir. Degradatsiya - (fr. degradatsiya – asta-sekin yomonlashuv) yog‘in miqdorining kamayib borishi bilan iqlimning quruqlashishi, cho‘l hududlari maydonining kengayishi natijasida yuzaga keladigan tabiiy ekosistemalarning buzilishidir. Qurg‘oqchil (arid) iqlim mintaqasida cho‘llar maydonining 1960 yillardan boshlab keskin kengayishi avvalo mamlakatlarda aholi sonini to‘xtovsiz oshib borishi, mamlakatlarning aholini oziq-ovqat bilan ta’minlash, maqsadida qishloq xo‘jaligini rivojlantirish uchun ekin maydonlarining kengayib borganligi hamda ma’lum ma’noda qurg‘oqchilikning tez-tez sodir bo‘lganligi bilan

bog‘liqdir. Tadqiqot sifatida Qashqadaryo vohasida sodir bo‘layotgan cho‘llanish jarayolaridan ba’zi omillari tahlil qilindi.



1-rasm. Qashqadaryo viloyatining sug‘oriladigan yer maydoni (1915-2020 yy.).

Cho‘lni o‘zlashtirish va sug‘orish uchun kapital mablag‘lar ajratilishi bilan bir qatorda Qarshi cho‘liga mehnat resurslarini ta’minlash hamdamoddiy texnika ta’minotini yetarli darajada yetkazishdek ustuvor vazifalarni ham bajarish kerak bo‘lgan. Eng avvalo Qarshi cho‘lini o‘zlashtirish ishlari uchun 1963 yil o‘rtalaridan boshlab qurilish guruhlari tashkil qilingan. Bu tadbir uchun Moskva, Leningrad, Kuybishev, Toshkent institutlari loyihalarni tayyorlagan. Ural Qarshi magistral kanali suvini ko‘tarib beradigan noyob nasoslarni [2], Minsk, Kremenchug, Gorkiy shaharlari MAZ, KRAZ va boshqa mashinalarni, Sibir yog‘och-taxta, turli uskunalarni yuborgan [1]. Shu bilan birga mehnat resurslarini ta’minlash maqsadida aholini ko‘chirish siyosati olib borilgan. Respublika viloyatlaridan va viloyatning boshqa tumanlaridan ishlash uchun aholi ko‘chirtirilgan. Hududda ishchi kuchini shakllantirish zarurati ko‘p sonli mehnat resurslarini jalb qilishni talab qilgan. Viloyatdagi Kitob, Shahrisabz, Chiroqchi, Yakkabog‘, Qamashi, Dehqonobod, G‘uzor, Qarshi, Ulyanov, Koson tumanlari kabi aholi ko‘p yashaydigan hududlar hamda yer kam bo‘lgan tog‘ yonbag‘ri va tog‘li tumanlar mehnat resurslarini yetkazuvchi hududlar sifatida tanlangan. Bunday yo’l tanlanishga yagona sabab aholini majburiy ko‘chirtirish siyosatida ularning «ixtiyoriy» kelishini yuzaga chiqarish bo‘lgan. Ko‘chirish siyosatida aholi migratsiyasining barcha shakl va ko‘rinishlari yaqqol namoyon bo‘lgan. Jumladan, aholi migratsiyasini tashqi, ichki va viloyatlararo turlari hamda rejali, tashkiliy, ixtiyoriy kabi shakllarini bu o‘rinda ko‘rsatish mumkin. Shuningdek, mustaqil, ixtiyoriy (rejadan tashqari) ko‘chganlarga nisbatan «betartib» va «o‘zboshimcha» kabi tushunchalar qo‘llanilgan.

Cho‘lni o‘zlashtirishda ishlarni kompleks tashkil qilish tajribasi yo‘lga qo‘yilgan. Ya’ni, irrigatsiya-melioratsiya, sovxoz qo‘rg‘onlarini bunyod qilish, yo‘l qurilishi va malakali kadrlar tayyorlash ishlari bir vaqtning o‘zida birga olib borilgan. Respublikada Qarshi cho‘lini o‘zlashtirishda aynan shu jihatlarga e’tibor qaratilgan. Yangi yerlarni o‘zlashtirish jarayonini jadallashtirish maqsadida qurilish ishlari «Glavsredazirsovxozstroy» tarkibida tashkil qilingan «Qarshiqurilish» boshqarmasiga topshirilgan va boshqarma zimmasiga vazifalar yuklangan.

Xulosa. Yangi tashkil qilinayotgan davlat xo‘jaliklari, o‘zlashtiriladigan yerlar miqdori ortgan sari ishchi kuchi ehtiyoji ham oshib borgan. Respublika aholisini yangi yerlarga reja asosida ko‘chirishni davlat tashabbusi bilan tashkil etish amalga oshiriladigan bo‘ldi Qarshi cho‘lining sug‘oriladigan va o‘zlashtiriladigan hududlariga har yili 3 ming nafar kishidan jami 9 ming nafar kishini safarbar qilishni ta’minlash vazifasi yuklatish ushbu hudud uchun katta manfaat keltirshi mumkun. Aytib o’tish joizki har qanday joyning tabiat kompleksini o‘z rivojlanish tartibiga, individual xususiyatlariga ega bo‘lgan ekologik-geografik tizim deb qarash oqilona foydalanishning asosini tashkil qilishini e’tiborga olib, Qashqadaryo vohasidagi mavjud yerlardan oqilona foydalanish dehqonchilikni tarmoqlarini yanada rivojlantirishda va tuproq unumdorligini saqlab qolishda katta ahamiyatga egaligi asoslanildi. Bu esa yurtimizda qishloq xo‘jalik ekinlaridan yuqori hosil oishda, hosildorlik miqdorini bashoratlashda muhim ahamiyatga ega.

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JAHONDA INTELLEKTUAL MULKNING INNOVATSION RIVOJLANISHI KO‘RSATKICHI VA AHAMIYATI

Annotatsiya: *Ushbu maqolada XXI asrda jahon innovatsion iqtisodiyotining asosi sifatida intellektual mulkka qiziqish ortganini sezilarli darajada ko‘rishimiz mumkin. Taqdim etilgan ko‘rsatkichlar shuni ko‘rsatadiki, turli davlatlar iqtisodiyotining innovatsion rivojlanishiga ta'sir qiluvchi omili bu intellektual mulkdir. Maqolada iqtisodiy o'sish darajasi va sifati innovatsion faoliyatning sur'ati va ko'lamiga, ilmiy va texnologik rivojlanish jarayoniga jalb qilish darajasiga bog'liqligi ko‘rsatib o‘tilgan. Mamlakatlar tomonidan intellektual mulk va innovatsion rivojlanish sohasida erishilgan natijalari qayd etilgan.*

Kalit so'zlar: *innovatsiyalar, modernizatsiya, intellektual mulkni tijoratlashtirish,qonunni o'zgartirish, raqamli bozor.*

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INDICATOR AND IMPORTANCE OF INNOVATIVE DEVELOPMENT OF INTELLECTUAL PROPERTY IN THE WORLD

Annotatsiya: *In this article, we can see a significant increase in interest in intellectual property as the basis of the world innovative economy in the 21st century. The presented indicators show that intellectual property is a factor influencing the innovative development of the economies of different countries. The article shows that the level and quality of economic growth depend on the pace and scope of innovative activity, the level of involvement in the process of scientific and technological development. The results achieved by countries in the field of intellectual property and innovative development are noted.*

Key words: *innovation, modernization, commercialization of intellectual property, change of law, digital market.*

Kirish. Jahon tajribasi shuni ko'rsatadiki, bir mamlakat iqtisodiyotining barqaror va uzoq muddatli rivojlanishi nafaqat uning resurs imkoniyatlariga, balki innovatsiyalarni ishlab chiqish hamda amalga oshirish qobiliyatiga bog'liq. Innovatsiyalar tufayli fan bevosita ishlab chiqaruvchi kuchga aylanadi, nomoddiy aktivlar shaklidagi innovatsiyalar esa davlat iqtisodiy rivojlanishining asosiy kapitaliga aylanadi. Shu bois intellektual mulk institutini tubdan o'rganish muhim va ahamiyatga ega bo'lib, u intellektual mehnat mahsulotlarini shakllantirish va

aylanish normalari, munosabatlari, mexanizmlari va jarayonlari majmui sifatida tushuniladi. Ushbu institut doirasida innovatsiyalar intellektual faoliyat natijalarini intellektual mulk ob'ektlariga aylantirish orqali qayta ishlab chiqariladi.

Uning tahlili intellektual faoliyat sohasini o'rganish va "yangi" innovatsion iqtisodiyotda birinchi o'ringa chiqadigan intellektual mahsulotni yaratishni o'z ichiga oladi.

Ma’lumki, zamonaviy dunyoda davlatning “yashovchanligi”, so‘zning keng ma’nosida, asosan, uning raqobatbardoshligini ta’minlashga bog‘liq [1]. O'z navbatida, ilmiy-texnikaviy taraqqiyotning jahon darajasini saqlamasdan turib, raqobatbardoshlikni ta'minlash mumkin emas. Bu doimiy va ortib borayotgan innovatsiyalar oqimini saqlab qolish zarurligini anglatadi (asosan texnik), bugungi kunda bu "innovatsiya" atamasi deb ataladi. Ko'p jihatdan, bunday innovatsiyalar intellektual faoliyat natijalaridan boshqa narsa emas.

Asosiy qism va natijalar. Intellektual mulkning jahon xo‘jaligining mustaqil tarmog‘i sifatida vujudga kelishi (XVIII—XIX asrlar) qonuniy ravishda ushbu davrda yetakchi mamlakatlarda imtiyozlar, patentlash, mualliflik huquqi va turdosh huquqlar to‘g‘risidagi milliy qonunlarning qabul qilinishi bilan bog‘liq.Iqtisodiyotni rivojlantirishda milliy maqsadlarga e'tibor qaratgan holda, ko'plab mamlakatlar intellektual mulk sohasini strategik rejalashtirishning mustaqil ob'ekti sifatida ko'rib chiqmoqda. Tadqiqot maqsadlari uchun BIMT reytingining yetakchi mamlakatlari: AQSh, Xitoy, Yaponiya, Avstriya, Hindiston kabi patent faolligining barqaror o‘sishini ko‘rsatuvchi yetakchi mamlakatlarning intellektual tadqiqotlarni rivojlantirish sohasidagi strategiyalarini amalga oshirish tajribasi umumlashtirildi. Xitoy amaliyoti alohida e'tiborga loyiqdir [2]. 2012 yildan 2021 yilgacha Xitoy Global Innovatsiyalar indeksi reytingida 34-o'rindan 11- o'ringa ko'tarildi, Xitoy innovatsion mamlakatlardan biriga aylandi. Xitoy o‘zining tezyurar temir yo'llari, 5G tarmoqlari va boshqa ko'p narsalarni qurish bilan dunyoda yetakchi o'rinni egallab turibdi va boshqariladigan kosmik parvozlar va Marsni tadqiq qilish sohasida katta yutuqlarga erishildi. Xalqaro valyuta jamg'armasi ma'lumotlariga ko'ra, Xitoy iqtisodiyoti yalpi ichki mahsulot (13,407 trillion dollar) bo'yicha dunyoda ikkinchi o'rinda turadi [3].

Singapurning mamlakatning innovatsion rivojlanishi va kelajak iqtisodiyotini ta’minlash uchun asos sifatida IP Hub yaratish bo‘yicha ulkan strategik maqsadlari iqtisodiyotning yetarli darajada yuqori innovatsiya darajasiga erishish bilan izohlanadi. 2013-yilda Singapur hukumati mamlakatning Osiyodagi global IP markaziga aylanishiga yordam beradigan 10 yillik rejani e’lon qildi. IP Hub bosh rejasi Singapurda biznes va iqtisodiy o'sishni rag'batlantirish uchun xalqaro darajada faoliyatni kengaytirish orqali taqdim etilgan imkoniyatlardan foydalanishga qaratilgan [4]. O'tgan o'n yilliklar davomida Hindiston uchinchi dunyoning qoloq mamlakatidan raqamli iqtisodiyotning global lokomotiviga aylandi. Bugungi kunda ko'plab xalqaro kompaniyalar mahalliy bozorda katta imkoniyatlarni ko'rmoqda. Hindiston iqtisodiyoti umuman olganda erkin va yuqori raqobatbardoshdir, ayniqsa boshqa rivojlanayotgan mamlakatlar oldida. 2013-yilda biznes yuritish qulayligi reytingida 142-o‘rinni egallagan bo‘lsa, 2021-yilga kelib Gretsiya va Janubiy Afrika

kabi davlatlarni ortda qoldirib, 63-o‘ringa ko‘tarildi. Bugungi kunda milliy iqtisodiyotning asosiy harakatlantiruvchi kuchi bo'lgan IT sohasi. Bozorning umumiy hajmi 191 milliard dollarni tashkil etadi va YaIMning taxminan 10 foizini tashkil qiladi. Hindiston global IT xizmatlari autsorsing bozorining 55 foizini tashkil qiladi. 1990-yillarda ko‘plab xalqaro kompaniyalar ishchi kuchini tejash maqsadida o‘z ofislarini bu yerga ko‘chirishni boshladilar [3, 5].

Ushbu ish doirasida INSEAD xalqaro biznes maktabi [3] bo‘yicha hisoblangan Global innovatsiyalar indeksini innovatsion faollik ko‘rsatkichlari tarkibiga kiritish maqsadga muvofiq ko‘rinadi. Global Innovatsiyalar indeksi 2022 davom etayotgan COVID-19 pandemiyasi, mehnat unumdorligi o‘sishining sekinlashishi va boshqa dolzarb muammolar kontekstida innovatsiyalar sohasidagi so‘nggi global tendentsiyalarni tahlil qiladi. Mualliflar 132 ga yaqin iqtisodiyotning innovatsion faoliyati samaradorligini baholab, ularning tegishli sohadagi kuchli va zaif tomonlarini qayd etib, innovatsiyalar bo‘yicha dunyoning eng ilg‘or mamlakatlarini aniqladilar.

2022-yilda Shveytsariya o‘n ikkinchi marta dunyodagi eng innovatsion mamlakatlar va hududlar reytingida birinchi o‘rinni egalladi, undan keyin Amerika Qo‘shma Shtatlari, Shvetsiya, Buyuk Britaniya va Niderlandiya. Xitoy kuchli o‘nlikka yaqinlashmoqda, Turkiya va Hindiston esa innovatsion rivojlanish bo‘yicha birinchi marta 40 yetakchi davlatlar qatoriga kiradi.

1-jadval.

Innovatsiyalar indeksi 2022 bo‘yicha dunyo mamlakatlari reytingi

2022-yil egallagan o‘rni	Davlatlar	2021-yil egallagan o‘rni
1.	Shvetsariya	1
2.	AQSH	3
3.	Shvetsiya	2
4.	Birlashgan Qirollik	4
5.	Niderlandiya	6
6.	Koreya Respublikasi	5
7.	Singapur	8

30 dan ortiq mamlakatlar 2014-2022 yillar davomida tadqiqot xarajatlarini oshirdi.

Keng tarqalgan globallashuv sharoitida eng qiyin muammolardan biri 2014 va 2020 yillar oralig'ida ko'pgina mintaqalarda tadqiqot xarajatlari oshgan bo'lsa-da, 80% mamlakatlar hali ham yalpi ichki mahsulotning 1% dan kamrog'ini ilmiy-tadqiqot ishlariga sarflaydi.

2-jadval.

Dunyoning ayrim mamlakatlarida ilmiy-tadqiqot ishlariga sarflangan xarajatlar darajasi

Mamlakatlar	Yillar bo‘yicha ilmiy-tadqiqot ishlariga (YaIMga nisbatan %da)		
	2013-yil	2016-yil	2020-yil
Avstriya	2.95	3.13	3.2
Buyuk Britaniya	1.64	1.68	1.72

Germaniya	2.82	2.92	3.1
Isroil	4.09	4.51	5.4
Hindiston	0.71	0.67	0.65
Xitoy	2.0	2.12	2.19

G20 mamlakatlari hali ham tadqiqot xarajatlari, tadqiqotchilar, nashrlar va patentlarning o'ndan to'qqiz qismini tashkil qiladi. Covid-19 pandemiyasidan so'ng, ko'plab mamlakatlarda YaIMning pasayishi natijasida tadqiqot xarajatlari YaIMdagi ulush sifatida mexanik o'sishni ko'rishi mumkin. Mamlakatlar tadqiqotga pul ko'rinishida barqaror investitsiyalarni saqlab qoladimi yoki yo'qligini ko'rish kerak [3, 5, 6].

Xulosa. Zamonaviy shaoitda amaliyotda qo‘llanilishi va keng tarqalishi intellectual mulk ob'ektlari shaklida rasmiylashtirilgan ilmiy-texnikaviy va ilmiy-tadqiqot faoliyati natijalari har qanday mamlakat iqtisodiy rivojlanishining zaruriy omili hisoblanadi. Hozirgi vaqtda innovatsion faoliyatning dolzarbligi sezilarli darajada oshdi va mamlakatlarning dunyoning iqtisodiy va siyosiy xaritasidagi o'rnini belgilab beradi.

Zamonaviy jamiyatda fan va texnika sohasidagi yutuqlar davlatlarning iqtisodiy o'sish dinamikasini, mahsulot va xizmatlarning raqobatbardoshlik darajasini, jahon iqtisodiyotiga integratsiyalashuv darajasini aniqlay boshladi. Jahon tajribasi shuni ko'rsatadiki, bilimga asoslangan iqtisodiyot uchun innovatsiyalardan boshqa rivojlanish yo'li yo'q. Ishlab chiqarish, bandlik, investisiya va tashqi savdo aylanmasining o‘sishining asosiy omillari yangi mahsulotlar, xizmatlar, texnologik jarayonlarni yaratish, joriy etish va keng yoyishdir.

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O‘ZBEKISTON RESPUBLIKASIDA MUSTAQILLIKINING DASTLABKI YILLARIDA IQTISODIYOT SOHASIDAGI O‘RNI

Annotatsiya*: Maqolada mustaqillik yillarida O‘zbekiston Respublikasining iqtisodiy o‘sishi, bozor iqtisodiyotining shakllanishi va rivojlanishi yoritilgan. Ushbu maqolada O‘zbekiston Respublikasi mustaqillikka erishgandan so‘ng iqtisodiyotni barqarorlashtirish jarayoni haqida so‘z boradi*

Kalit so‘zlar: *iqtisodiyot, taraqqiyot, revolyutsiya, ilmiy-texnikaviy, demografik, bozor.*

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THE PLACE OF THE ECONOMY IN THE REPUBLIC OF UZBEKISTAN IN THE FIRST YEARS OF ITS INDEPENDENCE

Abstract: *The article describes the economic growth of the Republic of Uzbekistan, the formation and development of a market economy during the years of independence. This article describes the process of stabilizing the economy after the Republic of Uzbekistan gained independence.*

Key words: *economics, development, revolution, scientific and technical, demographic, market.*

O‘zbekiston Respublikasining iqtisodiy revolutsiyasi bu mustaqillikga erishgan yillardanoq boshlanadi. Unga ko‘ra, mustaqillikning dastlabki yillarida O‘zbekistonda taraqqiyotning "O‘zbek modeli" yaratilgani va undagi 5 tamoyilda iqtisodiyotga ham alohida urg‘u berilganligi bu- mustaqillikning dastlabki yillaridayoq iqtisodiy barqarorlikni shakllantirish, yakka hokimlik tizimi illatlarini tezroq bartaraf etish, yurtimizni rivojlangan, ma’daniyatli mamlakatlar qatoriga

chiqib olishi ko‘zda tutilgan edi. Taraqqiyotning o‘zbek modeli quyidagi tamoyillarga asoslanadi:

birinchidan, iqtisodiy islohotlar hech qachon siyosat ortida qolmasligi kerak, ya’ni iqtisodiyot siyosatdan ustun bo‘lishi kerak. Shuningdek, ichki, tashqi va iqtisodiy munosabatlarni mafkuradan holi etishni ta’minlash zarur;

ikkinchidan, o‘tish davrida davlat asosiy islohotchi bo‘lishi lozim. U islohotlarning ustuvor yo‘nalishlarini belgilab berishi, o‘zgarishlar siyosatini ishlab chiqishi va uni izchillik bilan amalga oshirishi shart;

uchinchidan, qonun ustuvorligiga erishish, qonunlarga qat’iy rioya etish lozim. Buning ma’nosi shuki, demokratik yo‘l bilan qabul qilingan yangi Konstitutsiya va qonunlarni barcha hech istisnosiz hurmat qilishi va ularga og‘ishmay rioya etishi lozim;

to‘rtinchidan, aholining demografik tarkibini hisobga olgan holda kuchli ijtimoiy siyosat o‘tkazish kerak;

beshinchidan, bozor iqtisodiyotiga o‘tish iqtisodiyotning ob’ektiv qonuniyatlarini e’tiborga olib, yaqin o‘tmishdagi “inqilobiy sakrashlar”siz, ya’ni evolyutsion yo‘l bilan puxta o‘ylab, bosqichma-bosqich amalga oshirilishi kerak.[5]

Adabiyotlar sharxi. 1991-yil 14-iyun, 285-XII-son “O‘zbekiston respublikasining tashqi iqtisodiy faoliyati to‘g‘risida”gi qonun qabul qilindi. Ushbu Qonun O‘zbekiston Respublikasi tashqi iqtisodiy faoliyatining asosiy qoidalarini va bu faoliyatni amalga oshirish tartibini belgilaydi. Qonun mulkchilik shakllaridan qat’i nazar, tashqi iqtisodiy aloqalar qatnashchilarining huquqlari, manfaatlari va mol-mulki xalqaro huquqning e’tirof etilgan normalariga muvofiq muhofaza qilinishini ta’minlaydi, respublika iqtisodiyoti jahon iqtisodiy sistemasiga samarali ravishda qo‘shilishi uchun huquqiy asos yaratib beradi. Ushbu Qonun tashqi iqtisodiy aloqalarning barcha turlari va shakllariga, shu jumladan iqtisodiy, ilmiy-texnikaviy va madaniy hamkorlikka, kadrlar tayyorlashga, tashqi savdo va chegara savdosiga, sug‘urta, bank, transport operatsiyalariga, sayyohlikka va xalqaro iqtisodiy munosabatlar sohasidagi boshqa faoliyatga nisbatan amal qiladi.[1]

1992-yil 23-sentabrda O‘zbekiston Respublikasi Prezidentining 474-sonli Farmoni qabul qilindi. Ushbu farmonda “Jahon iqtisodiyoti va diplomatiya universiteti tashkil qilish to‘g‘risida”gi loyiha yoritilgan bo‘lib, O‘zbekistonni iqtisodiyoti bo‘yicha yetuk mutaxasislar tayyorlash va iqtisodiyotni jahon miqyosida olib chiqish, jahon bozorida o‘z o‘rniga ega bo‘lishi ko‘zda tutilgan. Hozirgi kunda ushbu universitetida yetuk kadrlar yetishib chiqmoqda, bu esa, iqtisodiyotni ya’nada rivojlanishga Zamin yaratadi.[2]

O‘zbekiston Respublikasi Vazirlar mahkamasining 1994 yil 21 yanvardagi “Iqtisodiy islohotlarni yanada chuqurlashtirish, xususiy mulk manfaatlarini himoya qilish va tadbirkorlikni rivojlantirishning chora-tadbirlari to‘g‘risida”gi qarori asosida ko‘pgina ishlar olib borildi. Bu davrda ochiq shakldagi aksiyadorlik jamiyati qurish, korxonalar aksiyasini chiqarish, auksion (kim oshdi) savdosi orqali davlat mulkini shaxslarga sotish, qimmatbaho qog‘ozlarni chiqarish va xususiylashtirishni yoppasiga olib borish uchun sharoit yaratish ishlari amalga oshirildi.[3]

Mustaqillik yillarida O‘zbekistonda iqtisodiyotni rivojlantirishda eksport va import ham juda muhim rol o‘ynar edi. Oddiygina bunga misol qilib aytsak, iqtisodiyotdagi barqarorlik O‘zbekistonning tashqi savdo aloqalarida, eksport va import tuzilmasida katta sifat o‘zgarishiga olib keldi: agar 1991-yilda eksport tarkibida paxta tolasining ulushi 77,6 foizni tashkil etgan bo‘lsa, 1998-yilda uning ulushi 38,6 foizga tushdi.

“Bozor munosabatlarini shakllantirishni tegishli muhitsiz - tovar, pul bozorlarida va mehnat resurslari bozorida xo‘jalik yurituvchi subyektlar o‘rtasida o‘zaro aloqani ta’minlashi kerak bo‘lgan bozor infrastrukturasisiz tasavvur etib bo‘lmaydi...” deydi O‘zbekiston Respublikasining birinchi prezidenti I.A.Karimov. Darhaqiqat, O‘zbekistonda tashqi iqtisodiy faoliyatini belgilab beruvchi huquqiy normalar yaratildi. Respublika iqtisodiyotining huquqiy asoslari O‘zbekiston Respublikasi Prezident farmonlarida, hukumat qarorlari va boshqa me’yoriy hujjatlarda yanada takomillashtirib borildi. Ko‘pgina qarorlarga o‘zgartirishlar kiritildi va hozir ham bu ishlar amalga oshirilib kelinmoqda.[4]

Xulosa qilib aytganimizda o‘z uyingizni qurayotganda birinchi bo‘lib uning poydevorini barpo etkaningiz kabi bizning yurtimizda iqtisodiyotni yuksaltirish uchun mustaqillik yillarida birinchi uning poydevoriga asos solindi qo‘yildi. Uyning poydevorini mustahkam bo‘lishi uchun birinchi navbatda uning loyihasi pishiq bo‘lishi kerak. Bizning mamlakatimizda ham mustaqillikning dastlabki yillarida bu borada ko‘plab qonun loyihalari imzolandi, Prezident farmonlari e’lon qilindi. Demak yuksalish uchun, iqtisodiyotni rivojlantirish oldindan puxta reja asosida amalga oshirilgan.

Mustaqillik yillarida O‘zbekistondagi iqtisodiy islohatlar ko‘r-ko‘rona emas, balki, uzoqni o‘ylagan holda amalga oshirilganiga guvoh bo‘ldik. Taraqqiyotning o‘zbek modelida iqtisodiyotga alohida urg‘u berib o‘tilgan. Shuni ta’kidlash joizki, mustaqillikda bozor iqtisodiyotiga utish oqilona fikr bo‘lgan. Chunki, o‘sha davrdagi mamlakatimizdagi iqtisodiy ahvol anchagina achinarli ahvolda edi. Shu bois, bozor iqtisodiyotiga bosqichma-bosqich o‘tish ishlari amalga oshirilgan.

Mamlakatimiz Sobiq SSSR dan ajralgandan so‘ng, iqtisodiy muammolar vujudga kela boshlagan. Yurtimizda o‘sha davrlarda narxlarning keskin oshishi natijasida ko‘pgina ko‘ngilsiz voqealar, har xil tartibsizliklar, bozordagi mahsulotlar batamom tugashi, iqtisodiyot keskin darajada pasayishi aholiga jiddiy tasir ko‘rsatgan. Bu muammolar Birinchi prezidentimiz I.A.Karimov oqilona olib borilgan siyosatlar natijasida izga tusha boshlagan. Iqtisodiyotni rivojlanishiga doir ko‘pgina qarorlar, farmonlar ko‘r-ko‘rona emas, balki aholini sharoitidan kelib chiqilgan holda yurtimizga tatbiq etilgan. Ushbu jarayonlar I.Karimovning 1996-yilda chop etilgan “O‘zbekiston: milliy istiqlol, iqtisod, siyosat, mafkura” asarida ham keng yoritilgan.

Bundan kelib chiqib shuni xulosa qilishimiz mumkinki, hozirgi rivojlanishlar, iqtisodiy o‘sishlar oldindan puxta ishlanib xalqimizni o‘ylagan holda hayotga tatbiq etib borilgan va hozirda bu ishlar davom etmoqda.

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THE IMPORTANCE OF VISUALISM IN THE DEVELOPMENT OF CREATIVE ABILITIES OF PRESCHOOL CHILDREN

Annotation. *Creativity is the process of creating something new, unique. One of the important tasks of pedagogy is the formation of a creative personality. Modern society needs non-standard, versatile individuals capable of creative activity. Creative abilities include: imagination, fantasy, intuition, imaginative thinking, curiosity, initiative and the ability to apply theoretical knowledge in practice. The article discusses the importance of visualization in the development of creative abilities of preschool children.*

Keywords: *creative abilities, creativity, innovation, learning, activity, center, art, visuality*

In today's conditions of developing modern information technologies, the development of the creative abilities of the younger generation is one of the important issues of pedagogical science. The upbringing of children's creative interpretation of the world around them, independent thinking and activity, which will help them achieve serious changes in society and life in general in the future, determines the main task of today's modern education system. Therefore, the demand for such qualities as ingenuity, creativity, initiative, determination is increasing in society. In other words, society creates conditions for the development of creative abilities in each person from preschool age.

The current development processes of the preschool education system in our country are a practical expression of the great and constant attention that our state pays to the education of the younger generation. Preschool educational organizations are becoming the main and important social institution for the harmonious development of children from an early age in all respects.

Creativity is the activity of a person who transforms the natural and social world in accordance with his goals and needs, based on the objective laws of reality.

This period is considered favorable for the development of creativity in preschool children. During this period, progressive changes occur in many areas, mental processes (attention, memory, sensations, thinking, speech, imagination) are activated, and personal qualities are actively developed.

A child does not become a creator by itself. His creative abilities are formed over a certain period of time through consistent learning, work on himself, and he gradually improves and develops. The role of the developing environment in the formation of creative abilities in children is incomparable.

As with any specialist in any field, the foundation for children to have creative abilities is laid over a long period of time and is consistently developed in the

organization of a certain activity. In this, the child's self-direction in creative activity and the ability to effectively organize this activity are of great importance.

According to research, the following factors can influence the development of children's creativity:

- ➢ the breadth of communication with creative people;
- ➢ the presence of an adult world that can serve as a model for imitation;
- ➢ the democratic nature of the relationship between parents and children;
- ➢ the child is given the opportunity to express himself emotionally;
- ➢ the active and authoritative status of adults;
- ➢ early involvement of children in independent work;
- ➢ orientation to creative activity by involving them in various circles;
- ➢ joy in knowing new information from their own experience;
- ➢ a positive attitude of children to research work;
- ➢ timely encouragement of successes in children's activities;
- ➢ creation of necessary conditions for them to engage in appropriate activities to develop their intellectual abilities, etc.

The goals and objectives of developing the creative abilities of preschool children in the process of training are carried out on the basis of the state curriculum of the preschool educational organization. Training carried out on the basis of the program instills in children a desire for knowledge and creates an opportunity to realize their abilities and talents.

When working with preschool children, various visual aids are used:

1. Exhibits made of natural materials.

These are real objects and things. For example, during a lesson about fruits, children can touch and smell a real apple or pear. This experience allows you to fully understand the topic.

2. Exhibits that represent volume

These include dolls and models. They are used when it is not possible to use real objects. For example, a model of a building or a doll, an animal helps to study their structure.

3. Visual exhibits

These are pictures, photographs, drawings. They expand the child's worldview and introduce them to things that cannot be seen in everyday life. Pictures of animals living in different habitats or distant countries develop imagination.

4. Audio exhibits.

Audio recordings help develop auditory perception. Listening to the sounds of nature, musical instruments, and foreign speech enriches the child's experience.

5. Symbolic and graphic exhibits.

Maps, diagrams, and graphs teach children to summarize information. For example, a simple diagram can help them remember the parts of a plant or the sequence of actions.

6. Multimedia-based presentations.

Slides and educational programs combine various visual aids. They attract children's attention and make the learning process interesting.

In conclusion, we can say that in modern education today, it is important not only to give preschool children knowledge, but also to develop their creative thinking. Involving preschool children in the educational process, as well as making them interested in activities, requires the educator to be able to correctly approach the activities based on the children's interests and organize them in an interesting way.

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AUTOCAD AND ARCHITECTURE. AUTOCAD PROGRAM CAPABILITIES

Abstract*: Modern buildings, new buildings reveal the beauty of the city. Nowadays, it becomes easy to know in advance, from the types of buildings and their equipment, finishing works and construction materials, to what the finished condition will be. For this, of course, new modern training programs are being created. One of the most commonly used programs is AutoCAD.*

This article explains AutoCAD, which is the most popular graphics program in the field of architecture, and its capabilities in the field of construction, modern buildings and structures. Modern architecture, beautiful buildings and modern buildings are clear evidence that the country is developing.

Key words: *AutoCAD, modern buildings, training program, AutoCAD Architecture, AutoCAD Electrical, Autodesk, 3D model, 2D model.*

Introduction. As is known, science is developing very rapidly today. As our President said, the development and progress of the country certainly depends on education. That is why in our country. Attention to science is increasing day by day.

Main part. Architecture, construction, creativity are considered a sign of the country's prosperity, and the modern approach to it is a positive process. Currently, all sciences are closely related to computer technologies. In particular, the field of architecture and design is in the leading positions. Of course, human life is no longer imaginable without computers. Because every innovation, new information and science is clear and understandable with the help of modern technologies.

Based on the requirements of the time, from the design and construction of architectural buildings to decorative works, computer graphics are being used. And this, in turn, causes the computer graphics programs to become more complex and updated.

Today, there are many computer graphics programs, which differ significantly from each other in the field in which they are used. Each specialist chooses a convenient graphics program for himself.

In this article, I would like to provide information about one of the graphics programs that is currently gaining popularity and is widely used in the construction industry and architecture, the AutoCAD program.

AutoCAD graphics software is a graphics program developed by the American company Autodesk. Autodesk has a large number of software products (AutoCAD, ArchiCAD, AutoCAD Electrical, 3D Max, Design Review), which are widely used all over the world, embodying the latest technologies. Among the

company's software products, AutoCAD occupies an important place. It is the main one, and the rest of the programs are based on it. It has very high graphics capabilities and can perform both simple and complex tasks. AutoCAD is a two- and three-dimensional computer-aided design and drawing system developed by Autodesk.

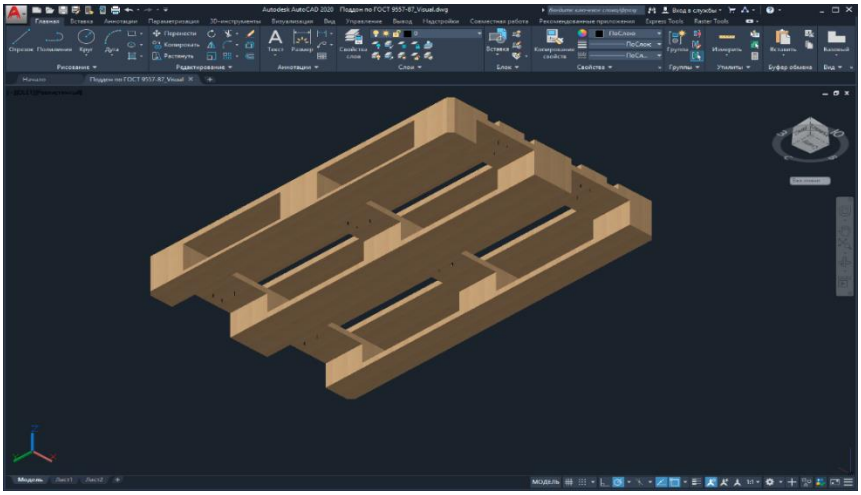
The first version of the system was released in 1982. AutoCAD and special programs based on it are widely used in mechanical engineering, construction, architecture and other industries. The program is available in 18 languages. The level of localization varies from full adaptation to translation of only reference documents.

The constant development of the system, taking into account user complaints and suggestions, eliminating certain shortcomings, and integrating with products of other companies (especially Microsoft) led to the wide popularity of this program all over the world. The widespread distribution of this program in Russia began with its 10th version. It worked as part of the MS DOS operating system. Later, versions 12-13 worked on this system and were gradually transferred to the Windows (Windows 3.1 or Windows - 95) operating system. Version 14 was completely transferred to the Windows operating system. In 1999, the 15th version of AutoCAD was released, which was called AutoCAD - 2000 among users. Version 16 of AutoCAD (AutoCAD - 2004) was released in March 2004, and now the company does not guarantee its proper operation on the WINDOWS - 95, 98 operating systems. The reason is that more advanced operating systems were needed to fully utilize the capabilities of this program. To date, AutoCAD versions 2006, 2007, 2008, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024 have become widely popular among users:

- WINDOWS 2000;
- WINDOWS XP (Professional Edition);
- WINDOWS XP (Home Edition);
- WINDOWS NT 4.0 (Service Pack 6 or higher) requires installation on operating systems.

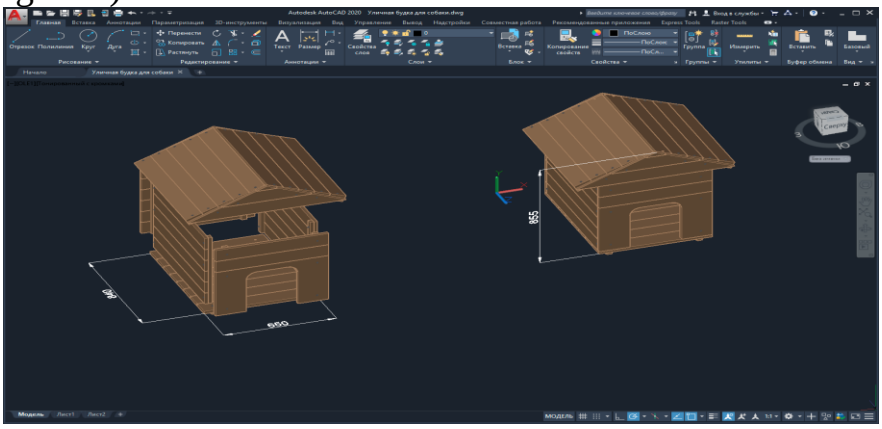
AutoCAD is one of the top choices for drafters, engineers, designers, and artists, maximizing overall productivity with its powerful modeling tools.

With its freeform drawing tools and other advanced features that provide users with 3D design concepts, you can draw and manipulate a variety of surfaces and objects in a computer environment. (Figure 1).



1-fig. 3D model created using AutoCAD software

Another feature of the program is the automatic document generator, which is very useful for engineering projects. An indispensable technical drawing and drafting tool for architects, engineers, and designers, AutoCAD is a professional graphics and design program that allows you to create all types of drawings that you can draw with paper and pencil, as well as create a preview of them in a computer environment (Figure 2).



There are special programs based on AutoCAD:

AutoCAD Architecture - a version designed for architects and containing additional tools specifically for architectural design and drafting, as well as tools for creating construction documents.

AutoCAD Electrical- Designed for electrical control system designers, it includes standard tasks and high-level automation features.

AutoCAD MEP- focuses on the design of engineering systems for construction projects: plumbing and sewage systems, heating and ventilation, electricity and fire safety. It builds a three-dimensional parametric model, based on which it generates drawings and technical specifications.

AutoCAD Map 3D - It is designed for professionals implementing projects in the fields of transport construction, energy supply, land and water use, and allows you to create, process and analyze design and GIS data.

AutoCAD Raster Design - image vectorization software that supports optical character recognition (OCR).

AutoCAD Structural Detailing - is a tool for designing and calculating steel and reinforced concrete structures that supports building information modeling technology. The main objects are beams, columns, slabs, reinforcing bars, etc.

AutoCAD Mechanical - designed for design in mechanical engineering and is characterized by libraries of standard components (over 700 thousand elements), component generators and calculation modules, tools for automating design tasks and documentation, and the ability to collaborate.

AutoCAD P&ID - This is a program for creating, editing, and managing piping and instrumentation diagrams.

AutoCAD Plant 3D - tool for designing technological objects.

AutoCAD Plant 3D AutoCAD P&ID- combines.

Conclusion. The AutoCAD program creates many opportunities in the field of architecture and construction. It allows you to create 3D and 2D models of the object being built or equipped, from a small element to the finished one. This opportunity makes the work of the builder, architect, designer easier, allows them to start work with a clear goal, and ensures good results.

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ANALYSIS OF FACTORS AFFECTING THE EFFICIENCY OF INDUSTRIAL POLICY IN UZBEKISTAN

Abstract. *This article analyzes the essence of economic growth of industrial enterprises and its role in the economy, as well as factors influencing the economic development of industrial enterprises. Also, the effective development of an industrial enterprise is based on the diversification of its modern industries and an increase in the volume of modern industrial products, the creation of certain socio-economic conditions for increasing the labor potential in society, ensuring employment of the population, increasing the volume of gross domestic product, forming the population's demand for industrial products, issues of expanding the division of labor.*

Keywords: *economic growth, industrial enterprises, industrial production volume, mechanism, employment of the population, socio-economic problems.*

Introduction. Scientific research is conducted on such issues as the effective development of industrial enterprises, increasing the efficiency of production activities of enterprises, ensuring economic growth in the industry by assessing the value chain of products. This indicates that the development of industrial enterprises around the world is one of the pressing issues.

Large-scale economic reforms are being carried out in Uzbekistan, aimed at ensuring economic growth by increasing and improving the quality of industrial products. “Increasing the competitiveness of local industrial products and their diversification, developing strategies and models for the development of industrial products based on the effective use of existing natural and economic resources of the regions” [2] is considered one of the important tasks. The fact that they are set as a priority means that it is important to ensure the economic growth of industrial enterprises.

Review of literature on the topic. Systematic studies of the economic formation of industrial enterprises, efficient use of resources, ensuring economic stability, economic and social efficiency were conducted by foreign economists. In particular, the results of scientific works of scientists from the CIS countries are considered worthy of attention: N.K. Vasilyeva [7], V. Parakhina [8], Yu.V. Pilipuk [9], E.Yu. Shutilina [10].

In our republic, economists such as A.M. Kadyrov [11], M.A. Makhkamova [12], B.T. Salimov [13] are conducting scientific research devoted to the effective development of industrial enterprises and ensuring economic growth of industrial production. Scientific results have been achieved.

However, some aspects of ensuring the economic growth of industrial enterprises have been studied in the works of the above-mentioned scientists.

Also, in the form of a comprehensive study, the issues of ensuring the economic growth of industrial enterprises and increasing socio-economic efficiency are partially reflected.

At present, the lack of research related to the improvement of organizational and economic mechanisms for the economic growth of industrial enterprises necessitates conducting in-depth scientific and methodological research on this topic.

Research methodology. To substantiate the essence of economic growth of industrial enterprises and their role in the economy and their main characteristics, to increase the socio-economic efficiency of ensuring economic growth of industrial enterprises, to analyze the increase in its economic efficiency based on the formation of organizational Economic mechanisms of economic growth of industrial enterprises at present and methods of deduction, system analysis, comparative analysis, tables and graphs are used, and the development of proposals and recommendations is considered one of the urgent tasks.

Analysis and results. Before the stage of industrial enterprises development, priority in ensuring economic growth was given to natural and labor resources, and at the stage of industrial enterprises development - to material resources, at the present stage after the development of industrial enterprises, intellectual and information resources come to the fore. The development of the world's leading countries has led to the formation of a new economy of knowledge, innovation, global information systems, new technologies, venture business.

Ensuring economic growth of industrial enterprises as a necessary condition for the general socio-economic development of society is directly linked to the process of developing industrial products and their industry-specific features.

In our opinion, the principles of ensuring the economic growth of industrial enterprises in the region reflect scientifically based rules in the process of implementing certain goals and objectives under the influence of the laws of socio-economic development.

Ensuring the economic growth of industrial enterprises should be based on a number of principles, within the framework of which the mechanisms of economic development should increase the efficiency of economic growth and ensure real growth of the gross product per capita in the industry.

The presented principles are aimed at solving the problem associated with the efficient use of resources and achieving economic efficiency in industrial enterprises, and it is appropriate to classify them according to this problem.

In our opinion, this situation is explained by the specifics of the development of industrial enterprises:

1. Research shows that today information technologies lead to increased efficiency in industries producing material goods, but the issues of their impact on other sectors of the economy are becoming especially relevant.

2. The experience of developed countries shows that the introduction of scientific and technological progress (STP) into the labor process by types of industrial enterprises is characterized by uniform acceptance, which in turn affects high efficiency.

3. The difference in the level of growth of industrial enterprises' productivity is based on the difference in the impact of scientific and technological progress on the process of industrial production depending on the level of consumer involvement in the consumption of industrial products.

The degree of influence of these factors on the development of industrial enterprises determines the type of economic growth. There are two main types of economic growth:

1. Extensive - in which economic growth is ensured by a quantitative increase in production factors (services). That is, society uses more natural, labor and investment resources, and due to this, the growth of the gross product in the industry is ensured.

2. Intensive - in which the economic growth of industrial enterprises is achieved due to a qualitative improvement in the factors of industrial production and their better use. In conditions of intensive economic growth, the gross product in industry increases due to the introduction of new equipment and technologies, improved skills of the workforce, more efficient organization of industrial product development processes, more optimal redistribution of resources between sectors of the economy, etc.

In practice, it is difficult to find extensive or intensive economic growth in a "pure" state.

Ensuring economic growth of industrial enterprises includes the following aspects:

1. Objectives of economic growth of industrial enterprises. Two levels of the objective of economic growth of industrial enterprises can be distinguished: change in the main macroeconomic indicators and change in the standard of living of the population. An important condition for the implementation of the long-term objective of economic growth of industrial enterprises is the comprehensive development of all economic entities, ensuring the achievement of certain strategic objectives by each of them.

2. Type of economic growth. The economic resources available at industrial enterprises, as well as the ratio and interaction of production factors, determine the extensive and intensive types of economic growth.

3. Economic growth indicators. The process of economic growth of industrial enterprises is determined by quantitative and qualitative indicators. Quantitative indicators of economic growth of industrial enterprises include the growth rate of gross product, the growth rate of gross product created in the industry per capita, the growth rate of industrial output, indicators of economic efficiency (labor productivity), etc.

4. Efficiency of economic growth. As a result of development based on increasing the efficiency of economic growth and positive changes in its size, it ensures the satisfaction of the constantly growing needs of society.

5. Conflicts of economic growth. The growth of gross output of industrial enterprises in absolute and relative terms does not lead to an increase in the standard and quality of life. Macroeconomic indicators of the country, including the volume of gross industrial output and per capita income of the population, can be the main criteria for the distribution of social resources or classification by the level of development of the sector.

6. The system of economic growth factors. In our opinion, the factors of economic growth of industrial enterprises include causal phenomena and necessary conditions that determine the nature, aspects, types and dynamics of economic growth.

It is important to study the dependence of the causal factor influencing the change in the volume of gross output of industrial enterprises. In this case, labor and capital play a key role as the main factor contributing to the replenishment of the gross product in the industry. In order to further accelerate the growth of gross output at industrial enterprises, the following measures must be taken:

 development of modern branches of industrial enterprises and creative change of gross output volume, i.e. digitalization and diversification;

 further development of real estate and entrepreneurial activity in industrial enterprises;

 increase the level of employment in the industry and fully utilize it;

 accelerate the development of new industrial products based on high technologies and increase the efficiency of investments;

 ensuring innovative development of industrial enterprises and technical and technological renewal of industrial product creation processes;

 increasing resource potential to ensure sustainable economic growth;

 digitalization of product development processes at industrial enterprises and widespread use of artificial intelligence.

Development is a complex concept that involves the study of various problems related to increasing efficiency and reducing production costs, creating an institutional basis for the economy and structural changes in it.

Conclusions. From the above, we can conclude that countries that do not provide the necessary level of education for the population, development of science and high quality of the information environment will be doomed to a negative balance of foreign trade and dependence on foreign trade. financial and information centers; they remain a raw material base for transnational corporations and developed countries concentrating intellectual potential.

Economic growth in the system of market relations is greatly influenced by the level of development of economic activity institutions, institutions and organizations that ensure their implementation.

Currently, developed countries have a system of effective institutions that contribute to their economic well-being and create positive motivation for entrepreneurship, innovation, savings and investment.

Socioeconomic development is a process aimed at developing and improving industrial enterprises. According to the World Bank report, the goal of development is not only to increase incomes but also to improve the quality of life. This includes quality education, nutrition, health care, poverty reduction, a healthy environment, equal opportunities, greater personal freedom and a rich cultural life.

Thus, economic growth is considered as an integral element of economic development. On the one hand, this determines the cyclical nature of development, on the other hand, it is itself the result of changes prepared during periods of stagnation and depression. Economic development is primarily understood as the ability of the economy to develop, defined as a change in the structure of production, a change in the institutional environment, demographic and innovative dynamism. In other words, economic development presupposes a qualitative change in the factors of economic growth.

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STUDYING TOURISM FROM BUSINESS PERSPECTIVES

Abstract: *As a multifaceted sector, tourism encompasses a wide range of activities, including travel, hospitality, recreation, and cultural experiences. From bustling urban centers to serene natural landscapes, tourism offers diverse opportunities for businesses to thrive. This article aims to explore the various dimensions of tourism from a business perspective, focusing on key concepts such as marketing, management and finance.*

Key words: *marketing mix, strategic planning, finance, turnover, mass tourism, profits, return on investment.*

The travel and tourism industry is not merely about vacations and leisure; it encompasses a diverse array of activities, services, and businesses that fuel economies, create jobs, and shape the way we explore the world. In recent years, the tourism industry has faced numerous challenges, including economic fluctuations, environmental concerns, and the impact of global events such as the COVID-19 pandemic. These factors have prompted businesses to adapt and innovate, highlighting the importance of resilience and sustainability in tourism operations. By examining tourism through a business lens, stakeholders can better navigate these complexities and capitalize on emerging opportunities. In order to tackle these problems and issues tourism companies should consider other sectors. First, marketing concepts provide insights into why people travel as well as possible approaches to meeting their needs as they travel. Second, management concepts provide insights into the processes needed to meet societies and visitors current and future demands. Third, financial concepts provide the tools needed to understand, design, and supply profitable levels of visitor services. By combining knowledge from each of these perspectives, a basic understanding of tourism fundamentals can be developed.

Marketing: Studying tourism from the marketing approach provides valuable insight into the process by which tourism organizations create and individual visitors obtain desired goods and services. Everyone who has either worked in or used tourism-related services knows that customers (visitors and guests) can be very demanding. The more you know about these travelers and how to meet their needs, the more successful you will be as a hospitality and tourism professional. In fact, individuals and organizations who attempt to understand and meet the needs of these visitors successfully are practicing what is called the marketing concept, an organizational philosophy centered around understanding and meeting the needs of customers. Meeting visitor needs relies on a complex set of tools and techniques that is referred to as the marketing mix. The marketing mix

consists of four variables that are often called the four Ps of marketing: product, price, place, and promotion. Product refers to the good or service that is being offered. Price is the value of the good or service. This value is the amount of money that will be paid as well as the time "given up" to obtain the good or service. Place includes the location and the activities that are required to make the good or service available to the visitor. Finally, promotion refers to all of the activities that are undertaken to communicate the availability and benefits of a particular good or service. Marketing theorists have coined a variety of phrases to describe the philosophy of an organization.[3]

Management: Management furnishes additional tools and techniques to serve visitor needs successfully. Management, just like marketing, is essential to the continued success of all organizations, both public and private. The study of management provides a unified approach to planning, organizing, directing, and controlling present and future actions to accomplish organizational goals. Basically, management is the common thread that holds any organization or activity together and keeps everyone moving in the same direction. For example, managers working for the Forest Service must decide how many people can comfortably use a campsite and when and where new campsites should be built. Government planners and administrators must make decisions about the desirability and necessity of new or expanded highways, airports, and shopping facilities. Restaurant managers must decide how many employees are needed to provide high-quality service and, at the same time, make a fair profit. Resort managers must decide whether or not to expand and what level of service to offer. Think back to that trip you were asked to plan earlier in the chapter, and you will begin to see how all of the management functions must fit together to have a successful experience. The process might go something like this. After you mentioned the possibility of renting a cottage at the beach to enjoy some sun, surf, and sand, several of your friends asked if they could go with you. The first management function used in putting this trip together is planning: where to go, how to get there, and how many will go. Once these decisions are made, the next function used is organizing. You are using the organizing function when you assign someone to search the Web for more information and decide who will make reservations, who will buy food and refreshments, and who will call everyone to make sure each person shows up on time on the day of departure. The next logical step you would use in putting together your trip would be the directing function. You are directing as you answer questions and coordinate all of your planned activities. Finally, you will use the controlling function. You are controlling as you check maps, directions, itineraries, and reservations to ensure the success of your trip. Although the activities may be more complex, managers in all tourism-related activities are constantly going through the same types of processes.

Finance: Studying tourism from a financial approach provides a basic understanding of how organizations manage revenues and expenses. To continue operating and providing services, tourism organizations must strive to generate

[3] Burns, A. C., and Bush, R. F. (2010). Marketing Research (6th ed.). Upper Saddle River, NJ: Pearson/ Prentice Hall.

revenues in excess of expenses or effectively and efficiently use the financial resources they have been allocated. Even nonprofit and government organizations are being called on to generate more of their own funding and to gain better control of their expenses. By definition, a business is an organization operated with the objective of making a profit from the sale of goods and services. Profits are revenues in excess of expenses. They are used as a common yardstick to represent financial performance and are the ultimate measure of financial success. However, some tourism organizations such as governmental agencies, museums, visitors and convention bureaus, and hotels associations may be classified as nonprofit. Even though they may not technically operate with a profit motive, most still strive to generate revenues in excess of expenses. For simplicity, we will use the generic term business in our discussion of financial concepts. To use and communicate financial information, a common language must be spoken. That language is known as accounting, which is often called the "language of business." Accounting is an activity designed to accumulate, measure, and communicate financial information to various decision makers, such as investors, creditors, managers, and front-line employees. One of the purposes of accounting information is to provide data needed to make informed decisions.

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BIOECOLOGICAL AND MEDICINAL PROPERTIES OF MEDICINAL PLANTS IDENTIFIED IN THE SHAKHIMARDONSOY BASIN

Abstract. *Below is information about the bioecological properties of some medicinal representatives of the Lamiaceae family. Currently, in world practice, research on local floras, including individual groups, is of great importance when conducting research to complete the inventory of flora, in natural areas that have not been fully studied from a floristic point of view. with a complete inversion, the natural flora is quite sufficient. In particular, this is advisable when there are representatives of a family with a relatively large number of cosmopolitan species, having a relatively wide range and finding a place in different ecological conditions.*

Keywords: *folk medicine, Mint family, Central Asia, menthol, Fergana Valley.*

Marrubium anisodon K. Koch Perennial, stems numerous, sparsely branched, coarsely pubescent, 30-80 cm high. Leaves are round, long-striped, serrated-bifurcated. Flowers numerous, calyx 9-11 mm long covered with stellate hairs. Leaves of the crown are white, the outer side is occupied by stellate hairs, length 9-11 mm, the leaf is dissected into two parts. Nut triangular ovoid, 1.5 mm long. Blooms and produces seeds in May-September. It grows as a solitary herb in gardens, on the edges of fields and on abandoned lands.

Distributed in Tashkent, Fergana, Samarkand, Bukhara and Surkhandarya regions.

In folk medicine, the above-ground part is used. A decoction of the upper part of the soil is used as a mouth and throat rinse for diseases such as sore throat, chronic colds of the respiratory tract and toothache. Antimony has been proven to have a calming effect and reduce blood pressure.

Lemongrass officinalis L. Perennial herb with an erect stem branching from the base, covered with thick coarse glands and hairs, smelling of lemon, 30-60 cm high. The leaves are ovoid, with large teeth along the edges, the lower side is hairless, the upper side is sparsely pubescent. The flowers have long peduncles and are rounded. The calyx is 7-8 mm long, with long fibrous hairs. The petals are white, slightly pubescent on the outside, 13-14 mm long. The nut is triangular, dark brown, 1.7 mm long. It blooms in June-August, produces seeds in July-September.

It grows among the mountains, on rocks and in the shade. It is widespread in the Tashkent, Kashkadarya, Fergana, Surkhandarya regions.

The above-ground part is used in medicine. A decoction of the surface (sometimes leaves) is used to regulate digestive disorders, treat anemia, some

nervous and heart diseases, and is an antispasmodic, analgesic, expectorant, diuretic and carminative. Lemon is mainly used in folk medicine.

Field mint (water mint) - Mentha arvensis L. Perennial, stem erect, branching from the base, stem tetrahedral, 25-50 cm high. Leaves are long lanceolate, covered with thick short hairs. Flowers form a spike-shaped ball at the ends of branches and stems. The calyx is 2.5 mm long with three pointed teeth. The petals are pink-violet, 4-5 mm long. It blooms in July-August and produces seeds in August-September. It grows along the banks of streams and reservoirs in flat and mountainous areas. It is widespread in the Tashkent and Fergana regions.

The leaves and essential oil are used in medicine. Medicinal preparations from the leaves, decoctions, tinctures, and juices are used against nausea and vomiting, to improve digestion. Mint water is also used to rinse the mouth and to improve the taste of liquid medicines. The leaf is used as a sedative, expectorant, used in teas for stomach diseases, essential oil is part of tablets and drops for stomach pain, menthol is part of Ingofen.

Small-flowered mountain basil - Origanum tyttanthum Gontsch. Perennial, stem erect, numerous, branching at the top, height 30-60 cm. Leaf ovoid or longer, base obtuse, edges smooth, surface hairless. Flowers collected in sessile spike-shaped, semi-umbel-shaped inflorescences. Calyx 3 mm long with short hairs. Petal pale bluish-pink, 5 mm long. Nut dark brown, 0.75 mm long. Blooms in July-August, seeds are produced in July-September. Grows in rocky and gravelly places in the middle and lower regions of the mountains. Distributed in Tashkent, Andijan, Fergana, Samarkand and Surkhandarya regions. The surface part contains essential oil, triterpene acids, coumarins, flavonoids and other substances. A liquid extract of the above-ground part of the mountain basil is used as an expectorant for respiratory diseases, with weakened defecation, to stimulate appetite, improve digestion, for the outflow of urine and gases. The liquid extract is part of pertussin, which is used for respiratory diseases and whooping cough. Thymol is used to disinfect the oral mucosa, relieve toothache and treat fungal diseases, and sometimes to expel worms.

Field mint (water mint) – Mentha arvensis L.

Hard-haired toad — Lagochilus hirsutissimus Vved. Perennial, stems woody, erect, rarely branching, height (10)-15-30 cm. Leaves are rhombic-ovate, deeply carved, pubescent at the tip. In the leaf axils there are 4-8 flowers. The calyx is bell-shaped, the tips are pointed, the length of the lower calyx is 20-25 mm. Petals are white with brown rays, 25-27 mm long. Blooms in June-July. Grows in areas with gravelly and fine-grained soil in the foothills. Fergana region (Kuramin ridge) stretches in front of the mountain. It is used to speed up blood transfusion, that is, to stop bleeding.

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HEALTHY LIFESTYLE: THE CURRENT STATE OF THE PROBLEM

ANNOTATION:*A healthy lifestyle is a person's way of life with the aim of preventing diseases and promoting health. Health is our wealth, which can only be preserved with the right lifestyle. How interesting and colorful his life will be depends on the physical and spiritual state of a person. With a healthy lifestyle, a person can form and improve his well-being by eating right, doing physical exercise and hardening, and rationally organizing his work and rest schedule.*

KEY WORDS: *health, hygiene, lifestyle, regime and rest, disease prevention.*

A healthy lifestyle is a set of rules aimed at maintaining and strengthening physical and mental health. Through lifestyle, a person can shape and improve his well-being by eating right, doing physical exercise and hardening, and rationally organizing his work and rest schedule. However, all this is impossible if hygiene standards are not observed [1-5].

Health is the normal psychosomatic state of a person, reflecting his complete physical, mental and social well-being. Health largely depends on lifestyle. The main thing in a healthy lifestyle is the active creation of health, including all its components [11-14].

Hygienic principles are an important condition for primary and secondary prevention of various diseases. It is necessary to know and apply them in everyday life, in educational activities, in production, when organizing various cultural and sports events, in professional settings [6-10].

Hygiene is one of the most important branches of medicine, studying and developing the principles of maintaining and promoting health by observing hygienic requirements in everyday activities. Individual hygiene of each person is closely connected with society.

The social importance of hygiene is determined by the fact that failure to comply with its requirements in life can have an adverse effect on the health of people around. For example, the spread of infectious diseases and helminth infections, passive smoking, deterioration of indoor air quality, etc. [15].

Personal and public hygiene are rules that people must follow when caring for their bodies and when communicating with each other. The complex of elements of personal and public hygiene is very extensive. None of the components of a healthy lifestyle is possible without compliance with hygiene rules.

Simple daily truths: keeping the body clean, caring for the mouth, nails and hair, washing hands properly before eating and after visiting the street, using the toilet, choosing clothes and shoes according to the season from natural materials, using only individual household items, ventilating living areas. And only a few can boast that almost everyone does this regularly.

Body hygiene contributes to the proper functioning of the body, helps to improve metabolism, blood circulation, digestion, breathing, the development of a person's physical and mental abilities, his performance, and resistance to various diseases. Skin pollution and skin diseases weaken its activity, which negatively affects human health.

Maintaining good hygiene is the basis of a healthy lifestyle. No matter how perfect medicine is, it cannot rid everyone of all diseases. Man is the creator of his own health.

Health is our wealth, which can only be preserved with the right lifestyle. How interesting and colorful his life will be depends on the physical and spiritual state of a person. Nowadays it is fashionable to lead a healthy lifestyle, because society needs successful and healthy people. There are several aspects of a healthy lifestyle that must be followed for success:

- Healthy eating. Any human activity depends on the substances and microelements that enter the body along with food. Therefore, you should give up fast food and other junk food, turning your attention to fruits, vegetables, grains and thus organize a proper diet.
- Physical education classes. Be sure to do exercises in the morning every day! It will give you energy and good mood for the whole day. You need to choose the right sport for yourself. Physical activity is indispensable for a healthy lifestyle. Exercising will make our body slim and beautiful, and also strengthen our immune system.
- Good sleep. Every day a person should sleep about 8 hours, and it is better to go to bed before midnight - this is the most favorable time for sleep. It is necessary to ventilate the room well before going to bed. An important feature is the comfort and convenience of the sleeping area. You should not overeat at night; you must remember that your last meal should be no later than 3 hours before bedtime.
- Daily routine. It is necessary to manage your time wisely. A well-organized daily routine means proper alternation of work and rest. By creating the right routine, you will be able to get more done in a day, avoiding overwork.
- Giving up bad habits. Alcohol, drugs, smoking - all this causes irreparable harm to the body. These bad habits lead to illness, prevent a person from developing both in work and in creative activity, as a result of which they make him socially disadvantaged and unhappy.
- 6. Resistance to stress. You must try to be calmer about problems and failures that arise. You need to remember that negative emotions lead to illness. Doing what you love and doing sports will help you cope with stress.

•7. Hardening the body. Hardening is an important feature of a healthy lifestyle; it is the prevention of colds and the development of the body's resistance to negative environmental conditions. It is known that a hardened person catches a cold 8 times less often than an unhardened person. You can harden yourself with snow, sun, air or water, the main thing is to do it wisely and in moderation.

•Personal hygiene. As they say, cleanliness is the key to health, so you need to put your body and clothes in order every day. Failure to maintain personal hygiene can lead to the development of many dangerous diseases.

•Spiritual well-being. By following the principles of a healthy lifestyle, a person strengthens his body and improves his well-being. Healthy people are beautiful people.

It has been proven that following a healthy lifestyle can significantly slow down human aging. The fact is that healthy food containing antioxidants (vitamins E, B, zinc and ascorbic acid) enriches cells with oxygen, which means they prolong their youth [1-5].

Exercising lowers cholesterol levels, which slows down the process of vascular atherosclerosis. Quitting smoking and alcohol will prevent the rapid appearance of wrinkles and skin aging in general. A stable nervous system, which is produced only with proper nutrition and a healthy lifestyle, prevents aging.

An optimistic mood is often the main component of successful activities and any endeavors. It is important to be able to correctly determine your life goals and correctly set priorities [6,8,15].

Consequently, to create health, it is necessary both to expand ideas about health and disease, and to skillfully use the entire range of factors influencing the various components of health (physical, mental, social and spiritual), and mastery of health-improving and restorative methods.

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FEATURES OF SPASMOPHILIA IN CHILDREN

Annotation: *Spasmophilia is a disease of young children, characterized by impaired mineral metabolism, increased neuromuscular excitability, and a tendency to spastic and convulsive states. The disease develops in 3.5-4% of children suffering from rickets. Clinically, hidden (latent) and overt spasmophilia are distinguished. Spasmophilia is diagnosed based on the clinical picture in the form of signs of increased neuromuscular excitability, periodically occurring spastic states of individual muscle groups. The diagnosis is also confirmed by the presence of hypocalcemia in combination with hyperphosphatemia, imbalance of blood electrolytes, and alkalosis. With timely treatment, the prognosis of the disease is favorable.*

Key words: *spasmophilia, children, hypocalcemia, convulsions, neuromuscular excitability.*

Spasmophilia is a disease that occurs in young children due to the acute development of hypocalcemia against the background of disturbances in mineral metabolism and acid-base balance. This pathology is detected mainly at the age of 3 months to 2 years, i.e. in the same age range as rickets, with which spasmophilia has an etiological and pathogenetic connection [1-5]. Just a few years ago, spasmophilia in pediatrics was quite common, but a decrease in the incidence of severe forms of rickets has led to a decrease in the number of cases of infantile tetany. Spasmophilia develops in 3.5 - 4% of children suffering from rickets; somewhat more often in boys [11-15].

The connection between spasmophilia and rickets has long been known, but was proven only in the 70s, when a low level of 25 hydroxycholecalciferol was discovered in the blood of children with spasmophilia.

ETIOLOGY AND PATHOGENESIS

The cause of spasmophilia is a decrease in the level of ionized calcium in the blood serum against the background of electrolyte imbalance, hyperphosphatemia and alkalosis. The mechanisms of development of hypocalcemia are important, which can be caused by dysfunction of the parathyroid glands, decreased absorption of calcium in the intestine, or increased excretion in the urine.

The development of spasmophilia is usually pathogenetically associated with the period of convalescence from moderate or severe rickets. Acute overproduction of the active form of vitamin D suppresses the function of the parathyroid glands, stimulates the absorption of calcium and phosphorus salts in the intestine and the reabsorption of them and amino acids in the renal tubules [6,9,12]. As a result, the alkaline reserve of the blood quickly increases and alkalosis develops.

Calcium begins to be intensively deposited in the bones, so its level in the blood quickly decreases to critical (below 1.7 mmol/l). At the same time, hyperkalemia occurs. Hypocalcemia, alkalosis and hyperkalemia determine the child's convulsive readiness and increased excitability of his nervous and muscular systems [7,10,15].

An increase in the level of inorganic phosphorus in the blood can be promoted by feeding the child cow's milk with a high concentration of phosphorus and insufficient excretion of excess phosphorus by the kidneys; hypoparathyroidism. In addition to calcium-phosphorus metabolism, hyponatremia, hypochloremia, hypomagnesemia and hyperkalemia are observed in spasmophilia [8].

Under these conditions, any external influence accompanied by fear, crying, high fever, vomiting, as well as the addition of an intercurrent disease can provoke spasms of certain muscle groups or clonic-tonic convulsions.

CLINICAL PICTURE

Clinically, hidden (latent) and overt spasmophilia are distinguished. Latent spasmophilia precedes overt spasmophilia. It can be suspected in a child in the presence of anxiety, shuddering, hyperesthesia, periodic tremor of the chin and limbs, twitching of individual muscle groups, dyspnea, which turns into carpopedal spasm, against the background of existing signs of rickets, often in the repair stage.

The most common symptoms of latent spasmophilia are:

- Khvostek's symptom - when tapping between the zygomatic arch and the corner of the mouth (in the area where the fibers of the facial nerve are located), contractions of the facial muscles (twitching) appear in the area of the mouth, nose, lower and upper eyelid;
- Erb's symptom - increased galvanic excitability of the nerves (muscle contraction when the cathode applied to the area of the median nerve is opened, with a current strength below 5 mA);
- Trousseau's symptom – when the neurovascular bundle on the shoulder is compressed, a convulsive contraction of the fingers occurs in the form of an "obstetrician's hand";
- Maslov's symptom - with a slight prick of the skin of a child with spasmophilia, breathing stops at the height of inspiration (in a healthy child, such irritation causes increased and deepening of respiratory movements), this phenomenon is clearly revealed by pneumography;
- Lyust's symptom - rapid abduction of the foot outward with dorsal flexion when struck below the head of the fibula in the area n. fibularis superficialis.

Explicit spasmophilia, as a rule, manifests itself in the form of laryngospasm, carpopedal spasm and eclampsia (sometimes in combination with each other).

Laryngospasm occurs most often when the child is crying or frightened. Moderately severe laryngospasm is accompanied by pallor and difficult hoarse or sonorous inhalation followed by noisy breathing. When the glottis is completely closed, the child is frightened, gasps for air, becomes covered in cold sweat, the skin becomes cyanotic in color, and loss of consciousness is possible for a short time. After a few seconds, a noisy inhalation is heard, breathing is gradually restored and the child, having calmed down, falls asleep. An attack of laryngospasm usually proceeds favorably, but can recur, especially with inadequate treatment. It is extremely rare that an attack of laryngeal stenosis is prolonged and can be fatal. In the most severe cases, sudden cardiac arrest (cardiac tetany) is possible.

Carpopedal spasm is a tonic contraction of the muscles of the limbs, which take a characteristic position (the hand is in the “obstetrician’s hand” position, the foot is in the “pes equines” (“horse foot”) position, with the big toes in a state of plantar flexion). This condition of the hands and feet can be short-term, but can persist for several hours and even days (in the latter case, reactive swelling of the back of the hand and foot appears). Carpopedal spasm can be observed when changing a child's clothes. It is possible to develop spasms in other muscles: ocular (with the development of transient strabismus), masticatory (with trismus and rigidity of the occipital muscles), m. orbicularis oris (lips - in the form of a “fish mouth”), smooth muscles (with urination and defecation disorders), etc.

Eclampsia is a rare and most severe form of spasmophilia. It manifests itself in the form of an attack of clonic-tonic convulsions, which cover all voluntary and involuntary muscles, lasting from a few seconds to 20-30 minutes. The attack begins with twitching of the facial muscles, then convulsions of the limbs, stiffness of the neck muscles occur, laryngospasm and respiratory distress occur, and general cyanosis appears. Consciousness is lost, foam appears at the mouth, spontaneous bowel movements and urination are observed. Fever may occur. With a prolonged attack of eclampsia, breathing and heartbeat may stop. Children in the first year of life often develop tonic convulsions and laryngospasm, while older children develop clonic convulsions and carpopedal spasm. A very prolonged eclamptic state can negatively affect the central nervous system and cause delayed motor development in the future.

DIAGNOSIS OF SPASMOPHILIA

Spasmophilia is diagnosed on the basis of a typical clinical picture in the form of signs of increased neuromuscular excitability, periodically occurring spastic states of individual muscle groups (facial, laryngeal, respiratory, skeletal). In addition, the child’s age, time of year, as well as clinical and radiological symptoms indicating a period of convalescence of rickets are taken into account. If a young child, in the presence of clinical, biochemical and radiological signs of rickets, manifests the above-described picture of increased convulsive readiness and neuromuscular excitability, laryngospasm occurs - the diagnosis is beyond doubt.

The diagnosis is confirmed by the presence of hypocalcemia in combination with hyperphosphatemia, imbalance of blood electrolytes, and alkalosis. Laboratory data reveal a decrease in total calcium less than 1.75 mmol/l, ionized calcium below

0.85 mmol/l, and respiratory alkalosis. The ECG shows prolongation of the QT interval and other signs of hypocalcemia.

TREATMENT OF SPASMOPHILIA

Children with an obvious form of the disease are subject to hospitalization; treatment of the latent form is possible at home. With laryngospasm, it is necessary to provide access to fresh air and create a dominant focus of excitation in the brain by irritating the nasal mucosa (blow into the nose, tickle, bring ammonia), skin (injection, patting and pouring cold water on the face), vestibular apparatus (shaking the child), changes in body position.

In treatment, limit unpleasant procedures (injections, examination of the pharynx) as much as possible, perform them carefully so as not to provoke an attack of laryngospasm, eclampsia.

For convulsions, administration of diazepam is indicated. Diazepam has an immediate but short-term (30 minutes) effect. In cases where the etiology of seizures is not entirely clear, the administration of diazepam gives time to conduct additional examination and verify the cause of tetany. Diazepam is administered at the rate of 0.5% - 0.1 ml/kg body weight intravenously or intramuscularly, but not more than 2 ml once; with a short-term effect or incomplete relief of seizures, re-introduce diazepam at a dose of 2/3 of the initial dose, after 15-20 minutes, the total dose of diazepam should not exceed 4 ml;

At the same time, intravenous administration of calcium-based drugs is carried out. It should be remembered that rapid intravenous administration of calcium can cause bradycardia and even cardiac arrest. The use of parenteral calcium-based drugs is continued until the symptoms are relieved; after the attack is relieved, they switch to oral administration.

For hypocalcemic convulsions, a 10% solution of calcium gluconate is slowly administered intravenously at a dose of 0.2 ml/kg (20 mg/kg) (after preliminary dilution with 20% dextrose solution by 2 times). After 3-4 days, against the background of intensive therapy with calcium solutions, vitamin D is prescribed for the treatment of rickets.

Hypocalcemia is often accompanied by hypomagnesemia - magnesium-based drugs are used in combination with vitamin B6 (magne-B6, etc.). Stopping breathing and heartbeat requires emergency hospitalization and pulmonary-cardiac resuscitation, oxygen therapy.

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DIFFICULTIES IN LEARNING GERMAN LANGUAGE COMPETENCIES IN ACADEMIC LYCEUMS: A SPECIALIZED PERSPECTIVE

Abstract*. This study examines the difficulties faced by students specializing in German language studies in academic lyceums. The research identifies key challenges related to grammar, vocabulary acquisition, pronunciation, and cultural understanding. By analyzing student and teacher perspectives, this study suggests practical solutions to improve German language learning outcomes in specialized academic settings.*

Keywords: *German language learning, academic lyceums, language competencies, grammar challenges, vocabulary acquisition, pronunciation difficulties, specialized teaching methodologies*

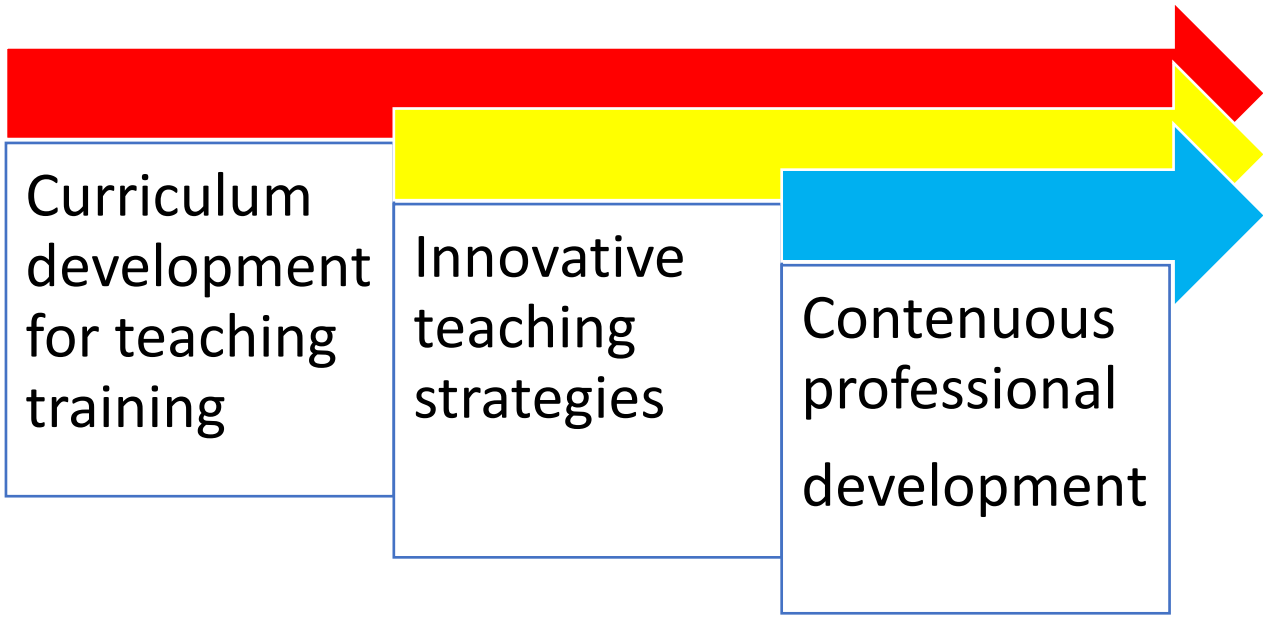
Introduction. Students specializing in the German language at academic lyceums encounter unique challenges due to the complexity of the language. German's intricate grammar, extensive vocabulary, and phonetic distinctions from other languages make it a demanding subject of study. This study aims to explore the specific difficulties encountered by specialized language students, assess the effectiveness of current teaching methodologies, and propose strategies for improvement. Understanding these challenges is crucial for enhancing language instruction and supporting students in developing strong linguistic competencies tailored to their specialization.

Methods. A mixed-methods approach was employed to gather data. Quantitative data were collected through surveys conducted with 150 students and 30 German language teachers from various academic lyceums specializing in German studies. Qualitative data were obtained from structured interviews with teachers to gain insights into the pedagogical challenges and strategies used in language instruction. Additionally, classroom observations were conducted to assess students' engagement and common errors in language acquisition.

Results. The findings reveal that students specializing in German face significant struggles with grammatical structures, particularly cases, gendered nouns, and verb placement. Vocabulary retention poses difficulties due to complex word formation rules and specialized terminology. Pronunciation challenges arise from sounds unfamiliar to students' native languages, impacting their spoken fluency. Cultural aspects of the language, such as idiomatic expressions and formal register variations, further hinder comprehension. Teachers identified a lack of

interactive speaking practice and insufficient exposure to specialized German materials as major obstacles to competency development in the specialized field.

Discussion. To address these difficulties, the study suggests integrating specialized interactive and communicative teaching approaches, including subject-specific role-playing, multimedia resources, and conversational practice in professional contexts. Technology-enhanced learning, such as specialized language learning apps and academic resources, can support vocabulary and pronunciation training. Additionally, curriculum modifications focusing on practical language application and immersion activities tailored to specialized studies can bridge competency gaps. Teacher training programs should also be developed to incorporate innovative teaching strategies suited for German language specialization.



1. Curriculum development for teacher training

✓ **Focus on Specialized Vocabulary**: Training should include methods for teaching field-specific terminology effectively.

✓ **Grammar Teaching Strategies**: Emphasis on simplifying complex structures using comparative approaches.

✓ **Pronunciation and Phonetics**: Techniques for improving students' spoken German, especially for sounds not present in their native language.

✓ **Cultural Competence Training**: Helping teachers integrate cultural and sociolinguistic elements into lessons.

2. Innovative teaching strategies

✓ **Task-Based Learning (TBL)**: Encouraging real-world applications through projects.

✓ **Blended Learning and Digital Tools**: Using AI-powered language platforms, virtual exchanges, and gamified learning.

✓ **Content and Language Integrated Learning (CLIL)**: Teaching specialized subjects (e.g., science, business) in German.

3. Continuous professional development

✓ **Workshops and Seminars**: Regular training on emerging language pedagogy.

✓ **Exchange Programs**: Short-term teaching experiences in German-speaking countries.

✓ **Collaborative Networks**: Encouraging peer mentoring and shared resources among teachers.

Conclusion. The study highlights significant challenges in learning German language competencies in academic lyceums with a specialization focus, including grammatical complexity, vocabulary acquisition, pronunciation difficulties, and cultural barriers. Implementing interactive teaching methods and increasing exposure to authentic, field-specific language use can improve student outcomes. Future research should explore the long-term effects of various instructional strategies on German language proficiency in specialized academic settings.

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FOREST RESOURCE MANAGEMENT BASED ON GIS AND REMOTE SENSING: ANALYSIS FROM THE LEGISLATION AND SCOPUS DATABASE

Abstract: *This paper explores the challenges and strategies for managing forest fires, with a focus on the role of human activity in causing and exacerbating wildfires. It highlights the significant damage caused by fires to forests, agricultural lands, and ecosystems, as well as the associated risks to human lives and livelihoods. The study also discusses the importance of preventive measures and effective fire management in forestry practices to mitigate the impacts of fires. Furthermore, the paper reviews recent trends in fire-related research and technological advancements, such as remote sensing and GIS, in monitoring and managing forest fires. The paper concludes by emphasizing the need for integrated strategies that address both prevention and response to forest fires.*

Keywords: *Forest fires, human activity, fire prevention, forestry management, GIS, remote sensing, ecosystem protection, soil erosion, wildfire monitoring.*

Introduction

In the world and its various regions, the comprehensive analysis of forest land conditions based on the use of remote sensing data and geographic information systems (GIS) for digital and efficient management of forest resources is taking a leading position [1]. Modern remote sensing and GIS technologies are being used for geospatial analysis of forest management areas, determining the boundaries of forest plots, identifying plant species, creating and controlling their long-term data bases, and developing innovative methods [2], [3]. In this regard, taking into account the natural, socio-economic, and other agroecological conditions of our country's forest management areas, attention is being paid to the plant species in forest management lands and the decline in their numbers due to the consequences of forest fires, based on GIS technologies and remote sensing data [4], [5].

Legislative Analysis

In the Republic of Uzbekistan, the government-approved decrees and decisions implement measures related to the development of the economy and forestry, particularly comprehensive actions to determine the geographical locations of various plant land areas, and certain results have been achieved. The "New Uzbekistan Development Strategy for 2022-2026" includes important tasks, such as

"entering data from the state monitoring electronic database into a unified geographic information database." In the implementation of these tasks, including improving the placement system of forestry crops, scientific research is being conducted on developing methods of using modern remote sensing and geographic information system (GIS) technologies [6].

The Presidential Decree of the Republic of Uzbekistan on May 11, 2017, PF-5041 on the establishment of the State Forestry Committee of Uzbekistan, PF-5349 dated February 19, 2018, on measures to further improve the field of information technology and communications, PF-6061 dated September 7, 2020, on the improvement of land accounting and the state cadastre system, the Presidential Decree PQ-2966 dated May 11, 2017, on the establishment of the State Forestry Committee's activities, the Law of the Republic of Uzbekistan O'RQ-409 dated September 21, 2016, on "Protection and Use of Plant Life," the Law of the Republic of Uzbekistan O'RQ-475 dated April 16, 2018, amending and supplementing the "Forests" Law, the Cabinet of Ministers' Decision No. 66 on February 16, 2005, on "State Control over Land Use and Protection" and related regulations, and the approval of other regulatory legal documents related to this activity, are contributing to the implementation of these tasks.

Globally, significant achievements are being made in the study of ecological and technological processes and the technogenic impacts on them [7], [8]. At the same time, remote sensing methods are becoming more complex and gaining importance. The study of forest objects is one of the areas that require remote sensing techniques. In forest areas, the presence of wild fauna poses risks to studying the area, and road and other expenses create several obstacles to deep study of the forest. The solution to this issue could be the use of remote sensing [9], [10].

An analysis of scientific literature related to the field indicates that the methods of geospatial analysis for studying forest plant degradation using remote sensing have been examined in various scientific research works published in the Scopus database. The search was conducted using keywords such as "Remote sensing," "GIS," "Forest," and "Management." The results were then analyzed.

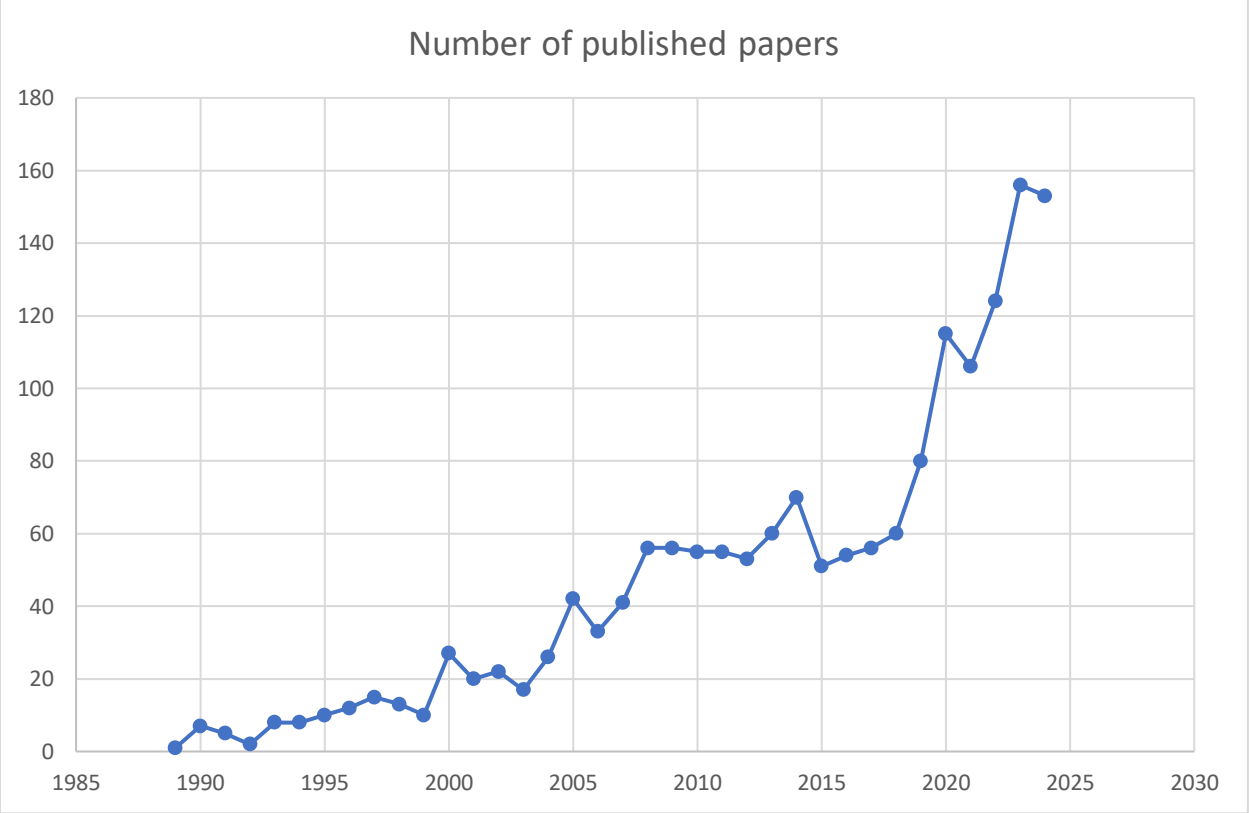

Figure 1. Number of articles published in the Scopus database from 1990 to 2025.

Conclusion

Among the many sources of threats to forests, fire is often considered the most dangerous. This danger is a real threat both to the forest area and to the adjacent population. Every year, thousands of people lose their homes due to forest fires, and hundreds of people die in these unfortunate events; additionally, tens of thousands of livestock perish. Fire destroys agricultural crops and leads to soil erosion, which in the long term may be even more catastrophic than the previously described unfortunate events. If the soil becomes infertile after a fire and heavy rain moistens it, large mudslides or landslides may occur.

According to calculations, every year:

- 10 to 15 million hectares of boreal or temperate forests burn.
- 20 to 40 million hectares of tropical rainforests burn.
- 500 to 1,000 million hectares of tropical and subtropical savannas, forest steppes, and open forests burn.

More than 90% of these fires are caused by human activities. Therefore, preventing and controlling fires should be a top priority in forestry activities.

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PEDAGOGICAL ASPECTS OF IMPROVING THE PROFESSIONAL PREPARATION OF STUDENTS FOR THE FORMATION OF SOCIAL COORDINATION IN CHILDREN

Abstract: *In preschool educational organizations, children are comprehensively prepared for school education. Among them, the development of children's speech is one of the most important. It is very important for them to increase their vocabulary, speak fluently, and be able to fully express and convey their thoughts.*

Keywords: *Education, personality, speech, teacher, toy, fiction, preparation, preschool education, story.*

In recent years, our republic has been developing the Concept for the Development of the Higher Education System until 2030, a set of measures aimed at creating additional conditions for the education and upbringing of young people, a normative framework for using the experience of international organizations in assessing the quality of education, and a practical framework for shaping the social adaptation of students based on social students. Raising the knowledge and skills of teaching staff to an international level has been identified as a priority.[1]

It is important to analyze the following pedagogical aspects of improving the professional preparation of students for the formation of social coordination in children:

- socialization and social education of the individual,
- development of the individual in a social environment;
- Philosophical and psychological-pedagogical concepts about the formation of personal experience as a relational system;
- the development of the child's personality as a learning subject, the essence of pedagogical technologies, their design methods and implementation mechanisms, providing an understanding of empirical and theoretical aspects in scientific research.

In improving the professional preparation of students for the formation of social adaptation in children, it is necessary to emphasize that children's speech has its own development is closely related to their activity and communication. The development of speech occurs in several directions: its practical use is improved in communication with other people, and at the same time, speech becomes the basis for the reconstruction of mental processes and a tool for thinking.

The acquisition of the mother tongue, which occurs in preschool age, is associated with the child's high activity in relation to language, as it involves the assimilation of its entire morphological system. This activity is expressed, in particular, in the creation of different words and word changes, compared to the forms that the child has mastered so far.

L.S. Vygotsky[2], M.M. Alekseeva[3], O.S. Ushakova[4], V.Í. Yashina[3] distinguish the following characteristics of children's speech development: According to this picture, it is possible to say that the child's mastery of grammar is also seen in the mastery of speech content. By preschool age, relatively few children are able to distinguish between separate words in speech. This ability develops slowly, but the use of special teaching methods can significantly accelerate this process. For example, with the help of external supports, children separate the words offered to them (except for prepositions and conjunctions).

- Grammatical structure of speech.
- - The speech of five-year-old children is rich in words representing all word groups. At this age, they are actively engaged in word formation, word modification and word formation, creating many neologisms.
- - Older school-age children make their first attempts to use grammatical tools voluntarily and analyze grammatical facts.
- - Five-year-old children also begin to master the syntactic aspects of speech. Of course, this is more difficult for them to do, and therefore adults help them identify cause-and-effect and temporal relationships in the study of objects and guide them.

- five-year-old children develop a critical attitude towards grammatical errors and the ability to control their own speech.

- at this age, the proportion of simple sentences, connected and connected sentences increases.

The most important thing is that they transfer the analytical methods formed with the help of external supports to actions without these supports. Thus, mental action is formed. This ability is very important, because it creates the basis for the child to master not only the individual forms of words, but also the relationships between words within a sentence. One of the pedagogical aspects of improving the professional preparation of students for the formation of social adaptation in children teaching to analyze the lexical features of speech.

To prepare students to work with the lexical aspects of children's speech.

1. To teach students to compare and contrast similar and different things in preparation for the formation of social adaptation in children (form, by color, size) and teaching to help in summarizing symbols and distinguishing the important ones from them, summarizing words free use, prepare to teach to group things by type.

2. To prepare students to develop the semantic aspect of speech in children: to select generalizing words, synonyms, antonyms, word meanings, clear and appropriate phrases, to use words in different meanings, to use adjectives, antonyms.

This indicates the paramount importance of the mastery of grammatical forms in the mother tongue. The peculiarity of this form of speech is that its content appears in context and is therefore understandable to the listener, who is either a strict observer of the situation or takes this into account. The child acquires contextual speech under the influence of systematic teaching.

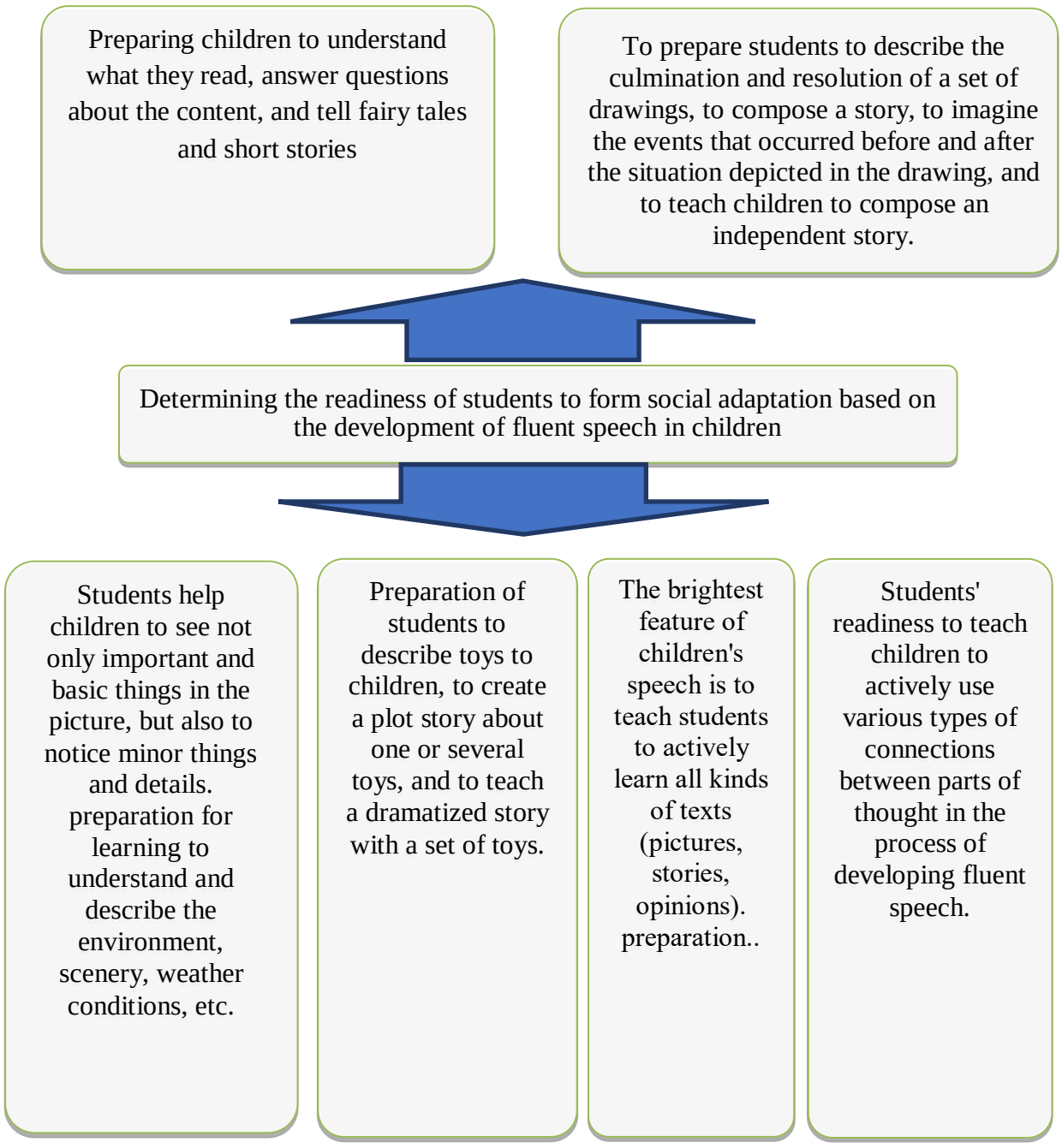

Figure 1.6. Determining the readiness of students to form social adaptation based on the development of fluent speech in children

In kindergarten classes, children learn to speak in a more meaningful way, depending on the situational context, and they develop a need for new means and forms of speech, which distinguishes them from the speech of adults. A preschool child takes only the first steps in this direction. The further development of fluent speech continues at school age.

In preparing students for the formation of fluent speech in preschool children, it is important to pay attention to the mastery of language as a means of communication. Conversational speech includes enough opportunities for the

formation of fluent speech, they do not consist of separate, unrelated sentences, but rather fluent fikr - story, news, etc. will be in the form In older preschool age, a child needs to explain to his peers the content of the planned game, the structure of the toy, and many other things. As colloquial speech develops, the situational aspects of speech decrease and the child moves to understanding with the help of language tools themselves. In this way, explanatory speech begins to develop. These features are taken into account when preparing students to form fluent speech in preschool children.

As the child grows, fluent speech forms are re-formed. The transition to contextual speech is an integral part of mastering the vocabulary and grammatical structure of the language.

- The development of fluent speech in students, older preschoolers;
- to answer questions sufficiently clearly, briefly or expanded (if necessary);
- to develop the ability to evaluate the ideas and answers of peers, supplement or correct them;
- to compose a descriptive or plot story on the proposed topic in a coherent and clear manner;
- to work on the basis of a sample;

to gather vocabulary to express one's emotional attitude to the things or events described in the story;

- to increase the share of common and complex sentences;
- critical attitude towards grammatical errors in children;

It is important for them to prepare for the formation of the ability to control their speech.

The content of the dictionary is a building material, and it can serve the purposes of communication and perception of reality only when words are added to the sentence according to the laws of the grammar of the native language.

According to scientists (L.S. Vygotsky[2], A.N.), after the age of three, a rapid assimilation of connected compound sentences with connectives occurs. These connectives, which express various types of dependence, indicates the rapid development of fluent speech forms.

According to K.I. Chukovsky[5], two From birth to five years old, a child has an amazing ability to perceive language, and it is precisely this, and the child's mental labor over language that creates the basis for such an intensive process. The process of active assimilation of the mother tongue occurs. Children's vocabulary development before school It is presented as evidence of the presence of a special language perception characteristic of a child at this age. The fact of word creation should be understood as a manifestation, a symptom of the child's mastery of language reality.

Students' professional preparation for the formation of social coordination in children the following skills are formed during improvement: skills to teach children to freely use and create shapes based on the meaning of important elements;

skills to teach independence in making new words;

observability, teaching skills to distinguish familiar things and events;

skills to learn to find distinguishing features.

Despite the numerous scientific works devoted to the psychology of speech and the attention that speech has recently attracted, the psychology of speech still remains an underdeveloped field, and many of its central problems need to be re-examined. Determining the ownership of certain stages in the development of speech, the quality changes in its important features are taken as a basis for it. In these features, both the main functions of speech - the communicative function of message and communication, as well as its expressive (significant), spiritual (semantic) function - appear in a single whole and are intertwined. Thanks to these functions, speech becomes a form of existence and a means of social adaptation [6]. Ye.O. Smirnova[7, 8] believes that speech is a key factor in the development of speech and mental development of preschool children, one of the sources of acquiring knowledge about the surrounding reality.

Children with problems in social adaptation have difficulty interacting with the social environment, due to the changes that are taking place, becoming more complicated. the ability to respond to the growing demands decreases. They face great difficulties in achieving their goals within the existing norms and rules.

In doing so, we believe that in preparing students for the formation of social cohesion in senior school age, the following should be given importance. That is, students should: (see Figure 1)

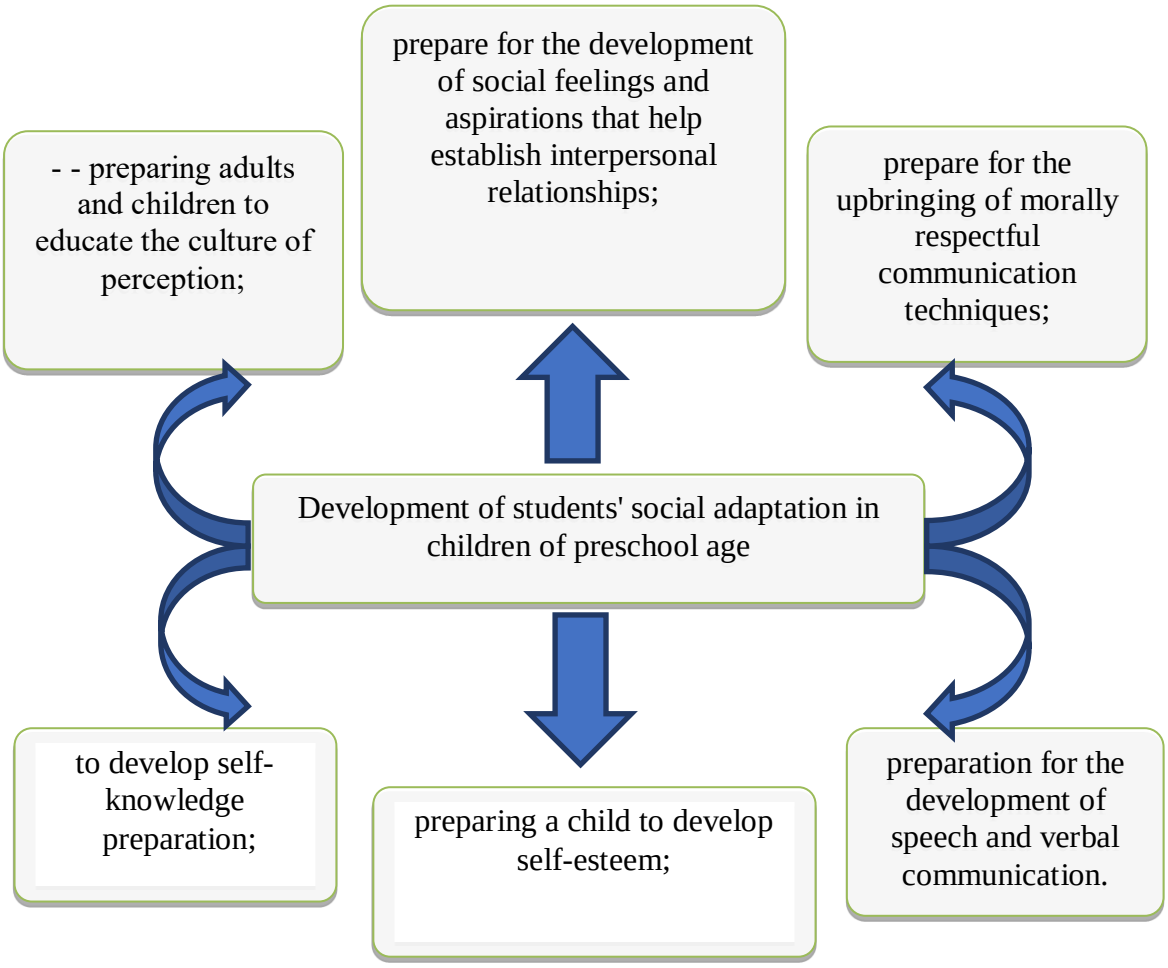

Figure 1. Developing social coordination in preschool children

At preschool age, speech develops rapidly as an activity and tool of thought, as an innate characteristic of a person.

During the first seven years of a child's life, there are three stages of speech formation, these stages depend on the needs, motives and the type of basic activity that determines the means of communication [6].

The first stage is the period before oral speech, which is characterized by emotional-mimic and situational-personal communication.

The second stage is the stage of speech formation, in which the means of communication change - the object-action, and the form of communication changes - the situation-action.

In the third stage, the child "starting from the third year of his life" uses tools that serve to perform communicative and semantic tasks that organize the fluency of speech.

A speech reflecting all the important connections in social adaptation is realized. The fluency of the speech indicates that the expression of the speaker's thoughts in the speech is suitable from the point of view of comprehensibility for the listener. Speech without social adaptation may not be fluent for two reasons:

these relations are not understood and do not exist in the speaker's mind, or even if they exist, the relations are not sufficiently defined in his speech.

During the preparatory period of social adaptation, direct emotional communication with older people is carried out. In emotional communication, an adult and a child do not express thoughts, but different feelings (pleased, not satisfied). Gradually, the relationship between the adult and the child is richer, the range of things that the child encounters expands, and the words that previously expressed feelings becomes the name of things and actions. The child begins to control his vocal organs, acquires the ability to understand the speech of others. Understanding speech is of great importance for the entire subsequent development of the child and is an initial stage in the formation of communicative activity.

Based on social interaction, it is necessary to select the content that should be presented in speech, to use the necessary language tools (tone, logical stress) It is taught. Social adaptation serves to form one's thoughts while performing tasks of social communication and influence on others. Social adaptation rebuilds all mental processes of a person, they reach the level of voluntary, conscious activity. Social adaptation is a prerequisite and a necessary component of the implementation of theoretical, practical, collective and individual activities.

Based on social interaction, the child gradually masters speech, developing in a wide range of activities that are social and specific to his nature, in cooperation with adults and peers. In the process of implementing increasingly complex activities, at each stage of the child's development, more and more tasks (cognitive, regulatory, etc.) arise. A child develops means of communication (language signs), as well as methods and ways of communication (Selívyorstov[9]).

Application to the categories of social adaptation in the formation of children as a person, as a subject of activity, and in the education of their individuality they do The development process of a person, first of all, is connected to certain historical conditions in his social life, the formation of an individual as a whole. studied from the point of view. In social adaptation, communication with adults is the basis of adaptation of the child to the social environment in which he grows up, the culture, values of this environment, it happens as a method of mastering goals, learning the actions needed in life. As a result of social interaction, the child's cognitive activity develops and his inner world is formed under the influence of his personal qualities. From the point of view of this inner world, the child perceives the environment and establishes a style of communication with it in the broad sense of the word. According to the scientist, social interaction has a clearly expressed communicative essence.

Social interaction is central to the mutual psychological influence of people on each other. Social interaction is considered as a mechanism for uniting people into groups, as a condition for the socialization of the individual. The role of social interaction in the development and formation of a person is expressed in the successful implementation of colorful and rich relationships with people around him, the development of the person. Social interaction is the main condition for the

perception of reality, the formation of a person as a person and the integration into society.

Speech abilities may not be sufficiently formed to transition to a new type of activity - educational activity. For example, researchers Ye.M. Mastyukova[10], As is known, dialogical speech is a form of fluent speech used to organize a speech conversation One of the main forms. Dialogic speech is not just a sequence of questions and thoughts, connected with each other, constructed in a manner appropriate to the communication situation, and expressed with exclamations, incomplete or broken sentences, but rather a reflection of all the achievements of the child in mastering his native language. as if he had collected it for himself It is a speech[6].

Social interaction develops gradually, along with the child's growth. For social interaction to develop properly, the cerebral cortex must reach a certain maturity and the child's senses - hearing, vision, smell, touch - must also be sufficiently developed. For the formation of social interaction, it is very important that speech and auditory analyzers are developed. All this is largely dependent on the environment. If the child does not receive new vivid impressions, if conditions are not created that contribute to the development of movements and speech, social interaction will also slow down.

For social adjustment, the child's nervous activity, mental processes (attention, memory, imagination, thinking) and physical (somatic) condition are of great importance. Social adaptation is one of the strongest factors and incentives for the child's development. This stems from the extraordinary importance of social interaction in human life. With the help of social interaction, thoughts and desires are expressed, life experience is transmitted, actions are coordinated. Speech is the main means of social interaction, communication between people, and at the same time, a necessary basis and tool of thinking itself. Thinking processes (analysis, synthesis, comparison, generalization, abstraction, etc.) develop and improve in the process of speech acquisition. General intellectual development also depends on the level of development of social coordination. Social adaptation is a means of managing mental activity and behavior and regulates emotional experiences. The development of social adaptation has a great impact on the formation of the personality, will characteristics, character, views, professions. It is possible to say that, based on correct speech, the child adapts easily in the social environment. Speech reflects the social environment in which a child grows.

Social interaction - the highest form of communication with people - also involves the use of language. Social interaction activates the processes of speech perception, develops the emotional sphere, and improves behavior.

In our opinion, communication is a leading factor in the social development of a child. In the process of communication, a child forms an image of people and himself, plays a decisive role in the child's self-understanding and self-evaluation, and as a result, he forms his own attitude towards the world.

The social adaptation process of a preschooler is greatly influenced by an adult as a possessor of social experience and values.

The first and most important link in the general system of social interaction education. Mastering the mother tongue is one of the most important achievements of preschool age. It is precisely preschool age that is especially sensitive to the mastery of speech. Therefore, the process of social coordination is considered as the general basis for the upbringing and education of children in modern preschool education. In the formation of social adaptation, it is not from the point of view of preparation for kindergarten for school, but within the age limit covered by this kindergarten. it is necessary to look at the quality of the educational institution that completes the child, his vital needs and his specific duties and aspirations.

The main tasks of the preschool educational organization, according to V.N. Gurov[11, 12, 13], are the following:

- protecting the lives and strengthening the health of children;
- ensuring the mental, personal and physical development of the child;
- making the necessary corrections to deviations in the child's development;
- introducing children to universal human values;
- cooperation with the family to ensure the all-round development of the child.

So, preschool education is of great importance in the socialization and social education of children. Preschool education provides a wide range of services, taking into account the age-specific and individual characteristics of the child, the needs of the family and society as a whole.

As everyone knows, the preschool period of a child is the most productive for education and upbringing, and the task of the pedagogical teams of preschool educational institutions is to form the individual activity of each child in the family and kinship conditions and in the environment of the preschool educational institution. positive views, its It consists of preserving, strengthening, and further developing mental and physical characteristics.

The leading process in social adaptation is education, because it combines three functions. The process of social adaptation means a specially organized, goal-oriented cooperation of pedagogues and educators aimed at solving the tasks of education, upbringing and development.

On the basis of social adaptation, it is necessary to develop the child's social powers and prepare him for social life from the point of view of the higher goal of society, which retains creative, creative power and expresses the goal of humanity. The child should learn not only about the things that are valuable to a particular group of people in a particular region at a particular time, but also about universal human values that are not transient.

A.S. Makarenko[14] considered that the future of a child depends largely on his upbringing in the pre-school years, and considered not only the effectiveness of schooling, but also, to a certain extent, his development as a person, and his participation in socially useful labor activity. also took into account their successes.

Activities aimed at social adaptation include:

- activities related to the adaptation of children to the conditions of a preschool educational organization;

- a gradual increase in the load of educational material from the beginning to the middle of the year;

- an increase in the ability of children to adapt under the influence of the daily routine, flexible activities and exercises, etc.

In preschool pedagogy, social adaptation is defined, first of all, as a medical and pedagogical problem. The problem of social adaptation of preschool children, the characteristics of the child's behavior during the first days spent in a new environment depend on his personal characteristics, these characteristics affect communication with adults and peers, and his relative attitude to various types of activities.

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QURUQ ZOVURLAR TUSHUNCHASI VA AHAMIYATI

Annotatsiya. *Quruq zovurlar melioratsiya tizimining muhim elementlaridan biri bo'lib, ortiqcha suvni tuproqdan uzoqlashtirish va uning hosildorligini oshirishda muhim rol o'ynaydi. Ushbu maqolada quruq zovurlar, ularning turlari va qo'llanilish sohalari haqida ma'lumot beriladi.*

Kalit so'zlar. *Zovur, sho'rlanish, kanal, namlik, unumdorlik, suv, nasos,* ***geosintetik.***

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DRY WATER-FURROWS: CONCEPT AND IMPORTANCE

Annotation. *Dry* ***water-furrows*** *are an essential element of the melioration system, playing a crucial role in removing excess water from the soil and improving its fertility. This article provides information about dry* ***water-furrows****, their types, and areas of application.*

Keywords: Water-furrow*, salinization, canal, moisture, fertility, water, pump, geosynthetic.*

Quruq zovurlar biologik zovurlar tarkibiga kirib, sug'orish maydonlaridagi ortiqcha namni bug'latish orqali tuproqni sog'lomlashtirishga xizmat qiladi. Ushbu zovurlar tabiiy ravishda yoki sun'iy usulda yaratiladi. Quruq zovurlar yordamida yer osti suvlari baland bo'lgan hududlarda suvni kamaytirish va sho'rlanishni oldini olish mumkin.

Quruq zovurlar sug'oriladigan yerlarda ortiqcha namlikni kamaytirish va tuproq unumdorligini oshirishda muhim rol o'ynaydi. Ular biologik zovurlar tarkibiga kirib, tabiiy usullar orqali tuproqdagi ortiqcha suvni bug'latish va sho'rlanishni oldini olishga xizmat qiladi.

Quruq zovurlarni tashkil etishda quyidagi usullar qo'llaniladi:

1. Daraxtzorlar barpo qilish: Sug'orish maydonlarida maxsus daraxtzorlar yaratish orqali ortiqcha suvni bug'latish mumkin. Masalan, tol, terak, tut, o'rik va jiyda kabi daraxtlar suvni samarali bug'latadi.
2. O'tli ekinlarni almashlab ekish: Almashlab ekish tizimida o'tli ekinlardan foydalanish tuproq namligini kamaytirishga yordam beradi.
3. Maxsus gidrotexnik inshootlar: Ba'zi hollarda, ortiqcha suvni chiqarib yuborish uchun maxsus gidrotexnik inshootlar quriladi.

Lekin, fanda birqancha zamonaviy yondashuvlar ham bor.

Quruq zovurlar sug‘oriladigan yerlarda ortiqcha namlikni kamaytirish va tuproq unumdorligini oshirishda muhim rol o‘ynaydi. Ular biologik zovurlar tarkibiga kirib, tabiiy usullar orqali tuproqdagi ortiqcha suvni bug‘latish va sho‘rlanishni oldini olishga xizmat qiladi.

Ushbu turdagi zovurlarni tashkil etishda zamonaviy yondashuvlar tuproqning ortiqcha namligini kamaytirish va sho‘rlanishni oldini olishda muhim ahamiyatga ega. Ushbu yondashuvlar ekologik barqarorlikni ta'minlash va qishloq xo‘jaligi mahsuldorligini oshirishga qaratilgan:

1. **Innovatsion gidrotexnik inshootlar**: Ortib ketgan suvni samarali boshqarish uchun zamonaviy texnologiyalar asosida qurilgan drenaj tizimlari va nasos stansiyalari qo‘llaniladi. Bu inshootlar suvni tez va samarali ravishda chiqarib yuborishga yordam beradi.

2. **Geosintetik materiallardan foydalanish**: Tuproqning suv o'tkazuvchanligini oshirish va eroziyani oldini olish maqsadida geotekstil va geomembranalar kabi materiallar qo‘llaniladi. Bu materiallar tuproqning strukturaviy yaxlitligini saqlashga yordam beradi.

3. **Masofaviy monitoring tizimlari**: Dronlar va sun'iy yo‘ldosh tasvirlari yordamida zovurlar holati va samaradorligi kuzatilib, real vaqt rejimida ma'lumotlar olinadi. Bu yondashuv muammolarni erta aniqlash va tezkor choralar ko‘rishga imkon beradi.

4. **Mahalliy sharoitlarga mos o‘simliklarni tanlash**: Har bir hududning iqlim va tuproq xususiyatlariga mos keladigan, suvni samarali bug‘latadigan o‘simlik turlarini ekish orqali quruq zovurlarni tashkil etish. Bu usul suv resurslaridan oqilona foydalanishga yordam beradi.

Zamonaviy yondashuvlar afzalliklar quyidaagilardan iborat:

- **Ekologik barqarorlik**: Tabiiy resurslardan oqilona foydalanish va atrof-muhitga zarar yetkazmaslik orqali ekologik muvozanatni saqlash.
- **Iqtisodiy samardorlik**: Zamonaviy texnologiyalar va yondashuvlar yordamida qishloq xo‘jaligi mahsuldorligini oshirish va xarajatlarni kamaytirish.
- **Resurslarni tejash**: Suv va tuproq resurslaridan samarali foydalanish orqali ularning isrof bo‘lishining oldini olish.

Quruq zovurlarni tashkil etishda zamonaviy yondashuvlarni qo‘llash orqali tuproqning meliorativ holatini yaxshilash, qishloq xo‘jaligi mahsuldorligini oshirish va ekologik barqarorlikni ta'minlash mumkin.

Shu o’rinda daraxt turlarining suv bug‘latish qobiliyatiga etibor qaratamiz. Turli daraxt turlari suvni bug‘latish qobiliyatiga ega. Masalan, tol daraxti bir gektarda 91 992 litr suvni bug‘latishi mumkin, terak esa 82 949 litr suvni bug‘latadi. Sho‘rlangan yerlarda jiyda, botqoqlangan hududlarda tol va terak, cho‘l va sahro zonalarida esa saksovul ekish tavsiya etiladi.

Ammo quruq zovurlarni loyihalashda e'tibor beriladigan omillar mavjud.

- **Tuproqning gidrogeologik holati**: Tuproqning suv o'tkazuvchanligi va sizot suvlarining darajasi aniqlanadi.

- **O‘simliklarning suv bug‘latish qobiliyati**: Tanlangan o‘simliklarning suvni bug‘latish qobiliyati va ularning muayyan hududga mosligi o‘rganiladi.
- **Tuproqning sho‘rlanish darajasi**: Tuproqdagi tuz miqdori aniqlanib, unga mos o‘simliklar tanlanadi.

Dala maydonlariga quruq zovurlarni tashkil etish quyidagi afzalliklarga ega:

- **Tuproq unumdorligini oshirish**: Ortib ketgan namlikni kamaytirish orqali tuproqning havo va suv rejimi yaxshilanadi, bu esa ekinlarning o‘sishiga ijobiy ta'sir ko‘rsatadi.
- **Sho‘rlanishni oldini olish**: Ortib ketgan suvni bug‘latish orqali tuproqdagi tuzlarning yuqori qatlamga chiqishi oldini olinadi.
- **Ekologik barqarorlikni ta'minlash**: Tabiiy usullar yordamida ortiqcha suvni boshqarish atrof-muhitga zarar yetkazmasdan meliorativ holatni yaxshilash imkonini beradi.

Xulosa qilib aytganda, quruq zovurlar sug‘oriladigan yerlarda ortiqcha namlikni kamaytirish, sho‘rlanishni oldini olish va tuproq unumdorligini oshirishda samarali vosita hisoblanadi. Ularni to‘g‘ri loyihalash va qo‘llash orqali qishloq xo‘jaligi mahsulotlarining hosildorligini oshirish mumkin.

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THE IMPACT OF IRRIGATION ON SOIL AND THE EXTERNAL ENVIRONMENT

Annotation. *This article examines the impact of irrigation on soil condition, water resources, and the ecological environment. It analyzes the effects of irrigation on soil moisture balance, composition, and structure, as well as on salinization, mineral leaching, and the activity of microorganisms. Additionally, the article highlights the impact of irrigation on water resources and ecological balance. Furthermore, the importance of efficient irrigation technologies, improving drainage systems, and water-saving approaches is emphasized. As a result, it is shown that proper organization of the irrigation process can help maintain soil fertility and protect the ecological balance.*

Key words*: soil, salinity, alkalization, resource, erosion, pesticide, drainage, chemical fertilizers*

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SUG'ORISHNING TUPROQ VA TASHQI MUHITGA TA'SIRI

Annotatsiya. *Ushbu maqolada sug'orishning tuproq holati, suv resurslari va ekologik muhitga ta'siri ko'rib chiqilgan. Bunda sug'orishning tuproqning namlik balansi, tarkibi, strukturasiga ta'siri, shuningdek, sho'rlanish, minerallar yuvilishi va mikroorganizmlar faoliyatiga ta'siri tahlil qilingan. Bundan tashqari, sug'orishning suv resurslari va ekologik muvozanatga ta'siri ham yoritilgan. Bundan tashqari maqolada sug'orishning samarali texnologiyalari, drenaj tizimlarini yaxshilash va suvni tejashga asoslangan yondashuvlarning ahamiyati ta'kidlangan. Natijada, sug'orish jarayonini to'g'ri tashkil etish orqali tuproq unumdorligini saqlab qolish va ekologik muvozanatni himoya qilish mumkinligi ko'rsatilgan.*

Kalit so'zlar: *tuproq, sho'rlanish, alkalizatsiya, resurs, eroziya, pestitsid, drenaj, kimyoviy o'gitlar*

Sug'orish qishloq xo'jaligi uchun muhim jarayon bo'lib, tuproq unumdorligini oshirish va ekinlar hosildorligini ta'minlashda katta ahamiyatga ega. Ammo, sug'orishning noto'g'ri tashkil etilishi tuproq va tashqi muhitga salbiy ta'sir ko'rsatishi mumkin.

Sug‘orishning tuproq unumdorligi va tarkibiga ta’siri quyidagi omillar orqali kuzatishimiz mumkin:

1. Namlik balansi: Sug‘orish tuproqning namligini oshiradi, bu esa o‘simliklarning optimal rivojlanishi uchun zarurdir. Ammo, ortiqcha sug‘orish tuproqning sho‘rlanishiga va botqoqlanishiga olib kelishi mumkin.
2. Tuproq tarkibi va strukturasining o‘zgarishi: Suv tuproqdagi minerallarni yuvib, ularning tarkibiy o‘zgarishiga sabab bo‘ladi. Noto‘g‘ri sug‘orish natijasida tuproq zichlashib, havo almashinuvi yomonlashishi mumkin.
3. Eroziya jarayonlari: Sug‘orish suvi noto‘g‘ri taqsimlangan hollarda tuproq eroziyasini kuchaytirishi mumkin. Ayniqsa, qiyalik hududlarda sug‘orish suvi tuproqni yuvib ketib, unumdor qatlamni yo‘qotish xavfini oshiradi.
4. Sho‘rlanish va alkalizatsiya: Sug‘orish natijasida tuproqda ortiqcha tuzlar yig‘ilib, hosildorlik pasayishiga olib keladi. Bu, ayniqsa, yer osti suvlari yuqori bo‘lgan hududlarda muhim muammo hisoblanadi.

Sug‘orish jarayonisa namlik balansi – tuproqning namligini optimal darajada ushlab turish jarayoni bo‘lib, ekinlarning o‘sishi va rivojlanishi uchun muhim hisoblanadi. Namlik balansi quyidagi omillar bilan belgilanadi:

1. Sug‘orish va yog‘ingarchilik miqdori – Sug‘orish suvining va tabiiy yog‘ingarchilikning miqdori tuproqning namlik darajasini shakllantiradi.
2. Tuproqning suv ushlash qobiliyati – Har bir tuproq turi o‘zining namlikni saqlash va o‘simliklarga yetkazish qobiliyatiga ega. Qumloq tuproqlar suvni kam ushlab turadi, og‘ir loyli tuproqlar esa namlikni uzoq saqlaydi.
3. Ekinlarning suv talabi – Har bir o‘simlik turi o‘ziga xos suv talabiga ega. Masalan, paxta va bug‘doy o‘simliklari suvga bo‘lgan ehtiyoji jihatidan farqlanadi.
4. Buxarilish va infiltratsiya – Sug‘orishdan keyin suvning bir qismi atmosferaga bug‘lanib ketadi, bir qismi esa yer osti qatlamlariga singib ketadi. Bu jarayonlar namlik balansiga bevosita ta’sir ko‘rsatadi.
5. Sug‘orish usuli – Tomchilatib sug‘orish va yomg‘irlatib sug‘orish kabi ilg‘or usullar namlikni saqlashga yordam beradi, an’anaviy oqim sug‘orish esa suv isrofini oshirishi mumkin.

Bu jarayonda namlik balansi ekinlarning samarali o‘sishi uchun zarur bo‘lib, sug‘orish me’yorlari va muddatlariga rioya qilish orqali uni boshqarish mumkin. Bunda sug‘orish tuproq unumdorligini oshirish bilan birga, uning fizik, kimyoviy va biologik tarkibiga sezilarli ta’sir ko‘rsatadi. Agar sug‘orish noto‘g‘ri amalga oshirilsa, bu tuproqning degradatsiyasiga olib kelishi mumkin.

Doimiy sug’orish natijasida tuproqning kimyoviy va fizik xususiyatlari o’zgarib boradi. Bu o’rinda quyidagi xolatlar kuzatiladi:

✓ **Minerallar yuvilishi** – Sug‘orish natijasida suv bilan birga tuproq tarkibidagi ozuqa moddalar (azot, fosfor, kaliy) yuvilib, unumdorlik pasayishi mumkin.

✓ **Sho‘rlanish jarayoni** – Noto‘g‘ri sug‘orish va drenaj tizimining yetishmovchiligi natijasida tuproq qatlamida tuzlar to‘planadi, bu esa ekinlar o‘sishiga salbiy ta’sir qiladi.

✓ **pH muvozanatining buzilishi** – Sug‘orish suvi tarkibidagi tuzlar va minerallar tuproqning kislotali yoki ishqoriy xususiyatlarini o‘zgartirishi mumkin. Bu esa mikroorganizmlar faoliyatiga va o‘simliklarning oziqlanishiga ta’sir qiladi.
Tuproqning fizik xususiyatlari ham sug‘orish natijasida o‘zgaradi:
✓ **Tuproq zichlashishi** – Ortiqcha sug‘orish natijasida tuproq tarkibidagi havo miqdori kamayib, uning zichligi ortadi. Bu ildizlarning kislorod bilan ta’minlanishini qiyinlashtiradi va o‘simliklarning o‘sishiga to‘sqinlik qiladi.
✓ **Suvning infiltratsiyasi pasayishi** – Suv noto‘g‘ri taqsimlanganda, tuproqning suv o‘tkazuvchanligi kamayadi va yer yuzasida qattiq qatlam hosil bo‘lishi mumkin. Bu esa suvning chuqur qatlamlarga singishini qiyinlashtiradi.
✓ **Eroziya xavfi** – Noto‘g‘ri sug‘orish, ayniqsa qiyalik hududlarda, tuproqning unumdor qatlamini yuvib ketishi va eroziya jarayonlarini kuchaytirishi mumkin.
Bundan tashqari sug’otishning biologik jihatdan tuproq mikroflorasi va mikroorganizmlar faoliyatiga ham ta’siri mavjud bo’lib, quyidagi jarayonlarda muhum o’rin tutadi:
✓ **Foydali mikroorganizmlar kamayishi** – Tuproqdagi namlik darajasining o‘zgarishi foydali bakteriyalar va zamburug‘larning hayot faoliyatini cheklashi mumkin.
✓ **Organik moddalarning parchalanishi** – Tuproqdagi mikroorganizmlar suv yetishmovchiligida yoki ortiqcha namlikda organik moddalarni samarali parchalay olmaydi, bu esa unumdorlikka salbiy ta’sir qiladi.
✓ **Chirish jarayonlari kuchayishi** – Botqoqlangan tuproqlarda anaerob mikroorganizmlar ko‘payib, tuproqda zararli gazlarning to‘planishiga olib kelishi mumkin.

Sug’orish jarayoni tuproq eroziyaga ham sezilarli ta’sir qiladi. U qishloq xo‘jaligidagi eng muhim jarayonlardan biri bo‘lsa-da, noto‘g‘ri amalga oshirilganda tuproq eroziyasini kuchaytirishi mumkin. Sug‘orish eroziyasi, ayniqsa, yuvilishga moyil bo‘lgan tuproqlarda, qiyalik hududlarda va noto‘g‘ri sug‘orish tizimlarida jiddiy muammolarni keltirib chiqaradi.

Xulosa o’rnida shuni ta’kidlashimiz mumkinki **s**ug‘orish tuproq tarkibi va strukturasiga sezilarli ta’sir ko‘rsatadi. Agar sug‘orish me’yoriga amal qilinmasa, bu tuproq unumdorligining pasayishiga, sho‘rlanish, zichlashish va eroziya jarayonlarining kuchayishiga sabab bo‘lishi mumkin. Shuning uchun sug‘orishning samarali texnologiyalaridan foydalanish, drenaj tizimlarini yaxshilash va sug‘orish suvining tarkibini nazorat qilish muhim ahamiyat kasb etadi. Bundan tashqari sug‘orish tuproq unumdorligini oshirish va qishloq xo‘jaligi mahsulotlarini ko‘paytirishda muhim rol o‘ynaydi. Biroq, noto‘g‘ri sug‘orish tuproq eroziyasi, sho‘rlanish, suv resurslarining kamayishi va ekologik muvozanatning buzilishiga olib kelishi mumkin. Shu sababli, sug‘orish tizimlarining barqaror va samarali ishlashi uchun suvni tejashga asoslangan ilg‘or texnologiyalarni joriy etish muhim ahamiyat kasb etadi. Sug‘orish jarayonining ekologik jihatlarini inobatga olish orqali barqaror qishloq xo‘jaligi rivojiga erishish mumkin.

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BOSHLANG‘ICH SINF O‘QUVCHILARINI INNOVATSION YONDASHUVLAR ASOSIDA IJODIY TASAVVURLARINI RIVOJLANTIRISH

Annotatsiya: *Ushbu maqola innovatsion yondashuvlar asosida o‘quv mashg‘ulotlari, sinfdan tashqari mashg‘ulotlarni tashkil etish orqali boshlang‘ich sinf o‘quvchilarida ijodiy tasavvurlarini rivojlantirish, mashg‘ulot o‘tkazish tizimini tashkil etish keng yoritib berilgan.*

Tayanch so‘z va iboralar: *o‘quv mashg‘uloti, innovatsion yondashuv, tasavvur, ijodiy tasavvur, tizim, mashg‘ulot o‘tkazish tizimi.*

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DEVELOPMENT OF CREATIVE IMAGINATION IN PRIMARY CLASS STUDENTS BASED ON INNOVATIVE APPROACHES

Abstract: *The article presents a comprehensive overview of the development of creative imagination in primary school students through the organization of educational and extracurricular activities based on innovative approaches, as well as the organization of the educational system.*

Key words: *training, innovative approach, imagination, creative imagination, system, training delivery system.*

Eng yoqimli narsa — noma’lum cho‘qqilarni egallash,
bu go‘zallik va ilm — fandagi yagona haqiqat
A. Eynshteyn.

Jamiyatning ma’naviy salomatligini ta’minlashda ta’lim – tarbiya o‘chog‘i bo‘lgan maktab muhim rol o‘ynaydi. Dunyo imoratlari ichida eng ulug‘i maktab bo‘lsa, kasblarning ichida eng sharaflisi o‘qituvchilik va murabbiylikdir. Har bir ustoz, har bir pedagog yosh avlodni ko‘p asrlik milliy madaniyatimiz va tariximiz, shuningdek zamonaviy fan-texnika yutuqlari asosida tarbiyalash ishiga o‘z hissasini qo‘shishi, samarali maktab poydevorini qurishi, mustahkamlashi lozim. Bolaning ongi va tafakkuri endi shakllanib kelayotgan boshlang‘ich sinflarda o‘qituvchining mahorati, uning zamonaviy texnologiyalarni ta’lim jarayoniga mohirona tadbiq eta olishi, ta’limning yangi-yangi yo‘l va usullarini izlashi, ilg‘or pedagogik tajribalardan ijodiy foydalana olishi juda muhimdir. Shuning uchun ham boshlang‘ich sinf o‘quvchilarini ijodiy tasavvurlarini rivojlantirish hamda mustaqil

fikrlashga o‘rgatishda innovatsion ta’lim texnologiyasidan foydalanish, zamonaviy pedagogik texnologiyalarni amaliyotga joriy etishga tayyorlash bugungi boshlang‘ich ta’lim oldiga qo‘yilgan muhim talablardan biridir. Chunki zamonaviy pedagogik texnologiyalar, birinchidan, o‘quvchilarni bilim, ko‘nikma va malakalarni oson va qiziqib o‘rganishlari uchun imkoniyat yaratsa, ikkinchidan, o‘qituvchining ham professional o‘sishiga, ham ma’naviy rivojlanishiga yordam beradi. Ta’limning bugungi vazifasi o‘quvchilarni kun sayin oshib borayotgan axborot oqimidan oqilona foydalanishga o‘rgatish, uzluksiz o‘rganish uchun ma’qul muhit shart-sharoit, yaratishdan iborat. Zero o‘qituvchining o‘zi ham doimiy ravishda o‘z ustida ishlashi, pedagogik mahoratni uzluksiz oshirib borishi, jahon va milliy pedagogik meros hamda ilm-fan yutuqlaridan ijodiy foydalangan holda ta’lim jarayonini takomillashtirib borishi lozim[1].

Boshlang‘ich sinf darslarida innovatsion yondashuvlar asosida darslarni tashkil etish - bu o‘quvchilarni ijodiy tasavvurlarini rivojlantirishga, faolligiga, erkin va mustaqil fiklashiga undaydi. Innovatsion yondashuvlar asosida darslarni tashkil etish orqali o‘quvchilarda bilim olish bu - qiziqarli mashg‘ulotga aylanadi.

Har bir darsda o‘qituvchi innovatsion yondashuvlar asosida bola qobiliyati uchqunlarini alangalata oladigan kichik ixtiroday o‘tishi zarur. Atrofdagi olam va o‘zini anglashdagi kichik yutuqlar ham butun o‘quv faoliyatini g‘aroyib va maftunkor qiladi. Bolalar uchun sinfdoshlari oldida o‘zini ko‘rsata olishi, nimalarga qodirligini isbotlay olishi juda muhim qirra hisoblanadi. Buning uchun ularga imkoniyatlar yaratish zarur. Sinfda «maqtanchoqlar kuni»ni e’lon qilib: unda har bir bola o‘z ijodiy ko‘nikmalarini va yutuqlarini ko‘rsata oladi. Tavsiya etilgan ish uslublarini amaliyotda qo‘llagan ota – onalar va bolalar ularning foydali tomonlarini sinfdan tashqari o‘tkazilgan tadbirlarda va ota – onalar majlislarida o‘z tasdig‘ini topishga yordam beradi[2, 136-b.].

1-sinfdagi mashg‘ulotlar innovatsion yondashuvlar asosida tasavvur yordamida sirli bilimlar mamlakatiga tuganmas sayoxat tarzida tashkil qilish mumkin. O‘quvchilar dastlabki hayolot usullarini o‘rganishadi va bularning asosida qiziq voqealar, hikoyalar, topishmoqlar, she’r va ertaklar yuzaga keladi. Bolalar ijodiyoti o‘quv jarayoniga bog‘liq ravishda borgan sari boshqariluvchan bo‘lib boraveradi. O‘quv yilining oxiriga kelib o‘quvchilar mustaqil ravishda hikoya va ertak tuzish usullarini yetarli darajada o‘zlashtirgan bo‘ladi, hamda tizimlarning ichki tuzilishi bilan tanishib, ularning bo‘linmalari va nima uchun xizmat qilishini o‘rganish uchun dastlabki qadamlarni qo‘ygan bo‘lishadi.

2-sinfda innovatsion yondashuvlar asosida o‘tkazilgan o‘quv mashg‘ulotlarida o‘quvchilar o‘zlashtirgan bilimlariga tayanib o‘quv faoliyati ko‘nikmalarini mustaqil bajara oladilar. O‘quv yili so‘ngida o‘quvchilar dars mavzusi bilan bog‘liq tayanch so‘z va tushunchalar asosida kichik o‘quv hikoya, voqea, ertaklarni tuza oladigan bo‘lishadi. Bu davrda bolalar mustaqil ravishda tizimlarni topish, ularning qanday bo‘limlardan tuzilganini, qanday xususiyatlarga va belgilariga ega ekanligini, nima uchun xizmat qiladi va boshqa tizimlar orasidagi bog‘liqligini anglab yetishi zarur.

3-sinfda innovatsion yondashuvlar asosida o‘tkazilgan o‘quv mashg‘ulotlari bo‘yicha o‘quvchilarda faoliyat muhiti turli-tuman bo‘ladi. Bolalar darslikdagi mavzular asosida tuzishgan yangi o‘quv hikoyasini yoki turli fanlarga bog‘liq ertaklardan yangi «Ertaklar kitobi» shakllanadi. Tizimlarni bo‘limlarga bo‘lish va tizimlararo bog‘liqlik ko‘nikmasi avtomatik darajaga yetkaziladi. 3-sinf o‘quvchilari faoliyatining asosiy yo‘nalishi kartotekalar yig‘ishni izchilligini bila olishlaridir. O‘qituvchi o‘quvchilarga har kungi axborat oqimidan o‘z faoliyatlariga foydali bo‘lgan ma’lumotni tanlab olishdek sermashaqqat ishni o‘rgatish, 3-sinf o‘quvchilarining qiziqishlari turli-tuman bo‘lib berayotgan savollarga javoblari esa turli soxalardan bo‘lishi mumkin.

4-sinfda o‘qituvchilar tomonidan innovatsion yondashuvlar asosida tashkil etgan o‘quv mashg‘ulotlari bo‘yicha o‘quvchilar oson va erkin holda turli o‘quv hikoyalari va ertaklarini tuza oladilar. Ular orasida maktab dasturiga mos «Ertaklar kitobi» tuziladi. O‘quvchi tizim bo‘limlarini saralash va xususiyatlarini erkin holda amalga oshiradi. Lekin 4-sinfda asosiy ish tadqiqotchilik faoliyati va kartoteka tuzishga qaratilgan bo‘ladi.

Innovasion yondashuvlar asosida boshlang‘ich sinf o‘quvchilarida ijodiy tasavvurlarini rivojlantirish dasturi bo‘yicha axborot bloklari va dars qurilmasida malaka va ko‘nikmalarni murakkab mavzularni tahlil qilishdan avval shakllantirish lozimligini hisobga olish muhim ahamiyatga ega. Shuning uchun dasturda u yoki bu bilimlarning asta-sekin o‘zlashtirishi, malaka, ko‘nikma va kompetensiyalarni uzluksiz egallash natijasida o‘quvchilar tayyorgarlik darajasi va yuklamalarning kengaytirilishiga erishiladi. O‘qituvchi o‘quvchilarda ijodiy tasavvurlarni rivojlantirishda darsi qaysi kunda va qaysi mavzuga bag‘ishlanishini bilishi, ana shu mashg‘ulotni shakllantirilishining maksimal darajadagi to‘g‘ri qoidalarning yig‘indisiga ega bo‘lishi shart.

Quyida mashg‘ulot sintezining asosiy qoidalari keltirilgan.

- o‘rganishi zarur bo‘lgan ijodiy tasavvurni rivojlantirishning uslub, usul va qoidalari;
- har bir bosqichning umumiy tasvir tizimi va o‘qitishning mazmunan tuzish usullari;
- mashg‘ulotlar o‘tkazish tizimi va dars shakli bo‘lib hisoblanadi.

Mashg‘ulot o‘tkazish tizimi

❖ assosiativ;

❖ obrazli va sistemali fikrlashni rivojlantirish;

❖ konkret ijodiy maxsulotlar yaratish bo‘yicha ish (topishmoqlar, maqollar, ertaklar, hikoyalar, rasmlar, sahna ko‘rinishlari va tabiiy ashyolardan tayyorlangan buyumlar);

❖ axborot bilan ishlash (kartoteka).

Innovasion yondashuvlar asosida bolalar o‘z tushunchasi bo‘yicha fikrlashni qanday shakllantirish kerak? Innovasion yondashuvlar asosida tashkil etilgan o‘quv mashg‘ulotlarida bolalar ijodiy faoliyati natijasida egallangan malakalari bo‘yicha shubhasiz turli tahlillar o‘tkazish imkoniyatini yaratadi. Ruhshunos ruhiy tahlil yoki bolalar ijodining ruhiyatini o‘rganishning muhim manbalarini topadi. Tilshunos

bolalar folklorini o‘rganish uchun boy manbaga ega bo‘ladi. Sotsiolog madaniy — etnik muhit va bolalar ertaklari orasidagi o‘zaro bog‘liqlikni o‘rganadi. Bu qaydnomani uzoq davom ettirish mumkin. O‘qituvchi bolalar uchun ertak, topishmoq, maqollarning tahlilini uzluksiz va ilmiy fikrlashni shakillantira olishiga qiziqish uyg‘otadi.

Tizim - o‘qituvchi bolalar hikoyasidan va har bir ertakdan tizim tushunchasini tushuntirish uchun misol bo‘la oladigan hodisa yoki narsani topa olishi qiyin bo‘lmaydi (tizim yaxlit, bo‘limlardan tuzilgan).

Buni qanday bajarish kerak?

1-qadam. Bolalar hikoyasidan oddiy va tushunarli bo‘lgan biror narsani tanlang. Bu narsa tizim nimaligini tushuntirishda asos bo‘lib xizmat qiladi. Masalan: bir hikoyada sehrli ruchka haqida so‘z yuritilgan, bu ruchka xatolarni o‘zi tuzatar va o‘quvchi zerikmasligi uchun kulgili rasmlar chizar ekan. Bu vaziyatda ruchka — ana shu oddiy va tushunarli narsadir.

2-qadam. O‘quvchilardan stolning ustida turgan ruchkalarni bo‘laklarga ajratish so‘raladi. O‘quvchilarda necha qismlar paydo bo‘lganiga ahamiyat bering. (nomlarini ayting).

3-qadam. Ruchka qismlaridan foydalanib, 2-3 so‘z yozishni taklif qiling. Bu oddiy va oson mashq sizga o‘quvchilarni «har bir qism alohida bo‘lganida so‘zlardagi harflarni chiroyli yoza olmaydi» degan xulosa chiqarishga olib keladi.

4- qadam. O‘quvchilarni ruchka qismlarini birlashtirib yana o‘sha 2-3 ta so‘zni yozish so‘raladi. O‘tkazilgan ish o‘qituvchiga aniq va oddiy ravishda, ruchka — bu tizim, yaxlitdir. Tizim yaxlit ishlaganda bajara oladigan ishini alohida qismlar bajara olmaydi. Yuqoridagi misol o‘quvchilarda tizimlar haqida ilk tasavvurni shakllantirishga zamin tayyorlaydi.

Xulosa qilib aytganga, barkamol shaxsni voyaga yetkazishda boshlang‘ich ta’lim, shubhasiz, poydevor vazifasini o‘taydi. Innovatsion yondashuvlar asosida o‘quv mashg‘ulotlari, sinfdan tashqari mashg‘ulotlarni tashkil etish orqali boshlang‘ich sinf o‘quvchilarida ijodiy tasavvurlarini rivojlantirish asosida ta’lim samaradorligiga ijobiy ta’sirini ko‘rsatmay qolmaydi.

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MEANS AND METHODS OF PHYSICAL TRAINING

Abstract*: This article explores various methods and tools used in physical training to enhance strength, endurance, speed, agility, and flexibility. The effectiveness of physical exercises depends on their adaptation to individual characteristics and the application of appropriate training methods. The study highlights different types of exercises, including strength and speed-strength training, endurance-building techniques, and agility-enhancing activities. The article also examines the physiological and biochemical basis of speed and reaction development, focusing on improving reaction time and movement coordination. Additionally, endurance training strategies and the role of balance exercises in volleyball are discussed. The findings emphasize the importance of integrating multiple training methods to develop physical qualities comprehensively.*

Keywords: *Physical training, strength exercises, endurance, speed development, agility training, reaction time, movement coordination, training methodology, volleyball techniques, physiological basis of speed.*

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JISMONIY TAYYORGARLIK VOSITALARI VA USULLARI

Annotatsiya*: Ushbu maqolada jismoniy tayyorgarlikda kuch, chidamlilik, tezlik, chaqqonlik va moslashuvchanlikni rivojlantirish uchun qo'llaniladigan turli usul va vositalar o'rganiladi. Jismoniy mashqlarning samaradorligi ularning individual xususiyatlarga moslashuvi va to'g'ri mashg'ulot uslublarini qo'llash bilan bog'liq. Tadqiqotda kuch va tezlik-quvvat mashqlari, chidamlilikni oshirish usullari hamda chaqqonlikni rivojlantirish mashqlari tahlil qilinadi. Shuningdek, maqolada tezlik va reaktsiya rivojlanishining fiziologik va biokimyoviy asoslari ko'rib chiqilib, reaktsiya vaqtini yaxshilash va harakatlarni muvofiqlashtirish usullari tahlil qilinadi. Bundan tashqari, chidamlilikni rivojlantirish strategiyalari va voleybol o'yinida muvozanat mashqlarining ahamiyati ham yoritib beriladi. Tadqiqot natijalari jismoniy sifatlarni kompleks rivojlantirish uchun turli mashg'ulot usullarini integratsiyalash muhimligini ta'kidlaydi.*

Kalit so'zlar: *Jismoniy tayyorgarlik, kuch mashqlari, chidamlilik, tezlikni rivojlantirish, chaqqonlik mashqlari, reaktsiya vaqti, harakatlarni*

muvofiqlashtirish, mashg‘ulot metodikasi, voleybol texnikasi, tezlikning fiziologik asosi.

Different tools can be used to solve physical training tasks: preparatory exercises, active and sports games, educational games and competitions. One of the main conditions is the adaptation of exercises to the individual characteristics of the participants.

Physical exercises for the participants can include the following:

a) strength and speed-strength exercises affecting the development of body, arm, leg muscles;

b) exercises affecting the development of the quality of endurance (speed-endurance, speed-endurance);

c) exercises affecting the speed of movement;

g) exercises affecting the quality of agility;

d) exercises affecting the quality of flexibility;Bu mashqlardan foydalanish texnik va taktik usullarni bajarish sifatiga to‘g‘ridan to‘g‘ri ta’sir etadi.

Methods used in physical training. The following methods are used to train the physical qualities necessary for employees:

1. Steady long runs to build basic endurance.

2. Carrying out work of a variable nature while training special endurance.

3. Repetitive training method. This method is used to develop the qualities of quickness, strength and agility, in which rest intervals should provide an opportunity for the body to fully recover.

4. Intermediate style. This method is mainly used to train speed and endurance. Work and rest are strictly regulated. Rest intervals are usually short.

5. Alternative training methods. The important part of this method is that the effect changes depending on the progress of the exercise, focusing on one goal. This is achieved in different ways in different ways by correctly mastering some indicators of nagruzka (movement speed, volume of work, duration, etc.) In this case, unusual, i.e. increasingly greater demands are placed on the functional capabilities of the organism, and thus opportunities for their development are created. At the same time, changes are made to the dynamic stereotype of acquired skills due to updating the form and conditions of movement.

It is very important to select and develop the exercises given to the students to train their physical qualities according to their youthful characteristics and favorable periods of physical qualities.

Cultivating speed. Speed refers to the execution of certain activities in a short period of time. There are three main forms of speed manifestation:

1. Latent (hidden) time of motor reactions.

2. The speed of certain movements (when the external resistance is small).

3. Frequency of actions.

The forms of manifestation of speed are not related to each other.

The combination of the three indicated forms determines all cases of manifestation of speed. However, the speed of complex-coordinated integrated

movements depends not only on the level of speed, but also on other factors. Therefore, the overall movement speed only indirectly expresses the quickness of a person.

A person's speed abilities are completely unique. Only similar actions can transfer directly or indirectly to each other.

Physiological and biochemical basis of speed. The latent time of the reaction consists of five components:

1) occurrence of excitation in the receptor;
2) transmission of excitation to the central nervous system;
3) passage of excitation along nerve paths and formation of an effector signal;
4) transmission of the signal from the central nervous system to the muscle;
5) stimulation of the muscle and emergence of mechanical activity in it.

Movements performed at maximum speed are physiologically different from slower movements. The most important difference between them is that during the performance of movements at maximum speed, it is difficult to form sensory connections: the reflex arc cannot carry impulses. Due to this, it is difficult to perform movements with sufficient accuracy when the speed is too high.

Cultivating normal reaction speed. The speed of the motor reaction is determined by the latent time of response to the effect. Reactions are simple and complex. A normal reaction is to respond to a known signal with a known action.

A large transition of speed (transition to another action) is characteristic of simple reactions: people who quickly come to a decision in some situations come to an idea even faster in other conditions. Practicing a variety of fast-paced exercises improves simple reaction time.

Significantly improving drive response time is a challenging task.

Several methods are used to train normal reaction speed. The most common of these is the method of reacting as quickly as possible in response to a sudden signal or a change in the surrounding situation. This method will quickly show positive results in training sessions with new participants. Unfortunately, after that, the speed of the reaction stabilizes and it becomes much more difficult to improve it.

In cases where the speed of reaction is of great importance, special methods are used to improve it. One of these methods is to gradually improve the speed of reaction under reduced conditions and the subsequent speed of movement.

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Educating the speed of complex reaction. We will dwell on two types of complex reaction, that is, the reaction to a moving object and the reaction of choice.

Let's consider the actions of the player receiving the ball in reaction to the moving object. In this case, the player must:

1) see the ball;

2) estimate the direction of the ball and its flight speed;

3) choosing an action plan to be executed;

4) start implementing this plan. In this case, the latent period of the reaction consists of these four elements. When a moving object suddenly appears, it takes 0.25 seconds to react to this object. - 1 sec. takes time. It was observed in experiments that the main part of this time is spent on the first element, i.e. quickly looking at the ball. The sensor phase itself is very low - 0.05 sec. it takes time. Thus, it is important to be able to see the ball in motion. It is this ability that should be given special attention. For this, exercises on reacting to a moving object are used; training requirements are implemented at the expense of increasing the speed of the object in motion, the sudden appearance of the object, and reducing the distance between the athlete and the object. Action games with a small ball (tennis ball) are very useful. If the object (including the ball in play) is seen before it starts to move, the reaction time is greatly reduced. It is very important to be able to determine the direction and speed of the ball according to the actions of the player hitting the ball.

The accuracy of reacting to a moving object is improved in parallel with increasing the speed of this reaction. Only the first few exercises should be devoted to the development of reaction accuracy. It is necessary to explain to the participants that it is necessary to move faster than the moving object.

A selection reaction is concerned with choosing between possible motor responses in response to changes in the opponent's behavior or environmental conditions. The complexity of the selection reaction depends on the diversity of the possibilities of changing the conditions, for example, on the different actions of the opponent. The demand for complex reactions of volleyball players is extremely high.

The pedagogical principle of "complex reaction education" is followed, and the number of possible changes in conditions gradually increases. For example, one is taught how to defend oneself in response to a pre-arranged blow; then the practitioner is advised to answer in one of two possible ways, then one of three ways, one of four ways, and so on. Gradually, this exercise is brought closer to real conditions.

Methodology of training quickness of movement.

In the process of training quickness of movement, it is necessary to comprehensively increase the functional capabilities that determine the characteristics of speed in various types of movement activity of the organism (in direct practical and sports activities). The maximum speed that an athlete can demonstrate in a certain activity depends not only on how quickly this person has developed, but also on a number of other factors - dynamic strength, agility, level of mastery of technique, etc. Therefore, the training of movement speed should be

carried out in close connection with the training of other physical qualities and the improvement of technique.

Exercises that can be performed at maximum speed (usually called speed exercises) are used as a means of training speed. They must meet the following requirements:

1) the technique should be such that it allows you to perform the exercise very quickly;

2) during the exercises, the main volitional effort should be mastered as well as possible so that it is focused not on the method of performing the exercise, but on the speed of their performance;

3) the duration of the exercises should not lead to a decrease in speed due to fatigue at the end of their performance.

Among the methods of training speed, the method of repeated training is widely used. The main tendency is to try to increase your maximum speed during training. All the features of the method (distance length, performance intensity, rest intervals, number of repetitions, etc.) are subordinated to it. The length of the distance (or the duration of the exercise) is chosen so that the speed of movement (intensity of work) does not decrease at the end of each exercise. Actions are performed at maximum speed; practitioners strive to show the best result for themselves every time. Rest intervals between training goals should be large enough to ensure a relatively full recovery of strength. Movement speed should not be allowed to decrease significantly between repetitions.

When high-speed exercise is repeated, fatigue sets in relatively quickly because there are not enough rest intervals for full recovery, which is externally expressed as a decrease in speed. A decrease in speed is the first signal to stop training speed in this exercise: repeating the exercise after that will only help to increase endurance.

It is very important to use the game and, especially, the competition method in training for the manifestation of speed. Competitions usually create an upbeat spirit, forcing a person to work harder - which in many cases leads to improved sports performance.

The main task of working with new athletes is not to specialize the athlete in a particular exercise, but to use other tools and change them in many ways to achieve relatively high results. In this case, agility exercises should be used not in a standard way, but in changing conditions and forms. In particular, active games and sports, outdoor exercise, etc. are especially useful.

In one movement, the speed can be increased mainly in two ways: 1) by increasing the maximum speed, 2) by increasing the maximum force. Experience shows that it is very difficult to significantly increase the maximum speed, and the increase in power is somewhat easier. Therefore, in practice, strength-enhancing exercises are widely used to increase the level of speed. The greater the resistance that must be overcome during movement, the higher the effectiveness of these exercises.

In the process of strength training aimed at increasing the speed of movements, two main tasks are solved:

1) increase the level of maximum muscle strength (strength abilities themselves);

2) education of the ability to show maximum power (speed-power abilities) in the conditions of rapid movements.

Speed-strength training should be based on the strength training itself and used together with them.

It is used in the development of the quality of speed sample exercises

1. Accelerated running from different initial positions (standing, sitting, lying down) according to a visual signal.

2. Running with a quick change of direction.

3. Imitation by quickly changing some movement methods.

4. Rapid transition from one type of action to another.

5. Relays requiring speed (Figures 38, 39, 40, 41).

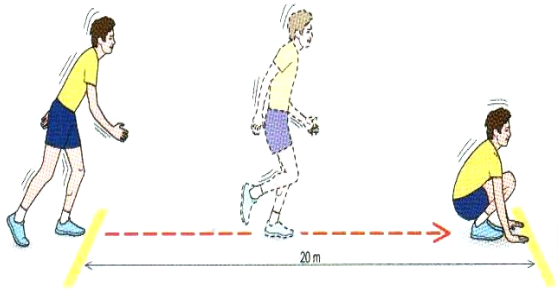

Figure 38

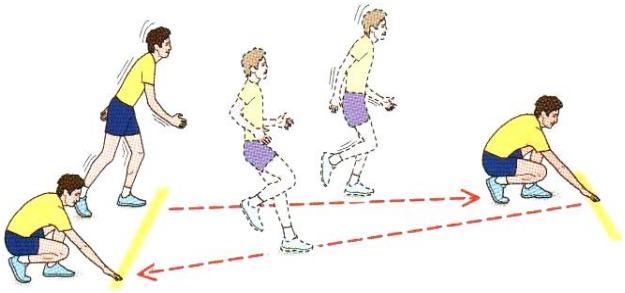

Figure 39.

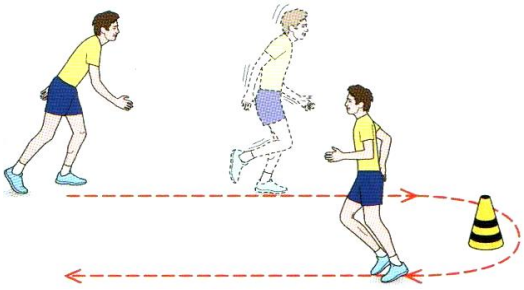

Figure 40.

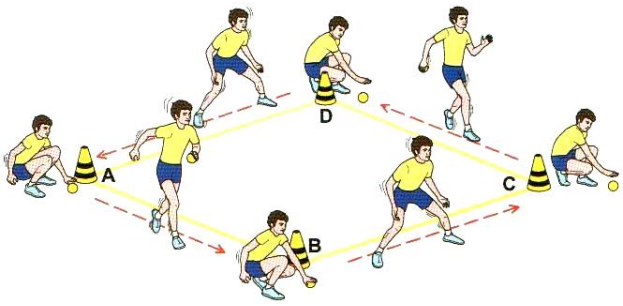

Figure 41.

Cultivating the quality of strength. Overcoming or resisting external resistance by means of muscular strength defines the quality of strength. Muscle strength is manifested as:

1) without changing their length (static, isometric);

2) reducing their length (overcoming resistance, myometric);

3) stretching (flexible, plyometric).

Muscular forces that overcome resistance and give way to them are collectively referred to as "dynamic mode". When comparing the quality of strength, the following types of strength are distinguished:

1. Relative strength. Relative strength is the amount of force per kilogram of its own weight.

2. Absolute power. The force shown in a movement is understood regardless of its weight.

3. Quick power (explosive power). The manifestation of a large amount of power in a short period of time is understood.

Resistance exercises are the main tool for developing strength. These tools are divided into two groups.

1. Exercises to overcome external resistance. Usually, the following are used as external resistance: the weight of objects; partner's resistance; resistance of elastic materials; external environment resistance;

2. Bodyweight exercises.

Weight-bearing exercises are very convenient and can work both small and large muscle groups. These exercises are also easy to moderate. Since the initial position plays a leading role in weight-bearing exercises, it is necessary to pay special attention to it.

In exercises performed with stretchy and elastic materials (spring expanders, rubber bands), tension increases toward the end of the movement.

Bodyweight exercises are usually done while hanging and leaning.

In addition to the above-mentioned classification of strength exercises, it is also necessary to take into account their division into static and dynamic, strength and speed-strength, resistance-overcoming and relaxing exercises according to the degree of selective impact (general and relatively specific effect), as well as according to the mode of muscle activity.

If the exerciser's strength is not regularly challenged, muscle strength may not increase or even decrease.

Maximum power can be generated in different ways:

1. Overcoming weights (resistances) that are not close to the limit many times at the limit level;

2. Increasing external resistance to the limit level (in dynamic and static activities);

3. Overcome obstacles with limitless speed.

It is used to develop the quality of strength sample exercises.

1. Exercises for bending the palms and paws, overcoming the resistance of the partner (or with dumbbells).

2. Toss balls of different weights. The main focus is on hand movements.

3. Exercises of bending and writing while leaning on the hands, clapping off the ground

4. Performing exercises similar in structure to technical methods that go with stretching shock-absorbing equipment.

5. Rotational body exercises with weights (barbell, dumbbells, bags filled with sand).

6. Sit-ups with a barbell on the chest.

7. Jumps with a barbell on the shoulders. The weight is 50% of the maximum.

8. Jumping with a rope.

9. Touching or picking up an object hanging from the place and running up.

10 Long jumps on one and two legs.
11. Many jumps over obstacles.
12. Jumps to depth (pictures 42,43,44,45,46,47).

Figure 42.

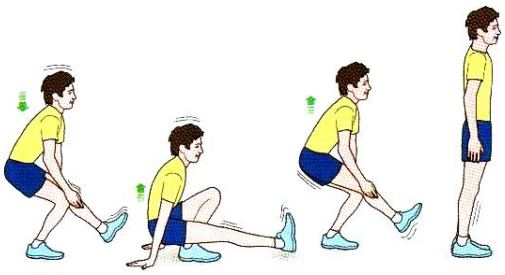

Figure 43.

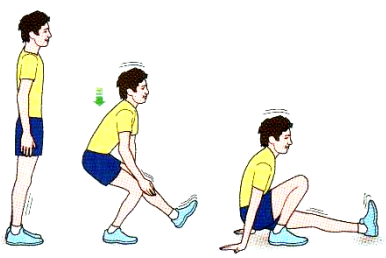

Figure 44.

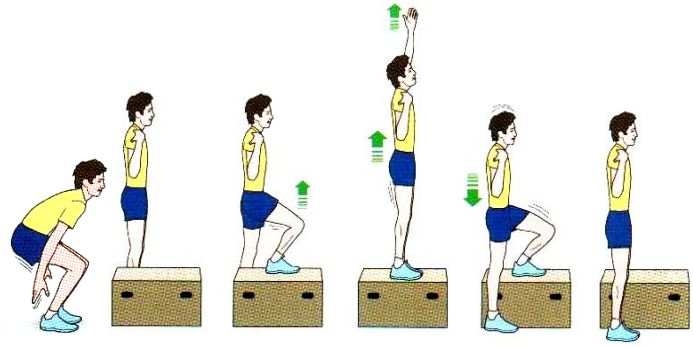

Figure 45.

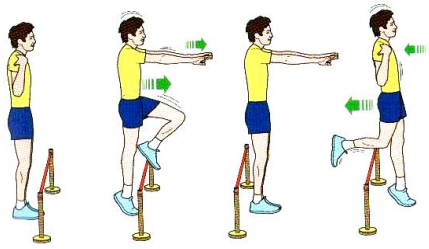

Figure 46.

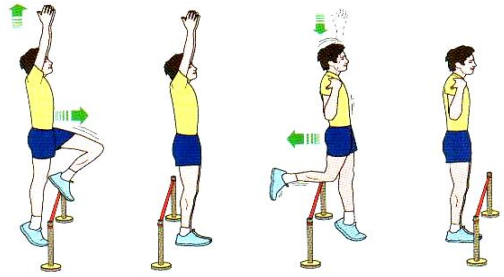

Figure 47.

Cultivating agility. Agility does not have a single definition as it is determined by several indicators.

Any movement is aimed at solving a specific task: jump as high as possible; hitting the ball; passing the ball and others. The complexity of the movement task is determined by the harmony of successive actions. Coordination complexity of movements is the first criterion of agility.

If the action is sufficiently accurate, the action task is executed. Accuracy of movement is the second measure of agility.

If a trainee can quickly perform new movements for him/her, he/she is considered more agile than a trainee who took longer to master these movements. Therefore, the time it takes to master actions can be one of the indicators of agility. Taking into account the above, agility can be called the ability to quickly learn new actions, to quickly rebuild movement activities in accordance with the requirements of suddenly changing conditions.

Agility training consists in training the ability to master coordination complex movements, to rebuild movement activities in accordance with the requirements of suddenly changed conditions. In this case, it is important to selectively improve balance, alternating tension and relaxation movements.

The main way to develop agility is to learn a new variety of movement skills and abilities. This effectively affects the increase in motion reserves and the functionality of the motion analyzer. It is recommended that the training of new movements be continuous. Because if the participants are not regularly trained in new movements, the ability to learn them will decrease.

Exercises related to immediate response to the effects of sudden changes in conditions are used to train agility as the ability to quickly and purposefully reconstruct movement activities. Exercises aimed at developing agility lead to fatigue relatively quickly. Meanwhile, performing these exercises requires extremely precise muscle awareness and is less effective when fatigue occurs. That's why when training agility, rest intervals should be enough for full recovery.

In volleyball, special attention is paid to balance and training.

Balance means the ability to keep the body in a stable position. Balance in volleyball can be static (almost stationary balance) and dynamic (balance during movement). The more improved the balance function, the faster it recovers the balance, the smaller the oscillation amplitude.

Balance can be cultivated in two main ways. The first is the application of balance exercises, that is, exercises and situations in conditions that make it difficult to maintain balance. The second way is based on the selective improvement of analyzers that ensure that balance (vestibular and motor balance) is not lost. Exercises performed with straight line and angular accelerations are used to improve vestibular function.

It is used to develop the quality of agility sample exercises

1. Single and multiple back and forth circular motions. The same exercise after performing some technical methods.

2. One and many jumps from a standing position and running, turning 180˚, 270˚, 380˚. Performing various technical movements with twists.

3. Movements between and over various objects.

4. Jumping from the gymnastic bridge and performing various movements in the air.

5. Responding to various signals and influences with specific actions. Signals and effects are gradually increased (Figures 48, 49).

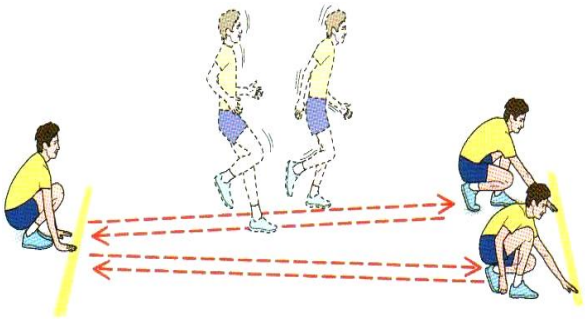

Figure 48.

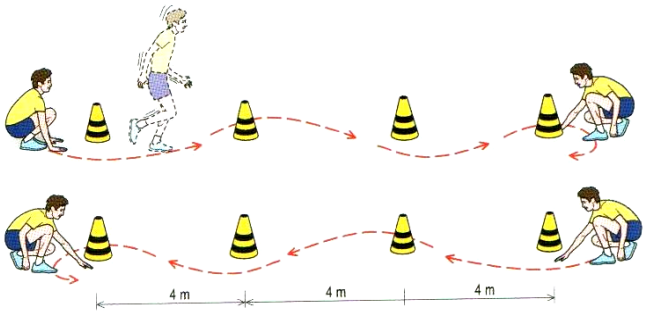

Figure 49.

Cultivating endurance

There are several types of fatigue depending on the nature of activities. These include mental, sensory (related to the load on the sense organs), emotional and physical fatigue. For sports, physical fatigue caused by muscle activity is more important.

The main measure of endurance is the time that shows how long a person can maintain a specified load intensity in their activity. Durability is measured by direct and indirect methods. In the direct measurement method, subjects are asked to perform a task (for example, run at a given speed) and how long the task is completed in a given period of time (before the speed begins to decrease) is determined.

Human activity is diverse; the nature and mechanisms of fatigue are also different in different cases. General fatigue is more common in sports.

Exercises that are identical in form can be performed at different intensities, accordingly, the time limit for performing these exercises is from a few seconds to several hours. In these cases, the fatigue mechanisms are also different. Therefore, physical exercises are classified according to their intensity.

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TEMIR YO'L TRANSPORTI INNOVATSION SALOHIYATI VA RIVOJLANISH IMKONIYATLARI TAHLILI

Annotatsnya: *«O'zbekiston temir yo'llari» AJ innovatsion salohiyatini baholashda dastavval kompaniya faoliyatining umumiy tahlilini ko'rib chiqish maqsadga muvofiq bo'lar edi, chunki kompaniyaning umumiy faoliyati tahlili asosida innovatsion faoliyatni amalga oshirishning imkoniyatlar darajasini aniqlash mumkin. Bunda kompaniyaning asosiy faoliyat turi tashish jarayoni bo'lgani uchun, eng avvalo, tashish hajmining tahlili ko'rib chiqildi.*

Kalit so'zlar*: innovatsya, innovatsion faoliyat, kompaniya, investitsiya, regression tahlil, ekonometrik, ekonometrik model.*

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ANALYSIS OF THE INNOVATIVE POTENTIAL AND DEVELOPMENT OPPORTUNITIES OF THE RAILWAY TRANSPORT

Annotation: *When assessing the innovative potential of JSC "Uzbekistan Railways," it would be advisable to first consider a general analysis of the company's activities, since based on the analysis of the company's overall activities, it is possible to determine the level of opportunities for implementing innovative activities. In this case, since the main type of activity of the company is the diagnostic process, first of all, the analysis of the volume of diagnostics was considered.*

Keywords: *innovation, innovative activity, company, investment, regression analysis, econometric, econometric model.*

"Tadqiqot olib boriladigan bo'limning asosiy maqsadi – kompaniya tarkibidagi markazlar, boshqarmalar va bo'limlar bilan birgalikda ilmiy-texnik sohaga oid dasturlar va rejalar ishlab chiqish, kompaniyaning texnik darajasini oshirish maqsadida chet el va mahalliy olimlar tomonidan erishilgan yutuqlar asosida yangi texnika, texnologiya, mexanizm, ishlab chiqarish jarayonining avtomatlashtirilgan tizimlarini kompaniya miqyosida ishlab chiqish, amaliyotga tatbiq etish bo'yicha ko'rsatmalar va takliflar ishlab chiqishdir"[4].

[4] "O'zbekiston temir yo'llari" MChJ ilmiy-texnikaviy taraqqiyot va ekologiya bo'limi va strategik rivojlanish bo'limi to'g'risidagi nizom.

Tadqiqotda kompaniya innovatsion faoliyatini boshqarish tizimining tahlili natijasiga asoslanib, quyidagi kamchiliklar aniqlandi:

1. Kompaniyada mavjud bo‘lgan muammolarni yechish rejasi yilda bir marotaba tuziladi, ya’ni kompaniya strategik innovatsion rejaga ega emas;

2. Innovatsion ishlanmalarni ishlab chiqish va joriy etishda ishlanmalarning samaradorligini baholash tizimi mavjud emas;

3. Muammolarni hal qilishda kompaniya boshqarmalari, markazlari va bo‘limlari tomonidan berilgan ma’lumotlarga asoslangan holda innovatsion dasturlar ishlab chiqiladi, ya’ni innovatsion faoliyatga javobgar bo‘lim kompaniyaning muammolarini ketma-ketlikda va oqilona hal qilishda innovatsion ishlanmalar tanlovini kompaniya ichki tadqiqotlarsiz amalga oshiradi;

4. Innovatsion ishlanmalarni amalga tatbiq etish jarayoni mukammal emas.

Bo‘limda innovatsion ishlanmalarni tanlash va amalga tadbiq etishda kerakli mutaxassislar yetishmaydi.

Kompaniya ma’lumotlariga, hamda yuqorida keltirilgan tahlil natijalari asosida xulosa qilib shuni aytish mumkinki, “O‘zbekiston temir yo‘llari” AJda moliyaviy, iqtisodiy, texnik, ilmiy, kadrlar salohiyati borligini inobatga olgan holda, kompaniyaning o‘z faoliyatini rivojlantirish uchun lozim bo‘lgan innovatsion faoliyatni samarali amalga oshirish imkoniyati mavjud. Lekin hozirgi kunda innovatsion faoliyatni amalga oshirishda uni boshqarish tizimida kamchiliklar mavjud. Bu kamchiliklarni bartaraf etish uchun esa “Ilmiy-texnik rivojlanish va ekologiya” bo‘limining faoliyatini tubdan o‘zgartirish va innovatsion ishlanmalar samaradorligini baholash tizimi joriy etilishi zarur.

Yuqoridagi tahlillar bilan bir qatorda temir yo‘l transporti tizimida natijaviy ko‘rsatkich (ekstensiv omil)ga innovatsion faoliyat va bog‘liq boshqa ko‘rsatkichlar (intensiv omillar)ning miqdoriy ta’sirini ko‘p omilli murakkab ekonometrik model asosida baholash hamda jarayonni tahlillar asosida iqtisodiy sharhlash muhim hisoblanadi.

Umuman olganda sohada amalga oshiriladigan har qanday xarakatning natijasi – temir yo‘l transportida yaratilgan qo‘shilgan qiymat (o‘zgarishi)da baholanadi. Shu boisdan, temir yo‘l transportida yaratilgan qo‘shilgan qiymatni (y) – natijaviy ko‘rsatkich (ekstensiv omil) sifatida hamda unga (bevosita va bilvosita) ta’sir qiluvchi omillar sifatida temir yo‘l transporti tizimida bajarilgan ilmiy tadqiqot va tajriba konstruktorlik ishi (ITTKI) (x_1), transport universiteti miqyosida ilmiy darajali olimlar soni (x_2) va temir yo‘l transportiga kiritilgan investisiyalarni (x_3) olish maqsadga muvofiqdir (1-jadvalga qarang).

1-jadval

Temir yo‘l transporti tizimining innovatsion faoliyati asosiy ko‘rsatkichlari

Yillar	Temir yo‘l transporti qo‘shilgan qiymati, mln. so‘m (y)	Temir yo‘l transporti tizimida bajarilgan ITTKI hajmi, mln. so‘m (x_1)	Transport universiteti miqyosida ilmiy darajalilar soni (x_2)	Temir yo‘l transporti kiritilgan investitsalar (mlrd. so‘m) (x_3)
2012	2 704	1302	98	145,0
2013	2 800	1341	101	259,0
2014	2 938	1352	100	389,0
2015	2 911	1368	101	455,3
2016	3 362	1402	106	617,1
2017	5 181	1446,2	111	1498,2
2018	5 926	2441	112	2486,6
2019	7 248	3427	127	3774,5
2020	8 131	4418,9	206	4467,1
2021	9 277	5409,3	380	3332,8
2022	9 953	6399,7	267	4103,2
2023	10 942	5816,2	362	3603,7

Ta’kidlash joizki, temir yo‘l transportida yaratilgan qo‘shilgan qiymat (y)ga temir yo‘l transporti tizimida bajarilgan ITTKI (x_1) to‘g‘ridan-to‘g‘ri ta’sir ko‘rsatuvchi omil hisoblanadi. Ushbu ITTKI asosan soha olimlari va tizimning real sektorida mehnat faoliyatini yuritayotgan mutaxassis kadrlar tomonidan amalga oshiriladi. Shunday ekan temir yo‘l transporti tizimiga malakali kadrlar yetkazib beruvchi va sohani yanada innovatsion rivojlanishi bo‘yicha ilmiy tadqiqot ishlarini amalga oshirayotgan transport universiteti ilmiy darajali mutaxassislar soni (x_2) ham bilvosita temir yo‘l transportida yaratilgan qo‘shilgan qiymat (y)ga yuqori ta’sir ko‘rsatuvchi omillardan biri hisoblanadi.

Bundan tashqari, temir yo‘l transportida yaratilgan qo‘shilgan qiymat (y)ga sezilarli ta’sir ko‘rsatuvchi omillardan yana biri bu – temir yo‘l transporti tizimiga kiritilgan investitsiya (x_3) hisoblanadi, chunki investisiya har qanday faoliyatni amalga oshirishda muhim vositadir.

Yuqoridagi nazariy qarashlardan kelib chiqqan holda, ekstensiv omil bo‘lgan temir yo‘l transportida yaratilgan qo‘shilgan qiymat (y)ga ta’sir qiluvchi omillar

temir yo‘l transporti tizimida bajarilgan ITTKI (x_1), transport universiteti miqyosida ilmiy darajalilar soni (x_2) va temir yo‘l transporti kiritilgan investisalar (x_3) o‘rtasidagi miqdoriy bog‘liqlikni ko‘p omilli chiziqli regressiya modeli ko‘rinishida quyidagicha keltirish mumkin.

$$y = a_0 + a_1x_1 + a_2x_2 + a_3x_3 + \varepsilon \quad (1)$$

bu yerda, a_0, a_1, a_2, a_3 – modelning noma’lum parametrlari,

ε – tasodifiy xatolik.

Ko‘p omilli chiziqli regressiya modelining noma’lum parametrlari (a_0, a_1, a_2, a_3) eng kichik kvadratlar usuli asosida aniqlanadi.

Tuzilgan model approksimasiya xatolik ($\overline{A}$), o‘rtacha kvadratik standart chetlanish (S_y), t-statistika (t_{a_n}), determinasiya koeffisienti (R^2), Fisher mezoni (F), Darbin-Uotson mezoni (DW) kabi baholash mezonlari bo‘yicha baholanadi va model asosida xulosalar ishlab chiqiladi.

Buning uchun avvalo, ekstensiv omil (y) va intensiv omillar (x_1, x_2, x_3) o‘rtasidagi bog‘lanish darajasi korrelyasion tahlil asosida aniqlab olinadi. Ya'ni, juft korrelyasiya matrisasi tuzib olinadi.

Matrix of correlations

Variables	(1)	(2)	(3)	(4)
(1) Y	1.000			
(2) X1	0.966	1.000		
(3) X2	0.876	0.901	1.000	
(4) X3	0.930	0.887	0.688	1.000

Korrelyatsion tahlil natijalariga ko‘ra, natijaviy ko‘rsatkich (y) va ta’sir etuvchi barcha omillar (x_1, x_2, x_3) o‘rtasida zich to‘g‘ri korrelyasion bog‘lanish ($r_{x_nx_k} > 0{,}80$) (multikollinearlik) mavjudligi kuzatildi.

Ma’lumki, agar modelga ikki yoki undan ko‘p zich chiziqli korrelyasion o‘zaro bog‘langan omillar kiritilsa, u holda regressiya tenglamasi bilan bir qatorda

boshqa chiziqli bog‘liqlik ham vujudga keladi, ya’ni multikollinearlik hodisasi kuzatiladi va bu regressiya koeffitsientlari miqdori bo‘lgan omillarning miqdoriy ta’sirini buzib ko‘rsatadi hamda ularning iqtisodiy talqinini qiyinlashtiradi bu esa o‘z navbatida, olingan xulosalar xatoligi oshib ketganligidan dalolat beradi.

Shu bois, natijaviy ko‘rsatkich (y) va ta’sir etuvchi omillar (x_1, x_2, x_3) o‘rtasidagi bog‘liqlik va miqdorlar ta’sirini bir omilli regressiya modeli asosida baholash maqsadga muvofiq bo‘ladi.

Birinchi, temir yo‘l transportida yaratilgan qo‘shilgan qiymat (y)ga temir yo‘l transporti tizimida bajarilgan ITTKI (x_1)ning miqdoriy ta’sirini baholash uchun STATA dasturiy ta’minoti yordamida chiziqli regressiya modelining noma’lum parametrlari eng kichik kvadratlar usulida aniqlab olinadi.

Source	SS	df	MS	Number of obs	=	12
				F(1, 10)	=	139.14
Model	97508256.2	1	97508256.2	Prob > F	=	0.0000
Residual	7007849.91	10	700784.991	R-squared	=	0.9329
				Adj R-squared	=	0.9262
Total	104516106	11	9501464.19	Root MSE	=	837.13

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
X1	1.492344	.1265146	11.80	0.000	1.210452	1.774236
_cons	1455.587	451.0432	3.23	0.009	450.6	2460.574

Demak, natijaviy y ko‘rsatkichga x_1 omilining miqdoriy ta’sirini bir omilli chiziqli regressiya modeli quyidagi ko‘rinishini oldi.

$$y = 1455{,}587 + 1{,}492344x_1 \quad (2)$$

Regression tahlil natijalariga ko‘ra, natijaviy y ko‘rsatkichga x_1 omili to‘g‘ri ta’sirga ega ekanligi aniqlandi.

Tuzilgan model baholash mezonlari bo‘yicha xususan, determinatsiya koeffitsienti $R^2 = 0{,}93$ ga teng bo‘lib model ishonchli, Fisher mezoni $F = 139{,}14 > F_{jadval}$ bo‘lib model statistik jihatdan ahamiyatli deb baholandi. Shuningdek, standart xatolik $S_y = 451{,}04$ o‘rtacha, yani qoniqarli va t-statistika mezoniga ko‘ra, (x_1) omil va modelga kiritilmagan omillarning miqdoriy ta’sirini ifodalovchi a_0, a_1 koeffitsientlar bo‘yicha olingan farazlar statistik jihatdan $t_{a_0}, t_{a_1} > t_{jadval}$ bo‘lib ahamiyatli ekanligini ko‘rsatdi.

Ikkinchi, temir yo‘l transportida yaratilgan qo‘shilgan qiymatga (y) transport universiteti miqyosida ilmiy darajalilar sonining (x_2) miqdoriy ta’sirini baholash uchun STATA dasturiy ta’minoti yordamida regressiya modelining noma’lum parametrlari eng kichik kvadratlar usulida aniqlab olinadi.

Source	SS	df	MS	Number of obs	=	12
				F(1, 10)	=	32.89
Model	80146466.7	1	80146466.7	Prob > F	=	0.0002
Residual	24369639.4	10	2436963.94	R-squared	=	0.7668
				Adj R-squared	=	0.7435
Total	104516106	11	9501464.19	Root MSE	=	1561.1

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
X2	25.42481	4.433433	5.73	0.000	15.54651	35.30312
_cons	1560.042	887.9833	1.76	0.109	-418.5078	3538.592

Hamda quyidagi chiziqli regressiya modeli tuzib olindi.

$$y = 1560{,}042 + 25{,}42481x_2 \qquad (3)$$

Regression tahlil natijalariga ko‘ra, natijaviy y ko‘rsatkichga x_2 omil to‘g‘ri ta’sirga ega ekanligi aniqlandi.

Tuzilgan model baholash mezonlari bo‘yicha xususan, determinasiya koeffitsienti $R^2 = 0{,}77$ ga teng bo‘lib model ishonchli, Fisher $F = 32{,}89 > F_{jadval}$ bo‘lib model statistik jihatdan ahamiyatli deb baholandi. Ammo, standart xatolik $S_y = 887{,}9833$ ga teng bo‘lib yuqori (qoniqarsiz) va t-statistika mezoniga ko‘ra, x_2 omilning miqdoriy ta’sirini ifodalovchi a_1 koeffitsientlar bo‘yicha olingan faraz statistik jihatdan $t_{a_1} > t_{jadval}$ holatda ahamiyatli, biroq, modelga kiritilmagan omillarning miqdoriy ta’sirini ifodalovchi a_0 koeffitsient bo‘yicha olingan faraz statistik jihatdan $t_{a_0} < t_{jadval}$ bo‘lib ahamiyatsiz ekanligini ko‘rsatdi.

Shu boisdan, temir yo‘l transportida yaratilgan qo‘shilgan qiymatga y transport universiteti miqyosida ilmiy darajalilar soni (x_2) o‘rtasidagi bog‘lanish xususiyatlari o‘rganilganda ushbu bog‘lanish chiziqsiz ekanligi ma’lum bo‘ldi hamda mazkur bog‘lanish chiziqsiz, ya’ni kvadratik tenglama shaklida bir omilli regressiya modeli ko‘rinishida ifodalandi.

$$y = a_0 x_2^{a_1} + \varepsilon \quad (4)$$

Temir yo‘l transportida yaratilgan qo‘shilgan qiymatga y transport universiteti miqyosida ilmiy darajalilar sonining (x_2) miqdoriy ta’sirini baholash uchun STATA dasturiy ta’minoti yordamida chiziqsiz regressiya modelining noma’lum parametrlari aniqlandi.

Source	SS	df	MS	Number of obs	=	12
				F(1, 10)	=	30.21
Model	2.4798882	1	2.4798882	Prob > F	=	0.0003
Residual	.820787611	10	.082078761	R-squared	=	0.7513
				Adj R-squared	=	0.7265
Total	3.30067581	11	.300061437	Root MSE	=	.28649

lnY	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
lnX2	.9008221	.1638847	5.50	0.000	.5356643	1.26598
_cons	4.046108	.8249857	4.90	0.001	2.207925	5.884291

Natijada quyidagi chiziqsiz regressiya modeli tuzib olindi.

$$y = 57{,}1745 x_2^{\,0{,}9008221} \qquad (5)$$

Regression tahlil natijalariga ko‘ra, natijaviy y ko‘rsatkichga x_2 omili to‘g‘ri ta’sirga ega ekanligi aniqlandi.

Tuzilgan model baholash mezonlari bo‘yicha xususan, determinatsiya koeffitsienti ($R^2 = 0{,}75$)ga teng bo‘lib model ishonchli, Fisher mezoni $F = 30{,}21 > F_{jadval}$ bo‘lib model statistik jihatdan ahamiyatli deb baholandi. Shuningdek, standart xatolik $S_y = 0{,}8249857$ ga teng bo‘lib kichik (yaxshi) va t-statistika mezoniga ko‘ra, x_2 omil va modelga kiritilmagan omillarning miqdoriy ta’sirini ifodalovchi (a_0, a_1) koeffitsientlar bo‘yicha olingan farazlar statistik jihatdan $t_{a_0}, t_{a_1} > t_{jadval}$ holatda ahamiyatli ekanligini ko‘rsatdi.

Uchinchi, temir yo‘l transportida yaratilgan qo‘shilgan qiymatga (y) temir yo‘l transportiga kiritilgan investisalarning x_3 miqdoriy ta’sirini baholash uchun STATA dasturiy ta’minoti yordamida chiziqli regressiya modelining noma’lum parametrlari aniqlab olinadi.

Source	SS	df	MS	Number of obs	=	12
				F(1, 10)	=	63.58
Model	90311907.8	1	90311907.8	Prob > F	=	0.0000
Residual	14204198.2	10	1420419.82	R-squared	=	0.8641
				Adj R-squared	=	0.8505
Total	104516106	11	9501464.19	Root MSE	=	1191.8

Y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
X3	1.686429	.2114968	7.97	0.000	1.215185	2.157673
_cons	2416.049	560.8589	4.31	0.002	1166.377	3665.72

Demak, natijaviy y ko‘rsatkichga x_3 omilning miqdoriy ta’sirini bir omilli chiziqli regressiya modeli quyidagicha ifodalandi:

$$y = 2416{,}049 + 1{,}686429 x_3 \qquad (6)$$

Regression tahlil natijalariga ko‘ra, natijaviy y ko‘rsatkichga x_3 omili to‘g‘ri ta’sirga ega ekanligi aniqlandi.

Tuzilgan model baholash mezonlari bo‘yicha xususan, determinatsiya koeffitsienti $R^2 = 0{,}86$ ga teng bo‘lib model ishonchli, Fisher $F = 63{,}58 > F_{jadval}$ holatda model statistik jihatdan ahamiyatli deb baholandi. Shuningdek, standart xatolik $S_y = 560{,}8589$ ga teng bo‘lib o‘rtacha (qoniqarli) va t-statistika mezoniga ko‘ra, x_3 omili va modelga kiritilmagan omillarning miqdoriy ta’sirini ifodalovchi a_0, a_1 koeffitsientlar bo‘yicha olingan farazlar statistik jihatdan $t_{a_0}, t_{a_1} > t_{jadval}$ holatida ahamiyatli ekanligini ko‘rsatdi.

Yuqoridagi tuzilgan barcha modellarni bog‘liq bo‘lmagan tenglamalar sistemasi ko‘rinishida quyidagicha ifodalash mumkin.

$$\begin{cases} y = 1455{,}587 + 1{,}492344x_1 \\ y = 57{,}1745x_2^{\,0{,}9008221} \\ y = 2416{,}049 + 1{,}686429x_3 \end{cases} \qquad (7)$$

Demak, natijaviy y ko‘rsatkich va ta’sir etuvchi x_1, x_2, x_3 omillar o‘rtasidagi bog‘liqlik va miqdoriy ta’sirini baholash bo‘yicha amalga oshirilgan modellashtirish natijalari bo‘yicha quyidagi xulosalarga kelindi:

1. Natijaviy ko‘rsatkich temir yo‘l transportida yaratilgan qo‘shilgan qiymat (y) va unga ta’sir etuvchi omillar: Temir yo‘l transporti tizimida bajarilgan ITTKI (x_1), transport universiteti miqyosida ilmiy darajali olimlar soni (x_2) va temir yo‘l transportiga kiritilgan investitsiya (x_3) o‘rtasidagi bog‘liqlik va miqdoriy ta’siri to‘g‘ri ekanligini ko‘rsatdi;

2. Temir yo‘l transportida yaratilgan qo‘shilgan qiymatga (y) eng yuqori ta’sir qiluvchi omil temir yo‘l transportida kiritilgan investitsiyalar (x_3) ekanligi (temir yo‘l transportiga kiritilgan investisalarning bir birlikka ko‘payishi temir yo‘l transportida yaratilgan qo‘shilgan qiymatning qariyb 1,7 birlikka oshishiga olib kelishi mumkin), keyingi navbatta yuqori ta’sirga ega omil temir yo‘l transporti tizimida bajarilgan ITTKI (x_1) ekanligi (ya'ni, omilning bir birlikka ortishi natijaviy omilning qariyb 1,5 birlikka oshishiga olib kelishi mumkin), shuningdek modelga kiritilgan omillar orasida eng kichik ta’sirga ega bo‘lgan omil bu transport universiteti miqyosida ilmiy darajali olimlar soni (x_2) ekanligi (ya'ni, x_2 omilning bir birlikka ortishi natijaviy omilning qariyb 0,9 birlikka oshishiga olib kelishi mumkin) aniqlandi.

Har qandan tadqiqotning muhim qismi, bu tadqiqot ob’ektining asosiy ko‘rsatkichlari bo‘yicha kelgusi davr uchun prognoz ssenariylarini ishlab chiqish hisoblanadi.

Shu boisdan, temir yo‘l transportida yaratilgan qo‘shilgan qiymatni (y) va unga ta’sir etuvchi omillar: Temir yo‘l transporti tizimida bajarilgan ITTKI (x_1), transport universiteti miqyosida ilmiy darajali olimlar soni (x_2) va temir yo‘l transportiga kiritilgan investitsiyalar (x_3) bo‘yicha prognoz ssenariylarini ishlab chiqish uchun mos ekonometrik (eksponentsional, darajali) modellar tuzilib, mezonlar bo‘yicha baholandi (2-jadvalga qarang).

2-jadval

Temir yo‘l transporti tizimining innovatsion faoliyati bilan bog‘liq asosiy ko‘rsatkichlari bo‘yicha prongoz modellari va ularni baholash natijalari

Ko‘rsatkich	Prognoz modeli	Modelni baholash natijalari
Temir yo‘l transportida yaratilgan qo‘shilgan qiymati (y)	$y = 1986{,}198e^{0{,}148t}$	$\overline{A} = 1{,}1\%$; $S_y = 0{,}13$; $t_{a_0} = 14{,}2$; $t_{a_1} = 98{,}9$ ($t_{jad} = 2{,}63$); $R^2 = 0{,}95$; $F = 202{,}08$ ($F_{jad} = 4{,}96$); $DW = 1{,}91$
Temir yo‘l transporti tizimida bajarilgan ITTKI (x_1)	$x_1 = 801{,}705e^{0{,}172t}$	$\overline{A} = 2{,}37\%$; $S_{x_1} = 0{,}24$; $t_{a_0} = 8{,}7$; $t_{a_1} = 46{,}2$ ($t_{jad} = 2{,}63$); $R^2 = 0{,}88$; $F = 76{,}9$ ($F_{jad} = 4{,}96$); $DW = 1{,}63$
Transport universiteti miqyosida ilmiy darajali olimlar soni (x_2)	$x_2 = 65{,}18e^{0{,}128t}$	$\overline{A} = 3{,}9\%$; $S_{x_2} = 0{,}27$; $t_{a_0} = 5{,}7$; $t_{a_1} = 25{,}4$ ($t_{jad} = 2{,}63$); $R^2 = 0{,}77$; $F = 32{,}66$ ($F_{jad} = 4{,}96$); $DW = 1{,}97$
Temir yo‘l transportiga kiritilgan investitsiyalar (x_3)	$x_3 = 150{,}663e^{0{,}324t}$	$\overline{A} = 4{,}54\%$; $S_{x_3} = 0{,}43$; $t_{a_0} = 9{,}01$; $t_{a_1} = 18{,}94$ ($t_{jad} = 2{,}63$); $R^2 = 0{,}89$; $F = 80{,}97$ ($F_{jad} = 4{,}96$); $DW = 1{,}59$

Temir yo‘l transporti tizimining innovatsion faoliyati bilan bog‘liq asosiy ko‘rsatkichlari bo‘yicha tuzilgan prognoz modellar barcha baholash mezonlari bo‘yicha ijobiy baholandi, hamda mazkur modellar asosida 2024-2030 yillarga mo‘ljallangan prognoz ssenariylari ishlab chiqildi (3- jadvalga qarang).

3-jadval

Temir yo‘l transporti tizimining innovatsion faoliyati bilan bog‘liq asosiy ko‘rsatkichlar

prognoz ssenariylari

Yillar	Pessimistik ssenariy	Dinamik ssenariy	Optimistik ssenariy
	Temir yo‘l transporti qo‘shilgan qiymati, mln. so‘m (y)		
2024	13 459,4	13 599,4	13 739,4
2025	15 628,4	15 768,4	15 908,4
2026	18 143,4	18 283,4	18 423,4
2027	21 059,5	21 199,5	21 339,5
2028	24 440,7	24 580,7	24 720,7
2029	28 361,2	28 501,2	28 641,2
2030	32 907,0	33 047,0	33 187,0
	Temir yo‘l transporti tizimida bajarilgan ITTKI hajmi, mln. so‘m (x_1)		
2024	7 396,9	7 498,9	7 600,9
2025	8 804,1	8 906,1	9 008,1
2026	10 475,4	10 577,4	10 679,4
2027	12 460,3	12 562,3	12 664,3
2028	14 817,7	14 919,7	15 021,7
2029	17 617,5	17 719,5	17 821,5
2030	20 942,7	21 044,7	21 146,7
	Transport universiteti miqyosida ilmiy darajalilar soni (x_2)		
2024	317	344	371
2025	364	391	418
2026	418	445	472
2027	478	505	532
2028	547	574	601
2029	626	653	680
2030	715	742	769
	Temir yo‘l transporti kiritilgan investisiyalar (mlrd. so‘m) (x_3)		
2024	9 819,0	10 164,0	10 509,0
2025	13 707,8	14 052,8	14 397,8
2026	19 084,4	19 429,4	19 774,4
2027	26 518,1	26 863,1	27 208,1
2028	36 795,9	37 140,9	37 485,9

2029	51 006,1	51 351,1	51 696,1
2030	70 653,0	70 998,0	71 343,0

O‘zbekiston Respublikasida bajarilgan ilmiy-tadqiqot va tajriba konstruktorlik ishlanmalari hajmidan temir yo’l transporti tizimida bajarilgan ilmiy tadqiqot va tajriba-konstruktorlik ishi 2,4 barobar ko’p, lekin mamlakatdagi investitsiyalar temir yo’l transportiga kiritilgan investisiyalar hajmi 26 foizga kam. Temir yo’l transporti tizimiga kiritilgan investitsiyalarni oshirish va maqsadli yo‘naltirish shart va buning uchun temir yo’l transportida ilmiy salohiyati etarli deb sanaladi.

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RESEARCH CONDUCTED IN COTTON GROWING UNDER PRODUCTION CONDITIONS AND THEIR RESULTS

Abstract: *The paper presents data on the methods, standards, and seedling thicknesses of cotton seeds of the Andijan-37 variety in the conditions of light gray soils of the Andijan region under production conditions.*

Key words: *seed planting methods, scheme, seedling thickness, agrophysical properties of the soil, soil bulk density, porosity.*

In the developed cotton-growing countries of the world, great attention is paid to the cultivation of cotton with high fiber quality, using advanced scientific achievements in the care of the cotton plant. In this regard, it is important to take into account the biological and morphological characteristics of cotton varieties and the soil and climatic conditions of the growing region when correctly determining the dates of sowing seeds and choosing planting systems. In order to achieve high cotton yields and high-quality fiber from cotton plants, scientific research aimed at developing optimal planting dates, planting systems and planting methods for each region based on the biological and morphological characteristics of each variety is one of the important and urgent issues of our time.

Production experiments were conducted in 2022 on 50.9 hectares of the “Bakht imkon rivoj chorvasi” farm in the Altynkul district of Andijan region, 76.4 hectares of the “Sohib omad barakasi” LLC cluster specializing in cotton growing in the Izboskan district, 22.4 hectares of the “Marhamat yulduzi” farm in the Marhamat district, 19.7 hectares of the “Bakht taronasi sabosi” farm, 23.2 hectares of the “Ismon bobo agro” farm, a total of 192.6 hectares in the region.

In the experiment conducted on the “Bakht imkon rivoj chorvasi” farm in the Altynkul district of Andijan region, the system consisted of 6 options, was carried out in 3 repetitions, 3 plots.

The areas occupied by the experimental variants were: in the planting schemes with a row width of 90 cm, the variant width was 60 m, the field length was 460 m, in the planting schemes with a row width of 76 cm, the variant width was 60.4 m, the field length was 460 m, the total area of the experiment was 50.9 ha.

Table 1

Experimental system in production conditions

Var	Options	Planting scheme
1	Sowing seeds in open ground	90x10-1
2	Planting seeds in single rows on plastic beds	90x10-1
3	Planting marigold seeds in open ground	90x(60x30)x12-1
4	Planting seeds on a film-covered bed of a cotton plant	90x(60x30)x12-1
5	Planting marigold seeds in open ground	(76x38)x9,7-1
6	Planting seeds on a film-covered bed of a cotton plant	(76x38)x9,7-1

In the experimental variants, ammonium nitrate (N–34%) was used as nitrogen fertilizer, superphosphate (P2O5–12–14%) as phosphorus fertilizer, and potassium chloride (K2O–50%) as potassium fertilizer. In the experiment, the variants were given 70% of the annual rate of phosphorus fertilizers and 100% of potassium fertilizers in the fall, under the plow, and the remaining 30% of phosphorus fertilizers were applied together with sowing.

Annual rates of nitrogen fertilizers were applied to the variants planted in open ground and under film mulch in the amount of 50% during the budding period and 50% during the flowering period.

When we analyzed the growth and development of cotton plants maintained according to planting systems and methods in the experimental variants, it was observed that the effect of the applied agrotechnical measures was proven.

In particular, when the growth and development of cotton plants grown in the open field in variants 3 and 5, which were planted in the 90x(60x30)x12-1 and (76x38)x9.7-1 systems, was studied, the number of bolls that reached the state of 1.09 days compared to variant 1, where the seeds were planted in the open field in the 90x10-1 system, was 0.6-1.0 units, of which the number of opened bolls was 0.4-0.7 units, the number of opened bolls for the 1st harvest was 0.5-1.0 units, the weight of cotton with seeds in one boll was 0.4-0.8 g, the weight of opened bolls for the 2nd harvest was 0.1 g, the weight of cotton with seeds in one boll was 0.4-0.5 g, the average weight of cotton with seeds in one boll was showed that the weight of cotton with seeds was as low as 0.4-0.6 grams.

When analyzing the growth and development of plants in variants 4 and 6, where seeds were planted in pairs in the 90x(60x30)x12-1 and (76x38)x9.7-1 systems, compared to variant 2, where a film was placed on the bed and seeds were planted in single rows in the 90x10-1 system, the number of bolls increased by 0.6-0.9 units as of day 1.09, of which the number of opened bolls was 0.5-0.9 units, the number of opened bolls for the 1st harvest was 0.5-0.7 units, the weight of cotton with seeds in one boll was 0.3-0.6 g, the weight of opened bolls for the 2nd harvest was 0.1-0.2 g, the average weight of cotton with seeds in one boll was 0.4 g, and the average weight of cotton with seeds in one boll was 0.4-0.5 g less

However, when comparing the growth and development of cotton plants planted in open ground with the growth and development of cotton plants planted

under film, compared to cotton plants grown in open ground, the plant height as of day 1.06 was from 2.8 cm to 3.1 cm, the number of cotyledons was from 2.8 to 2.9, the plant height as of day 1.07 was from 5.9 cm to 6.7 cm, the number of fruit branches was from 1.4 to 1.6, the number of combs was from 2.9 to 3.1, the number of flowers was from 3.7 to 4.4, the plant height as of day 1.08 was from 9.3 cm to 10.9, the number of fruit branches was from 2.5 to 2.8, the number of fruit elements was from 8.6 to 10.9. Up to 9.8 grains, the number of bolls increased from 2.1 to 2.4 grains, the number of bolls as of day 109 was from 2.0 to 2.1 grains, the number of opened bolls from 2.0 to 2.2 grains, the weight of opened cotton seeds in the 1st and 2nd harvests increased from 0.3 to 0.4 grams.

When determining the yield of cotton with seeds between the variants, it was observed that the data were obtained in accordance with the above laws. In variant 1, where seeds were planted in single rows in the open field and in the 90x10-1 system, the cotton yield was 29.9 t/ha on average, with a profitability rate of 17.5%. When studying the cotton yield in variants 3-5, where seeds were planted in double rows in the open field and in the 90x(60x30)x12-1 and (76x38)x9.7-1 systems, the average cotton yield was 32.2-33.6 t/ha, with a profitability rate of 19.3-22.5 percent, and an additional cotton yield of 2.3-3.7 t/ha was obtained compared to variant 1, where seeds were planted in the open field and in the 90x10-1 system, with a profitability rate of 17.5%. It was found to be 1.8-5.0 percent higher.

When analyzing the cotton yield of option 2, where the film is laid on the cotton, the seeds are planted in single rows, and the 90x10-1 system, it was observed that the average cotton yield was 35.8 t/ha, and the profitability rate was 23.1 percent. In options 4-6, where the film is laid on the cotton, the seeds are planted in double rows, and the 90x(60x30)x12-1 and (76x38)x9.7-1 systems, the average cotton yield was 38.0-40.4 t/ha, and the profitability index was 28.8-34.6 percent. Compared to option 2, where the film is laid on the cotton, the seeds are planted in single rows, and the 90x10-1 system, an additional 2.2-4.6 t/ha of cotton was obtained, and the profitability rate increased by 5.7-11.5 percent.

When analyzing cotton yield by planting method, it was found that cotton yield in systems planted under film was 5.8 t/ha to 6.8 t/ha, and the profitability index was 5.6 to 12.1 percent higher than in systems planted in open ground.

The results show that cotton yield in planting systems increased by 2.2 t/ha to 4.6 t/ha due to seedling thickness, and the profitability index increased by 1.8 to 11.5 percent, while cotton yield in open ground was 5.8 t/ha to 6.8 t/ha, and the profitability index was 5.6 to 12.1 percent higher than in systems planted under film.

In the light gray soils of Andijan region, to achieve high and high-quality cotton yields from cotton plants, it is recommended to harvest cotton in the fall, plant seeds in a (76x38)x9.7-1 system, and plant and care for the cotton with a film covering the cotton.

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BO‘LAJAK BOSHLANG‘ICH SINF O‘QITUVCHILARINING KREATIV VA TANQIDIY FIKRLASHINI RIVOJLANTIRISHDA INNOVATSION TA’LIM SHAROITINING AHAMIYATI

Annotatsiya: *Ushbu maqolada zamonaviy sharoitda ta’lim jarayonining barcha imkoniyatlariga ko‘ra, shaxsni takomillashtirish, ijtimoiylashtirish va unda mustaqil, kreativ va tanqidiy, kreativ fikrlash qobiliyatlarini tarbiyalashga yo‘naltirilishi, o‘zida ana shu imkoniyatlarni namoyon eta olgan ta’lim innovatsion ta’lim ekanligi, bo‘lajak boshlang‘ich sinf o‘qituvchilar bir-biri bilan va boshqa kishilar bilan muloqot qilishni, o‘zaro harakat qilishni, kreativ va tanqidiy fikrlashni, ishlab chiqarish vaziyatlarini tahlil qilish asosida murakkab muammolarni, kasbiy vaziyatga oid masalalarni hal qilishni o‘rganishlari ahamiyati ilmiy asoslab berilgan.*

Kalit so’zlar: *kreativ fikrlash, tanqidiy fikrlash, muammo, innovatsiya, pedagogika, kasbiy sifat, ijodiy fikrlash.*

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THE IMPORTANCE OF INNOVATIVE EDUCATIONAL CONDITIONS IN THE DEVELOPMENT OF CREATIVE AND CRITICAL THINKING OF FUTURE PRIMARY SCHOOL TEACHERS

Annotation: *This article discusses the various opportunities in the educational process in modern conditions aimed at improving the individual, socializing them, and fostering their abilities for independent, creative, and critical thinking. It is emphasized that education, which can demonstrate these opportunities, is innovative education. The scientific basis for the importance of future primary school teachers learning to communicate with each other and others, collaborate, think creatively and critically, analyze production situations to solve complex problems, and address professional issues is presented.*

Keywords: *creative thinking, critical thinking, problem, innovation, pedagogy, professional qualities, creative thinking.*

Kirish. Kuzatishlar va sohaga doir ilmiy adabiyotlar tahlili shuni ko‘rsatadiki, bo‘lajak boshlang‘ich sinf o‘qituvchilarda kasbiy sifatlarni rivojlantirishga doir innovatsion ta’lim texnologiyalarining asosiy maqsadi ularda mantiqiy, kreativ va tanqidiy, tahliliy, ijodiy fikrlashni rivojlantirish hamda shaxsning kamol topishi uchun kerakli hayotiy ko‘nikma va malakalarni hosil qilish hisoblanadi. Innovatsion faoliyat – yangi mahsulot yaratishga yo‘naltirilgan ilmiy,

texnologik, tashkiliy, moliyaviy, tijorat tadbirlari majmuidan iborat bo‘lib, ulardan maqsad o‘zlashtirilgan bilim, egallangan ko‘nikma, malaka, texnologiya va ishlab chiqarishga tatbiq etish samaradorligini ta’minlashdir. ta’limdagi innovatsion faoliyat – yangi kadrlarni yetishtirishga yo‘naltirilgan ilmiy, texnologik, tashkiliy moliyaviy, tijorat tadbirlari yig‘indisi bo‘lib, ulardan maqsad mana shu yig‘ilgan bilim, ko‘nikma, malaka, texnologiya va ishlab chiqarish jarayonining yangi kadrlarini keng miqyosida samarali tarzda mamlakat iqtisodiyoti uchun ko‘plab yetishtirib berishga yo‘naltirish va ta’minlashdan iboratdir[4].

Asosiy qism. Innovatsion faoliyat sifatida ta’lim muassasalari pedagogik jamoalarining ushbu jarayonga tayyorgarlik va kirishishini samarali ta’minlovchi aniq boshqaruv harakat tizimini belgilab olish imkonini ko‘rsatish mumkin.

Bo‘lajak boshlang‘ich sinf o‘qituvchilarning bilish faoliyatini shakllantirishda innovatsion yondashuvlar, bo‘lajak boshlang‘ich sinf o‘qituvchilarning bilish faoliyatini shakllantirishnig ijtimoiypsixologik, pedagogik xususiyatlarini yoritib berish, innovatsion yondashuvlarning pedagogik imkoniyatlarini asoslash orqali bo‘lajak boshlang‘ich sinf o‘qituvchilarning bilish faoliyatini shakllantirish mezonlari va ko‘rsatkichlarini aniqlashtirish, bo‘lajak boshlang‘ich sinf o‘qituvchilarning bilish faoliyatini shakllantirish modeli va uni amalga oshirishning pedagogik shart-sharoitlarini takomillashtirish, bo‘lajak boshlang‘ich sinf o‘qituvchilarning bilish faoliyatini shakllantirish texnologiyalarini takomillashtirish va samaradorligini baholash masalalari G.Baxodirova tomonidan o‘rganilgan. J.Mannopov tomonidan innovatsion yondashuv asosida bo‘lajak kasb ta’limi o‘qituvchilarining metodik kompetentligini rivojlantirish texnologiyalari, oliy ta’lim muassasalarida innovatsion yondashuv asosida bo‘lajak kasb ta’limi o‘qituvchilarining metodik kompetentligini rivojlantirish holati, mazmun-mohiyatini tahlil qilish hamda kasbiy-pedagogik faoliyatga tayyorlash mazmunini aniqlash, bo‘lajak kasb ta’limi o‘qituvchilarining metodik kompetentligini rivojlantirishda an’anaviy va innovatsion yondashuvlarni qiyosiy taqqoslash asosida mashg‘ulotlarni tashkil etish, innovatsion yondashuv asosida bo‘lajak kasb ta’limi o‘qituvchilarining, metodik kompetentligini rivojlantirishning faoliyatli modelini ishlab chiqish va amaliyotga tatbiq etish, bo‘lajak kasb ta’limi o‘qituvchilarining metodik kompetentligini rivojlantirishga yo‘naltirilgan innovatsion texnologiyalardan foydalanib ta’limning zamonaviy usullarini qo‘llash mexanizmlarini rivojlantirish bo‘yicha ilmiy izlanishlar olib borilgan.

“Innovatsiya” tushunchasi yangini, yangilikni, o‘zgarishni anglatadi. Shuningdek innovatsiya ham vosita, ham jarayon sifatida biron-bir yangilikni kirib kelishini taqozo etadi. Pedagogik jarayonga nisbatan, bu yangi maqsadlarni, mazmunni, metodlarni, ta’lim-tarbiyaning yangi shakllarini kiritish, ta’lim beruvchi va ta’lim oluvchilarning hamkorlikdagi faoliyati hisoblanadi. Innovason jarayon – pedagogik yangilikni yaratish faoliyati bo‘lib, undan ta’lim amaliyotida foydalaniladi hamda ushbu yangilik tarqatiladi. Innovatsion faoliyat ta’lim muassasalari tomonidan yangilikni o‘zlashtirish bo‘lib, u ta’lim tizimi holatining ijobiy o‘zgarishini va takomillashtirilishini loyihalashga olib keladi. Ta’limni

takomillashtirishga innovatsion yondashuv OTMlari o‘quv jarayoniga pedagogik innovatsiyalarni kiritish va foydalanishni anglatadi.

A.K.Markova fikricha, shaxsning kasbiy ijodi rivojlanishi uchun zarur sub’ektiv o‘xshatish qobiliyati; umumqabul qilingan yangilikka kreativ va tanqidiy munosabat, ma’lum bo‘lgan elementlardan yangi kombinatsiyalar tuza olish qobiliyati.

“O‘zbekiston Milliy ensiklopediyasi”da ko‘rsatilishicha, innovatsiya quyidagicha mazmun va tushunchalarga ega: “Innovatsiya (ingl. “innovationas” – kiritilgan yangilik, ixtiro) – 1) texnika va texnologiya avlodlarini almashtirishni ta’minlash uchuniqtisodiyotga sarflangan mablag‘lar; 2) ilmiy-texnika yutuqlari va ilg‘or tajribalarga asoslangan texnika, texnologiya, boshqarish va mehnatni tashkil etish kabi sohalardagi yangiliklar, shuningdek, ularning turli sohalar va faoliyat doiralarida qo‘llanishi”[5].

J.Yo‘ldoshev fikricha, “innovatsiya - tizim ichki tuzilishni o‘zgartirish amaliyot va nazariyaning asosiy qismi”, innovatsion faoliyat esa, “yangi ijtimoiy talablar bilan a’nanaviy me’yorlarnning mos kelmasligi. Amaliyotning yangilanayotgan me’yorlarni mavjud me’yorlar bilan to‘qnashuvi natijasida vujudga kelgan majmuali muommalarni yechishiga qaratilgan faoliyat” [3] deb ta’kidlaydi.

Ko‘pincha «innovatsiya» atamasi o‘rniga unga yaqin turdagi atamalar ham ishlatilmoqda. Masalan, isloh modernizatsiya, takomillashtirish, zamonaviylashtirish kabilar. Ular tahlil etilayotgan tushunchaning ma’nosini har doim ham to‘la ochib beravermasa-da, asosiy narsa – yangilikni, o‘zgarishlarni ifodalaydi [7].

Xulosa

Ushbu maqolada ta’limning innovatsion imkoniyatlari va uning shaxsni takomillashtirish, ijtimoiylashtirish hamda kreativ va tanqidiy fikrlash qobiliyatlarini rivojlantirishdagi roli ilmiy asosda tahlil qilingan. Zamonaviy ta’limning asosiy vazifasi shaxsni mustaqil fikrlovchi, kreativ va tanqidiy yondoshuvlarni o‘zida mujassamlashtirgan individuallarni tarbiyalashdan iboratdir. Bo‘lajak boshlang‘ich sinf o‘qituvchilarining kasbiy kompetensiyalarini rivojlantirishda, ular o‘zaro muloqot qilish, kreativ fikrlash va murakkab masalalarni tahlil qilish orqali professional vaziyatlarni hal qilishda o‘rgatishning ahamiyati katta. Shu bilan birga, bunday ta’lim metodikasi orqali o‘qituvchilarni faqat ma’lumot beruvchi emas, balki ta’lim jarayonida innovatsion yechimlarni yaratish va amalga oshirishga qodir mutaxassislar sifatida tayyorlash mumkin. Ta’limda innovatsion yondoshuvlar, nafaqat bilimlarning sifatini oshirish, balki o‘quvchilarning shaxsiy rivojlanishiga ham xizmat qiladi.

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ANALITIK KIMYODA SIFAT REAKTSIYALAR I - II GURUX KATION BO'YICHA TEXNOLOGIK KOMPETENTSIYAGA METODIKA QO'LLASH

Annotatsiya:*Ushbu metodik qo'llanma analitik kimyo fanida I va II-guruh kationlarini sifat reaktsiyalari asosida aniqlash bo'yicha texnologik kompetensiyani shakllantirishga qaratilgan. Sifat tahlilining asosiy usullari – cho'ktirish (pretsipitatsiya), oksidlanish-pasayish reaksiyalari, kislotalar va bazalar bilan o'zaro ta'siri orqali kationlarni guruhlarga ajratish va aniqlash ko'rib chiqiladi. Shuningdek, laboratoriya sharoitida ishlatiladigan reagentlar, reaksiya shartlari va natijalarni to'g'ri tahlil qilish metodlari yoritilgan. Qo'llanma analitik kimyo yo'nalishida tahsil olayotgan talabalar, tadqiqotchilar va laboratoriya xodimlari uchun mo'ljallangan bo'lib, amaliy ko'nikmalarni rivojlantirishga yordam beradi.*

Kalit so'zlar: *Analitik kimyo, sifat reaksiyalari, kationlar, I-guruh kationlari, II-guruh kationlari, pretsipitatsiya, oksidlanish-pasayish, texnologik kompetensiya, kislotalar va bazalar, laboratoriya usullari.*

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QUALITATIVE REACTIONS IN ANALYTICAL CHEMISTRY OF GROUPS I - II APPLICATION OF THE METHODOLOGY TO TECHNOLOGICAL COMPETENCE IN CATION

Abstract:*This methodological guide is aimed at developing technological competence in the field of analytical chemistry for the determination of cations of groups I and II based on qualitative reactions. The main methods of qualitative analysis are considered – precipitation, redox reactions, grouping and identification of cations through interaction with acids and bases. Reagents used in laboratory conditions, reaction conditions and methods of correct analysis of the results are also highlighted. The textbook is intended for students, researchers and laboratory staff studying analytical chemistry and helps to develop practical skills.*

Keywords: *Analytical chemistry, qualitative reactions, cations, group I cations, group II cations, precipitation, redox reaction, technological competence, acids and bases, laboratory methods.*

Kirish

Analitik kimyo moddalarni tarkibiy qismlar bo‘yicha o‘rganish va ularning miqdoriy hamda sifat jihatdan tahlilini amalga oshirish bilan shug‘ullanadi. Sifat analizi usullari kimyoviy moddalarni aniqlash va ularni guruhlarga ajratish imkonini beradi. Kationlarning sifat reaktsiyalari ularni guruhlarga bo‘lish, aniqlash va ajratish jarayonida muhim ahamiyatga ega.

I va II-guruh kationlarini aniqlash texnologik kompetensiyani shakllantirishda asosiy bosqichlardan biri hisoblanadi. Ushbu guruhga kiruvchi kationlar kimyoviy reagentlar bilan maxsus reaksiyalarga kirishadi va cho‘kindi (pretsipitat) hosil qilish, rang o‘zgarishi yoki gaz ajralishi kabi belgilar orqali aniqlanadi. Bu metodlar laboratoriya sharoitida turli moddalarni tahlil qilishda keng qo‘llaniladi.

Ushbu ishning maqsadi I va II-guruh kationlarini sifat reaktsiyalari yordamida aniqlash metodikasini yoritish, texnologik kompetensiyani oshirish hamda laboratoriya sharoitida foydalanish imkoniyatlarini ko‘rsatishdir. Bu jarayon talabalarga va tadqiqotchilarga analitik kimyo sohasida chuqur bilim hamda amaliy ko‘nikmalarni shakllantirishga yordam beradi.

Adabiyotlar tahlili

Analitik kimyoning muhim bo‘limlaridan biri bo‘lgan sifat tahlili bo‘yicha ko‘plab ilmiy manbalar mavjud bo‘lib, ular kationlarni guruhlarga ajratish va aniqlash metodikasini batafsil yoritadi. I va II-guruh kationlarini sifat reaktsiyalari asosida tahlil qilish bo‘yicha ilmiy adabiyotlarda pretsipitatsiya, oksidlanish-pasayish reaksiyalari va kompleks hosil qilish usullari keng yoritilgan.

Analitik kimyo bo‘yicha fundamental qo‘llanmalar, jumladan, K. Fresenius va G. Shvarts tomonidan yozilgan ilmiy asarlar, kationlarning aniqlanishi va ularning kimyoviy xossalarini o‘rganishga asoslangan. Bu adabiyotlarda kationlarni guruhlarga ajratish sxemalari, cho‘kindi hosil qilish reaksiyalari va rang o‘zgarishlari kabi metodlar taqdim etilgan.

So‘nggi yillarda analitik kimyoda instrumental usullar rivojlanishi natijasida sifat tahlili klassik kimyoviy metodlar bilan birgalikda spektroskopiya, ion xromatografiyasi va elektroanalitik usullar bilan ham boyitilmoqda. Zamonaviy adabiyotlar kationlarni aniqlashning aniqroq va tezkor usullarini taklif etib, texnologik kompetensiyani rivojlantirishga qaratilgan.

Ko‘plab universitet darsliklarida analitik kimyoning amaliy jihatlari yoritilgan bo‘lib, ularda laboratoriya sharoitida kationlarni aniqlash bo‘yicha bosqichma-bosqich yo‘riqnomalar berilgan. Ushbu materiallar talabalarga I va II-guruh kationlarini aniq reaktsiyalar orqali tahlil qilish ko‘nikmalarini shakllantirishda yordam beradi.

Adabiyotlar tahlili shuni ko‘rsatadiki, kationlarning sifat reaktsiyalari bo‘yicha klassik va zamonaviy usullar bir-birini to‘ldiradi. Ilmiy manbalardagi ma’lumotlar kationlarni sifat tahlili orqali aniqlash metodikasini yanada samarali qo‘llash imkoniyatini beradi. Bu boradagi tadqiqotlar texnologik kompetensiyani

oshirish va laboratoriya sharoitida qo‘llaniladigan aniq usullarni takomillashtirishga xizmat qiladi.

Tadqiqot muhokamasi

I va II-guruh kationlarini sifat reaktsiyalari yordamida aniqlash bo‘yicha olib borilgan tadqiqot natijalari turli omillar ta’sirida qanday o‘zgarishini tahlil qilish muhim ahamiyatga ega. Ushbu muhokamada reaktsiyalar samaradorligi, aniqlik darajasi, cheklovlar va amaliy qo‘llash imkoniyatlari tahlil qilinadi.

Tadqiqot natijalari shuni ko‘rsatdiki, har bir kationning aniqlanishi uchun mos reagentlar talab etiladi va ularning konsentratsiyasi natijalarga sezilarli ta’sir ko‘rsatadi.

- Masalan, Ag^{+} ionini aniqlash uchun NaCl yoki HCl eritmasi ishlatilganda aniq oq cho‘kindi hosil bo‘ldi.
- Cu^{2+} ionining aniqlanishi NH_4OH yoki NaOH eritmalarining konsentratsiyasiga bog‘liq bo‘lib, past konsentratsiyalarda reaksiyalar yetarlicha ko‘rinmagan. Bu shuni anglatadiki, laboratoriya sharoitida reagentlarning standart konsentratsiyalaridan foydalanish kerak.

Reaksiyalarning o‘tish samaradorligi kationlarning muhit pH darajasiga bog‘liq ekanligi aniqlandi.

- Bi^{3+} va Pb^{2+} ionlarining cho‘kindi hosil qilish reaksiyalari kuchli kislotali muhitda sust kechdi.
- Sn^{2+} ionlari kuchli ishqoriy muhitda beqaror bo‘lib, bu ularning tahlil natijalariga ta’sir ko‘rsatdi. Bu esa tahlil davomida muhit pH darajasini nazorat qilish muhimligini ko‘rsatadi.

I-II guruh kationlarini sifatli reaksiyalar orqali tahlil qilishda va kimyoviy texnologik kompetensiyalarni rivojlantirishda qo‘llaniladigan pedagogik texnologiyalar o‘quvchilarga analitik fikrlash, ilmiy izlanish va amaliy ko‘nikmalarni rivojlantirishda muhim rol o‘ynaydi. Quyidagi pedagogik texnologiyalarni ta'lim jarayonida samarali qo‘llash mumkin:

Interaktiv ta'lim texnologiyalari

Interaktiv ta'lim texnologiyalari o‘quvchilarning faol ishtirokini ta'minlash va bilimlarni mustahkamlash uchun juda samarali vositalardir. Kimyo darslarida interaktiv usullarni qo‘llash o‘quvchilarda analitik fikrlash qobiliyatini rivojlantiradi. Masalan, onlayn ta'lim platformalarida yoki sinfda turli interaktiv o‘yinlar, so‘rovnomalar va testlar yordamida o‘quvchilar kationlarni tahlil qilish va kimyoviy reaktsiyalarni aniqlashga oid amaliy mashg‘ulotlarni o‘tkazish mumkin.

Laboratoriya ishlari va eksperimentlar

Kimyo fanida laboratoriya ishlari, ayniqsa, sifatli reaksiyalarni o‘rganish, o‘quvchilarga amaliy ko‘nikmalarni shakllantirishda samarali pedagogik texnologiyadir. Laboratoriya ishlari o‘quvchilarga kationlarni sifatli tahlil qilishning amaliy qadamlarini o‘rgatadi, ularning ilmiy izlanish ko‘nikmalarini rivojlantiradi va reaksiyalarning natijalarini to‘g‘ri tahlil qilishda yordam beradi. Eksperimentlar orqali o‘quvchilar kimyoviy reaktsiyalarni o‘zlari kuzatib, amaliyotda ishlashni o‘rganadilar.

Kognitiv va konstruktiv pedagogik texnologiyalar

Konstruktivizmga asoslangan pedagogik texnologiyalar, o‘quvchilarning o‘z bilimlarini mustahkamlash va yangi bilimlarni olish jarayonida faol qatnashishini ta'minlaydi. Ushbu texnologiyalar o‘quvchilarga o‘zlari kimyoviy reaktsiyalarni tushunish va sinfda o‘tkaziladigan sifatli tahlil ishlarida o‘z bilimlarini sinab ko‘rishga imkon yaratadi. Konstruktiv pedagogika usullari yordamida o‘quvchilar o‘z fikrlarini mustahkamlash va analitik fikrlashni rivojlantirishga erishadilar.

Vizual va multimediya texnologiyalar

Kimyo darslarida multimediya va vizual texnologiyalardan foydalanish, o‘quvchilarga kimyoviy jarayonlarni yaxshiroq tushunishga yordam beradi. Kimyoviy reaktsiyalar va sifatli tahlil usullarini diagrammalar, grafikalar, video materiallar va boshqa vizual yordamchi vositalar orqali tushuntirish o‘quvchilarga murakkab kimyoviy jarayonlarni aniq va tushunarli ko‘rsatadi. Bu texnologiyalar o‘quvchilarda kimyo faniga bo‘lgan qiziqishni oshiradi va ilmiy izlanishlarni yanada qiziqarli va samarali qiladi.

Problemaviy ta'lim texnologiyalari

Problemaviy ta'lim texnologiyalarini qo‘llash, o‘quvchilarni mustaqil fikrlashga, muammolarni echish va yechimlarni topish jarayoniga jalb etishga yordam beradi. Kimyo darslarida problemaviy ta'lim usulini qo‘llash, o‘quvchilarga sifatli reaksiyalarni o‘rganish va kationlarni aniqlashdagi turli xil muammolarni hal qilishda yordam beradi. Bu yondashuv o‘quvchilarda ilmiy fikrlash va tahlil qilish ko‘nikmalarini rivojlantiradi.

O‘z-o‘zini baholash va hamkorlik

O‘quvchilarning o‘z-o‘zini baholash va hamkorlikda ishlash qobiliyatlarini rivojlantirish uchun guruh ishlari va muhokama jarayonlari orqali pedagogik texnologiyalarni qo‘llash mumkin. O‘quvchilar birgalikda kimyoviy reaktsiyalarni tahlil qilish, tajriba o‘tkazish va natijalarni taqqoslash orqali o‘z bilimlarini baholaydilar va o‘rganilgan ko‘nikmalarni amaliyotga tatbiq etadilar.

Simulyatsiya va virtual ta'lim texnologiyalari

Simulyatsiya va virtual ta'lim texnologiyalarini qo‘llash, kimyo darslarida o‘quvchilarga xavfsiz sharoitda turli xil kimyoviy reaktsiyalarni bajarish imkonini beradi. Virtual laboratoriyalar, simulyatsiyalar va tajribalar o‘quvchilarga o‘rganilayotgan kimyoviy jarayonlarni vizual tarzda tushunishga va amaliy ko‘nikmalarni oshirishga yordam beradi.

Tadqiqot natijalari

I va II-guruh kationlarini sifat reaktsiyalari asosida aniqlash bo‘yicha olib borilgan tadqiqotlar natijasida quyidagi asosiy xulosalar chiqarildi:

Tajribalar davomida I-guruh kationlari (Ag^{+}, Pb^{2+}, Hg_2^{2+}) va II-guruh kationlari (Cu^{2+}, Bi^{3+}, Cd^{2+}, Sn^{2+}) kimyoviy reagentlar bilan reaksiya qildirildi.

- I-guruh kationlari xlorid ionlari (Cl^{-}) bilan cho‘kindi hosil qilish orqali aniqlandi. Masalan, Ag^{+} ioni AgCl sifatida oq cho‘kindi hosil qildi.
- II-guruh kationlari sulfid ionlari (S^{2-}) ta’sirida cho‘kma hosil qildi. Masalan, Cu^{2+} ioni CuS sifatida qora cho‘kindi hosil qildi.

Tadqiqot jarayonida kationlarning cho‘kindi hosil qilishi, rang o‘zgarishi va gaz ajralishi kabi belgilar kuzatildi:

- Pb^{2+} ioni Na_2SO_4 bilan oq cho‘kma ($PbSO_4$) hosil qildi.
- Cu^{2+} ioni NaOH bilan reaksiya qilib ko‘k rangli $Cu(OH)_2$ cho‘kmasini hosil qildi.
- Bi^{3+} ioni ammiak eritmasi bilan oq cho‘kindi hosil qildi, bu uning mavjudligini tasdiqladi.

Tadqiqot davomida reagentlar konsentratsiyasi, pH muhit va reaksiyalarni o‘tkazish shartlari sinovdan o‘tkazildi.

- Optimal sharoitda olib borilgan reaktsiyalar kationlarni aniqlashning yuqori aniqlikka ega ekanligini ko‘rsatdi.
- Harorat va muhit pH ko‘rsatkichlari reaksiyalar samaradorligiga ta’sir ko‘rsatdi.

Ushbu tadqiqot natijalari laboratoriya sharoitida kationlarni sifat reaksiyalari yordamida samarali aniqlash imkonini berdi. Olingan natijalar kimyo laboratoriyalarida va atrof-muhit monitoringida qo‘llash uchun foydali bo‘lishi mumkin.

Tadqiqot natijalari shuni ko‘rsatdiki, I va II-guruh kationlarini aniqlash uchun sifat reaktsiyalari aniq va ishonchli usul hisoblanadi. Olingan ma’lumotlar kationlarni identifikatsiya qilishda laboratoriya sharoitida qo‘llanilishi mumkin bo‘lgan samarali texnologik yondashuvlarni ishlab chiqishga yordam beradi.

Xulosa

Olib borilgan tadqiqot natijalari shuni ko‘rsatdiki, I va II-guruh kationlarini sifat reaktsiyalari asosida aniqlash usullari samarali va aniq natijalar beradi. Kationlarni guruhlarga ajratish, ularning xossalarini o‘rganish va mos reagentlar bilan reaksiyaga kiritish orqali har bir ionni individual aniqlash mumkinligi tasdiqlandi.

I-guruh kationlari (Ag^+, Pb^{2+}, Hg_2^{2+}) asosan xlorid ionlari bilan cho‘kindi hosil qilish reaksiyasi orqali aniqlanadi.

II-guruh kationlari (Cu^{2+}, Bi^{3+}, Cd^{2+}, Sn^{2+}) sulfid ionlari bilan cho‘kindi hosil qilish yoki gidroksidlar shaklida ajralib chiqishi orqali tahlil qilindi.

Muhit pH darajasi va reagent konsentratsiyasi reaksiyalar samaradorligiga bevosita ta’sir ko‘rsatdi, bu esa tajriba sharoitlarini to‘g‘ri tanlash zarurligini ko‘rsatadi.

Aniqlik darajasi yuqori bo‘lsa-da, ba’zi kationlar o‘xshash reaksiya ko‘rsatgani sababli, natijalarni aniqlashda qo‘shimcha sinovlar talab etilishi mumkin.

Tadqiqot natijalari laboratoriya sharoitida kationlarni sifat tahlili orqali aniqlashning ishonchli va samarali usullari mavjudligini ko‘rsatdi. Bu metodika analitik kimyo bo‘yicha ta’lim olayotgan talabalar, laboratoriya xodimlari va tadqiqotchilar uchun foydali bo‘lib, atrof-muhit monitoringi va sanoat tahlillarida qo‘llanilishi mumkin.

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SETTING A TIME NORM IN ENTERPRISES AND ITS EFFECT ON THE PERFORMANCE OF THE TEAM

Annotation. *This article explores the topic of "Setting the norm of time in enterprises and its impact on the functioning of the team". The standard of time is important in increasing the efficiency of the enterprise's activities, it allows you to optimize work processes and save resources. The article presents the process of setting the norm of time, its basic principles and practical methods. It is also analyzed how the time norm affects the motivation, attitude to work and overall efficiency of team members. The article provides the knowledge and skills necessary for managers and managers of enterprises to successfully operate in a modern work environment.*

Keywords: *time standard, motivation, Financial Resources, Job Analysis, time planning, modern business, strategy.*

Introduction. The standard of time is the standard or average of the time set for tasks that must be performed in work processes. It plays an important role in improving the efficiency of the enterprise's activities, since the time standard helps to optimize work processes, save resources and increase the motivation of Team Members [1]. First, the process of setting a time norm will help determine how much time should be spent at each stage of work. Through this process, businesses analyze their work processes to determine which tasks take a lot of time and at which stages it is possible to increase efficiency. For example, in the field of production, the time required for each operation in the production process is determined by setting a time norm. This, in turn, makes it possible to further simplify and speed up production processes.

Secondly, time standards have a positive effect on the motivation of team members. If employees are used to carrying out their duties within a set period of time, this will improve their attitude to work. Through the time standard, employees are clearly guided in planning their work, and this helps them improve efficiency [2]. In such conditions, employees are more eager to achieve their goals, and as a result, the overall efficiency of the enterprise increases.

Thirdly, the standard of time allows you to save resources. If the enterprise sets a specific time for each task, this will lead to a reduction in excessive spending in business processes. For example, if all tasks are completed within a specified time

for a project, it will save not only financial resources, but also human resources. At the same time, with the help of time standards, enterprises will be able to more effectively manage their work processes [3]. At the same time, the process of setting the time norm should be constantly updated. With changes in market conditions, technologies and other factors, time standards are also updated accordingly. To do this, enterprises need to regularly analyze work processes and, if necessary, revise the time standards.

The process of setting a time norm consists of several stages. Initially, it is necessary to analyze the activities of the enterprise and study the existing business processes. At this stage, each aspect of the work is carefully studied, including tasks, resources and time consumption. Next, on the basis of the data obtained, the standards necessary for setting time standards are developed. In addition, the experience and knowledge of employees should also be taken into account when setting time standards. When their feedback and suggestions are added to the process, the established norms become more clear and valid[4]. Also important are the processes of its implementation and control, once the norm of time is established. In these processes, the work activities of employees are monitored and, if necessary, the time standards are revised.

When setting the time norm, a number of basic principles must be followed:

❖ Interoperability - each task is interconnected, and the execution of one task affects other tasks. Therefore, it is important to take this connection into account when setting time standards.

❖ Analysis and evaluation - it is necessary to rely on previous work experiences when setting the time norm for each task of the clock. Through this, the actual consumption of time and the necessary resources are determined.

❖ Volatility - with changes in market conditions and technology, it is necessary that the time standards are also updated. This process must be carried out continuously.

❖ Motivation-the standards of time to motivate employees should be realistic and achievable. If the norms are too high or low, this can negatively affect the motivation of employees.

A number of practical methods are used when setting a time norm:

✓ Job analysis - with this method, the process of work is analyzed in detail to determine the time spent on the execution of each task. Based on the results of the work Analysis, time standards are established.

✓ Statistical methods - a statistical analysis is carried out based on data from past work experience, and the average time indicators are determined. With this method, the norm of time becomes more pronounced.

✓ Expert assessment - the standard of time is established based on the assessments given by experienced employees or specialists in the field of application [5]. This method is often used for new tasks or processes.

✓ Time measurements - accurate indicators can be obtained by measuring the time when various tasks are performed. With this method, the norm of time is tested in real conditions.

Effective time management in a modern business environment is important for any enterprise. Setting a time norm, that is, planning, controlling and optimizing work processes, plays an important role in improving the efficiency of the enterprise.

Time planning is a key part of any successful strategy. In the planning process, the goals of the enterprise are determined and the tasks necessary to achieve them are set. For example, by drawing up an annual plan, the company knows how to allocate its resources and allows you to make the most of these resources. In the planning process, it is very important to set SMART (precise, measurable, achievable, real and time-dependent) goals[6]. With this method, each employee clearly understands his duties and begins to work on them.

An important factor in managing time is setting priorities. Each task and project is evaluated according to its importance, and the most important ones are performed in the first place. With this method, the enterprise solves important cases faster and efficiently distributes resources. For example, if a project needs to be completed quickly, then it must be completed before other less important tasks. The process of setting priorities also forms clear concepts among employees and simplifies the work process.

Time control is the process of monitoring the implementation of planned work. To do this, it is possible to monitor work processes using modern technologies and programs. For example, with the help of project management programs (Trello, Asana, Jira), tasks and their deadlines are controlled. This helps employees to carry out their duties on time and increases the overall efficiency of the enterprise. The control process gives employees the opportunity to evaluate their work, and also helps to identify problems early.

Improving the skills of employees of the enterprise also plays an important role in the effective management of time. Through educational programs, employees acquire new skills and are able to make work processes more efficient. Qualified employees can offer innovative solutions that can save time. Also, a culture of constant development increases motivation in the enterprise and increases the interest of employees in work.

Conclusion. Setting a time norm in enterprises is an important process for improving efficiency and improving the performance of the team. Through the use of time planning, priority setting, Control, interaction and technology, businesses optimize their work processes. These processes help to clearly understand the tasks of team members, solve important cases faster and strengthen mutual cooperation. As a result, timing increases the motivation of the team, creates the opportunity to adopt innovative solutions and enhances the overall competitiveness of the enterprise. At the same time, effective time management can lead to financial achievements of the enterprise and ensure its long-term success. Thus, setting a time norm is one of the basic principles of any successful organization.

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"BOBURNOMA" XV-XVI ASR O'ZBEK ADABIY TILINING BEBAHO YODGORLIGI

Annotatsiya: *Ushbu maqolada "Boburnoma" asarining XV-XVI asrlardagi o'zbek adabiy tilidagi o'rni va ahamiyati yoritilgan. Bobur ijodi she'riy va badiiy uslubda, o'zbek tilining rivojlanishi, so'z boyligi va grammatik tizimi hamda adabiyotga qo'shgan hissasi tahlil qilinadi. Maqolada"Boburnoma" ning tarixiy va madaniy ahamiyati, uning o'zbek tilini rivojlantirishdagi o'rni va metodologik jihatlari o'rganiladi. Asar orqali tilning xususiyatlari, uning zamonamizning madaniy va lingvistik jarayonlariga ta'siri, adabiyotshunoslik va tilshunoslik sohasidagi roli ochib beriladi.*

Kalit so'zlar: *Boburnoma, o'zbek adabiy tili, tarixiy asar, lug'at, uslub, tilshunoslik, XV-XVI asrlar, badiiy til, grammatik xususiyatlar, tilshunoslik, adabiyotshunoslik, madaniy meros, adabiy rivojlanish.*

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BOBURNOMA IS AN INVALUABLE MONUMENT OF THE UZBEK LITERARY LANGUAGE OF THE XV-XVI CENTURIES

Abstract: *This article highlights the role and significance of the work "baburnama" in the Uzbek literary language of the XV-XVI centuries. The article analyzes Babur's work in a poetic and artistic style, the development of the Uzbek language, its vocabulary and grammatical system, as well as his contribution to literature. The article explores the historical and cultural value of Baburnoma, its role in the development of the Uzbek language, and methodological aspects. Through the work, the features of the language, its influence on the cultural and linguistic processes of modernity, and its role in the field of literary studies and linguistics are revealed.*

Key words: *Baburnoma, Uzbek literary language, historical work, dictionary, style, Linguistics, XV-XVI centuries, artistic language, grammatical features, linguistics, literary studies, cultural heritage, literary development.*

KIRISH

Bashariyat tarixining ijtimoiy-siyosiy, ilmiy-madaniy sohalarida salmoqli o’rin tutgan siymolardan biri buyuk vatandoshimiz Zahiriddin Muhammad

Boburdir. Uning "Boburnoma" asari – XYasr oxiri va XVI asr boshlardagi o'zbek adabiyotining bebaho yodgorligi hisoblanadi.

Bu asar eski o'zbek tilida yozzilgan bo'lib, "Boburiya, "Voqeoti Boburiy", "Tuzuki Boburiy","Tabaqoti Boburiy", "Tavorixi Boburuy" kabi nomlar bilan ma'lum. Mirzo Boburning o'zi esa "Vaqoye" va "Tarix" degan nomlarni ishlatgan.

Ushbu asar Bobur Mirzo tomonidan yozilgan bo'lib, O'rta Osiyo, Afg'oniston va Hindistonning tarixini, jo'g'rofiyasini, etnografiyasi, o'simlik va hayvonot olami, xalqlari, odamlarning kasb-kori, tili, hayot tarzi va boshqa hususiyatlari haqida bebaho ma'lumotlarni o'zida mujassam etgan manbadir. Shuningdek, asarda Movarounnahr, Hindiston va boshqa mintaqalarning tarixiy shaxslari, voqealari va madaniyati to'g'risida muhim ma'lumotlar keltirilgan.[5]

"Boburnoma" asarining ilmiy ahamiyati shundaki, u nafaqat tarixiy voqealar haqida aniq ma'lumot beradi, balki o'zbek tili rivojiga ham katta hissa qo'shgan. Asarda qo'llanilgan til va badiiy uslublar o'zbek tilining boy va xilma-xil imkoniyatlarini namoyish etadi. Bobur o'z ijodida tarixiy tasvirlar, shaxsiy kuzatishlar va adabiy iboralarni muvaffaqiyatli birlashtirgan, bu esa asarni jahon adabiyotining qimmatli asariga aylantirgan.

"Boburnoma" da keltirilgan ma'lumotlardan foydalangan holda o'zbek adabiy tili va madaniyati rivojlanishini tahlil qilish tilning o'ziga xos xususiyatlari va ushbu davrdagi ijtimoiy voqealarni yaxshiroq tushunishga yordam beradi. Ma'lumki, XV-XVI asrlar o'zbek adabiy tili uchun muhim davr hisoblanadi, chunki aynan shu davrda adabiyot va tilning ko'plab yangi shakllari shakllangan.

Shunday qilib," Boburnoma " nafaqat tarixiy asar sifatida, balki tilshunoslik, adabiyotshunoslik va madaniyatshunoslik nuqtai nazaridan ham muhim ilmiy manba hisoblanadi. Ushbu asar tufayli o'zbek tilining rivojlanishi, shuningdek, adabiy til va madaniyatning o'zaro bog'liqligi haqidagi man'balarni bilib olish mumkin.

MUHOKAMA VA TADQIQOT NATIJALARI

O'zbekiston tarixida Zahiriddin Muhammad Boburning ismi Jaloliddin Manguberdi, Amir Temur, Ulug'bek, Alisher Navoiy kabi siyosat va harbiy ishlar arboblari bilan bir qatorda turadi. Hindistonda Boburiylar imperiyasini yaratgan Temuriylar shahzodasi (g'arbiy manbalarda "Buyuk mo'g'ullar imeriyasi") o'z vatanining sodiq o'g'li bo'lib, umrining oxirigacha uning farovonligi uchun kurashgan.

Zahiriddin Muhammad Bobur o'zining 47 yillik hayoti davomida boy adabiy va ilmiy meros qoldirdi. Uning qalamiga mashhur "Boburnoma" asari ham tegishli bo'lib, u dunyo miqyosida tan olingan. Uning turkiy she'riyatining eng nodir durdonalari bo'lgan nafis g'azal va ruboiylaridan tashkil topgan she'riy devoni, musulmon qonunshunosligini o'zida aks ettirgan "Mubayyin"("Bayon etilgan") asari, she'riyatga bag'ishlangan "Aruz risolasi", musiqa, harbiy ishlar bo'yicha risolalar, "Harb ishi" asari, shuningdek "Xatti Boburiy" maxsus alifbosi va "Risolayi volidiyya" asarlari bizgacha etib kelgan[6].

[5] Boburnoma. T., Sharq nashriyoti, 2002, 5-b.
[6] Ma'naviyat yulduzlari. T., 2001. 268-b.

Boburning butun jahon ommasiga mashhur bo'lgan shoh asari "Boburnoma"dir. Sharqshunos olim, akademik V.V. Bartold aytganidek, Bobur ijodiga mansub asarlar orasida "Boburnoma" faqat siyosiy kurashlar hujjatigina bo'lib qolmay, XY asrdayoq haqqoniy ravishda "turkiy nasrning mumtoz realistic namunasi" deb tanilgan yodgorlikdir.[7]

Ma'lumotlar to'plami va ularning ishonchliligi bo'yicha "Boburnoma" o'rta asrlarda O'rta Osiyo, Eron, Afg'oniston va Hindistonda yozilgan shunga o'xshash asarlar orasida tengsiz bo'lgan eng muhim va qimmatli tarixiy-proza asari hisoblanadi. Ma'lumki, unda Bobur yashagan davr oralig'ida Movarounnahr, Xuroson, Eron va Hindiston xalqlari tarixii yoritilgan. Asar asosan uch qismdan iborat bo'lib, uning birinchi qismi XV asrning ikkinchi yarmida Markaziy Osiyoda ro'y bergan voqealarni; ikkinchi qismi – XY asrning oxiri va XYI asrning birinchi yarmida Qobul ulusi, ya'ni Afg'onistonda ro'y bergan voqealarni qamrab oladi. Oxirgi qismda XYI asrning birinchi choragidagi Shimoliy Hindistondagi siyosiy voqealar, mamlakatning geografik ma'lumotlari, uning tabiiy xususiyatlari tasvirlangan, ushbu mamlakatda yashagan xalqlar haqida qiziqarli ma'lumotlarni uchratish mumkin[8].

Kitob Hindistonda yakunlangan bo'lib, u asosan avtobiografik (memuar janr) xususiyatiga ega va XV asr oxiri - XVII asr boshlaridagi Markaziy Osiyo xalqlari tarixini aks ettiradi.

"Boburnoma"ni varaqlar ekanmiz, ko'z oldimizdan Markaziy Osiyo, Afg'oniston va Hindiston xalqlariga xos bo'lgan fazilat va nuqsonlar, ularning tafakkur olamini kengligi va murakkabligi bilan birga, o'sha davrdagi hayot muammolari, Bobur davlatidagi siyosoy va ijtimoiy hayotning to'liq manzarasi namoyon bo'ladi. "Boburnoma"da keltirilgan bu tarzdagi ma'lumotlar Bobur davrida yozilgan boshqa tarixiy manbalar: Mirxond, Xondamir, Muhammad Haydar, Muhammad Solih, Binoiy va boshqa tarixchilarning asarlarida bu darajada aniq va mukammal yoritilgan emas. Muallif "Boburnoma"da Alisher Navoiy, Abdurahmon Jomiy, Shayxim Suxayliy, Husayn Ali Tufayliy, Osafiy, Binoiy, Sayfiy Buxoriy, Ohiy, Muhammad Solih kabi ijodkorlar Behzod, Mirzo Ulug'bek va boshqa allomalar haqida o'zining eng yuqori fikr va mulohazalarini bildirib, ularning ijodiy faoliyatiga xolis baho beradi.

Zahiriddin Bobur Navoiy shaxsiyatiga birinchi galda davlat arbobi sifatida ta'rif beradi. Uning "ahli fazl va ahli xunarg'a murabbiy va muqavviyligi"ni ta'kidlar ekan, jamiyatdagi mavqeini aniq belgilaydi, shogirdlarining ko'pligi insoniy xususiyatining bir jihati ekanligini alohida uqdiradi. Ustod Qulmuhammad, Shayxiy Noiy va Husayn Udiyning musiqadagi muvaffaqiyati, Bekzod va Shoh Muzaffarning tasviriy san'atda katta obro' e'tibori Navoiyning "tarbiyat va taqviyati bila" amalga oshganligini ta'kidlaydi.

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[7]. Boburnoma. T., Sharq nashriyoti, 2002, 24-b.
Bar'told V.V.Istiriya kul'turi musul'manstva. S.Peterburg, 1918. S.98
[8]. Ma'naviyat yulduzlari. T., 2001. 270-b.

Bobur Navoiyning "muncha binoyi xayr" qurgani, "Mirzodin(ya'ni Husayn Boyqarodan) nima olmas, balki yilda mirzog'a kulliy mablag'lar peshkash qilishi"-ni keltirib, shoir shaxsiyatini o'quvchi ko'z o'ngida ulug'vor etib, ulug' vazirning bu dunyo moddiy boyliklari omonatligini bilib, yur, davlat manfaatiga xolisanilloh xizmat qilganligini ko'rsatadi[9].

Bobur buyuk Alisher Navoiy haqida zavq-shavq bilan so'zlaydi: "Alisherbek naziri yo'q kishi edi. Turkiy til bila she'r aytubturlar, hech kim oncha ko'p va xo'b aytqon emas. Olti masnaviy kitob nazm qilibdur, beshi "Xamsa" javobida, yana bir "Mantiq ut-tayr" vaznida "Lison ut-tayr" otliq. To'rt g'azaliyot devoni tartib qilibtur: "G'aroyib us-sig'ar", "Navodir ush-shabob","Badoyi ul-vasat","Favoid ul-kibar" otliq. Yaxshi ruboiyoti ham bor".[10]

Zahiriddin Boburning Alisher Navoiyga munosabati haqoda so'z ochganda, uning Hirot shahrida qisqa muddat bo'lgani, boshqa joyda turmasdan Navoiyning shaxsiy uyi - "Unsiy"da yashagani, shaharning boshqa joylari qatori ulug shoir qurdirgan binolarni mehr bilan ziyorat qilib, bu haqda "Boburnoma"da yozganini ta'kidlamaslikning iloji yo'q. Quyidagi parcha Bobur uslubiga xos umumlashtirish mahoratidan bir namuna hamdir: "Alisherbekning o'lturur uylarikim, "Unsiya" derlar, maqbaqra va masjidi jomeinikim "Qudsiya" derlar, madrasasi va xonaqohinikim, "Xalosiya" va "Ixlosiya" derlar, hammom va dorushshifosinikim, "Safoiya" va "Shifoiya" derlar, borini andak fursatta sayr qildim".[11]

Ma'lumki, "Boburnoma" tarixiy asar, u bo'lib o'tgan haqiqiy voqealarni tavsif qiladi. Lekin bu hol badiiy tasvirlarni qo'llash zaruratini inkor etmaydi.

"Boburnoma" XY-asr o'zbek adabiy nasrining yorqin namunasi sifatida sof badiiy lavhalar,jonli tasvirlar, an'anaviy lirik chekinishlarga boy. Nasriy matn ichida keltirilgan xalq maqol, matallari, iboralari, ibratli o'gitlar, she'riy parchalaruning badiiyligini yanada oshiradi, o'ziga xos joziba bag'ishlaydi.

Bobur o'rni bilan kishilarning ichki kechinmalarini, ruhiy holatlarini aks ettirish, biron-bir shaxsning qiyofasini ochish, tasvirlanayotgan voqeaning mazmunini oydinlashtirish, ayrim voqealaridan tegishli tarbiyaviy xulosalar chiqarish uchun lirik parchalar keltiradi:

Charxning men ko'rmagan javru jafosi qoldimu?!

Xasta ko'nglum chekmagan dardu balosi qoldimu?!

1506 yilning qishida Hirotdan Qobulga Qandahor tog' yo'llari bilan og'ir qiyinchiliklar ichida kelayotgan paytida aytilgan bu bayt muallifning pehiy holatida yuz bergan his-tuyg'ularni ifodalashga xizmat qiladi.[12]

Bobur ma'nosiz suhbatlardan qochishga, o'z fikrlarini qisqa, aniq va sodda tarzda ifoda etishga, odam o'zi tushunmaydigan so'zlarni ishlatmaslikka chaqiradi. Xususan, u shunday deydi: "sodda, aniq va toza so'zlar bilan yozing: va sizni o'qigan kishiga ham kamroq ish qoldirasiz".

[9] H.Qudratullaev. Bobur armoni. T., Sharq, 2005. 261-b.
[10] Boburnoma. T., Sharq, 2002. 132-b.
[11] H.Qudratullaev. Bobur armoni. T., Sharq, 2005. 267-b.
[12] Boburnoma. T., Sharq, 2002. 147-b.

Albatta, "Boburnoma" dan olingan ushbu satrlar Boburning she'riy mahorati uning nasriy asarining tasviriy tiliga chuqur va aniq ta'sir ko'rsatganligini, bu unga katta badiiy go'zallik va keng shon-sharaf berganligini ko'rsatadi. Bobur Samarqand haqida katta muhabbat bilan yozadi, muallif Ulug'bek rasadxonasining ushbu inshootning mukammalligini, uning ajoyibligini ta'kidlab, unga qoyil qolgan tavsifini unutmaydi.

Bobur kitobida Vahsh va Panjob o'rtasidagi keng hududda yashagan turli afg'on qabilalarining hayoti va mehnat faoliyati batafsil bayon etilgan. Boburnoma Boburning adabiy muhiti haqida ko'plab ma'lumotlarni o'z ichiga oladi. Ushbu ma'lumotlarga asoslanib, o'sha davrda O'rta Osiyoda yashagan va fors va turk tillarida she'rlar yozgan ko'plab kam tanilgan shoirlarning tarjimai hollarini qayta tiklash mumkin. Kitobda shoirning bir qator zamondoshlari, davlat arboblari, rassomlar, musiqachilar, tarixchilarning ko'plab og'zaki portretlari mavjud. Boburning Markaziy Osiyo shaharlarining foydali qazilmalari to'g'risidagi ma'lumotlari juda qimmatlidir. Kitobda nafaqat tabiiy qazilmalar haqida alohida ma'lumotlar keltirilgan, balki ayni paytda ularning mamlakat iqtisodiy hayotiga tayinlanishi qayd etilgan.

"Boburnoma"da tasvirlangan mamlakatlarning flora va faunasi aks etgan. Bobur XV - XVI asrlar boshidagi Hindistonning siyosiy hayotini batafsil tasvirlab, uning tabiatiga qoyil qoladi va uni o'z vatani bilan taqqoslaydi: "bu ajoyib mamlakat; bizning erlarimiz bilan taqqoslaganda, bu boshqa dunyo. Tog'lar, daryolar, o'rmonlar, shaharlar, hududlar, til, o'simliklar va shamollar bizda bo'lgani kabi emas. Kobulga tutash issiq joylar Hindustanga o'xshash bo'lsa-da, boshqa jihatdan ular o'xshash emas deydi: "Bizning viloyatlarg'a boqa o'zga olamedur. Tog' va daryosi va jangal va sahrosi, mavozi' va viloyoti va hayvonot va nabototi, eli va tili va yomg'uri va eli borcha o'zgacha voqi' bo'lubtur. Kobul tavobii garmsellar agarchi ba'zi ishta Hindustong'a mushobahati bor, ba'zida yo'q. Sind suvini o'tgach, er va suv va yig'och va tosh va el va ulus va roh va rasm tamomi Hinduston tariqidadur".[13]

Bobur o'z faoliyatida doimiy ravishda Hindistonning yirik shaharlarini obodonlashtirish maqsadini ko'zlagan. Davlat va xususiy binolarning tartibi va arxitekturasi, ularning tashqi dizayni va ichki qismi, o'rta Osiyo uslubi bilan juda ko'p narsalarga ega bo'lib, bir vaqtning o'zida hind shakli va uslubi bilan uyg'unlashtirdi, bu ikki madaniyat - hind va O'rta Osiyo o'rtasidagi aloqaga olib keldi. Ushbu jarayon Bobur boshqaruvi davrida yanada rivojlandi, bu ayniqsa Shimoliy Hindistonda uning avlodlari tomonidan qurilgan yirik binolar uslubida sezilarli ko'rinadi. Bobur 1526-1530-yillarda Hindistonda juda qisqa vaqt hukmronlik qilganiga qaramay, feodal-parchalangan mamlakatni ma'lum darajada birlashtirishga va er-suv munosabatlari va soliq tizimini tartibga solish kabi muhim tadbirlarni amalga oshirishga muvaffaq bo'ldi. Uning buyrug'i bilan masjidlar obodonlashtirildi, turli maqsadlar uchun binolar qurildi, hammomlar

[13] Boburnoma. T., Sharq, 2002. 197-b.

qurildi, quduqlar qazildi va hokazo. Hindistonning yirik shaharlarida - Dehli, Agra, Lahor, Devalpurda Bobur tomonidan manzarali o'simliklar bilan bog'lar barpo etiladi. Bobur bog'larni rejalashtirishda O'rta Osiyo chorbog tizimidan foydalanganligi xarakterlidir. "Boburnoma" dan ma'lum bo'lishicha, 1526 yilda Panipatda Bobur tomonidan Ibrohim Lodi ustidan qozonilgan g'alaba sharafiga Kobul-baxt deb nomlangan katta bog' barpo etilgan, bu uning Hindiston hududidagi birinchi qurilishi bo'lgan. Hindistonda barpo etilgan bog'larda Bobur birinchi marta O'rta Osiyo qovun va uzumlarini etishtirish bo'yicha tajribani qo'llagan. (Hindistonda Anguri Samarqand, ya'ni Samarqand uzumlari deb nomlangan uzum navlari hali ham etishtiriladi).

Aytishimiz mumkinki, "Boburnoma"da keltirilgan she’rlar, ruboiylar shoirning avtobiografiyasi bo'lib, unda she'riy tilda chuqur his-tuyg'ular ta'sirchan tarzda bayon etilgan. Hayot sharoitlari bilan to'qnashuv natijasida yuzaga kelgan tajribalar haqida mohirona hikoya qilinadi, bu haqda shoirning o'zi bemalol gapiradi:

Kim ko’ruptur, ey ko’ngul, ahli jahondin yaxshiliq,
Kimki andin yaxshi yo’q, ko’z tutma ondin yaxshiliq.[14]

Boburning "Boburnoma" da ona yurtiga bo'lgan muhabbat, Vatanni sog'inish motivlari katta o'rin tutadi. Sevimli vatanidan ajralish natijasida yuzaga kelgan og'ir hissiy tajribalar Boburning bir qator ruboiy xatlarida yurak nolasi sifatida ifodalanadi:

Tole’ yo’qki jonimg’a balolig’ bo’ldi,
Har ishnikim, ayladim xatolig’ bo’ldi,
O’z erni qo’yib Hind sori yuzlandim,
Yorab, netayin, ne yuz qarolig’ bo’ldi.[15]

O’z hayoti davomida charxning ne-ne jabru jafolarini tortgan, “ahli jahondin yaxshilig’” ni kam ko’rgan, sharoit taqozosi bilan “o’z yurtini qo’yib, Hind sorig’a yuzlangan” buyuk bobokalonimiz barakali ijod qilib, insoniyatga nodir badiiy-ilmiy asarlarni meros qoldirdi.

Shunday qilib, Bobur 1526 yilda Gang daryosidan Amudaryogacha bo’lgan hududni birlashtirgan ulkan saltanatni vujudga keltirgan. Bu davlat keyinchalik uning vorislari Humoyun, Akbar, Jahongir, Shoh Jahon va Avrangzeb davrida yanada kengayib, G’arbda "Buyuk mo’g’ullar imperiyasi" nomi bilan shuhrat topgan.

Bobur asos solgan saltanat, mamlakatni ma’lum darajada siyosiy jihatdan birlashtirish, obodonlashtirish va madaniy jihatdan yuksaltirish nuqtai nazaridan Hindiston uchun foydali bo’lgan.

Neru o’zining "Hindistonning kashf etilishi" va "Jahon tarixiga bir nazar" asarlarida Bobur va uning nabirasi Akbarga yuksak baho bergan. Jumladan, u shunday deb yozadi: "Bobur - dilbar shaxs. Uyg’onish davrining tipik hukmdori, mard va tadbirkor odam bo’lgan. U san’atni, adabiyotni sevardi, hayotdan huzur

[14] Boburnoma. T., Sharq, 2002. 79-b.
[15] Ma’naviyat yulduzlari. T., 2001. 272-b.

qilishni yaxshi ko’rardi. Uning nabirasi Akbar yana han dilbarroq va ko’p yaxshi fazilatlarga ega bolgan".[16]

Hozirgi vaqtda "Boburnoma" dunyoning turli mamlakatlaridagi mutaxassislarning e'tiborini tobora ko'proq jalb qilmoqda. "Boburnoma"da keltirilgan ma'lumotlarning qiymati, muallifning samimiyligi va o'zini tanqid qilishi, faktlarning ishonchliligi butun dunyo olimlari tomonidan bir ovozdan tan olingan. "Boburnoma" ma'lumotlari Markaziy Osiyo xalqlari tarixiga oid yig'ma jildlarga kiritilgan.

Boburning ajoyib ijodiga, xususan, uning "Boburnoma" kitobiga qiziqish butun dunyoda yildan-yilga ortib bormoqda.

Boburning tarixchi, geograf, etnograf, nasr yozuvchisi va shoir sifatidagi xizmatlari hozirda jahon sharqshunoslik fani tomonidan tan olingan. Uning merosi dunyoning deyarli barcha yirik sharqshunoslik markazlarida o'rganilmoqda.

Boburnoma"da muallif bu o'tkinchi va o'lik dunyoda, Boburning fikriga ko'ra, har kimning rostgo'y, adolatli bo'lishi axloqning asosiy belgisidir, degan fikrni ilgari suradi. U shunday yozadi:

Qaerda bo'lsangiz ham, rostgo'y va adolatli bo'ling.

Zahiriddin Muhammad Boburning buyuk ijodi namunasi bo’lgan "Boburnoma" shoirning nomini asrlar osha abadiylashtirdi.

Boburning qizi, musulmon sharqidagi yagona ayol tarixchi Gulbadan begim otasining adabiy an'analarini davom ettirib, "Humoyunnoma" nomli tarixiy asarini yozdi. "Humoyunnoma" asari o’z mohiyatiga kora, tarixchilar va temuriylar sulolasining taqdiri bilan qiziquvchilar uchun o’ta muhim va qimmatli manba bo’lib, Gulbadanbegimning aytishiga ko’ra, bu kitobda u o’zining shaxsiy kuzatuvlari va atrofidagilarning ko’rgan-bilganlari asosida yozib qoldirgan.

Gulbadanbegim "Humoyunnoma"da Bobur hayoti bilan bog’liq bo’lgan voqealarni tasvirlashga kirishar ekan, "Garchi bu so’zlar podshoh Bobom hazratlarining voqenomalarida aytilgan bo’lsa ham, ular tabarruk tutib, qisqacha yoziladi" deydi.[17]

O'zbekistonda "Boburnoma" ning yangi nashrini nashr etilishi bilan uning iste'dodiga chuqur hurmat va adabiyotimiz va tarixshunosligimiz rivojiga qo'shilgan ilmiy hissasi yuksak e'tirof etildi. Ushbu nashr nafaqat ilmiy maqsadlarga ega, balki keng kitobxonlar uchun Zahiriddin Boburning yorqin merosi bilan yangidan tanishtirish maqsadida mo'ljallangan.

XULOSA

O'zbekiston mustaqillikka erishgandan so'ng uning ona yurtida Andijon shahrida Boburga haykal o'rnatildi, Bobur nomidagi bog ' ochildi va uning nomi Andijon davlat universitetiga berildi.

U haqida yozuvchilar Oybek, Barot Boyqobulov, Xurshid Davron she'rlar yozgan. Boburning siyosiy faoliyatini akademik S. Azimjonova o'rgangan.

[16] Boburnoma. T:, Sharq, 2002. 7-b.
Javaharlal Neru. Jahon tarixiga bir nazar. M.,1975. 2-T.115-b.
[17] Gulbadanbegim. Humoyunnoma. "Fan"nashriyoti, T., 1959. 24-b.

1981 yilda yozuvchi Pirimqul Qodirov Bobur haqida "Yulduzli tunlar" romanini yozgan.

1991-yilda O'zbekiston televideniyesi tomonidan P. Qodirovning "Yulduzli tunlar" romani asosida 10 seriyali "Bobur" televizion videofilmi rejesser Maqsud Yunusov tomonidan sahnalashtirilib, bosh rolni, yani Bobur obrazini— O'zbekiston xalq artisti Muhammadali Abduqunduzov tomonidan ijro etildi. Keyinchalik bu videofilm O'zbekistonda ishlab chiqarilgan birinchi videofilm bo'lib, uni turk telekompaniyasi sotib oldi, u videoni ingliz subtitrlari bilan turk tiliga dublyaj qildi. Hozirgi kunda "Boburnoma" fors, golland, ingliz, frantsuz, turk va rus tillariga, jami bo'lib dunyoning 31 tiliga tarjima qilingan. "Boburnoma" asosida xorijiy mualliflar F. A. Stil, F. Grenard, G. Lemba, V. Gaskoni, Munilalalarning romanlari yozilgan.

Maqola "Boburnoma" ning XV-XVI asrlardagi o'zbek adabiy tilining eng muhim yodgorligi sifatida ahamiyati va roliga bag'ishlangan. Mo'g'ullar sulolasining asoschisi Bobur tomonidan yozilgan ushbu asar uning hayotidagi voqealarni, fathlarni va o'sha davrdagi turli xalqlarning madaniy o'zaro ta'sirini tasvirlaydi. Asarning til xususiyatlariga, shu jumladan boy so'z birikmalaridan foydalanishga, arab va fors tillaridan olingan so'zlarga alohida e'tibor qaratilib, bu madaniyatlarning o'zbek adabiy tili rivojiga ta'sirini ta'kidlaydi.

"Boburnoma" nafaqat tarixiy manba, balki o'sha davrdagi adabiy tilning rivojlanishini, uning uslubi, grammatikasi va leksik boyligini tushunishga imkon beradigan muhim adabiy yodgorlikdir. Ushbu asar nafaqat Boburning shaxsiy tajribalarini, balki o'sha davrning ijtimoiy-madaniy va siyosiy voqeliklarini ham aks ettiradi.

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LITERATURE REVIEW ON REMOTE SENSING METHODS FOR SOIL SALINIZATION RESEARCH

Abstract. *Soil salinity is a critical environmental issue that poses significant challenges to agricultural productivity, ecosystem health, and water resource management, particularly in arid and semi-arid regions. Traditional methods of soil salinity assessment, such as field sampling and laboratory analysis, are often labor-intensive, time-consuming, and limited in spatial coverage. Remote sensing technologies have emerged as a cost-effective and efficient alternative for monitoring soil salinity over large areas with high temporal and spatial resolution. This review analyzes existing literature on remote sensing methods for soil salinity assessment, focusing on their advantages, limitations, and potential applications.*

Key words: *Soil, Soil salinization, GIS, Remote sensing, MODIS*

1. Introduction

Soil salinity is a pervasive environmental issue that poses significant challenges to agricultural productivity, water resource management, and ecosystem sustainability. According to Allbed and Kumar [1], soil salinity is particularly problematic in arid and semi-arid regions where high evaporation rates lead to the accumulation of salts in the soil profile. This phenomenon not only reduces crop yields but also degrades soil structure, leading to long-term ecological and economic consequences. The Food and Agriculture Organization (FAO) estimates that over 1 billion hectares of land worldwide are affected by soil salinity, with this figure expected to rise due to climate change and unsustainable land-use practices [2, 13].

Traditional methods of assessing soil salinity, such as field sampling and laboratory analysis, have been widely used for decades. However, these methods are often labor-intensive, time-consuming, and limited in spatial coverage [3, 12]. For instance, Corwin and Lesch [4] highlight that traditional techniques require extensive ground-based measurements, which are impractical for large-scale monitoring. Furthermore, these methods often fail to capture the dynamic nature of soil salinity, which can vary significantly over short distances and time periods.

In recent years, remote sensing technologies have emerged as powerful tools for monitoring and mapping soil salinity over large areas with high temporal and spatial resolution. Remote sensing offers several advantages over traditional

methods, including cost-effectiveness, rapid data acquisition, and the ability to cover vast geographic regions [5, 11, 15]. Satellite-based platforms such as Landsat, Sentinel-2, and MODIS have been extensively used for soil salinity assessment, providing valuable insights into the spatial distribution and temporal dynamics of salt-affected soils [6, 13, 14]. Additionally, advancements in spectral indices and machine learning algorithms have further enhanced the accuracy and reliability of remote sensing-based soil salinity assessments [7, 12, 15].

This review aims to analyze existing literature on remote sensing methods for soil salinity assessment, focusing on their advantages, limitations, and potential applications. By synthesizing findings from diverse studies, this paper seeks to provide a comprehensive overview of the current state of knowledge in this field. The review is structured as follows: Section II outlines the research methodology, Section III presents the results of the literature analysis, Section IV discusses the implications of the findings, and Section V provides recommendations for future research. The final section concludes the paper with a summary of key insights.

The significance of this review lies in its contribution to advancing the understanding of remote sensing technologies for soil salinity assessment. By identifying gaps in current research and highlighting opportunities for innovation, this paper aims to inform future studies and support the development of more effective soil salinity management strategies.

2. Materials and methods

This review is based on an extensive analysis of peer-reviewed articles, conference papers, and technical reports sourced from reputable databases such as Scopus, ResearchGate, and Google Scholar. Keywords such as "remote sensing," "soil salinity," "satellite imagery," "spectral indices," and "geospatial analysis" were used to identify relevant studies published between 2010 and 2023 [9, 17]. The selected literature was categorized into three main themes: (1) remote sensing platforms and sensors, (2) spectral indices and algorithms for salinity detection, and (3) integration of remote sensing with ground-based data. Each study was critically evaluated for its methodology, accuracy, scalability, and applicability.

For instance, Corwin and Lesch [4] emphasized the importance of validating remote sensing outputs using ground-based measurements, particularly electrical conductivity (EC) and sodium adsorption ratio (SAR). Similarly, Farifteh et al. [7] highlighted the role of machine learning algorithms in improving the accuracy of soil salinity predictions by integrating spectral data with environmental variables.

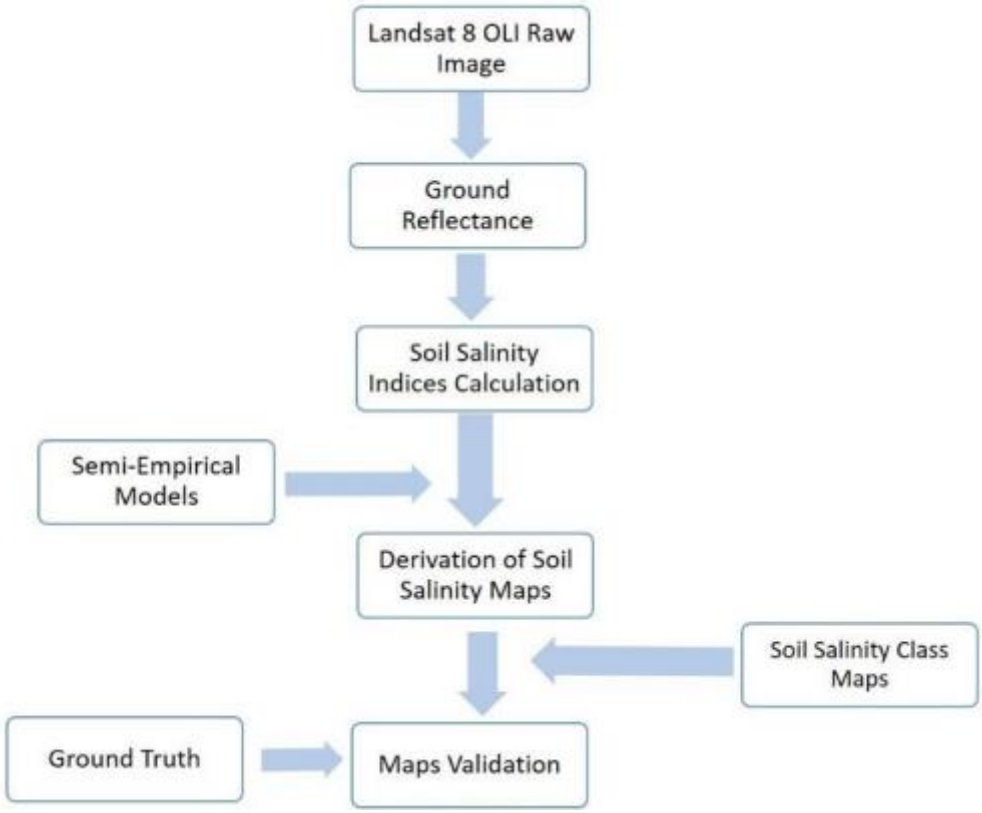

Figure 1: Soil salinity class mapping methodology [10]

In attempt to develop a new empirical model the NSI values for the field soil sampling locations were regressed with the lab estimated salinity EC measurements. Various regression models were developed, and the exponential relation portrayed the highest R-square values. The exponential relation is ideal with soil salinity indices due to their low saturation levels. The developed semi-empirical models were later applied for the Landsat 8 OLI for generating soil salinity and soil salinity class maps. The overall methodology followed in this study has been summarized in Figure 1.

3. Results and discussion

Remote Sensing Platforms and Sensors. Remote sensing platforms for soil salinity assessment include satellite-based systems (e.g., Landsat, Sentinel-2, MODIS), airborne sensors, and unmanned aerial vehicles (UAVs). Satellite imagery has been widely used due to its global coverage and cost-effectiveness. For example:

- Landsat : Studies have demonstrated the utility of Landsat's multispectral bands in detecting salt-affected soils through vegetation indices like NDVI (Normalized Difference Vegetation Index) and SI (Salinity Index). According to Scudiero et al. [6, 14, 16], Landsat data can be effectively used for regional-scale soil salinity mapping.
- Sentinel-2 : With its higher spatial resolution (10 m), Sentinel-2 provides more detailed information about small-scale variations in soil salinity. Taghadosi et al. [8] reported that Sentinel-2 multispectral imagery could retrieve soil salinity with high accuracy when combined with advanced algorithms.

- Hyperspectral Sensors : Airborne hyperspectral sensors, such as AVIRIS and Hyperion, offer fine spectral resolution, enabling the identification of specific mineral compositions associated with salinity. Farifteh et al. [7] noted that hyperspectral data could distinguish between different types of salt-affected soils based on their spectral signatures.

Spectral Indices and Algorithms. Several spectral indices and machine learning algorithms have been developed to enhance the accuracy of soil salinity mapping:

- Salinity Indices : Commonly used indices include the Salinity Index (SI), Brightness Index (BI), and Normalized Difference Salinity Index (NDSI). These indices leverage the reflectance properties of salt-affected soils in visible and near-infrared wavelengths. [1, 13] reviewed various salinity indices and concluded that NDSI performed well in identifying saline soils.

- Machine Learning Models : Algorithms such as Random Forest (RF), Support Vector Machines (SVM), and Artificial Neural Networks (ANN) have shown promising results in predicting soil salinity levels. For example, Farifteh et al. [7] compared ANN with Partial Least Squares Regression (PLSR) and found that ANN provided better accuracy in quantifying soil salinity.

Integration with Ground-Based Data. While remote sensing provides valuable spatial information, its accuracy can be significantly improved when combined with ground-based measurements. Corwin and Lesch [4] emphasized the importance of validating remote sensing outputs using soil samples analyzed for electrical conductivity (EC) and sodium adsorption ratio (SAR). Such integration ensures that the remote sensing data aligns with actual field conditions.

4. Recommendations

Based on the reviewed literature, the following recommendations are proposed:

1. Enhanced Sensor Development : Future research should focus on developing advanced sensors capable of capturing finer spectral and spatial details of salt-affected soils. For example, hyperspectral sensors with higher resolution could improve the detection of subtle variations in soil salinity [7, 11].

2. Hybrid Approaches : Combining remote sensing with geophysical techniques (e.g., electromagnetic induction) and machine learning models can improve the precision of salinity assessments. Taghadosi et al. [8] demonstrated that hybrid approaches yielded more accurate results than standalone methods.

3. Long-Term Monitoring : Establishing long-term monitoring programs using remote sensing data can help track changes in soil salinity over time and evaluate the effectiveness of mitigation strategies. Scudiero et al. [6] highlighted the importance of continuous monitoring for sustainable soil management.

4. Capacity Building : Training programs should be organized to equip researchers and practitioners with skills in remote sensing technologies and data analysis. Allbed and Kumar [1] suggested that capacity building is essential for the widespread adoption of remote sensing tools.

5. Conclusion

Remote sensing offers a robust and efficient solution for assessing soil salinity at various scales. By leveraging advancements in sensor technology, spectral indices, and machine learning, researchers can gain deeper insights into the dynamics of soil salinity and its impacts on ecosystems and agriculture. However, challenges such as cloud cover, atmospheric interference, and the need for ground-truthing remain barriers to widespread adoption. Addressing these challenges through interdisciplinary collaboration and technological innovation will pave the way for more accurate and sustainable soil salinity management practices.

This review highlights the potential of remote sensing as a transformative tool for soil salinity assessment. By synthesizing findings from diverse studies, it underscores the importance of integrating multiple data sources and analytical techniques to achieve reliable and actionable results. Future research should prioritize the development of user-friendly tools and decision-support systems that can facilitate the adoption of remote sensing technologies by stakeholders in agriculture, environmental management, and policy-making.

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OQAVA SUVLARNI BIOLOGIK TOZALASH USULLARI

Annotatsiya. *Suv qimmatbaho tabiiy resursdir. Ko'pgina tirik mavjudotlar uchun bu ularning yashash joyidir. Shaharlarning o'sishi, sanoatning jadal rivojlanishi, qishloq xo'jaligining intensivlashuvi, sug'oriladigan yerlarning sezilarli darajada kengayishi, ijtimoiy ta'minot va boshqa bir qator omillar suv ta'minoti muammosini murakkablashtirmoqda.*

Kalit so'zlar: *ifloslanish, chiqindi, konsentratsiya, mikroorganizm, suv, tozalash, oqava suv, biologik tozalash, aktiv il.*

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BIOLOGICAL METHODS OF WASTEWATER TREATMENT

Annotation. *Water is a valuable natural resource. For many living things, this is their habitat. Urban growth, rapid industrial development, intensification of Agriculture, significant expansion of irrigated land, Social Security and a number of other factors complicate the problem of water supply.*

Keywords: *pollution, waste, concentration, microorganism, water, treatment, wastewater, biological treatment, active il.*

Chiqindilarni suv muhitini ifloslantirmasligini ta'minlash uchun foydalanishdan oldin tozalash jarayonini o'tkazish kerak. 70-yillarda bakteriyalar ta'sirida ifloslangan suvni o'z-o'zini tozalash tamoyillari o'rganildi. Natijada, tadqiqotchilar turli tizimlarni o'z-o'zini tozalash uchun vaqt, suv, bakteriya va kislorod kerak bo'ladi, degan xulosaga kelishdi. Oqava suvlarni aerob va anaerob usulda tozalash asosiy biologik tozalash hisoblanadi. Ushbu usullar oqava suvlarni zararsizlantirish uchun ishlatilgan. Odatda, biologik oqava suvlarni tozalash avval ifloslantiruvchi moddalarga singib ketadigan va keyin ularni remineralizatsiya qiluvchi mikroorganizmlar yordamida amalga oshiriladi. Birinchi jarayon tez sodir bo'ladi (taxminan 10-15 daqiqa), ikkinchisi esa uzoq davom etadi. Davomiyligi ob'ektlarning (uskunalar) ish sharoitlariga, haroratga, aralashtirish intensivligiga,

kislorod ta'minotiga va boshqa ko'plab omillarga bog'liq. Aerob mikroorganizmlar ishtirokida ifloslangan oqava suvlarni zararsizlantirish kislorodning uzluksiz ta'minlanishi sharti bilan amalga oshiriladi (organik moddalarning hayotiy faoliyati kislorodga bog'liq). Aerobik tozalashning afzalligi yuqori tezlik va past konsentratsiyadagi moddalardan foydalanishdir. Ayniqsa, chiqindi suvlarni tozalashda muhim kamchiliklar shamollatish uchun energiyaning yuqori narxi va katta miqdordagi ortiqcha loyni tozalash va olib tashlash bilan bog'liq muammolardir. Aerobik jarayon maishiy va ba'zi sanoat oqava suvlarini COD 2000 dan oshmaydigan tozalashda qo'llaniladi. Aerobik texnologiyalarning kamchiliklarini bartaraf etish uchun konsentrlangan oqava suvlarni metan parchalash usuli yordamida oldindan tozalash mumkin, bu aeratsiya uchun energiya talab qilmaydi va bundan tashqari, qimmatli energiya manbai - metanni shakllantirishni o'z ichiga oladi. Aerobik usul havodagi kisloroddan foydalanadi, bu usul mikroorganizmlarni, asosan, bakteriyalarni, oqava suv tarkibidagi organik moddalarni, ayniqsa, karbonat angidrid va qo'shimcha biomassaga aylantirish uchun biofiltr sifatida foydalanishni o'z ichiga oladi. Faollashtirilgan il - antropogen ifloslangan suvlarda sun'iy ravishda o'stirilgan biotsenoz bo'lib, gel hosil qiluvchi bakteriyalar - geterotroflar, kimyotroflar, protozoa va mayda hujayrali hayvonlar yashaydi, ular ifloslantiruvchi moddalarni aylantiradi va oqava suvlarni bisorbtsiya, biokimyoviy oksidlanish va protozoa natijasida tozalaydi. Faollashtirilgan ilning asosiy xususiyati, har qanday tirik organizm kabi, turli xil yashash sharoitlariga, chiqindi suyuqliklar tarkibidagi oziq-ovqatning har xil turlariga va unga toksik moddalarga chidamlilik ta'siriga moslashadi, bular dezinfektsiyalash vositalari, zaharlar, kationlar va boshqalar bo'lishi mumkin. Faollashtirilgan il bilan tizimni ishlatishda asosiy vazifa shamollatish yoki aralashtirish moslamalari yordamida uning massasini to'xtatilgan holatda ushlab turishdir. Ushbu vositalar yo'q bo'lganda, faol il konlarni hosil qila boshlaydi va o'ladi, bu oxir-oqibatda biologik tozalashni to'xtatishga olib keladi. Reaktor-aerantdagi to'xtatilgan qattiq moddalar miqdori ortiqcha loyni qayta ishlash va utilizatsiya qilish yo'li bilan o'rnatiladi.

Konlarni (cho'kmalarni) zararsizlantirish uchun O_2 (fermentatsiya) siz anaerob tozalash usuli qo'llaniladi. Oqava suvlarni tozalashning anaerob usuli ma'lum afzallik va kamchiliklarga ega:

1. Ortiqcha ilning oz miqdori, shuning uchun uni yo'q qilishda hech qanday muammo bo'lmaydi;
2. Jarayon energiyasining 89% metan ishlab chiqarish;
3. Ushbu tozalash usuli faqat past substrat konsentratsiyasi bilan mumkin;
4. Biomassaning o'sish sur'ati juda kichik;
5. Aerobik tozalash bilan solishtirganda oddiy uskunalar dizayni.

Organik moddalarning anaerob parchalanishi ko'p bosqichli jarayon sifatida amalga oshiriladi, bunda kamida to'rtta mikroorganizm guruhi ishtirok etishi kerak: 1. Gidrolitiklar 2. Fermentatorlar 3. Asetogenlar 4. Metanogenlar. Anaerob jamiyatda mikroorganizmlar o'rtasida yaqin va murakkab aloqalar mavjud bo'lib, ular ko'p hujayrali organizmlarda o'xshashliklarga ega, chunki metanogenlarning substrat o'ziga xosligi tufayli ularning rivojlanishi avvalgi bosqichlardagi

bakteriyalar bilan trofik aloqasiz mumkin emas. O'z navbatida, birlamchi anaeroblar tomonidan ishlab chiqarilgan kimyoviy moddalar yordamida ushbu bakteriyalar tomonidan amalga oshiriladigan reaktsiyalar tezligini aniqlaydi. Organik moddalarning anaerob parchalanishida asosiy rolni metan arxeiyasi o'ynaydi. Ularning yo'qligi yoki etishmasligi bilan anaerob parchalanish kislotali yoki aseton fermentatsiyasi bosqichida tugaydi, bu esa uchuvchi yog 'kislotalari, propion va sirka kislotalari, asosan yog'ning to'planishiga, pH ni kamaytirishga va jarayonni to'xtatishga olib keladi.

Ayni paytda suvni ularga oqiziladigan maishiy va ishlab chiqarish oqava suvlari bilan ifloslanishining oldini olish masalasiga jiddiy e’tibor qaratilmoqda. Bioremediatsiya usullari suvni aralashmalardan tozalashning umumiy kompleksida katta rol o'ynaydi. Shuni ta'kidlash kerakki, eng zamonaviy oqava suvlarni tozalash inshootlarida bioremediatsiya samaradorligi organik moddalar uchun 90% va noorganik moddalar uchun 20 - 40% ni tashkil qiladi. Ammo, afsuski, tabiiy va chiqindi suvning barcha turlarini biologik usul yordamida tozalash mumkin emas, chunki barcha organik moddalar mikroorganizmlar ta'sirida parchalanmaydi. Shunday qilib, 1000 mg/l dan ortiq fenol, 300 - 500 mg/l alkogolli ichimliklar, 25 mg/l neft mahsulotlari bo'lgan suvni tozalash mumkin emas. Benzin, bo'yoqlar, mazut va boshqalar deyarli yo'q qilinadi.

Suv havzalariga tashlanadigan oqava suvlarning sifatiga talablar tobora ortib bormoqda. Shuning uchun texnologik sxemani tanlashda tozalash sifatiga ta'sir qiluvchi barcha omillarni (ifloslovchi turi, uning kontsentratsiyasi va boshqalar) hisobga olish kerak.

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SOIL EROSION AND METHODS FOR ITS RESTORATION

Annotation. *The most effective and simple agrotechnical method for protecting soils from water erosion is deep autumn plowing across the slope to a depth of 25-35 cm. The depth of plowing depends on the thickness of the humus layer and the exposure of the slope. Effective agrotechnical techniques are soil mowing and slicing.*

Key words: *soil, fertility, measure, erosion, concentration, fertilizer, microorganism, humus, element.*

Soil is a valuable natural resource, because the development of plants, a source of nutrition for both people and animals, depends on its condition. Therefore, it is so important to take measures to reduce its wind and water degradation. Otherwise, being deprived of fertile lands, a person falls into direct dependence on technology and imports.

However, in the conditions of modern civilization, such a global problem as soil erosion is becoming more and more common. It is caused by natural and anthropogenic factors. In the first case, this is the influence of water and wind, the presence of slopes and mountainous terrain. Anthropogenic factors are caused by human activity: irrational use of land, deforestation, peculiarities of crop cultivation, the presence of various buildings and infrastructure. Both processes lead to undesirable and partially irreversible changes - a decrease in fertility and distortion of natural landscapes.

Unfortunately, today the soil layer is being eroded, good fertile lands are becoming less and less, and they are quickly becoming unusable. Throughout history, humanity has lost about a billion hectares of land (cities, settlements, buildings, roads, erosion, salt water, evaporation, etc.). Currently, 1.5 billion hectares of land are planted with crops around the planet. According to the data received, 6-7 million hectares of land are lost annually in the world, as mentioned above.

Considering that two-thirds of the world's population lives in poverty and hunger, and assuming that there is less arable land per inhabitant of the planet than 10-20 years ago, increasing soil fertility, doubling and tripling crop yields is an essential part of agriculture in the near future, it is obvious that it should remain the main task.

In order to provide legislative support for reforms in the agrarian sector of our country, a number of laws and their projects have been developed. Among them, the Land Code of the Republic of Uzbekistan, the Laws on the Land Cadastre and

other laws aimed at developing and regulating land relations on the basis of the law, rational use and protection of land were adopted and approved by the Oliy Majlis. Under the influence of various improperly organized human activities, erosion and pollution of the soil layer occurs.

The problem of soil protection from erosion is an urgent problem for many countries located in the arid climatic region of the world, including the territory of Uzbekistan. Since the eroded areas of land in the republic are 2 million square meters. about a hectare or more than 40% of the total arable land.

According to our data, on the territory of Uzbekistan there are more than 3 million hectares of drylands suitable for use, of which about 1 million hectares are low- maintenance and semi-maintained drylands, and more than 70% of these drylands are subject to surface impact water erosion.

It is known that as a result of soil erosion due to irrigation erosion on slopes with a slope of more than 50, up to 100-150 tons per hectare or more, or even up to 500 tons of soil, can be washed away. Together with this soil, 500-800 kg of humus, 100-120 kg of nitrogen, 75-100 kg of phosphorus and even more nutrients can be lost per hectare per year. It should be noted that erosion processes have a negative impact on the soil ecosystem, negatively affecting the amount of solar energy used in biomass and reducing it. As a result of erosion processes, 30-50 percent or more of solar energy is lost, absorbed by phytomass, humus and soil microorganisms, while the intensity of biological and soil processes occurring in the soil is mainly associated with solar energy reserves and changes in the appearance of scattered light can be imagined. the scale of damage caused by erosion to the ecosystem.

In our country, every year the prevention and control of soil erosion, increasing the productivity of soils eroded by water and wind is recognized as an event of national importance. Laws have been adopted to protect soil from water and wind erosion. The law defines organizational, agrotechnical, forest reclamation, hydrotechnical and other measures for the protection of soils from water and wind erosion.

To protect the soil from erosion, it is necessary to carry out agro-complex measures:

* when farming in mountainous areas, level the land in the form of terraces (supachs), plant fruit trees and vineyards around the fields;

* proper organization of transverse plowing and irrigation work on steeply sloping lands;

* landscaping the edges of ravines, preventing the expansion of erosion of ravines, preventing the flow of water from irrigated fields into ravines, building various barriers and water collectors;

* to combat wind erosion, the most basic and necessary measures are planting shrubs hedges. As well as planting various grasses, rational use of pastures, creating various fences, as well as creating a thin top layer of sand using chemicals with adhesive properties (oil waste, nerosin, K-4 polymers, SKS-65 LATEX);

* in order to prevent irrigation erosion, taking into account the physical and chemical properties of the soil and the slope of the site, using the experience of

advanced irrigators, it is extremely important to plan the amount of water supplied to wells for proper irrigation of crops, as well as freezing and diversion of water on lands prone to erosion.

To prevent the compaction of the subsoil layer of irrigated soils, it is necessary to widely introduce the technology of sowing and minimum tillage. Experience has shown that soil density per cubic centimeter during the growing season is 1.20-1.35 g/cm3 and is maintained in an optimal state.

Currently, the problem of soil pollution with heavy metals in technogenic and agricultural industries is acute. Heavy metals occupy one of the leading places among environmental pollutants. Many representatives of this group of substances, such as lead, copper, zinc, cadmium, even in very small quantities, can cause immunological, oncological and other types of diseases. As a result of studies conducted by scientists from different countries, it has been proven that about 70 percent of heavy metals enter the human body with food.

The purpose of this work is to study the significance of changes in the composition of soils of heavy metals and their influence in the Sh. Rashidov district of the Jizzakh region.

Sh. Rashidovsky district is considered the administrative center of the Jizzakh region, the main lands around the city of Jizzakh are located in the north-eastern part of the city of Jizzakh. The total area of irrigated land in the region is 34,690 ha, of which: non- saline land - 8,935 ha (25.8%), saline land - 25,755 ha (74.2%). Irrigated gray-meadow soils of the Sh. Rashidovsky district were chosen as the object of study.

Today, Sh.Rashidovsky district is one of the regions where the quality of agricultural land has declined, the main lands of the district are considered close to the city center, the soil is polluted with various pollutants by industrial enterprises, the balance of nature is disturbed, and the ecological environment is considered very serious.

Human use of chemicals in economic activities and their inclusion in the cycle of anthropogenic transformations in the environment is constantly growing.

According to GOST 17.4.1.0283 pollutants in the soil are divided into three classes: Class I (high risk) - As, Cd, Hg, Se, Pb, F, benzo (a) pyrene, Zn;

Class II (moderately dangerous) - B, Co, Ni, Mo, Cu, Sb, Cr; Class III (low risk) - Ba, V, W, Mn, Sr, acetophenone.

Heavy metals far outperform common pollutants such as carbon dioxide and sulfur and are second only to pesticides in terms of pollution. In the future, they may turn out to be more dangerous than NPP and MSW emissions.

According to the results of the monitoring, more than 40 elements of the table of D.I. Mendeleev were found in the soil. Including: V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Mo, Cd, Sn, Hg, Pb, Bi, etc.

The most powerful suppliers of metal-containing waste are enterprises for the smelting of non-ferrous metals (aluminum, aluminum oxide, copper-zinc, lead-smelting, nickel, titanium-magnesium, mercury, etc.), as well as enterprises for the

processing of non- ferrous metals (radio engineering), electrical engineering, instrumentation, galvanic sky, etc.).

When determining and assessing the composition of soils in the Sh. Rashidovsky district by ingredients in July 2020, 9 samples were taken from the sampling point with soil layers of 0-30 cm, 30-50 cm and 50-70 cm.

The pH of the soil composition pH was determined in the field.

For the analysis of water samples, atomic absorption, gas chromatographic, photometric, photocolorimetric, gravimetric, spectrophotometric, titrimetric and other physicochemical methods were used.

The mineralization of water was determined by the gravimetric method. The determination method is based on the gravimetric determination of dissolved substances, which is determined by filtering the sample to a constant weight evaporating the residue and drying at 150°C for weakly mineral waters (105-110°C) and highly mineralized waters.

Methods for the analysis of heavy metals. Heavy metals were determined by photometric and photocolorimetric methods. For example, a yellow complex compound in a ferric iron medium was determined by the hydroxide formation reaction, forming a colored complex compound in the presence of copper xylenol.

Based on the results of field and laboratory studies and observations, the sources and level of soil pollution in the Sh. Rashidovsky district were determined.

Conclusions. Thus, the analysis of soil contamination with heavy metals at the landfill in Sh. Rashidovsky district shows that most of the pollutants were found in soil samples. Analysis of soil pollution with heavy metals in the region shows that the content of chromium, manganese, cobalt, nickel, copper, silver, zinc and other elements slightly exceeds the maximum allowable concentrations for soils. The concentration of all other heavy metals does not exceed the MPC, which confirms the conclusions made in the review part of the work about the low information content of heavy metals in environmental monitoring.

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MODALITY IN DIFFERENT TYPES OF DISCOURSE

Abstract: *Modality, in linguistics, refers to the grammatical and lexical means used to express a person's thoughts, feelings and intentions in a certain type of speech. Modality is mainly expressed by the modal forms of the verb, and these forms have their own characteristics in different types of speech. Studying the modality helps to understand the meaning of the speech in a deeper way, as well as to communicate clearly and effectively.*

Key words: *modality, in linguistics, speech, meaning, written speech, modal forms of the verb, formal and logical expressions.*

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TURLI XIL NUTQ TURLARIDA MODALLIK

Annotatsiya: *Modallik, tilshunoslikda, nutqning muayyan turida shaxsning fikr, his-tuyg‘u va niyatlarini ifodalashda qo‘llaniladigan grammatik va leksik vositalarni anglatadi. Modallik, asosan, fe'lning modallik shakllari orqali ifodalanadi va bu shakllar turli xil nutq turlarida o‘ziga xos xususiyatlarga ega. Modallikni o‘rganish, nutqning ma'nosini chuqurroq tushunishga, shuningdek, muloqotda aniq va samarali fikr almashishga yordam beradi.*

Kalit so‘zlar: *modallik, tilshunoslikda, nutq, ma'no, yozma nutq, fe'lning modallik shakllari, rasmiy va mantiqiy ifodalar.*

In linguistics, speech is important as one of the main means of human communication. Speech is a complex process that allows us to express thoughts, feelings and information through language. Specific features of speech, its structure and functions are widely studied in linguistics. Speech is mainly in oral and written forms. Oral speech is carried out through directly expressed thoughts and feelings in the process of communication. Written speech includes thoughts expressed through text. Both types of speech are associated with specific styles and rules, each of which is studied separately in linguistics. One of the main functions of speech is information transfer. In the process of communication between people, thoughts, ideas and feelings are exchanged through speech. Speech also plays an important role in strengthening social ties, preserving cultural heritage and passing it down to generations. Modality has a great role and importance in speech types. Types of speech are mainly divided into oral and written speech. Each type of speech requires its own forms of modality. For example, in oral speech, modality is more expressed through emotional and personal expressions. Here, modality usually plays an

important role in expressing a person's feelings, intentions, and thoughts. In written speech, modality is manifested through more formal and logical expressions, which help the reader or listener to convey certain information clearly and clearly. To understand the modality, it is necessary to consider its main types first. Types of modality are mainly divided into: probability, obligation, permission, intention and desire. The modality of probability expresses the probability that an event or situation will occur. For example, in the sentence "He may come today", the word "might" indicates the modality of probability. This type of modality is often used to express a person's opinion or assumption. Obligation modality expresses the obligation of a person to do or not do something. For example, in the sentence "You must do this", the word "must" indicates the modality of obligation. This type of modality is often used in the process of giving advice or giving orders. The permission modality represents whether or not permission is given to do something. In the sentence "You may take this book", the word "may" indicates the modality of permission.The modality of intention represents a person's purpose or intention. For example, in the sentence "I want to do this", the word "want" indicates the modality of intention. This type of modality is often used to express a person's own opinion or plan. The desire modality expresses a person's desire or desire for something. In the sentence "I want this thing", the word "want" indicates the modality of desire. The role of modality in speech types is also visible in the process of communication. In oral speech, modality usually makes interpersonal communication more interesting and emotional. For example, in a conversation between friends, the modality is used to express more personal feelings. And in written speech, modality helps convey clear and concise information through formal and logical expressions. This is especially important in academic papers or official documents. Modality also includes semantic and pragmatic aspects of language. Semantically, modality helps to determine the meaning of words and phrases. Pragmatically, modality plays an important role in expressing the context of communication and relationships between individuals. These aspects help to understand the meaning of speech more deeply. Modality learning is also important in language learning. By learning to use modality correctly and effectively, language learners will be able to express themselves clearly and clearly. This, in turn, makes the communication process more effective and interesting. The study of modality in speech types is also important in the fields of linguistics and pedagogy. Correct and effective learning of modality helps to develop students' language skills. This, in turn, increases students' ability to participate in communication and encourages them to think more freely.[1] At the same time, in the process of learning modality, it is important to introduce students to different types of speech. This helps students to understand the modality more deeply. By learning how to use modality in different types of speech, students will be able to express their thoughts clearly and clearly.[2] Modality is one of the important aspects of speech, and it plays an important role both in the process of language learning and in the process of communication. Studying modality in speech types helps to clearly and clearly express the thoughts, feelings and intentions of

individuals.[3] This, in turn, makes the communication process more effective and interesting. Modality learning also helps language learners develop their language skills, which increases their ability to participate in communication. In the process of learning a modality, it is important to teach students how to apply the modality in practice through a variety of examples and situations.[4]

In short, modality plays an important role in expressing people's thoughts, feelings and intentions in different types of speech. Modality learning is essential for effective participation in language learning and communication. Studying modality in speech types helps students develop language skills and increases their ability to participate in communication. In the process of learning the modality, students can be helped through various games and interactive activities. This makes the process of learning the modality more interesting and effective for students. Modality is an important concept in linguistics, which is used to express the thoughts, feelings, and intentions of individuals. Studying modality in speech types helps to clearly and clearly express the thoughts, feelings and intentions of individuals. [5]

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OPTIMIZATION OF DIAGNOSTICS AND TREATMENT OF HERNIATED DISCS OF THE LUMBOSACRAL SPINE

Abstract. *Intervertebral disc herniation in patients with lumbar osteochondrosis is diagnosed in 62.9% and is the most common disease of the lumbosacral spine. In 86% of cases, lumbosacral pain is caused by disc-radicular conflict. Removal of intervertebral disc herniations at the lumbar level is the most frequently performed elective surgery in all neurosurgical hospitals in our country and abroad in general. The concept of the "gold standard" as the optimal method for treating discogenic radiculitis has included microdiscectomy for many years.*

Keywords: *degenerative changes, intervertebral disc herniation, lumbar osteochondrosis, computed tomography and magnetic resonance imaging.*

INTRODUCTION

According to the World Health Organization, back pain is the second most common reason for seeking medical attention after respiratory diseases and the third most common reason for hospitalization [1]. The most common type of pain is lumbar pain, which occurs in almost every person throughout life and is one of the main causes of temporary and permanent loss of working capacity in the most active creative age [2].

In the general structure of diseases of the peripheral nervous system, lumbosacral radiculitis accounts for more than 80% of the number of cases and up to 90% - by the number of days of incapacity for work [3].

Various problems of osteochondrosis of the lumbar spine - etiology, pathogenesis, clinical picture, diagnostics and treatment - are so important that they are comprehensively covered in numerous domestic monographs [4].

MATERIALS AND METHODS

Removal of intervertebral disc herniations at the lumbar level is the most frequently performed elective operation in all neurosurgical hospitals of our country and abroad in general. For example, the number of lumbar interlaminar discectomies in the USA annually reaches 250 thousand, and in the world at least 800 thousand lumbar discectomies are performed annually [5].

Up to 10% of patients from the total number of those suffering from lumbar osteochondrosis become disabled, and among the operated patients the general level of disability is 70.3%. Even after microdiscectomy no more than 61% of those operated can return to their previous work [1].

In recent years, there has been an increase in persistent loss of working capacity, especially due to pathological conditions united by the term "diseases of

civilization". Among them, one of the leading places is occupied by lumbar osteochondrosis, which ranks 3rd in the structure of primary disability in diseases of the nervous system [2].

RESULTS AND DISCUSSION

It is known that patients with lumbar osteochondrosis are most often people of working age. Therefore, economic and moral losses due to permanent loss of working capacity due to this disease are very high [3]. This explains the interest in issues related to permanent loss of working capacity due to lumbar osteochondrosis. However, at present, there are no official statistics on the total number of disabled people with this disease, which complicates the planning of adequate measures for prevention, treatment and rehabilitation. At the same time, according to modern concepts, medical and social examination is a set of measures to determine the needs of the person being examined for social protection measures, including rehabilitation [4]. Neurological symptoms and, above all, pain syndrome that occur in discogenic radiculitis are caused by the following main pathogenetic mechanisms or their combination:

1) pressure on nerve structures (spinal cord, spinal nerve root) by a herniated intervertebral disc, scar tissue, bone growths with impaired blood circulation in these structures;

2) irritation of the receptors of the posterior longitudinal ligament, innervated by the meningeal branch of the spinal nerve;

3) instability of the spinal motor segment - vertebral listhesis;

4) reactive cicatricial adhesive and autoimmune inflammatory processes.

The anatomical structures of the spinal canal (the spinal cord, its nerves and their roots, intervertebral discs, etc.), various variants of arterial and venous circulation of the spinal cord have been studied quite well and their features are of decisive importance in the occurrence of clinical manifestations of lumbar osteochondrosis [4].

The process of intervertebral disc degeneration is characterized by complex biochemical changes. Under the influence of mechanical and other factors, the nucleus pulposus, consisting of polysaccharides, hyaluronic acid and proteins, depolymerizes and therefore loses its compactness and hydrophilicity. Consequently, osteochondrosis of the spine manifests itself in the drying of the nucleus pulposus of the disc, which leads to cracks in its fibrous ring and the subsequent displacement of the pulpy part of the nucleus into these cracks, and sometimes through them and beyond the disc. Rich innervation of the intervertebral discs and adjacent ligaments, as well as the proximity of the discs to the nerve and vascular formations located in the spinal canal, in osteochondrosis can often lead to pain and various reflex disorders, as well as to dysfunction of the spinal cord and its nerves.

CONCLUSION

One of the important measures to reduce persistent loss of working capacity due to lumbar osteochondrosis can be in-depth studies of the issues of its causes and tendencies to one or another dynamics after surgical intervention, which ultimately

determines the appropriateness of this treatment. The questions posed, caused by the search for ways to improve the results of surgical treatment of neurological manifestations of lumbar osteochondrosis, served as the basis for conducting this study.

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POSTOPERATIVE REHABILITATION OF PATIENTS WITH HERNIATED DISC OF THE LUMBOSACRAL SPINE

Abstract. *Treatment of degenerative diseases of the spine is a relevant multidisciplinary problem. Despite the high-quality and timely intervention on the spine, some patients have an unsatisfactory clinical outcome. Correctly and timely postoperative rehabilitation based on a multimodal patient-oriented personalized approach can improve the effectiveness of treatment for this category of patients. The article presents the results of a study conducted by the authors of the postoperative muscular-functional status, as well as the dynamics of objective parameters under the influence of a physical rehabilitation program in 18 patients who underwent surgical treatment for degenerative lesions of the lumbosacral spine.*

Keywords: *surgical treatment, degenerative diseases of the spine, objective instrumental assessment, personalized approach.*

INTRODUCTION

Treatment of degenerative diseases of the spine is currently a pressing multidisciplinary problem. The main clinical symptom of this pathology is back pain. Thus, according to various literary sources, up to 70% of people in the population at least once in their lives experienced such back pain that forced them to see a doctor, and 19% were forced to resort to surgery due to the lack of sufficient effect from conservative therapy [1].

MATERIALS AND METHODS

In accordance with existing clinical recommendations, all patients with degenerative lesions of the lumbosacral spine receive a course of conservative treatment for at least 4 weeks and only if it is ineffective are they referred for surgical treatment, with the exception of cases of cauda equina syndrome and pelvic disorders, when emergency surgery is indicated [2]. According to epidemiological studies, approximately 30% of patients with degenerative lesions of the spine and back pain require surgical treatment [3]. Despite the high efficiency of surgical interventions on the spine and significant development of technologies that allow achieving greater results using minimally invasive methods, the frequency of unsatisfactory outcomes of surgical treatment remains quite high. Thus, according to foreign authors, the frequency of recurrence of intervertebral disc herniations reaches 5–21% [4]. This range of values is explained by the different interpretation of the term “recurrence of a disc herniation” from the point of view of radiologists and neurosurgeons, as well as by the fact that radiological changes at the level of

surgery do not always correlate with clinical symptoms, and therefore a “false recurrence” is diagnosed.

RESULTS AND DISCUSSION

However, the term “rehabilitation treatment” is quite ambiguous. This is due to the fact that the rehabilitation process is a global strategy for managing the patient at the postoperative stage to restore lost function and integrate the patient into everyday life, and not just the isolated use of individual methods and technologies. Based on this concept, postoperative rehabilitation currently includes several fundamental areas [2]:

• patient training (motivational interviewing and assessment of the psychological state) and self-monitoring;

• physical rehabilitation methods, compensatory strategies and the formation of the correct motor stereotype (strength training; stretching exercises, increasing the range of motion; aerobic and anaerobic exercise; conducting exercises under control and without it);

• manual therapy (massage, mobilization and soft tissue techniques, traction);

• physiotherapy (ultrasound, interference currents, transcutaneous electrical neurostimulation, balneotherapy, etc.);

• acupuncture (acupuncture, electropuncture, acupressure);

• pharmacological correction as needed;

• social support and counseling;

• psychological methods (cognitive behavioral therapy);

• lifestyle changes;

• adaptation to working conditions;

• appointment of technical rehabilitation equipment (selection of orthoses, corsets, crutches, wheelchairs for patients with disabilities).

It has been proven that complex rehabilitation programs are more effective than monotherapy, improve the quality of life and reduce the degree of functional limitations of patients after surgery both in the short and long term [1]. Physical therapy methods are the foundation of the rehabilitation program. The optimal period for starting active classes is 4-6 weeks after surgery [3]. The need to include physical exercises and therapeutic gymnastics in the postoperative period plan is currently beyond doubt and is recommended after all types of surgical interventions [4]. However, there are significant difficulties associated with the analysis of the effectiveness of physical rehabilitation after surgery, which is due to the variety of training programs, their variability in terms of content (type of exercises), duration, intensity [2]. In this regard, the choice of a rehabilitation program is also difficult, because the doctor inevitably faces difficult questions: what to prescribe for this particular patient? What exactly will be most effective for him? The course of the postoperative period and the rate of recovery of patients vary significantly and depend on many factors, such as the type and extent of surgical intervention, initial neurological symptoms, duration of the disease, the presence of comorbid pathology, and psychological state. The combination of these factors determines the

degree of severity of functional disorders, the assessment of which is a fundamental point in choosing a rehabilitation program.

CONCLUSION

The results of this study showed that patients after surgery on the lumbosacral spine experience a predominantly decreased strength of the back extensor muscles, and an imbalance of the flexor and extensor muscles of the spine. Subsequently, this may be the cause of relapse and the need for repeated operations. A personalized physical rehabilitation program helps to increase the strength of those muscle groups whose strength is reduced after surgery on the lumbosacral spine.

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DIGITAL ECONOMY AND LABOR MARKET: NEW PROFESSIONS AND CAREER OPPORTUNITIES

Annotation. *This article covers the topic "Digital Economy and the labor market: new professions and career opportunities". The development of digital technologies and the internet is leading to significant changes in the labor market, which is the reason for the emergence of new jobs and professions. The article will talk about the main influences of the digital economy, remote work opportunities, cyber security and the demand for new skills. Changes in the qualifications and education system required to succeed in the digital economy are also considered. Strategies aimed at reducing social issues, digital literacy and social inequality are also important.*

Keywords: *digital economy, labor market, remote work, digital literacy, innovation, artificial intelligence.*

Introduction. The digital economy is an integral part of the modern economic system, which includes the impact of digital technologies and the internet on economic activity. Digital data, platforms and services play a major role in this economy. The development of the digital economy depends on a number of factors, including technological innovation, the prevalence of the internet and the formation of digital infrastructure. The main components of the digital economy are:

In the digital economy, data is the most valuable resource. They are used to optimize business processes, understand consumers, and develop new products [1]. Large-scale data analysis is available through Big Data Technologies. Digital platforms, such as e-commerce sites, social networks and mobile applications, establish links between consumers and manufacturers. Through these platforms, services and products are provided quickly and efficiently. The digital economy supports innovative ideas. Startups and tech companies develop the market by creating new solutions. Technologies such as artificial intelligence, blokcheyn and IoT (Internet of Things) are key areas of the digital economy. The digital economy also has a huge impact on social life. It helps to create jobs, provide new services and reduce social inequality. However, there are also digital gaps and technological differences, which are necessary to solve.

The digital economy facilitates global trade. Products and services can be quickly distributed internationally. Through e-commerce platforms, small entrepreneurs will also have access to the global market [2]. Development in Fintech

has led to the provision of digital finance services. Mobile banking, crypto-currencies and online lending systems are radically changing the financial sphere. This provides consumer amenities. The process of acquiring knowledge through digital education platforms is becoming easier. Through online courses, webinars and other digital resources, everyone has the opportunity to acquire the necessary knowledge. The digital economy has also brought innovations in health care. Telemedicine, digital health applications and medical data analysis technologies are creating more favorable conditions for patients. Digital technologies help automate production processes. 4.0 smart factories are being established as part of the Industrial Revolution, which serves to increase efficiency [3].

Security issues are also important in the digital economy. Measures for cyber security, data protection and storage of users ' personal data are necessary. The development of the digital economy also affects public policy. States are developing strategies to support digital infrastructure development, digital trade and innovation [4]. Cooperation between the public and private sectors is important in these processes. The future of the digital economy looks very promising. However, to solve the problems that arise in this process, it is necessary to develop a strong legislative framework and principles of ethics. It is important to protect the interests of all parties involved in the digital tranformation process. There should also be an emphasis on environmental issues for the sustainable development of the digital economy. It is necessary to increase energy efficiency with the help of digital technologies and strive not to harm the environment. The digital economy is an integral part of the modern world, which is able to radically change economic activity. New opportunities are being created through innovation and digital technologies, which affect all segments of society. And the success of the digital economy is due to its sustainability, security and social justice-based development.

The interaction of the digital economy and the labor market is one of the important aspects of the modern economic system. The development of digital technology and the internet has led to many changes in the labor market, affecting jobs, work styles and workers' demands.

The digital economy brought new jobs and professions in the labor market. For example, areas such as digital marketing, data analysis, cyber security, and software development are developing rapidly. Demand for these professions is increasing, as companies need qualified professionals to carry out digital transformation and be ahead in competition. However, the development of the digital economy is also leading to the loss of some traditional professions. Automation processes can reduce ordinary jobs, forcing workers to learn new skills. This process is called “labor market redistribution” and it encourages workers to adapt to new conditions. The skills required to succeed in the digital economy are changing considerably. Workers need to have skills such as digital literacy, analytical thinking, problem solving, and creativity. This requires changes in the education system. Educational institutions should offer students new approaches to learning digital technologies and developing practical skills.

Companies are obliged to attract highly qualified cybersecurity professionals to protect their data. This is leading to the emergence of new jobs. Training programs and certification processes are also important in the field of cyber security. The digital economy also raises social issues in the labor market. There are digital gaps, which can lead to some groups being left out of the digital economy. As a result of technological differences, some people experience difficulties in using digital resources. Therefore, States and organizations are focusing on implementing digital education programs. By increasing digital literacy, it is necessary to involve all segments of society in the digital economy. This process helps reduce social inequality.

Conclusion. The relationship between the digital economy and the labor market is one of the important aspects of modern economics. Digital technologies are creating new opportunities in the labor market, but at the same time the loss of traditional professions and the need for new skills. It is necessary for workers to have digital literacy and the education system is being upgraded to meet these requirements. Remote job opportunities are expanding, but social interaction and effective management are important in this process. Cybersecurity issues also remain relevant, which increases demand for new professionals. A digital economy can provide opportunities to reduce social inequality, but comprehensive strategies are needed to do so.

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O‘RTA OSIYO RESPUBLIKALARIDA O‘TKAZILGAN MILLIY-HUDUDIY CHEGARALANISH

Annotasiya: *ushbu maqolada O‘rta Osiyo Respublikalarida o‘tkazilgan milliy-hududiy chegaralanish haqida umumiy ma’lumotlar keltirilgan.*
Kalit so‘zlar: *Turkiston, O‘rta Osiyo, yagona hudud, diniy e’tiqod, xo‘jalik, milliy-hududiy chegaralash.*

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NATIONAL-TERRITORIAL DELIMITATION HELD IN THE CENTRAL ASIAN REPUBLICS

Annotation: *this article provides an overview of the national-territorial delimitation conducted in the republics of Central Asia.*
Keywords: *Turkestan, Central Asia, unified territory, religious faith, economic, national-territorial delimitation.*

Turkiston mintaqasi azaldan turkiy xalqlarning yagona maskani va umumiy vatani bo‘lgan. 1918–1924-yillarda mavjud bo‘lgan Turkiston ASSR, BXSR, XXSRning tub xalqlari asrlar davomida turmush tarzi va an’analari jihatidan bir-birlariga juda yaqin bo‘lishgan. Turkistondagi turli davlatlarning har birida turkiy xalqlar: o‘zbeklar, turkmanlar, qoraqalpoqlar, qozoqlar, qirg‘izlar, shuningdek, tojik xalqi azaldan yashaganligi tarixiy tarkib topgan hodisa edi. Turkiston mintaqasining xalqlari shu tuproqni, Turonzaminni qadimdan o‘zlarining asl Vatani deb bilganlar. Mustabid sovet rejimi va bolsheviklar uchun esa Turkiston o‘lkasini bo‘lib tashlab, uni idora qilish qulay edi. Xususan, bu jarayon Turkistondagi istiqlolchilik harakati 1924-yilda, asosan, mag‘lubiyatga uchraganidan keyin o‘zining so‘nggi bosqichiga qadam qo‘ydi.

1917-yili Turkistonda muhim siyosiy o‘zgarishlar yuz berdi. Mintaqa xalqlari mustamlakachilikning 50 yillik zulmiga qarshi milliy-ozodlik kurashini avj oldirib yubordilar. Ma’rifatparvarlik harakati sifatida vujudga kelgan jadidchilik Turkiston taqdiri hal qilinayotgan paytda o‘zbek xalqini g‘oyaviy jihatdan birlashtiruvchi kuch sifatida maydonga chiqdi. Mahmudxo‘ja Behbudiy, Munavvar Qori, Ubaydullaxo‘ja Asadullaxo‘jayev (Ubaydulla Xo‘jayev), Mustafo Cho‘qayev, Ahmad Zaki Validiy To‘g‘on kabi jadid taraqqiyparvarlari Turkistonga muxtoriyat maqomi berish uchun kurashdilar va siyosiy jarayonlarga faol aralashdilar. O‘lka xalqlarining dastlabki ijtimoiy-siyosiy jamiyati — «Sho‘roi Islomiya» tuzilib, u muxtoriyatchilik harakatining tepasida turdi. Bu paytda Buxoro amirligi va Xiva xonligi hududida Yosh buxoroliklar va Yosh xivaliklar partiyasi a’zolari

demokratik islohotlar o‘tkazish uchun o‘z faoliyatlarini kuchaytirdilar. Abdurauf Fitrat, Fayzulla Xo‘jayev, Polvonniyoz Hoji Yusupov ularning rahbarlari edi. Afsuski, 1917-yil noyabrda tashkil topgan Turkiston Muxtoriyati hukumati — xalqimiz tarixidagi dastlabki demokratik hukumat oradan ko‘p o‘tmay mustabid sovet tuzumi va bosqinchi qizil askarlar tomonidan qonga botirildi. Hukumat faoliyat ko‘rsatgan Qo‘qon shahri vayron qilindi, tinch aholi qirg‘inga duchor etildi. 1918-yil fevral oyida dastlab Qo‘qon atroflarida boshlangan istiqlolchilik harakati tez orada butun Turkiston mintaqasiga tarqaldi. Farg‘ona vodiysida Kichik va Katta Ergasli, Madaminbek, Shermuhammadbek, Islom Pahlavon, Yormat Mahsum, Buxoroda Ibrohimbek, Anvar Posho, Mulla Abdulqahhor, Xorazmda Junaidxon kabi qo‘rboshilar harakatga qo‘mondonlik qilishdi. Biroq Turkistonning mustaqilligi va ozodligi uchun kurasligan istiqlolchilar sovet davrida «bosmachi» va «xalq dushmani» sifatida ko‘rsatilib, jamoatchilik fikri shu yo‘nalishda shakllantirildi. Aslini olganda, istiqlolchilik harakatining boshidan oxirigacha bir buyuk g‘oya ustunlik qilgan edi. Bu g‘oya butun Turkistonning milliy istiqloli va mustaqilligi g‘oyasi bo‘lib, u harakatning asosiy maqsadi bo‘lib qolaverdi. Istiqlolchilik harakati tarixi o‘zbek xalqining sovet davri tarixiga uning eng shonli vazafarli, shuningdek, qayg‘uli va dard-alamli sahifalari bo‘lib yozildi.

Markaziy Osiyo, jumladan,Turkiston, Buxoro va Xorazm davlatlarining tub xalqlari necha asrlar davomida turmush tarzi va an’analari jihatidan bir-biriga yaqin bo‘lib keldilar. Buxoro va Xorazm XX asr 20-yillarining boshiga qadar mustaqil davlatlar bo‘lgan. Bu mintaqa yagona zamini, o‘z xo‘jaligi, an’analari, dini, madaniyatining mushtarakligi bilan ajralib turgan. Mana shu davlat tuzilmalari doirasida har bir xalq yoki alohida urug‘lar xo‘jalik hayoti tizimidagi o‘z o‘rnini egallab, o‘zining ishlab chiqarish va xo‘jalik faoliyati bilan davlat va mintaqa ijtimoiy hayotining yaxlit zanjiridagi uzilmas halqani taslikil etgan. Turkiston mintaqasining xalqlari shu zaminni qadimdan o‘zlarining asl vatanl deb bilganlar. Vatan yagonaligi hissi xalq ijodiyotida, an’analarida, madaniyatida o‘z aksini topgan va shu mintaqada yashab turgan barcha xalqlarning abadiy qadriyatiga aylangan.

Bu mintaqaning xalqlari birdir degan g‘oya avloddan-avlodga o‘tib, milliy yetakchilar, jamoat arboblari vamilliy ziyolilarning qaraslilari hamda amaliy faoliyatlarida aks etdi. Hudud yaxlitligiga, xalqning birligiga xavf-xatar tug‘ilgan kezlarda ana shu g‘oya xuddi bir qalqondek bo‘lib turdi, xalqlarning bir-biridan ajralib, uzoqlashib ketishining oldini oluvchi omil bo‘lib qoldi.

Xulosa qilib aytganda, haqiqatdan ham O‘rta Osiyo davlatlaridan har birining ko‘p millatli ekanligi, o‘zbeklar, turkmanlar, tojiklar, qoraqalpoqlar, qirg‘izlar, qozoqlar va boshqa yerli xalqlarning uchala davlat hududlarida tarqalib yashashlari tarixan an’anaviy bo‘lgan. Shunday qilib, O‘rta Osiyoni chegaralab bo‘lish va milliy respublikalar tuzish g‘oyasi 1924-yilda amalga oshirila boshlandi

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STATISTICS – THE KEY TO SUCCESS

Abstract *This article discusses the crucial role of statistics in achieving success across various fields. It analyzes the fundamental principles of statistics, its application in business, sports, and decision-making processes. Additionally, it highlights how statistical analysis enhances performance and enables future predictions.*

Keywords *Statistics, Data Analysis, Decision-Making, Business Strategy, Sports Analytics, Performance Measurement, Predictive Analysis, Success Factors.*

Introduction

In the modern world, statistics plays a key role in numerous aspects of life, serving as a foundation for making informed decisions. It provides a systematic approach to collecting, analyzing, and interpreting data, which helps individuals and organizations achieve their goals more effectively.

Statistics is widely used in business, sports, science, and even daily life. From predicting market trends to enhancing athletic performance, statistical methods help improve efficiency and drive success.

The Fundamental Role of Statistics

Statistics is the science of data collection, analysis, and interpretation. By applying statistical techniques, individuals and organizations can improve their operations, predict future trends, and develop effective strategies.

For example, in sports, coaches and scouts use statistical data to evaluate players' performance and enhance team strategies. By leveraging statistics, teams can optimize their gameplay and increase their chances of winning.

Statistics in Business

In the business sector, statistical analysis is essential for developing marketing strategies, understanding customer preferences, and maximizing profits. Companies use data-driven approaches to analyze market trends, measure consumer behavior, and make informed decisions.

For instance, businesses collect and analyze customer purchase patterns to tailor their products and services, leading to increased customer satisfaction and higher revenues.

The Role of Statistics in Sports

Statistics is a critical tool for success in sports. Coaches analyze team performance metrics, player efficiency, and opponent weaknesses to devise winning

strategies. Football, in particular, heavily relies on statistical analysis for game preparation and performance enhancement.

Legendary players like Cristiano Ronaldo continuously analyze their performance statistics to identify areas for improvement, ultimately helping them maintain peak form and achieve greatness on the field.

Predictive Power of Statistics

One of the most powerful aspects of statistics is its ability to forecast future outcomes. Weather predictions, economic growth forecasts, and sports match outcomes are all determined using statistical models.

For example, football clubs gather extensive statistical data on opposing teams before matches to assess their strengths and weaknesses. This strategic analysis provides a competitive advantage and improves game planning.

Discussion

- **The Importance of Statistical Analysis** Statistical methods enhance decision-making by providing data-driven insights, leading to better strategies and improved results.
- **Applications in Various Fields** From business management to sports analytics, statistics plays a fundamental role in optimizing processes and achieving success.
- **Challenges in Data Interpretation** While statistics is a powerful tool, accurate data collection and interpretation are essential for meaningful results.

Conclusion

Statistics is a vital key to success in any field. By collecting and analyzing accurate data, individuals and organizations can make informed decisions, improve performance, and achieve their goals. Whether in sports, business, science, or everyday life, statistical analysis opens the door to better outcomes and a competitive edge.

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THE INFLUENCE OF THE TIMING AND NORMS OF SOWING WINTER RYE SEEDS ON THE VOLUME WEIGHT AND WATER PERMEABILITY OF THE SOIL

Annotation *The article describes the timing and norms of violence of autumn rye seeds to the agrophysical properties of the soil, which are important properties that determine its softness or density, taking into account the volume weight and water permeability of the soil. Soil volume weight is analyzed, at the beginning and end of the growing season.*

Key words: *agrophysical properties of soil, volume weight, mass, soil density, envelope method, validity period, mass, sample, density.*

Experimental procedure and method The experiment involved five different sowing dates (September 20, October 1, October 10, October 20, November 1) and three different seed rates (3 million, 4 million, 5 million). When feeding winter rye, ammonium nitrate (N–34%) was used as nitrogen fertilizer, superphosphate (R2O5–12–14%) as phosphorus fertilizer, and potassium chloride (K2O–50%) as potassium fertilizer. In the experiment, 70% of the annual rate of phosphorus fertilizers and 100% of potassium fertilizers were applied to winter rye in the fall, under the plow, the remaining 30% of phosphorus fertilizers were applied in the 1st feeding with nitrogen fertilizers during the tillering period, and the 2nd feeding was carried out with nitrogen fertilizers during the tillering period.

The bulk density of the soil was determined in the 0–50 cm. layer, at the beginning and end of the application period by the method of N.A. Kachinsky.

The water permeability of the soil was determined at the beginning and end of the application period by the method of N.A. Kachinsky;

Research results and their analysis One of the agrophysical indicators of soil is the bulk density of the soil, which is an important property that determines its softness or density. The bulk density of the soil is the ratio of the mass in grams of one cubic centimeter of dry soil (with air) in its natural state to the weight of water taken at 4 0C in the same volume and is expressed in g/cm3. For good growth and development of agricultural crops, the bulk density of the soil is considered optimal, depending on the type, at an average of 1.30–1.35 g/cm3. In particular, winter rye seeds were sown at a rate of 3 million per hectare in the period from September 20 to When sowing with germinating seeds, the soil bulk density was on average 1.38 g/cm3 in the 0–30 cm layer, and 1.47 g/cm3 in the 30–50 cm layer under the plow, and the soil compaction compared to the beginning of the operation was on average 0.08 g/cm3 in the 0–30 cm layer and 0.07 g/cm3 in the 30–50 cm layer, respectively, during this period, 4 million and 5 million tons per hectare were used. In the variants

planted with germinating seeds, this indicator was on average 1.36 g/cm3 in the 0–30 cm layer of soil, and 1.46–1.45 g/cm3 in the 30–50 cm layer under the plow, which was an increase of 0.06 g/cm3 in the 0–30 cm layer of soil and 0.06–0.05 g/cm3 in the 30–50 cm layer compared to the beginning of the operation. In particular, winter rye seeds were sown in the amount of 3 million per hectare during the period from September 20 to September 20. When sowing with germinating seeds, the soil bulk density was on average 1.38 g/cm3 in the 0–30 cm layer, and 1.47 g/cm3 in the 30–50 cm layer under the plow, and the soil compaction compared to the beginning of the operation was on average 0.08 g/cm3 in the 0–30 cm layer and 0.07 g/cm3 in the 30–50 cm layer, respectively, during this period, 4 million and 5 million tons per hectare were used. In the variants planted with germinating seeds, this indicator was on average 1.36 g/cm3 in the 0–30 cm layer of soil, and 1.46–1.45 g/cm3 in the 30–50 cm layer under the plow, which was an increase of 0.06 g/cm3 in the 0–30 cm layer of soil and 0.06–0.05 g/cm3 in the 30–50 cm layer compared to the beginning of the operation.

In the medium term, i.e., on October 10 and 20, when variants 7 and 10 were analyzed, the bulk density in the 0–30 cm layer of soil was on average 1.37–1.36 g/cm3, and the soil density increased by an average of 0.07–0.06 g/cm3 compared to the beginning of the period of application. These indicators are similar to those of variants planted with 4 million and 5 million seeds per hectare, showing that the bulk density of the soil in the 0–30 cm layer was 1.36–1.35 g/cm3 for 4 million seeds and 1.34 for 5 million seeds, and an average increase of 0.06–0.05 g/cm3 for 4 million seeds and 5 million seeds compared to the beginning of the period of application. and in the 30–50 cm layer of soil, the bulk density of the soil at the end of the period of application was on average 1.44–1.47 g/cm3 when 4 million germinating seeds were sown, and 1.44–1.45 g/cm3 when 5 million germinating seeds were sown, and compared to the beginning of the period of application, it was determined that the bulk density increased by 0.04–0.07 g/cm3 for 4 million seeds and by 0.04–0.05 g/cm3 for 5 million seeds.

When analyzing the variants sown in the late period, that is, in the period of November 1, the following data were obtained, and 3 million per hectare In variant 13, where 130 When determining the bulk density of the soil in 14–15 variants planted at the rate of 4–5 million germinating seeds per hectare, by the end of the application period, it was found that the average bulk density in the 0–30 cm layer of the soil was 1.35–1.34 g/cm3, with a density of 0.05–0.04 g/cm3 compared to the beginning of the application, and in the 30–50 cm layer of the soil, the average bulk density was 1.44 g/cm3, with a density of 0.04 g/cm3 compared to the beginning of the application.

In our studies conducted in 2017–2018 and 2018–2019, it was observed that the above patterns were maintained, and positive data was obtained from our variants planted at the rate of 4–5 million germinating seeds per hectare in all planting periods.

Another agrophysical property of the soil is its water permeability. The water permeability of the soil depends on the bulk density of the soil and is assessed by the water absorption properties of the soil for 6 hours.

Each year, before conducting the experiment, the water permeability of the soil was determined by the envelope method at five points in the field at the beginning of the experimental period, and at the end of the experimental period in the cross-section of the variants.

In the 1st variant, planted at the rate of 3 million germinating seeds per hectare on September 20, a total of 850 m3/ha of water was absorbed into the soil over six hours, which was 30 m3/ha less than at the beginning of the implementation period. In the 2nd and 3rd variants, planted at the rate of 4 million and 5 million germinating seeds per hectare on September 20, a total of 855–860 m3/ha of water was absorbed into the soil by the end of the implementation period, which was 25–20 m3/ha less than at the beginning of the implementation period.

In the 1st and 3rd variants, planted at the rate of 3, 4, 5 million germinating seeds per hectare on October 20, a total of 855–860 m3/ha of water was absorbed into the soil by the end of the implementation period, which was 25–20 m3/ha less than at the beginning of the implementation period.

When the soil water permeability of the variants planted at the rate of 100,000 seeds was determined at the end of the implementation period, it was found that the average water absorption into the soil was 855–860–860 m3/ha, which was 25–20–20 m3/ha less than at the beginning of the implementation period.

In mid-October, that is, in the period from October 10 to 3, 4, 5 million per hectare. In the variants planted at the rate of 1000-1000 seeds, the soil water permeability by the end of the implementation period was on average 860-870-870 m3/ha, which was 20-10-10 m3/ha less water than at the beginning of the implementation period. In the variants planted at the rate of 2000-1000 seeds, the soil water permeability by the end of the implementation period was 860-865-870 m3/ha, which was 20-15-10 m3/ha less water than at the beginning of the implementation period. In the late period, i.e. on November 1, three varieties of 3, 4, 5 million. When analyzing the water permeability of the variants planted at the rate of 13–14–15 seeds, it was observed that by the end of the implementation period, the average water absorption into the soil was 860–865–865 m3/ha, which was 20–15–15 m3 less than at the beginning of the implementation period.

As can be seen from the presented data, the seed consumption rates per hectare also had a significant impact on the bulk density and water permeability of the soil.

In our studies conducted in 2017–2018 and 2018–2019, it was found that the above patterns were reflected, and it was observed that the increase in the number of seedlings had a positive effect on the agrophysical properties of the soil.

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TEACHING ENGLISH TO ECONOMICS STUDENTS:STRATEGIES, TECHNIQUES, AND MATERIALS

Abstract:*This article explores effective strategies, techniques, and materials for teaching English to economics students in higher education. Given the importance of English proficiency for engaging with global research, international conferences, and professional careers, it is essential to adopt a tailored approach. The article discusses various instructional strategies such as Content-Based Instruction (CBI), Task-Based Learning (TBL), Communicative Language Teaching (CLT), and Project-Based Learning (PBL). Techniques including case studies, simulations, problem-solving activities, and the analysis of economic texts are highlighted to enhance learning.*

Key words*: English for Specific Purposes (ESP), Economics Education, Language Learning Strategies, Content-Based Instruction, Task-Based Learning, Communicative Language Teaching.*

Introduction

English has become the dominant language in business, economics, and academia, making it essential for economics students to attain proficiency in the language. As economies become more interconnected, professionals in this field must be able to communicate effectively in English to access global markets, engage in international collaborations, and stay updated with economic trends. English proficiency enables students to read and analyze economic literature, attend international conferences, and pursue career opportunities in multinational corporations.

The teaching of English to economics students requires specialized approaches that integrate language learning with subject-specific content. Traditional language learning methods may not fully address the professional and academic needs of these students. Therefore, incorporating economic concepts into language instruction enhances comprehension and ensures relevance. This article explores effective strategies, techniques, and materials that cater specifically to the linguistic and professional needs of economics students, equipping them with the skills necessary for success in their field.

Strategies for Teaching English to Economics Students

Content-Based Instruction (CBI) involves integrating economic topics into language lessons to help students develop both linguistic and subject-specific knowledge. For instance, discussing economic theories while teaching complex

sentence structures enables students to learn new vocabulary and improve their understanding of economic principles in English. By embedding language learning into their field of study, students can better grasp and apply the terminology required in academic and professional settings.

Task-Based Learning (TBL) encourages students to use English in real-world economic scenarios. Assigning tasks such as analyzing a market trend and presenting findings in English fosters practical language use and critical thinking. This approach helps students engage with authentic economic contexts while simultaneously improving their communication skills, preparing them for workplace and academic demands.

Communicative Language Teaching (CLT) focuses on real-life communication and interaction. Through activities such as debates on economic policies, students develop speaking skills and critical thinking abilities. Engaging in discussions on current economic issues promotes fluency and confidence, ensuring that students can effectively express their ideas in academic and professional environments.

Project-Based Learning (PBL) engages students in collaborative projects that enhance both language and subject knowledge. A practical example includes researching economic indicators of a country and preparing a report in English. This hands-on approach allows students to apply their language skills in research, writing, and presentation, strengthening their ability to communicate economic concepts clearly and effectively.

Techniques for Effective English Instruction

The case study method uses business and economic case studies to encourage discussion, analysis, and presentation skills. For example, analyzing a case study on inflation and summarizing it in English helps students grasp economic concepts while improving their language proficiency.

Simulation and role-playing involve simulating business meetings, negotiations, and financial reporting to improve professional communication. Conducting a mock investment pitch in English, for instance, enables students to practice real-world financial discussions.

Problem-solving activities encourage students to solve economic problems using English. Discussing solutions to economic crises while utilizing relevant vocabulary improves their ability to articulate economic arguments effectively.

Reading and analyzing economic texts involve using articles, reports, and journals to improve comprehension and critical analysis. Reading and summarizing reports from sources like The Economist or The Financial Times enhances students' ability to interpret economic data and trends in English.

Suitable Materials for Economics Students

Textbooks and academic journals, such as "English for Economics" textbooks with specialized vocabulary and academic articles from economic journals, support reading comprehension and technical knowledge development.

News articles and reports from authentic sources like Bloomberg, The Wall Street Journal, and The Financial Times provide real-world economic insights and exposure to industry terminology.

Podcasts and videos, such as economics-related podcasts like “Planet Money” and TED Talks on economic topics, enhance listening skills and expose students to diverse accents and ideas.

Business and economic glossaries provide students with essential economic terms to enhance vocabulary acquisition and ensure better comprehension of specialized terminology.

Online platforms and tools, such as Coursera, Khan Academy, and TED-Ed, offer supplemental learning resources. AI-based tools for writing assistance, grammar correction, and pronunciation practice can further support students' language development.

Conclusion

Teaching English to economics students requires an approach that merges language learning with economic content. Strategies like content-based instruction, task-based learning, and project-based learning ensure students acquire both linguistic and subject knowledge. Additionally, techniques such as case studies, simulations, and problem-solving tasks foster practical skills relevant to academic and professional settings.

The integration of authentic materials, including textbooks, news articles, podcasts, and online platforms, enhances students’ exposure to real-world economic discourse and prepares them for professional communication in a globalized world. By focusing on a blended learning approach, combining traditional and digital tools, educators can optimize the learning experience and cater to diverse learning styles.

Future research and curriculum development should continue refining pedagogical approaches that align with the evolving demands of the economics field. Institutions should also provide professional development opportunities for educators to stay updated with innovative teaching methodologies. Ultimately, equipping economics students with strong English proficiency ensures their ability to engage effectively in international discussions, research, and economic policymaking, fostering global economic growth and collaboration.

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HISTOTOPOGRAPHY OF THE PROSTATE GLAND IN THE RABBIT

Resume: *This article describes the features of the histologic structure of the prostate gland in rabbits. In rabbits, the prostate gland is quite developed and has a good alveolar structure. The stroma consists of connective and smooth muscle tissue, elastic fibers are few, located in the capsule and in the circumference of glandular elements and vessels.*

Key words: *rabbit, prostate gland, hematoxylin-eosin, Van-Gizon, elastic fibers, stroma, argyrophilic fibers.*

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QUYONLARDA PROSTATA BEZINING GISTOTOPOGRAFIYASI

Annotatsiya: *Maqolada quyonlarda prostata bezining gistologik tuzilishining xususiyatlari o`rganilgan. Quyonlarda prostata bezi yetarli darajada rivojlangan va yaxshi alveolyar tuzilishga ega. Stroma biriktiruvchi va silliq mushak to'qimalaridan iborat bo'lib, elastik tolalar oz sonli bo'lib, kapsulada va bez elementlari va tomirlari atrofida joylashgan.*

Kalit so'zlar: *quyon, prostata bezi, gematoksilin va eozin, Van Gison, elastik tolalar, stroma, argirofil tolalar.*

Introduction. To date, there are no detailed comparative anatomical data on the histomorphology of the prostate gland in rabbits. Literature reviews of the last 10 years allow to understand the anatomy and histologic structure of the prostate gland in rabbits useful for experimental medicine and development of new methods of treatment.

Aim and objectives of the study. To study the questions of histologic structure of prostate glands in rabbits.

Materials and methods of research. The aim of the present work was a more detailed study of the prostate glands in rabbits. Prostate glands of sexually mature animals of 10 rabbits were used for the study. The material was fixed in 12% neutral formalin. Sections were prepared on a freezing microtome. They were impregnated according to the method of Bilshovsky-Gros, Rasskazova and Campos. Sections

were stained with hematoxylin-eosin to reveal the general structure and stained by Van-Gizon for elastic fibers. For detection of argyrophilic fibers - Donskoy.

Results of the study. In rabbits the prostate gland is sufficiently developed and has a good noticeable lobularity, the lobules are comparatively large, of alveolar structure. The terminal secretory sections and ducts have wide but irregular lumen. The epithelium lining them is cylindrical, in some places forming outgrowths. In the lumen of some there is amorphous secretion with visible granularity. The stroma consists of connective and smooth muscle tissue, elastic fibers are few, thin, located in the capsule and in the circumference of glandular elements and vessels. Well-developed interlobular connective tissue, from which inside the lobules are thin layers surrounding the end secretory sections and ducts. The capsule, consisting of connective and muscular tissue, in which layers of transverse striated muscles are noticeable, is well expressed. In the circumference of the capsule there are many vessels and large nerve bundles. Argyrophilic fibers are well developed. The inner and outer argyrophilic membranes consist of thin and thick argyrophilic fibers. A coarsely and finely-looped network of argyrophilic fibers is seen in the stroma. Nerve elements are observed in considerable quantity, especially in the periphery of the organ. They are represented by bundles of nodes, there are individual nerve fibers of different thickness, sometimes varicosely dilated twisted and straight. In places, dividing, they form bush-like receptors, ending on the cells of the stroma or on the cells of the epithelium. In the stroma are found

Conclusions: Our studies allow us to draw the following conclusions.

The prostate gland in rabbits is well developed and has clearly expressed parenchyma and stroma. The gland has a distinct lobular structure. Parenchyma reaches a large development, does not have a pronounced lobular structure and is characterized by small secretory sections and excretory ducts. The stroma is less developed in comparison with the parenchyma of the gland. In the parenchyma the end secretory sections and ducts are very small. Along with a pronounced lobular structure, there are large terminal secretory sections and ducts lined with high cylindrical epithelium forming papillary outgrowths.

In the prostate gland, especially in the rabbit, an abundance of nerve elements is noted. They are numerous and varied, represented by nerve trunks, rays and a variety of free and encapsulated receptor endings.

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O‘ZBEK FOLKLOR SAN’ATINING TARIXI VA SHAKLLANISHI. „ QURALAY " VA „ JAYHUN" FOLKLOR ETNOGRAFIK XALQ ANSAMBLINING FAOLIYATI

Anotatsiya: O'zbek milliy folklor qo'shiqchiligi folklor musiqa asarlarining nodir namunalari, folklor musiqa san'atining kelib chiqish tarixi va rivojlanishi uning fan sifatida o'rganila boshlagani to'g'risida so'z yuritiladi. Ajdodlarimiz tomonidan yaratilgan va bizga meros bo'lib qolgan betakror folklor asarlarini kelajak avlodlarga yanada rivojlantirib, sayqallab yetkazish ko'zda tutilgan. Folklor ansambllarini tuzish , tashkil etishdagi vazifalar, usliblar ,, Jayhun " folklor - etnografik xalq ansamblining tashkil etilishi va ,, Quralay" namunali bolalar folklor ansambli haqida ma'lumotlar keltirib o'tilgan.

Kalit so‘zlar: Folklor, xalq musiqasi, ananaviy musiqa, og‘zaki ijod, merosxo‘rlik,mahalliy qo‘shiqlar, baxshichilik, to‘y qo‘shiqlari, etnomusiqashunoslik.

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HISTORY AND FORMATION OF UZBEK FOLK ART. ACTIVITIES OF THE FOLKLORE ETHNOGRAPHIC ENSEMBLES "KURALAY" AND "JAYHUN"

Abstract: *Uzbek national folklore singing, rare examles of folk music works the history of the origin and development of folk music art and its beginning to be studied as a science are discussed. It is in tended to further develop and polish the antique folklore works created by our ancestore and passed downto us. The tasks and methods of organizing a folklore ensemble are shown in the example of the organisation of the ,,Jayhun" folklore ethnographic folk ensemble and the organisation of the exemplary children's folklore ensemble ,"Quralay"*

Keywords: *Folklore, folk music, traditional music, spoken word, heritage local songs, giving, wedding songs, ethnomusicology.*

Allomalarimiz xalq og'zaki ijodini millatning madaniy, ma'naviy va tarixiy merosining asosiy qismi deb bilishgan. Shunungdek adiblarimiz folklorni nafaqat san'atning bir qismi, balki xalqning milliy o'zligini urf-odat va qadryatlarini saqlash vositasi sifatida qadrlashgan. Allomalarimizdan Fitratning shunday so'zlari bor

,,Folklor xalqning madaniy xotirasi va ma'naviy merosidir" -deb ta'kidlagan. Folklor so'zi inglizcha ,,Folk- xalq, lore-donolik" ya'ni xalq donoligi, donishmandligi, hunarmandligi, san'atkorligi ma'nolarini anglatadi. Folklorni fan sifatida o'rganish XVII-asrda Angliya Universitetida yo'lga qo'yilgan. 1860-1870 yillarga kelib Rossiya Universitetlarida ham fan sifatida o'rganila boshlagan. 1920-yilda G'ulom Zafariy, Elbek, Muzayana Alaviylar viloyatlarga safarlar uyushtirib, folklor musiqa na'munalaridan to'plab borishgan. Xalq og'zaki ijodi -folklor,qabila, urug', elat va xalqlarning milliy og'zaki badiiy adabiyoti sanaladi.Bilamizki, xalq og'zaki ijodi namunalari yillar mobaynida xalq orasida, ijtimoiy hayotida yuzaga kelib , shakllanib borgan.Xalq og'zaki badiiy ijodi og'izdan-og'izga, avloddan-avlodga, ustozdan -shogirdga o'tib kelayotgan an'analar sanaladi. Biz bilamizki, xalq orasida o'zbek folklori namunalari sifatida topishmoq, maqol, singari janrlar ommoviy xarakterga ega. Doston, og'zaki drama,ertak, askiya kabi janrlarda profisional tayyorgarlikni talab etadi. Shu sababli o'zbek folklorida xalq ijodkorlarning profissionallashuvi nihoyatda rivojlangan. Masalan baxshichilik, ertakchilar, askiyabozlar, qiziqchilar, dorbozlar ijrochiligi profisional san'at turi hisoblanadi. Folklor san'atida ijro usullari ya'ni yakkaxon ijro va jamoaviy ijro, soz va sozsiz ijroga ko'ra farqlanadi. Xalq og'zaki ijodida maqol, topishmoq , olqish, terma, naql, ertak, latifa, lof ,og'zaki drama, askiya, doston, baxshichilik janrlarini folklor san'atining yorqin namunalari sifatida ko'rishimiz mumkin. Shuningdek, folklor san'atida mavsumiy marosim qo'shiqlari ham mavjud bo'lib, unda asosan yilning to'rt fasliga oid mavsumiy marosim qo'shiqlari ijro etigan. Bunda insonlarning ijtimoiy hayotida bo'gan voqealari aks ettirilgam. Bahor kelishi bilan dehqon va chorvadorlarning dala ishlari boshlanadi. Bu albatta, mehnat jarayonlari bilan bog'liq hodisa, shu boisdan dehqonning dalaga urug' seoishidan tortib hosilini yig'ib olguniga qadar voqealar rivojini ko'rishimiz mumkin. Bahor faslida ,,Shox moylar",, Navro'zi olam",,Don sepdim",,Sust xotin" ,,Sumalak" kabi xalq qo'shiqlari ijro etilgan. Yoz faslining kelishi bilan bilamizki, kunung issiqligi tufayli shamolni cgaqirish marosimi o'tkazilgan. Bu marosim ,,Choy momo " deb atalgan. Yilning kuz mavsumida esa,, obbo baraka",, Mirhaydar bobo" ,, Galagov" ,,Xo'p hayda" kabi qo'shiqlarni xalqmiz ijro etishgan. Yilning qaratonli qish faslida ham marosimlar o'tkazishgan. Bu marosimlar ,,Ya -Sun" va Gap-gashtak" deb nomlangan. Shuningdek, oilaviy-maishiy marosimlar ham mavjud bo'lib unda asosan ,,To'y marosimlari", Beshik to'ylari" ,,Xatna sunnat to'ylari" Nikoh to'ylari",, Motam marosimlari o'tkazilgam.

,, Choy momo'' marosimi.

Uzoq yillar mobaynida ajdodlarimiz shamolga g'ayri tabiiy kuch qudratga ega bo'lgan jonli mavjudotsifatida munosabatda bo'lganlar. ,,Choy momo" marosimi ana shunday qarashlarining erkin ifodasidir. Marosim surunkali holda davom etgan qattiq shamollarni to'xtatish maqsadida o'tkazilgan. Marosimda ikkita kampir ustiga eski kiyimlardan kiyib, yuziga qora kuya surib, qo'liga bitta kaltakni ot qilib minib ,, Choy momo " qo'shig'ini aytganicha qishloqning ko'chalarida aylanib yurishgan. Ularning ortidan esa 7-8 yoshli bolalar eshakka minib, xonadonlardan uy sohiblari bergan sadaqalarni xo'rjinga solib yurishgan.O'zbek folklor san'atida mehnat

jarayonlaridan tashqari dehqonchilik, chorvachilik hamda hunarmandchilik bilan bog'liq qo'shiqlar ham mavjud. Masalan dehqonchilik jarayonlarida ,,Qo'sh" ,, O'rim" ,,Yanchim" ,, Yorg'uchoq" kabi qo'shiqlar kiradi. Chorvachilik bilan mavjud qo'shiqlarga ,, Ho'sh-ho'sh" ,, Turey-turey"Chirey-chirey" misol keltirishimiz mumkin. Hunarmandchilik bilan bog'liq qo'shiqlarga ,, Kashta" ,,Charxim",,Bo'zchi" va O'rmak" qo'shiqlarini misol keltirishimiz mumkin.Folklor san'atida xalq afsunlari, badik va kinna turlari ham mavjud bo'lib uni folklorshunoslikda duo aytimlari ma'nosida qo'llaniladi. ,, Badik"- bu inson tanasiga qizilcha, eshak emi, suvchechak kabi toshmalar chiqanida aytiladi. ,,Kinna"- uhasad, suq, kek,o'ch, husumat kabi ma'nolarni anglatadi. misol uchun ,, Kinna " qo'shig'ini aytib o'tamiz.

,, Kinna'' qo'shig'i.

Xa chiq badbah chiq, chiqmaganinga qo'ymayman, ko'zlaganing ko'zi bor.
So'zlagani so'zi bor.

Folklor san'atida bolalarga xos qo'shiqlar ham mavjud. Misol tariqasida ,,Quralay" folklor etnografik ansamblini keltirishimiz mumkin. Ansambl 1987-yilda Surxondaryo viloyati Boysun tumanida Qurbonov Sattor Xursandovich tomonidan dastlab to'garak shaklda tashkil topgan.1996-yili ansamblda Abdunabi Qodirov badiiy rahbar va Sojida Muxiddinova musiqa rahbari lavozimida faoliyat olib borgan. 1998-yil Toshkent shahrida bo'lib o'tgan ,,O'zbekiston-vatanim mening" Respublika ko'rik tanlovida ishtirok etgan ,, Quralay" bolalar folklor-etnografik namunali xalq ansambli 1999-yilda Xalqaro ,,Sharq taronalari " festevalida qatnashib festeval sovrindori bo'lgan.2001-yil, 2002-yil, 2003-yil,2004-yil, 2005-yillar Yunesko va Respublika madaniyat vazirligi tomonidan o'tkazilgan ,, Boysun bahori" xalqaro ochiq folklor festevalida qatnashgan. 2006-yil ,,Diyor ohanglari" Respublika telvizon festevalida , 2008-yilda esa ,,Asrlar sadosi" festevallarida muntazzam qatnashib kelgan. ,,Quralay" bolalar folklor - etnografik namunali xalq ansambli sahnalashtirgan asarlar; ,, Muchal to'yi" ,,Dehqonbobo" ,,Shodiona" ,,Navro'z sayli" ,, Yor-yor" ,,Sarbonbobo" ,, Chillik o'yini" ,,Tol yog'ochdan to'yimiz" ,,Urchuq",,Aziz vatan",, Mehmonjon" ,, Kishtala bolajon" ,, Tulki to'yi" ,,Bodini ko'rdim" ,, Boychechak" ,, Yomg'ir yog'aloq" kabi ko'plab qo'shiqlarni misol tariqasida aytishimiz mumkin. O'zbek folklor tarixini o'rganish folklorshunos olimlar tomonidan o'rganilgan. Folklor san'atini fan sifatida qo'llash samarali natija bera boshladi.

Xalq ogʻzaki ijodining soʻz sanʼati badiiy adabiyotning ogʻzaki shakli sifatida oʻrganiladi. Bular Folklor musiqada baxshichilik san'atining rivoj topishi dostonlarning avloddan avlodga meros boʻlib kelayotgani misol boʻladi. Biz bilgan,, Alpomish " ,,Goʻroʻgʻlining tuyulishi",, Ravshan "Oshiq Gʻarib va Shohsanam" dostonlari ., ,, Bulbuli goʻyo " ,,Malikai Husnobod" ,, Uch ogʻayni botirlar " ertaklar, ,, Toʻmaris" va,, Shiroq " kabi afsonalar xalq ogʻzaki ijodining badiiy ogʻzaki shakli sanaladi. Folklor musiqa sanʼati namunalarini toʻplash, uni oʻrganish va zamonaviy ijroga moslab xalq eʼtiboriga xavola etish orqali milliyligimizni oʻrganish koʻzda tutilgan maqsadlardan biri sanaladi.

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TEXNOLOGIK TA'LIMDA ZAMONAVIY AXBOROT TEXNOLOGIYALARINING O'RNI

Annatatsiya*: Texnologik ta'lim tizimi zamonaviy jamiyat taraqqiyotida muhim ahamiyat kasb etmoqda. Axborot texnologiyalarining ta'limga integratsiyasi pedagogik jarayonlarni samarali tashkil etish va ta'lim sifati oshirishda katta ahamiyatga ega. Ushbu maqolada texnologik ta'limda zamonaviy axborot texnologiyalarining o'rni tahlil qilinib, ularning samaradorligi va rivojlanish istiqbollari muhokama qilinadi. Shuningdek, ta'lim jarayonida qo'llanilayotgan innovatsion texnologiyalar, masofaviy ta'lim platformalari va sun'iy intellekt tizimlarining ta'siri yoritiladi.*

Kalit so'zlar: *texnologik ta'lim, axborot texnologiyalari, sun'iy intellekt, masofaviy ta'lim, raqamli ta'lim platformalari, IoT, VR/AR.*

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THE ROLE OF MODERN INFORMATION TECHNOLOGIES IN TECHNOLOGICAL EDUCATION

Abstract:*The technological education system is gaining importance in the development of modern society. The integration of information technologies into education is of great importance for the effective organization of pedagogical processes and improving the quality of education. This article analyzes the role of modern information technologies in technological education, discusses their effectiveness and development prospects. It also highlights the impact of innovative technologies, distance learning platforms and artificial intelligence systems used in the educational process.*

Keywords: *technological education, information technologies, artificial intelligence, distance learning, digital learning platforms, IoT, VR/AR.*

Kirish

Texnologik ta'lim bugungi kunda jamiyatning barqaror rivojlanishida muhim o'rin tutadi. Axborot texnologiyalari (AT) esa ta'lim jarayonining samaradorligini oshirishda muhim vosita hisoblanadi. Zamonaviy ta'lim tizimida raqamli

texnologiyalarni qo‘llash orqali bilim olish jarayoni tezlashmoqda va o‘qitish sifati oshmoqda. AT yordami bilan o‘quvchilarning interaktiv o‘qish imkoniyatlari kengaymoqda va ta’limda innovatsion yondashuvlar qo‘llanilmoqda. Ushbu maqolada texnologik ta'limda zamonaviy AT ning o‘rni tahlil qilinadi.

Metodologiya Maqolada ilmiy maqolalar, kitoblar va rasmiy statistik ma’lumotlarga asoslangan tahlil usuli qo‘llanildi. Bundan tashqari, zamonaviy axborot texnologiyalarining ta’lim jarayoniga ta’siri bo‘yicha tadqiqotlar ko‘rib chiqildi. Shuningdek, texnologik ta’lim sohasida olib borilgan eksperimental tadqiqotlar natijalari ham tahlil qilindi.

Natijalar va Muhokama Axborot texnologiyalarining texnologik ta'limga integratsiyalashuvi quyidagi asosiy yo‘nalishlar bo‘yicha amalga oshirilmoqda:

1. Raqamli ta’lim platformalari. Moodle, Google Classroom va boshqa tizimlar yordamida masofaviy va aralash ta’lim tizimlari samarali qo‘llanilmoqda [1]. Ushbu tizimlar o‘quvchilarga o‘z bilimlarini mustaqil rivojlantirish va o‘qituvchilarga ta’lim jarayonini optimallashtirish imkoniyatini beradi.

2. Virtual va kengaytirilgan reallik (VR/AR). Texnologik fanlarni o‘rgatishda simulyatsiya va modellashtirish texnologiyalari katta yordam bermoqda [2]. VR va AR vositalari orqali amaliy mashg‘ulotlarni real hayotga yaqinlashtirish imkoni yaratilmoqda.

3. Sun’iy intellekt (AI) va avtomatlashtirilgan ta’lim tizimlari. AI asosida bilimlar monitoringi va shaxsiy o‘qitish tizimlari ta’lim jarayonida individual yondashuvni kuchaytiradi [3]. Sun’iy intellekt yordamida testlar yaratish va avtomatik baholash jarayonlari soddalashtirilmoqda.

4. Katta ma’lumotlar (Big Data) va ta’lim analitikasi. Ta’lim jarayonida to‘plangan ma’lumotlarni tahlil qilish orqali ta’lim sifati baholanadi va yaxshilanadi [4]. O‘quvchilarning o‘quv jarayonidagi harakatlari tahlil qilinib, individual ta’lim strategiyalari ishlab chiqilmoqda.

5. IoT (Internet of Things) va aqlli laboratoriyalar. IoT texnologiyalari o‘quv jarayonini interaktiv va real vaqt rejimida nazorat qilish imkoniyatini beradi [5]. Aqlli doskalar, sensorlar va interaktiv laboratoriyalar orqali amaliy mashg‘ulotlarning samaradorligi oshirilmoqda.

Axborot texnologiyalari ta’limda yangi imkoniyatlar yaratib, bilim olish jarayonini yanada qulaylashtirmoqda. O‘quvchilar zamonaviy texnologiyalardan foydalangan holda o‘z bilimlarini mustaqil ravishda rivojlantirish imkoniyatiga ega bo‘ladilar. Bundan tashqari, o‘qituvchilar uchun ham turli o‘quv materiallarini yaratish, bilimlarni baholash va o‘quv jarayonini takomillashtirishning yangi usullari paydo bo‘lmoqda.

Xulosa

Texnologik ta'limda zamonaviy axborot texnologiyalarining qo‘llanilishi ta’lim samaradorligini oshirishga xizmat qiladi. Raqamli platformalar, VR/AR, AI va IoT kabi texnologiyalar pedagogik jarayonda keng qo‘llanilmoqda. Kelajakda ushbu texnologiyalarni yanada takomillashtirish orqali ta’lim sifatini oshirish imkoniyatlari kengayadi. AT vositalarining ta’lim tizimiga yanada chuqur integratsiyalashuvi ta’lim jarayonining innovatsion rivojlanishiga olib keladi.

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CAD DASTURLARINI TEXNOLOGIK TA'LIM JARAYONIGA INTEGRATSIYA QILISH METODIKASI

Annotatsiya:*Zamonaviy texnologik ta'lim jarayonida CAD (Computer-Aided Design) dasturlaridan foydalanish muhim ahamiyatga ega. Ushbu maqolada CAD dasturlarini texnologik ta'limga integratsiya qilishning metodik jihatlari tadqiq qilinadi. Tadqiqotda CAD dasturlarining ta'lim jarayoniga qo'shgan hissasi, o'quvchilarning bilim va ko'nikmalarini oshirishdagi rol va integratsiya qilishning samarali usullari ko'rib chiqiladi. Natijalar shuni ko'rsatadiki, CAD dasturlarini qo'llash o'quvchilarning loyihalash, muhandislik va texnologik qobiliyatlarini sezilarli darajada oshiradi. Maqolada shuningdek, integratsiya jarayonidagi muammolar va ularni bartaraf etish yo'llari ham yoritilgan.*

Kalit so'zlar: *CAD dasturlari, texnologik ta'lim, integratsiya metodikasi, loyihalash va modellashtirish, muhandislik ta'limi, amaliy ko'nikmalar, ta'lim jarayoni, dasturiy ta'minot, o'quv dasturlari, AutoCAD, SolidWorks, Fusion 360, ta'lim resurslari, o'qituvchilar malakasi, zamonaviy texnologiyalar, ta'lim samaradorligi, muhandislik qobiliyatlari, innovatsion ta'lim, ta'lim muammolari, CAD asosida o'qitish.*

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METHODOLOGY OF INTEGRATION OF CAD PROGRAMS INTO THE TECHNOLOGICAL EDUCATIONAL PROCESS

Annotation:*The use of CAD (Computer-Aided Design) programs is important in the process of modern technological education. This article examines the methodological aspects of integrating CAD programs into technological education. The study examines the contribution of CAD programs to the educational process, their role in improving students' knowledge and skills, and effective methods of integration. The results show that the use of CAD programs significantly increases the design, engineering, and technological abilities of students. The*

article also highlights the problems in the integration process and ways to overcome them.

Keywords: *CAD programs, technological education, integration methodology, design and modeling, engineering education, practical skills, educational process, software, educational programs, AutoCAD, SolidWorks, Fusion 360, educational resources, teacher qualifications, modern technologies, educational effectiveness, engineering skills, innovative education, educational problems, CAD-based education.*

Kirish

Texnologik ta’lim zamonaviy dunyoda muhandislik, dizayn va ishlab chiqarish sohalarida talab qilinadigan ko‘nikmalarni shakllantirishda asosiy rol o‘ynaydi. CAD dasturlari esa muhandislik va dizayn sohalarida loyihalash jarayonini soddalashtirish, aniqligini oshirish va vaqtni tejash imkoniyatini beradi. Shu sababli, CAD dasturlarini texnologik ta’limga integratsiya qilish zamonaviy ta’limning dolzarb masalalaridan biriga aylangan [1].

CAD dasturlarini ta’lim jarayoniga joriy qilish orqali o‘quvchilar nafaqat nazariy bilimlarni, balki amaliy ko‘nikmalarni ham egallashadi. Bu esa ularning kelajakdagi kasbiy faoliyatida muvaffaqiyatli bo‘lishlari uchun muhim shart hisoblanadi [2]. Biroq, CAD dasturlarini ta’limga integratsiya qilish jarayonida bir qator muammolar, masalan, dasturlarni o‘qitish uchun yetarli resurslar, o‘qituvchilarning malakasi va o‘quv dasturlarini moslashtirish masalalari mavjud.

Ushbu maqolada CAD dasturlarini texnologik ta’limga integratsiya qilishning metodik jihatlari tadqiq qilinadi. Tadqiqotning maqsadi integratsiya jarayonini yanada samarali qilish va o‘quvchilarning bilim darajasini oshirishga qaratilgan usullarni taklif qilishdan iborat.

Metodika

Tadqiqotda quyidagi metodlardan foydalanildi:

Adabiy tahlil – CAD dasturlarini ta’limga integratsiya qilish bo‘yicha mavjud adabiyotlar va tadqiqotlarni o‘rganish.

Eksperimental usul – CAD dasturlarini qo‘llash orqali o‘quvchilarning bilim va ko‘nikmalarini oshirish samaradorligini aniqlash.

So‘rov va monitoring – O‘quvchilar va o‘qituvchilarning CAD dasturlaridan foydalanish bo‘yicha fikrlarini o‘rganish.

Tadqiqot davomida AutoCAD, SolidWorks va Fusion 360 kabi mashhur CAD dasturlaridan foydalanildi. O‘quvchilarga loyihalash va modellashtirish bo‘yicha amaliy mashqlar topshirildi.

Natijalar

Tadqiqot natijalari shuni ko‘rsatdiki, CAD dasturlarini qo‘llash o‘quvchilarning quyidagi ko‘nikmalarini sezilarli darajada oshirdi:

- Loyihalash va modellashtirish qobiliyati.
- Muhandislik va texnik yechimlarni ishlab chiqish.
- Amaliy bilimlarni nazariy bilimlar bilan birlashtirish.

Shuningdek, o‘quvchilar CAD dasturlaridan foydalanish orqali loyihalash jarayonida xatolarni kamaytirish va vaqtni tejash imkoniyatiga ega bo‘ldilar.

Muhokama

CAD dasturlarini texnologik ta’limga integratsiya qilish jarayoni bir qator afzalliklarga ega bo‘lsa-da, ba’zi muammolar ham mavjud. Masalan, dasturlarni o‘qitish uchun yetarli kompyuter texnikasi va dasturiy ta’minotning mavjud emasligi, shuningdek, o‘qituvchilarning malakasini oshirish zarurati kabi masalalar mavjud. Ushbu muammolarni bartaraf etish uchun quyidagi takliflar keltirilgan:

Ta’lim muassasalariga zamonaviy kompyuter texnikasi va dasturiy ta’minot bilan ta’minlash.

O‘qituvchilarning malakasini oshirish bo‘yicha qo‘shimcha kurslar tashkil etish.

O‘quv dasturlarini CAD dasturlariga moslashtirish.

Xulosa

CAD dasturlarini texnologik ta’lim jarayoniga integratsiya qilish zamonaviy ta’limning eng dolzarb masalalaridan biridir. Tadqiqot natijalari shuni ko‘rsatdiki, CAD dasturlaridan foydalanish o‘quvchilarning loyihalash, modellashtirish va muhandislik qobiliyatlarini sezilarli darajada oshirish imkoniyatini beradi. Bundan tashqari, o‘quvchilar amaliy bilimlarni nazariy bilimlar bilan uyg‘unlashtirish orqali zamonaviy texnologiyalarni samarali o‘zlashtirishadi.

Biroq, CAD dasturlarini ta’limga joriy qilish jarayonida bir qator muammolar mavjud. Bularga ta’lim muassasalarida yetarli texnik jihozlar va dasturiy ta’minotning yetishmasligi, o‘qituvchilarning CAD dasturlari bo‘yicha malakasining pastligi va o‘quv dasturlarini zamonaviy talablarga moslashtirish zarurati kiradi. Ushbu muammolarni bartaraf etish uchun quyidagi choralar ko‘rilishi kerak:

1. Ta’lim muassasalarini zamonaviy kompyuter texnikasi va CAD dasturlari bilan ta’minlash.
2. O‘qituvchilarning malakasini oshirish bo‘yicha maxsus kurslar va treninglar tashkil etish.
3. O‘quv dasturlarini CAD dasturlariga moslashtirish va ularni amaliy mashg‘ulotlar bilan boyitish.
4. O‘quvchilarning loyihalash va modellashtirish ko‘nikmalarini oshirishga qaratilgan innovatsion usullarni joriy qilish.

Xulosa qilib aytganda, CAD dasturlarini texnologik ta’limga integratsiya qilish nafaqat o‘quvchilarning kasbiy ko‘nikmalarini oshirish, balki ularni kelajakdagi texnologik rivojlanishga tayyorlashda muhim rol o‘ynaydi. Ushbu jarayonni yanada samarali qilish uchun ta’lim sohasidagi barcha ishtirokchilar (o‘qituvchilar, o‘quvchilar, ta’lim muassasalari va davlat organlari) hamkorlikda ishlashi zarur.

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CLINICAL AND EPIDEMIOLOGICAL ASPECTS OF THE COURSE OF SHIGELLOSIS IN CHILDREN

Abstract. *Based on the study of clinical and anamnestic data, laboratory and immunological parameters of 96 young children with shigellosis with smooth and undulating course, the most significant prognostic criteria were determined, based on which it is possible to predict the course of the disease at the onset of the disease.*

Keywords: *Shigellosis, children, method, treatment, diagnosis.*

INTRODUCTION

Shigellosis occupies one of the leading places in infectious pathology of childhood and is a significant socio-economic problem in many countries of the world [2]. Wide prevalence, the formation in some cases of unfavorable variants of the course and end of the disease contributes to a decrease in the level of health of the nation as a whole, and also puts the problem of combating shigellosis in the category of the most important [1]. Meanwhile, improving the diagnosis and prognosis of the course of shigellosis will provide an opportunity to timely prescribe adequate therapy at the stage of manifestation of the disease, thereby reducing the stay of patients in hospital and reducing the number of invasive interventions in the body of a sick child.

Prognosis of the course of shigellosis in Uzbekistan and in the post-Soviet states at the present stage in most cases is based on the determination of certain parameters, which is associated with invasive intervention in the patient's body [3, 4].

MATERIALS AND METHODS

Based on the above, the aim of the work was to develop criteria for predicting the course of shigellosis in children based on the study of differences in the clinical picture, data from laboratory methods of examining patients with shigellosis with a smooth (GT) and wave-like (VT) course. Materials and methods. Under observation were 96 children aged one to three years, of which 66 children with GT, 32 with VT. All patients underwent an analysis of anamnestic, generally accepted clinical and laboratory data, determination of the level of cytokines (TNF-α, IL-1,2,4,6,8), prostaglandins (PG) (enzyme immunoassay), serum antioxidant activity (AOA) (spectrophotometric method), trace elements Zn, Se (spectrofluorometric method), vitamins A, E (BA, BE) (atomic absorption spectrophotometry method) in serum, and local protective factors: lysozyme activity (nephelometric method), the amount of secretory immunoglobulin A (sIgA) (enzyme immunoassay) in feces. To identify prognostic criteria (PC) with the help of which it is possible to predict the course of

shigellosis, the Wald-Genkin heterogeneous sequential procedure (HSP) was used [3,4].

RESULTS AND DISCUSSION

A total of 42 main anamnestic, clinical and special laboratory parameters obtained during examination of children with shigellosis with GT and VT were analyzed. According to the NPP, these parameters were divided into ranges, comparing their frequency in both groups of patients, prognostic coefficients (PC) and information content (I) of the parameters were determined. The prognostic value was represented by the parameters, the information content of which exceeded 0.30 ($I \geq 0.30$); in this case, the parameter demonstrated very high prognostic significance if it was $I \geq 3.0$, high - $1.0 \leq I \leq 3.0$, average - $0.50 \leq I \leq 0.99$ and low - $0.30 \leq I \leq 0.49$.

Research results and their discussion. When analyzing the anamnestic parameters in patients with shigellosis with GT and VT, a very high prognostic significance of the sign was revealed - previous infectious diseases (I = 4.79); high significance - anemia, including in the anamnesis (I = 1.66); low significance - the course of pregnancy (I = 0.51). Of the 11 analyzed clinical parameters, 7 revealed prognostic value, of which low stool frequency had a very high significance (I = 3.58); high - the presence of pathological impurities in the feces (I = 1.51), average - vomiting (I = 0.92), spasm and rumbling of the sigmoid colon (I = 0.61); low - exsicosis (I = 0.48), the level of gastrointestinal tract damage (I = 0.38), body temperature (I = 0.35). Of the 8 generally accepted laboratory parameters compared, 4 were informative (arranged in order of their significance). The results of clinical urine analysis (I=0.72); hemoglobin level (I=0.65) and absolute number of leukocytes (I=0.56) of peripheral blood had average informativeness; the relative number of segmented neutrophils (I=0.43) had low informativeness. Of the 15 analyzed special parameters, 13 had prognostic value, and all of them had high and average informativeness (the parameters are presented in descending order of significance). The following indicators were highly informative: PGE (I=1.93), IL-6 (I=1.72), IL-1β (I=1.67), PGF2α (I=1.59), lysozyme (I=1.52), TNF-α (I=1.51), IL-2 (I=1.51), sIgA (I=1.31), AOA (I=1.13), IL-8 (I=1.19); average - BE (I=0.64), IL-4 (I=0.60), Zn (I=0.59).

Prediction of the course of shigellosis NPP is carried out by mathematically summing up the prognostic coefficients in the presence or absence of these signs, until the sum reaches the prognostic threshold, which, with a reliability of 95%, is ±13.0. If the sum of the prognostic coefficients reaches the value of "+13.0" or more, a favorable (smooth) course of shigellosis can be predicted, and if "-13.0" or less - an unfavorable (wave-like) course. If the sum of the prognostic coefficients does not reach the prognostic threshold, the prognosis is uncertain, which means insufficient information for diagnosis.

CONCLUSION

1. Prognostic criteria of shigellosis have been identified, which at the stage of disease manifestation allow to predict the course of the disease.

2. Clinical and anamnestic criteria have been determined, based on which it is possible to predict the course of shigellosis with a probability of up to 78% (previous infectious diseases, anemia, pregnancy, stool frequency, the presence of impurities in the feces, vomiting, spasm and rumbling of the sigmoid colon, signs of exsiccosis, the level of gastrointestinal tract damage, increased body temperature, changes in the clinical analysis of urine and blood).

3. Special additional indicators have been identified that allow to increase the reliability of predicting the course of the disease to 95% (tumor necrosis factor-α, interleukins-1β, -2, -6, -8, -4, prostaglandin E, prostaglandin-2α, lysozyme, secretory immunoglobulin A, antioxidant activity, vitamin E, zinc).

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CLINICAL AND EPIDEMIOLOGICAL FEATURES OF THE COURSE OF WHOOPING COUGH IN CHILDREN UNDER 3 YEARS OLD

Abstract. *An analysis of the medical records of inpatient children aged 0–12 months was conducted: 33 patients treated during 2012 and 26 patients treated in 2010–2024 with a diagnosis of "pertussis" in the Samarkand Regional Infectious Diseases Clinical Hospital. It was established that the incidence of pertussis is increasing, a clear seasonality of the disease was revealed, and a number of differences in modern pertussis were identified according to a number of clinical and laboratory indicators.*

Keywords: *whooping cough, children, course.*

INTRODUCTION

Whooping cough is an acute respiratory disease that affects all age groups, but the most severe course and high incidence of complications are characteristic of young children. Although official WHO statistics characterize the annual incidence in the world within 150 thousand cases, the real incidence is much higher: 30–50 million people fall ill with whooping cough annually, 90% of whom live in developing countries. A similar situation has developed in Uzbekistan, despite the fact that 85–90% of children are vaccinated against whooping cough annually, the incidence remains at a fairly high level.

MATERIALS AND METHODS

A retrospective analysis of medical records of inpatient children aged 0–12 months who were treated at the Lviv Regional Infectious Diseases Clinical Hospital was conducted. Data from 33 patients treated during 2024 and 26 children treated in 2010–2024 were processed. Since positive results of bacteriological examination were obtained only in isolated cases, the sample included children who described a cough lasting at least 14 days, combined with paroxysms, relapses, vomiting after coughing, cyanosis, apnea without other established causes, as well as according to the diagnostic algorithm proposed in 2024 [2] (Appendix 1). Another criterion for forming the sample was an increase in the absolute number of lymphocytes (> 9,500 109/l), since lymphocytosis in a child with suspected whooping cough, according to modern data, is a sufficiently sensitive and specific diagnostic criterion (specificity — 75%, sensitivity — 89%) of the disease [3]. The severity of whooping cough was assessed using the 20-point scale of M.-P. Preziosi, E. Halloran [4]. The analysis was carried out using 104 indicators, which covered the main epidemiological, clinical data, and laboratory test results. Statistical analysis was carried out using MS Excel, Statistica 8.

RESULTS AND DISCUSSION

When dividing children by months of hospitalization, it was found that, although children with a diagnosis of "whooping cough" were hospitalized throughout the year, statistically significant increases in morbidity were observed twice: during January - March and July - September. Two waves of increased morbidity were detected both in 2024 and ten years ago.

Children in the two groups did not differ significantly in age at the time of hospitalization, body weight at birth, body weight at the beginning of inpatient treatment, and gender distribution. No statistically significant differences were found between the time from the onset of the first symptoms of whooping cough (rhinitis, coughing, fever) and the moment of hospitalization. However, in children hospitalized in 2024, cough lasted significantly longer before admission — 15.17 ± 2.30 days (compared to 13.25 ± 3.70 days in 2010–2024, $p < 0.05$), while there was also a longer period of spasmodic cough, which was 6.80 ± 3.33 days (compared to 4.69 ± 1.18 days, $p > 0.05$).

During 2024, the duration of inpatient treatment of children was 13.57 ± 2.72 days, and the duration of the disease from the beginning of the catarrhal stage to the end of the spasmodic cough period was on average 27.21 ± 5.51 days; the duration of these periods of illness has practically not changed over 10 years. The duration of the disease and the time of stay of patients in the hospital did not statistically significantly depend on the age of the child, the severity of the disease, the presence of complications or the results of laboratory and instrumental examinations. Early infants were ill somewhat longer than children aged 6–12 months, but these differences were not statistically significant. Thus, in infants aged 0–6 months in 2024, whooping cough from the beginning of the catarrhal stage to the end of the spasmodic cough period lasted on average 28.18 ± 2.31 days, in children aged 7–12 months — 25.27 ± 2.88 days, similar patterns were found in children hospitalized during 2010–2024, the average duration of the above periods of illness was 30.12 ± 4.20 and 26.81 ± 3.05 days, respectively. Among the people hospitalized in 2024, some infants were vaccinated, 2 children (6.0%) were vaccinated 1 or 2 times, and among the children treated in 2010–2024, — 6 (23.7%). The occurrence of whooping cough among vaccinated patients was observed in cases where the vaccine was administered to children only once or twice, as well as in the case of the disease occurring in a short period of time after the last vaccination (on average 10.23 ± 3.10 days).

Basically, whooping cough in young children in both groups was typical. At the time of hospitalization of patients in the hospital, an increase in body temperature was detected in 42.3% of patients, however, in all children with hyperthermia, the body temperature was subfebrile (the average body temperature was 37.20 ± 0.16 °C in children hospitalized in 2024, and 37.60 ± 0.34 °C in children treated in 2010–2024), the duration of hyperthermia did not exceed 3.5 days and was 1.56 ± 0.14 days on average. The highest temperature was observed in children aged 7–12 months. compared to children aged 0–6 months, which was confirmed

by the results of correlation analysis — r = 0.25, p < 0.05 (correlation coefficient between the age of children in months and body temperature).

CONCLUSION

So, according to the data of a retrospective examination of children aged 0–12 months who were hospitalized with a diagnosis of "pertussis" with an interval of 10 years, it was found that the incidence of pertussis in young children is increasing, a clear seasonality of the disease was revealed. The differences in the course of pertussis in infants in 2024 compared to 2010–2024 include a longer duration of the disease at the prehospital stage, less pronounced shortness of breath, a lower frequency and shorter duration of physical changes in the lungs, and lower levels of leukocytes in peripheral blood. We identified three reasons that probably caused these differences in the course of pertussis in young children. First, this is a change in the dominant serotype of the pathogen B. pertussis to another, so, according to T.A. Romanenko, I.P. Kolesnikov [1], several facts of serotype change have been established over the past decades: in 2018, the predominant serotype changed from 1.0.3 to 1.2.3, in 2006–2010 — from 1.0.3 to 1.0.0, in 2010–2024 — from 1.2.3 to 1.0.3, in 2013–2024 — from 1.0.3 to 1.2.3, in 2015–2023 — from 1.2.3 to 1.0.3.

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KUNGABOQAR PARVONASI *(HOMOEOSOMA NEBULELLA)* NING ZARARI

Annotatsiya: *Mazkur maqolada kungaboqar parvonasi (Homoeosoma nebulella Hb) ning biologiyasi va zarari hamda unga qarshi kurash choralarining samaradorligi bo‘yicha olib borilgan tadqiqot natijalari keltirilgan. Tadqiqotlarda zararkunandaga qarshi samarali insektitsid Avaunt 15% em.k. 0,4 l/ga qo‘llanilganda biologik samaradorlik nazoratga nisbatan 84,0 % ni tashkil etgan.*
Kalit so‘zlar. *Tadqiqot, kungaboqar, zararkunanda, kungaboqar parvonasi, biologiyasi, zarari, biologik samaradorlik*

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DAMAGE OF THE SUNFLOWER MOTH (Homoeosoma nebulella)

Annotation: *The article presents the results of studies of the biology and harm of the sunflower codling moth (Homoeosoma nebulella Hb) and the effectiveness of measures to combat it. In studies of use against the pest, the effective insecticide Avaunt 15% em.c. 0.4 l/ha, biological efficiency was 84.0% compared to the control.*
Key words. *Research, sunflower, pest, sunflower moth, biology, harmfulness, biological effectiveness*

Mamlakatimizda aholini oziq-ovqat, sanoatni xom-ashyo bilan ta’minlashda muhim soha - qishloq xo‘jaligini rivojlantirishga muhim strategik yo‘nalish sifatida alohida e’tibor qaratilib kelinmoqda. Shu jihatdan davlatimiz rahbari tomonidan joriy yil 7 iyunda “O‘zbekiston Respublikasi qishloq xo‘jaligini rivojlantirishning 2020 – 2030 yillarga mo‘ljallangan strategiyasida belgilangan vazifalar ijrosini samarali tashkil etishga doir qo‘shimcha chora-tadbirlar to‘g‘risida”gi qarori qabul qilinganligi bu yo‘nalishdagi yana bir muhim qadam bo‘ldi.

KUNGABOQAR PARVONASI (*Homoeosoma nebulella* Hb.) GA QARShI QO‘LLANILGAN KIMYOVIY KURASHNING BIOLOGIK SAMARADORLIGI

1- jadval

№	Variantlar	Tekshi-rish kunlari	Prepa-rat sarf-me'yori l/ga	Preparat sepishgacha parvona soni o'rtacha (1bargda/dona)				Samaradorlik, % hisobida, kunlarga			O'rtacha biologik samara-dorlik, % hisobida
				Ishlovgacha	Ishlovdan keyin						
					3	7	14	3	7	14	
1	Nazorat (himoyasiz)	05.09	-	18.8	20,8	22.9	24.8	-	-	-	-
2	Tajriba Avaunt, 15% em.k.	05.09	0.4	19,5	3,8	3,2	2,4	80,6	83,6	87,7	84,0

Kungaboqar (Helianthus annuus L.) hozirgi kunda dunyoda eng muhim ahamiyatli moyli ekinlardan biri hisoblanadi. Kungaboqar oziq-ovqat moyi sifati jihatidan tanlangan o‘simlik moylari orasida birinchi o‘rinni egallamoqda. Shu sababli, dunyoda ko‘plab davlatlarda ekin maydoni va undan olinadigan hosil miqdoriga qarab iqtisodiy samaradorlik darajasi ortib borishi kuzatilmoqda.So‘nggi besh yillikda kungaboqar yer yuzidagi 72 ta mamlakatda o‘rtacha 25-26 mln. gektardan ortiq maydonda yetish-tirilib, o‘rtacha 40,5-42,0 mln. tonna hosil yetishtirilgan [1].

Dunyo mamlakatlari bo‘yicha eng ko‘p kungaboqar yetishtiruvchi mamlakatlar ro‘yxatida: Ukraina, Rossiya, Argentina, Ruminiya va Xitoy davlatlari yetakchilik qilib qilmoqda. O‘zbekistonda ham so‘nggi yillarda kungaboqar ekin maydo-ni ortib 17,5 ming gektarni va o‘rtacha hosildorlik 12-15 s/ga ni tashkil etmoqda.

O‘zbekiston Respublikasi Vazirlar Mahkamasining 2021 yilning 4- martdagi “Mavjud yer maydonlaridan samarali foydalanish va 2021 yil hosili uchun qishloq xo‘jaligi ekinlarini oqilona joylashtirish to‘g‘risida”gi qaroriga muvofiq, joriy yilda 305 ming gektar maydonda moyli ekinlar yetishtirildi.

Kungaboqarda turli zararkunanda va kasalliklar zarar keltiradi. Zararkunandalar orasida ildizqirqar: kuzgi tunlam, хрщ va qarsildoq qo‘ng‘iz qurtlaridan tashqari bir qator poya, barg va meva savatini zararlaydigan turlar mavjud.

Bularning orasida kungaboqar parvonasi – (*Homoeosoma nebulella* Hb.) Kungaboqar ekib o‘stiriladigan barcha yerlarda tarqalgan; o‘simlik xosildorligiga katta ziyon yetkazadigan xashorat. Bu, parvonalar *(Pyralidae)* oilasiga mansub, kapalagi qanot yozganda 20-27 mm keladi. Oldingi qanoti ensiz, oqish yoki kul rangda, qanotining o‘rtasiga yaqinroq joyida hamma vaqt aniq ko‘rinib turmaydigan to‘rtta qoramtir nuqta bor; keyingi qanoti birmuncha enliroq va oqishroq bo‘ladi. Kapalakning paypaslagichlari yuqoriga qayrilgan;

oldingi qanotida uchinchi radial tomir yo‘q; keyingi qanotidagi medial tomir ikkita shoxlagan. Tuxumi oq, yaltiroq, 0,8 mm kattalikda bo‘ladi [2].

Qurtining bo‘yi 1 sm ga yetadi; rangi och kul tusli, usti sal qoramtirroq; orqasi bo‘ylab uchta jigar rang yo‘l o‘tadi; biqinida nafas olish teshiklari bo‘ylab bittadan qoramtir chiziq o‘tadi. Qurt tanasi tukchalar bilan siyrak qoplangan. Juda chaqqon – bezovtalangan qurt o‘zini tashlab yuboradi.

G‘umbagi 9-12 mm kattalikda; jigar rangda; tanasining oxirida bulavkasimon yo‘g‘onlashgan 6-7 ta tikanchasi bor; urchuqsimon pishiq oqish pillasiga joylashib oladi; uning uchiga ko‘pincha tuproq zarrachalari ilashgan bo‘ladi. Zararkunanda tuproqda yengil pilla ichidagi oxirgi yosh qurt shaklida qishlab chiqadi.

Kapalak ucha boshlaganidan keyin tez orada uning urg‘ochisi tuxum qo‘yishga kirishadi; bunda kapalak kungaboqarning yoki boshqa murakkabgulli o‘simliklarning guldastasidagi gul otaliklariga, ba’zan gul onaligiga va gullarning ichki sathiga bittadai tuxum qo‘yadi. Kapalak kungaboqarning bitta savatchasiga juda ko‘p tuxum qo‘yishi mumkin. Bitta urg‘ochi kapalak 200-300 ta tuxum qo‘yadi.

Kungaboqar parvonasi barcha kungabokar yetishtiriladigan hududlarda keng tarkalgan. Bu parvonaning kapalaklari kungabokar gullash davrida paydo buladi va gul savatchalariga ko‘plab tuxum qo‘yib ko‘payadi, kurtlar asosan kungabokar guli bilan oziqlanadi. Katta yoshga o‘tgan sari mevasining ichiga kirib, murtagini shikastlaydi. Ayrim savatlardagi urug‘lar shunchalik kuchli zararlanadiki, ularning orasidan birorta shikastlanmaganini topib bo‘lmaydi. Zararkunandaning zarari kungabokarda 45-65% ni tashkil kiladi.

Zararkunandaga qarshi samarali insektitsid sinash maqsadida tadqiqotlar olib borildi. Tadqiqot Andijon viloyati sharoitida kungabokar ekilgan maydonda olib borilib, nazorat albatta erta yoki kech salqinda o‘tkazildi. Bu jarayonda xar bir o‘simlikning zararlangan 3 ta bargidagi yetuk zot sanaldi va o‘rtachasi hisobga olindi. Bunday o‘simlikdan har bir variant takrorida 10 tasi tekshirildi. Tuxum va kurtlari zararlangan bargning o‘rtacha 1 sm^2 sathiga nechta to‘g‘ri kelishi aniqlandi. Buning uchun bargning chamalab chizilgan, o‘rtacha zararlangan bo‘lagi olindi.

Olib borilgan tadqiqotlar natijasida kungaboqar parvonasiga qarshi kimyoviy kurash - Avaunt 15% em.k. insektitsidini 0,4 l/ga qo‘llash yetarlicha yuqori samara berishi tasdiqlandi (1- jadval).

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MECHANISMS OF ACTION OF VARIOUS LOGOPEDIC METHODS IN CORRECTING SPEECH DISORDERS IN CHILDREN WITH DYSARTHRIA

Abstract: *Logopedic methods play a crucial role in correcting speech disorders in children with dysarthria. This article analyzes the primary logopedic techniques used in dysarthria diagnosis and their mechanisms of action. A comprehensive approach to speech correction contributes to the development of communication skills. The study examines motor and articulation exercises, coordination training, and specialized speech therapy techniques. These methods help improve children's speech and language systems and eliminate errors. The study results highlight the significance of logopedic interventions in supporting children with dysarthria.*

Keywords: *dysarthria, logopedic methods, speech activity, speech disorders, articulation, coordination exercises, communication skills, special techniques, children, motor exercises, language system, speech therapy.*

Introduction

Dysarthria is a pathological condition that arises due to disorders of the central nervous system, leading to impaired development of speech and articulation functions. Children with dysarthria often experience delayed speech development, incorrect pronunciation, and difficulties in coordinating speech movements. Their speech is often characterized by mispronunciations, distorted sounds, and the insertion of extra or unnecessary phonemes. Impaired speech articulation negatively affects their reading, writing, and communication skills. Therefore, logopedic intervention is essential in the correction of dysarthria.

To ensure effective speech correction, logopedic therapy approaches must consider the child's individual characteristics and the severity of their condition. Moderate and severe forms of dysarthria require complex treatment, as the child's motor and articulation abilities are significantly restricted. Consequently, the therapeutic process may be prolonged and require continuous intervention.

Comprehensive approaches are frequently employed in logopedic correction. These include articulation exercises, motor training, phonation exercises, and coordination exercises. Each method has its unique mechanism of action and collectively contributes to the restoration and improvement of speech functions.

Articulation Exercises

This method involves exercises aimed at correctly positioning the teeth, tongue, and lips. It enhances articulation movements and improves pronunciation

abilities. To accelerate this process, children need to consistently perform articulation exercises to properly utilize their speech organs.

The articulation exercises consist of several stages:

- **Identifying Sounds:** Children with dysarthria often struggle with certain phonemes. Logopedists help isolate and train difficult sounds, ensuring proper pronunciation through targeted exercises.
- **Motor Control:** These exercises enhance the child's ability to control their speech muscles, improving clarity and accuracy in pronunciation.
- **Repetition of Sounds:** Practicing specific sounds repeatedly helps children develop the necessary articulation skills.
- **Simplification Techniques:** Logopedists use positioning and airflow control techniques to assist children in producing complex sounds.
- **Visual and Sensory Support:** Some children require visual cues to understand speech organ movements better. Watching mouth movements in a mirror helps improve articulation awareness.

Motor Exercises

Children with dysarthria often experience weak motor functions in their speech muscles, making motor exercises essential. These exercises target the activation of jaw, lip, and tongue muscles, restoring coordination and addressing non-verbal speech-related issues.

Key aspects of motor exercises include:

- **Speech Organ Activation:** Strengthening weak muscles through controlled movements.
- **Muscle Strengthening:** Improving articulation by reinforcing tongue and lip movements.
- **Coordination and Balance:** Enhancing synchronization between speech organs for more fluid speech.
- **Facial and Body Muscle Engagement:** Using facial expressions and whole-body movements to support speech production.
- **Differentiation of Strong and Weak Movements:** Helping children control the intensity of their articulatory movements.

Regular motor exercises contribute to significant speech development improvements in children with dysarthria.

Phonation Exercises

Phonation exercises are used to correct the sound system of speech. They help children improve their ability to produce sounds clearly and accurately by developing control over pitch, duration, and volume.

The main components of phonation exercises include:

- **Breath Control Training:** Proper speech production relies on controlled breathing. Children learn deep inhalation and slow exhalation techniques.
- **Strengthening the Vocal Cords:** Exercises such as sustaining vowel sounds help enhance voice control.
- **Sound Formation and Pronunciation:** Children practice distinct phonemes, especially those requiring airflow manipulation.

- **Intonation and Melody Training:** Activities such as singing and rhythmic speech exercises help develop intonation and expression.
- **Resonance System Development:** Exercises involving nasal and oral resonance improve voice quality.

Through these exercises, children achieve more natural and expressive speech.

Coordination Exercises

Coordination exercises are crucial for children with dysarthria. They focus on enhancing the precise movements of the tongue, lips, and jaw while improving the overall speech and language system.

Key aspects of coordination exercises include:

- **Improving Lip and Jaw Movements:** Strengthening lip elasticity and jaw control through repetitive exercises.
- **Enhancing Speech Flow:** Helping children maintain consistent speech patterns.
- **Developing Rhythmic and Intonational Skills:** Teaching children to use varied intonations to make speech more natural.

Systematic implementation of coordination exercises strengthens speech muscles, broadens movement control, and improves overall speech clarity.

Effectiveness of Logopedic Methods

The effectiveness of each logopedic method varies depending on the child's specific needs. While some children benefit most from articulation exercises, others may find motor or coordination exercises more helpful. Therefore, an integrated approach combining multiple methods is essential.

Factors influencing success in speech therapy include:

- **Individualized Approach:** Each child's speech abilities and motor skills must be carefully assessed.
- **Multimodal Therapy:** Incorporating visual, auditory, and kinesthetic stimulation enhances learning.
- **Systematic and Consistent Practice:** Regular speech therapy sessions lead to more stable improvements.
- **Parental Involvement:** Encouraging parents to continue exercises at home enhances therapeutic outcomes.

Conclusion

The effectiveness of each logopedic method depends on the child's individual characteristics. While some children benefit most from articulation exercises, others may find motor or coordination exercises more effective. Therefore, a combined approach is crucial for correcting speech disorders in children with dysarthria. A logopedist's expertise, an individualized therapy plan, and an integrated methodology play significant roles in ensuring success.

In summary, various logopedic methods serve as essential tools for improving speech development in children with dysarthria. Their correct application contributes to developing communication skills and correcting speech impairments.

A comprehensive approach maximizes therapy effectiveness, ensuring each child receives tailored intervention based on their unique needs.

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GEOGRAFIYANI O‘QITISHDA VIDEODARSLARDAN FOYDALANISHNING O‘RNI VA AHAMIYATI

Annotatsiya: *Geografiya fanini o‘qitishda videodarslardan foydalanish zamonaviy pedagogik texnologiyalardan biri hisoblanadi. Ushbu maqolada videodarslarning o‘quv jarayonidagi o‘rni va samaradorligi tahlil qilinadi. Videodarslar orqali geografik jarayonlarni vizual va dinamik tarzda tushuntirish mumkinligi ta’kidlanadi. Tadqiqot natijalari shuni ko‘rsatdiki, videodarslar o‘quvchilarning fanga bo‘lgan qiziqishini oshirish, mustaqil fikrlashini rivojlantirish va murakkab mavzularni oson tushunishlariga yordam beradi. Videodarslarni an’anaviy o‘qitish usullari bilan integratsiya qilish ta’lim samaradorligini oshirishga xizmat qiladi.*

Kalit so‘zlar: *geografiya, videodars, zamonaviy pedagogik texnologiyalar, innovatsion o‘qitish, vizual materiallar, ta’lim samaradorligi, mustaqil fikrlash, interaktiv darslar, didaktik vositalar, o‘quv jarayoni.*

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THE ROLE AND IMPORTANCE OF USING VIDEO CAMERAS IN TEACHING GEOGRAPHY

Annotation: *The use of video cameras in the teaching of geography is considered one of the modern pedagogical technologies. This article analyzes the role and effectiveness of video cameras in the educational process. It is argued that it is possible to explain geographical processes visually and dynamically through video cameras. The results of the study showed that video lessons help students to increase their interest in science, develop independent thinking and easily understand complex topics. Integrating videodars with traditional teaching methods serves to improve educational performance.*

Keywords: *geography, videodars, modern pedagogical technologies, innovative teaching, visual materials, educational efficiency, independent thinking, interactive lessons, didactic tools, educational process.*

KIRISH

Zamonaviy davrda ta’lim sohasida texnologiyalarning jadal rivojlanishi bilan dars jarayonlarini tashkil etish usullari ham keskin o‘zgarib bormoqda. Bugungi kunda an’anaviy dars usullari bilan bir qatorda yangi, innovatsion metodlardan keng foydalanilmoqda. Bularning orasida videodarslar alohida o‘rin tutadi, chunki ular o‘quvchilarni bilim olish jarayoniga faol jalb qilish, ularning qiziqishini uyg‘otish va murakkab mavzularni tushunarli qilib berish imkoniyatini yaratadi. Geografiya kabi tabiat va inson faoliyatini o‘rganuvchi fanlarni o‘qitishda videodarslarning ahamiyati ayniqsa katta, chunki bu fan ko‘plab vizual tasvirlar, grafikalar, xaritalar va real hayotdagi misollarni talab qiladi.

Geografiya fanining mohiyati shundaki, u Yer sayyorasi, uning tabiiy resurslari, iqlimi, atrof-muhit muammolari, demografik jarayonlar va boshqa ko‘plab mavzularni o‘z ichiga oladi. Bu mavzularni faqat kitoblar va matnlar orqali tushuntirish qiyin, chunki ko‘plab geografik jarayonlar va hodisalar dinamik va vizual tarzda namoyon bo‘ladi. Masalan, vulqon otilishi, zilzila, dengiz to‘lqinlari, iqlim o‘zgarishi kabi tabiiy hodisalarni faqat matn orqali tushuntirish o‘quvchilar uchun noaniq va qiyin bo‘lishi mumkin. Shuning uchun videodarslar bu jarayonlarni jonli va tushunarli tarzda ko‘rsatish imkoniyatini beradi [10].

Videodarslarning geografiya fanini o‘qitishdagi ahamiyati shundaki, ular o‘quvchilarga nafaqat nazariy bilimlarni balki amaliy misollar, real hayotdagi hodisalar va geografik obyektlarni ko‘rish imkoniyatini beradi. Bu esa o‘quvchilarning bilimlarini chuqurlashtirish, ularning bilim darajasini oshirish va mavzuga bo‘lgan qiziqishini uyg‘otishga yordam beradi. Bundan tashqari, videodarslar orqali o‘quvchilar dunyoning turli burchaklaridagi geografik obyektlarni, madaniyatlarni va tabiiy hodisalarni ko‘rishlari mumkin. Bu ularning bilimlarini kengaytiradi va global miqyosda fikrlash qobiliyatini rivojlantiradi.

ADABIYOTLAR TAHLILI VA METODOLOGIYA

Geografiyani o‘qitishda videodarslardan foydalanish masalasini o‘rganishda turli adabiyotlar, ilmiy maqolalar va monografiyalardan foydalanildi. Mazkur adabiyotlar o‘rganilib, videodarslarning ta’lim jarayonidagi o‘rni va ahamiyati tahlil qilindi.

O‘zbekistonda geografiya o‘qitish metodikasi sohasida XX-asrning oxiri va mustaqillik yillarida yirik olimlar yetishib chiqdi. Geografiya o‘qitish metodikasi sohasida O.Mo‘minov, H.Vaxobov, R.Qurbonniyozov, P.Musayev, P.G‘ulomov, G‘.Pardayev, D.Tojiboyeva, A.Yo‘ldoshev va boshqalar katta tadqiqotlarni amalga oshirishgan.

Geografiyani o‘qitish metodikasi bo‘yicha juda ko‘plab universitetlarda olimlar o‘z ilmiy izlanishlarini olib bormoqda. Bugungi kunga qadar umumta’lim maktablari uchun darslik va o‘quv qo‘llanmalari tayyorlashda N.Dolimov, O.Mo‘minov , T.Abdullayeva, P.Musayev, P.G‘ulomov, H.Vaxobov, A.Qayumov, P.Baratov, M.Mamatqulov, M.Mirakmalov, J.Musayev, N.Safarova, A.Abdulqosimov, R.Qurbonniyozov, A.Soatov, Sh.Sharipov, M.Tillaboyeva va boshqalar o‘zlarining beminnat hissalarini qo‘shganlar.

D.Tojiboyeva, A.Yo‘ldoshevlar tomonidan Maxsus fanlarni o‘qitish metodikasi darsligida B.Blum “bilim olish darajasi ma’lum iyerarxiya tarzida joylashib, har bir bosqich avvalgisiga qaraganda murakkab hamda avvalgi bosqichlarni ham o‘z ichiga oladi. Ya’ni bilim har bir yangi pog‘onaga ko‘tarilar ekan, albatta, avvalgi bosqichni ham takrorlash lozim bo‘ladi. Ular quyidagilar: 1.Bilish; 2.Tushunish; 3.Qo‘llash; 4.Tahlil qilish; 5.Sintez; 6.Baholash” [5].

Ta’limda innovatsion texnologiyalarni joriy etish haqida A.Abduqodirov tomonidan keltirilgan ma’lumotlar geografiya fanida zamonaviy o‘qitish usullarining samaradorligi haqida muhim dalillarni taqdim etadi. Ushbu manbada ta’lim jarayonida interaktiv metodlar, jumladan, video va multimediya resurslaridan foydalanish bo‘yicha aniq tavsiyalar keltirilgan [3].

Geografiya o‘qitish metodikasi bo‘yicha H.Sh.Djuraboyeva, K.Boymirzayev, R.Y. Xoliqov tomonidan yozilgan o‘quv-uslubiy majmua esa geografiya darslarida vizual vositalardan foydalanish zarurligini ta’kidlaydi. Ushbu manbada xaritalar, tasviriy materiallar va interaktiv taqdimotlar orqali o‘quvchilarning bilim olish jarayoni yaxshilanishi mumkinligi qayd etilgan [4].

P.Musayev va J.Musayev tomonidan chop etilgan 8-sinf geografiya darsligi ham ushbu mavzuga oid qimmatli ma’lumotlarni o‘z ichiga oladi. Bu darslikda mavzularni vizual materiallar bilan boyitish, ayniqsa, videoresurslardan foydalanish orqali o‘quvchilarning bilim olish jarayonini tezlashtirish va chuqurlashtirish mumkinligi qayd etilgan [9].

O‘zbekiston Respublikasi Prezidenti huzuridagi Statistika agentligining rasmiy sayti (https://stat.uz/uz/) ta’lim tizimida qo‘llaniladigan statistik ma’lumotlarni taqdim etadi. Mazkur sayt orqali geografiya fanida statistik ma’lumotlarga asoslangan videodarslar yaratish imkoniyati mavjud. Statistika ma’lumotlarining vizualizatsiyasi orqali o‘quvchilar mavzularni tezroq tushunib olishi va mantiqiy fikrlashni rivojlantirishi mumkin [2].

N.N.Baranskiy tomonidan chop etilgan "Ekonomicheskaya geografiya v sredney shkole" kitobi geografiyani o‘qitishda iqtisodiy va ijtimoiy omillarni hisobga olish muhimligini ta’kidlaydi. Ushbu manbada videoresurslardan foydalanishning ilmiy asoslari ko‘rsatilib, geografiya darslarida zamonaviy texnologiyalarning ahamiyati haqida batafsil fikrlar bildirilgan [12].

E.E.Gorshunova tomonidan chop etilgan maqolada esa maktab o‘quvchilarining axborotga bo‘lgan tanqidiy munosabatini rivojlantirish masalasi yoritilgan. Videodarslarning tanqidiy tafakkurni rivojlantirishga qanday hissa qo‘shishi muhokama qilingan [13].

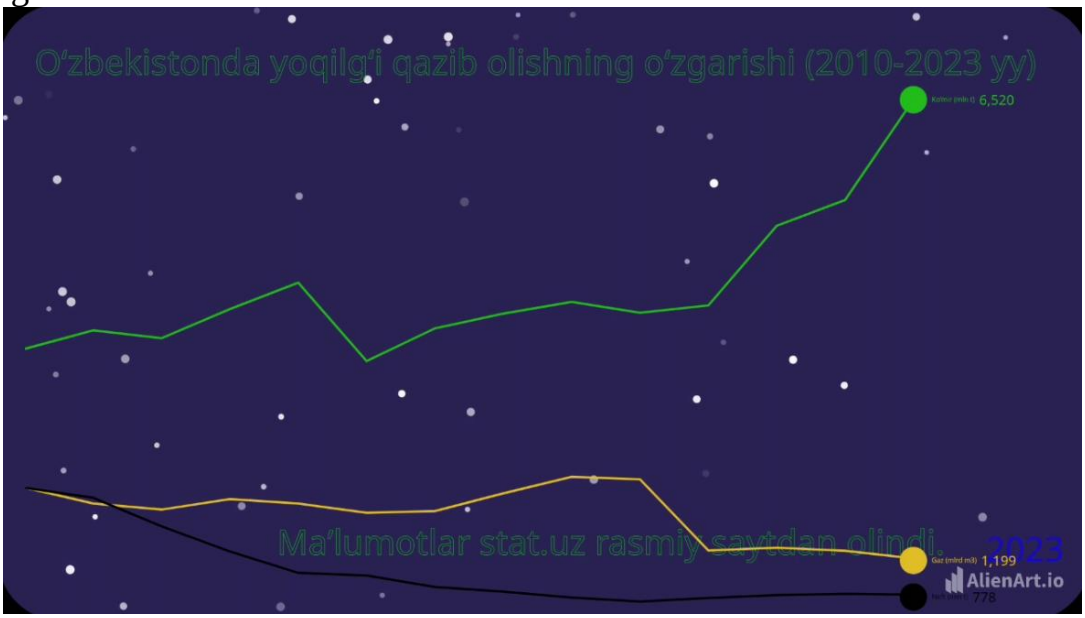
Yuqoridagilarning fikriga ko‘ra bugungi kunda oltita iyerarxiya hozirgi kunda o‘z ifodasini ko‘rsatmoqda. Aynan, biz tayyorlagan videodarslarning ham asosi sifatida 8-sinf O‘zbekistonning iqtisodiy va ijtimoiy geografiyasi maxsus darslik sifatida umumta’lim maktablarida bevosita o‘qitilmoqda. Bilish bu – o‘quvchining dars davomida bilimlarni egallashidir. Lekin bu bilimlar tushunish orqali mustahkamlanmasa ya’ni atroflicha hayotiy misollar bilan boyitilmas ekan, bu samara bermaydi. Agar tushungandan keyin biz mavzu yuzasidan videodars sifatida bilimlarni amaliyotda qo‘llasak, bo‘ladi. Qo‘llagan bilimlarimiz

o‘quvchilarning ko‘z o‘ngida diagramma, gistogramma, kartogramma, gologramma kabi infografik va zamonaviy bilimlar bilan boyitilgan videodarslarni tahlil qilsak o‘quvchilarning mustaqil fikrlashlari paydo bo‘ladi. Bugungi kunda O‘zbekistonning iqtisodiy va ijtimoiy geografiya fanida kuzatish, tizimli tahlil, statistik tahlil, modellashtirish, taqqoslash kabi bir qator usullardan foydalanish maqsadga muvofiqdir. Birinchi navbatda, o‘qituvchining vaqtini tejab qolamiz. Ikkinchi navbatda, mustaqil fikrlash paydo bo‘ladi. Bir so‘z bilan aytsak, analiz sintezga aylanadi.

NATIJALAR

Videodarslar — bu o‘quv materiallarini vizual va audio vositalar orqali yetkazish usuli. Ular o‘quvchilarga nafaqat nazariy bilimlarni balki amaliy misollar, grafikalar, animatsiyalar va real hayotdagi hodisalarni ko‘rsatish orqali mavzuni yanada chuqurroq tushunish imkoniyatini beradi. Geografiya fanida, masalan, tabiiy hodisalar (vulqon otilishi, zilzila, iqlim o‘zgarishi), geografik obyektlar (dengizlar, tog‘lar, cho‘llar) va xaritalar bilan ishlash kabi mavzular videodarslar orqali aniqroq va qiziqarli tarzda taqdim etilishi mumkin.

O‘zbekistonning iqtisodiy va ijtimoiy geografiyasini (8-sinf) o‘qitishda quyidagi mavzular tanlab olindi.



Yuqoridagi videodarsda O‘zbekistonda yoqilg‘i qazib olishning o‘zgarishi (2000-2023-yillar kesimida) berilgan. Ushbu videorolik vizualizatsiya imkoniyatlari juda kengdir. Buning metodik tomonlarini quyidagicha yoritish mumkin.

1.Toshko‘mir, gaz va neft qazib olish berilgan. Videodarsdan shuni bilish mumkinki, 2000-yildan keyin ko‘mir qazib chiqarishning keskin oshganligi, gaz qazib olish ham asta o‘zgarganligi va neft qazib chiqarish esa keskin tushib ketganligini ko‘rish mumkin.

2.Vizualizatsiya jarayoni va xilma-xil ranglar o‘quvchilarni fanga bo‘lgan qiziqishini orttiradi.

3.Ranglarning statistik ma’lumotlar bilan o‘zgarish dinamikasi o‘quvchilarning eslab qolish qobiliyatlarini rivojlantiradi.

4.Jarayonda kechayotgan voqea-hodisaga o‘zining mustaqil fikrini berish qobiliyati rivojlanadi.

5.O‘quvchi darslik ma’lumotlaridan tashqari asosiy va qo‘shimcha adabiyotlar bilan izlash, taqqoslash, tizimli tahlil qilish, statistik ma’lumotlar bilan ishlaydi. O‘ziga kerakli ma’lumotlar(axborotlar) bilan erkin tahlil qilishni o‘rganadi.

Yoqilg‘i turi	1 kg yoqilg‘i yonganda chiqadigan issiqlik		Issiqlik koeffitsienti
	Joulda	Kaloriyada	
Tabiiy gaz	$4,4 \cdot 10^7$	$10,6 \cdot 10^6$	1,5
Neft	$4,4 \cdot 10^7$	$10,6 \cdot 10^6$	1,5
Toshko‘mir	$2,9 \cdot 10^7$	$7,0 \cdot 10^6$	1,0
Qo‘ng‘ir ko‘mir	$1,3 \cdot 10^7$	$3,1 \cdot 10^6$	0,45
Yonuvchi slanes	$1,8 \cdot 10^7$	$2,1 \cdot 10^6$	0,30
Torf	$1,4 \cdot 10^7$	$3,4 \cdot 10^6$	0,48
Quruq o‘tin	$1,0 \cdot 10^7$	$2,4 \cdot 10^6$	0,34

22-rasm. Turli xil yoqilg‘ilarning yonish issiqligi.

Ma’lumotlar 8-sinf geografiyasi darsligidan olindi.

6.O‘qituvchi ko‘rsatmasiga asosan, rasmiy veb-saytlardan mavzuga oid yangiliklarni kuzatib borish va o‘z fikrini og‘zaki bayon qilish ko‘nikmasi oshadi.

7.O‘qituvchi qisqa vaqt ichida mavzuni asosiy mazmun-mohiyatini zamonaviy axborot va kommunikatsiya texnologiyalari asosida, raqamlar, foizlar, yoritib berishda juda ham katta imkoniyatga egadir.

8.O‘qituvchi mavzuni tushuntirish davomida o‘quvchilarning fikri va dunyoqarashi to‘liq dars jarayoniga qaratiladi.

9.O‘qituvchi videodarsdagi jarayonlarni o‘quvchilarga qiziqarli va tezkor savollar bilan faollashtira oladi.

10.O‘z Vataniga bo‘lgan mehr-muhabbat, sadoqat kabi tuyg‘ular shakllanadi.

MUHOKAMA

Yuqoridagi videodarslarning imkoniyatlari o‘z isbotini topib bormoqda. O‘zbekistonning iqtisodiy va ijtimoiy geografiyasi (8-sinf) kursida o‘qitilishi jarayonida 30 nafar o‘quvchilar o‘rtasida tadqiqot amalga oshirildi. O‘zbekistonning yoqilg‘i qazib olish, Emigrantlar (ko‘chib ketganlar), Immigrantlar(ko‘chib kelganlar), tug‘ilish va o‘lim darajasi (1991-2023-yillar) rasmiy tasdiqlangan stat.uz saytidan olingan ma’lumotlari vizualizatsiya orqali namoyish etildi. O‘quvchilarning darsga faol qatnashish darajasi avvalgi 15-20 foizdan 50 foiz natijasiga erishildi. Darsga bo‘lgan qiziqishi oshdi. Dars tahlillariga tajribali pedagog-o‘qituvchilar jalb qilindi.

Videodarslarning geografiya fanini o‘qitishdagi afzalliklari sifatida quyidagilar qayd etish mumkin:

Vizual tushuncha: Geografiya fanida ko‘plab mavzular vizual tasvirlarsiz tushunish qiyin. Videodarslar orqali o‘quvchilar tabiat hodisalarini, geografik jarayonlarni va joylarning xususiyatlarini ko‘z oldida ko‘rishlari mumkin.

Qiziqishni oshirish: Videolar o‘quvchilarning diqqatini jalb qiladi va ularni mavzuga qiziqtiradi. Bu esa o‘rganilayotgan materialni yaxshiroq o‘zlashtirishga yordam beradi.

Murakkab mavzularni soddalashtirish: Geografiyaning ba’zi mavzulari (masalan, atmosfera qatlamlari, tektonik plitalar harakati) murakkab bo‘lishi mumkin. Videodarslar orqali bu mavzular animatsiyalar va grafikalar yordamida tushunarli qilib beriladi.

Real hayot bilan bog‘lanish: Videolar orqali o‘quvchilar dunyoning turli burchaklaridagi geografik obyektlarni, madaniyatlarni va tabiiy hodisalarni ko‘rishlari mumkin. Bu ularning bilimlarini kengaytiradi va global miqyosda fikrlash qobiliyatini rivojlantiradi.

O‘rganish natijalari shuni ko‘rsatdiki, geografiya fanini o‘qitishda videodarslardan samarali foydalanish o‘quvchilarning bilim olish jarayoniga ijobiy ta’sir ko‘rsatadi. Tadqiqot davomida quyidagi asosiy natijalarga erishildi:

Geografik tushunchalarning vizual anglanishi yaxshilandi – Videodarslar orqali murakkab geografik jarayonlar, relyef shakllari, iqlim o‘zgarishlari va tabiiy hodisalar aniq va ravshan tasvirlanganligi sababli, o‘quvchilar ularni osonroq tushunishdi.

O‘quvchilarning qiziqishi va motivatsiyasi oshdi – An’anaviy dars usullariga nisbatan, videodarslar orqali taqdim etilgan materiallar o‘quvchilarning fanga bo‘lgan qiziqishini oshirishga yordam berdi. O‘quvchilar video orqali real geografik manzaralarni ko‘rib, o‘z fikrlarini yanada mustahkamlashdi.

Tashqi muhitni idrok etish qobiliyati kuchaydi – Videodarslar yordamida geografik ob’ektlarning joylashuvi, tabiiy zonalar va iqlim turlari haqidagi bilimlar chuqurlashdi. O‘quvchilar turli mintaqalar geografiyasini virtual sayohat orqali o‘rganish imkoniyatiga ega bo‘lishdi.

O‘quv jarayoni interaktiv va samarali bo‘ldi – Videodarslarda interaktiv elementlarning qo‘llanilishi (masalan, virtual xaritalar, animatsiyalar, simulyatsiyalar) geografik ma’lumotlarni tez va samarali o‘zlashtirishga xizmat qildi.

O‘quvchilarning mustaqil ta’lim olish ko‘nikmalari rivojlandi – Videodarslardan foydalanish o‘quvchilarning mustaqil ravishda o‘z ustida ishlash imkoniyatini kengaytirdi. Ular istalgan vaqtda videodarslarni takroran ko‘rib, tushunmagan joylarini qayta o‘rganish imkoniyatiga ega bo‘lishdi.

O‘qituvchilarning dars jarayonidagi samaradorligi oshdi – Videodarslardan foydalanish o‘qituvchilarga murakkab mavzularni tushuntirishda katta yordam berdi. Natijada, pedagoglar o‘quvchilarga mavzuni yanada chuqurroq yoritib bera oldilar.

Umuman olganda, tadqiqot natijalari shuni ko‘rsatdiki, geografiya fanini o‘qitishda videodarslardan foydalanish o‘quv jarayonining samaradorligini oshirish, o‘quvchilarning fanga bo‘lgan qiziqishini kuchaytirish va ularning bilimlarini amaliyot bilan bog‘lashda muhim rol o‘ynaydi.

XULOSA

Bugungi zamonaviy axborot kommunikatsiya texnologiyalar taraqqiy etgan davrda fanlararo integratsiya masalasi va o‘quvchilarni fanga bo‘lgan qiziqishini orttirish kun tartibidagi muhim masala bo‘lib qolmoqda. Bu faqat o‘quvchidan emas, balki, o‘qituvchidan ham fan yangiliklari bilan muntazam tanishib o‘z ustida ishlab bormog‘i kerak.

Sohaga oid xalqaro va Respublikamizdagi pedagogik adabiyotlar puxta o‘rganib chiqildi va quyidagi tavsiyalar muallif tomonidan ishlab chiqildi.

- O‘zbekistonning iqtisodiy va ijtimoiy geografiyasi(8-sinf)ni o‘qitishda zamonaviy axborot-texnologiyalardan unumli foydalanish;
- Uzluksiz o‘quv jarayonini olib borishda asosiy e’tiborni o‘quvchilarning fanga bo‘lgan qiziqishini rivojlantirishga e’tibor qaratish
- 8-sinf geografiyasini o‘qitishda fanning asosiy fundamental tadqiqot metodlari: statistik ma’lumotlar bilan ishlash, kuzatish, taqqoslash, tizimli tahlil etish, og‘zaki bayon etish kabi metodlarni qo‘llashni o‘rgatish.

O‘zbekistonning iqtisodiy va ijtimoiy geografiyasi(8-sinf) ni o‘qitishda zamonaviy axborot texnologiyalarni qo‘llab, o‘quv jarayoni olib borilsa, o‘quvchilarning qiziqishi geografiya faniga qaratiladi. Ularda statistik ma’lumotlar bilan ishlash jarayonida eng muhim tadqiqot metodlari hisoblanmish tizimli-tahlil etish, taqqoslash, kuzatish, o‘quv adabiyotlari bilan ishlash, og‘zaki bayon etish

kabi metodlar bilan ishlash ko‘nikmasi ortadi va axborot-kommunikatsiyalari bilan ishlash va fanga oid ma’lumotlarni topish malakasi rivojlanadi.

Shunday qilib, geografiyani o‘qitishda videodarslardan foydalanish nafaqat bilimlarni mustahkamlash, balki o‘quvchilarning ijodiy va tahliliy fikrlash qobiliyatini rivojlantirishda muhim ahamiyat kasb etadi. Kelgusida ushbu metodning yanada takomillashtirilishi va turli pedagogik texnologiyalar bilan integratsiya qilinishi ta’lim sifatini oshirishga xizmat qilishi mumkin.

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GERONTOLOGIYA VA QARILIKNI SEKILLASHTIRISH YONDASHUVLARI

Anotatsiya: *Ushbu maqola gerontologiya fanining asosiy yo'nalishlarini va qarilik jarayonlarining sekinlashtirishga qaratilgan ilg'or usullarni o'rganadi.Unda biologik mexanizmlar jumladan hujayra qarishi telomerlarning qisqarishi va mitoxondrial disfunktsiyaga oid ilmiy o'zgarishlar ko'rib chiqiladi. Shuningdek, gen terapiyasi, regenerativ tibbiyot va sog‘lom turmush tarzi kabi strategiyalarning samaradorligi tahlil qilinadi. Maqola qarishni boshqarishga qaratilgan texnologik va ijtimoiy yondashuvlarni yoritib, hayot sifatini yaxshilash va sog‘lom qarishni ta’minlashga qaratilgan amaliy tavsiyalarni taklif etadi.*

Kalit so'zlar*: Gerontologiya, qarish jarayoni gen terapiyasi, regenerativ texnologiyalar, mitoxondrial disfunktsiya, sog'lom turmush tarzi, hujayra qarishi, inson umrini uzaytirish.*

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GERONTOLOGY AND AGEING RELATIONSHIP APPROACHES

Annotation*:This article explores the main directions of gerontology and advanced methods aimed at slowing the aging process. It examines biological mechanisms, including cellular aging, telomere shortening, and mitochondrial dysfunction, based on scientific research. Furthermore, it analyzes the effectiveness of strategies such as gene therapy, regenerative medicine, and a healthy lifestyle. The article highlights technological and social approaches to managing aging, offering practical recommendations to improve quality of life and promote healthy aging.*

Keywords: *Gerontology, aging process, gene therapy, regenerative technologies, mitochondrial dysfunction, healthy lifestyle, cellular aging, lifespan extension*

KIRISH

Qarish jarayoni inson biologiyasining ajralmas qismi bo‘lib, u genetik, ekologik va ijtimoiy omillar ta'sirida kechadi. Gerontologiya fani qarilikning sabablari, uning oqibatlari va hayot sifatini yaxshilashga yo‘naltirilgan usullarni o‘rganadi. Bugungi kunda qarishni sekinlashtirish va umrni uzaytirish borasida ilg‘or yondashuvlar, jumladan, gen terapiyasi, regenerativ texnologiyalar, va mitoxondrial disfunktsiyani tuzatishga oid tadqiqotlar katta qiziqish uyg‘otmoqda. Ushbu maqola qarishni sekinlashtirishda biotexnologiyalar va sog‘lom turmush tarzi yondashuvlarini tahlil qilishni maqsad qiladi.

METODLAR

Mazkur tadqiqotda gerontologiya va qarilikni sekillashtirishni o'rganish uchun bir nechta metodologik yondashuvlar qo'llanildi. Tadqiqotning metodologiyasi quyidagi asosiy bosqichlarni o'z ichiga oladi:

Analiz va sintez usuli: Qarilik jarayonining biologik mexanizmlari, jumladan, telomerlarning qisqarishi, mitoxondrial disfunktsiya va hujayra qarishini tahlil qilish uchun mavjud ilmiy adabiyotlar va tadqiqot natijalari o‘rganildi. Ushbu jarayonlar tahlil qilinib, ular asosida qarilikni sekinlashtirishga qaratilgan gen terapiyasi va regenerativ texnologiyalarning samaradorligi sintez qilindi.

Statistik tahlil: Jahon va mintaqaviy miqyosda yoshlar va qariyalar ulushi bo‘yicha mavjud demografik ma’lumotlar tahlil qilindi. Masalan, dunyo aholisining 10% ni 65 yoshdan katta qariyalar, 25% ni esa yoshlar tashkil qilishi haqidagi ma’lumotlardan foydalanildi. Ushbu statistikalar qarilik muammosining dolzarbligini baholash uchun ishlatildi.

Qiyosiy tahlil: Qarilikni boshqarish bo‘yicha O‘zbekiston va AQSh kabi davlatlarning yondashuvlari qiyosiy tahlil qilindi. Masalan, AQShda regenerativ texnologiyalar va gen terapiyasiga katta e’tibor qaratilsa, O‘zbekistonda sog‘lom turmush tarzi va an’anaviy tibbiyot usullari asosiy ahamiyat kasb etadi.

Induksiya va reduksiya usuli: Qarilikni sekinlashtirishga qaratilgan turli ilmiy tadqiqotlar natijalari asosida umumiy nazariy xulosalar chiqarildi (induksiya). Shu bilan birga, qarilik jarayonini chuqur o‘rganish maqsadida bu murakkab tizim alohida biologik omillarga ajratilib, ularning ta’siri tahlil qilindi (reduksiya).

NATIJALAR

Qarilik jarayonining biologik mexanizmlari, xususan, telomerlarning qisqarishi va mitoxondrial disfunktsiya, qarilikning asosiy sabablari sifatida ko‘rilmoqda. Telomerlarning qisqarishi hujayra bo‘linishining cheklanishiga olib keladi, bu esa hujayralarning qarishiga va organlarning funktsional yomonlashishiga sabab bo‘ladi. Shu bilan birga, mitoxondrial disfunktsiya energiya ishlab chiqarish jarayonlarini susaytiradi, bu esa qarilikni tezlashtiradi.Sog‘lom turmush tarzi, jumladan, kam kaloriya iste’moli, muntazam jismoniy faoliyat va stressni boshqarish qarilik jarayonini sekinlashtirishda muhim omil bo‘lib, uning ta’siri ilmiy tadqiqotlar orqali tasdiqlandi. Tadqiqotlar ko‘rsatdiki, sog‘lom turmush tarziga rioya qilish qarishning jismoniy va ruhiy jihatlariga ijobiy ta’sir ko‘rsatadi.

TAHLIL

Qarilik jarayonining biologik mexanizmlari, xususan, telomerlarning qisqarishi va mitoxondrial disfunktsiya, qarilikni sekinlashtirishning asosiy yo‘nalishlari sifatida tahlil qilinmoqda. Telomerlarning qisqarishi hujayralar bo‘linishini to‘xtatish bilan bog‘liq bo‘lib, bu jarayonni kechiktirish uchun telomeraza fermenti orqali telomer uzunligini oshirishning ilmiy asoslari mustahkamlanmoqda. Mitoxondrial disfunktsiyaning oldini olish esa hujayra energiyasini tiklash va oksidlovchi stressni kamaytirish uchun samarali usul bo‘lishi mumkin. Bu tadqiqotlar qarilikni boshqarishning yangi imkoniyatlarini yaratmoqda.Gen terapiyasining qarilikni sekinlashtirishdagi roli juda muhimdir. CRISPR-Cas9 texnologiyasi yordamida genetik modifikatsiyalar orqali telomeraza va boshqa qarish bilan bog‘liq genlar faollashtirilishi mumkin. Tadqiqotlar ko‘rsatmoqda, bu texnologiyalar qarilikni sekinlashtirishda ijobiy ta’sir ko‘rsatadi va organizmning biologik yoshini pasaytirishga yordam beradi. Biroq, bu texnologiyalarni joriy etish uchun ko‘plab ilmiy va etik muammolarni hal qilish zarur.Ko‘k hujayra terapiyasi regenerativ texnologiyalarni rivojlantirishda katta umidlarni kutmoqda. Bu texnologiyalar yordamida hujayra va to‘qimalarning yangilanishi, shu jumladan qarilik belgilari, teri va suyaklarning tiklanishi mumkin. Stem cell terapiyasining o‘rni oshib bormoqda, chunki bu usullar yordamida organizmdagi ko‘plab funktsiyalarni tiklash mumkin. Shuning uchun, regenerativ tibbiyotning rivojlanishi qarilikni boshqarishning samarali usuli sifatida ko‘rilmoqda.Sog‘lom turmush tarzining qarilikni sekinlashtirishdagi o‘rni juda muhim. Tadqiqotlar shuni ko‘rsatadiki, kaloriya cheklash va muntazam jismoniy faoliyatni amalga oshirish qarilikni sekinlashtirishga yordam beradi. Stressni kamaytirish, to‘g‘ri ovqatlanish va jismoniy faoliyat organizmning uzoq umr ko‘rishiga ta’sir qiladi. Shu bilan birga, sog‘lom turmush tarziga rioya qilish nafaqat jismoniy, balki ruhiy salomatlikni ham yaxshilaydi.AQShda regenerativ texnologiyalar va gen terapiyasining keng qo‘llanilishi qarilikni boshqarishda yuqori samaradorlikni ko‘rsatmoqda. O‘zbekistonda esa sog‘lom turmush tarziga va an’anaviy tibbiyotga asoslangan yondashuvlar ko‘proq ishlatiladi. Biroq, innovatsion texnologiyalarning rivojlanishi O‘zbekistonda ham istiqbolli yo‘nalish sifatida ko‘rilmoqda. Bu shuni anglatadiki, O‘zbekistonda regenerativ tibbiyot va gen terapiyasi sohasida yangi ilmiy tadqiqotlar va texnologiyalarni rivojlantirishga katta ehtiyoj mavjud. Gerontologiya sohasida ilmiy-texnologik yutuqlarni qo‘llash imkoniyatlarini ko‘rib chiqish foydali bo‘ladi. Misol uchun, stem cell terapiyasining nafaqat qarilikni sekinlashtirishda, balki turli yoshga oid kasalliklarni davolashdagi ahamiyatini tahlil qilish.Gen terapiyasining qarilikni sekinlashtirishdagi potensialidan foydalanishning etik masalalari haqida yanada chuqurroq tahlil qilish mumkin. Bu usullarni klinikada joriy etish uchun qanday xavfsizlik va axloqiy normalarni hisobga olish zarurligi haqida fikr yuritish maqbul bo‘ladi. Qarilikni sekinlashtirishning ijtimoiy va iqtisodiy ahamiyatini ham yoritish mumkin. Qarilikni sekinlashtirishga oid innovatsion texnologiyalarning iqtisodiy samaralari va ijtimoiy tizimdagi o‘zgarishlarga qanday ta’sir qilishini tahlil qilish juda muhim. Bu, ayniqsa, qarilarning salomatligini yaxshilashga qaratilgan strategiyalarning

davlat siyosatidagi o‘rnini belgilashda yordam beradi.Dunyo bo‘ylab qarilikni boshqarish va qarilikni sekinlashtirish bo‘yicha amalga oshirilgan ishlar va yondashuvlarni o‘rganib, O‘zbekiston yoki boshqa mamlakatlardagi imkoniyatlarni taqqoslash. Shu bilan birga, boshqa davlatlar bilan taqqoslaganda, O‘zbekistonda bu sohadagi rivojlanishning o‘ziga xos xususiyatlarini ko‘rsatish.

XULOSA

Gerontologiya va qarilikni sekinlashtirish zamonaviy tibbiyotning eng istiqbolli sohalaridan biri hisoblanadi. Tadqiqotlar ko‘rsatishicha, qarilik biologik jarayonlar bilan chambarchas bog‘liq bo‘lib, telomerlarning qisqarishi, mitoxondrial disfunktsiya va hujayra qarishi kabi mexanizmlar bu jarayonni tezlashtiradi. Shu bilan birga, regenerativ texnologiyalar, gen terapiyasi va sog‘lom turmush tarzi qarilikni sekinlashtirishda samarali yondashuvlarni taqdim etadi.Shu bilan birga, global miqyosda qarilikni boshqarish strategiyalarini yanada rivojlantirish, innovatsion texnologiyalarni joriy etish va sog‘lom turmush tarzini keng targ‘ib qilish zarur. Bu yondashuvlar nafaqat qarilikni sekinlashtirish, balki umuman hayot sifatini yaxshilashga Bundan tashqari, sog‘lom turmush tarzining qarilikni sekinlashtirishdagi roli nihoyatda muhimdir. Jismoniy faollik, kam kaloriya iste’moli va stressni kamaytirish kabi oddiy hayot tarzidagi o‘zgarishlar qarilik jarayonini sekinlashtirishi mumkin. Bularni keng qo‘llash orqali jismoniy va ruhiy salomatlikni yaxshilash, umrni uzaytirish va sog‘lom qarishni ta’minlash mumkin.

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KICHIK YOSHDAGI O`QUVCHILARIGA EKOLOGIK BILIM BERISHDA PEDAGOGNING MAHORATI

Annotatsiya. *Maqola boshlang`ich sinf o`quvchilariga ekologik bilim va tarbiya berishning pedagogik asoslari haqida yozilgan. Uzluksiz ekologik bilim va tarbiya jarayonida nazarda tutilgan yuqoridagi natijalarga erishish uchun bu jarayonning faqat dars mashg`ulotlarining takomillashtirilishiga, tabiiy fanlarining eng yangi texnologiyalar, zamonaviy metod, shakl va vositalar haqida mazkur maqolada so`z yuritilgan*

***Kalit so`zlar:*** *tabiat, jamiyat, o`quvchi, atrof-muhit, ekologik bilim va tarbiya, pedagog.*

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TEACHER SKILLS IN PROVIDING ECOLOGICAL EDUCATION TO EARLY STUDENTS

Abstract. *The article is written about the pedagogical foundations of environmental education for elementary school students. In order to achieve the above results envisaged in the process of continuous environmental education, only the improvement of the lessons of this process, the newest technologies, modern methods, forms and tools of natural sciences are discussed in this article.*

Key words: *nature, society, student, environment, ecological education, pedagogue.*

Kirish. Ekologik tarbiya tarbiyaviy jarayonning muhim yo`nalishlaridan biri bo`lib, bolaning atrof muhitga ijobiy munosabatini shakllantirish, uning tabiat elementlarining inson hayotidagi o`rnini ongli ravishda anglashi hamda olam manzaralari haqida keng va yorqin tasavvurga ega bo`lishi kabi maqsadlarga erishish orqali unda fanlar o`rtasidagi integratsiyalarni tushunishi, real tasavvurlarining rivojlanishi, o`quv-bilish faolligining ortishi kabi didaktik natijalar ko`zda tutiladi.

Tahlil va natija. Yig`ilgan tajribalarga ko`ra, ekologik madaniyatning tub negizi hisoblangan ekologik tarbiyaning ilk ildizlari inson hayotining dastlabki o`n yilligida shakllana boshlaydi. Biroq bolaning oila bag`rida oladigan ekologik tarbiyasi aksar hollarda stixiyaviy xususiyatga ega bo`lib, tizimli ko`rinishga ega bo`lmaydi va unda izchillik, uzviylik, onglilik kabi tamoyillarga amal qilinishi kuzatilmaydi. “Oilaviy muhitda ekologik tarbiya umumiy tarbiyaning tarkibiy qismi sifatida qaraladi va ko`proq milliy an`ananalar, qadriyatlar negizidagi olib boriladi.

Shuning uchun ham biz ekologik tarbiyaning boshlang`ich bosqichi – boshlang`ich ta`lim davriga to`g`ri keladi” , degan fikrni to`g`ri deb hisoblaymiz.

Boshlang`ich sinf o`quvchilarining ekologik tarbiyasi ularning o`z mahallalari, o`z yashab turgan geografik hududlariga xos ekologik bilimlar, tabiatshunoslik, geografiya, boshlang`ich o`lkashunoslik kabi fan sohalari bo`yicha bilimlariga, tabiatga nisbatan ijobiy-emotsional munosabatlariga, oilaviy qadriyatlariga, ekologik qadriyatlar bilan milliy qadriyatlarning uyg`unlashtirilganligiga asoslanadi. Ekologik tarbiya tushunchasining pedagogik aspektida uning konseptual komponentlari quyidagilardan iborat bo`ladi:

-zarur darajada boshlang`ich ekologik bilimlar;

-mavjud ekologik bilimlarni amaliy vaziyatlarda qo`llay bilish, ya`ni ekologik xatti-harakatlar ko`nikmasiga ega bo`lganlik;

-lokal va mahalliy ekologik muammolar haqida tasavvurga ega bo`lish;

-mahalliy ekologik muammolar bilan ijtimoiy turmush tarzi o`rtasidagi bog`liqliklarni tavsiflay bilish;

-ekologik bilim va ta`lim-tarbiyani milliy va mahalliy qadriyatlar bilan uyg`unlashtirish .

Shundan kelib chiqib, boshlang`ich sinf o`quvchilarining ekologik bilim va tarbiyasini jarayon sifatida tashkil etishda darsdan tashqari, sinfdan tashqari mexanizmlarini takomillashtirish ilmiy-pedagogik muammoga aylanadiki, bizning nazarimizda bu mexanizmlar bola ekologik madaniyatining axloqiy, emotsional va me`yoriy-faoliyatli komponentlarining zarur darajada shakllanishini ta`minlovchi, shuningdek, uning ekologik dunyoqarashini kengaytiruvchi pedagogik ta`sir vositasiga aylananadi.

Shu tariqa, boshlang`ich sinf o`quvchilarining ekologik bilim va tarbiyasini tashkil etishning quyidagi aspektlari muhim tarbiya mexanizmlari sifatida muhimlik kasb etadi:

-bolada oilaviy tarbiya va olam manzaralariga oid bilimlarni uyg`unlashtirish orqali tabiatga nisbatan ijobiy munosabatni shakllantirish;

-atrof muhit komponentlari, tabiat vakillari bilan bevosita tanishish asnosida bolada hissiy-emotsional axloqiy-ekologik qarashlarni shakllantirish va davomli rivojlantirish;

-lokal ekologik muammolar, mahalliy ahamiyatga bo`lgan ekologik omillarni bartaraf etishga oid boshlang`ich ekologik bilimlarni shakllantirish orqali bolada ekologik madaniyatning dastlabki komponentlarini shakllantirish;

-darsdan tashqari vaqtlarda tabiat ob`ektlariga, tarixiy obidalarga o`lkashunoslik ekskursiyalari uyushtirish orqali boshlang`ich sinf o`quvchisining tabiat va atrof muhit bilan bevosita muloqotga kirishishi uchun sharoit yaratish;

-xalq pedagogikasi, oilaviy pedagogika vositalari orqali bola shaxsining shakllanishida tabiat va atrof muhitga ijobiy munosabatning ustivorligiga erishish;

-boshlang`ich ta`lim mazmunini hosil qiluvchi o`quv fanlari mundarijasini ekologik va atrof-muhit muhofazasiga oid mavzular bilan boyitish;

-tabiatshunoslik mavzulariga bag`ishlangan sinfdan tashqari mashg`ulotlar va tarbiyaviy soatlar mundarijasini ishlab chiqishda atrof muhitga bo`lgan ijobiy munosabatni shakllantirishga qaratilgan mavzularning ustivorligini ta`minlash .

Biroq hozirgi kunda boshlang`ich sinf o`quvchilarining ekologik tarbiyasi sohasidagi jarayonlar va voqeliklar o`rtasida bir qator qarama-qarshiliklarni kuzatish mumkin. Xususan:

-maktab darsliklaridagi ekomadaniy tartiblarning deklarativ tarzda o`rnatilishi va atrof muhitga nisbatan sodir etilayotgan salbiy xatti-harakatlar o`rtasidagi nomuvofiqliklar (ya`ni bolaning darsdan tashqari vaqtida tabiatga nisbatan kattalar tomonidan sodir etiladigan tajovuzlar);

-olamning boshlang`ich sinf o`quvchisiga taqdim etiladigan ko`rgazmali manzarasining mukammallik kasb etishi uchun sinfda tashkil etiladigan dars mashg`ulotlarining o`quvchining tashqi muhit bilan munosabatga kirishi borasidagi imkoniyatlarning cheklanganligi;

-bola shaxsini rivojlantirish jarayonining uzluksizligini to`laqonli ta`minlanishi uchun unda ekologik dunyoqarashning shakllanishiga turli tarbiya institutlari tomonidan ta`sir etish tuzilmalari mavjud emasligi;

-kichik yoshli o`quvchilarning atrof muhit va tabiatni emotsional-timsolli idrok etishlari uchun tarbiyaviy ishlarning ratsional tafakkur asosida yo`lga qo`yilishidagi ayrim kamchiliklar.

E*kologik dunyoqarash shakllanganligining navbatdagi bosqichi shaxsning ekologik madaniyatga ega bo`lishidek pirovard natija hisoblanadi.* Bunday sharoitlarda o`qituvchining asosiy vazifasi – boshlang`ich sinf o`quvchilarining yoshga oid, individual va psixologik imkoniyatlaridan kelib chiqib, ularda boshlang`ich ekologik madaniyatni shakllantirishning mundarijasini belgilab olishdan iborat bo`lmog`i lozim. Shu o`rinda ekologik madaniyat tushunchasi va uni shakllantirish mexanizmlariga to`xtalib o`tish zarurati tug`iladi.

Xulosa. Xo`sh, biz “ekologik madaniyat” deganda nimani tushunimiz lozim? Ekologik madaniyat va ekologik tarbiya, ekologik tafakkur va ekologik ong tushunchalari o`rtasida qanday strukturaviy, konseptual aloqadorliklar va umumiyliklar mavjud? Umumiy tarzda qaraydigan bo`lsak, ekologik madaniyat – bu tabiat va atrof-muhit bilan kechadigan munosabatlarda hal etiladigan masalalarni ekologiyaga oid bilim, malaka, ko`nikma va eng muhimi qat`iy javobgarlik hissi bilan hal etish zaruratini ongli ravishda his etishdir.

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GENITAL PROLAPSE: MODERN TREATMENT METHODS

Abstract: *Genital prolapse is a common gynecological condition that affects many women worldwide, leading to discomfort, urinary incontinence, and reduced quality of life. This article explores the etiology, risk factors, and pathophysiology of genital prolapse, focusing on contemporary treatment methods. Conservative management, surgical interventions, and minimally invasive procedures are discussed in detail. The article also highlights the role of lifestyle modifications and physical therapy in the prevention and management of this condition.*

Keywords: *genital prolapse, pelvic organ prolapse, surgical treatment, conservative therapy, minimally invasive procedures, pelvic floor rehabilitation, urogynecology.*

Introduction

Genital prolapse, also known as pelvic organ prolapse (POP), is a condition in which the pelvic organs, including the uterus, bladder, or rectum, descend from their normal anatomical position due to weakened pelvic floor muscles and connective tissue. This condition primarily affects women, especially those who have undergone multiple vaginal deliveries, menopause, or have a history of heavy lifting or chronic constipation.

The prevalence of genital prolapse increases with age, significantly impacting women's quality of life, leading to urinary incontinence, pelvic discomfort, and difficulties in sexual function. The management of genital prolapse has evolved significantly over the years, with various treatment modalities ranging from conservative measures to advanced surgical procedures.

This article aims to provide a comprehensive review of modern treatment methods for genital prolapse, highlighting the advantages and limitations of different approaches.

Etiology and Risk Factors

The development of genital prolapse is multifactorial, with various risk factors contributing to the weakening of the pelvic floor:

- **Childbirth and Pregnancy:** Vaginal deliveries, especially with prolonged labor or instrumental assistance, increase the risk of pelvic floor dysfunction.
- **Menopause:** Estrogen deficiency leads to reduced collagen synthesis and weakening of the pelvic support structures.
- **Chronic Increased Intra-Abdominal Pressure:** Conditions such as obesity, chronic constipation, and heavy lifting contribute to pelvic organ descent.

- **Genetic Predisposition:** Women with a family history of pelvic floor disorders have a higher risk of developing prolapse.
- **Previous Pelvic Surgeries:** Hysterectomy and other gynecological surgeries may alter the anatomical support of the pelvic organs.

Conservative Management

For mild to moderate cases, non-surgical treatment options can effectively alleviate symptoms and prevent disease progression:

1. **Pelvic Floor Muscle Training (PFMT):** Kegel exercises strengthen the pelvic floor muscles and improve support for pelvic organs.
2. **Pessary Use:** Vaginal pessaries provide mechanical support to prolapsed organs, relieving symptoms in women who prefer non-surgical management.
3. **Hormonal Therapy:** Local estrogen therapy can enhance tissue integrity and improve vaginal tone in postmenopausal women.
4. **Lifestyle Modifications:** Weight management, dietary adjustments, and avoiding heavy lifting can reduce intra-abdominal pressure and prevent worsening of prolapse.

Surgical Interventions

Surgical treatment is recommended for severe cases where conservative methods fail to provide adequate relief. Surgical options include:

1. **Vaginal Repair Procedures:** Anterior and posterior colporrhaphy are commonly performed to reinforce the vaginal walls and correct prolapse.
2. **Hysteropexy and Sacrocolpopexy:** These procedures use synthetic mesh or autologous tissue to provide long-term support to the prolapsed organs.
3. **Minimally Invasive Approaches:** Laparoscopic and robotic-assisted surgeries offer reduced recovery time, less pain, and improved surgical outcomes.

Role of Physical Therapy and Rehabilitation

Post-surgical rehabilitation plays a crucial role in recovery and preventing recurrence. Specialized physical therapy programs focus on:

- Pelvic floor strengthening exercises
- Biofeedback therapy to improve muscle control
- Electrical stimulation techniques to enhance neuromuscular function

Conclusion

Genital prolapse remains a significant health concern affecting many women worldwide. The advancement in both conservative and surgical treatment methods has provided more effective and patient-tailored approaches to managing this condition. A multidisciplinary approach involving gynecologists, physiotherapists, and urogynecologists ensures optimal outcomes for patients. Further research into innovative techniques and materials for pelvic organ prolapse repair will continue to enhance treatment efficacy and patient satisfaction.

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JANUBIY QORAQALPOG'ISTON TUMANLARIDAGI TURISTIK OBYEKTLAR VA ULARNI RIVOJLANTIRISH MASALALARI

Anostatsiya*:Maqolada Janubiy Qoraqalpog'iston tumanlaridagi turistik obyektlar va ularning rivojlantirish masalalari bo'yicha fikr yuritiladi. Mazkur tumanlar hududida mavjud tarixiy-arxeologik yodgorliklar, ziyoratgohlar, diqqatga sazovar zamonaviy arxitektura inshootlari va tabiiy turistik obyektlar hamda ularning joylashuvu, shuningek ularga turistlarni jalb qilish borasida qilinishi lozim bo'lgan ishlar bo'yicha taklif va tavsiyalar berib o'tildi. Tarixiy-madaniy turizm, ekoturizm, gasrtonomik turizm, agroturizm va ziyorat turizmi kabi turizm turlarini Janubiy Qoraqalpog'iston tumanlari miqyosida rivojlantirish imkoniyatlari va istiqbollari tahlil qilingan.*

Kalit so'zlar: *agroturizm, arxeologik yodgorliklar, arxitektura, ekoturizm, turizm, tarixiy-madaniy turizm, urf-odat, ziyoratgohlar, ziyorat turizmi.*

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TOURIST SITES IN THE REGIONS OF SOUTHERN KARAKALPAKSTAN AND ISSUES OF THEIR DEVELOPMENT

Abstract: *The article will focus on tourist facilities and their development issues in the districts of South Karakalpakstan. On the territory of these districts, proposals and recommendations were made on the existing historical and archaeological monuments, shrines, noteworthy modern architectural structures and natural tourist objects and their location, as well as the work that should be done to attract tourists to them. Opportunities and prospects for the development of such types of tourism as historical-cultural tourism, ecotourism, gasrtonomic tourism, agrotourism and pilgrimage tourism on the scale of the districts of Southern Karakalpakstan have been analyzed.*

Key words *agrotourism, archaeological sites, architecture, ecotourism, tourism, historical and cultural tourism, traditions, shrines, pilgrimage tourism.*

KIRISH. Turizm-bu sayohat qilishning bir turi bo'lib, unda odamlar dam olish, biznes qilish, boshqa xalqlar madaniyatini o'rganish kabi turli maqsadlar uchun odatiy bo'lgan muhitdan tashqaridagi joylarga sayohat qilish tushiniladi. Qoraqolpag'iston Respublikasining janubiy Amudaryo, Beruniy, Ellikqal'a, To'rtko'l tumanlari o'zining tarixiy yodgorliklari, xalqlarning madaniyati, tabiyatining xushmanzara joylari, ziyorat maskanlari bilan alohida ajralib turadi.

Bu borada Beruniy tumanining Amudaryo bo'yi florasi va faunasi, tabiiy landshaft ekoturizmi, xususan Quyi Amudaryo biosfera rezervati va uning o'simlik hamda hayvonot olamidagi o'ziga xosliklar evaziga mahalliy va xorijlik sayyohlarni jalb qilishdagi imkoniyatlari katta ahamiyat kasb qiladi. Ayniqsa, gavjum to'rangilzorlar ichra hayot kechiruvchi maftunkor Buxoro bug'usi Xongulni ko'rishga ishtiyoqmandlar, ularning bolalash mavsumidan keyin jajji bug'ichalarni tomosha qilishga ko'proq tashrif buyuradilar. Bunday tabiiy turistik obyektlarga Amudaryo tumanidagi Shayhi Jalil bobo va Beruniy tumanidagi Sulton Uvays, To'rtko'l tumanidagi Ko'kcha qirlari va Ellikqal'a tumanidagi betakror Aqchako'l sohil bo'yi hududlarini ham kiritish mumkin.

ASOSIY QISM. Mazkur mintaqa eng ko'p uchraydigan turistik obyektlar bu tarixiy-arxeologik yodgorliklardir. Beruniy tumanining tarixiy obyektlardan eng ko'zga tashlangani bu Qizil qal'a yodgorligi hisoblanadi. Qizil qal'a Tuproqqal'adan 1,3 km g'arbda joylashgan. Qizil qal'a kvadrat shaklga ega bo'lib, ikki tomondan minoralar va balandligi 16 m bo'lgan nayzasimon tuynuklarga egadir. Bu qal'aga janubi-sharqiy tomondan ko'tarma yo'lak orqali kirish mumkin. Ushbu qala o'rta asrlarda Xorazmga xos bo'lgan mustahkam saroy sifatida ishlatilgan. Qal'aning ichki qismi yaxshi saqlanib qolgan. Bu yerga tashrif buyuruvchi turistlar qal'aga kirgan zahoti o'zlarini ikkinchi qavatga kirgandek his qiladi. Tumanning yana bir tarixiy obyektlardan biri bu Ayaz qal'a bo'lib, milodiy II-IV asrlarga oid uchta qal'a xarobasidan iborat arxeologik yodgorlik majmuasidir. Bular: Ayazqal'a I, Ayazqal'a II, Ayaz qal'a III yodgorligidir. Sayyohlarning birinchi boradigan joyi Ayaz qal'a yodgorlidir. Qizilqum cho'liga qaragan tepalik cho'qqisidagi bu joy Qadimiy Xorazm uzoq o'tmishdagi shimoli-sharqiy mudofa inshooti sifatida bunyod qilingan asrlar davomida qancha tarix voqealariga guvoh bo'lgan qo'rg'on xarobalaridir. Ayaz qal'a o'z davrida Xorazmning mustahkam istehkom vazifasini o'tagan. Ayaz qal'a I yodgorligidan yuqoriga chiqib atrofga nazar tashlasangiz Ayaz qal'a II yodgorligi yaqqol ko'zga tashlanadi. Ayaz qal'a III biroz uzoq masofada joylashganligi va ko'p yemrilib ketganligidan uni bu joydan aniq ko'rishning imkoni kam va unitomosha qilish uchun janubga ancha pastga yurish lozim.

Ellikqal'a tumaning turizm salohiyati ancha yuqori bo'lgan hududlardan biri Aqchako'ldir. Aqchako'lning umumiy maydoni 1150 km kvga teng bo'lib ,eng chuqur joylari joylari 12 m gacha yetishi aniqlangan. 2022-yili Aqcha ko'l turistik zonasining infratuzilmasini rivojlantirish maqsadida 10 mlrd so'm mablag' ajratilgan. Bu mablag' hisobiga turistik zonada sayyohlar uchun qulaylik yaratilishi kerak bo'ladigan maxsus yo'laklar, elektr tizimlari, mehmonxonalari va katerlar tashkil etilgan. Shunigdek kattaligi 6000 gektargacha bo'lgan ko'l hududi 3000

tonnagacha bo’lgan chiqindilar tozalangan. Bularning hammasi davlatimiz rahbari Shavkat Mirziyoyev tomonidan amalga oshirilgan. Aqchako’lda olib borilayotgan ishlar misolida yurtimizda darhaqiqat turizmni rivojlanib borayotganiga guvoh bo’lishimiz mumkin. Tumanda yana Tuproqqal’a, Guldursin qal’a kabi turistlarni o’ziga jalb qilayotgan qadim Xorazm tarixini o’zida sir tutgan salobatli tarixiy obidalari ham bor.

Ziyorat turizmi aholi o’rtasida keng tarqalgan turizm tarmog’idir. Ziyorat qilish turizmi bir nechta turlarga bo’linadi:

a). muqaddas joylarni ziyorat qilish;

b). muqaddas joylarni ko’rish, ularning tarixi, madaniyatini o’rganish;

d). ilmiy safar diniy tadqiqotlar bilan shug’ullanuvchilarning muqaddas joylarga borishi.

Turizmning ushbu turi uchun eng muhim muammolardan biri yuqori malakali Gidlarni tayyorlash hisoblanadi. Ziyorat turizmining bu tumanlardagi rivojlanishiga Norinjon bobo, Sulton bobo, Shayxi Jalil bobo ziyoratgohlari hamda Kechirmas ota maqbarasi alohida o’ringa ega.

Norinjon bobo majmuasi XVII-XIV asrlarga tegishli bo’lib eng muqaddas qadamjolardan biridir. Maqbara XIII asrda musulmon arbobi Muxtor Vali tomonidan topilgan va u yangi maqbara binosini qurgan. XX asrda yodgorlik qayta tiklangan va rekonturiksiya qilingan. Kechirmas ota maqbarasi XII-XIV va XVI-XIX asrlarga tegishli bo’lib, bugungi kunda Ellikqal’a tumanidagi Saxtiyon shaharchasi yaqinida joylashgan. Maqbara hozirda Qoraqolpag’iston Respublikasining madaniy me’ros boshqarmasi huquqi asosida davlat mulki hisoblanadi. Norinjon bobo majmuasi va Kechirmas ota maqbarasiga hamda tumandagi boshqa tarixiy obyektlarga 40 mingdan ortiq ziyoratchi tashrif buyuradi.

To’rtko’l tumanining tarixiy meros obyektlardan Jonbos qal’a, Qoyqirilgan qal’a hamda So’qili ota yodgorliklari sayyohlar uchun muhim ahamiyatga ega bo’lib bu yerga har yili ko’plab turistlar tashrif buyuradilar. Qizilqumning janubiy sarhadlarida joylashgan Jonbos qal’a (mil.av.IV-milodiy I asrlar) Amudaryoning eski tarmog’i Suvyorg’on kanali boyi manzarasi bilan bog’lanib ketadi hamda qiyalikdagi ajoyib va chiroyli xarobalarni aks ettiradi. Jonbos qal’a yaqinida Bronza davriga oid ko’plab yodgorliklar topilgan . Ushbu yodgorlik Jonbos qal’a tepaligining shimoli-g’arbiy qiyaligida, Sulton Uvays tog’ tizmasining janubi-sharqqa cho’zilgan tepaliklar tizimining tugashida joylashgan. U Qadimgi Xorazmning ko’plab boshqa qal’alaridan, unung devorlari va burchaklarida minoralarning yo’qligi bilan ajralib turadi.Tashqi devorlari tor va baland, nayzasimaon, shaxmat tartibida joylashgan tuynuklar bilan qoplangan.

Qo’yqirilgan qal’a qazish ishlari to’liq o’tkazilgan kam sonli inshootlardan biri bo’lib, u o’zining o’ziga xos meymorchiligi bilan ajralib turadi. Dastlab, u ikki qavatli doira shakldagi, tuynukli ikki qavat aylana devor bilan bilan mustahkamlangan va kengligi 15 metr hamda chuqurligi 3 metr bo’lgan xandaq bilan o’ralgan inshoot bo’lgan. Olimlarning fikricha, Qo’yqirilgan qal’a muqaddas bino hisoblanib, unda astronomik tadqiqotlar olib borilgan va Fomalgaut yulduzlari o’rganish uchun qurilgan. Qumbosqan qal’a O’zbekistondagi merosiy

yodgorliklardan biri bo'lib To'rtko'l tumanining turkmanlar istiqomat qiladigan A.Durdiyev ovul fuqorolar yig'inida joylashgan.

BAHS-MUNOZARA. Amudaryo, Beruniy, Ellikqal'a va To'rtko'l tumanlaridagi turistik maskanlarning rivojlantirish tendensiyalari Qoraqolpag'iston Respublikasu balki O'zbekistonda turizmni rivojlantirishning muhim yo'nalishlaridan biridir. Yuqorida ta'kidlaganimizdek ushbu tumanlarda turizmni rivojlantirish uchun hududning boy tarixiy va madaniy merosi, tabiatning xilma-xilligi va turizm uchun yaroqli joylari bilan ajaralib turadi. Bu turizm maskanlarini rivojlantirish borasida mavjud tendensiyalarini quyida batafsil ko'rib chiqamiz:

-Beruniy tumani o'zining boy tarixi arxeologik va tarixiy yodgorliklari bilan mashhur. So'nggi paytlarda bu yerlarda arxeologik qazishmalarning olib borilishi, ayniqsa "Aqchaxon" qal'ada Avsrtaliyalik va Yaponiyalik olimlar hamkorligida, shuningdek mavjud tarixiy qal'alarni saqlash va o'rganish turizmga katta qizig'ish uyg'otmoqda. Beruniy tumani yana o'zining tabiat manzaralari bilan sayyohlarni o'ziga jalb qiladi. Bu tumanda ekoturizmni rivojlantirish potensiali juda katta eknligini anglatadi. Ekoturizm sayyohlarni tabiiy muhitga yaqinlashtiradi va o'ziga xos jihatlarni namoyon qiladi.

-Ellikqala tumani ham o'zining ananaviy turizmi va tarixi bolan turizmni rivojlantirishda kata ahamiyatga ega . Bu tumanda xalq san'ati, hunarmandchilik va a'nanalarga oid festivallar tashkil etiladi. A'nanaviy turizm shakli Ellikqal'a tumanining urf- odatini va san'atini bilan tanishish imkonini beradi.

-To'rtko'l tumani ham o'zining boy madaniy tarixi asosan ham shu yerda istiqomat qiluvchi o'zbek va turkman xalqlarining madaniyati, urf-odati bilan ajralib turadi va turistalarni jalb qilishga imkon beradi. Bu tuman o'zining iqtisodiy rivojlanishi bilan boshqa tumanlardan ajralib turadi. Ya'ni bu yerda turistlar uchun mehmonxonalar, ovqatlanish joylari va o'zining transportdagi infratuzilmaning qulayligi turistlarga qulay sharoit yaratib bermoqda. Amudaryo, Beruniy, Ellikqal'a va To'rtko'l tumanlarda marketing va reklama sohasini rivojlantirsak turizmning rivojlanishiga katt hissa qo'shadi. Bu sohalar hozirgi kunda turizmni rivojlantirisgning asosiy tendensiyalardan biridir.

XULOSA. Amudaryo, Beruniy, Ellikqal'a va To'rtko'l tumanlarida turizmni rivojlantirish uchun ko'plab imkoniyatlar mavjud. Tabiati bilan bog'liq bo'lgan ekoturizm, tarixiy-madaniy, ekologik, ziyorat va ta'lim turizmini rivojlantirish orqali bu tumanlarda turizm salohiyatini oshirish mumkin. Infratuzilma va transport aloqalarini rivojlantirish, mahalliy aholining urf-odatlarini o'rganish vayangi turistik maskanlarni qurish orqali turizmni rivojlantirsak bo'ladi.

Janubiy Qoraqalpog'iston tumanlarida shuningdek, agroturizm (mevali bog'larga, uzumzorlarga, paxta dalalariga), gastronomik turizm (hududdagi o'ziga xos milliy taomlari: ishlama, do'rama, kurdik, qurmush, beshbarmoq) va Amudaryo boyi sohil turizmini rivojlantirish imkoniyatlari mavjud.

Buning davlatimiz tomonidan keng imkoniyatlar va katta miqdorda mablag' ajratilmoqda. Agarda bu tumanlarda turizm sohasini rivojlantirsak va malakali kadrlarni tayyorlasak davlatimiz iqtisodiyotiga ulkan hissa qo'shgan bo'lamiz.

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TRANSPORT - GEOGRAFIK RAYONLASHTIRISHNING ILMIY-NAZARIY ASOSLARI

Annotatsiya: *Mazkur maqolada mamlakat hududini transport-geografik rayonlashtirish bo'yicha mavjud yo'nalishlar, ularning mualliflari va bu borada olib borilgan ishlar tahlil etilgan. Shuningdek, hududni transport-geografik rayonlashtirishda chegaralash, chegara chiziqlarini aniqlashning o'ziga xosliklariga e'tibor qaratilgan.*

Kalit so'zlar : *transport-geografik rayonlashtirish, transport infratuzilmasi, transport zichligi, transport to'ri, avia klaster, transport harakatchanligi.*

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SCIETIFIC AND THEORETICAL FOUNDATIONS OF TRANSPORT AND GEOGRAPHICAL ZONING

Abstract: *This article analyzes the existing directions of transport-geographical regionalization of the country's territory, their authors, and the work done in this direction. Also, in the transport-geographical regionalization of the territory, attention was paid to the features of delimitation, determination of borders.*

Keywords: *transport-geographical zoning, transport infrastructure, transport density, transport network, aviation cluster, transport mobility.*

Iqtisodiy-ijtimoiy geografiyaning eng muhim jihati bu o'rganilayotgan hududni o'ziga xos tabiiy-geografik, iqtisodiy-ijtimoiy, transport-geografik, demografik va boshqa xususiyatlaridan kelib chiqib boshqa hududlardan ajratib ko'rsatish, ularga oid ma'lumotlarni tahlil qilgan holda zarur bilim hosil qilish sanaladi. Bu esa hudud haqida to'liq va ishonchli ma'lumotga ega bo'lish, ishlab chiqaruvchi kuchlarni, aholini, transport yo'llarini, ijtimoiy soha ob'yektlarini to'g'ri joylashtirishga, o'rinli ma'muriy-hududiy chegaralanishlarni amalga oshirishga, hududni iqtisodiy-ijtimoiy rivojlantirish bo'yicha maqsadli va manzilli dasturlarni ishlab chiqish hamda ularni samarali tatbiq etishga imkon beradi.

Rayonlashtirish masalasiga oid ilmiy tadqiqotlarning katta qismi asosan hududni iqtisodiy rayonlashtirish masalasiga, uning ahamiyati hamda amaliy jihatlariga bag'ishlanganki, nazdimizda hududlarning jinoyatchilik geografiyasi, kasalliklar geografiyasi, xulq-atvor geografiyasi, ta'lim geografiyasi yo'nalishlari

kabi transport geografiyasiga doir o‘rganishlar ham yetarli emas. Zero, hozirgi barcha sohalardagi globallashuv, yo‘lovchi va yuklarni turli masofa va yo‘nalishlarga harakati tezlashib ketayotgan, o‘ziga xos “transport ekspansiyasi” sodir bo‘layotgan davrda transportni geografik nuqtai nazardan chuqur o‘rganish, uning mamlakat iqtisodiy-ijtimoiy hayotidagi ahamiyatini ko‘rsatib bergan holda mamlakatni transport-geografik rayonlarga ajratish dolzarblik kasb etmoqda.

Transport geografiyasida sanoat va qishloq xo‘jaligi geografiyasi kabi eng muhim mezon bu hududni chegaralash masalasidir. Mazkur yo‘nalishga oid koplab tadqiqotlar amalga oshirilgan bo‘lsada, ammo ularning aksariyati aniq bir hududdagi chegarani aniqlash usullariga aloqador xolos. Hududlar chegaralarini aniqlashning eng ko‘p qo‘llaniladigan 3 ta yondashuvlaridan e’tibor asosan tugunli mintaqalar va iqtisodiy ko‘rsatkichlarga qaratiladiki, bu mezon nisbatan soddaroqdir. Shunga qaramay, chegaralarning tahlili turli ta’limotlar bilan aniqlansada, mazkur masalada ham qiyinchiliklarga duch kelinadi.

Bu holatda aniqlangan chegaralar o‘rtasidagi bog’liqlik va chegaralarni belgilash mezonlari orasidan muhimlilik darajasini ajratib olish muammosi yuzaga keladi.

Garchi amaliyotda hududning iqtisodiy tavsifiga e’tibor berish yondashuvi ustunlik qilsada, ammo bu yondashuv orqali muhim usulni topish imkonsizdir. Shuning uchun ham chegara chiziqlarning o‘tkirlik holatini tasniflagan holda chegara chiziqlar tahlilini amalga oshirishga e‘tibor qaratish kerak bo‘ladi.

Ma’lumki geografik chegaralar har doim ham ma’muriy chegaralar bilan mos kelavermaydi. Geograflar hududning tabiiy holati va aholining zichlik ko‘rsatkichidan kelib chiqib, istesno tariqasida transport zonalarini ajratishning 2 ta darajasini belgilashadi.

Ko‘plab geograflar hududning iqtisodiy-geografik chegaralarini aniqlashda transport geografiyasini sanoat va qishloq xo’jaligi geografiyasidan biroz quyiga, ikkinchi darajaga qo‘yishadi.

Vaholanki, iqtisodiy-geografik chegaralarni aniqlash borasidagi jahondagi adabiyot va tadqiqotlar holati, ayniqsa hududning chegara chiziqlarini ochib beruvchi nazariy mulohazalar va asosiy tushunchalar yetarli emas.

Mamlakatimizda sanoat geografiyasi, aholi geografiyasi, shaharlar geografiyasiga qaraganda transport-geografik yondashuv asosida chegaralarni belgilash orqada qolayotganligini, bu borada yetarli tadqiqotlar mavjud emasligini qayd etib o‘tish lozim.

Transport-geografiyasini tadqiq qilish masalasi geografiyaning boshqa yo‘nalishlariga nisbatan farqli hisoblanadi. Chunki, temir yo‘llar va avtomobil yo‘llarini o‘rganish, korxonalar va aholini ro‘yxatga olishdan murakkabdir.

Shu o‘rinda transport geografiyasining umumiy masalalariga qaratilgan tadqiqot ishlari nisbatan yetarli darajada mavjudligini qayd etgan holda, fanning tor yo‘nalishlari bo‘lgan shahar transport geografiyasi, quvur transporti, suv transporti, temir yo‘l transporti, havo transporti, elektr magistral liniyalari transporti kabi masalalarda adabiyotlar, ilmiy izlanishlarga zarurat mavjudligi sezilmoqda.

Transport geografiyasining muhim masalalaridan biri bo‘lgan transport-geografik rayonlashtirish ishlari ham to‘liq o‘rganilmaganligi bilan ko‘zga tashlanmoqda.

Transport-geografik rayonlashtirishga oid olib borilgan ilmiy-tadqiqot ishlarini tahlil qilganimizda I.I.Belousov iqtisodiy rayonlashtirishda transportning rolini, A.Vrubel xizmat ko‘rsatish rayonlarini aniqlash usuli sifatida yo‘lovchi harakatini, J.Gurskiy Chexoslovakiyaning transport-geografik rayonlarga ajratish amaliyotini, transport-geografik chegaralashtirish masalasini, P.Rimmer Yangi Zelandiyaning transport tizimini, V.Jivago Qozog’istonni transport-geografik rayonlashtirishni, L.N.Cernikova Turkmanistonni transport-geografik rayonlashtirish masalasini, R.Taafe O‘rta Osiyo misolida transport va hududiy ixtisoslashuvni, V.F. Pavlenko O‘rta Osiyoning rayonlararo aloqalari va transport-geografik holatini, K.Hotters aholi punktlarida transport tig‘izligining hududiy qonuniyatlarini, O.Shlamp transport rayonlarini o‘lchashning tushuncha va usullarini, O’Sallivan P. transport tarmog‘ini mintaqalarga bo‘lishni, V.Grigoryev transportni hududiy tashkil etishda transport-geografik rayonlarning o‘rnini tadqiq etishganliklari ma‘lum bo‘ldi.

Mamlakatimizda esa transport-geografik rayonlashtirishga aloqador bo‘lgan izlanishlarni L.X.G‘ulomova aholiga transport xizmati ko‘rsatishning kartografik-matematik modellashtirish, A.Isayev Farg‘ona vodiysi transporti rivojlanishining geografik jihatlarini, O‘zbekistonda transportdan foydalanish imkoniyatlarini takomillashtirishni, Usmanov Z.K. O‘zbekiston transport tizimining hududiy tashkil etilishi va uni takomillashtirish masalalarini tadqiq etishganliklarini alohida qayd etish lozim.

Geografik adabiyotlarda transport-geografik rayonlashtirishning uchta asosiy turini ajratish qabul qilingan (Nikolskiy, 1978). Bular tortishish zonalari, tarmoq ichidagi sohalar va majmuali.

Xorijiy tadqiqotlarda tortishish zonalari hududni yoppasiga rayonlashtirmasdan, odatda, bitta tugunga nisbatan oqimlar doirasida o‘rganiladi. J.Gurskiy Chexiyada transport izoxronlardan foydalangan holda yo‘lovchilarga xizmat ko‘rsatuvchi markaziy uzellarning tortishish zonalari asosida rayonlashtirishni amalga oshirgan. Ko‘plab ishlari ma‘lum bir transport turi bo‘yicha oqimlarni tahlil qilish asnosida rayonlashtirishga asoslangan.

Masalan P. Gud va hammualliflar (Good et al., 2011) aviatsiya tashuvlari bo‘yicha ma‘lumotlardan Afrika hududini rayonlashtirish uchun foydalangan. S. Kraft va uning hamkasblari shaxsiy avtotransport oqimlari asosida Chexiyaning 205 ta transport tugunli tumanlarini ajratgan. (Kraft and Marada, 2017) Shuningdek, aviatsiya aloqalari ma’lumotlari asosida Markaziy Yevropa hududini rayonlashtirgan. (Kraft va Rozkošný, 2018).

Transport tizimlari yoki tarmoqlari tahlilini amalga oshirish uchun bevosita ixtisoslashgan tumanlarni ajratish zarurligi to‘g‘risidagi munozara (Kayuchkin, 2003) hozirgacha davom etmoqda. Ko‘pgina tadqiqotchilar bu maqsadlar uchun allaqachon mavjud bo’lgan integral iqtisodiy rayonlashtirish to‘rlaridan foydalanmoqda.

A.N. Privalovskiy (2008) lokal transport tizimlarini Ye.Ye.Leyzerovichning iqtisodiy mikrorayonlar to‘ridan foydalangan holda o‘rgangan.

Ko‘pincha tadqiqot obyektlari sifatida mintaqalarning transport tizimlari tanlangan bo‘lib, bu statistikaning shakllanish xususiyatlari bilan bog‘liqligi tufayli tahlil qilish uchun juda qulay. P.M. Krilov (2007) mintaqaviy transport tizimlarini ham transport, ham hududlar iqtisodiyotini tavsiflovchi bir qator statistik ko‘rsatkichlardan kelib chiqib transport-iqtisodiy rayonlashtirishni amalga oshirgan.

Ba’zi ishlarda yo‘lovchilarni jo‘nash va yetib borish manzillarini umumlashtirish hududlar o‘rtasidagi aloqalarni tahlil qilish bilan amalga oshirilgan. Bunday tadqiqot yo‘nalishining eng yorqin namunasi sifatida S.A. Tarxovning monografiyasi(2015) ko‘rsatilishi mumkin. U aviaklasterlar (tumanlar)to‘ri tahlili asosida Rossiya hududining havo-fazoviy aloqadorligini o‘rgangan.

Yu.V.Sherstobitov (2017) Sankt-Peterburg hududiy transport tarmog‘ini ajratilgan rayonlar bilan yo‘lovchi tashish transformatsiyasini tahlil vositasi sifatida o‘rgangan. Shuningdek, mintaqa ichidagi tumanlar hududining bog‘liqlik darajasidan kelib chiqib transport rayonlashtirishni Krasnoyarsk o‘lkasi, Saxa Respublikasi ichkarisida (Yakutiya) va Magadan viloyatida o‘rganish amalga oshirilgan. (Neretin va boshq., 2019 y.)

P.Rimmer(Rimmer Peter J.)ning Yangi Zelandiyaning transport tizimini o‘rganish ishlarida mamlakatning transport tarmog’i 6 ta hududga bo‘linishi, ularning har birida xo‘jalikning asosiy tarmoqlariga aynan transport xizmat qilishi, masalan, Oklend hududi qog’oz, alyuminiy prokat va shisha mahsulotlari ishlab chiqarishga ixtisoslashganligi qayd etiladi. P.Rimmerning tadqiqotida hududlararo aloqalar amalga oshiriladigan temir yo‘llar bo‘ylab ixtiyoriy ravishda hududlar chegaralari belgilangan. O‘rganish davomida 64 kilometr radiusgacha bo‘lgan tashishlarda avtomobil transporti ustunlik qilishi aniqlangan. Yangi Zelandiya transport hududlari va transport tarmog‘ining sxematik xaritasini ishlab chiqqan.

Transport tarmog‘ini rayonlarga ajratganda rayon ichidagi transport tarmog‘idagi o‘zgarishlar rayondan tashqarida sezilarli ta‘sir ko‘rsatmasligi kerakligini O’Sallivan P ilgari surgan.

A.S.Neretin, M.V.Zotova, A.I.Lomakina va S.A.Tarxovlardan iborat olimlar jamoasi o‘zlashtirish darajasi o‘rtacha va past bo‘lgan uchta asosiy mintaqa - Krasnoyarsk o’lkasi, Saxa Respublikasi (Yakutiya) va Magadan viloyati misolida Rossiya mintaqalarining keng chekka hududlari bilan yo’lovchi tashish tizimlarining ichki va tashqi bog‘liqligini tahlil qilgan. Ushbu mintaqalar mamlakat transport tizimidagi o‘rnining o‘ziga xos xususiyatlari bilan bir-biridan farq qilishi va transport aloqasi darajasi va xususiyatida sezilarli mintaqaviy farqlar bilan ajralib turishidan kelib chiqib qo‘yilgan masalani hal qilish uchun transport bog‘liqligi va izolyatsiyasini tahlil qilishning mualliflik kompleks metodologiyasidan foydalanishgan. Ular tomonidan taklif etilgan yondashuv nafaqat yo‘nalish tarmoqlari, xabarlar chastotasi, vaqt sarfi va hududlardagi barcha turdagi yo‘lovchi transporti tariflari bo‘yicha statistik ma‘lumotlarni tahlil qilishni, balki sifatli sotsiologik usullarni - yo‘lovchilar va transport terminallari xodimlari bilan chuqur

suhbatlarni o‘z ichiga olishi bilan ahamiyatlidir. Bu usul hududlarning asosiy aholi punktlarining transportdan foydalanish imkonini aniqlashga imkon beradi.

Rossiyalik geograf olim K.V.Samburov tomonidan hududlarni yo‘lovchi temir yo‘l transporti bilan ta’minlanganlik darajasi tahlil etilgan holda, aniq transport turlari bo‘yicha tortishish zonalari to‘ri ishlab chiqilgan. O‘rganish davomida u yoki bu tugunga tortiladigan hududlarni ajratishning mavjud usullari temir yo‘l transportiga to‘g‘ri kelmasligini aniqlaydi. K.V.Samburov transport rayonlashtirish muammosini hal qilish uchun yo‘lovchi temir yo‘llarining tortishish zonalarini aniqlashning mualliflik usulini taklif etgan. U 2016 yil o‘rganishlari asosida temir yo‘l transporti to‘xtaydigan 2065 ta transport tarmoqlari va aholi punktlarini tadqiq etib, o‘rganishni yagona hududiy yacheykalar - ikkinchi darajali ma’muriy-hududiy bo‘linish birliklari (munitsipal tumanlar va shahar okruglari) asosida o‘tkazadi. O‘rganish davomida Rossiya hududida markaziy tarmoqning tortishish zonasi bo‘yicha transport obyektlarini birlashtiruvchi 488 ta temir yo‘l yo‘lovchi rayonlarini ajratadi. Ushbu tumanlarning asosiy parametrlari, shuningdek, ulardagi yo‘lovchilar oqimining tarkibi o‘rganiladi. Tumanlar ichidagi yo‘lovchilar oqimi yo‘nalishlarini tahlil qilish asosida yo‘lovchi temir yo‘l tumanlarining to‘rtta turi aniqlanadi: oddiy (unga 168 ta tuman kiritilgan), murakkab monotsentrik (240 ta tuman), murakkab chiziqli (59 ta tuman) va murakkab politsentrik (21 ta tuman).

O‘rganish obyekti bo‘lgan yo‘lovchi temir yo‘l majmuasining hududiy joylashishini tahlil qilishda tumanlar to‘ridan foydalanish imkoniyatlari ko‘rib chiqilgan. Tadqiqot davomida mavjud usullarning kamchiliklari belgilangan.

Chexiyalik geograf olim Jozef Hursky chegara chiziqlari aniq jamoat transporti oqimi kabi dinamik hodisalarga asoslansa chegaralar huddi suv havzalari kabi maxsus turni tashkil etishini keltiradi. Olim bu tajribani 1957 yilda Praga va Vena shaharlari o‘rtasidagi “immigratsiya bo‘linmalari” dan olganligini qayd etadi.

Transport-geografik chegaralarni aniqlashda asosiy mezonlardan biri bu shaxsiy transport vositalarida tashilgan yo‘lovchilar soni hisoblanadi. Hududning transport –geografik tuzilishi hamda transport vositalari oqimi jadalligini aniqlashning eng yaxshi va aniq usul qishloqlardan shaharlarga, shaharlararo kelayotgan yo‘lovchilardan so‘rov o‘tkazish usulidir.

Bunday so‘rovlar cheklangan hududlar vaqti-vaqti bilan o‘tkazilgan va tegishli ilmiy xulosalarga kelingan. Tegishli viloyat yoki butun mamlakatning iqtisodiy-geografik va transport-geografik tezkor tasvirini yaratish esa ishonchli axborot manbalarini talab etadi.

F.X.Grin(F.H.Green) tomonidan “Angliya va Uelsdagi urbanizatsiya hinterlandlari: avtobus xizmatlari tahlili” (Geografiya jurnali, 1950 yil) maqolasida taklif etilgan “kommunikatsiya bo‘linmalari” xaritasi J.Hursku tomonidan “jadallik bo‘linmalari” xaritasi uchun prototip bo‘lib xizmat qilgan holda, olim tomonidan Chexoslovakiyadagi avtobus yo‘nalishlarini tahlili amalga oshirilgan.

J.Hurskiy hududning chegaralarini aniqlashda transport –geografik jihatlarini o‘rganar ekan, e’tiborni “qatnov bo‘linmalari” ga qaratadi. Olim “Chexoslovakiya shaharlarining transport harakati intensivligi” hisobotda u

shaharlarning transport holatini tasvirlab bersada, ammo ularning transport harakati sohasini tadqiq etmaydi. “Ish joyining olisligi muammosi” maqolasida ham transport harakati bog’liqligi xaritasini tuzishga ustuvorlik bergan. J.Hurskiy tomonidan mamlakatni transport-geografik rayonlashtirishda asosiy tadqiqot usuli sifatida yo‘lovchilar oqimi, yo‘nalishlarning jadalligi usuliga katta e’tibor berganligi namoyon bo‘ladi.

F.H.Greenning hudud chegaralarini aniqlashga oid tadqiqotlari transportning jadalligi tamoyiliga asoslangan.

Xulosa qilinganda, J.Hurskiy F.Grin usulini Shimoliy Bogemiyada temir yo‘l aloqalarida mayatnikli migratsiya hududlarini ajratish uchun qo’llagan. Grin ularni avtobus liniyalari uchun qo‘llagan. Tumanlar dastlab qarama-qarshi yo‘nalishlardagi harakat jadalligi bo‘yicha ajratilgan, keyin ularning konturlari aniqlashtirilgan.

Transport harakatlari jadalligi asosida hududni mintaqalashtirishda Xartke(Hartke)ning 1939 yilda nashr etgan maqolasi e’tiborlidir. Xartke transport harakati mintaqalari, kompleks zonalar va neytral zonalarni “ta’sir qilish tuzilishi mintaqalari” deb nomlaydi.

Transport harakatlari jadalligi usulining afzalligi jarayon ishtirokchilari bo‘lgan yo‘lovchilar oqimi bilan bog‘liq bo‘lsada, kamchiligi esa yo‘lovchilar oqimiga oid ma’lumotning to‘liqsizligidir. Negaki, bunda ma’lumotlar faqat ish joyi va ish joyi o‘rtasidagi yo‘lovchilar oqimi tahliliga ustuvorlik beradiki, aholining boshqa maqsadlar bo‘yicha transport harakatchanligi nazarda tutilmay qolinadi.

Mamlakatimiz hududini transport-geografik rayonlashtirishda avtobus yo‘nalishlari va yo‘lovchilar oqimini tahlil qilish usulini asosiy mezon sifatida ko‘rib chiqmasligimizga quyidagi asoslar keltiriladi:

Birinchidan, tegishli litsenziya asosida faoliyat yuritayotgan subyektlar bilan birga, litsensiyasiz faoliyat ko‘rsatayotgan taksi xizmatlarining ham yetarli ekanligi. Bu esa yo‘lovchilar oqimiga oid hamda yo‘nalishlar qat’iyligiga oid aniq va to‘laqonli ma’lumotlarni oish imkonini cheklaydi;

Ikkinchidan, yo‘lovchilarni tashish bilan bog‘liq jamoat transportining mahalliy darajada barqaror emasligi;

Uchinchidan, yo‘lovchilar oqimining darajasi o‘rganilayotgan hududni transport-geografik rayonlashtirish uchun asosiy mezon sanalmaydi. Negaki, rayonlashtirishning muhim talablaridan biri hududiy va infratuzilmalarning o’zaro bog‘liqligi hisoblanadi. Bu holatda yo‘lovchilar oqimiga hududiy bog‘liqlik emas, balki daramod manbalari, biron bir hududdagi ortiqcha ishchi kuchining qo‘shimcha ishchi kuchiga ehtiyoji bor nuqtaga yo‘nalishi ko‘proq ta’sir qiluvchi omil sanaladi;

To‘rtinchidan, ba’zi nuqtalar orasidagi yo‘lovchilar oqimi mavsumiy harakterda bo‘lib, bu transport-geografik rayonlashtirishdagi hududlar barqaror aloqadorligini ta’minlamaydi. Misol uchun, biron bir hududning mavsum bilan bog‘liq turizm salohiyati yoki ish o‘rinlari bilan bog‘liq jozibadorligi doimiy transport bog’liqlik bilan mutanosib emas;

Beshinchidan, mamlakatdagi aholi punktlarida doimiy yashovchi aholisi sonidagi farqlar ham yo‘lovchilar tashuvi ko‘rsatkichlariga ustuvorlik qaratish

imkonini pasaytiradi. Sababi, aholi sonida keskin farqlar mavjud bo‘lgan aholi punktlarini yo‘lovchilar oqimi asosida o‘zaro taqqoslash, qo‘lga kirirtilgan ko‘rsatkichlar asosida tasniflash yoki rayonlashtirish ishlarini olish ilmiy tadqiqotning natijadorligiga salbiy ta’sir qiladi.

Avtobuslarda yo‘lovchi tashish ko‘rsatkichlarini asosiy mezon sifatida olmaslikning yana bir sababi shundaki, bu yo‘nalish barcha transport turlarining vakili sifatida maydonga chiqa olmaydi. Bu o‘rinda biz mamlakat miqyosidagi yo‘lovchi tashish salohiyati nuqtai nazaridan temir yo‘l transportini ham o‘rnini to‘g‘ri baholashimiz zarur bo‘ladi. Shundan kelib chiqib, bir kichik qishloq va shaharni bog‘lab turuvchi muntazam qatnovlarning mavjudligi obyektning transport qiyofasini to‘liq ochib bermaydi.

Mamlakatni transport-geografik rayonlashtirishda hududlarning transport infratuzilmasiga ustuvorlik berish, hududni rayonlashtirish uchun transport infratuzilmasini asosiy mezon sifatida qabul qilish yo‘nalishlari ham mavjud.

Xulosa qilinganda, mamlakat hududini transport-geografik jihatdan rayonlashtirish uchun ko‘plab nazariy-metodologik, amaliy usullar mavjud. Mazkur yo‘nalishda tizimlashtirilgan ishlarni olib borish, barqaror metodologiyani ishlab chiqish imkoniyatini yaratadi. Bunda o‘rganish usullarini to‘g‘ri tatbiq etish masalasi muhim sanaladi. Negaki, kutilayotgan natijani ochib berishda o‘rganilayotgan obyektga nisbatan o‘rganish usulining to‘g‘ri tanlanishi muhim ahamiyatga ega.

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O‘PKA ARTERIYASI TROMBOEMBOLIYASI BILAN OG‘RIGAN BEMORLARDA YALLIG‘LANISHGA QARSHI SITOKINLARNING PRO-SITOKIN DARAJASINI O‘RGANISH

Izoh.*Maqolada o'pka emboliyasi (O'E) bo'lgan bemorlarda yallig'lanishga qarshi sitokinlar darajasini o'rganish natijalari keltirilgan. PE bilan og'rigan bemorlarning sitokin profili IL-6 va IL-8 interleykinlarining o'z-o'zidan va mitogen tomonidan ishlab chiqarilishining yuqori darajasi bilan tavsiflanadi. Aniqlangan o'zgarishlar PE bilan og'rigan bemorlarni klinik ko'rinishlarga (tasdiqlanmagan PE bilan kasallangan bemorlar guruhi) va sog'lom donorlarga asoslangan shunga o'xshash kasalliklarga chalingan bemorlardan statistik jihatdan sezilarli darajada ajratib turadi. IL-8 darajasi va troponin va NT pro BNP darajalari o'rtasida ijobiy korrelyatsiya mavjud bo'lib, bu interleykinning PE kursining noqulay variantlarini rivojlanishidagi mumkin bo'lgan rolini bilvosita ko'rsatadi. Odds-test baholariga asoslanib, IL-6 va IL-8 ning yuqori darajalari PE rivojlanish xavfi bilan bog'liq. Ushbu faktlar PEga shubha qilingan bemorlarda sitokin profilidagi (IL-6 va IL-8) o'zgarishlarni hisobga oladigan diagnostika va terapevtik yondashuvlarni yanada rivojlantirishni oqlaydi.*

Materiallar va usullar.*Tadqiqotga 2019-2023-yillarda Respublika shoshilinch tibbiy yordam ilmiy markazi Andijon filiali rentgen diagnostika bo‘limiga o‘pka emboliyasining dastlabki tashxisi bilan yotqizilgan 128 nafar bemor qamrab olindi. Ulardan 53 ta holatda PE tashxisi KT-pulmoner angiografiya bilan tasdiqlangan, 75 holatda esa PE tashxisi rad etilgan. Bemorlarning yoshi 23 yoshdan 89 yoshgacha bo'lgan va o'rtacha 59 (46-70) yoshni tashkil etgan. Tashxisni tasdiqlash uchun barcha bemorlar keng qamrovli klinik diagnostika tekshiruvidan o'tkazildi, jumladan D-dimer, troponinlarni aniqlash, o'lim xavfi diagnostik testlari, shuningdek o'pka emboliyasining bevosita belgilarini aniqlash uchun SCT angiopulmonografiyasi: kontrastli tromboemboliya. kichik tomirlar.*

Tadqiqot natijalari.*Hozirgi vaqtda SCT angiopulmonografiyasi PEni tashxislashning samarali noinvaziv usuli hisoblanadi, chunki bu usul PE ning bevosita belgisi sifatida qabul qilinadigan kichik tomirlardagi tromboemboliyaning ishonchli vizualizatsiyasini ta'minlashga qodir. Ushbu usul o'pka emboliyasi tashxisida yuqori diagnostik samaradorlik ko'rsatkichlariga ega (97-100%). Biz o'pka emboliyasi tashxisini tekshirish uchun CT angiopulmonografiya ma'lumotlaridan foydalandik. Hammasi bo'lib, 2009 yil 1 yanvardan 2013 yil 30 noyabrgacha bo'lgan davrda o'pka emboliyasiga shubha qilingan 128 nafar bemor tekshirildi.*

Xulosa. O'pka emboliyasi bilan og'rigan bemorlarning sitokin profili IL-6 va IL-8 interleykinlarining o'z-o'zidan va mitogen tomonidan ishlab chiqarilishining

yuqori darajasi bilan tavsiflanadi. Aniqlangan o'zgarishlar PE bilan og'rigan bemorlarni klinik ko'rinishdagi PEga o'xshash kasalliklarga ega bemorlardan (tasdiqlanmagan PE bilan kasallangan bemorlar guruhi) va sog'lom donorlardan statistik jihatdan sezilarli darajada farq qiladi.

Kalit so'zlar:*PE, interleykinlar, SCT angiopulmonografiya, donor, troponin, D-dimer.*

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STUDIES OF PROINFLAMMATORY CYTOKINE LEVELS IN PATIENTS WITH PULMONARY EMBOLISM

Annotation. *The article presents the results of the study of proinflammatory cytokine levels in patients with pulmonary embolism (TELA). The cytokine profile of patients with TELA is characterized by high values of spontaneous and mitogen-induced production of interleukins IL-6 and IL-8. The revealed changes statistically significantly distinguish patients with TELA from patients with similar diseases by clinical manifestations (group of patients with unconfirmed TELA) and from healthy donors. There are positive correlations between IL-8 level and troponin and NT pro BNP levels, indirectly indicating a possible role of this interleukin in the development of unfavorable variants of TELA course. On the basis of odds criterion estimates, high levels of IL-6 and IL-8 are associated with the risk of TELA development. These facts justify further development of diagnostic and therapeutic approaches that take into account changes in cytokine profile (IL-6 and IL-8) in patients with suspected TELA.*

Material and methods. *The study included 128 patients admitted to the radiology department of the Republic Scientific Center Aid Medical Help Andijan Branch in the period from 2019 to 2023 with a preliminary diagnosis of TELA. Of these, in 53 cases the diagnosis of TELA was confirmed by CT-angiopulmonography, and in 75 cases the diagnosis of TELA was rejected. The age of the patients ranged from 23 to 89 years and averaged 59 (46-70) years. In order to confirm the diagnosis, all patients underwent a comprehensive clinical and diagnostic study including determination of D-dimer, troponins, diagnostic tests for the risk of death, as well as CT-angiopulmonography to detect direct signs of TELA: thromboemboli during contrasting of small circle vessels.*

Study results. *SCT-angiopulmonography is currently an effective non-invasive method of TELA diagnostics due to the fact that this method is able to provide reliable visualization of thromboemboli in small circle vessels, which is considered as a direct sign of TELA. This method has high diagnostic efficiency*

(97-100%) in the diagnosis of TELA. We used the data of SCT-angiopulmonography as verification of TELA diagnosis. A total of 128 patients with suspected TELA were examined from 01.01.2019 to 30.11.2023.

Conclusion. *Cytokine profile of TELA patients is characterized by high values of spontaneous and mitogen-induced production of interleukins IL-6 and IL-8. The detected changes statistically significantly distinguish patients with TELA from patients with diseases similar to TELA in clinical manifestations (group of patients with unconfirmed TELA) and from healthy donors.*

Key words: *TELA, interleukins, SCT-angiopulmonography, donor, troponin, D-dimer.*

Kirish. Maqolada o'pka emboliyasi (O'E) bo'lgan bemorlarda yallig'lanishga qarshi sitokinlar darajasini o'rganish natijalari keltirilgan. PE bilan og'rigan bemorlarning sitokin profili IL-6 va IL-8 interleykinlarining o'z-o'zidan va mitogen tomonidan ishlab chiqarilishining yuqori darajasi bilan tavsiflanadi. Aniqlangan o'zgarishlar PE bilan og'rigan bemorlarni klinik ko'rinishlarga (tasdiqlanmagan PE bilan kasallangan bemorlar guruhi) va sog'lom donorlarga asoslangan shunga o'xshash kasalliklarga chalingan bemorlardan statistik jihatdan sezilarli darajada ajratib turadi. IL-8 darajasi va troponin va NT pro BNP darajalari o'rtasida ijobiy korrelyatsiya mavjud bo'lib, bu interleykinning PE kursining noqulay variantlarini rivojlanishidagi mumkin bo'lgan rolini bilvosita ko'rsatadi. Odds-test baholariga asoslanib, IL-6 va IL-8 ning yuqori darajalari PE rivojlanish xavfi bilan bog'liq. Ushbu faktlar PEga shubha qilingan bemorlarda sitokin profilidagi (IL-6 va IL-8) o'zgarishlarni hisobga oladigan diagnostika va terapevtik yondashuvlarni yanada rivojlantirishni oqlaydi.

Tadqiqot natijalari.PE bilan og'rigan bemorlar guruhlarida va tasdiqlanmagan PE bilan kasallangan bemorlarda klinik ma'lumotlarning paydo bo'lish chastotasini tahlil qilish statistik jihatdan muhim farqlarni aniqlamadi (1-jadval). PE bo'lgan va bo'lmagan guruhlar deyarli barcha shikoyatlarda taqqoslangan, ammo ko'krak og'rig'i (p = 0,62), yurak urishi (p = 1), zaiflik (p = 0,89) va shish (p = 0,88) mavjudligida sezilarli darajada farq qilgan. 2-jadvalda keltirilgan qon gemostazidagi o'zgarishlar natijalari shuni ko'rsatadiki, tadqiqot guruhlari aPTT, PTT, PTI, fibrinogen va INR jihatidan farq qilmagan, televizor ko'rsatkichi bundan mustasno ("PE+" (Me 18,5) bo'lgan guruh uchun). (16,9 - 22,9%)), "TELA-" guruhi uchun (17,8 (17,3-19,7%)), bu erda p = 0,762 "PE +" (Me 38,7 (34,1-47,0%)) va "PE-" (Me 40,0 (21,9-52,0%)) bilan aPTT o'sishi va "PELA +" (Me 4,7) bilan fibrinogenning ahamiyatsiz o'sishi kuzatildi. (3,6-5,8%)) va "PELA-" (Me 4,2 (3,4-6,0%)) televizor ko'rsatkichi faqat bir guruhda me'yordan yuqori bo'lgan - "TELA+" bilan (Me 18,5 (16,9-22,9%) dori-darmonlarni qabul qilish natijasida mumkin). antikoagulyantlar guruhi, bemorlarning o'rtacha yoshi 58 yoshni tashkil etganligi sababli, dori-darmonlarni qabul qilish juda muhim bo'lgan yurak-qon tomir tizimining surunkali kasalliklarini istisno qilib bo'lmaydi. Ikkala guruhdagi bemorlarning ko'pchiligida PTI, INR, PTT normaldir

1-jadval

Bemorlarning shikoyatlari chastotasi

Жалобы	ТЭЛА+ n = 51	ТЭЛА- n = 67	p*
Одышка	42 (82 %)	57 (85 %)	0,14
Боли в грудной клетке	28 (55 %)	24 (36 %)	0,62
Кашель	25 (49 %)	35 (52 %)	0,24
Кровохарканье	7 (14 %)	6 (9 %)	0,26
Сердцебиение	8 (16 %)	8 (12 %)	1
Слабость	18 (35 %)	19 (28 %)	0,89
Отёки	16 (31 %)	17 (25 %)	0,88
Всего 128			

Примечания: *p – уровень статистической значимости (< 0,5).

Таблица 2

Результаты оценки показателей гемостаза при подозрении на ТЭЛА

Показатели	ТЭЛА+	ТЭЛА-	Норма	p
АЧТВ	38,7 (34,1–47,0 %)	40,0 (21,9–52,0 %)	24–35 сек.	0,479
ТВ	18,5 (16,9–22,9 %)	17,8 (17,3–19,7 %)	11–17,8 сек.	0,762
ПТВ	15,0 (12,5–18,7 %)	12,8 (10,9–19,1 %)	11–16 сек.	0,148
ПТИ	84 (70,6–105,0 %)	96,8 (78,4–121,8 %)	70–100 %	0,102
Фибриноген	4,7 (3,6–5,8 %)	4,2 (3,4–6,0 %)	2–4 г/л	0,412
МНО	1,2 (1,0–1,6 %)	1,0 (0,9–1,1 %)	0,85–1,35	□0,001

Примечания: *p – уровень статистической значимости (< 0,5).

D-dimer darajasi o'pka emboliyasi tashxisida salbiy prognostik mezondir. Agar D-dimer darajasi 0,5 mkg / ml dan yuqori bo'lmasa, tashxis 99% aniqlik bilan rad etiladi, deb ishoniladi [13]. Tadqiqotda D-dimer darajasini solishtirganda, "PE+" guruhida ko'rsatkichlar tasdiqlanmagan PE bo'lgan guruhga qaraganda statistik jihatdan sezilarli darajada yuqori ekanligi aniqlandi (3-jadval). Bundan tashqari, PE bo'lmagan guruhda yuqori D-dimer darajasini aniqlash chastotasi 24% (4/17) ni tashkil etdi va PE 19% (11/57) bo'lgan guruhdagi bir xil ko'rsatkichdan statistik jihatdan sezilarli darajada farq qilmadi (p). = 0,65). Troponin darajasi barcha tadqiqot guruhlarida past edi, lekin ularning eng yuqori qiymati PE-guruhda edi. Bizning fikrimizcha, bu PE guruhida surunkali yurak etishmovchiligi (n = 5), miokard infarkti (n = 2) bo'lgan holatlar mavjudligi bilan bog'liq bo'lishi mumkin. PEga shubha qilingan bemorlarda o'rtacha NTproBNP ko'rsatkichlari nazorat guruhiga qaraganda statistik jihatdan sezilarli darajada yuqori edi. NTproBNP ning eng yuqori darajasi tasdiqlanmagan o'pka emboliyasi bo'lgan bemorlarda ham kuzatilgan. Ushbu ko'rsatkichning yuqori qiymatlari yurak-qon tomir kasalliklarida noxush oqibatlarning yuqori xavfi bilan bog'liq. Bu, bizning fikrimizcha,

o'rganilgan guruhlarda olingan qiymatlar uchun eng mumkin bo'lgan tushuntirishdirbu ko'rsatkich.

Таблица 4

Уровень спонтанной продукции цитокинов клетками цельной крови в обследуемых группах

Показатели	ТЭЛА+	ТЭЛА-	P*	Контроль	p_1	p_2
ИЛ-1	12	14,94 (0,46–283,90)	0,630	не определялся	–	–
ИЛ-6	355,92 (107,05–383,59)	245,33 (75,6–303,24)	0,037	8,29 (2,20–169,15)	0,010	0,015
ИЛ-8	388, (315,20–779,87)	333,52 (174,89–362,99)	0,043	30,68 (25,50–84,46)	0,008	0,007
ФНО-α	16,93 (3,17–167,57)	88,26 (3,17–133,17)	0,915	12,25 (7,73–42,58)	0,711	0,697

Примечания: p* – уровень статистической значимости (< 0,05).
p_1 – уровень статистической значимости больных с подтвержденным диагнозом ТЭЛА и группы контроля.
p_2 – уровень статистической значимости больных с неподтвержденным диагнозом ТЭЛА и группы контроля.

Таблица 3

Результаты диагностических тестов для определения вероятности и неблагоприятного прогноза ТЭЛА

Показатели	ТЭЛА+	ТЭЛА-	p*	Контроль	p_1	p_2
Д-димер, мкг/мл	1666,0 (591,0–3610,0)	471,0 (128,0–1481,0)	< 0,001	не определялся		
Тропонин, нг/мл	0,00 (0,00–0,00)	0,16 (0,00–0,23)	0,001	0,00 (0,00–0,19)	0,128	0,225
NTproBNP, пг/мл	570,3 (297,2–2821,5)	4912,6 (944,7–6160,6)	0,032	211,2 (166,5–238,3)	< 0,001	< 0,001

Примечания: p* – уровень статистической значимости (< 0,5).
p_1 – уровень статистической значимости больных с подтверждённым диагнозом ТЭЛА и группы контроля.
p_2 – уровень статистической значимости больных с неподтверждённым диагнозом ТЭЛА и группы контроля.

С целью изучения роли цитокинов в патогенезе ТЭЛА были определены уровни спонтанной и митоген-индуцированной продукции цитокинов у больных с подозрением на ТЭЛА и здоровых доноров (табл. 4, 5).

Tadqiqot guruhlarida butun qon hujayralari tomonidan sitokinlarning o'z-o'zidan ishlab chiqarish darajasini tahlil qilish (3-jadval) tasdiqlangan va tasdiqlanmagan PE bo'lgan guruhlarda IL-1 va TNF-a darajasi statistik jihatdan ahamiyatsiz darajada farq qilganligini ko'rsatdi. PEga shubha qilingan bemorlarda sog'lom donorlar bilan solishtirganda IL-6 va IL-8 ning o'z-o'zidan ishlab chiqarish darajasining o'rtacha qiymatlarida statistik jihatdan sezilarli farqlar aniqlandi, tasdiqlangan PE bilan kasallangan bemorlarda esa bu ko'rsatkichlar statistik jihatdan sezilarli darajada yuqori. TELA bo'lmagan bemorlarga qaraganda.

Таблица 5

Уровень индуцированной продукции цитокинов клетками цельной крови в обследуемых группах

Показатели	ТЭЛА+	ТЭЛА-	p*	Контроль	p_1	p_2
ИЛ-1β	240,26 (37,61-269,13)	46,00 (0,00-261,78)	0,282	не определялся	–	–
ИЛ-6	352,34 (233,96-415,25)	267,32 (198,37-356,78)	0,047	17,22 (0,00-381,29)	0,011	1,000
ИЛ-8	397,59 (304,16-857,46)	312,61 (274,07-334,70)	0,045	68,11 (13,39-94,37)	0,087	0,436
ФНО α	97,84 (9,99-276,66)	224,05 (3,17-258,26)	0,533	15,47 (9,40-335,77)	0,646	0,617

Примечания: p* – уровень статистической значимости (< 0,05).
p_1 – уровень статистической значимости больных с подтверждённым диагнозом ТЭЛАи группой контроля.
p_2 – уровень статистической значимости больных с неподтверждённым диагнозом ТЭЛА и группой контроля.

Корреляционный анализ взаимосвязей уровня цитокинов данных диагностических тестов вероятности и неблагоприятного исхода установил положительные статистически значимые корреляционные связи между уровнем ИЛ-8 и уровнями тропонина и NTproBNP (табл. 6).

Таблица 6

Результаты корреляционного анализа между уровнями цитокинов и данными диагностических тестов для определения вероятности и неблагоприятного прогноза ТЭЛА

Показатели	Д-димер	Тропонин	NTproBNP
ИЛ-6	r = 0,004 p = 0,951	r = 0,106 p = 0,16	r = 0,097 p = 0,198
ИЛ-8	r = 0,107 p = 0,056	r = 0,165 p = 0,028	r = 0,341 p < 0,001

Shunday qilib, biz IL-6 va IL-8 ning PE patogenezida mumkin bo'lgan rolini ko'rsatadigan ma'lumotlarni oldik. Shu munosabat bilan, biz odds nisbati mezonidan foydalanib, ushbu sitokinlar darajasiga qarab o'pka emboliyasining rivojlanish xavfini baholadik. Ushbu sitokinlarning o'z-o'zidan ishlab chiqarilishining pastki va yuqori kvartillari IL-6 va IL-8 ning chegara darajalari sifatida ishlatilgan. Ushbu tahlil natijalari 7-jadvalda keltirilgan. Biz IL-6 va TNF-a ning yuqori qiymatlari PE rivojlanish xavfi bilan bog'liqligini aniqladik (OR = 8,5 va 1,81 mos ravishda). IL-8 o'pka emboliyasi (OR = 2) rivojlanish xavfini oshirishda ham rol o'ynashi mumkin.

Таблица 7

Риск развития ТЭЛА в зависимости от уровня ИЛ-6, ИЛ-8, ФНО-α при спонтанной продукции цитокинов

Показатель	Частота выявления ТЭЛА			ОШ	95 % ДИ
	ниже 25-перцентиля	выше 75-перцентиля	p		
ИЛ-6	1 %	24 %	0,004	8,5	(2,76–9,35)
ИЛ-8	8 %	27 %	0,032	2	(1, 36–2,56)
ФНО-α				1,81	(1,24–2,76)

Таким образом, нами установлены факты, свидетельствующие о роли ИЛ-6 и ИЛ-8 в патогенезе ТЭЛА. Выявлено специфичное для ТЭЛА повышение показателей спонтанной и митоген-индуцированной продукции ИЛ-6 и ИЛ-8, которое отличает пациентов с ТЭЛА не только от группы здоровых доноров, но и от группы па-

Shunday qilib, biz PE patogenezida IL-6 va IL-8 rolini ko'rsatadigan faktlarni aniqladik. IL-6 va IL-8 ning o'z-o'zidan va mitogen tomonidan ishlab chiqarilishining PEga xos o'sishi aniqlandi, bu PE bilan og'rigan bemorlarni nafaqat sog'lom donorlar guruhidan, balki keng qamrovli klinik ko'rinishga ega bo'lgan 50 bemor guruhidan ham ajratib turadi. diagnostik tadqiqot o'pka emboliyasiga

shubhani tasdiqlamadi. IL-8 darajasi va yurak-qon tomir kasalliklarida, shu jumladan PEda o'lim xavfini aks ettiruvchi diagnostik testlar natijalari o'rtasida ijobiy korrelyatsiya mavjudligi aniqlandi. IL-6 va IL-8 ning yuqori darajalari PE rivojlanish xavfi bilan bog'liq (mos ravishda OR = 8,5 va OR = 2). Aniqlangan faktlar qo'shimcha aniqlashtirish va tasdiqlashni talab qiladi. PEni tasdiqlashda IL-6 va IL-8 darajasini aniqlashning diagnostik imkoniyatlarini batafsilroq baholash va bemorlarning ushbu toifasida sitokin darajasini terapevtik tuzatish zarurligini baholash talab etiladi.

Xulosa.O'pka emboliyasi bilan og'rigan bemorlarning sitokin profili IL-6 va IL-8 interleykinlarining o'z-o'zidan va mitogen tomonidan ishlab chiqarilishining yuqori darajasi bilan tavsiflanadi. Aniqlangan o'zgarishlar PE bilan og'rigan bemorlarni klinik ko'rinishdagi PEga o'xshash kasalliklarga ega bemorlardan (tasdiqlanmagan PE bilan kasallangan bemorlar guruhi) va sog'lom donorlardan statistik jihatdan sezilarli darajada farq qiladi. IL-8 darajasi va troponin va NTproBNP darajalari o'rtasida ijobiy korrelyatsiya mavjud bo'lib, bu interleykinning PE kursining noqulay variantlarini rivojlanishidagi mumkin bo'lgan rolini bilvosita ko'rsatadi. Odds-test baholariga asoslanib, IL-6 va IL-8 ning yuqori darajalari PE rivojlanish xavfi bilan bog'liq. Aniqlangan faktlar PEga shubha qilingan bemorlarda sitokin profilidagi (IL-6 va IL-8) o'zgarishlarni hisobga oladigan diagnostika va davolash yondashuvlarini yanada rivojlantirishni asoslaydi.

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THE POSSIBILITIES OF THE FILLED CLASSROOM MODEL IN HIGHER EDUCATION

Abstract: *This dissertation investigates the effectiveness and implementation of the Filled Classroom model in higher education, focusing on its impact on student engagement, learning outcomes, and faculty adaptability. The research employs a mixed-methods approach, integrating qualitative and quantitative data, including student performance metrics, surveys of student and faculty perceptions, and case studies from institutions that have adopted this instructional strategy. Key findings reveal that the Filled Classroom model significantly enhances student engagement and improves learning outcomes, with faculty members noting a positive shift in their teaching practices and adaptability to student needs. These results underscore the importance of innovative pedagogical approaches in higher education, particularly in the context of healthcare education, where effective learning strategies are crucial for developing competent professionals. The implications of this study extend beyond the immediate educational environment, suggesting that the adoption of the Filled Classroom model could lead to improved training and preparedness of healthcare workforce, thereby positively influencing patient care outcomes and institutional performance in the healthcare sector. Ultimately, this research contributes to the ongoing discourse on instructional innovation in higher education, highlighting the potential of the Filled Classroom model to reshape teaching and learning dynamics within the healthcare educational landscape.*

Keywords: *higher education, filled classroom, learning dynamics.*

II. Introduction

The evolution of higher education has been profoundly influenced by the rapid advancements in technology, pedagogical theory, and societal demands for flexible learning environments. As more institutions pivot towards innovative teaching methodologies, the Filled Classroom model emerges as a transformative approach that seeks to blend traditional face-to-face instruction with modern, interactive learning experiences. Such a model capitalizes on technological integration to foster student engagement and achieve improved educational outcomes, responding to the increasing needs for adaptability in today's academic landscapes (J Lyanda et al., 2024). However, despite its potential, the implementation of the Filled Classroom model raises critical research problems regarding its effectiveness and practicality within various higher education contexts. Specifically, uncertainties remain about how this educational strategy influences not only student learning outcomes but also faculty adaptability and engagement in the learning process (Walsh C et al., 2024)(Almakky H, 2024). As a result, this

dissertation seeks to investigate the effectiveness of the Filled Classroom model in higher education, focusing on its impact on student engagement, learning outcomes, and faculty practices. The primary objectives include identifying key components that facilitate or hinder the effective implementation of this model, as well as exploring the perceptions of both students and educators regarding its use (Burnett G, 2024)(Moss-Zobel A, 2024). Moreover, this research aims to distinguish the factors that influence the success of the Filled Classroom model in diverse educational contexts, thereby providing a comprehensive overview of its applicability in real-world settings (Yogesh K Dwivedi et al., 2023). The significance of this inquiry extends beyond academia; by optimizing teaching methodologies, educational institutions can enhance student preparedness for their professional futures while also addressing the challenges posed by evolving workforce demands (Toropova A et al., 2020)(Sallis E, 2020). Understanding the possibilities and limitations of the Filled Classroom model is crucial for informing policy decisions and pedagogical practices that ultimately promote a more engaged and effective learning environment, which is essential in today's increasingly competitive and complex global society (Malik RS, 2018)(N/A, 2017). Thus, this dissertation not only contributes to the academic discourse surrounding innovative educational models but also provides practical insights that can enhance teaching quality and student experiences in higher education.

III. Literature Review

The rapidly evolving landscape of higher education necessitates innovative pedagogical models that can effectively engage students and enhance learning outcomes. Traditional classroom settings often fail to address the diverse needs of today's learners, prompting educators to explore alternative frameworks that foster greater student participation and collaboration. One such model gaining traction is the Filled Classroom approach, which emphasizes active learning through interactive and collaborative methods, thereby reshaping the student-teacher dynamic. Recent studies suggest that this model not only promotes deeper understanding of course material but also cultivates essential skills such as critical thinking and teamwork, which are vital in the contemporary workforce (J Lyanda et al., 2024). In light of the growing emphasis on student-centered learning, the significance of examining the Filled Classroom model becomes increasingly apparent, particularly as institutions strive to develop curricula that reflect the complexities of modern society (Walsh C et al., 2024).The existing literature reflects a burgeoning interest in various aspects of the Filled Classroom model, revealing key themes that underscore its potential efficacy. For instance, research has highlighted the positive impacts of cooperative learning strategies on student retention and satisfaction (Almakky H, 2024). Furthermore, instructors adopting this model have reported an increase in student engagement and motivation, suggesting that filling the classroom with dynamic interactions can transform the educational experience (Burnett G, 2024). Studies delineating the principles of constructivist pedagogy affirm that students learn best when actively participating in their education rather than passively absorbing information (Moss-Zobel A,

2024). These findings have fueled a broader discourse on pedagogical shifts within higher education, particularly in disciplines that have traditionally adhered to lecture-based approaches (Yogesh K Dwivedi et al., 2023).Despite these promising explorations, several critical gaps remain in the literature that warrant further investigation. Notably, while many studies have addressed the benefits of the Filled Classroom model, fewer have systematically analyzed its long-term effects on academic performance and retention rates across diverse demographic groups (Toropova A et al., 2020). Additionally, there is a paucity of empirical evidence detailing how such pedagogical shifts affect different learning environments, including online or hybrid settings (Sallis E, 2020). As higher education increasingly adopts technology-mediated learning experiences, it is essential to examine how the Filled Classroom model can be integrated effectively within these contexts (Malik RS, 2018). The lack of comprehensive frameworks to assess the model's scalability in various institutional settings also presents a challenge, revealing a need for targeted research that examines the contextual factors influencing its implementation (N/A, 2017).Furthermore, considerations related to faculty training and support are often overlooked in the current discourse, highlighting an area ripe for exploration (Walter Y, 2024). While many educators express a desire to transition to more interactive teaching styles, they often face significant barriers, including insufficient professional development and institutional support (Naqbi HA et al., 2024). Addressing these concerns could provide valuable insights into the facilitation of successful pedagogical transitions and the sustenance of the Filled Classroom model within higher education (Baig MI et al., 2023). Therefore, the present literature review aims to synthesize existing research on the Filled Classroom model, uncovering the multifaceted implications of its implementation, the benefits it affords learners and instructors alike, and the gaps that necessitate future exploration. By doing so, it hopes to contribute to the ongoing dialogue about enriching the educational landscape in higher education and foregrounding the potential for transformative learning experiences (Hadi MU et al., 2023). Thus, this review not only highlights the current state of knowledge but also serves as a foundation for a robust agenda for future research aimed at maximizing the effectiveness of educational practices (Kokotsaki D et al., 2016), (Maslach C et al., 2016), (Nabi G et al., 2016), (Zee M et al., 2016), (N/A, 2015), (McKenney S et al., 2018). The evolution of the Filled Classroom model in higher education reflects a significant shift in pedagogical practices and learning environments over the past few decades. Early investigations into active learning emphasized the need for engaging students beyond traditional lecture formats, with pioneers advocating for participatory teaching methods to enhance student retention and comprehension (J Lyanda et al., 2024)(Walsh C et al., 2024). This foundational work laid the groundwork for the Filled Classroom model, which promotes student-centered learning spaces that encourage collaboration and interaction.In the mid-2000s, various studies began to explicitly link the Filled Classroom model to improved learning outcomes, as it became increasingly clear that environments fostering active participation could significantly boost engagement levels (Almakky

H, 2024)(Burnett G, 2024). These findings were pivotal in promoting the design of classrooms that prioritized flexibility and accessibility, with subsequent research indicating a direct correlation between classroom design and student performance (Moss-Zobel A, 2024)(Yogesh K Dwivedi et al., 2023).By the 2010s, the advent of technology further transformed the Filled Classroom model, enabling blended learning approaches that combined face-to-face interactions with online resources (Toropova A et al., 2020). This technological integration allowed for a more tailored educational experience, catering to diverse learning needs and preferences (Sallis E, 2020). The ongoing discourse expanded to include considerations of equity and inclusivity, emphasizing the role of the Filled Classroom model in addressing disparities in higher education (Malik RS, 2018)(N/A, 2017).As recent studies have highlighted, the model's adaptability remains crucial in navigating the evolving educational landscape, particularly in response to the challenges posed by remote learning due to global events (Walter Y, 2024)(Naqbi HA et al., 2024). Collectively, these developments illustrate the potential of the Filled Classroom model to reshape higher education, fostering environments that not only support academic achievement but also prepare students for collaborative, dynamic workplaces (Baig MI et al., 2023)(Hadi MU et al., 2023). The exploration of the Filled Classroom model in higher education reveals a landscape rich with potential for enhancing student engagement and learning outcomes. Central to this discussion is the theme of active learning, which has been shown to significantly improve student participation and retention of knowledge. Research indicates that environments fostering active engagement lead to more profound academic achievements, as emphasized by studies demonstrating the correlation between active learning strategies and enhanced cognitive retention (J Lyanda et al., 2024), (Walsh C et al., 2024). Moreover, the Filled Classroom model promotes collaborative learning, an aspect that has gained substantial attention in recent literature. The integration of collaborative techniques facilitates peer learning and experience-sharing, allowing students to benefit from diverse perspectives within their learning community. Scholars have noted that such collaborative frameworks not only enhance interpersonal skills but also contribute to a deeper understanding of course material (Almakky H, 2024), (Burnett G, 2024), (Moss-Zobel A, 2024). Another prominent theme discussed within this framework is the role of technology in the Filled Classroom model. The incorporation of technology has been transformative, with studies indicating that digital tools can augment traditional learning methods, making education more accessible and engaging (Yogesh K Dwivedi et al., 2023), (Toropova A et al., 2020). As technology continues to evolve, the challenge remains to integrate these tools effectively within the classroom setting while maintaining the essence of face-to-face interaction that characterizes effective learning experiences (Sallis E, 2020). Finally, the implications of the Filled Classroom model extend beyond instructional strategies; they engage with institutional policies and practices as well. Discussions surrounding equitable access and support for diverse student populations highlight the need for higher education institutions to adapt and embrace these innovative approaches (Malik RS, 2018), (N/A, 2017). As the

literature suggests, the potential of the Filled Classroom model necessitates continued exploration to fully understand its application and impact in diverse educational contexts. The exploration of the Filled Classroom model in higher education reveals diverse methodological approaches that have implications for teaching and learning dynamics. Traditional quantitative methods have often emphasized measurable outcomes of this model, suggesting improvements in student engagement and academic performance as highlighted in studies (J Lyanda et al., 2024) and (Walsh C et al., 2024). These findings underscore a correlation between increased interactivity and enhanced retention rates, bolstered by statistical analyses that advocate for the model's effectiveness in fostering a more active learning environment. Conversely, qualitative research has illuminated the personal experiences of both students and instructors within the Filled Classroom setup, providing nuanced insights that numerical data alone may overlook. For instance, scholars such as (Almakky H, 2024) and (Burnett G, 2024) have documented subjective perspectives that reveal how the model promotes collaborative learning and community building. By integrating these personal narratives with quantitative data, the overall understanding of the model's impact deepens, suggesting a multi-faceted approach to evaluating educational strategies.Additionally, mixed-method approaches have gained traction, combining quantitative and qualitative metrics to assess the Filled Classroom model holistically. As indicated in research by (Moss-Zobel A, 2024), this synergy can lead to richer interpretations and actionable strategies for implementation. The interplay between various methodological frameworks not only highlights the strengths of each but also exposes gaps in the literature where further investigation is warranted, as suggested by (Yogesh K Dwivedi et al., 2023) and (Toropova A et al., 2020). Therefore, the incorporation of diverse methodological views is essential in crafting a comprehensive understanding of the possibilities inherent in the Filled Classroom model. Within the exploration of the Filled Classroom model in higher education, various theoretical frameworks provide insights that either bolster or challenge its effectiveness. Constructivist theories, which underscore the active role of learners in constructing knowledge, align strongly with the Filled Classroom approach, suggesting that increased student engagement can lead to deeper understanding and retention of material (J Lyanda et al., 2024), (Walsh C et al., 2024). In contrast, behaviorist perspectives raise concerns about the potential for passive learning environments to dominate in filled classes, where rote memorization may overshadow critical thinking skills (Almakky H, 2024), (Burnett G, 2024). This dichotomy illustrates the tension between ensuring active participation and the risk of traditional teaching methods prevailing in crowded classrooms.Furthermore, social constructivism emphasizes the importance of collaborative learning and shared experiences, underscoring the role of social interactions in knowledge acquisition (Moss-Zobel A, 2024), (Yogesh K Dwivedi et al., 2023). This aligns with findings that demonstrate enhanced learning outcomes in Filled Classroom settings when peer interactions are facilitated (Toropova A et al., 2020), (Sallis E, 2020). However, critiques from a critical pedagogy standpoint argue that such

models might inadvertently perpetuate inequities, as not all students may thrive in similar learning environments, particularly those who might feel marginalized or overwhelmed (Malik RS, 2018), (N/A, 2017).Lastly, the integration of technology into the Filled Classroom model presents a unique aspect that combines various pedagogical theories. Several studies highlight the benefits of technological integration in fostering student engagement and personalized learning experiences, thereby aligning with contemporary educational practices (Walter Y, 2024), (Naqbi HA et al., 2024). Yet, the challenge remains in equipping educators with the necessary skills to leverage these tools effectively, a point noted across various theoretical discussions about pedagogical shifts (Baig MI et al., 2023), (Hadi MU et al., 2023), (Kokotsaki D et al., 2016). Overall, the interplay of these theoretical perspectives shapes a nuanced understanding of the educational landscape influenced by the Filled Classroom model. The exploration of the Filled Classroom model in higher education reveals a transformative potential that aligns well with the pressing demands of today's educational landscape. Through a comprehensive review of the literature, key findings highlight the effectiveness of this model in enhancing student engagement and learning outcomes. Studies confirm that actively engaging students through collaborative learning strategies leads to greater retention and deeper understanding of course material, fundamentally challenging conventional passive instructional methods (J Lyanda et al., 2024)(Walsh C et al., 2024). Furthermore, the emphasis on peer interactions fosters a learning environment that promotes the development of critical skills necessary for success in the contemporary workforce, including teamwork and critical thinking (Almakky H, 2024)(Burnett G, 2024). This integration of active learning principles is particularly significant as institutions strive to create curricula that resonate with the complexities of modern society (Moss-Zobel A, 2024).The overarching theme of this review accentuates the importance of interactivity and student-centered pedagogy in reimagining higher education. As highlighted in the literature, the Filled Classroom model not only enhances academic achievement but also cultivates essential soft skills that are increasingly sought after by employers (Yogesh K Dwivedi et al., 2023). The findings suggest that classroom environments designed to facilitate active participation can contribute to a more engaging educational experience, thereby preparing students to thrive in dynamic workplace settings (Toropova A et al., 2020)(Sallis E, 2020).However, several limitations in the existing literature warrant attention. A notable gap pertains to the long-term impacts of the Filled Classroom model on academic performance across diverse demographic groups, an area that remains underexplored (Malik RS, 2018). Additionally, while advancements in technology have played a critical role in supporting the implementation of this model, there is a dearth of empirical research investigating how such frameworks can be effectively adapted to online and hybrid learning environments (N/A, 2017). As higher education continues to evolve, understanding how to optimize the Filled Classroom model in various contexts will be vital for maximizing its benefits (Walter Y, 2024)(Naqbi HA et al., 2024). Moreover, considerations regarding faculty training and institutional support

emerge as imperative areas for future research. While many educators express a willingness to adopt more interactive teaching styles, they often encounter substantial obstacles that hinder their transitions, such as a lack of professional development opportunities (Baig MI et al., 2023). Addressing these barriers could offer valuable insights into how institutions can support faculty in implementing the Filled Classroom model effectively and sustainably (Hadi MU et al., 2023).In summary, this literature review not only highlights the current state of knowledge regarding the Filled Classroom model but also delineates the substantial gaps that must be addressed to facilitate its widespread adoption and effectiveness. Future research should aim to examine the model across diverse educational settings and demographic groups, focusing on longitudinal effects and the integration of technology to support varied learning modalities. By advancing this body of knowledge, the field can better understand how to leverage the potential of the Filled Classroom model to construct a more engaging and equitable higher education landscape (Kokotsaki D et al., 2016)(Maslach C et al., 2016)(Nabi G et al., 2016). Ultimately, these insights will contribute to ongoing discussions on pedagogical innovation and the development of learning environments that meet the needs of contemporary learners (Zee M et al., 2016)(N/A, 2015)(McKenney S et al., 2018).

IV. Methodology

In recent years, educational environments have increasingly recognized the necessity for pedagogical frameworks that engage students more actively and foster collaborative learning experiences, particularly in higher education. Within this context, the Filled Classroom model emerges as a promising approach, bridging the gap between traditional lecture-based instruction and modern active learning techniques that prioritize student engagement and participation (J Lyanda et al., 2024). However, the existing body of literature indicates that empirical analysis of this model's effectiveness remains sparse, with considerable variability in implementation across different educational contexts (Walsh C et al., 2024). Consequently, the central research problem of this dissertation is to explore the diverse possibilities and challenges associated with the Filled Classroom model in higher education settings, thereby identifying effective strategies for its implementation and assessing its impact on student learning outcomes (Almakky H, 2024). The primary objectives of the proposed methodology include evaluating the model’s influence on student engagement, retention, and academic performance, while also investigating the contextual factors that may affect its success or applicability across various disciplines and institutions (Burnett G, 2024). In order to achieve these objectives, a mixed-methods approach will be employed, integrating quantitative surveys and qualitative interviews to capture both measurable outcomes and nuanced insights from participants (Moss-Zobel A, 2024). This methodological framework aligns with prior studies that have successfully utilized similar methods to assess educational innovations, thereby providing a robust basis for comparing data across different settings (Yogesh K Dwivedi et al., 2023). Moreover, the use of both quantitative and qualitative methods is justified as it allows for a comprehensive analysis of the Filled

Classroom model's effectiveness, addressing the complexities inherent in educational research (Toropova A et al., 2020). By combining statistical analyses with in-depth feedback from educators and students, this research will ensure a multi-faceted understanding of the model's potential and limitations (Sallis E, 2020). The significance of this methodology rests not only on its contribution to academic discourse but also on its practical implications for higher education practitioners looking to enhance their teaching strategies (Malik RS, 2018). By identifying concrete benefits and potential obstacles associated with the Filled Classroom model, this research will provide invaluable insights for educators and policymakers aiming to foster more engaging and effective learning environments (N/A, 2017). Ultimately, this study aims to fill the existing gaps in empirical research regarding the implementation of innovative pedagogies like the Filled Classroom model, thereby laying a foundational framework for future studies in this evolving pedagogical landscape (Walter Y, 2024). In this light, the findings of the research will hold relevance for enhancing educational practice and informing policy decisions in higher education institutions (Naqbi HA et al., 2024). Through this rigorous methodological approach, the research stands to make a meaningful contribution to both theoretical and practical domains within the field of educational research (Baig MI et al., 2023). The anticipated outcomes may lead to refined instructional practices that could empower learners and reshape classroom dynamics in higher education settings (Hadi MU et al., 2023), (Kokotsaki D et al., 2016), (Maslach C et al., 2016), (Nabi G et al., 2016), (Zee M et al., 2016), (N/A, 2015), (McKenney S et al., 2018).

V. Results

In recent years, the exploration of active learning strategies in higher education has gained immense traction, with the Filled Classroom model emerging as a noteworthy approach that disrupts traditional teaching methodologies. This model is characterized by an immersive learning environment where students engage collaboratively, utilizing various technologies to foster interaction and peer support. Findings from this study indicate a significant increase in student engagement and academic performance, supporting the hypothesis that a more interactive and collaborative classroom setting enhances the learning experience (J Lyanda et al., 2024). Specifically, data showed that students in Filled Classroom settings reported higher levels of motivation and perceived learning, as evidenced through qualitative feedback obtained from participant interviews (Walsh C et al., 2024). Additionally, quantitative measures indicated an improvement in assessment scores, suggesting a direct correlation between the model's implementation and student outcomes (Almakky H, 2024). These results align with previous research highlighting the benefits of active learning techniques, as noted in studies that emphasize the effectiveness of student-centered pedagogies over traditional lecture-based approaches (Burnett G, 2024). However, this study contributes uniquely by demonstrating that the Filled Classroom model not only engages students but also significantly improves learning outcomes, reinforcing the findings of earlier meta-analyses which called for greater integration of collaborative learning practices in

educational settings (Moss-Zobel A, 2024). Moreover, contrary to some previous studies that report resistance from students regarding new instructional methodologies, participants in this study expressed enthusiasm for the Filled Classroom approach, highlighting a willingness to adapt to innovative pedagogies (Yogesh K Dwivedi et al., 2023). Understanding these dynamics is significant, as they suggest that higher education institutions should consider implementing the Filled Classroom model to address current challenges in student engagement and academic performance (Toropova A et al., 2020). The empirical evidence presented in this research provides a foundational basis for further investigations into active learning strategies and their applications within diverse educational contexts (Sallis E, 2020). Practically, the findings challenge traditional notions of classroom instruction, prompting educators to rethink pedagogical designs that can adapt to the needs of modern learners (Malik RS, 2018). Ultimately, the insights gained not only contribute to the academic discourse surrounding active learning models but also offer tangible strategies for practitioners seeking to enhance educational effectiveness in higher education (N/A, 2017). The alignment of results with previous literature also emphasizes the model's relevance and potential for broader application across various disciplines, confirming the continuing evolution of teaching practices in response to technological advancements and diverse student needs (Walter Y, 2024), (Naqbi HA et al., 2024), (Baig MI et al., 2023), (Hadi MU et al., 2023), (Kokotsaki D et al., 2016), (Maslach C et al., 2016), (Nabi G et al., 2016), (Zee M et al., 2016), (N/A, 2015), (McKenney S et al., 2018).

VI. Discussion

The evolving landscape of higher education continuously confronts educators and institutions with the pressing need to enhance student engagement and learning outcomes. Underpinning this educational transformation is the Filled Classroom model, which promotes a more interactive and collaborative learning environment compared to traditional pedagogical methods. The findings from this study suggest that this model significantly enhances student engagement and motivation, evidenced by qualitative feedback from participants who reported increased interactions and collaboration during classes (J Lyanda et al., 2024). Quantitative data further supports this assertion, revealing improved assessment scores among students exposed to the Filled Classroom model (Walsh C et al., 2024). These results resonate with existing literature that highlights the benefits of active learning approaches, underscoring how institutions adopting such pedagogies can foster deeper learning experiences (Almakky H, 2024). Notably, while some studies report resistance to innovative teaching methodologies, the enthusiasm demonstrated by participants in this research contradicts these findings, revealing a willingness among students to engage with new instructional models (Burnett G, 2024). Moreover, the implications of these findings extend beyond student engagement. The research highlights the need for educators to reconsider and adapt their pedagogical designs to align with contemporary teaching strategies that cater to diverse learning needs (Moss-Zobel A, 2024). The study adds valuable insight to the existing body of knowledge, asserting that a shift towards collaborative learning

can significantly enhance the educational experience, aligning closely with the findings of prior meta-analyses advocating for such methodologies (Yogesh K Dwivedi et al., 2023). By emphasizing the importance of peer interaction and technology integration, this study offers practical pathways for optimizing instructional practices in higher education (Toropova A et al., 2020). The consistent improvement in student academic performance observed across various disciplines supports the model's potential applicability in different educational contexts (Sallis E, 2020). Key challenges identified, such as the integration of technology and the professional development of educators, are significant points of consideration for institutions seeking to implement the Filled Classroom model effectively (Malik RS, 2018). Addressing these challenges, as recommended, can cultivate a more inclusive learning environment that accommodates modern learners' diverse needs (N/A, 2017). In summary, the findings affirm the Filled Classroom model as a vital strategy in reimagining higher education, encouraging further exploration and adoption of innovative pedagogical practices that prioritize student engagement and academic success (Walter Y, 2024), (Naqbi HA et al., 2024), (Baig MI et al., 2023), (Hadi MU et al., 2023), (Kokotsaki D et al., 2016), (Maslach C et al., 2016), (Nabi G et al., 2016), (Zee M et al., 2016), (N/A, 2015), (McKenney S et al., 2018).

VII. Conclusion

The exploration of the Filled Classroom model in higher education has underscored the significant potential of innovative teaching methodologies to enhance student engagement and learning outcomes. Key findings from this dissertation reveal that the Filled Classroom model fosters a more interactive and collaborative learning environment, which is shown to have a positive impact on student interactions and academic performance. Through a mixed-methods approach, this research successfully addressed the central question of how the Filled Classroom model can be effectively integrated into higher education settings. The data indicated that students not only reported increased motivation but also demonstrated improved assessment scores when engaging in this pedagogical approach (J Lyanda et al., 2024). The implications of these findings are profound, suggesting that higher education institutions can leverage this model to create more inclusive and effective teaching practices (Walsh C et al., 2024). Notably, the study illuminated the necessity for educators to adapt their pedagogical strategies to better align with modern students' learning styles and technological advancements (Almakky H, 2024). The practical applications are numerous; for instance, the adoption of the Filled Classroom model can facilitate greater academic achievement and prepare students for contemporary collaborative work environments (Burnett G, 2024). Nevertheless, challenges such as incorporating technology and addressing the concerns of educational staff need to be strategically managed to ensure a smooth transition to this new teaching framework (Moss-Zobel A, 2024). Given the positive outcomes highlighted in this research, future studies should aim to explore the long-term effects of the Filled Classroom model across diverse academic disciplines and demographics (Yogesh K Dwivedi et al., 2023). Additionally, longitudinal studies that assess the effectiveness of professional development

programs for educators implementing this model could provide critical insights into best practices (Toropova A et al., 2020). There is also a pressing need to investigate potential barriers faced by instructors in adopting the Filled Classroom approach and to develop targeted training that addresses these limitations (Sallis E, 2020). Furthermore, further research should explore the integration of additional technologies to enhance the interactive nature of the classroom and assess their effects on student outcomes (Malik RS, 2018). By expanding the scope of the current study, future work will be better positioned to provide comprehensive frameworks for effectively implementing the Filled Classroom model in various educational contexts, ultimately contributing to the evolution of pedagogical practices in higher education (N/A, 2017). It is essential that ongoing dialogues regarding innovative educational strategies continue, paving the way for a robust and adaptive future in higher education (Walter Y, 2024). Such advancements will not only benefit students academically but will also prepare them for a complex and rapidly changing world (Naqbi HA et al., 2024)

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SIMULATION OF COMMUNICATION AND INFORMATION ADVANCEMENT IN THE REGIONAL HOUSING AND PUBLIC UTILITIES SECTOR

Abstract:*The theoretical foundations of the mechanisms for enhancing communication and information services in the regional housing and communal services sector through digital technologies have been refined. Additionally, medium-term multi-option scenarios have been developed for the advancement of the communication and information system to improve the provision of housing and communal services to the region's residents.*

Keywords*: housing and communal services, communication and information, digital technology, empirical model, econometric model, forecast results, information system, endogenous variables, exogenous variables, multivariate, scenarios.*

Introduction

Regarding the wide-ranging fundamental changes implemented in all spheres in New Uzbekistan, special attention is being paid to the development of the social sphere, to the improvement of the quality of communal services to the population in the regions. Digitization of the economy is important for the formation of market relations and social-economic stability of the society as one of the strategic goals set in the State Department of the long-term socio-economic growth of our Republic until 2035. Artificial intelligence is a new bock of digitalization of economic management, which is the process of step-by-step transition to systems and smart technologies, which involves the use of information and communication technologies to solve economic or management problems, but also to clarify the situation with its help,

Region aproblems in improving the living conditions of the population, lack of full provision of housing, lack of provision of high-level communal services indicate the importance of further development of this area in the future.In this regard, in 2017-2021, the action strategy for the development of the Republic of Uzbekistan in five three-pronged directions "... implementation of targeted programs on the construction of affordable housing, development and modernization of road-transport, engineering-communication and social infrastructures, ..." [19] important tasks are defined from the surface. This article serves to fulfill such noble tasks to a clearly defined extent.

According to the World Bank, 60 percent of the world's population does not use the Internet or has access to it because of insufficient funds to use it. Only 15

percent of the world's population has access to broadband Internet services. In developed countries, mobile phones are the primary means of using Internet services, and 80 percent of the world's population is covered, but only 2 billion. almost 100,000 people still do not use mobile phones [3].

The development of communal services in the regions is related to the development of ICT, which leads to the digitization of all economic systems and the formation of a new type of electronic (digital) payment system. In the development of the control mechanism of the electronic payment system, the researches of foreign scientists will be looked at, and the institutional aspects of the financial market activity, which directly affect the formation of payment systems, were considered in the research of Russian scientist E.G. Khomenko. He states that the data processing camaraderie and speed of payment operations in utility payment systems, the continuity of utility payment calculations are one of the important features of any payment system [4].

D.A. Korobeynikov's scientific research commented on the development of regional payment infrastructure within the framework of the payment system, the introduction of payment system service into practice, and the fact that payment systems are naturally included in the infrastructure of the digital economy [5].

The famous American scientist M. Drabenctott [6] identified five problems that are crucial for the socio-economic development of rural areas in the United States, one of the most developed countries in the world, but they also apply to many other situations:

1. Transition to digital technologies.
2. Encouraging entrepreneurs.
3. Using the new agrocanoat complex.
4. Incon Capital Improvement.
5. Support rural environment.

We can witness that it was built earlier in the concepts presented in the scientific works of Y. Benkler called "Digital ichthyosis" and "digital ichthyosis" [7] introduced by D. Tepckott.

In the researches of Macalan, foreign economist-scientist N.P. Grozdanovich, the sustainable development of "Smart Villages" includes efficient use of land, purposeful use of housing, creation of places for walking and cycling, planning and development of recreation areas, transport engineering, management's approach to citizens and It has been described how to improve camaraderie, the use of smart solutions for sustainable development, and other directions [8].

The "technology" approach is defined by Anil Menon, chief globalization officer of the multinational Cisco company, as "a village that uses smart networked digital technologies or ICT to solve the problems of vertically connected networks in rural areas" [20]. These problems can affect the provision of parking, street traffic, transportation, outdoor lighting, water supply and management, safety, education and environmental services. "Aklli kishlok" will use these processes to better support and optimize village services, reduce resource consumption and maintain prices, as well as rural residents,

In his articles, A.V. Keshelava claims that the complexity of public utility service systems (systems adapted to the use of information technologies) requires taking into account the unique capabilities of digital technologies. It recognizes that it is responsible for the intellectual processing of information about changes in the state of complex objects and ensures the selection of management decisions[10].

E. Brinolfccon and L. Hitch, as a result of studying the activities of 527 large American companies, the authors say that additional assets (assets that change due to the use of information technology, the experience and skills of employees, communication tools and technologies, the quality of decision-making, changes in business processes, etc.) plays an important role, and over time, the results of the introduction of digital technologies are reflected in the bockich of rapid development [11].

Speed, accuracy, security of data are required in every field. At the same time, in the field of housing and communal services, creating wide opportunities for the population, the database will reduce the waste of excess papers, time-consuming, waiting for hours, wandering, and expenses.

In this place, the block diagram of the simulation modeling of the digitization of housing and communal service management was developed, divided into five blocks of digitization of the management of communal service areas and integration with the population, Fig. 5 [16].

The first block – a digital platform (1.1), population (1.2), computer (1.3) and communal service management (1.4) was launched. The second block - "Uzwatersupply" (OAJ-JSC) (2.1), population (2.2), computerization (2.3) and water supply management (2.4) was launched. The third block - JSC "Regional Electric Networks" (3.1), population (3.2), computerization (3.3) and electric power management (3.4) was launched. The fourth block - JSC "Region gas supply" (4.1), population (4.2), computer operator (4.3) and gas supply management (4.4) were launched. The fifth block - "Special trance – Maxsustrans" DUK (5.1), residents (5.2), computer operator (5.3) and waste management (5.4) were launched.

In our view, digital platforms represent the most promising tool for driving digital transformation today. A revolutionary shift is occurring in business models across all levels of socio-economic systems, closely linked to the implementation of network-based management approaches.

The adoption of digital platforms is leading to fundamental changes, affecting market structures, the scale of operations, and the competitiveness of socio-economic systems. In this context, the "Digital Communal" platform has been developed as a comprehensive digital management solution for the housing and communal services sector, ensuring greater efficiency, transparency, and accessibility.

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INFLUENCE OF DEFOLIATION RATES AND TIMING ON PROTEIN AND OIL CONTENT OF SOYBEAN GRAIN

Abstract: *This article presents the results of scientific research on the influence of defoliation rates and timing of application on the protein-oil content of early and mid-early soybean varieties planted as a re-crop.*

Key words: *soybean, defoliation, protein, oil, Oyjamol variety, Tumaris MAN 60 variety, bean ripeness terms.*

It is known that soybean is a valuable plant and is of great importance in the food industry, animal husbandry, and especially in agriculture in improving soil fertility. The soybean plant is the world's leading producer of protein. Today it is widely used in the production of artificial meat.

Paying attention to soybeans in the republic, it is necessary to pay attention to the sowing of its grain, hay and vegetable varieties. The main purpose of soybeans grown for grain is to produce vegetable oil, and the remaining secondary product can be used as feed for poultry and livestock.

In the development of soybean production, when growing high-quality grain crops from soybeans, the correct selection of planted varieties is one of the important conditions. Therefore, one of the chains of application of the most advanced agricultural technologies for soybean cultivation is the use of well-adapted, zoned and promising varieties, taking into account the characteristics of each soil and climatic conditions.

Based on this, in scientific research on the cultivation of soybeans, the scientist pays special attention to the study of the chemical composition of soybean grains.

The chemical composition of soybean varies depending on its varietal characteristics, soil and climatic conditions, applied agrotechnical measures, including sowing rates, plant nutrition measures and other factors.

Russian scientists Baranov V.F. Kochegura A.V., [1] found that soybean seed sowing parameters and seedling thickness affect the chemical composition of the grain. It has been proven that the amount of protein in the grain increases and the amount of oil decreases with increasing thickness of shoots per hectare in soybeans.

Mannopova M. [2] in her studies conducted in the soil and climatic conditions of the Andijan region, proved that the type of soil affects the amount of oil in soybeans. Compared with meadow soils, it was found that on light gray soils, the oil content of soybean grains increased by 2.3-2.5%.

Therefore, it is important to apply the necessary agrotechnical measures to obtain a high yield of soybean grain and early maturity of soybean to achieve high oil content.

Based on the foregoing , studies were carried out to study the effect of defoliation rates and terms on the protein and oil content in the grain of soybean cultivars.

In studies during the ripening of soybean pods of the Oyjamol variety by 50-55%, an increase in the amount of protein in the grain was noted as the defoliant rate increased in the variants where the defoliant UzD E F was used at a dose of 3, 4, 5 l/ha, and in the variant with the use of the defoliant UzDEF at the rate of 3 l/ha, the protein content was 38.2 %, when using the defoliant UzDEF at the rate of 4 l/ha, it was 38.4 %, when using the defoliant UzDEF at a rate of 5 l/ha - 38, 6% was higher up to 0.3% (Table 1).

With the use of defoliants in the ripening of beans 60-65% of soybeans, the amount of protein in the grain increased to 38.1-39.3% in the variants with the use of the UzDEF defoliant. It is noted that the protein content is higher by 0.6-0.8% When the beans ripen, 50-55% compared to the defoliant variants.

Table 1

Influence of norms and terms of defoliation on the content of protein and oil in soybean grain.

Var no	Variety	Defoliant rate l/ha	Terms of use of the defoliant	Protein content %	Oil content %
1.	Oyjamol	Control	When the beans ripen, 50–55%.	37.3	22.7
2.		UzDEF 3 l/ha		38.2	22.9
3.		UzDEF 4 l/ha		38.4	22.6
4.		UzDEF 5 l/ha		38.6	22.5
5.		Control	When beans ripen 60-65%	38.1	23.3
6.		UzDEF 3 l/ha		38.8	23.5
7.		UzDEF 4 l/ha		39.2	23.2
8.		UzDEF 5 l/ha		39.3	23.0
9.	Tumaris MAN -60	Control	When the beans ripen, 50–55%.	38.6	23.3
10.		UzDEF 3 l/ha		39.0	23.2
11.		UzDEF 4 l/ha		39.3	23.3
12.		UzDEF 5 l/ha		39.7	23.1
13.		Control	When beans ripen 60-65%	39.5	24.0
14.		UzDEF 3 l/ha		39.7	24.2
15.		UzDEF 4 l/ha		40.1	24.3

16.		UzDEF 5 l/ha		40.4	24.2

The reason for the increase in the amount of protein in soybean grains is the decrease in plant moisture in defoliant varieties and the creation of favorable conditions for the efficient use of sunlight during the ripening of the pods.

When analyzing the amount of oil in the chemical composition of soybeans, it was found that with an increase in the rate of defoliation, the amount of protein and oil in soybeans was inversely proportional to each other, and the amount of oil decreased slightly in high protein variants.

For example, in the variant with the use of the defoliant UzDEF at a rate of 3 l/ha, the amount of oil was 22.9 % and increased by 0.2% compared to the non-defoliant control variant, when the defoliant UzDEF was applied at a rate of 4 l/ha, it increased by 22 ,6 %, when using the defoliant UzDEF at the rate of 5, it was found that when used at the rate of l/ha, it is 22.5% , and the amount of oil is reduced by 0.1-0.2% compared to the control variant .

So, summarizing the effect of defoliation rates and timing of application on the amount of protein and oil in the grain of different soybean varieties, we can say that a decrease in moisture during the ripening period of soybean grain has a positive effect on increasing the protein content in the plant, causing a deficit in the absorption of moisture by the plant and a slight decrease in the amount of oil.

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ANALYSIS OF MASS-GEOMETRIC SIZES OF MELONS (USING THE EXAMPLE OF AK-URUG MELON)

Annotation. *The article presents the results of statistical studies of melons grown in the Mirzachul oasis of the Syrdarya region. Since determining the total volume (number) of melons in the Mirzachul oasis is a rather complex task, a "sampling technique" was used to determine the number of objects under study. The article presents the results of statistical studies of melons grown in the Mirzachul oasis of the Syrdarya region. Since determining the total volume (number) of melons in the Mirzachul oasis is a rather complex task, a "sampling technique" was used to determine the number of objects under study. The distribution law was checked using the Kolmogorov criterion and the compatibility of empirical and theoretical distribution curves was established. In a micrometric analysis of the mass-geometric dimensions of the melon, the probability of the percentage of suitable and unsuitable melons according to their parameters was calculated. In conclusion, it is noted that the data obtained can be used in the development of installations for mechanized processing of melons, in particular to determine the diameters of the disk knives of the installation for ring cutting them before drying.*

Key words: *methodology, population, small sample, micrometer, diameter, ring slice, size distribution, melon, mathematical expectation, standard deviation, parameter, measurement, coefficient of variation, permissible error, probability.*

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QOVUNLARNING MASSA-GEOMETRIK O'LCHAMLARINI TAHLIL QILISH (Oq urug' qovuni misolida)

Аннотация. *Maqolada Sirdaryo viloyatining Mirzacho‘l vohasida yetishtirilgan qovun o’lchamlarining statistik tadqiqotlari natijalari keltirilgan. Mirzacho‘l vohasidagi qovunlarining umumiy hajmini (sonini) aniqlash ancha murakkab ish bo‘lgani uchun o‘rganilayotgan ob’ektlar sonini aniqlashda “tanlanma metodikasi” qo‘llanildi. Asosan, qovunning og'irligi, uzunligi va diametri 15 ko’ndalang kesimda statistik tadqiqotlar o'tkazildi. Mikrometrik tadqiqotlar natijalari normal qonunga (Gauss) bo'ysunishi, o'lchamlarning taqsimlash grafiklari ko'rinishida keltirilgan. Kolmogorov mezoni yordamida taqsimlanish qonuni tekshirilgan va empirik va nazariy taqsimlanish egri chiziqlarining muvofiqligi o'rnatilgan. Qovunning massa-geometrik o'lchamlarini mikrometrik tahlil qilishda ularning parametrlariga ko'ra mos va mos bo'lmagan qovunlarning foiz ehtimoli hisoblab chiqilgan. Xulosa qilib aytilganki, olingan ma'lumotlar qovunlarini mexanizatsiyalashgan holda qayta ishlash qurilmalarini ishlab chiqishda, xususan, quritishdan oldin ularni halqa shaklida kesish uchun qurilma diskli pichoqlarining diametrlarini aniqlash uchun ishlatilishi mumkin.*

Kalit so'zlar: *metodika, general tanlanma, kichik tanlama, mikrometrlash, diametr, halqa tilim, o'lchamlar taqsimoti, qovun, matematik kutilish, o’rta kvadratik og'ish, parametr, o'lchov, variatsiya koeffitsienti, ruxsat etilgan xatolik, ehtimollik.*

Kirish. Mavzuning ahamiyati. Ma’lumki, “Dunyoda har yili 32-35 million tonna poliz yetishtiriladi va ularning atigi 5-6 foizi quritiladi” [1,2], energiya tejaydigan texnik vositalarni ishlab chiqish va quritilgan qovun ishlab chiqarish uchun yuqori ish sifati va unumdorligiga ega qurilmalarni yaratish eng muhim vazifalardan biri hisoblanadi. O‘zplodoovoshvinsanoatxolding” aksiyadorlik jamiyati tarkibiga kiruvchi O‘zbekiston konserva zavodlarida bir necha yillardan buyon qovunni murabbo, konserva, qovun asal va quritilgan qovun tayyorlashga ommaviy qayta ishlash texnologiyasini joriy etishga harakat qilinmoqda [3].

Ular boshqa sabzavot va mevalarni qayta ishlashga mo‘ljallangan namunaviy texnologik asbob-uskunalar asosida bir qator poliz mahsulotlariga texnik shartlar va ularni ishlab chiqarish bo‘yicha tavsiyalar ishlab chiqdi. Biroq, barcha mashinalar va apparatlar qovun mevalarini qayta ishlash uchun mos emas. Qovunning fizik-mexanik xossalari va geometrik shakllarini hisobga olgan holda mexanizatsiyalashgan texnologiya asoslarini va uni qayta ishlash uchun texnik vositalar majmuasini ishlab chiqish zarur [4-9]. Qovunlarni, xususan, O‘rta Osiyo qovunlarini tozalashda yuzaga keladigan asosiy masalalar po‘stlog‘ini etidan ajralish, shuningdek, urug‘ bo‘shlig‘idan ichki tarkibini olib tashlashni ta’minlashdan iborat [5,8,9].

Tozalash usuli va boshqa texnologik operatsiyalarni mexanik usulda amalga oshirish uchun qovunning fizik-mexanik xossalarini, qayta ishlanayotgan mevalarning vazn-o‘lchov xususiyatlarini, mevalarni turli rejimlarda kesish jarayonlarini, shuningdek, kinetik xususiyatlarini hamda kesuvchi ishchi organlarning dinamik va konstruktiv parametrlari o‘rganish kerak.

Qovun mevasini halqa shaklida kesishning texnologik jarayonini mexanizatsiyalash masalasini hal qilish o‘zbek poliz ekinlarining fizik-mexanik va texnologik xususiyatlarini hisobga olgan holda yangi mashina konstruksiyasini yaratish orqali mumkin bo‘ladi. Bu borada o‘zbek poliz ekinlarining, xususan, Mirzacho‘l vohasida yetishtiriladigan poliz ekinlarining fizik-mexanik va texnologik xususiyatlarini o‘rganishimiz kerak.

Tadqiqot maqsadi: Qovun mevasini kamerali quritish uskunasida quritilishini ta’minlash uchun ularni halqa bo‘laklarga kesish texnologik jarayonini mexanizatsiyalash masalasini o‘rganishdan oldin ularning massa va o‘lchovli xususiyatlarini aniqlash.

O‘zbek poliz ekinlarining fizik-mexanik va texnologik xususiyatlarini hisobga olgan holda yangi mashina konstruksiyasini yaratish orqali bu masalani hal qilish mumkin [6,9]. Bu borada o‘zbek poliz ekinlarining, xususan, Mirzacho‘l vohasida yetishtiriladigan poliz ekinlarining fizik-mexanik va texnologik xususiyatlarini o‘rganishimiz kerak.

Tadqiqot metodlari. Tanlanma hajmoni aniqlash. Ko‘plab ilmiy tadqiqot ishlarida mahsulot parametrlarining sifatini baholashda nazorat qilishda tanlanma uslubiyoti qo‘llaniladi. Tanlanma uslubiyotining mohiyati shundan iboratki, umumiy yoki general majmua (to‘plam), ya’ni, mahsulotning tavsifnomasi uchun umumiy xossalarga ega bo‘lgan ayrim mahsulotning katta hajmi o‘rniga shu mahsulotning faqat bir bo‘lagi o‘rganiladi. Boshqacha aytganda, general majmuadan ixtiyoriy, ehtimoliy-tasoddifiy (kichik) bir tanlanma qilinadi.

Statistik tadqiqotlarni rejalashtirishda doimo shu tanlanma hajmini aniqlash zarur bo‘ladi. Bu shuning uchun zarurki, olingan tanlanmaning o‘rtachasi, general majmua(to‘plam)ning ma’lum aniqlik darajasida o‘rtacha tavsifnomasini bersin.

General majmuadan olinadigan kichik tanlanma hajmini aniqlash ikki yo‘l bilan bajarilishi mumkin:

Sharoitga ko’ra kuzatilayotgan general majmuaning hajmi aniq bo‘lsa, u holda kichik tanlanmaning hajmi quyidagi formula yordamida aniqlaniladi,

$$n = \frac{t^2 \cdot V \cdot N}{(\varepsilon\%)^2 \cdot N + t^2 \cdot V^2}.$$

Sharoitga ko‘ra kuzatilayotgan general tanlanmaning hajmi aniq bo‘lmasa unda kichik tanlanmaning hajmi quyidagi formula yordamida aniqlaniladi [14],

$$n = \frac{t^2 \cdot V^2}{(\varepsilon\%)^2},$$

bu yerda, n - tanlanma hajmi, dona; t - meyorlashtirilgan og‘ish (St’yudent mezoni); V - variatsiya koeffisenti, % da; N - general tanlanmaning hajmi; ε - o‘rtacha tanlanmaning (yo‘l qo‘yilgan) xatosi; t- miqdorini tajriba o‘tkazuvchining o‘zi aniqlaydi. U ishonchlilik ehtimoli darajasiga bog‘liq bo‘ladi. Masalan: $P = 68\%$ ishonchlilik darajasi uchun $t = 1$, $P = 95\%$ darajasi uchun $t = 2$ va $P = 99\%$ ehtimollik darajasi uchun $t = 3$. Dala tajribalari uchun $\varepsilon\%$ miqdori quyidagicha olinadi. A’lo holatda, $\varepsilon\% = 1...2\%$, yaxshi holatda, $\varepsilon\% = 3$, to‘la qoniqarli holatda, $\varepsilon\% = 3...5$ gacha, qoniqarli holatda, $\varepsilon\% = 5...7$ gacha. Qishloq xo‘jaligi ishlarida,

foydalaniluvchi mashinalarni kuzatish bilan bog‘liq holatlarda, $\varepsilon\% = 5...10$ teng deb olinishi mumkin.

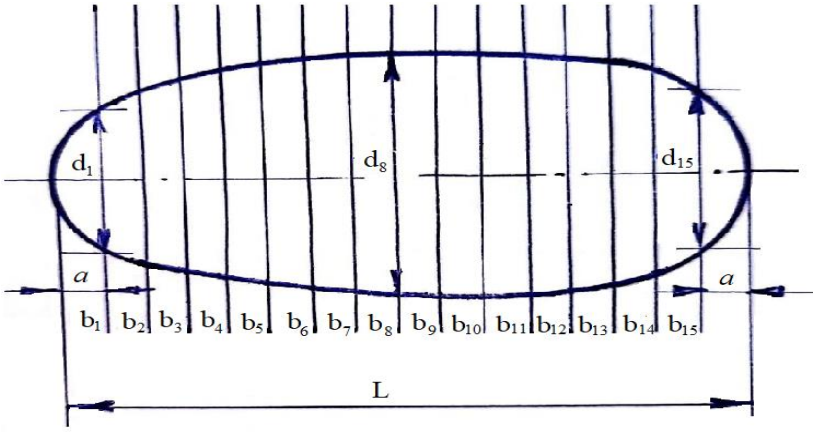
Mirzacho‘l vohasi qovunlarining generel hajmi(umumiy soni)ni aniqlash birmunch merakkab ish bolganligi uchun general tanlanma hajmi no’malum bo‘lsa, unda kichik tanlanma hajmini formula tashkol etuvchilarning turli qiymatlarida quyidagicha aniqlanadi.

$$n = \frac{t^2 \cdot V^2}{(\varepsilon\%)^2} = \frac{2^2 \cdot 25^2}{5^2} = 100 \text{ dona}, \quad n = \frac{t^2 \cdot V^2}{(\varepsilon\%)^2} = \frac{2^2 \cdot 30^2}{5^2} = 144 \text{ dona},$$

$$n = \frac{t^2 \cdot V^2}{(\varepsilon\%)^2} = \frac{2^2 \cdot 35^2}{5^2} = 196 \text{ dona}. \quad n = \frac{t^2 \cdot V^2}{(\varepsilon\%)^2} = \frac{2^2 \cdot 40^2}{5^2} = 256 \text{ dona/}$$

Mikrometraj tadqiqotlari uchun $n \approx 170$ dona ya’ni o‘rtacha qiymatini qabul qilamiz. Qovunning o‘lchanuvchi parametrlari 1-rasmda keltirilgan. Chiziqli o‘lchlarining aniqligi 1 mm og‘irligining aniqligi esa 2 grammni tashkil qildi.

Tadqiqot natijalari. Qovunning o‘lchamlarini statistik tadqiq qilish Sirdaryo viloyatiidagi Oq-Oltin tumanidagi “Garasha Forish ifori” fermer xo‘jaligida $t=20^0 \pm 5^0$ haroratda amalga oshirildi. Shkast yetkazmasluk uchun qovunlar o‘lchash ruletka va tarozi yordamida amalga oshirildi. Asosan qovunning uzunligi (*L)*, massasi (*G)* va 15 ta ko‘ndalang kesimdan doirasining uzunligi o‘lchab olinadi. Qovun ko‘ndalang kesimlar orasidagi masofani yani b_1; b_2;…b_{15} aniqlash uchun F.Rahmatov tomonidan o‘tkazilgan tadqiqot natijalaridan foydalanamiz [14] va uni b_i = 18±2 mm qabul qilib olamiz. Qovunning bosh tomoni va bandi tomonidan “*a*” erkin masofa qoldiriladi. Qovunning har bir kesiminind diametrini aniqlash uchun $C=2\pi R$ formuladan foydalanamiz.



1-rasm. Oq urug‘ qovuninig mikrometraj qilinuvchi shakli va parametrlari

Mikrometraj tadqiqotlaridan olingan natijalar 1-jadvalda keltirilgan. 2-6- rasmlarda esa qovunning uzunligi, og’irligi ikki chekka o’lchamlari hamda eng katta diametrlari bo’yicha o’lchamlarining taqsimlanish grafiklari ko’ro’rsatilgan. Jadval va rasmlardan ko‘rinib turibdiki, oq urug‘ qovunining uzunligi bo‘ylab (bosh tarafidan bandi tomon) mos ravishda ko‘ndalang kesim o‘lchamlari 14,83; 15,36; 15,94; 16,76; 17,30; 18,03; 18,45; 19,02; 18,34; 17,95; 17,21; 16,63; 15,96; 15,38; 14,17 sm tashkil qilgan bo‘lib, o‘rtacha kvadratik chetlanishlari σ=±2,26 dan 2,84

sm gacha o‘zgarib turadi. Variatsiya koeffitsiyenti esa 12,3% dan 18,5 % gacha o‘zgargan bo‘lib qovunning uzunligi va og‘irligi bu parametrlar mos ravishda 6,15 va 1,7 hamda 13,8 % va 25,3 % tashkil etgan.

Natijalni muhokama qilish. Grafiklarning shaklidan ayon bo‘lib turibdiki qovun massa gabarit o‘lchamlarining taqsimlanishi (sochilishi) normal (Gaus) qonuniga bo‘ysinadi, chunki Kolmagorov mezoni bo‘yicha qonuniyat tekshirilganda $P(\lambda)$ qiymati 0,001 dan 0,997 gacha o‘zgaradi. Ma’lumki, $0 \le P(\lambda) \le 1$ bo‘lsa emperik va nazariy taqsimlanish egri chiziqlarining mosligi haqida xulosa qilinadi [15]. Qovunning massa-geometrik o‘lchamlarini mikrometrik tahlil qilganda ularni parametrlari bo‘yicha yaroqli va yaroqsizlik foyizining ehtimolini ham hisoblash mumkin.

1-jadval

Oq urug‘ qovuninig parametrlarini mikrometraj qilish natijalari

№	Nazorat o‘lcham-lari va birligi	Bel-gila-nishi	O‘rta-cha matem. kutilish $\bar{M}$, см	O‘rta-cha kvad. chet-lanish σ, см	Vari-atsiya koef-fitsi-enti, V, %	Matem. kutilish mutlaq xatosi, $\delta_м$, см	Matem. kutilish nisbiy xatosi, $\delta_н$, %	Matem. kutilish $\bar{M}_{min}$, см	Matem. kutilish $\bar{M}_{max}$, см	Kolma-gorov mezoni $P(\lambda)$
1	Uzunligi, sm	L	44,70	6,15	13,8	0,47	1,05	43,8	45,0	0,270
2	Og‘irligi, kg	G	6,71	1,70	25,3	0,13	1,94	6,5	7,0	0,178
3	Qovun enining kesimlar bo‘yicha diametri, sm	d_1	14,83	2,74	18,4	0,21	1,41	14,4	15,2	0,112
4		d_2	15,36	2,70	17,6	0,21	1,35	14,9	15,8	0,178
5		d_3	15,94	2,78	17,4	0,17	1,09	15,0	16,3	0,068
6		d_4	16,76	2,37	14,1	0,18	1,08	16,4	17,1	0,178
7		d_5	17,30	2,50	14,4	0,19	1,11	16,9	17,7	0,112
8		d_6	18,03	2,50	13,9	0,19	1,06	17,7	18,4	0,465
9		d_7	18,45	2,31	12,5	0,18	0,95	18,1	18,8	0,997
10		d_8	19,02	2,39	12,6	0,18	0,96	18,6	19,4	0,544
11		d_9	18,34	2,26	12,3	0,17	0,94	18,0	18,7	0,270
12		d_{10}	17,95	2,47	13,8	0,19	1,05	17,6	18,3	0,001
13		d_{11}	17,21	2,39	13,9	0,18	1,06	16,8	17,6	0,112
14		d_{12}	16,63	2,38	14,3	0,18	1,09	16,3	17,0	0,023
15		d_{13}	15,96	2,47	15,5	0,19	1,19	15,6	16,3	0,001
16		d_{14}	15,38	2,84	18,5	0,22	1,42	14,9	15,8	0,003
17		d_{15}	14,17	2,58	18,2	0,20	1,39	13,8	14,8	0,005

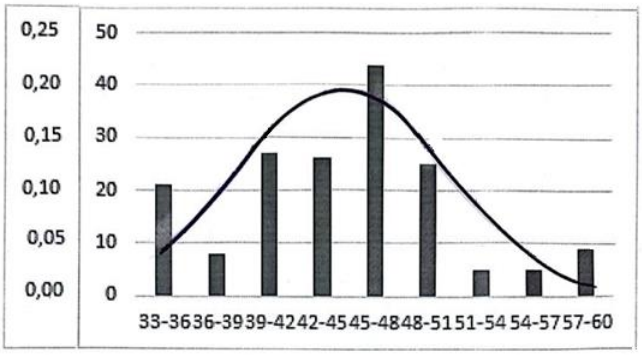
Yaroqli qovunlar foyizining ehtimolini matematik kutilish o‘lchamidan katta yoki kichik o‘lchamlar uchun aniqlqsh kerak. Agar qovunning eng muhim o‘lchamlari qatorida, misol uchun uning uzunligini olsak, unda yaroqli qovunlar foyizining ehtimolini matematik kutilishdan katta va matematik kutilishdan kichik o‘lchamlar uchun aniqlash kerak. Unda eng karra va eng kichik o‘lchamalr $L_{max} = 60$ sm; $L_{min} = 33$ sm, o‘rtacha kvadratik og‘ish $\sigma = 6,15$. Ko‘plab mahsulotlarni o‘lchashga oid tadqiqotlar natijasi shuni ko‘rsatadiki, izlanuvchi miqdor $\bar{M} \pm 3\sigma$

chegarasida yotishi ehtimoli 0,9973 ga tengdir. Shuning uchun texnik va texnologik hisoblarda odatda o‘lchamlarning eng katta sochilishi $\pm 3\sigma$ chegarasida aniqlaniladi. Shunda haqiqiy sochilish maydoni $V = 6\sigma = 6 \times 6{,}15 = 36{,}9$ sm. Demak, qovunlarni yig‘ishtirganda ularning ichida yaroqsizlik ehtimoli bor. Tavakkallik koeffisientlarini hisoblaymiz [14]:

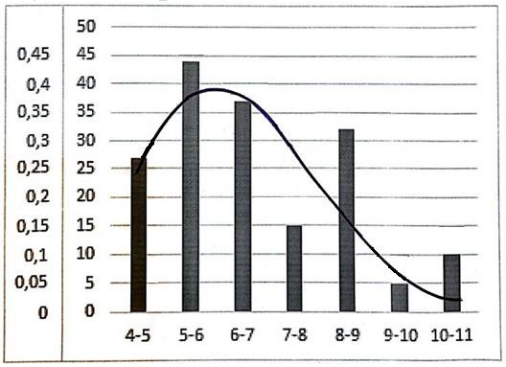
$$Z_1 = \frac{M_1}{\sigma} = \frac{60 - 44{,}7}{6{,}15} = 2{,}48$$

$$Z_2 = \frac{M_2}{\sigma} = \frac{33 - 44{,}7}{6{,}15} = 1{,}90$$

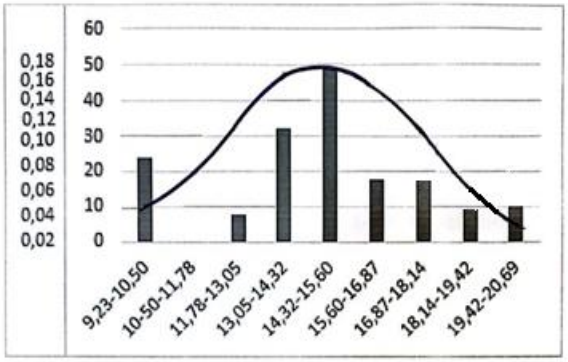
Jadvaldan (1–ilovaga qarang [14]) Laplas funksiyasini topamiz.



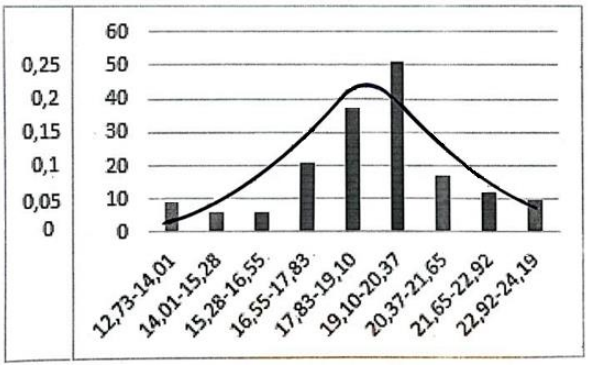
2-rasm. Qovun uzunligi L (sm)



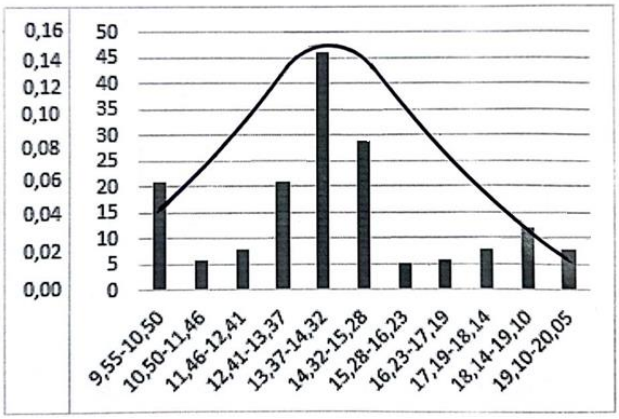
3-rasm. Qovun og`irligi (kg)



4-rasm.Qovun diametri (d1)sm



5-rasm.Qovun diametri (d8)sm



6-rasm. Qovunning diametri (d15)sm

$$\Phi(Z_1) = 0{,}4934 \qquad \Phi(Z_2) = 0{,}4713$$

Unda yaroqli qovunlarning hosil bo‘lishi yig’ma ehtimoli:

$$Ря = [\Phi(Z_1) + \Phi(Z_2)] \times 100\% = (0{,}4934 + 0{,}4713) \times 100 = 96{,}47\%$$

Bundan hamma qovunlar ichida yaroqsizlik foizi ehtimolini topamiz.

$$Ряр = 100 - Ря = 100 - 96{,}475 = 3{,}53\%$$

Xulosalar. O‘tkazilgan tadqiqotlar quyidagi xulosalarni qilish imkoniyatini beradi:

1. Mirzacho‘l vohasida yetishtirilayotgan qovunparning o‘rtacha statistik massa-gabarit o‘lchamlarini aniqlash va qiyosiy taqqoslab ularni baholash mumkin.
2. Qovun ehtimoliy-tasoddifiy massa-gabarit o‘lchamlari taqsimlanishinig qonuniyatlarini aniqlash.
3. Qovunlarni turli agrotexnologiyalar asosida yetishtirishning ularning fizik-mexanik ko’rsatkichlariga ta’sirinu miqdoriy baholash.
4. Qovunning aniqlangan parametrlarini uni quritishdan oldin xalqasimon kesish qurilmasining diskli pichoqlari diametrlarini asoslashda foydalanish mumkin.

Axborot resurs manbalari

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UDK. **616-092.4**

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FUNCTIONAL STATE OF NEUROSECRETORY CELLS IN THE SUPRAOPTIC NUCLEUS OF THE HYPOTHALAMIC-PITUITARY-NEUROSECRETORY SYSTEM IN INTACT RATS

Abstract: *This study focuses on evaluating the morpho functional characteristics of neurosecretory cells (NSCs) in the supraoptic nucleus (SON) of the hypothalamic-pituitary-neurosecretory system (HPNS) in intact rats. Different types of NSCs (with high, medium, and low functional activity) and their quantitative ratios were determined. The structure of the SON, the size of the nucleus and cytoplasm of NSCs, the number of neurosecretory substances, and the interaction with glial cells were studied. The obtained data describe the physiological state of the HPNS and serve as a basis for understanding changes occurring under the influence of various pathological factors.*

Keywords: *Hypothalamic-pituitary-neurosecretory system, supraoptic nucleus, neurosecretory cells, functional activity, morphology, rat.*

Introduction: The hypothalamic-pituitary-neurosecretory system (HPNS) plays a crucial role in the neurogenic and humoral regulation of the body. One of the key structures of the HPNS is the supraoptic nucleus (SON), which contains neurosecretory cells (NSCs) that produce vasopressin and oxytocin. These neurohormones are involved in maintaining homeostasis, responding to stress, and regulating other essential physiological processes. Under the influence of various extreme and non-extreme factors, the reactivity of the HPNS may change, affecting adaptive processes. Therefore, studying the functional state of NSCs in the SON in intact conditions is of significant importance.

Materials and Methods:

- **Research Subjects:** Intact (healthy) rats.
- **Groups:** Intact group (control group).
- **Histological Methods:** Preparation and staining of SON samples.
- **Microscopy:** Examination of the morphological characteristics of NSCs (shape, nuclear size, cytoplasmic volume, quantity of neurosecretory granules).
- **Immunohistochemical Methods:** Detection of neurosecretory substances using the periodic acid-Schiff (PAS) reaction.
- **Morphometry:** Measurement of nuclear and cytoplasmic volumes.

• **Statistical Analysis:** Data processing to identify differences between groups.

Results: In the intact group, NSCs in the SON predominantly exhibited moderate functional activity. NSCs with high functional activity were characterized by neurosecretory substances concentrated around the nucleus and in the expanded regions of axons. These cells had larger nuclei with eccentric nucleoli, sometimes containing two nucleoli.

Neurosecretory cells were evenly distributed in the SON, with the majority being round, while some had angular shapes. Based on their activity, NSCs were categorized into four types:

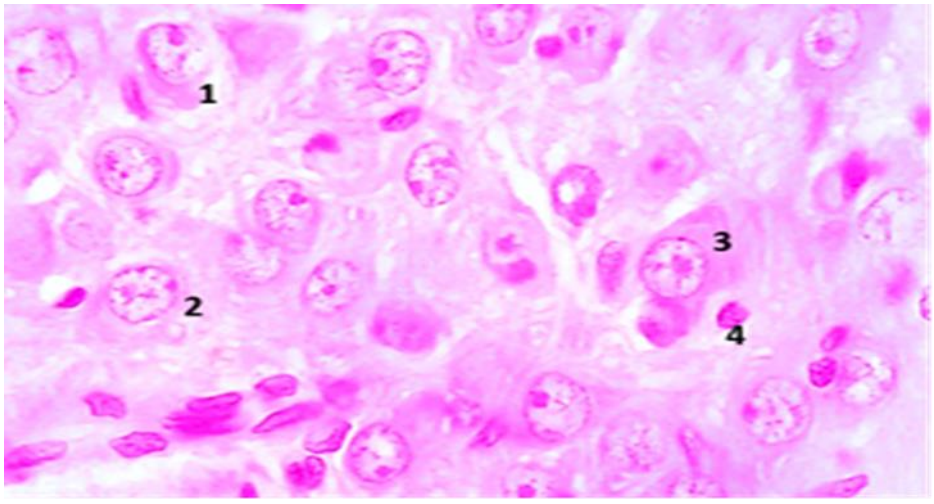
1. **Type I (High activity):** 12.6±0.51% of NSCs. PAS-positive granules were sparsely distributed around the nucleus. The nuclei were large with eccentric nucleoli.

2. **Type II (Moderate activity):** 66.0±1.2% of NSCs. PAS-positive granules were moderately dense, concentrated around the nucleus and initial axonal segments. The nuclei were elliptical with dispersed chromatin and centrally located nucleoli.

3. **Type III (Low activity):** 18.0±1.6% of NSCs. PAS-positive granules were densely packed in the cytoplasm and along the axons. The nuclei displayed dense chromatin with centrally positioned nucleoli.

4. **Type IV (Pyknotic, hyperchromatic, destructive cells):** 3.4±0.3% of NSCs.

The average nuclear volume of NSCs was 399.5±6.8 μm³, while the average cytoplasmic volume was 1819.0±25.2 μm³. The nucleus-to-cytoplasm ratio was 0.228±0.004. The average content of neurosecretory substances was 201.9±1.7 arbitrary units. Glial cells were interspersed among NSCs, with an average of 4.9±0.1 NSCs and 2.84±0.1 glial cells per 25,000 μm², resulting in an NSC/GLC index of 1.73±0.03. The glial nuclei were ellipsoid, with diffusely distributed chromatin. Blood vessels in the SON displayed moderate filling, with capillaries of an average diameter of 5.56±0.1 μm.



Discussion: The findings describe the functional state of NSCs in the SON of intact rats, with a predominance of moderately active NSCs indicating basal neurosecretory activity. The presence of different NSC types reflects the dynamic and adaptive properties of the SON. The interaction between glial cells and NSCs likely plays a regulatory role in neuroendocrine function.

Conclusion: This study provides valuable insights into the morphofunctional characteristics of NSCs in the SON of intact rats. The results enhance our understanding of the physiological state of the HPNS and serve as a foundation for future research on pathological changes in this system.

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THE ROLE OF YOUTH IN THE SOCIO-POLITICAL LIFE OF SOCIETY

Abstract: *The article examines the role of young people in the socio-political life of society. Their influence on political processes, participation in decision-making and contribution to social movements are analyzed. The importance of youth involvement in democratic governance, activism and development of leadership skills is emphasized. The article also examines the obstacles that young people face in the process of political participation and ways to increase their involvement in shaping the future of society.*

Keywords*: youth, socio-political life, political participation, democracy, activism, leadership, civic involvement, social movements.*

Introduction

Youth play a crucial role in the socio-political landscape of any society. As the driving force of change, they bring fresh perspectives, innovative ideas, and energy to political and social structures. The involvement of young people in political decision-making, activism, and governance ensures the dynamism and progress of democratic institutions. However, their participation often faces obstacles, including lack of political representation, limited access to resources, and social stereotypes.

In the modern era, youth are more interconnected than ever before, with access to information, digital platforms, and global networks that enable them to raise awareness and advocate for change. As societies evolve, it is essential to examine the various ways in which young people contribute to political and social development, the challenges they face, and the measures needed to facilitate their active participation.

Youth and Political Participation

One of the key aspects of youth involvement in socio-political life is their participation in elections, policymaking, and public discourse. Voting is a fundamental democratic right that enables young people to shape the future of their countries. However, many young individuals either lack interest in politics or feel disillusioned by traditional political systems. Encouraging youth voter turnout through civic education and awareness campaigns is essential for strengthening democracy.

Beyond elections, youth engage in political life through activism and advocacy. Social media has become a powerful tool for young activists to voice their opinions, mobilize support, and influence political decisions. From climate change protests to human rights movements, young people have been at the forefront of global social movements, demanding justice, equality, and accountability from political leaders.

Moreover, youth participation is not limited to activism and elections. Many young people are actively involved in grassroots organizations, community initiatives, and volunteer work. These efforts contribute to social cohesion and community development while fostering a sense of responsibility and leadership among young individuals. Through these avenues, youth can address pressing issues such as poverty, education, healthcare, and environmental sustainability.

Challenges to Youth Involvement in Politics

Despite their potential, youth face several barriers in political participation. These include:

- **Lack of Political Representation:** Young leaders often struggle to find platforms where they can influence decisions at national and international levels.
- **Economic and Social Constraints:** Financial instability and societal expectations sometimes prevent young individuals from engaging in politics.
- **Misinformation and Political Apathy:** Many young people lack adequate knowledge about political processes, leading to disengagement and disinterest.
- **Structural Barriers:** Traditional political systems may not always be inclusive of youth, making it difficult for them to participate in governance and decision-making.
- **Generational Divide:** Older political figures may resist integrating younger voices into leadership roles, perceiving them as inexperienced or radical.

Promoting Youth Engagement in Socio-Political Life

To enhance youth involvement in socio-political affairs, governments, institutions, and civil society organizations should take the following measures:

1. **Civic Education:** Incorporating political literacy in educational curricula to help young people understand governance and democracy.
2. **Youth Representation in Politics:** Creating youth councils, advisory boards, and quotas to ensure young voices are heard in decision-making.
3. **Encouraging Activism and Leadership:** Providing platforms, mentorship programs, and funding opportunities for young activists and leaders.
4. **Leveraging Technology:** Using digital tools to increase political awareness, encourage online engagement, and facilitate discussions on key social issues.
5. **Lowering Barriers to Entry:** Simplifying legal and administrative procedures for young candidates running for political office and creating youth-friendly policies.
6. **Creating Inclusive Political Spaces:** Establishing forums where youth can engage with policymakers and contribute to legislative processes.
7. **Strengthening International Collaboration:** Encouraging global youth partnerships and knowledge exchange to empower young leaders in different regions.

The Role of Digital Platforms in Youth Political Participation

The rise of digital technology has revolutionized the way young people engage in political and social activism. Platforms such as Twitter, Instagram, and TikTok have provided a space for youth to voice their concerns, connect with like-

minded individuals, and organize movements on a large scale. Online petitions, virtual protests, and digital advocacy campaigns have enabled young people to challenge political authorities and push for meaningful change.

However, the digital space is not without challenges. The spread of misinformation, cyber threats, and online political manipulation can hinder productive engagement. Educating young people on digital literacy and ethical online activism is crucial in ensuring that digital participation contributes positively to socio-political discourse.

Conclusion

The active participation of youth in socio-political life is vital for the progress and sustainability of democratic societies. By empowering young individuals, addressing barriers to their participation, and creating inclusive political environments, societies can ensure that the next generation of leaders contributes effectively to governance and social development. Encouraging youth to take an active role in politics will lead to more dynamic, innovative, and equitable societies in the future.

Young people are not just the leaders of tomorrow; they are the change-makers of today. Their voices, ideas, and actions have the potential to shape policies, influence global movements, and create a more just and equitable world. Therefore, investing in youth participation is an investment in the future stability, prosperity, and well-being of society as a whole.

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DETERMINING THE TOTAL DISTANCES BETWEEN STATIONS AND ALONG THE ROUTE, DISTRIBUTION OF PASSENGER FLOW BY HOURS OF THE DAY

Abstract: *The article examines issues of the quality of transport services for passengers. By analyzing passenger flow on a bus route, the main factors influencing the quality of transport services for passengers were identified. Based on the results of the research, the author proposed a number of organizational and technical measures on bus route № 61 in order to improve the quality of passenger service, such as increasing the number and reducing the frequency of buses, updating vehicles, ensuring the sanitary condition of buses at the required level, increasing comfort in the bus cabin.*

Keywords: *passengers, bus, direction, driver, quality of service, information and communication technologies, standard of living, crossroads, intersections, traffic, conflict points, vehicle trajectories.*

INTRODUCTION. Providing transportation services to the population worldwide, including meeting the needs of passengers, optimizing the operational performance of vehicles on the routes, the work and rest of drivers, organizing intra-city, suburban, inter-city and international transportation, issues of improving the tariff system, improving the quality of service, modern solutions to existing problems are gaining importance. In this regard, special attention is being paid to the development of new scientific and technical solutions to these issues in developed foreign countries, including the USA, England, Germany, France, Singapore, Japan, and South Korea. Large-scale researches are being carried out in the directions of providing transport services to the population, increasing its quality, and improving the work of passenger transportation based on

comprehensive approaches. At the same time, it is considered necessary to create modern passenger transportation technologies. Today, the most urgent problems facing passenger transport are to deliver passengers to their destinations on time, safely, comfortably, with minimal expenses. In order to solve these problems, as well as to further improve the country's transport system, it is necessary to train personnel with deep knowledge and skills in the field of transport, in line with global requirements.

MATERIAL AND METHODS. In order to measure the length of the route, a committee will be formed consisting of the representatives of the road industry and car dealership. The board measures exact distances between stops on highways, as well as in cities and towns, in a car equipped with a technically calibrated and branded speedometer[1,2].

1-table

Certificate of measurement of distances of buses (In the right direction)

№	Name of stations	Speedometer indicator	Stations Between Distance km/h
1	Yangiabad district	0,00	0
2	Chilonota street	0,6	0,6
3	School 198	0,9	0,3
4	Gastronomist	1,2	0,3
5	Zanjirsoy street	1,5	0,2
6	Nadirabegim street	1,9	0,5
7	Shop	2,4	0,5
8	Slo'nima street	2,8	0,4
9	Arslanabad district	3,0	0,2
10	Aircraft market	3,6	0,6
11	Kozonkhana	4,5	0,9
12	Kozonkhana	4,6	0,2
13	Shop	5,0	0,3
14	Khavas street	5,5	0,5
15	Khatirchi street	5,9	0,4
16	Combination of refrigerators	6,6	0,7
17	Expedition	7,0	0,4
18	Fergana market	8,1	1,1
19	Oltinkol 2-tor street	8,4	0,3
20	11th maternity hospital	8,9	0,6
21	Sarakul Street	9,2	0,3
22	Fitrat 2-tor street	9,8	0,6

23	Mirabad TIIB	10,2	0,4
24	Institute of Transport	11,0	0,8
25	City of pilots	11,3	0,3
26	Margilan street	12,0	0,7
27	Solo TIIB	13,3	1,4
28	Thermal energy center	14,0	0,7
29	Yakasaroy TIIB	14,5	0,5
30	International Airport-2	15,6	1,1
	Total		**15,6**

The distance between stations should be measured to the nearest tenth of a kilometer. The commission draws up a document based on the measurement results.

Reverse direction

№	Name of stations	Speedometer indicator	Stations Between Distance km/h
1	International Airport-2	0	0
2	Margilan street	0,7	0,7
3	City of pilots	1,4	0,7
4	Institute of Transport	1,8	0,4
5	Ret plant	2,1	0,3
6	Mirabad TIIB	2,4	0,3
7	Fitrat 2-tor street	2,9	0,5
8	Sarakul Street	3,5	0,6
9	11th maternity hospital	3,8	0,3
10	Oltinkol 2-tor street	4,3	0,5
11	Fergana market	4,7	0,4
12	Fergana market	5,4	0,6
13	Expedition	5,8	0,4
14	Combination of refrigerators	6,2	0,4
15	Khatirchi street	6,6	0,5
16	Khavas street	7,0	0,3
17	Shop	7,6	0,6
18	Kozonkhana	8,2	0,6
19	Arslanabad district	8,6	0,4
20	Aircraft market	9,2	0,7
21	Aviazozol AShB	9,8	0,5
22	Shop	10,8	1,0

23	Nadirabegim street	11,2	0,4
24	Zanjirsoy street	11,6	0,4
25	Gastronomist	12,0	0,4
26	School 198	12,2	0,2
27	Chilonota street	12,4	0,2
28	Yangiabad district	13,1	0,7
	Total		**13,1**

The distance between the stops (peregon length) is determined by the speedometer indicator.

$$L_{per}^{=} SK_{n+1} - SK_n; \text{ km},$$

In the right direction

Institute of Transport - Mirabad TIIB

10.99-10.18=0.81; km.

Reverse direction

Yangiabad district - Chilonota street

13.16-12.41=0.65; km.

here: SK - speedometer reading, SKn+1 - speedometer reading at the next point, SKn - speedometer reading at the previous point.

The calculation results are included in Table 1.

Distances from the starting point to the next and the entire length of the route

$$L = SK_n - SK_1 \text{ ; km. ,}$$

In the right direction

Yakkasaroy TIIB- Yangiabad district

14,52-0=14,52; km.

Reverse direction

Chilonota street - International Airport-2

12,41-0=12.41; km.

here: SK_n is the reading of the speedometer at point n,SK_1 is the speedometer reading at the starting pointю The calculation results are included in Table-1.

Determination of traffic, communication, flight and round-trip flight times. Chronometric observations are carried out using the lowest technical and operational indicators that can be used in the researched direction[3,4]. The driver of the bus, which is subject to chronometric observation, must have the appropriate qualifications and know the route being studied well. Chronometric observation is carried out on typical days of the week (one of the working days, Saturday, Sunday) throughout the working day, in each season of the year, as well as when the mode of operation of the transport and the flow of passengers change[5,6]. The position of the bus timekeeper is determined in a place where the traffic route, exit and exit doors are clearly visible. The observation is recorded on the map showing the stops of the route, and a document is drawn up based on it (Table 2).

2-table

Map of processing chronometric observations in the direction (In the right direction)

Name of stations	Time, min.			Technical speed, km/h
	movement	Stopping at intermediate stations	stop at the last stop	
Yangiabad district	0	0	5	32,4
Chilonota street	1,2	0.5		32,4
School 198	0,6	0.5		32,4
Gastronomist	0,5	0.5		32,4
Zanjirsoy street	0,4	0.5		32,4
Nadirabegim street	0,8	0.5		32,4
Shop	0,9	0.5		32,4
Slo'nima street	0,7	0.5		32,4
Arslanabad district	0,3	0.5		32,4
Aircraft market	1,2	0.5		32,4
Kozonkhana	1,7	0.5		32,4
Kozonkhana	0,3	0.5		32,4
Shop	0,6	0.5		32,4
Khavas street	0,9	0.5		32,4
Khatirchi street	0,8	0.5		32,4
Combination of refrigerators	1,3	0.5		32,4
Expedition	0,6	0.5		32,4
Fergana market	2,0	0.5		32,4
Oltinkol 2-tor street	0,5	0.5		32,4
11th maternity hospital	1,1	0.5		32,4

Sarakul Street	0,6	0.5		32,4
Fitrat 2-tor street	1,1	0.5		32,4
Mirabad TIIB	0,7	0.5		32,4
Institute of Transport	1,5	0.5		32,4
City of pilots	0,6	0.5		32,4
Margilan street	1,2	0.5		32,4
Solo TIIB	2,5	0.5		32,4
Thermal energy center	1,3	0.5		32,4
Yakasaroy TIIB	1,0	0.5		32,4
International Airport-2	2,1	0.5		32,4
Total	**29**	**14**	**5**	**32,4**

Reverse direction

Name of stations	Time, min.			Technical speed, km/h
	movement	Stopping at intermediate stations	oxirgi bekatda turish	
International Airport-2	0	0	5 min	34,1
Margilan street	1,3	0.5		34,1
City of pilots	1,2	0.5		34,1
Institute of Transport	0,7	0.5		34,1
Ret plant	0,6	0.5		34,1
Mirabad TIIB	0,4	0.5		34,1
Fitrat 2-tor street	0,9	0.5		34,1
Sarakul Street	1,0	0.5		34,1
11th maternity hospital	0,6	0.5		34,1
Oltinkol 2-tor street	0,9	0.5		34,1

Fergana market	0,7	0.5		34,1
Fergana market	1,1	0.5		34,1
Expedition	0,8	0.5		34,1
Combination of refrigerators	0,6	0.5		34,1
Khatirchi street	0,8	0.5		34,1
Khavas street	0,6	0.5		34,1
Shop	1,1	0.5		34,1
Kozonkhana	1,1	0.5		34,1
Arslanabad district	0,7	0.5		34,1
Aircraft market	1,2	0.5		34,1
Aviazozol AShB	1,0	0.5		34,1
Shop	1,8	0.5		34,1
Nadirabegim street	0,8	0.5		34,1
Zanjirsoy street	0,7	0.5		34,1
Gastronomist	0,7	0.5		34,1
School 198	0,4	0.5		34,1
Chilonota street	0,4	0.5		34,1
Yangiabad district	1,1	0.5		34,1
Total	**23**	**13**	**5**	**34,1**

RESULTS AND DISCUSSION. Movement time. A map of processing chronometric observations is used to determine the running time of buses (Table 2). During the flight, the movement time in the direction is calculated by the sum of the movement times in each zone. $t_m = \sum t'_m$; min.

In the right direction

t_m=1,2+0,6+0,5+0,4+0,8+0,9+0,7+0,3+1,2+1,7+0,3+0,6+0,9+0,8+1,3+0,6+2,0+0,5+1,1+0,6+1,1+0,7+1,5+0,6+1,2+2,5+1,3+1,0+2,1=29 min.

Reverse direction

t_m=1,3+1,2+0,7+0,6+0,4+0,9+1,0+0,6+0,9+0,7+1,1+0,8+0,6+0,8+0,6+1,1+1,1+0,7+12+1,0+1,8+0,8+0,7+0,7+0,4+0,4+1,1=23 min.

here: t' - movement time in one peregon, min.,

n – is the number of peregons in the direction.

Stopover time at intermediate points during the flight. The stopover time at intermediate points during the flight consists of the sum of stopover times at each individual stop:

$$t_{st} = \sum t'_{st};\ \text{min.}$$

t_{st}- stopover time at intermediate stops

In the right direction

t_{is}=0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5=14 min.

Reverse direction

t_{is}=0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5+0.5=13 min.

here: t' - stopping time at intermediate points, min.;

k-is the number of intermediate stops.

Contact time. The connection time is the time from the time of departure from one last stop to the second last stop, which includes travel time and stopover time at intermediate stops:

$$t_c = t_m + t_{st};\ \text{min.}$$

In the right direction

t_c =29+14=43 min.

Reverse direction

t_c =23+13=36 min.

Flight time. Flight time is - the time it takes for a bus to reach one final stop on a route, including travel times, stops at intermediate stops, and stops at one final stop:

$$t_f = t_m + t_{st} + t_{ls};\ \text{min.}$$

In the right direction

t_f=29+14+5=48 min.

Reverse direction

t_f=23+13+5=41 min.

One round trip time of the bus. The time of one round of the bus consists of the sum of flight times in both directions:

$$t_{rt} = t_f^{right} + t_f^{reverse};\ \text{h.}$$

t_{rt}=(48+41)/60=1.48 h.

3-Table

Distribution of passenger flow by hours of the day

Hours of the day	Number of passengers	
	Direction	
	right	back
5 – 6	20	12
6 – 7	55	43
7 – 8	95	89
8 – 9	143	111
9 – 10	104	87
10 – 11	89	80
11 – 12	74	57
12 – 13	65	50
13 – 14	68	62
14 – 15	73	68
15 – 16	78	80
16-17	87	99
17 – 18	111	124
18 – 19	87	105
19 – 20	72	74
20 – 21	42	46
21 – 22	26	31
22 – 23	14	19
Total	**1304**	**1238**

Passenger flow chart by hours of the day. On the basis of the data obtained as a result of processing the monitoring results (Table 3) and by selecting the scale, a passenger flow diagram is built by hours of the day[7,8].

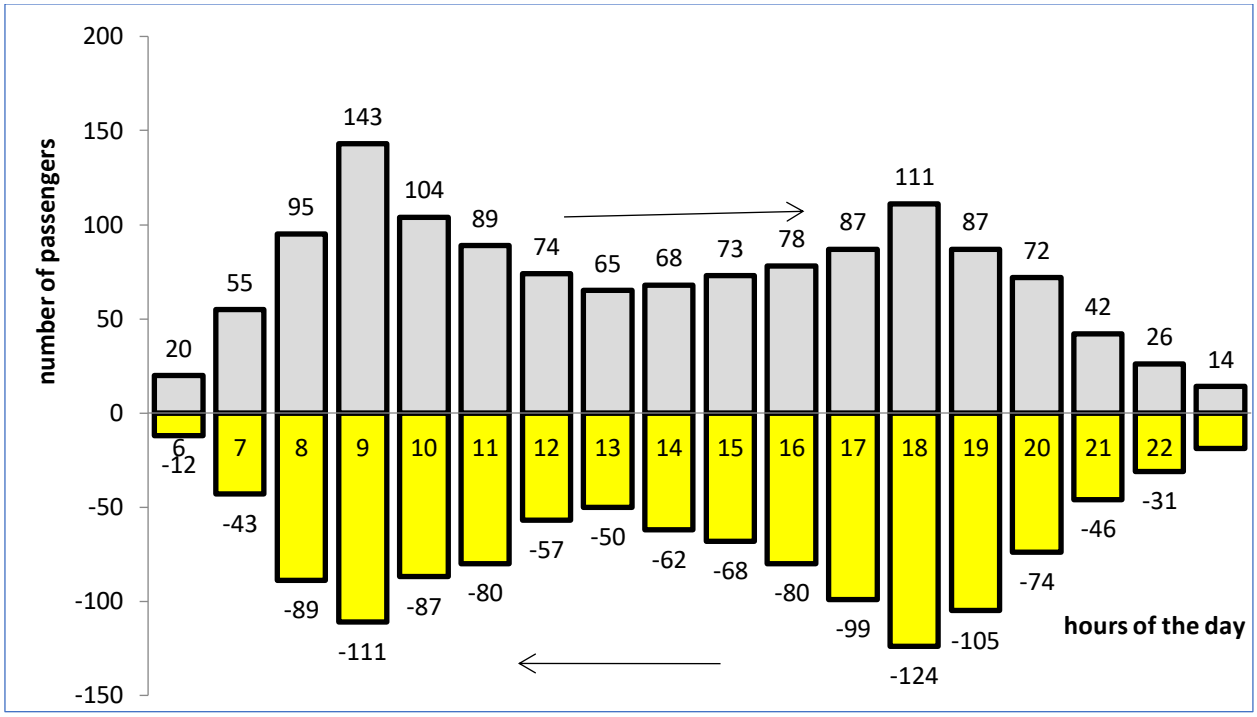

Fig.1. Hourly passenger flow chart

CONCLUSION

In conclusion, in the production of this course project, I changed the production of bus performance indicators in the direction of "Yangiabad Region-International Airport-2" No. 61. Studying this is divided into two parts. I studied accounting, technological and organizational parts. In the computer-technological part, the total distances between the stops and along the route of bus No. 61 were determined and the information was entered into the document. According to it, the distance in the right direction is 15.4 km, the number of stops was 30, and the distance in the back direction was 13.06 km, the number of stops was 28. Also, the movement, communication, flight and round trip times of bus route 61 were determined by chronometric observations and included in the relevant table.

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ENSURING THE INTEGRATION OF SPECIALISTS IN METROLOGY AND STANDARDIZATION WITH MANUFACTURING ENTERPRISES FOR TEACHING

Abstract. *By training students of the metrology and standardization program using modern technologies and ensuring their integration with manufacturing enterprises, it is possible to systematically teach them the modern equipment, methodologies, and applications currently used in the field. Therefore, cooperation between the institute and manufacturing enterprises is strengthening, and practical training, internships, and dual education systems are being elevated to a new level.*

Keywords: *Metrology, standardization, production, innovative technology, specialist, integration, digital technology, artificial intelligence, 3D technology, automation, practical training, internship, industrial laboratories, dual education system.*

Introduction

Metrology and standardization are integral parts of any production process. Modern innovative technologies not only optimize the training process in this field but also strengthen the integration of trained specialists with manufacturing enterprises—a pressing issue today. This article discusses the training system for metrology and standardization specialists that is oriented toward practical application and enhanced by innovative technologies.

The Role of Modern Innovative Technologies in Metrology and Standardization. In the process of training specialists in metrology and standardization, the following modern innovative technologies can be utilized:

- **Digital Technologies and IoT (Internet of Things):** Using smart sensors and IoT systems in metrological processes increases accuracy and efficiency. IoT technologies enable the real-time transmission and processing of data through smart sensors. Many current measurement tools and devices represent the latest generation of digital technology.
- **Artificial Intelligence and Machine Learning:** AI technologies can be applied in analyzing measurement results and automating diagnostic processes. Artificial intelligence and machine learning algorithms help in automatically analyzing measurement data and increasing precision, thereby boosting work efficiency.
- **3D Technologies and Robotics:** By introducing modern technologies into the standardization process, innovative solutions can be developed. 3D technologies and robotics not only optimize production processes but also enhance

standardization systems. The application of 3D technologies represents a new step in solving metrological challenges.

Utilizing such modern innovative technologies is a necessary factor in training metrology and standardization specialists and orienting them toward practical work. These technologies enhance accuracy, efficiency, and the speed of analysis in the field.

Ensuring Integration with Manufacturing Enterprises

Effective cooperation with manufacturing enterprises in training specialists can be implemented in the following areas:

Practical Training and Internships. Organizing practical sessions in collaboration with manufacturing enterprises for students and specialists can be advanced by:

- Introducing Digital Simulations and Virtual Laboratories: Creating an environment that closely mimics real working conditions for students.
- Developing a Mentorship System: Establishing direct collaboration between experienced specialists in the enterprises and the students.
- Direct Participation in Production Processes: Expanding opportunities for students to work on real projects.

Collaboration with Industrial Laboratories

Setting up modern laboratories in industrial enterprises and conducting research there serves several purposes:

- Testing Innovative Technologies: Developing and implementing new measurement and standardization technologies through industrial laboratories.
- Creating a Scientific-Research Environment for Students: Integrating laboratories into the educational process gives students the chance to gain real experience.
- Implementing Projects in Cooperation with Enterprises: Fostering innovation through collaboration between universities and industry to develop new standards and metrological instruments.
- Participation in International Certification and Accreditation Processes: Conducting research in industrial laboratories that adhere to international standards.

Dual Education System

Developing an education model linked with production, where students are trained on real projects in enterprises:

- Establishing Cooperation Between Education and Production: Signing agreements between higher education institutions and manufacturing enterprises.
- Developing Curriculum Based on Practical Work: Ensuring that part of the student’s study period is spent directly in production settings.
- Establishing Mentorship and Support Systems: Involving experienced specialists from the enterprises as mentors for the students.
- Assessment and Certification of Results: Creating a system for evaluating and certifying the knowledge and skills acquired under the dual education system.

Enriching the Educational Process with Innovative Technologies

In training specialists in metrology and standardization, the following innovative approaches can be introduced:

- Virtual and Augmented Reality (VR/AR): Using simulation tools to create realistic scenarios for the students.
- Cloud Technologies and Remote Learning: Optimizing education by implementing online laboratories and remote teaching systems.
- Big Data and Data Science: Analyzing large volumes of metrological data and creating statistical forecasts.

Challenges and Their Solutions

In training metrology and standardization specialists through innovative technologies, the following challenges are encountered:

- The Need to Modernize the Training System: Upgrading the qualifications of educators in modern technologies is essential.
- Aligning Curricula with Production Demands: Study programs need to be updated to reflect modern manufacturing technologies.
- Linking Research Projects with Industrial Enterprises: Strengthening innovative cooperation between universities and enterprises.

Conclusion

Training metrology and standardization specialists based on modern innovative technologies and integrating them with manufacturing enterprises requires a systematic approach. Effective use of digital technologies, artificial intelligence, IoT, and other innovative methods improves the competence of specialists, enhances the efficiency of industrial enterprises, and contributes to economic development. Thus, by ensuring the integration of education and production, it is possible to produce highly qualified personnel and introduce innovative technologies into practice.

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MUCHNISTROY MUSHROOMS HAS BEEN DISCOVERED IN THE FERGANA VALLEY

Abstract: *This article contains information about the powdery mushroom of higher plants of Ferghana Valley, in which micromycetes belonging to 7 genera, 37 species, 40 forms and 2 variations are identified, and also the patterns of their seasonal development are studied.*

Key words: *Obligate, Fungus, Taxonomy, Micromycete, Xerophyll, Hygrophil, Erysiphe Cichoracearum, Blumeria Graminis, Lepidolopha Komarowii, Ranunculus Baldschuanicus.*

Research Methodology Observations made in the Ferghana Valley during 2017–2019 and herbarium samples collected in this region served as a source of scientific work. Herbarium samples were collected seasonally on planned routes.

The collected herbarium samples were mycological analyzed at the Laboratory of Mycology and Algological Institute of Botany of the Academy of Sciences of the Republic of Uzbekistan.

Universal microscopes NU 2E and Motic-1 were used to determine the species composition of micromycetes and study their morphological characteristics.

Plant samples with signs of damage were analyzed in the laboratory based on techniques developed by N.A.Naumov (1937), N.A.Naumov, V.E.Kozlev (1954) and others. Mycological determinants and monographs were used to determine the species composition of mushrooms (A. A. Yachevsky, 1927; H. M. Kirgizbaeva etc., 1983; N.P. Pidoplichko, 1977; 1977a; 1978, Parpiev, G.G., G‘ayratov, O.G. 2024).

During the study, 7 genera, 37 species, 40 forms and 2 varieties of powdery mushrooms were identified in higher plants of the Ferghana Valley (Table 1). It was revealed that the identified mushroom affect 28 families, 62 genera, and 76 species of higher plants.

If you pay attention to the seasonal development of mushroom, identified during the research, they are isolated from the genus Erysiphe in accordance with the modern systematic of representatives of the genus Blumeria. From this genus Blumeria graminis (DC.) Speer, mainly develops in plants belonging to the genus Poa L. from April to May. This species is hydrophilic and is reported to develop during the year from spring to late fall, when conditions are suitable.

TABLE 1 TAXONOMIC ANALYSIS OF МУЧНИСТОРОСЯНЫХ MUSHROOM FOUND IN HIGHER PLANTS OF FERGHANA VALLEY.

Class	Order	Family	Kind	Type (variation form)
Leotiomycetes	Erysiphales	Erysiphaceae	Erysiphe	10 (18-1)
			Leveillula	11 (15)
			Sphaerotheca	8 (3-1)
			Phyllactinia	2 (3)
			Podosphaera	3 (1)
			Uncinula	2
			Golovinomyces	1

Representatives of the genus Erysiphe begin to develop in the lower and upper hills in March, April and May, some species being hygrophilic and others xerophilic. For example, the fungus Erysiphe aquilegiae. ranunculi (Grev.) R.Y. Zheng & G.Q. Chen develops in Ranunculus baldschuanicus Regel ex Kom. in extremely high humidity. Species with a xerophilic character and their forms are more adapted to development in mountainous regions on the mountain slopes.

The development of the genus Erysiphe, widespread in Ferghana Valley, can be divided into two periods: spring-summer and summer-autumn, and the period of development of spring-summer takes place mainly in the lower part of the lower and upper hills. The species, which began to develop in the lower hills in the second half of March, develops rapidly in early May-June, ending the growing season with an increase in temperature. In connection with a decrease in temperature and an increase in relative humidity in autumn, representatives of this group again develop and form ascocarp. This is due not only to climatic factors, but also to the fact that mushroom repeatedly form conidia during the growing season. Examples of mushrooms that develop in the first period Erysiphe graminis f. hordei-spontanei Jacz., E. cruciferarum Opiz ex L., E. cichoracearum f. althaeae Jacz., E. cichoracearum f. cichorii S. Blumer, E. cichoracearum f. verbenae Jacz., E. horridula f. asperuginis S. Blumer, E. horridula f. solenanthi Jacz., E. convolvuli var. convolvuli, E. urticae (Wallr.) S. Blumer, E. polygoni var. rumicis Y.S. Paul & V.K.

The second summer-autumn period a fall on the highlands and mountainous regions of the high hill, and begins in the second half and early July. Species of the genus Erysiphe that develop during this period are more xerophilic in nature, to which we can lead the following mushrooms: E. E. umbelliferarum f. ferulae Golovin, E. labiatarum f. phlomidisJacz., E. labiatarum f. leonur Jacz., E. horridula f. LindelofiaeGolovin, E. communis f. dianthi Jacz. and etc.

Representatives of the genus Leveillula differ in that they are the most xerophilous species among mushroom. Among the powdery mildew bogs identified in the valley, the genus Leveillula is the leader in the number of species, and its prevalence is explained by the xeromorphic nature of the region's climate. The development of representatives of the genus Leveillula mainly lasts from July to

late autumn. They almost do not exist in the spring because of their ability to grow and develop at much higher temperatures. One of the distinguishing features of representatives of this genus, unlike other mushrooms, is that they require high temperatures and grow well in places exposed to direct sunlight.

Accordingly, they have a development period only in summer and autumn. On the lower hill, they begin to develop from the end of June to July, while on the upper hill and in the mountainous region, they continue from mid-July to autumn. Representatives of the genus Sphaerotheca begin to develop from late April to early May. Scientific sources report that some members of this genus are adapted to certain cold conditions and are also located on the northern slopes at an altitude of 3000 m (Golovin, 1949).

It was noted that they occur in early spring (March-April) not only on the lower, but also on the upper hill, despite the low temperatures. Examples may include the following types: Sphaerotheca fugaxPenz. & Sacc., Sphaerotheca pannosa. Nevertheless, the development of representatives of this category occurs mainly in the spring-summer period on the lower and upper hills, and in the mountainous region coincides with the summer-autumn period. Phyllactinia suffulta from the genus Phyllactinia has been developing mainly since July. Although scientific sources claim that this species is mainly found in trees growing near a water edge, it is mesophilic, but also found on mountain slopes with some arid conditions in the valley.

Representatives of the genus Podosphaera are hygrophilic and have been reported only in areas with very high humidity. Accordingly, representatives of this group were found mainly in the spring on the embankment, but no development was observed on the mountain slopes. Representatives of the genus Uncinula are hygrophilous and have been found to develop in summer and autumn. Uncinula necator (Schwein.) Burrill was found on the lower hill mainly in June, while Uncinula ulmi M.N. Kusnezowa was observed only in September and October in the fall. Representatives of the genus Trichocladia are xerophilic in nature and have been discovered on open mountain slopes since July. From this genus, the species Trichocladia atraphaxidis Golovin is often found in the plant Atraphaxis pyrifolia Bunge, which begins to develop mainly in late June - early July. Golovinomyces salviae (Jacz.) M. Scholler, a representative of the genus Golovinomyces, occurs only in autumn.

Due to the relief of Ferghana Valley and the specific climatic conditions arising in them, powdery mushroom develop throughout the year, that is, from March to late autumn, which obeys the patterns of mycobiota formation in the mountainous regions of Central Asia.

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USING RESOURCE-EFFICIENT IRRIGATION METHODS IN THE FERGANA VALLEY

Annotation*: Abstract: In the current era of water scarcity and global climate change, more efficient use of water resources, hydro-modular zoning of irrigated land, irrigation regime for agricultural crops, efficient use of water and development of new innovative irrigation technologies, prevention of water waste in irrigation, meeting the water demand of agricultural crops at the required level, saving water through planned use of water in irrigation of agricultural crops, and increasing irrigation productivity are considered to be one of the main tasks today.*

Keywords*: Hydromodule region, irrigation, sprinkler irrigation, aerosol, surface irrigation, strip irrigation, subirrigation, specific water consumption.*

Irrigation is the satisfaction of the water needs of agricultural crops at the required level. Various irrigation methods are used. In particular, today, irrigation methods such as surface (over the soil) sprinkling, through the soil, drip and aerosol are widely used. Irrigation methods are a set of measures used to distribute water to irrigated crops and convert the flow form of water into soil and atmospheric moisture. The development of modern irrigation methods is considered the most complex agro-ameliorative measure today. Increasing the efficiency of irrigated land depends to a certain extent on the method and technique of irrigation. When choosing a technique for irrigation of agricultural crops, it is necessary to take into account the climatic, hydrogeological, biological, economic, economic and other characteristics of the area. In addition, the level of moisture supply of the area, wind speed, water transpiration rate, and wind direction are also important factors to consider. For example, while the relief of the area is also important in irrigation, the location of groundwater, its mineralization, and whether or not the area is drained determine the use of one or another method of irrigation of agricultural crops. If the use of sprinkler irrigation is considered effective in conditions where the mineralization level of groundwater is 1.5-3.0 g/l and the critical depth is 1.5-2.2 m, then surface irrigation is considered convenient in areas with a mineralization level of 5.0-7.0 g/l and a critical depth of 3.0-3.5 m, and one or another irrigation method can be used in conditions where the mineralization level is 3.0-5.0 g/l and a critical depth of 2.2-3.0 m.[1]

Surface irrigation of agricultural crops. This method has been used for a long time to irrigate agricultural crops. It has the following forms: furrow irrigation, strip irrigation, and edge irrigation. In surface irrigation (over the soil), water moves

horizontally along the fields and is absorbed vertically and to the sides. The most advanced method of irrigation is furrow irrigation, in which rows with a slope of 0.001 to 0.05 are cut. This method is currently used in most of the irrigated lands of our republic. In modern agriculture, irrigation is carried out with closed (non-drainage) and open (drainage) bottoms with a slotted bottom, and the fields where crops are sown are furrowed2. Deep furrows with closed ends are used to irrigate crops with row spacings with a slope of less than 0.002. In addition, when irrigating lands with a slope of 0.002-0.004 without draining (using deep furrows), it is advisable to stop watering the furrow when 2/3 of the furrow is filled with water shortly before the water reaches the end of the furrow. Furrow irrigation, which does not cause strong compaction of the soil and allows wetting the deep layers of the soil, which maintain the soil structure well, has a good effect on microbiological processes in the soil. The disadvantage of this irrigation technique is that it is impossible to moisten the soil at the beginning and end of the furrow to the same depth. The impossibility of supplying large amounts of water is another disadvantage of this irrigation technique.

In areas with a lateral slope of less than 0.002 and a longitudinal slope of less than 0.015, the strip irrigation method is used. In this case, water is introduced into the field through strips in a continuous manner. Today, this irrigation method is used to irrigate leguminous and fodder crops and cereal crops planted in a continuous manner in order to accumulate moisture in the soil.

Strip irrigation is carried out in two different schemes:

1) On well-leveled and non-vertical lands, water is transferred from a temporary network directly to the head of the strip;

2) In areas with poorly leveled and complex microrelief, water distribution is more complicated in this method. Therefore, in such conditions, water is supplied to the strip from its side.

3) In rice cultivation and salt washing activities, the strip irrigation method is carried out by taking a check. In this case, it is surrounded by ridges. Such irrigation is used on lands with a slope of <0.002 and without a fixed slope, with weak water permeability, high natural drainage or provided with collector-drainage networks. The disadvantage of this type of irrigation is that the curbs hinder the movement of agricultural machinery and damage the soil structure.

The sprinkler irrigation method of irrigation is aimed at accumulating water reserves at a depth of up to 0.6 m and improving the microclimate, and is divided into: regular and pulse sprinkler irrigation according to the method of impact on the plant and soil layer. Typically, in cases where the air temperature is high and the air humidity is low, irrigation is carried out every day at the highest air temperature (from 12 to 15 hours) to improve it. In addition, it is necessary to take into account the qualitative characteristics of sprinkler irrigation.

In the climatic conditions of Central Asia, for irrigation of berries, vegetables and other fodder crops, as well as in areas with a complex relief structure and a slope of 0.05-0.3, the pulsed sprinkler irrigation method is used as a new promising type of sprinkler irrigation.

The main disadvantages of sprinkler irrigation are low productivity at high rates of irrigation, limited use of this type of irrigation in saline soils, and when the intensity of irrigation is high, the soil layer becomes compacted and becomes crusted, and strong winds limit this type of irrigation to a certain extent.

We can take inter-soil irrigation as an example, which is typical for desert, semi-desert, desert and semi-desert regions, but not typical for saline, very steeply sloping soils with very good permeability to the subsoil. The advantages of this type of irrigation are: there is no need to build irrigation networks, reduced water consumption, the possibility of preventing the spread of weed seeds through water, it is possible to increase fertility by applying mineral fertilizers dissolved in water to the layer where the plant roots are located, it has much higher advantages, such as reduced inter-row cultivation, and increased productivity of irrigators. The disadvantages of this irrigation method are high costs, inability to control the microclimate, inability to moisten the 10 cm layer of the soil surface, and water pipes buried under the soil becoming muddy and impermeable. This type of irrigation can be divided into pressure, non-pressure and vacuum types according to the passage of water into the soil. In this case: water is supplied to pressure pipes from networks located 0.6-2 m above them, while in non-pressure pipes this indicator is required to be 0.1-0.5 m.

In the vacuum type, unlike pressure and non-pressure pipes, it is carried out by the suction power of the soil. The suction power of the soil depends on the capillary pores of the soil. It should be noted here that the less moisture in the soil, the higher the suction power of the soil.

In areas where the mineralization level of groundwater does not exceed 4-5 g/l, the subirrigation method of irrigation can be used. With this irrigation method, agricultural crops can be irrigated by artificially raising the groundwater level and moistening the soil. The groundwater level is maintained at 0.7-1.5 m and is used for irrigation. In terms of regions, subirrigation can be used during the initial development phases of agricultural crops for the Khorezm region (mid-May), and when water shortages begin in the Fergana region, i.e. by the end of August. This irrigation method has long been used in the regions of Central Asia. In this case, a two-way irrigation drainage structure is built and the groundwater level is maintained by installing barriers. After irrigation, in the dry season, the barriers are removed and drainage works are carried out.

In conclusion, it can be said that in the current water shortage, there is a need to carry out agricultural crops cultivation using new water-saving methods of irrigation. By combating erosion in areas where water erosion occurs during irrigation, it is possible to prevent the washing away of the fertile soil layer. Instead of the old traditional method of irrigation, it is necessary to use a new method of irrigation taking into account the soil and climatic conditions of farms..

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GLOBALLASHUV SHAROITIDA ZAMONAVIY AXBOROT VOSITALARI VA YOSHLAR MA'NAVIY-TARBIYASI

Annotatsiya: *Ushbu maqolada globallashuv sharoitida dunyoning barcha mintaqalarida yashayotgan odamlar ongiga barcha turdagi axborotlarning turli vositalar va usullar orqali kirib borishi hamda uning ta'siri masalalari yoritilgan.*

Kalit so'zlar: *madaniy meros, qadriyat, ta'lim, ta'lim tizimi, ommaviy axborot vositalari, kutubxonalar, turizm muassasalari.*

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MODERN INFORMATION MEDIA AND SPIRITUAL EDUCATION OF YOUTH IN THE CONDITIONS OF GLOBALIZATION

Abstract: *This article discusses the penetration of all types of information into the minds of people living in all regions of the world through various means and methods and its impact in the context of globalization.*

Keywords: *cultural heritage, value, education, education system, mass media, libraries, tourism institutions*

Bugun barchamiz axborot asrida, qolaversa ulkan kompyuter va internet texnologiyalari taraqqiy etgan davrda yashamoqdamiz. Aslida axborot deganda biron voqea haqidagi batafsil xabar, ma'lumot tushuniladi. Davlatlar o'rtasidagi muzoqaralar natijasida tuzilgan bitim yoki shartnoma to'g'risida hukumatning rasmiy xabari ham aslida axborot deb ataladi. Xalqaro huquqda ikki va undan ortiq davlatlar o'rtasida olib boriladigan diplomatik muzokaralar natijasida tuzilgan bitimlar, shartnomalar yoki qabul qilingan boshqa qarorlar haqidagi xabar ikki yoki undan ortiq davlatlar tomonidan rasmiy e'lon qilinishi ham ma'lum axborotlarga asoslanadi.Insoniyat tarixining uchinchi ming yillikka qadam qo'yishi jamiyat taraqqiyotida ikki tendensiyani namoyon qilmoqda:

birinchisi – inson mohiyatini tashkil qiladigan mezonlar tizimida, uning intellektual salohiyati, axborotlar arsenali, texnik-texnologik imkoniyati g'oyat rivojlanib, yangi ma'naviy qadriyatlar shakllanishi bilan xarakterlanadi;

ikkinchisi – inson ongida, amaliy turmush tarzida, uning mohiyatiga yot g'ayriaxloqiy xatti-harakatlar (o'z turiga, jamiyatga, tabiatga nisbatan agressivlik)

va ruhiy tushkunlik kayfiyati kuchayib, axloqiy inqirozlarning belgilari ko‘zga yaqqol tashlanmoqda.

Mamlakatimizda oxirgi yillarda yosh avlodni barkamol qilib tarbiyalash, ularning hayotga mustaqil qadam qo‘yishlari uchun barcha zarur sharoitlarni yaratish, huquq va manfaatlarini ta‘minlash kabi muhim masalalar davlat siyosatining eng ustuvor yo‘nalishlaridan biriga aylanib bormoqda. O‘zbekiston Respublikasi Prezidenti Sh.Mirziyoyev 2020-yil 23-sentyabrda Birlashgan Millatlar Tashkiloti Bosh Assambleyasining 75-sessiyasida nutq so‘zlab, Yoshlar huquqlari to‘g‘risidagi Birlashgan Millatlar Tashkilotining konvensiyasini qabul qilish bo‘yicha O‘zbekiston tashabbusini yana bir bor ilgari surdi. Ushbu tashabbus har bir davlatning yoshlar taqdiri va ularning porloq kelajagi borasida mas‘uliyatni o‘z zimmasiga olishi kerakligini nazarda tutadi. Hozirgi kunda O‘zbekiston aholisining 60 foizdan ortig‘ini (qariyb – 18 mln.) kuchli va shijoatli yosh fuqarolar tashkil etadi. Shu sababdan ham, yoshlar siyosati davlat taraqqiyotining uzluksizligini ta‘minlashga qaratilgan barcha strategiya va dasturlarida alohida o‘ringa ega. Respublikada yoshlarga oid davlat siyosatining huquqiy asoslarini mustahkamlash maqsadida 2017 – 2020 yillarda 5 ta qonun va 50 gayaqin qonunosti hujjatlari, shu jumladan, «Yoshlarga oid davlat siyosati to‘g‘risida»gi O‘zbekiston Respublikasi qonuni qabul qilindi. O‘zbekiston tarixida ilk bor 30 iyun ―Yoshlar kuni‖ deb e‘lon qilindi hamda ―O‘zbekiston Respublikasida yoshlar kunini belgilash to’g’risida‖gi qonun qabul qilindi. Shu bilan birga, Respublika darajasida Bosh vazir rahbarligida, hududlarda esa hokimlar raisligida Yoshlar masalalari bo‘yicha Idoralararo Kengashlar faoliyati yo‘lga qo‘yildi.

Axborot-kommunikasiya texnologiyalari, Internet-resurslar va tarmoq kommunikasiyalari shiddat bilan rivojlanishi hamda mamlakatda axborot jamiyatining faol shakllanishi O‘zbekiston yoshlarida madaniy va boshqa qadriyat tushunchalarini baholashning yangi mezonlarini yuzaga keltirmoqda. Bunday omillar ayrim tuzilmalar va nodavlat tashkilotlarining turli ma‘rifiy va madaniy dasturlar hamda loyihalarni targ’ib qilish orqali yoshlar ongiga o‘zbek mentalitetiga xos bo‘lmagan g‘oyalarini singdirish bo‘yicha keng ko‘lamli ishlarni amalga oshirishga bo‘lgan geosiyosiy intilishini belgilab berdi. Tashqi mafkuraviy o‘zgarishlar ta‘siriga tushmaydigan, jamiyat va davlat oldida javobgarlikni o‘z zimmasiga olishga qodir bo‘lgan yetuk shaxsni tarbiyalashda, shuningdek, yosh avlodda o‘zbek mentalitetiga xos bo‘lgan yangi xulq-atvor me‘yorlarini shakllantirishda davlat tashkilotlari va nodavlat institutlarning roli ortib borayotganligini hisobga olish va yangicha yondashuvlarni qo‘llash zarurati mavjud.

Hech kimga sir emaski, Alisher Navoiy, Zahiriddin Muhammad Bobur, Mirzo
Ulug’bek, Abu Rayhon Beruniy, Abu Ali ibn Sino, Imom Buxoriy va boshqa ko‘plab buyuk bobokalonlarimiz yashagan davrlarda faqatgina sham yorug‘ligi va sodda ilmiy vositalar yordamida yuksak salohiyatli asarlar yaratilgan. Biz

yashayotgan davrda bo‘lsa barchamiz uchun axborot va kommunikatsiya texnologiyalarining eng so‘nggi mahsulotlaridan foydalanish imkoniyati mavjud.

Axborotlashuv va globallashuv jarayonlari, taassufki, faqat moddiy manfaat
va ehtiyojlarini qondirishga intiladigan, milliy qiyofasini qariyb yo‘qotgan, o‘z maqsadi yo‘lida har qanday g‘oyani qo‘llashga tayyor toifalarni ham vujudga keltirdi. Bunday salbiy holat mamlakatimiz aholisi, ayniqsa, yoshlarimizga o‘z ta‘sirini ko’rsatmay qolmaydi. Ana shu tahdidni bartaraf etish uchun bor imkoniyatni ishga solgan holda izchil kurashmoq zarur. Bugungi kunda inson ma‘naviyatiga qarshi yo_naltirilgan, bir qarashda arzimas tuyuladigan kichkina xabar ham axborot olamidagi globallashuv shiddatidan kuch olib, ko‘zga ko‘rinmaydigan, lekin zararini hech narsa bilan qoplab bo‘lmaydigan ulkan ziyon etkazishi mumkin.

Demak, hozirda har bir axborot chegara bilmaslik xususiyatiga ega ekan, ongi va dunyoqarashi endigina shakllanayotgan yosh avlodning ma‘naviy olami daxlsizligini asrash ko‘pchilikni o‘ylantirishi darkor. Internetni cheklab qo‘yish yoki axborot olishni taqiqlash bilan muammo hal bo‘lmaydi. Hayotni ham ommaviy axborot vositalarisiz tasavvur qilish qiyin bo‘lgan hozirgi sharoitda internet yoshlar uchun asosiy axborot manbaiga aylanayotir. Ammo, G‘arb madaniyatiga taalluqli ba‘zi ko’rsatuv va saytlar borki, ular mutlaqo axloqqa ziddir. Bunday axborot yoshlarimiz xulqi va dunyoqarashiga salbiy ta‘sir qilishi aniq. Ayni o‘rinda yana bir fikrni aytib o‘tish joiz. Oynai jahon‖ seriallar bilan to‘lib-toshgani, bizningcha, ijobiy hol emas. Chunki yoshlar asosiy vaqtini shu seriallarni ko’rishga sarflashi ta‘lim sifatiga ta‘sir qilmay qolmaydi.

Xulosa qilib aytganda, axborot madaniyatini shakllantirish masalasi jamiyat rivoji bilan bevosita bog‘liq bo‘lganligi sababli u mamlakat miqyosida ijtimoiy ahamiyatga molik masaladir. Shu sababli globallashuv sharoitida axborotlashtirish jarayonining barcha sohaga oid jihatlarini o‘rganish alohida ahamiyat kasb etmoqda. Hozirgi paytda millat va davlatning eng muhim resurslaridan biri insonlarning aqliy salohiyati va bilim darajasi hisoblanadi. Ijtimoiy taraqqiyot, avval tasavvur etib kelinganidek, yuqori turmush darajasiga erishgan yoki zamonaviy texnika ishlab chiqarishni yo‘lga qo‘ygan mamlakatlar emas, balki ta‘lim va tarbiyaning yanada yuqori darajasini ta‘minlashga erishgan mamlakatlar tarix sahnasining old qatorlariga chiqayotganligini ko‘rsatmoqda.

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STATE OF INTESTINAL MICROBIOTA IN YOUNG CHILDREN WITH CONGENITAL HEART DEFECTS

Abstract. *The article presents data on the state of the digestive tract in children with congenital septal heart defects. Most of the examined patients were found to have intestinal dysbiosis of varying severity, which requires timely diagnosis and correction to improve treatment results.*

Keywords: *children with septal congenital heart defects.*

INTRODUCTION

Among the diseases of the cardiovascular system in young children, congenital heart defects (CHD) and blood vessels occupy a leading place [1]. In turn, CHD lead to disability of the child population, high mortality, development of various complications and changes in the organs and systems of the body [3]. Against the background of organic pathology of the cardiovascular system, dysfunction of other organs and systems of the body occurs.

MATERIALS AND METHODS

When studying the clinical and anamnestic data of 102 young children with congenital septal heart defects, it was found that 80 of them (78.4%) had gastrointestinal syndrome, manifested by regurgitation, intestinal colic, flatulence, and changes in the nature of the stool. Stool disorders predominated in 61 children (59.8%), abdominal distension in 53 children (52.0%), flatulence in 49 (48.0%), and foul-smelling stool in 45 (44.1%). Assessing the state of the microbial landscape of the oropharynx in young children with septal heart defects, it should be noted that the greatest proportion was accounted for by Candida albicans fungi, found in 26 children (25.5%). The second place in the structure of microflora was occupied by Staphylococcus aureus. It was determined in 24 patients (23.5%). Of the streptococci, the most frequently detected growth was pneumococcus (Streptococcus pneumonia) - in 16 children (15.7%).

RESULTS AND DISCUSSION

In isolated patients, the intestinal microflora, Escherichia coli and Enterococcus faecalis, were detected in the oropharyngeal microbiocenosis. Klebsiella pneumonia dominated among enterobacteria – in 8 children (7.8%). The presence of mainly yeast-like fungi Candida albicans, Staphylococcus aureus and pneumococci in the oropharyngeal microflora of young children with congenital septal heart defects may be one of the factors causing a decrease in the body's immune systems and thereby aggravating the course of the underlying disease. The data obtained are presented in Figure 2. It was found that intestinal dysbiosis in 63

children (61.8%) was associated with a decrease in bifido- and/or lactobacilli in the microbial landscape of the large intestine. An increase in the total number of E. coli was found in 60 children (58.8%), normal and decreased numbers were found in 22 and 18 children (21.6 and 17.6%), respectively. Hemolyzing E. coli were found in 21 children (20.6%). An increased content of lactose-negative enterobacteria was observed, which were represented by microorganisms of the genus Klebsiella (K. pneumonia, K. oxytoca) in 24 children (23.4%), Citrobacter C. freundi in 15 (14.7%), Enterobacter (E. cloacae) in 9 (8.8%), and Serratia (S. adorifera) in 3 (2.9%). Coccal flora in 32 patients (31.4%) was represented by Enterococcus (E. faecalis), in 12 (11.8%) – by plasmacoagulating staphylococcus, in 6 (5.9%) – St. aureus, in 3 (2.9%) – Str. epidermidis. It was revealed that in 45 children (44.1%) intestinal dysbiosis was associated with the presence of yeast-like fungi of the genus Candida (C. albicans) in amounts exceeding the permissible norm. The obtained results indicate a decrease in the content of normal microflora of the digestive tract and activation of opportunistic flora. An increase in the number of the latter is observed due to microorganisms of the genus Klebsiella and hemolyzing E. coli. Activation of pathogenic microorganisms was revealed due to plasmacoagulating staphylococcus.

An increase in the contamination of a particular section of the gastrointestinal tract with opportunistic microflora reduces its bactericidal properties and can serve as an indicator of a decrease in the immunological reactivity of the macroorganism.

The majority of those examined - 93 children (91.2%) of early age with congenital septal heart defects - were found to have dysbiosis of the large intestine of varying severity. Dysbiosis of the second and third degrees was most often diagnosed, in 46 (45.1%) and 34 patients (33.3%), respectively. Dysbiosis of the first degree of the intestine was found in 13 children (12.7%), and dysbiosis of the fourth degree was not detected in any case. Only 9 children (8.8%) were not found to have disturbances in the composition of the intestinal microflora. Analysis of the intestinal microflora composition in the observation groups showed the following: in the 1st group there were 50 children (86.2%) with intestinal dysbiosis. Normal composition of the intestinal microbiocenosis was observed only in 8 children (13.8%). Intestinal dysbiosis of the 1st degree was detected in 8 children (13.8%), 2nd and 3rd degrees - in 21 (36.2 and 36.2%, respectively). In the 2nd group, intestinal dysbiosis was observed in 31 children (96.9%), of which 7 (21.9%) had the 1st degree, 16 (50%) - the 2nd, and 8 (25%) - the 3rd. No clinical and microbiological disorders were detected in 1 child (3.1%).

It is noteworthy that in the main group 66 children (64.7%) received antibiotic therapy in the first year of life. In the structure of the transferred diseases, acute upper respiratory tract infections prevailed in 51 children (50.0%), pneumonia - in 18 (17.6%). The high level of gastrointestinal tract damage in the form of colon dysbiosis in 93 young children (91.2%) with congenital septal heart defects is probably also associated with frequent use of antibiotic therapy. The presence of gastrointestinal syndrome, disturbances in the microbiological landscape of the oropharynx and lower gastrointestinal tract are factors complicating the course of

congenital septal heart defects in young children, which complicates timely surgical treatment.

CONCLUSION

Thus, it is necessary to correct dysbiotic disorders depending on the severity and clinical manifestations - balanced nutritional support, pro- or prebiotics, enzyme preparations, bacteriophages, enterosorbents. In children with grade 3 intestinal dysbiosis, it is necessary to decide on the appointment of antibiotics for decontamination of "problem" microorganisms.

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ANTIBIOTIC-ASSOCIATED DIARRHEA IN CHILDREN, FEATURES OF THE COURSE IN YOUNG CHILDREN

Abstract. *The aim of the study was to investigate the likelihood of developing antibiotic-associated diarrhea in young children with signs of acute respiratory infection depending on the prescription of probiotics and the duration of breastfeeding. The examination was conducted in 70 children aged 1 to 3 years who were hospitalized with a diagnosis of acute respiratory infection in the form of severe acute nasopharyngitis.*

Keywords: *acute respiratory infection, method, antibiotic-associated diarrhea.*

INTRODUCTION

Respiratory pathology is one of the leading causes of morbidity and mortality in childhood, especially at an early age. Most visits to a pediatrician or general practitioner are due to acute respiratory infections (ARI). High incidence of ARI persists throughout the year, but it is more significant in the autumn-winter period. During flu epidemics, up to 90% of children suffer from one or another form of respiratory pathology. During the year, one child can be registered up to 8 diseases per year. Children aged 6 months to 6 years are most often affected, with a peak at 3-6 years, especially those attending preschool institutions during the first year. The main etiological factor of ARI is viruses - in more than 90% of cases, although a bacterial infection may join in later.

MATERIALS AND METHODS

The study was conducted in 70 children aged 1 to 3 years who were hospitalized with a diagnosis of ARI in the form of severe acute nasopharyngitis. All patients received antibiotics parenterally in age-appropriate dosages from the moment of admission to the hospital. In 26 children (37.1%), antibacterial therapy was accompanied by the prescription of probiotics in age-appropriate dosages. The incidence of AAD was assessed depending on the prescription/non-prescription of biopreparations, the type of antibiotic therapy, as well as the duration of breastfeeding in the first year of life, up to 6 months of life or older, up to 1 year. Statistical processing included determining the value of the proportion of the studied feature; the odds ratio (OR) was used to analyze the relationship with the prescription of biopreparations and the duration of breastfeeding. The reliability of the data obtained was calculated using the $\chi 2$ and Fisher criteria.

RESULTS AND DISCUSSION

After admission to the hospital, all children received antibacterial agents parenterally in age-appropriate dosages. Penicillin antibiotics, cephalosporins, and

macrolides were administered. Most often, children received 3rd generation cephalosporins - in 46% of cases, less often 1st generation cephalosporins and macrolides - 24% and 20%, penicillin - only in 10% of cases. The decision on the need to use antibiotics is one of the main and constant components of choosing ARI therapy. The following indications for prescribing antibiotics are distinguished: an increase in body temperature above 38°C for more than 3 days, dyspnea without obstruction and asymmetry of wheezing, leukocytosis (above 15×109/l), acute otitis media, tonsillitis of streptococcal etiology, sinusitis with pain and swelling of the face, bronchitis caused by atypical flora (chlamydia, mycoplasma), pneumonia [1]. In reality, antibiotics are prescribed much more often due to various factors, among which, apparently, the dominant ones are the concerns of the doctor and the patient's relatives regarding the possibility of developing complications of ARI. It is difficult to assume that in half of children with ARI, medications are actually indicated. In developed countries, unjustified and irrational use of antibacterial agents is observed in 25–40% of cases [2]. The development of AAD was noted during the first – beginning of the second week after the introduction of antibiotics. The criteria for AAD were three or more episodes of unformed stool for two or more consecutive days. In general, symptoms of AAD were noted in 43 children out of 70, which amounted to 61.4%. Literature data indicate that the frequency of AAD can range from 5 to 62%. At the same time, frequent ARIs with the prescription of drug therapy, previous episodes of antibacterial therapy can increase the risk of developing AAD [3].

Table 1

Frequency of antibiotic-associated diarrhea depending on the type of antibiotic therapy

Antibiotics	AAD Abs. value /Total/%	AAD Abs. value /Total/%	Confidence value
Penicillin lines	7/7/100	-/-/-	-
Cephalosporins 1st generation	5/17/29.4	12/17/70.6	0.02
Cephalosporins 3rd generation	28/32/87.5	4/32/12.5	0.0007
Macrolides	4/14/28.6	10/14/71.4	0.03

Most often, AAD was observed in children receiving penicillin antibiotics and third-generation cephalosporins, less often first-generation cephalosporins and macrolides, which generally corresponds to the literature data. The difference in the action of drugs may be due to the specific effects of a particular drug. The most common cause of AAD is associated with the replacement of normal microflora with opportunistic and pathogenic microorganisms, which leads to a decrease in the metabolism of carbohydrates and bile acids and the development of osmotic or secretory diarrhea, which is generally universal for the action of antibiotics of different groups. However, a direct stimulating effect on intestinal motility, possible for macrolides, is also possible due to the laxative effect of additional components of drugs, in particular, clavulanic acid [4].

CONCLUSION

The probability of developing AAD was high and amounted to 61.4%, which was determined by the characteristics of antibacterial therapy. The administration of probiotic biopreparations can reduce the risk of developing AAD by 3.6 times, while breastfeeding - by 2.7 times.

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EFFECTIVENESS OF THYME ESSENTIAL OIL IN THE TREATMENT OF RECURRENT VULVOVAGINAL INFECTIONS

Abstract. *The study of acute toxicity of vaginal dosage forms with thyme essential oil (suppositories on a polyethylene oxide base and 5% cream on an emulsion base) revealed their harmlessness (hazard class IV). It was established that a single use of vaginal dosage forms with thyme essential oil does not cause visible changes in the main physiological processes and does not affect the functions of vital organs. Comparative microbiological studies have established high antimycotic and antibacterial activity of vaginal dosage forms of thyme essential oil, surpassing that of modern antifungal drugs - ointments and vaginal suppositories.*

Keywords: *thyme essential oil, urogenital mycoses, harmlessness, antimicrobial activity.*

INTRODUCTION

The problem of prevention and treatment of infectious lesions of the genitourinary organs in women has become especially urgent in recent years due to the global nature of their distribution, a wide range of clinical and epidemiological manifestations, numerous complications that lead to disruption of the reproductive function of women and pathology of newborns [1]. At the same time, microbial invasions associated with mycotic lesions have a significant share among these pathologies. The increase in their number in the overall structure of this group of diseases is due to the significant prevalence among the world's population of patients with immunodeficiency pathologies, endocrinopathies with pathology of the gastrointestinal tract and secondary vitamin deficiency, the widespread use of corticosteroid and cytostatic drugs, antibiotics, antitrichomonal and contraceptive agents, and an increase in the number of people abusing alcohol and drugs. Therapy of mycoses is associated with problems of allergic diseases, viral and bacterial infections, occupational pathologies, infertility, carcinogenesis, and transplant surgery [2].

MATERIALS AND METHODS

A study of acute toxicity of soft dosage forms for vaginal use with thyme essential oil was conducted. The experiment involved 18 rats weighing 180–220 g, divided into three groups. The animals had skin areas on their backs clipped off: 2×2 cm in the first group, 4×4 cm in the second, and 8×8 cm in the third. Vaginal cream with thyme essential oil was applied to the clipped skin areas of the animals in the corresponding groups once at doses of 3000 mg/kg, 6000 mg/kg, and 12000 mg/kg. The animals were observed for 48 hours, recording the probability of animal

death, changes in the cardiovascular system, respiratory system, central nervous system, and motor activity. The study of the acute toxicity of vaginal suppositories with thyme essential oil was carried out similarly by applying suppository masses with a temperature of 35–36ºC to the trimmed areas of the skin of animals [3].

RESULTS AND DISCUSSION

As a result of studying the harmlessness of vaginal dosage forms of thyme essential oil, it was found that their cutaneous application does not lead to the death of laboratory animals. A single oral administration of cream and suppository mass on a hydrophilic base with thyme essential oil to laboratory rats also does not cause death. The obtained results allow us to state that the developed vaginal dosage forms with thyme essential oil in accordance with the classification of harmful substances. Harmful substances. Classification and general safety requirements" are classified as low-hazard substances. Suppositories with thyme essential oil on a polyethylene oxide base have pronounced antibacterial and antimycotic activity. The carrier base does not have antimicrobial activity. The antifungal activity of the studied vaginal suppositories exceeds that of the vaginal suppositories "Betadine" by 1.2 times, antibacterial activity against the Escherichia coli strain - by 1.7 times. In relation to the other studied strains of pathogenic microorganisms, the antibacterial activity of vaginal suppositories with thyme essential oil and the reference drug does not differ. Vaginal cream with 5% thyme essential oil on an emulsion base also has pronounced antibacterial and antimycotic activity. The emulsion base-carrier does not have antimicrobial activity. The antifungal activity of the vaginal cream under study exceeds that of Betadine ointment (EGIS, Hungary) by 1.8 times, antibacterial activity against the Escherichia coli strain by 2.1 times, and against the Pseudomonas aeruginosa strain by 1.8 times. With respect to the other studied strains of pathogenic microorganisms, the antibacterial activity of the vaginal cream with thyme essential oil and the reference drug does not differ.

CONCLUSION

1. A study of the acute toxicity of vaginal dosage forms with thyme essential oil (suppositories on a polyethylene oxide base and 5% cream on an emulsion base) revealed their harmlessness (hazard class IV).

2. It was found that a single use of vaginal dosage forms with thyme essential oil does not cause visible changes in the main physiological processes and does not affect the functions of vital organs.

3. Comparative microbiological studies have established that the antifungal activity of vaginal cream and suppositories with thyme essential oil exceeds that of modern antifungal drugs - ointment and vaginal suppositories "Betadine" ("EGIS", Hungary) by 2.1 and 1.2 times, respectively. 4. Suppositories with thyme essential oil are 1.7 times greater than Betadine vaginal suppositories in terms of the size of Escherichia coli growth inhibition zones, and vaginal cream with 5% thyme essential oil is 2.1 times greater than Betadine ointment in terms of Escherichia coli strain and 1.8 times greater than Betadine ointment in terms of Pseudomonas aeruginosa strain.

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THE ROLE OF INTESTINAL AND VAGINAL MICROBIOME IN PRE-GRAVITY PREPARATION OF WOMEN WITH ANEMIA

Abstract. *A review of publications devoted to the study of the microbiome composition of the vagina and intestines of a woman during pregnancy and the postpartum period was conducted, as well as a search for and description of the results of studies examining the mechanisms of transmission of maternal microbiota to the newborn in order to assess these changes and determine their role in the homeostasis of the female body, the impact on the newborn, the course of pregnancy and the postpartum period.*

Keywords: *microbiota, vaginal microbiome, intestinal microbiota, opportunistic microorganisms.*

INTRODUCTION

The human microbiome is a complex ecosystem that occupies various biotopes – skin, mucous membranes, organ tissues. The microbiome and the body as a whole exist in symbiotic relationships [1]. The microbiome composition is dynamic and is influenced by a number of factors, such as lifestyle, race, age, hormonal status, and nutrition. To date, a large number of studies have been published demonstrating not only the active role of the microbiota in physiological processes in the body, but also its direct participation in pathological metamorphoses. The intestinal microbiota is considered a microecosystem, which is an important link in ensuring a number of physiological functions, such as protection of the intestinal mucosa, systemic immunomodulation of the host, protection against the attachment of pathogenic bacteria to epithelial cells, and limitation of the absorption of pathogenic metabolites by these cells [1].

MATERIALS AND METHODS

Pregnancy is a complex process accompanied by hormonal, metabolic and immunological changes. A number of authors have proven a decrease in the immunological protective properties of the body to ensure the processes of implantation and subsequent development of the embryo. A decrease in immunity is reflected directly in a decrease in the barrier functions of the mucous membranes and in a change in the microbiotic balance in certain biotopes. These changes contribute to the growth of UPM due to a shift in its balance of quantitative and qualitative relationships with the normal microbiota. This serves as a trigger in the mechanism of occurrence of such conditions as bacterial vaginosis (BV), aerobic vaginitis (AV), candidal vulvovaginitis.

RESULTS AND DISCUSSION

A certain barrier is the vaginal mucosa, which provides protection from the effects of pathogenic microorganisms due to their interaction with epithelial cells, immune system cells and microorganisms colonizing the vaginal mucosa [4]. The vaginal microbiome contains about 10% of all female microbiota and plays an important role in ensuring the physiological norm of the genitourinary system, preventing the development of pathological changes. It is necessary to take into account the relationship of local biocenoses of the body, united into a single microbial ecological system, which functionally and metabolically interacts with other organs and systems, ensuring the maintenance of homeostasis. The microbial composition of the female genital tract changes depending on the production of estrogen [2]. It is known that estrogens promote the deposition of glycogen in the vaginal epithelium, progesterone promotes the cytolysis of epithelial cells with the release of glycogen, and lactobacilli metabolize glycogen into lactic acid, maintaining an acidic environment of the vagina (pH 3.8-4.5). During ovulation, against the background of increasing estrogen saturation, the vaginal microbiome is characterized by the dominance of Lactobacillus and maximum acidity of the environment. During menstruation, a decrease in glycogen concentration associated with a drop in estrogen levels leads to an increase in pH and the risk of dysbiotic disorders. It has been established that with an increase in the pH of vaginal discharge above 4.5, elimination or a sharp decrease in the concentration of normal microflora and a significant increase in the level of OM are observed, which significantly increases the risk of vaginal infections [1]. The use of innovative methods for identifying bacteria of the genus Lactobacillus (sequencing of the 16S rRNA gene region, MALDI-TOF mass spectrometry) showed that more than two dozen species of lactobacilli are found in the vaginal microbiota [2]. The four most frequently detected species are Lactobacillus crispatus, L. gasseri, L. iners and L. jensenii [3], less frequently – L. acidophilus, L. fermentum, L. plantarum, L. brevis, L. casei, L. vaginalis, L. delbrueckii, L. salivarius, L. reuteri and L. rhamnosus [4]. The vaginal microbiota may contain either one or several species of lactobacilli, often in equal proportions, which can significantly enhance the protective potential of the vaginal ecosystem.

In particular, this study showed that differences in the microbiome of newborns depending on the method of delivery were present at the age of 1 month and disappeared by the age of 4-6 months. According to the authors, breastfeeding is the only source of a number of biologically active elements that contribute to the development of the intestinal microbiome, systemic metabolism and the immune system [3]. The establishment of intestinal microbiota at an early age has a significant impact on subsequent human health. The main sources of intestinal microorganisms of the infant are the mother's microorganisms inhabiting her skin, vagina, and the microbiome of the mother's breast milk. There is a close relationship between the intestinal microflora of the infant and the microflora of the mother's breast milk, oligosaccharides included in its composition. Breast milk oligosaccharides not only act as the sole carbon sources for the Bifidobacterium

longum infantis culture, leading to the proliferation of these bacteria, but also stimulate bacterial genes, which has a major impact on enterocyte protection. Indeed, recent studies have shown that breast milk microbiota can directly affect the infant's gut microbiota, and the effect of breast milk on the infant's gut microbiota depends on the duration of breastfeeding [4]. A study published in the journal Microbiome in 2024 demonstrated a relationship between the transmission of fungal microflora and the subsequent establishment of the early intestinal microbiota of the newborn and the maternal intestinal microbiome. The results support the idea that the fungal microflora phenotype is transmitted from mother to offspring [2]. Breastfeeding also had consistent associations with individual taxa previously associated with feeding type and influencing overall infant health (e.g. Bifidobacterium).

CONCLUSION

The data available today on the maternal microbiome prove the key role of balance in the organism-host relationship both at the pre-pregnancy stage, during pregnancy, and in the post-natal period. The leading role of the maternal microbiota in the formation of the newborn's microbiome is absolutely indisputable. The microbiological composition of various biotopes of the female body serves as a certain regulatory mechanism in immunological, physiological and pathological processes.

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EPIDEMIOLOGICALLY SIGNIFICANT RISK FACTORS FOR THE DEVELOPMENT OF PNEUMOCOCCAL MENINGITIS/MENINGOENCEPHALITIS IN ADULTS

Abstract. *Among those hospitalized with a diagnosis of "bacterial meningitis". The leading role in the etiology of the disease belonged to Streptococcus pneumoniae (55.2%). In other cases, there was damage to the meninges by Staphylococcus aureus, Streptococcus spp, fungi of the genus Candida spp., E. coli, Neisseria meningitidis, Cryptococcus spp., some bacteria were found in association with other types of bacteria or viruses, in 7.8% the pathogen could not be identified. Microbiological diagnostics of bacterial meningitis requires the use of a set of methods, including not only microscopic, bacteriological and serological examination (latex agglutination), but also PCR detection of pathogenic microorganisms in the cerebrospinal fluid, the diagnostic value of which is 46.4%.*

Keywords: *bacterial meningitis, method, pneumococcal meningitis.*

INTRODUCTION

Bacterial purulent meningitis is a severe disease that develops as a result of an infectious agent overcoming the blood-brain barrier. The pia mater of the base of the brain and the upper part of the spinal cord are involved in the infectious process, and the vascular plexuses in the ventricular region are also affected, forming foci of purulent inflammation. Among the clinical manifestations of bacterial purulent meningitis, symptoms of intoxication, general cerebral, meningeal and other signs of damage to the nervous system predominate. According to the results of studies by foreign and domestic authors, over the past thirty years, a significant decrease in the incidence of meningococcal infection has been noted, in contrast to bacterial meningitis of non-meningococcal etiology.

MATERIALS AND METHODS

The highest incidence rate of pneumococcal meningitis is recorded in children of the younger age group (0 to 4 years) and is 10 per 100 thousand children. Among the adult population, this indicator is lower - 1-2.5 per 100 thousand population per year, with the maximum incidence in the age group from 45 to 64 years. The detection of pneumococcus increased from 11.5 to 55.2%. Mortality from pneumococcal meningitis reaches 30%. Men get sick more often than women [2-4]. In the hospital, a system for determining pathogen antigens in the cerebrospinal fluid using the latex agglutination method (Slidex pneumo-Kit, manufactured by BioMerieux SA) was used to identify the etiology of bacterial purulent meningitis. This method is highly sensitive, easy to use, and allows the

attending physician to respond in the shortest possible time. In parallel, samples were examined using multiplex polymerase chain reaction (PCR) to identify the genetic material of S. pneumoniae, yeast-like fungi, and viruses.

RESULTS AND DISCUSSION

The incidence of pneumococcal meningitis in the adult population of Samarkand has not been analyzed to date. However, there has been a steady increase in the number of people hospitalized with a confirmed diagnosis of pneumococcal meningitis: 5 people in 2022, 7 people in 2023, and 9 people in 2024.

The primary diagnoses in patients with pneumococcal meningitis upon admission to the hospital were: "Viral infection of the central nervous system" (47.3%); "Meningoencephalitis of unknown etiology" (13.1%); "ARI with meningism" (13.1%);

"Tick-borne encephalitis" (10.5%); "Pneumonia" (8.4%);

"Meningococcal infection" (7.8%).

When analyzing the age structure of patients with pneumococcal meningitis, it should be noted that people aged 25 to 30 years (26%) and over 40 years (52%) were more likely to get sick; 15% of cases were aged 30 to 40 years, and 7% were aged 15 to 25 years, which is consistent with the data of other researchers.

Even if we take into account the fact that pneumococcal meningitis is more often registered in males, our study did not reveal any reliable differences by gender among patients with pneumococcal meningitis (women - 52.6, men - 47.4%). Most cases were noted in the autumn-winter period - 68.4% (26 people).

According to literary data, the development of pneumococcal meningitis may be preceded by head injuries, upper respiratory tract infections and ENT organs of pneumococcal etiology [4]. From the anamnesis of the patients we examined, it was revealed that 86.5% of individuals with meningitis caused by S. pneumoniae had concomitant pathology in the form of: secondary immunodeficiency (HIV infection, malignant neoplasm, diabetes mellitus, rheumatoid arthritis) - 28.9% of cases, respiratory diseases (pneumonia, acute and chronic bronchitis) - 18.4%, ENT diseases (nasopharyngitis, acute purulent otitis, sinusitis, rhinosinusitis) - 15.7%, acute respiratory viral infections - 13.1%, herpes infection - 2.6% and physiological conditions such as pregnancy and lactation (7.8%). According to the clinical picture, pneumococcal meningitis has a significant similarity with meningococcal meningitis, therefore, differential diagnostics is necessary at an early stage. The clinical picture of pneumococcal meningitis was characterized by an acute, even violent onset of the disease with pronounced intoxication syndrome. High temperature of 39-40 °C was observed in 71.4% (15 people), and a third of patients had shaking chills. 38.0% of patients (8 people) complained of weakness; 14.2% (3 people) complained of drowsiness; 9.5% (2 people) noted dizziness, headache and pain in the eyeballs when moving. Four patients (19.0%) had catarrhal symptoms of the upper respiratory tract in the form of dry and productive cough and serous nasal discharge. Only two patients (9.5%) had small-point hemorrhagic rashes on the skin of the trunk and extremities.

CONCLUSION

The main risk factors for the development of pneumococcal meningitis are: age over 40 years (52%); secondary immunodeficiency (HIV infection, diabetes mellitus, malignant neoplasms, long-term use of GCS in the anamnesis); pregnancy and lactation. Often, pneumococcal meningitis takes a severe course (85.7%) with signs of damage to the nervous system, accompanied by the development of complications in the form of cerebral edema, hemodynamic instability and impaired consciousness. In 24.1%, the development of pneumococcal meningitis is preceded by sinusitis, otitis media and pneumonia. Microbiological diagnosis of bacterial meningitis requires the use of a range of methods, including not only microscopic, bacteriological and serological examination (latex agglutination), but also PCR detection of pathogenic microorganisms in the cerebrospinal fluid, the diagnostic value of which is 46.4%.

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THE IMPORTANCE OF S.PNEUMONIAE IN THE DEVELOPMENT OF CHRONIC RESPIRATORY TRACT INFECTIONS IN ADULTS

Abstract. *Streptococcus pneumoniae (pneumococci) are gram-positive, alpha-hemolytic, aerobic, capsule-forming diplococci. Pneumococcal infection is a major cause of otitis media, pneumonia, sepsis, meningitis, and death. Diagnosis is by Gram-stained smears and culture. Treatment depends on the resistance profile and includes any beta-lactams, macrolides, respiratory fluoroquinolones, pleuromutilin, or occasionally vancomycin.*

Keywords: *Diseases caused by pneumococci, Diagnosis, Treatment, Prevention, Basics, Additional information.*

INTRODUCTION

Pneumococci do not grow on simple nutrient media and require the addition of blood and normal animal serum to the media, which are sources of vitamins, choline, and catalase. In the laboratory, pneumococci are identified by the following features:

Gram-positive lanceolate diplococci
catalase-negative
Alpha-hemolysis on blood agar
Sensitivity to optochin
Lysis by bile salts

Pneumococci usually colonize the human respiratory tract, with a seasonal distribution - winter-spring. Spread - airborne.

True epidemics of pneumococcal infections are rare; however, some serotypes appear to be associated with outbreaks in certain populations or settings (e.g., military personnel, crowded areas, homeless people), especially in crowded settings.

MATERIALS AND METHODS

Depending on the chemical structure of the capsular polysaccharide, pneumococci are divided into serological types; in addition, the chemical composition of the capsule determines the virulence and pathogenicity of the microorganism. Virulence varies within serological types due to genetic diversity. Currently, > 90 different pneumococcal serotypes have been identified based on their reaction with type-specific antiserum. The pneumococcal polysaccharide capsule is critical for avoiding phagocytosis. Serotype 3 strains, which have a denser capsule and a tendency to form more mucoid colonies than other serotypes, are the most common causes of invasive pneumococcal disease in adults. Most serious

infections are caused by serotypes 3, 4, 6B, 9V, 14, 18C, 19F, and 23F, which are included in the most commonly initially administered pneumococcal conjugate vaccines, PCV15 and PCV20. These serotypes account for approximately 90% of severe infections in children and 60% in adults. The serotype composition of the agent is slowly changing, partly due to the widespread use of a polyvalent vaccine. Serotype 19A, which is highly virulent and multidrug-resistant, is associated with respiratory tract infection and invasive disease; therefore, it is now included in the 15- and 20-valent pneumococcal conjugate vaccines. Additional serotypes causing infection have been included in updated 15- and 20-valent pneumococcal conjugate vaccines [1].

RESULTS AND DISCUSSION

Patients most susceptible to serious and invasive pneumococcal infections include those with one or more of the following characteristics:

Chronic medical conditions (eg, chronic cardiorespiratory disease, diabetes mellitus, liver disease, alcoholism)

Immunodeficiency or immunosuppression (eg, HIV, congenital and acquired hypogammaglobulinemia [eg, due to multiple myeloma], iatrogenic)

Congenital or acquired asplenia

Sickle cell disease or other hemoglobinopathies

Long-term hospital admissions

Smokers

Aboriginal, Alaska Native, and certain other American Indian groups

Chronic renal failure or nephrotic syndrome

Cochlear implant

CSF leak

Generalized cancer

Hodgkin's disease

Leukemia

Lymphoma

Solid organ transplant

The elderly People, even those who have no other illnesses, usually have a poor prognosis for pneumococcal infections.

Chronic bronchitis, acute respiratory viral infections, especially influenza, can predispose to the development of pneumococcal infection.

The characteristic capsule can be demonstrated using the swelling test. In this assay, the application of antiserum is followed by staining with India ink, which causes the capsule to appear as a halo around the organism. After the capsule binds to the type-specific antiserum, which causes it to swell, the pneumococcal capsule becomes visible under the microscope. After the addition of methylene blue, pneumococcal cells stain dark blue and are surrounded by a well-defined halo, which represents the outer edge of the capsule [2].

Culture confirms identification. Serotyping and genotyping of isolates may be useful for epidemiological reasons (e.g., to monitor the spread of specific strains and strains resistant to antibacterial agents). Variation in virulence within a serotype

can be detected using techniques such as pulsed-field gel electrophoresis and multilocus sequencing. The urine antigen test has high specificity (>90%) but low sensitivity (50–80%) and is highly dependent on concomitant bacteremia. The positive predictive value is high (>95%) (the proportion of patients with a positive test result who actually have disease) (1). However, the negative predictive value (the proportion of patients with a negative test who actually do not have disease) is low, so a negative urine antigen test should not be used to exclude pneumococcal disease [3].

CONCLUSION

Streptococcus pneumoniae plays a crucial role in the development and progression of chronic respiratory tract infections in adults, posing a significant health burden worldwide. Given its ability to colonize the respiratory mucosa, evade immune responses through its polysaccharide capsule, and adapt to different host environments, pneumococci remain one of the leading causes of pneumonia, bronchitis, and other chronic respiratory conditions.

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ANALYSIS OF LIVING CONDITIONS OF THE POPULATION IN RURAL SETTLEMENTS OF SAMARKAND REGION

Abstract. *Although world science, in particular, in scientific and practical work carried out in Turkey, Azerbaijan, Kyrgyzstan, Tajikistan, China and other foreign countries, puts forward the need to raise the architectural appearance of rural areas and settlements in mountainous regions to the level of modern requirements, the issue of perspective master plans for the development of rural neighborhood areas and settlements in the regions of our republic, providing them with primary urban planning documents, has been among the urgent tasks that have been waiting for a solution for several decades. Currently, the majority of the 13,382 existing rural settlements in our republic are in need of urban planning documents.*

Keywords : *Rural settlements , climatic, relief design*

At the initiative of the Head of our state, a number of measures aimed at improving the lifestyle of the population have been implemented in recent years. The development and consistent implementation of the state program has ushered in a new era in this area.

This map shows that the regions bordering the Republic of Tajikistan have settlements at altitudes of 2000 m and above. Large-scale work is being carried out to organize architectural planning and improve the system of designing and constructing housing and social facilities in them.

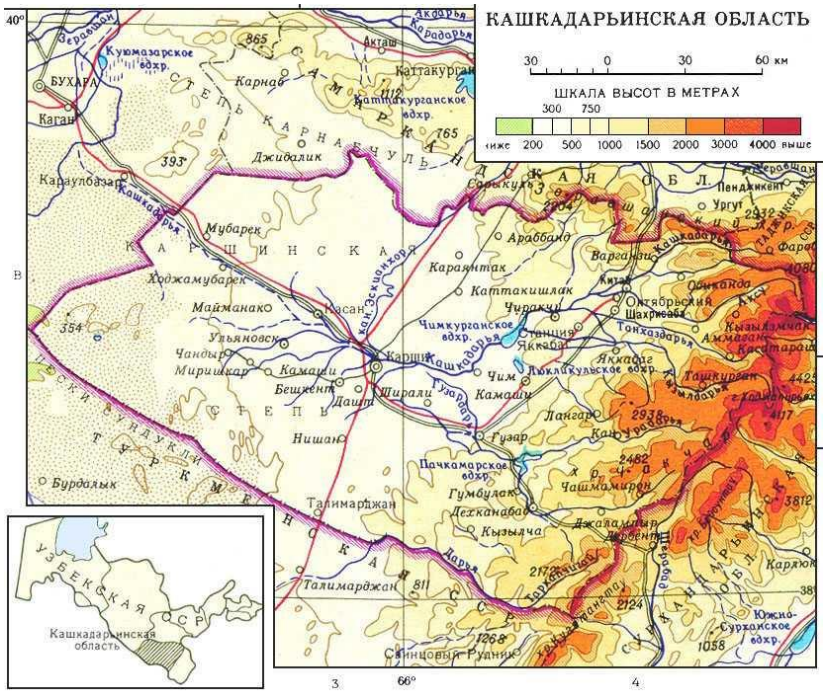
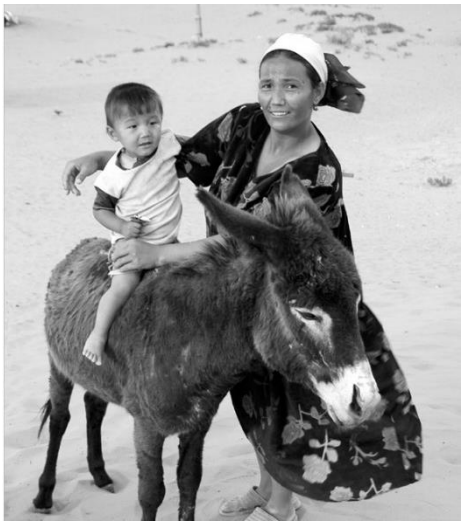


Figure 1. View of the mountainous areas of Kashkadarya and Samarkand regions from sea level

In such conditions, when designing residential buildings, the population creates the opportunity to design in mountainous and foothill zones, preserve flat land areas and expand areas for agriculture. Currently, 51% of the population of our country lives in rural areas. Today, residential areas in our villages are becoming more and more perfect with housing, external engineering and transport and communication systems, social and market facilities. Financing and construction of these works are in the focus of our government. These houses are being built from high-quality building materials. These houses will serve several generations. In terms of population, it is precisely the rural areas of this group that have the highest indicators. However, although the villages belonging to the first and second groups still have a numerical advantage, their socio-economic development and the formation of an infrastructure system are experiencing some difficulties. However, the increasing size and expansion of villages create the necessary opportunities to solve such problems.

Figure 2. View of the location of residential buildings in mountainous areas

The Republic of Uzbekistan is located in the Central Asian region, and all four seasons are evenly distributed. First of all, it is important to comprehensively analyze the dwellings and settlements built by the local population in the mountainous zones of Uzbekistan so far. Through this, we will analyze the conditions of the buildings built by the local population in the mountainous zones (Figure 3).



Lifestyle of mountainous regions (Uzbekistan) Figure 3

Residential areas and buildings built by residents are located on the mountainous terrain, creating a small area for the courtyard.

Based on the natural mountainous conditions, residential buildings should be designed with basements , This condition is important for flat land. In mountainous areas, settlements were built from available folk materials, stone, straw and thatched walls. Therefore, the design solutions of folk architecture in mountainous settlements are characterized by natural building materials. In mountainous areas, the culture of crafts and handicrafts is more widely developed in the mountainous regions of the Fergana Valley. We can analyze this and say that the cheapness of building materials and the ability of houses built of straw to withstand earthquakes have proven themselves. Naturally, in mountainous areas, flat land areas are not large, and in these conditions, villagers in mountainous areas created a flat area for productive use of the land, and the bottom of the house where they lived was used to keep domestic animals (malls and sheep), and the top was used as a yard for crops and a house. Mountainous zones can be divided into types based on the relief conditions, climate, demographic composition, and type of economy. In the Republic of Uzbekistan, the mountain and foothill zones can be divided into 4 main groups based on the social strata of the population. 1- The areas that are freely designed in turn have large land areas, located below the mountain slopes, and the cultivated areas and horticultural areas are located below the mountains. 2- They are intended for small populations, and the rural area is not large. 3- Population centers are intended for construction in high mountainous areas, and there is very little land for cultivation and agriculture. 4- The houses of population centers are designed as small terraced houses. Houses with small courtyards are designed to be connected to the neighboring courtyard.

Location of houses in mountainous areas (Uzbekistan)

In the mountainous areas of the Kashkadarya region, residential houses are designed for two families, and the house plan includes two-room houses with corner verandas, and three-room houses with a veranda in the middle. Residential houses are located around the veranda. The projects of the Kashkadarya and Nurota houses are similar to each other.

To the village typical marriage of style traditional system change village for formed and today's on the day there is was household from needs better quality household services presented to reach develop way with done increase It is possible . for household service show objects number sharp increase and them opportunity until faster to work unloading demand The creation of a regional system of services

along with housing construction is one of the most urgent issues of the day. In this regard, the creation of local engineering networks (heating system, water supply and sewage), gasification, and telephony systems is of great importance.

In the mountainous areas of the Urgut district of Samarkand region, due to the relatively low amount of sunlight from the south, winters are quite cold (around -40 degrees). In the summer, the weather is relatively warm, sometimes rainy. While the houses on the south side are built of cheap building materials such as mud, the houses facing the north are built of stone materials. As a result of the analysis, one of the reasons for this is primarily the abundance of stones in the mountains. The location of the houses relative to the sun and the orderly arrangement of the rooms did not come about by itself. We all know that this convenience has been around for centuries. These are our "national" houses, which are so famous by their name. As mentioned, the appearance of this building is due to climatic and seasonal conditions and local weather conditions. If we pay attention to the ventilation system of residential buildings in mountainous and foothill areas, the air is cooler and the ventilation is less natural compared to the plains.

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THE ROLE OF MILITARY TERMS IN LEXICOGRAPHY

Abstract *Military terminology has played a significant role in shaping language, influencing lexicography across different historical and cultural contexts. This article examines the integration of military terms into general and specialized dictionaries, their evolution, and their impact on everyday language. The study explores how lexicographers document and standardize military vocabulary, analyzing its role in communication, technical discourse, and cultural expression. The findings highlight the significance of military lexicon in lexicography and its dynamic nature in response to technological and strategic developments.*

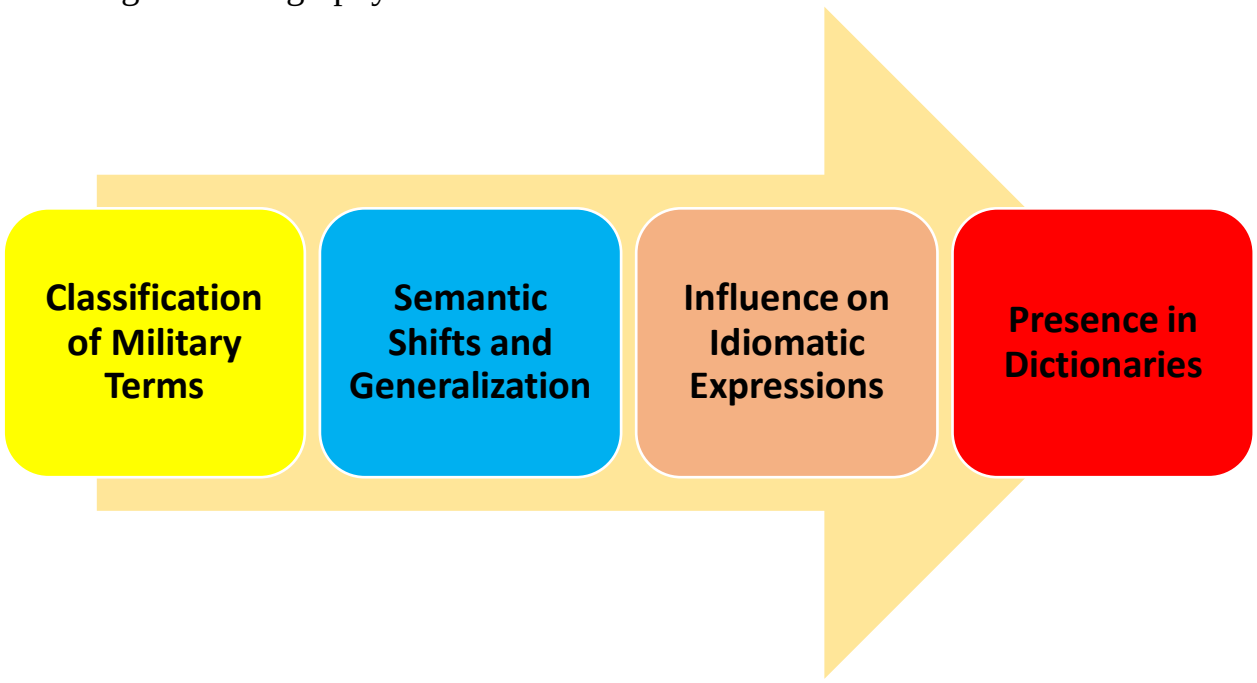
Key words: *military terminology, lexicography, semantic changes, standardization, historical evolution, linguistic impact, military discourse, general language use, lexicographers, classification, weaponry*

Introduction Military terminology constitutes a substantial part of linguistic resources due to its precision, clarity, and historical significance. Throughout history, military operations, strategies, and advancements have necessitated the creation and adaptation of new terms. These terms not only influence military discourse but also permeate general language use. Lexicographers play a crucial role in documenting and standardizing military vocabulary, ensuring accurate definitions and contextual usage. This study explores the integration of military terms in lexicography, analyzing their linguistic impact and the challenges faced in their documentation and classification.

Methodology This research employs a qualitative approach, analyzing military terminology in various lexicographic sources, including general and specialized dictionaries. Data is collected from historical and contemporary lexicons, military glossaries, and linguistic corpora to assess the evolution and standardization of military terms. Comparative analysis is conducted to examine changes in meaning, usage, and adaptation of military terminology across different linguistic contexts. Additionally, expert opinions from lexicographers and military linguists are reviewed to understand challenges in compiling military lexicons.

Results Findings indicate that military terms have undergone significant semantic changes over time, with many becoming part of everyday language. Words like "strategy," "troop," and "camouflage" have expanded beyond their original military context. The analysis also reveals that technological advancements and geopolitical shifts influence the introduction and adaptation of new military terms. For instance, modern military operations have introduced terms such as "cyber

warfare" and "drone strikes." Lexicographers face challenges in maintaining the relevance and accuracy of military terminology due to rapid developments in military technology and tactics. Furthermore, differences in military terminology across languages highlight the need for standardized translations in bilingual and multilingual lexicography.



1. **Classification of Military Terms**: Military terms can be classified into different categories, such as weaponry, strategy, ranks, tactics, and logistics. These terms often originate from classical languages (Latin, Greek) and evolve through cultural interactions and technological developments.

2. **Semantic Shifts and Generalization**: Many military terms undergo semantic broadening. For example, the term *campaign* initially referred to military operations but is now widely used in marketing and politics.

3. **Influence on Idiomatic Expressions**: Military expressions such as *under siege*, *frontline*, and *battle-tested* have integrated into everyday language, influencing metaphorical and figurative speech.

4. **Presence in Dictionaries**: General dictionaries frequently include military terms due to their widespread usage. Specialized military lexicons provide more detailed definitions and technical explanations, demonstrating the importance of lexicography in preserving and standardizing such terminology.

Discussion The role of military terms in lexicography extends beyond military-specific dictionaries. The influence of these terms on political, social, and technological discourse necessitates continuous updating and standardization. Military terms often carry connotations shaped by historical and cultural contexts, requiring lexicographers to provide nuanced definitions. Additionally, military jargon and acronyms pose challenges in documentation, as their meanings can change rapidly with evolving military strategies. The study underscores the importance of interdisciplinary collaboration between lexicographers, linguists, and

military experts to ensure accurate representation and interpretation of military terminology.

Conclusion. Military terminology remains an essential component of lexicography, influencing language evolution and communication. The continuous development of military strategies and technology necessitates constant updates in military lexicons. Lexicographers play a critical role in documenting, standardizing, and contextualizing military terms to ensure their accurate usage in both military and general discourse. Future research should explore the impact of emerging military technologies on language development and the challenges of maintaining linguistic consistency in military lexicography.

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SUN‘IY INTELLEKT VA AKT: INNOVATSION TEXNOLOGIYALARNING KELAJAGI

Annotatsiya: *Ushbu maqolada sun’iy intellekt (SI) va axborot-kommunikatsiya texnologiyalari (AKT) kelajagining rivojlanish istiqbollari tahlil qilinadi. SI va AKTning bugungi kundagi integratsiyalashuvi, ayniqsa, sog‘liqni saqlash, ta’lim, transport va qishloq xo‘jaligi kabi sohalardagi innovatsion yutuqlarni keltirib chiqarayotganligi muhokama qilinadi. Bulutli hisoblash texnologiyalari, katta hajmdagi ma’lumotlar (Big Data) va IoT texnologiyalari SI imkoniyatlarini kengaytirishga yordam berayotgani yoritiladi. Maqolada, shuningdek, SI va AKTning jamiyat va iqtisodiyotni raqamlashtirishdagi roli ham ko‘rib chiqiladi.*

Kalit so‘zlar: *sun’iy intellekt, axborot-kommunikatsiya texnologiyalari, innovatsiyalar, IoT, katta ma’lumotlar, bulutli texnologiyalar, raqamli iqtisodiyot, avtomatlashtirish, aqlli shaharlar.*

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ARTIFICIAL INTELLIGENCE AND ICT: THE FUTURE OF INNOVATIVE TECHNOLOGIES

Abstract: *This article analyzes the future development prospects of artificial intelligence (AI) and information and communication technologies (ICT). Today's integration of IS and ICT is discussed, especially in areas such as health, education, transportation, and agriculture. Cloud computing technologies, Big Data and IoT technologies are helping to expand SI capabilities. The article also considers the role of IS and ICT in the digitalization of society and economy.*

Keywords: *artificial intelligence, information and communication technologies, innovation, IoT, big data, cloud technologies, digital economy, automation, smart cities.*

Kirish: Sun’iy intellekt (SI) va axborot-kommunikatsiya texnologiyalari (AKT) so‘nggi yillarda jamiyatning deyarli barcha sohalarida inqilobiy o‘zgarishlar olib kelmoqda. Har ikki texnologiya insoniyat hayotining turli jabhalarini yangi darajaga ko’tarib, samaradorlikni oshirish va yanada avtomatlashtirilgan tizimlarni

yaratish imkoniyatlarini taqdim etmoqda. AKTning rivojlanishi SIning yanada kengroq imkoniyatlarini ochib beradi, SI esa AKT orqali katta hajmdagi ma’lumotlarni tahlil qilib, ko‘p tarmoqli innovatsiyalarni amalga oshiradi.

Ushbu maqolada SI va AKTning rivojlanish jarayoni, ularning global ta’siri, joriy va kelajakdagi tendensiyalar, shuningdek, statistik ma’lumotlar asosida texnologiyalarning kelajakdagi istiqbollari batafsil tahlil qilinadi.

Sun’iy intellektning dastlabki rivojlanishi asosan ilmiy jihatdan o‘rganilgan bo‘lsa-da, hozirda u keng miqyosda tijorat sohasiga kirib kelmoqda. SI texnologiyalari inson kabi mustaqil fikrlash va qaror qabul qilish imkoniyatiga ega bo‘lgan tizimlarni yaratishga asoslanadi. Statistik ma’lumotlarga asoslansak 2023-yilning oxiriga kelib, global sun’iy intellekt bozori 207 milliard AQSh dollaridan oshdi va kelgusi yillarda bu ko‘rsatkich yana sezilarli o‘sishi kutilmoqda. 2030-yilga borib, sun'iy intellekt sanoati global iqtisodiyotga 15 trillion AQSh dollari miqdorida hissa qo'shishi taxmin qilinmoqda.

Sun’iy intellektning qo‘llanilishi sog‘liqni saqlashdan tortib, ishlab chiqarish, ta’lim va xizmat ko‘rsatish sohalariga qadar turli yo‘nalishlarda keng qo‘llanilmoqda. Masalan, sog'liqni saqlash sohasida sun’iy intellekt tibbiy ko‘rik jarayonlarini tezlashtirish va kasalliklarni aniq tashxislashda muhim rol o‘ynamoqda. Statistik ma’lumotlarga ko‘ra, 2022-yilda sun’iy intellekt yordamida amalga oshirilgan tibbiy tashxislash aniqligi 95 foizdan oshdi, bu esa inson tomonidan bajariladigan tahlillardan yuqoridir.

Ta’lim sohasida sun'iy intellekt interaktiv ta'lim platformalari orqali o'quvchilarni individual ravishda qo‘llab-quvvatlaydi. SI asosidagi tizimlar ta'lim jarayonida ma'lumotlarni avtomatik ravishda tahlil qilib, har bir o'quvchining ehtiyojlariga moslashtirilgan ta'lim taklif qiladi. AKT bilan birga, sun'iy intellekt masofaviy ta'limni yanada samarali va moslashuvchan qiladi.

Axborot-kommunikatsiya texnologiyalari global miqyosda iqtisodiy va ijtimoiy taraqqiyotga sezilarli ta’sir ko‘rsatmoqda. AKT nafaqat kompaniyalarning samaradorligini oshiradi, balki raqamli transformatsiya jarayonlarini ham tezlashtiradi. AKT bozorining global qiymati 2023-yilda 5 trillion AQSh dollarini tashkil etgan va kelgusi o‘n yillikda yanada o‘sishi kutilmoqda.

AKTning asosiy komponentlaridan biri bulutli hisoblash texnologiyalari hisoblanadi. Bulutli texnologiyalar tashkilotlarga katta hajmdagi ma'lumotlarni saqlash, qayta ishlash va tahlil qilish imkoniyatini taqdim etadi. 2024-yilga kelib, bulutli xizmatlardan foydalanish hajmi global darajada 25 foizga oshgan bo‘lib, bu ko‘rsatkich kelgusi yillarda yanada ortishi prognoz qilinmoqda.

Katta ma’lumotlar (Big Data) sun’iy intellektning samarali ishlashi uchun muhim ahamiyatga ega. Yirik ma'lumot to‘plamlarini tahlil qilish orqali turli sohalarda strategik qarorlar qabul qilish imkoniyatlari kengaymoqda. Statistik ma’lumotlarga ko’ra, 2022-yilda katta ma'lumotlarni tahlil qilish orqali kompaniyalar o‘rtacha 10-15 foiz daromad o‘sishini kuzatgan.

IoT va aqlli shaharlar.

AKTning yana bir muhim yo‘nalishi IoT (Internet of Things) texnologiyalari hisoblanadi. IoT orqali uy jihozlaridan tortib transport vositalariga qadar barcha

qurilmalar tarmoqqa ulanadi va bir-biri bilan axborot almashadi. 2024-yilda IoT qurilmalari soni global miqyosda 14 milliardga yetgan va bu raqam har yili o‘sishda davom etmoqda. IoT texnologiyalari aqlli shaharlar qurilishida katta rol o‘ynaydi. Aqlli shaharlar transport, energiya, suv ta’minoti va chiqindilarni boshqarish kabi sohalarda IoT orqali samaradorlikni oshiradi. 2030-yilga kelib, dunyo bo‘ylab 60 dan ortiq aqlli shaharlar yaratilishi kutilmoqda, bu esa global urbanizatsiya jarayonlarini yangi bosqichga olib chiqadi.

Sun’iy intellekt va AKTning kelajakdagi istiqbollari.

Kelajakda sun'iy intellekt va AKTning integratsiyalashuvi yanada chuqurlashadi va yangi innovatsion texnologiyalar paydo bo‘ladi. Quyida ushbu texnologiyalarning kelajakda kutilayotgan tendensiyalari keltirilgan:

Avtomatlashtirish: Kelgusi yillarda sun’iy intellekt asosida avtomatlashtirilgan tizimlar keng miqyosda qo‘llaniladi. Ishlab chiqarish, xizmat ko'rsatish va transport sohalarida avtomatlashtirilgan robotlar va algoritmlar kundalik faoliyatni sezilarli darajada osonlashtiradi.

Sun’iy intellekt va inson hamkorligi: SI texnologiyalari insonlar bilan birga ishlash uchun moslashuvchan tizimlar yaratishga yordam beradi. Masalan, tibbiyotda sun’iy intellekt va shifokorlar birgalikda ishlash orqali kasalliklarni aniq tashxislash va davolashda sezilarli yutuqlarga erishiladi.

Ma’lumotlar xavfsizligi: Sun’iy intellektning o'sishi bilan kiberxavfsizlik masalalari ham yanada dolzarb bo'ladi. AKT bilan integratsiyalashgan sun'iy intellekt tizimlari ma'lumotlar xavfsizligini ta’minlashda muhim rol o'ynaydi.

Samaradorlikni oshirish: SI va AKTning integratsiyasi orqali turli sohalarda jarayonlar yanada samarali va tejamkor bo'ladi. Misol uchun, avtomatlashtirilgan transport tizimlari va aqlli shaharlar orqali energiya va resurslar sarfi kamayadi.

Ochiq ma'lumotlar: Kelajakda sun'iy intellekt va AKT yordamida ochiq ma'lumotlar (Open Data) ko‘proq qo‘llaniladi. Bu orqali turli tarmoqlarda innovatsion echimlar yaratish imkoniyatlari kengayadi.

Sun'iy intellekt va AKT integratsiyasining iqtisodiy ta’siri

SI va AKTning iqtisodiy ta’siri o‘ta katta bo‘lishi kutilmoqda. McKinsey tomonidan olib borilgan tadqiqotlarga ko‘ra, sun'iy intellekt global iqtisodiy o‘sishga 15 trillion AQSh dollari miqdorida hissa qo‘shishi mumkin. AKT esa kompaniyalarga biznes jarayonlarini optimallashtirish va operatsion xarajatlarni kamaytirish imkonini beradi.

PwC tomonidan o‘tkazilgan tadqiqotda esa sun'iy intellektdan foydalangan kompaniyalar daromadlarini o‘rtacha 30 foizga oshirishi kutilmoqda. AKT bilan integratsiya qilingan sun’iy intellekt tizimlari esa raqamli iqtisodiyotni tezlashtiradi va innovatsion biznes modellarining rivojlanishiga hissa qo‘shadi.

Sun'iy intellekt va AKTning kelajagi innovatsion texnologiyalar bilan chambarchas bog‘liq. Ularning birgalikdagi rivojlanishi global iqtisodiyotga, sog‘liqni saqlash, ta’lim va boshqa sohalarga katta ijobiy ta’sir ko‘rsatmoqda. Yaqin kelajakda sun'iy intellekt va AKT orqali yangi texnologiyalar va samarali tizimlar yaratilishi kutilmoqda. Raqamli transformatsiyaning ajralmas qismi bo‘lib qolgan sun'iy intellekt va AKT insoniyat hayotini tubdan o‘zgartirishda davom etadi.

Tegishli tadqiqotlar

McKinsey Global Institute (2021) – "The Future of AI: Automation, Employment, and Productivity". Ushbu tadqiqot sun'iy intellekt va avtomatlashtirishning global mehnat bozori va iqtisodiyotga ta’sirini tahlil qiladi. Tadqiqot SI orqali samaradorlikni oshirish va avtomatlashtirish orqali yangi ish o‘rinlarini yaratish imkoniyatlarini ko‘rsatadi.

PwC (2017) – "Sizing the Prize: What’s the Real Value of AI for Your Business and How Can You Capitalise?". Tadqiqot sun'iy intellektning global iqtisodiyotga ta'sirini o‘rganadi va 2030-yilgacha AI ning 15 trillion AQSh dollari miqdorida iqtisodiy hissa qo‘shishini prognozlaydi. Shuningdek, u turli sohalarda AIning qo‘llanilishi va iqtisodiy samaradorlikni qanday oshirishi haqida ma’lumot beradi.

Statista (2023) – "Global IoT Market Size 2023"

Ushbu tadqiqot IoT texnologiyalarining global bozor hajmini va IoT qurilmalarining qo‘llanilishini o‘rganadi. Tadqiqotda yaqin yillarda IoT qurilmalarining global miqyosda 14 milliarddan oshgani va kelajakda yanada o‘sishi kutilayotganligi tahlil qilinadi.

Deloitte (2020) – "Cloud Computing: A New Era for IT Transformation".

Ushbu tadqiqot bulutli hisoblash texnologiyalarining rivojlanishini va uning korxonalardagi raqamli transformatsiyadagi rolini tahlil qiladi. Bulutli texnologiyalarning iqtisodiy samaradorlikka ta’siri va global miqyosda joriy etilishiga oid statistik ma'lumotlar taqdim etiladi.

International Data Corporation (IDC) (2023) – "Big Data and AI: How Large-Scale Data is Transforming Industries". Tadqiqot katta ma'lumotlar (Big Data) va sun’iy intellekt texnologiyalarining turli sohalarda, jumladan sog‘liqni saqlash, ta’lim va ishlab chiqarish sohalarida qo‘llanilishi haqida ma’lumot beradi. Ushbu tadqiqot katta ma'lumotlarni tahlil qilish orqali yanada samarali qarorlar qabul qilishning iqtisodiy ta’sirini ko‘rsatadi.

Tahlil va natijalar

Sun'iy intellekt (SI) va axborot-kommunikatsiya texnologiyalari (AKT) o'rtasidagi integratsiya hozirgi zamonning eng katta texnologik yutuqlaridan biri hisoblanadi. Ularning ta’siri nafaqat texnik sohalarda, balki ijtimoiy-iqtisodiy jarayonlarda ham chuqur ko‘zga tashlanadi. Ushbu texnologiyalarni chuqur tahlil qilish orqali kelajakdagi istiqbollari ham aniqroq bo‘lishi mumkin.

1. Sun’iy intellektning asosiy afzalliklari

Sun'iy intellektning asosiy afzalliklaridan biri- katta hajmdagi ma'lumotlarni qisqa vaqt ichida tahlil qilish qobiliyatidir. Statistikaga ko‘ra, 2023-yilda tahliliy SI tizimlaridan foydalanayotgan kompaniyalarning 70 foizi o‘z biznes jarayonlarining samaradorligini oshirishga erishgan. Tahlillar shuni ko‘rsatadiki, SI texnologiyalari insonning kundalik faoliyatida resurslardan foydalanish samaradorligini sezilarli darajada oshirishi mumkin. Ishlab chiqarishda robotlar va SI tizimlari qo‘llanilishi natijasida ishlab chiqarish xarajatlari o‘rtacha 25 foizga kamaygan. Shu bilan birga, sun'iy intellektning tibbiyot, ta'lim va xizmat ko‘rsatish sohalarida qo‘llanilishi jarayonlarning sifatini oshirishda muhim omil bo‘lib xizmat qilmoqda. Tibbiyotda

tashxislash tizimlarining aniqligi 95 foizdan oshganligi, bu esa sog‘liqni saqlash tizimining sifatini oshirishda beqiyos ahamiyatga ega ekanligini ko‘rsatadi.

2. AKTning iqtisodiy va ijtimoiy ta’siri

AKTning raqamli iqtisodiyotni rivojlantirishdagi o‘rni beqiyosdir. 2023-yilda AKTga qaratilgan global investitsiyalar hajmi 5 trillion AQSh dollaridan oshdi, bu esa raqamli texnologiyalarni rivojlantirishda jiddiy qadamlarni ko‘rsatadi. Bulutli texnologiyalar, katta ma’lumotlar va IoT kabi AKTning asosiy yo‘nalishlari butun dunyo bo‘ylab korxonalarning biznes modelini o‘zgartirdi va yangi imkoniyatlar yaratdi. Tahlillar shuni ko‘rsatadiki, AKTning rivojlanishi nafaqat iqtisodiy o‘sishga, balki ijtimoiy rivojlanishga ham sezilarli ta'sir ko‘rsatadi. Masalan, IoT texnologiyalari orqali aqlli shaharlar yaratish va ularning samaradorligini oshirish mumkin. 2030-yilga kelib aqlli shaharlar qurilishi orqali energiya sarfi o‘rtacha 30 foizga kamayishi kutilmoqda, bu esa atrof-muhit muhofazasi va barqaror rivojlanishga katta hissa qo‘shadi.

3. Kelajakdagi tendensiyalar

SI va AKTning kelajakda qanday rivojlanishi bo‘yicha turli prognozlar mavjud. Birinchi navbatda, avtomatlashtirishning kengayishi asosiy yo‘nalishlardan biri bo‘lib qoladi. 2030-yilgacha dunyo bo‘yicha jami ish o‘rinlarining 30 foizi avtomatlashtirilishi mumkinligi aytilmoqda. Bu esa inson mehnati bilan bog'liq bo‘lgan jarayonlarni optimallashtirishga olib keladi. Shu bilan birga, yangi texnologiyalarning joriy qilinishi yangi turdagi ish o‘rinlarini yaratadi, bu esa raqamli ko‘nikmalarga bo‘lgan talabni oshiradi. IoT, katta ma'lumotlar va bulutli hisoblashning SI bilan uyg‘unligi natijasida yanada samarali va aqlli tizimlar paydo bo‘ladi. Xususan, sog‘liqni saqlashda masofaviy monitoring va telemeditsina tizimlari, ta’limda masofaviy ta’lim platformalari va ishlab chiqarishda avtomatlashtirilgan tizimlar keng joriy qilinadi.

4. Natijalar

Ushbu tahlillar natijasida sun'iy intellekt va AKTning innovatsion texnologiyalari kelajakda iqtisodiyot, ta’lim, sog‘liqni saqlash va boshqa ko‘plab sohalarda inqilobiy o‘zgarishlar olib kelishi aniq. Sun'iy intellekt va AKTning integratsiyasi orqali samaradorlik sezilarli oshadi, xarajatlar kamayadi va jarayonlar tezlashadi. Ayniqsa, avtomatlashtirish va raqamli transformatsiya sohalarida katta o‘zgarishlar kutilmoqda. Statistik ma’lumotlarga ko‘ra, sun'iy intellekt va AKTning birgalikdagi qo‘llanilishi natijasida global iqtisodiy o‘sish 2030-yilga borib 15 trillion AQSh dollariga yetishi mumkin. Bu esa butun dunyo bo‘ylab innovatsiyalar rivojlanishini kuchaytiradi va yangi texnologiyalar paydo bo‘lishini ta'minlaydi.

Yakunda, sun'iy intellekt va AKTning integratsiyalashuvi jamiyatning turli sohalariga sezilarli ta’sir ko‘rsatadi va kelajakdagi texnologiyalarni shakllantiradi. Ushbu texnologiyalarni o‘rganish va rivojlantirish kelajakda yangi imkoniyatlar va innovatsiyalar yaratishda davom etadi.

Metodologiya

Ushbu tadqiqot sun'iy intellekt (SI) va axborot-kommunikatsiya texnologiyalari (AKT) kelajagining innovatsion texnologiyalar doirasidagi

rivojlanish jarayonlarini tahlil qilishga qaratilgan. Tadqiqot jarayonida quyidagi metodologik yondashuvlar amalga oshirildi:

Adabiyotlar tahlili: SI va AKT mavzulariga oid ilg'or ilmiy manbalar va statistik hisobotlar tahlil qilindi. Xususan, McKinsey, PwC, Statista kabi xalqaro tashkilotlarning SI va AKTga oid statistik ma'lumotlari va hisobotlari asosida iqtisodiy va texnologik tendensiyalar o'rganildi.

Statistik ma'lumotlarni tahlil qilish: 2017-2023 yillar oralig'ida sun'iy intellekt va AKT sohalaridagi global bozor o'sish ko'rsatkichlari, IoT va katta ma'lumotlar (Big Data) kabi texnologiyalarning rivojlanish statistikasi asosida sun'iy intellekt va AKTning iqtisodiy va ijtimoiy ta’siri tahlil qilindi. Tadqiqotda raqamli transformatsiya jarayonlarida sun'iy intellektning iqtisodiy rivojlanishga qo'shgan hissasi, avtomatlashtirish va bulutli hisoblash texnologiyalarining kengayishi kabilar asosiy o'rinda turdi.

Tadqiqot natijalarini qo'llash: Tadqiqot davomida olingan statistik ma'lumotlar va tahlillardan foydalangan holda SI va AKTning global iqtisodiyot va ijtimoiy hayotga ta’siri bo'yicha kelgusidagi prognozlar tuzildi. Bulutli hisoblash, katta ma’lumotlar va IoT texnologiyalari orqali kelajakda avtomatlashtirish va aqlli shaharlar qurilishi bo‘yicha taxminlar keltirildi.

Qiyosiy tahlil: SI va AKTning turli sohalarda (sog‘liqni saqlash, ta’lim, ishlab chiqarish, transport) qo‘llanilishining samaradorligi va natijalari qiyosiy tahlil qilindi. Turli sohalarda qo‘llanilayotgan SI va AKT texnologiyalari natijasida hosil bo'lgan iqtisodiy samaradorlik va vaqtni tejash ko‘rsatkichlari o‘rganildi.

Tadqiqot natijalarining umumlashtirilishi: Yig'ilgan ma'lumotlar va statistik tahlillar asosida SI va AKTning integratsiyasi bo'yicha asosiy xulosalar chiqarildi va kelajakdagi innovatsion texnologiyalar rivoji uchun takliflar ishlab chiqildi.

Ushbu metodologiya SI va AKT kelajagini aniq va batafsil tahlil qilish, shuningdek, ularning iqtisodiy va texnologik rivojlanishiga ta'sirini chuqurroq tushunish imkonini berdi.

Xulosa

Sun’iy intellekt (SI) va axborot-kommunikatsiya texnologiyalari (AKT) global iqtisodiyot va ijtimoiy hayotda inqilobiy o‘zgarishlarni amalga oshirmoqda. Ushbu texnologiyalarning integratsiyalashuvi samaradorlikni oshirish, jarayonlarni avtomatlashtirish va yangi innovatsion yechimlarni yaratish imkoniyatlarini taqdim etadi. Tadqiqot davomida sun'iy intellekt va AKTning turli sohalardagi ta’siri, ularning joriy va kelgusidagi tendensiyalari tahlil qilindi.

Statistik ma'lumotlar shuni ko‘rsatadiki, SI va AKT kelajakda global iqtisodiy o‘sishga sezilarli ta’sir ko‘rsatadi. Sun'iy intellektning 2030-yilga kelib global iqtisodiyotga 15 trillion AQSh dollaridan ortiq hissa qo‘shishi kutilmoqda, bu esa yangi ish o‘rinlarini yaratish va turli tarmoqlarda samaradorlikni oshirishga xizmat qiladi. AKTning rivojlanishi esa IoT, katta ma'lumotlar va bulutli texnologiyalar orqali texnologik yutuqlarni tezlashtiradi.

IoT texnologiyalari va aqlli shaharlar global urbanizatsiya jarayonlarini yangi bosqichga olib chiqadi. 2023-yilda IoT qurilmalarining soni 14 milliardga yetganligi va kelajakda bu raqam yanada o‘sishi ko‘zda tutilgan. Bulutli

texnologiyalar va katta ma'lumotlar orqali esa korxonalarning samaradorligi oshib, resurslardan foydalanish tejamkorlik bilan amalga oshiriladi.

Yakunda, sun'iy intellekt va AKTning kelajagi innovatsion texnologiyalar bilan bog'liq bo'lib, ular iqtisodiy, ijtimoiy va texnologik jarayonlarni tubdan o'zgartiradi. Ularning rivojlanishi insoniyat hayotini yanada qulay va samarali qilishda davom etadi. Bu texnologiyalarni chuqurroq o'rganish va rivojlantirish kelajakdagi imkoniyatlarni yanada kengaytiradi.

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QURILISHNING TASHKILIY SHAKLLARI

Annotatsiya: *Maqolada, qurulishning tashkiliy shakllari haqida tushunchalar bo‘ladi. Kapital qurilishini amalga oshirishda ilmiy-tadqiqot, loyihaviy-qidiruv va sanoat korxonalarining loyihaviy konstruktorlik tashkiloti, uskuna, qurilish ashyolari, mahsulotlari va qurilmalari bilan ta’minlovchilar, qurilish-yig‘ma tashkilotlari hamda konstruktorlik, loyihaviy-qidiruv va ilmiy tadqiqot tashkilotlari, buyurtmachilar haqida so‘z boradi.*

Kalit so‘zlar: *Kapital qurilish, kapital qo‘yilmalar, bosh puratchi, tendirlar, konsentatsiya, kombinirlash*

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ORGANIZATIONAL FORMS OF CONSTRUCTION

Annotation: *The article will present the concepts of organizational forms of construction. When carrying out capital construction, we are talking about design organizations of research, design, survey and industrial enterprises, suppliers of equipment, building materials, products and fixtures, construction and installation organizations and design, design, survey and research organizations, customers.*

Keywords: *Capital construction, capital investments, general contractor, tenders, concentration, combination*

O‘zbekiston Respublikasida kapital jamg‘armalar hajmi va qurilish-yig‘ma ishlar tarkibi o‘zgarib bormoqda. Hozirgi zamon bosqichida qurilish majmuasi rivojlanishida qurilishni tashkil qilish usullari va shakllari borgan sari takomillashmoqda.

Kapital qurilishini amalga oshirishda ilmiy-tadqiqot, loyihaviy-qidiruv va sanoat korxonalarining loyihaviy konstruktorlik tashkiloti, uskuna, qurilish ashyolari, inahsulotlari va qurilmalari bilan ta'minlovchilar, qurilish-yig‘ma

tashkilotlari hamda konstruktorlik, loyihaviy-qidiruv va ilmiy-tadqiqot tashkilotlari, buyurtmachilar ishtirok etadilar

Kapital qurilishda investisiya jarayonining asosiy ishtiroqchilari sifatida odatda bajaradigan vazifalariga ko‘ra investor, buyurtmachi, quruvchi, pudratchi va loyihalovchilar ishtirok etadilar.

Investor - ob’yekt qurilishini moliyalashtirishni xususiy yoki qarz mablag‘lar hisobiga amalga oshiruvchi investisiya faoliyati sub’yekti. Investor investisiya natijalarini tasarruf qilishga to‘liq yuridik huquqlarga ega. Shuningdek, u investisiyalarni (kapital qo‘yilmalarni) jalb qilish shaklini belgilaydi, qurilish kontraktlarining shartlarini ishlab chiqadi, investisiya jarayoni ishtiroqchilari bilan bo‘ladigan moliyaviy-kredit munosabatlarni amalga oshiradi. Investor qurilish mahsulotining buyurtmachisi, kreditori, haridori bo‘lishi, shuningdek, bevosita quruvchi funksiyasini bajaradi.

Buyurtmachi - texnik-iqtisodiy asoslarni ishlab chiqishdan boshlab ob’yektni foydalanishga topshirish yoki ob’yektning ishlab chiqarish quvvatiga chiqishigacha bo‘lgan muddatda ob’yekt qurilishining tashkilotchisi va boshqaruvchisi funksiyalarini qabulqilgan huquqiy yoki jismoniy shaxs.

Qurilish egasi - qurilish bo‘layotgan yer maydoniga egalik qilish huquqiga ega bo‘lgan huquqiy yoki jismoniy shaxs. U yer egasi hisoblanadi. Buyurtmachi qurilish egasidan farqli ravishda yer maydonidan qurilish uchun faqat ijara shartlari asosida foydalanadi.

Pudratchi (bosh pudratchi) - pudrat shartnomasi yoki kontrakti asosida ob’yekt qurilishini amalga oshirayotgan qurilish firmasi. Bosh pudratchi qurilish natijalari uchun shartnoma shartlariga muvofiq ravishda buyurtmachi oldida to‘liq javobgar bo‘ladi. U zarur hollarda ayrim turdagi ishlarni bajarish uchun quyi pudrat tashkilotlarini jalb qilishi mumkin.

Loyihalovchi - buyurtmachi bilan tuzilgan shartnoma asosida u yoki bu ob’yektning kelgusidagi qurilishini loyihalovchi loyihalash tashkiloti yoki shunga o‘xshash boshqa muassasa. Loyihalovchi loyihaning va uning asosidagi texnik-iqtisodiy ko‘rsatkichlarning sifati uchun to‘liq javobgar bo‘ladi. Buyurtmachi loyihada ko‘zda tutilgan yechimlarga rioya qilinishini nazorat qilish uchun mualliflik nazorati o‘rnatadi. Qurilish ishlab chiqarishi jarayoni turli shakl va usullarda tashkil qilinishi mumkin bo‘lib, pudrat usuli, xo‘jalik usuli, ob’yektlarni “qulf-kalit” qilib topshirish va sotish shular jumlasidandir.

Pudrat - usulida qurilish muntazam ishlab turuvchi qurilish tashkilotlari (firmalari) tomonidan buyurtmachilar bilan tuzilgan shartnomalar assida amalga oshiriladi. Bu qurilishning asosiy va eng keng tarqalgan usulidir. Bugungi kunda kapital qurilish sohasidagi barcha pudrat ishlarining taxminan 80 foizi shu usulda amalga oshiriladi. Uni amalga oshirish uchun “Kapital qurilish pudrat shartnomasi” asos bo‘lib xizmat qiladi.

Xo‘jalik usulida - ob’yektlar qurilishi yoki qurilish-montaj, ta’mirlash-qurilish ishlari xo‘jalk sub’yektlarining - korxonalar, tashkilotlar, institutlar va shu kabilarning kuch va mablag‘lari hisobiga amalga oshiriladi. Korxonalarni qayta ta’mirlash va kengaytirish, kichikroq qurilish ob’yektlari, hududlar va xonalarni

obodonlashtirish, ta’mirlash ishlari ko‘pincha shu usulda olib boriladi. Ob’yektlarni foydalanishga tayyor holda (“qulf-kalit”gacha) topshirishda buyurtmachining funksiyalari bosh pudratchiga berilib, u qurilishni boshidan boshlaydi va ob’yektni buyurtmachiga o‘zil-kesil tugallangan holatda topshiradi. Qurilishning bunday usuli uy-joy qurilishida juda keng tarqalgan.

Tanlovlar - iqtisodiyotda nisbatan yangi hodisa bo‘lib, bunda buyurtmachi biror ob’yektni qurish yoki loyihalash, asbob-uskunalar yetkazib berish bo‘yicha tanlov e’lon qilayotganligini ochiq yoki yopiq shaklda xabardor qiladi va hohlovchilarni shu tanlovda ishtiroq etishga taklif qiladi. Bunda maxsus hujjat tayyorlanadi va unda tanlovning asosiy g‘oyasi, uning tijoriy va boshqa shartlari ko‘rsatiladi. Bunday hujjatlar majmuasi “tender” deb ataladi.

Xulosa qilib aytganda, qurilishning ijtimoiy mehnat taqsimoti nuqtai nazaridan ixtisoslashuv, konsentratsiya, kooperatsiya kabi tashkiliy shakllari mavjud. Shuni ham aytib o‘tish kerakki, bu shakllar faqat qurilishda emas, balki xalq xo‘jaligining boshqa tarmoqlarida, avvalo sanoatda ham qo‘llaniladi. Amaliyotdan ma’lum bo‘lishicha, bu shakllarni mohirlik bilan qo‘llash orqali ishlab chiqarish va kapital qo‘yilmalarda yuqori samaradorlikka erishish mumkin. Masalan, agar ixtisoslashuv va kooperatsiya harajatlarning kamayishiga, mahsulot sifatining yaxshilanishiga imkon bersa, konsentatsiya va kombinirlash - xom ashyo va materiallardan kompleks foydalanishga hamda qurilish sohasida fan-texnika taraqqiyoti ko‘lamining yanada kengayishiga olib keladi.

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ILMIY TEXNIK-TARAQQIYOTNING QURILISHDAGI SAMARADORLIGINI IQTISODIY BAHOLASH VA UNING KO‘RSATKICHLARI

Annotatsiya: *Ushbu maqolada, innovatsion ko‘rsatkichlar, qurulishlarni atrof- muhitga ta’siri, foyda rentabelligi.*

Kalit so‘zlar: *qurilishdagi samaradorligini iqtisodiy baholash, samaradorlik ko‘rsatkichlari, vazifalar, xususiyatlari*

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SCIENTIFIC TECHNICAL-ECONOMIC ASSESSMENT OF THE EFFECTIVENESS OF PROGRESS IN CONSTRUCTION AND ITS INDICATORS

Annotation: *In this article, innovative indicators, environmental impact of constructions, profitability of profit.*

Keywords: *economic assessment of its effectiveness in construction, indicators of efficiency, tasks, characteristics*

Ilmiy texnik-taraqqiyotning bir qancha ko‘rsatkichlar va metodologiyalar orqali amalga oshiriladi. Bu jarayonning asosiy maqsadi qurilish sohasidagi innovatsiyalarni joriy etish orqali xarajatlarni kamaytirish, mahsuldorlikni oshirish va umumiy iqtisodiy samaradorlikni ta’minlashdir. Quyida ilmiy texnik-taraqqiyotning qurilishdagi samaradorligini baholash uchun keng tarqalgan ko‘rsatkichlar keltirilgan:

- Ishlab chiqarish samaradorligi: Qurilish jarayonida ishlab chiqarilgan mahsulot yoki xizmatlar miqdorini sarflangan resurslar (mehnat, materiallar, vaqt) bilan taqqoslash.

- Qurilish xarajatlari: Qurilishning umumiy xarajatlari, jumladan, materiallar, ish haqi va boshqa xarajatlarni hisobga olgan holda baholanishi.

- Qayta tiklanish darajasi: Innovatsion texnologiyalar yordamida ishlab chiqarish jarayonini optimallashtirish va resurslarni qayta ishlash imkoniyatlari

Innovatsion ko‘rsatkichlar:

- Yangi texnologiyalarni joriy etish darajasi: Yangi uskunalar yoki texnologiyalarni qo‘llash natijasida qaysi darajada natijalar olingani.

- Ishlab chiqarishda innovatsion mahsulotlarning ulushi: Innovatsion mahsulotlarning umumiy ishlab chiqarishga nisbati.

Foyda va rentabellik:

- Rentabellik koeffitsienti: Qurilish loyihalari bo‘yicha olinadigan foyda va sarmoya miqdorini hisobga olgan holda aniqlanadi.

- Investitsiya qaytimi (ROI): Qurilishga kiritilgan investitsiyaning qanchalik tezlikda o‘zini oqlashi.

Ijtimoiy-iqtisodiy ta’sir:

- Yangi ish o‘rinlari yaratish: Texnik-taraqqiyot natijasida yangi ish o‘rinlari ochilishi.

- Mahalliy iqtisodiyotga ta’siri: Qurilish jarayonining mahalliy iqtisodiyotga ijobiy yoki salbiy ta’siri.

Atrof-muhitga ta’sir:

- Ekologik barqarorlik ko‘rsatkichlari: Qurilish jarayonining atrof-muhitga ta’siri va bu borada qilingan sa’y-harakatlar.

Qurilish sohasida ilmiy texnik taraqqiyotning samaradorligini baholash uchun yuqoridagi ko‘rsatkichlardan foydalaniladi. Ushbu ko‘rsatkichlar yordamida mutaxassislar qurilish jarayonlarini yanada takomillashtirish uchun zarur bo‘lgan chora-tadbirlarni belgilaydi hamda investitsiya qarorlarini qabul qilishda asosli yondashuvlarni ishlab chiqadilar.Qurilishda mavsumiyliknig yo‘qotilishiga qaramasdan, qish mavsumida ham ob’yektlar qurilishi bo‘yicha tadbirlarning bajarilishi talab qilinadi. Bir xil tipdagi binolarning turli hududlarda qurilishi har xil moddiy resurs xarajatlarni talab qiladi. Qurilish sharoiti ko‘pincha hududning seysmik holati, yer relefi, gruntlar geologik tuzilishi, yer osti suvlari mavjudligi, qurilish maydoniga konstruksiya va materiallarni etkazish uslublari orqali aniqlanadi.

Qurilish ishchilari sanoatning boshqa tarmoqlaridagi ishchilariga nisbatan ko‘pincha iqlim sharoiti ta’siriga duch keladi. Ushbu xususiyat yilning eng qulay davrlariga katta kuchlar sarflanishini talab qiladi. Shu sababdan asosiy qurilish, montaj va ta’mirlash-qurilish ishlariga mehnatning me’yoriy shart-sharoitidan chetga chiqishlarni hisobga oluvchi tuzatish koeffitsientlari kiritiladi.Qurilishga tayyorgalik ishlari quyidagi yo‘nalishlar bo‘yicha amalga oshiriladi: qurilish ob’yektining maqsadga muvofiqligi yuzasidan texnik-iqtisodiy tadqiqotlarni olib borish, ob’yektni loyihalashtirish va qurilishga muxandislik-texnik jihatdan tayyorgarlik ko‘rish. Texnik-iqtisodiy tadqiqotlar jarayonida barpo etilayotgan ob’yektning texnik-iqtisodiy ko‘rsatkichlari va uni qurishning iqtisodiy jihatdan maqsadga muvofiqligi baholanadi.

Qurilishning maxsus xususiyatlari qurilayotgan ob’yektlarning turli-tumanligi bilan bog‘liqdir. Ular quyidagilardan iborat: sanoat, uy-joy, ijtimoiy-maishiy, transport, qishloq xo‘jaligi, melioratsiya va suv xo‘jaligi, magistral quvurlar, elektruzatish liniyalari.

Sanoat binolari qurilishi ularning ajratilgan joyga to‘planishi va ob’yektlarning murakkabligibilan xarakterlanadi. Bitta joydagi ishlar bir yildan ortiq olib boriladi. Nisbatan uzoq muddatli sanoat ob’yektlarini qurish bilan band bo‘lgan tashkilotlarda ishlab chiqarish vositalarining ko‘chib yurishi kam ta’sir ko‘rsatadi. Ushbu qurilish korxonalarida kadrlar tarkibi esa bir muncha barqaror hisoblanadi.Qurilish milliy iqtisodiyotning mustaqil alohida tarmog‘i bo‘lib, yangi asosiy fondlarni yaratish hamda faoliyat yurgizayotgan ishlab chiqarish va noishlab chiqarish ob’yektlarini qayta qurish, kengaytirish, ta’mirlash va texnik qayta jihozlash uchun mo‘ljallangan. Qurilish tarmog‘ining ahamiyati shundaki, mamlakat milliy iqtisodiyoti rivojlanishi uchun shart-sharoit yaratib beradi.

Xulosa qilib aytganda, Qurilish tashkilotlarining mahsuloti sifatida yaratilayotgan asosiy fondlarni yaratish jarayonida ishchi xodimlar band bo‘ladi hamda mehnat vositalari (texnika) va mehnat predmetlari (materiallar) ishlatiladi. Qurilish jarayoni asosiy elementlarining o‘zaro harakati natijasida esa natural (bino, inshoot va ob’yektlar) va qiymat (pul mablag‘lari) ko‘rinishidagi pirovard qurilish mahsuloti yaratiladi

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QURILISHNING XUSUSIYATLARI VA MILLIY IQTISODIYOTDAGI RO‘LI

Annotatsiya: *Ushbu maqoladaInnovatsion rivojlanishning asosiy yo‘nalishlari, mamlakat iqtisodiyoti ijtimoiy iqtisodiy jihatdan rivojlanishni yangi bosqichi va milliy rivojlanishdagi ro‘li haqida so‘z boradi.*

Kalit so‘zlar: *Investitsiya dasturi, milliy iqtisodiyot, shaharsozlik, jamoatchilik, kommunikatsiya, kapital qurilish.*

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FEATURES OF CONSTRUCTION AND ROLLER IN THE NATIONAL ECONOMY

Annotation: *This article talks about the main directions of innovative development, the new stage of social and economic development of the country's economy and its role in national development.*

Keywords: *Investment program, national economy, urban planning, public, communication, capital construction*

Bugungi kunda mamlakat iqtisodiyoti ijtimoiy-iqtisodiy jihatdan rivojlanishning yangi bosqichiga chiqib bormoqda, chunki olib borilayotgan islohatlarning bosh maqsadi, O‘zbekiston Respublikasini har tomonlama, yani ham iqtisodiy ham ijtimoiy jihatdan barqaror rivojlanishini ta‘minlash, jahonning rivojlangan mamlakatlari qatoridan joy olish hisoblanadi. Ushbu maqsadga erishishda iqtisodiy islohatlar bilan bir qatorda qurilishning milliy iqtisodiyotda tutgan o‘rni va ahamiayati muhim rol o‘ynaydi.

Bunda qurilish tarmog‘ini yanada takomillashtirish, arxitektura hamda qurilish organlari va muassasalarini izchil rivojlantirish mexanizmlarini

shakllantirish, davlat boshqaruvi tizimining samaradorligini ta’minlash, sohaga raqamli texnologiyalarni ilg‘or joriy etish maqsadida quyidagilar O‘zbekiston Respublikasi qurilish tarmog‘ini modernizatsiya qilish, jadal va innovatsion rivojlantirishning asosiy yo‘nalishlari etib belgilandi:

- hududlarni shaharsozlik jihatidan rivojlantirish va ushbu jarayonda jamoatchilikning samarali ishtirokini ta’minlash;
- shaharsozlik faoliyatining sifati va xavfsizligini oshirish;
- shaharsozlik faoliyati sohasidagi ma’muriy tartib-taomillarning samaradorligi, ratsionalligi va shaffofligini ta’minlash, shuningdek, qurilish tarmog‘i tashkilotlari faoliyatining samaradorligini oshirish;
- shaharsozlik faoliyatini raqamlashtirish, tarmoqqa zamonaviy axborot kommunikatsiya texnologiyalarini joriy etish;
- shaharsozlik faoliyati sohasida kadrlarni tayyorlash, qayta tayyorlash va ularning malakasini oshirish tizimini takomillashtirish, ilmiy salohiyatni rivojlantirish.

Qurilish milliy iqtisodiyotning mustaqil alohida tarmog‘i bo‘lib, yangi asosiy fondlarni yaratish hamda faoliyat yurgizayotgan ishlab chiqarish va noishlab chiqarish ob’yektlarini qayta qurish, kengaytirish, ta’mirlash va texnik qayta jihozlash uchun mo‘ljallangan. Qurilish tarmog‘ining ahamiyati shundaki, mamlakat milliy iqtisodiyoti rivojlanishi uchun shart-sharoit yaratib beradi. Qurilishning iqtisodiy jihatlarini o‘rganishning murakkabligi qurilish ishlab chiqarish jarayonining tashkiliy-iqtisodiy shakllarining xilma-xilligi, turli funksional maqsad va vazifalarga ega bo‘lgan ishtirokchilarning ko‘pligi va qurilish ishlab chiqarish jarayonining tabiiy sharoitlarga sezilarli darajada bog‘liqligidadir.

2023 yil 1-fevral holatiga qurilish tarmog’ida 45541 ta qurilish korxona va tashkilotlari faoliyat yuritmoqda, bu oldingi yilga nisbatan 1552 taga oshgan. 2023-yilning yanvar oyida, O‘zbekiston Respublikasida jami 5 011,9 mlrd. so‘mlik qurilish ishlari bajarilib, 2022- yilning mos davriga nisbatan 65,7 % ni tashkil etdi. 2023- yilning yanvar oyida O‘zbekiston Respublikasida bajarilgan qurilish ishlarining iqtisodiy faoliyat turlari bo‘yicha taqsimlanishi quyidagicha: - binolar va inshootlar qurish yo‘nalishi 67,1 % ulushni tashkil etib, 2022- yilning mos davriga nisbatan 66,5 % ni tashkil etdi; - fuqarolik obyektlarini qurish yo‘nalishi 19,9 % ulushni tashkil etib, 2022- yilning mos davriga nisbatan 70,9 % ni tashkil etdi; - ixtisoslashtirilgan qurilish ishlari yo‘nalishi 13,0 % ulushni va 2022- yilning mos davriga nisbatan 56,1 % ni tashkil etdi. Bajarilgan qurilish ishlarining katta qismi yangi bino va inshootlarni qurishga tegishli. Jami qurilish ishlarining 65,8 % i yoki 3 296,7 mlrd. so‘m qurilish ishlari aynan iqtisodiyotda yangi ishlab chiqarish quvvatlari, turar-joy va boshqa jtimoiy obyektlarni yaratishga qaratilgan. Yirik qurilish tashkilotlari bo‘yicha yangi qurilish hisobidan 302,7 mlrd. so‘mlik ishlar bajarildi yoki jami yirik qurilish tashkilotlarining yangi qurilish ishlaridagi ulushi 9,2 % ni tashkil etdi. Kichik korxona va mikrofirmalar bo‘yicha yangi qurilish hisobidan 1 988,6 mlrd. so‘m yoki jami kichik korxona va mikrofirmalarning yangi qurilish ishlaridagi ulushi 60,3 % ni tashkil etdi. Yangi qurilish ishlari hajmida norasmiy sektor hissasi 1 005,4 mlrd. so‘m yoki ularning jamiga nisbatan ulushi

30,5 % ni tashkil etdi. Bino va inshootlarni qurish bo‘yicha qurilish ishlari tarkibida yirik qurilish tashkilotlari tomonidan bajarilgan qurilish ishlari ulushi 7,2 % ni tashkil etib, 2022- yilning mos davridagi ko‘rsatkichga nisbatan 0,1 % punktga ko‘paydi. Ushbu faoliyat turida kichik korxona va mikrofirmalar hissasiga to‘g‘ri kelgan ulush 2022-yilning mos davriga nisbatan 8,0 % punktga kamayib, 59,0 % ni tashkil etdi. Norasmiy sektorning ulushi esa 2022-yilning mos davriga nisbatan 7,9 % punktga ko‘payib, 33,8 % ni tashkil etdi. 240,9 mlrd. so‘m 1984,6 mlrd. so‘m 1138,0 mlrd. so‘m Jami bino va inshootlarni qurish – 3363,5 mlrd. so‘m Yirik qurilish tashkilotlari, kichik korxona va mikrofirmalar, norasmiy sektorning ulushi esa 2022-yilning mos davriga nisbatan 7,9 % punktga ko‘payib, 33,8 % ni tashkil etdi

Qurilish ishlab chiqarish jarayonida investor, buyurtmachi, loyihachi, pudratchi, ixtisoslashtirilgan qurilish tashkilotlari ishtirok etadilar. Qurilish jarayonining bevosita ishtirokchilaridan tashqari, qurilish mahsulotlarini yaratishda texnologik asbob-uskunalar, qurilish mashinalari va materiallari ishlab chiqaruvchi o‘nlab zavodlar ham ishtirok etmoqda. Ishtirokchilarning bunday ko‘pligi tufayli qurilish ishlab chiqarish jarayoni juda ko‘p miqdordagi tashkiliy omillar ta’sirida shakllanadi, deb ta’kidlash mumkin.

Xulosa qilib aytganda, boshqaruv tizimini o‘zgartirish, uni takomillashtirish, eng avvalo, tashkiliy munosabatlarni va shunga mos ravishda boshqaruvning tashkiliy shakllarini o‘zgartirishni anglatadi. Shu sababli, kapital qurilishni to‘g‘ri boshqarish – uning samaradorligini oshirish, ilmiy-texnikaviy taraqqiyotni jadallashtirish va tarmoqda mehnat unumdorligini oshirish, mahsulot sifatini yaxshilash va shu bilan qurilish tarmog‘ining dinamik, rejali va mutanosib rivojlanishi davlat tomonidan uni ongli ravishda tartibga solish masalasini dolzarb qilib qo‘ymoqda. Qurilish tashkilotlari tomonidan yaratilayotgan mahsulotlar hajmining milliy iqtisodiyot yalpi daromadidagi ulushi doimiy ravishda ortib bormoqda, bu tarmoqda olib borilayotgan iqtisodiy islohotlar hamda mamlakat iqtisodiyotining jadal taraqqiyoti natijasidir. Shuni qayd etish kerakki, qurilish tarmog‘i barcha tadbirkorlik tuzilmasining ko‘pchilik qismiga to‘g‘ri keladigan xususiy korxonalar sonining o‘sish tendensiyasi kuzatilmoqda.

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ILMIY TEXNIK TARAQQIYOTNING QURILISHDAGI MOHIYATI, AHAMIYATI VA ASOSIY YO‘NALISHLARI

Annotatsiya: *Ushbu maqola, ilmiy texnik taraqqiyotning qurilishdagi mohiyati.ahamiyati va asosiy yo‘nalishlari haqida yoritilgan. Ularning paydo bo‘lish tarixi va qo‘llanilishi haqida ma’lumotlar berilgan. Ushbu maqoladan erkin izlanuvchilar va talabalar foydalanishlari mumkin.*

Kalit so‘zlar: *Innovatsiya, texnologiya, bino va baho, avtomatlashtirish, boshqaruv tizimlari, qurilish materiallari, barqaror korxona, energiyaga.*

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THE ESSENCE, SIGNIFICANCE AND MAIN DIRECTIONS OF SCIENTIFIC TECHNICAL PROGRESS IN CONSTRUCTION

Abstract: *This article describes the essence, importance and main directions of scientific and technical development in construction. Information about the history of their appearance and use is given. This article can be used by researchers and students.*

Key words: *Innovation, technology, building and evaluation, automation, control systems, building materials, sustainable enterprise, energy.*

Ilmiy texnik taraqqiyot (ITT) qurilish- chunki muhim rol o‘ynaydi, u yangi texnologiya, innovatsion ishlab chiqarishlar va ilg‘or ilmiy yutuqlarni amaliyotga tatbiq etish yaratadi. Bu taraqqiyot qurilishni yaxshilashni yordam, mehnatni yengil va rivojlantirishga yordam berish uchun zarur.

Qurilish sohasidagi ilmiy-texnik taraqqiyotning asosiy yo‘nalishlari quyidagilarni o‘z ichiga oladi:

- Yangi qurilish materiallari va texnologiyalari, masalan, yengil va bardoshli materiallar, energiya samaradorligi yuqori bo‘lgan materiallar va ekologik toza materiallar;
- Qurilish jarayonlarini avtomatlashtirish va robotlashtirish, shu jumladan, qurilish robotlari, 3D-bosma va boshqa zamonaviy texnologiyalar;
- Aqlli tizimlar va boshqaruv texnologiyalari, masalan, binolarni boshqarish tizimlari (BMS), aqlli shaharlar va aqlli infratuzilma;
- Energiya samaradorligi va ekologik tozalik, jumladan, energiya samaradorligi yuqori bo‘lgan binolar, quyosh energiyasi va shamol energiyasini qo‘llash;
- Raqamli texnologiyalar va BIM (Building Information Modeling) tizimlarining qo‘llanishi, jumladan, 3D modellashtirish, ma'lumotlar tahlili va virtual haqiqat.

Qurilish materiallari va texnologiyalari sohasidagi taraqqiyot juda tez sur'atlarda davom etmoqda. Zamonaviy qurilish materiallari engil, bardoshli, energiya samaradorligi yuqori va ekologik toza bo‘lishi kerak. Masalan, kompozit materiallar, shisha tolali beton, bambuk va yog‘och kabi materiallar qurilish sohasida keng qo‘llanilmoqda.

Yangi qurilish texnologiyalari ham muhim rol o‘ynaydi. 3D-bosma texnologiyasi qurilish sohasida tobora ommalashib bormoqda, bu esa binolarni tez va samarali qurilishga imkon beradi. Boshqa yangi texnologiyalar, shu jumladan, prefabrik qurilish va modul qurilish ham qurilishni tezlashtirish va xarajatlarni kamaytirishga yordam beradi.

Qurilish jarayonlarini avtomatlashtirish va robotlashtirish qurilishni tezlashtirish, samaradorlikni oshirish, xarajatlarni kamaytirish va xavfsizlikni yaxshilashga imkon beradi. Qurilish robotlari, masalan, g‘isht terish, beton quyish va boshqa vazifalarni bajarishda ishlatilishi mumkin.

Avtomatlashtirish va robotlashtirish shuningdek, mehnat kuchi etishmasligini bartaraf etishga va xavfli ish sharoitlarini kamaytirishga yordam beradi.

Ushbu texnologiyalar qurilish sanoatida ishchilarning xavfsizligini oshirish, sifatni nazorat qilishni yaxshilash va umuman ish unumdorligini oshirishga qaratilgan.

Aqlli tizimlar va boshqaruv texnologiyalari qurilish jarayonlarini optimallashtirish, binolarni samarali boshqarish va energiya sarfini kamaytirishga imkon beradi. Binolarni boshqarish tizimlari (BMS) binolarning isitish, sovutish, yoritish va boshqa tizimlarini boshqarishda qo‘llaniladi. Aqlli tizimlar shuningdek, binolarning xavfsizligini ta'minlash, energiya sarfini nazorat qilish va qulaylikni oshirish uchun ishlatiladi.

Aqlli shaharlar va aqlli infratuzilma tushunchalari ham qurilish sohasida tobora ommalashib bormoqda. Aqlli shaharlar aqlli tizimlar va texnologiyalarni shaharlarni boshqarish va yashovchilarning turmush sifatini yaxshilash uchun ishlatadi. Aqlli infratuzilma esa yo‘llar, ko‘priklar va boshqa infratuzilma ob'ektlarini samarali boshqarishga qaratilgan.

Energiya samaradorligi va ekologik tozalik qurilish sanoatida muhim ahamiyatga ega. Energiya samaradorligi yuqori bo‘lgan binolar energiya sarfini kamaytirishga va karbon izini kamaytirishga yordam beradi.

Quyosh energiyasi, shamol energiyasi va geotermal energiya kabi qayta tiklanadigan energiya manbalarini qo‘llash ham muhim ahamiyatga ega. Ekologik toza qurilish materiallari va texnologiyalaridan foydalanish ham ekologik izni kamaytirishga yordam beradi.

Qurilish sanoati o‘z faoliyatini ekologik jihatdan toza va barqaror qilish yo‘lida harakat qilish kerak.

Raqamli texnologiyalar va BIM (Building Information Modeling) tizimlari qurilish jarayonlarini samarali boshqarish, xarajatlarni kamaytirish va sifatni yaxshilashga imkon beradi. BIM tizimlari 3D modellashtirish, ma'lumotlar tahlili va virtual haqiqat texnologiyalarini birlashtirib, qurilish loyihalarini rejalashtirish, loyihalash va boshqarishni osonlashtiradi.

Raqamli texnologiyalar shuningdek, qurilish loyihalarini monitoring qilish, xavflarni boshqarish va muammolarni oldini olishga yordam beradi. Bu texnologiyalar qurilish sohasida samaradorlikni oshirish va sifatni yaxshilashga qaratilgan.

Qurilishda ilmiy-texnik taraqqiyot o‘zining tez sur'atlarda rivojlanishini davom ettirmoqda. Yangi materiallar, texnologiyalar va tizimlar qurilishni tezlashtirish, samaradorlikni oshirish, xarajatlarni kamaytirish, xavfsizlikni yaxshilash va ekologik izni kamaytirishga imkon beradi.

Xulosa qilib aytganda, qurilish sohasi o‘zgaruvchan texnologik muhitga moslashish va bu o‘zgarishlarni o‘z faoliyatiga samarali qo‘llashga harakat qilishi kerak. Bu sohada tadqiqot va rivojlantirishga investitsiyalarni oshirish, zamonaviy texnologiyalar va materiallarni qo‘llash, mutaxassislarni tayyorlash va o‘qitishga e'tibor berish kerak.

Shu bilan birga, qurilish sohasi energiya samaradorligi va ekologik tozalikga e'tibor qaratib, barqaror rivojlanish tamoyillariga amal qilishi lozim. Bu soha kelajagi ekologik jihatdan toza va barqaror bo‘lgan binolar va infratuzilmalarni yaratishga bog‘liq.

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MAMLAKATIMIZDA INVESTITSIYALARNI IQTISODIY SAMARADORLIGI OSHIRISH YO‘LLARI

Annotatsiya: *Maqolada investitsiya turlari, investitsiya kiritish, qurilishda pudratchi vazifalari, investitsiyaning iqtisodiy xavfsizlikdagi roli, mamlakat investitsiya jozibadorligini oshirish orqali investitsiyalarni jalb qilish va iqtisodiy xavfsizlik, iqtisodiyotning raqobatbardoshligi haqida ma’lumot berilgan*

Kalit so‘zlar: *Investitsiya, pudratchi, investitsion fondlar, moliyaviy mablag‘lar, aylanma mablag‘lar, tenderlar*

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WAYS TO INCREASE THE ECONOMIC EFFICIENCY OF INVESTMENTS IN THE COUNTRY

Annotation: *The article describes the types of investment, investment, contractor tasks in construction, the role of investment in economic security, attracting investments and economic security by increasing the investment attractiveness of the country, competitiveness of the economy*

Keywords: *Investment, contractor, investment funds, financial funds, working capital, tenders*

Investitsiya (lotincha: investio - “o‘rash”) - iqtisodiyotni rivojlantirish maqsadida o‘z mamlakatida yoki chet ellarda turli tarmoqlarga, ijtimoiy-iqtisodiy dasturlarga, innovatsiya, tadbirkorlik loyihalariga uzoq, muddatli kapital kiritish (qo‘yish). Pulning vaqt (zamon)ga bog‘liq qiymati nazariyasiga ko‘ra, investitsiya kelajakda naf olish maqsadida mablag‘lar qo‘yishdir. Investitsiya kapitalni muayyan muddatga bog‘lashni yoki band qilishni bildiradi. Bundan asosiy maqsad kapital qiymatini saqlab qolish yoki bo‘lmasa kapital qiymatini vaqtda o‘stirib

borishdir. Iqtisodiy mazmuni jihatdan investitsiya turli faoliyatlarga safarbar etilgan moddiy, nomoddiy boyliklar va ularga bo‘lgan huquqlarni aks ettiradi. Investitsiya sifatida pul, qimmatli qog‘ozlar (aksiya, obligatsiya, sertifikat, veksel), er, bino, inshoot kabi boyliklar, intellektual mulk bo‘lgan ilmiy kashfiyotlar, ixtirolar va b. ishlatiladi. Investitsiya loyihalariga mablag‘ qo‘yuvchilar - investorlar davlat, kompaniya, korxona, chet ellik fuqarolar, aholi va boshqalar bo‘lishi mumkin.Uning quyidagi turlari mavjud: davlat investitsiyasi - davlat byudjeti va moliya manbalari hisobidan kiritiladi; chet el investitsiyasi - xorijiy davlatlar, banklar, kompaniyalar, tadbirkorlar tomonidan kiritiladi; xususiy investitsiya - xususiy, korporativ xo‘jalik va tashkilotlar, fuqarolar mablag‘lari, shu jumladan, shaxsiy va jalb qilingan mablag‘lar hisobidan qo‘yiladi. Investitsiya qo‘yilish shakliga qarab moliyaviy (portfel) va real (ishlab chiqarish) investitsiyaga bo‘linadi. Moliyaviy (portfel) investitsiya - aksiya, obligatsiya va b. qimmatli qog‘ozlarni sotib olishga qo‘yiladigan investitsiya, real investitsiya - moddiy ishlab chiqarish (sanoat, qishloq xo‘jaligi, qurilish va b.) sohasiga, moddiy-ashyoviy faoliyat turlariga uzoq, muddatli mablag‘lar qo‘yish shakllarida amalga oshiriladi. Jahon tajribasida investitsiyani moliyalashtirish turli usul va shakllarda, shu jumladan, korxonalarni aksiyadorlashtirish va aksiyalarni joylashtirish, byudjet mablag‘lari, bank kreditlari, lizing, bevosita chet el investitsiyalari, ipoteka, byudjetdan tashqari maxsus fondlar, amortizatsiya va xo‘jalik yuritish sub’yektlarining boshqa mablag‘lari hisobiga amalga oshiriladi.

Bugungi kunda aksariyat jabhalarga xorij investitsiyasini kiritish hamda iqtisodiyotning rivojlanishini yangi bosqichga olib chiqish borasida tub islohotlar amalga oshirilmoqda. Xususan, o‘tgan va joriy yilga berilgan nomlar ham aynan ivestitsiya muhitini rivojlantirish bilan bog‘liq ekanligi fikrimizni isbotlaydi.

O‘zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning 2018 yil 28 dekabrda Oliy Majlis deputatlariga yo‘llagan murojaatnomasida ushbu masalaga alohida urg‘u berildi. Jumladan, o‘tgan yilda Jahon banki, Yevropa tiklanish va taraqqiyot banki, Islom va Osiyo taraqqiyot banklari, boshqa xalqaro moliya institutlari bilan olib borilgan hamkorlik natijalariga ko‘ra, mamlakatimizda investitsiyalar hajmi 8,5 milliard dollarni tashkil etgani, shuningdek, chet el investitsiyalari hisobidan 23 milliard dollarni tashkil etuvchi 456 ta loyiha amalga oshirilayotgani ta’kidlandi. Prezidentimiz ushbu ko‘rsatkichlarga ahamiyat qaratar ekan, keng miqyosli investitsiyalar yurtimiz iqtisodiyotini mustahkamlovchi omil bo‘lishini alohida ta’kidlab, shunday dedi: “Jahon tajribasi shuni ko‘rsatadiki, qaysi davlat faol investitsiya siyosatini yuritgan bo‘lsa, o‘z iqtisodiyotining barqaror o‘sishiga erishgan. Shu sababli ham investitsiya - bu iqtisodiyot drayveri, o‘zbekcha aytganda, iqtisodiyotning yuragi, desak, mubolag‘a bo‘lmaydi”.

Haqiqatan ham, iqtisodiyotda investitsiyalarni keng miqyosda jalb etishga erishish ko‘plab sohalar, tarmoqlar hamda hududlarga yangi texnologiyalar, ilg‘or tajribalar, yuksak malakali mutaxassislar kirib kelishi va tadbirkorlikning jadal rivojlanishiga ulkan poydevor bo‘lib xizmat qiladi.

O‘zbekistonda investitsiya muhiti barqarorligini ta’minlashda umumiqtisodiy, me’yoriy-huquqiy, ekologik shart-sharoitlar, moliyalashtirishning

bozor mexanizmlari, axborot ta’minoti va boshqalar muhim o‘rin tutadi. Shuningdek, xorijiy investorlar mamlakat iqtisodiyotiga mablag‘ kiritishida investitsiyaviy muhitning makroiqtisodiy ko‘rsatkichlarini, ya’ni xorijiy investitsiyalarning kirib kelishi hamda chiqib ketishi, inflyatsiya darajasi, yalpi ichki mahsulotning o‘sishini, iste’mol va jamg‘arma nisbati, foiz stavkalari darajasi hamda xorijiy investitsiyalarning o‘zlashtirilishi kabilarni hisobga oladi. Qolaversa, investorlar mamlakatning malakali kadrlar zaxirasi, bank-moliya xizmatlari sifati, monetar va fiskal siyosat darajalarini ham e’tiborda tutadi.

Mamlakatimiz rahbarining murojaatnomasida “Jahon tajribasini puxta o‘rganib, xalqaro ekspertlarni jalb etgan holda, monetar siyosatni takomillashtirish va narx-navo barqarorligini ta’minlash konsepsiyasini ishlab chiqishimiz zarur”, degan g‘oya ilgari surildi.

Demak, tegishli xavf-xatarlarni baholash hamda ularni bartaraf etish asosida chet el investitsiyalari kirib kelishiga qulayliklar yaratish bugunning dolzarb masalasidir.

Chunki xorijlik investorlar mamlakatning investitsiya muhiti, uning xavfsizligi, siyosiy, iqtisodiy xavf-xatarlar darajasi va ularning sug‘urtalanishi, investitsiyalash maqsadlariga muvofiqligi, iqtisodiyotning, umuman, barcha sharoitlarning boshqalarga nisbatan qulayligi nuqtai nazaridan baholaydilar. Mamlakatga xos xavf-xatar darajasi (qarzlar masalasi, import va eksport balansi, hukumatning barqarorligi hamda boshqalar), mahalliy sharoitning boshqa mamlakatlardan ko‘ra ustun jihatlari etakchi o‘rinda turadi.

Xulosa o‘rnida aytganda, investorlar, korxonalar, tashkilotlar tomonidan mamlakatga ulkan investitsiya loyihalarining kiritilishi natijasida yurtimizda ko‘plab yangi ish o‘rinlari vujudga keladi. Shu bilan birga, zamonaviy bilimlarni o‘rganish imkoniyati, umuman, davlatimizning intellektual salohiyatini yanada oshirish uchun etarli darajada sharoit yaratiladi. O‘z o‘rnida, bunday imkoniyatlar xalq farovonligi, mamlakat taraqqiyot garovi hisoblanadi.

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THE IMPORTANCE OF STUDYING THE IMPACT OF THE INTERNET AND INFORMATION TECHNOLOGY ON STUDENTS

ABSTRACT*: The rapid advancement of the internet and information technologies (IT) has transformed educational landscapes worldwide. The increasing reliance on digital tools, online learning platforms, and communication technologies has significantly influenced students' academic performance, cognitive development, and social behavior. This paper aims to explore the role of the internet and IT in students' learning experiences, focusing on both its benefits and challenges. Through a comprehensive literature review and discussion, the study highlights the need for a balanced approach to integrating technology into education. The findings suggest that while IT enhances learning efficiency and accessibility, excessive use and lack of proper regulation can lead to negative consequences such as reduced attention spans and academic dishonesty.*

KEY WORDS*: Internet, information technology, students, education, learning, digital tools, online learning, academic performance, cognitive development.*

INTRODUCTION

The integration of internet technologies into education has revolutionized traditional teaching methodologies. The widespread use of digital tools has facilitated remote learning, personalized education, and instant access to information. However, the rapid adoption of these technologies also raises concerns regarding their impact on students' cognitive abilities, academic integrity, and social interactions. This study investigates how the internet and IT influence students' educational experiences, emphasizing both their advantages and potential drawbacks. The research aims to provide educators and policymakers with insights into optimizing the use of technology in learning environments.

LITERATURE REVIEW

The impact of the internet and IT on students has been widely studied from various perspectives. According to Anderson and Rainie (2018), digital technologies enhance learning by providing diverse resources and interactive tools [1]. Studies by Selwyn (2019) indicate that IT enables collaborative learning, allowing students to engage in peer-to-peer interactions through online platforms [2]. However, Kirschner and De Bruyckere (2017) highlight concerns regarding reduced attention spans and dependency on digital devices, which can hinder deep learning [3].

Research by Junco and Cotten (2012) suggests that internet usage positively correlates with improved academic performance when used for educational purposes, but excessive engagement in non-educational activities can lead to

distractions [4]. Furthermore, studies by Greenfield (2015) emphasize the impact of digital technologies on cognitive development, arguing that screen time influences memory retention and problem-solving skills [5]. These findings underscore the necessity of implementing effective digital literacy programs to maximize the benefits of IT while mitigating its negative effects.

DISCUSSION

The impact of the internet and IT on students can be analyzed from multiple dimensions, including academic performance, cognitive development, and social interactions.

1. **Academic Performance**

The internet has revolutionized the way students access educational materials. Online learning platforms, e-books, and digital libraries provide students with vast resources beyond traditional textbooks. Research by Means et al. (2013) indicates that online learning can be as effective as face-to-face instruction when appropriately designed [6]. However, distractions from social media and online entertainment can negatively affect students' focus and time management skills [7].

2. **Cognitive Development**

The relationship between IT and cognitive development remains complex. While digital tools can enhance critical thinking and problem-solving skills, excessive screen time has been associated with diminished attention spans. According to Ophir et al. (2009), multitasking with digital devices leads to reduced cognitive control, affecting students' ability to concentrate on academic tasks [8]. On the other hand, adaptive learning technologies provide personalized learning experiences, improving comprehension and retention [9].

3. **Social Interactions and Psychological Well-being**

The internet has reshaped students' social interactions, both positively and negatively. Online communication platforms enable collaboration and global networking, enhancing cultural awareness and engagement. However, excessive reliance on virtual communication can lead to social isolation and reduced interpersonal skills [10]. Studies by Twenge et al. (2018) link high social media usage to increased levels of anxiety and depression among students [11]. Thus, fostering a balanced approach to internet usage is crucial to maintaining students' mental well-being.

RESULTS

The study findings highlight the following key points:

- Internet and IT positively influence students' learning by providing access to diverse educational resources and interactive tools.
- Digital technologies enhance academic performance when used effectively, but excessive engagement in non-educational activities can lead to distractions.
- Cognitive development is impacted by screen time, with potential benefits for problem-solving skills and drawbacks such as reduced attention spans.
- Social interactions are influenced by internet use, with advantages in networking and collaboration but risks of social isolation and psychological distress.

The results indicate the need for structured digital literacy programs to help students use IT responsibly. Educators should integrate technology in a way that maximizes benefits while minimizing potential harms.

CONCLUSION

The internet and IT play a crucial role in shaping students' academic experiences and cognitive development. While these technologies offer numerous benefits, their unregulated use can lead to challenges such as distractions, academic dishonesty, and psychological issues. To optimize the positive impact of digital tools in education, it is essential to implement structured policies and digital literacy programs. Future research should focus on developing strategies to balance technological integration in learning environments while addressing potential risks.

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THE NEGATIVE AND POSITIVE EFFECTS OF THE INTERNET ON HIGHER EDUCATION STUDENTS IN THE MODERN INFORMATION AGE

ABSTRACT*: The emergence of the internet and the rapid development of information and communication technologies have profoundly altered the landscape of higher education. Students in universities and colleges worldwide now rely on digital platforms for various academic and social activities, leading to both positive and negative outcomes. This article examines the internet's dual impact on the lives of students in higher education institutions, focusing on key areas such as academic performance, cognitive development, social interaction, and mental well-being. Through a comprehensive review of current literature, the study highlights not only the beneficial aspects—such as easy access to information, enhanced collaboration, and personalized learning—but also addresses the considerable challenges that may arise from excessive internet usage. These challenges include academic dishonesty, information overload, digital distractions, and potential emotional distress. The findings underscore the necessity of fostering balanced and informed internet usage strategies to maximize its benefits while minimizing adverse consequences.*

KEY WORDS*: Internet, higher education, students, academic performance, information overload, digital technology, online learning, mental well-being, positive impact, negative impact.*

INTRODUCTION

Over the last few decades, the internet has become an indispensable component of modern life, revolutionizing how people communicate, work, and learn. In the realm of higher education, this digital revolution is particularly evident. From remote access to research databases to real-time communication platforms, today's university students engage with the internet on a scale unimaginable just a few decades ago. While these technologies have opened up new pathways for academic success and social connectedness, they have also introduced challenges that can interfere with effective learning. Excessive reliance on online resources may compromise students' critical thinking skills; moreover, the ubiquitous nature of social media often distracts students from their academic responsibilities. It is thus crucial for educators, researchers, and policymakers to understand the multifaceted influences of the internet to develop evidence-based practices that ensure its optimal and responsible use.

This article explores both the positive and negative impacts of internet usage on higher education students, contextualizing these effects within the broader evolution of modern information technologies. The discussion draws on a range of scholarly perspectives to offer a holistic understanding of this phenomenon.

Through this examination, the study hopes to contribute to a deeper awareness of how technological advancements can be harnessed to enhance learning experiences, while also highlighting the importance of mitigating potential harms.

LITERATURE REVIEW

The scholarly discourse on the impact of the internet on higher education students offers a multifaceted view. According to Anderson and Rainie (2018), the internet facilitates an unprecedented level of connectivity and access to information, allowing students to conduct research and collaborate across geographical boundaries with ease [1]. This increased connectivity paves the way for enhanced collaborative learning, as students can share ideas, resources, and feedback through online platforms in real time. Similarly, Selwyn (2014) suggests that digital technology integration in higher education often leads to personalized learning experiences that support different learning styles [2]. Many online platforms offer adaptive learning tools, providing automated feedback and tailored content, enabling students to learn at their own pace.

On the other hand, studies by Kirschner and De Bruyckere (2017) warn about the misconception of students' abilities to multitask effectively, noting that the constant flow of digital distractions can hamper deep learning and retention [3]. Excessive social media usage has been linked to problems with time management, concentration, and even emotional well-being (Twenge, 2019) [4]. Furthermore, research indicates that high volumes of online content can lead to an "information overload," where the sheer abundance of available data becomes overwhelming, resulting in reduced productivity and confusion [5].

Academic integrity is another area affected by pervasive internet access. While the internet provides easy access to scholarly articles and legitimate educational resources, it also opens the door to plagiarism and other forms of academic dishonesty (Walker, 2010) [6]. Students may be tempted to copy and paste from various online sources, leading to ethical and educational dilemmas for both faculty and students.

DISCUSSION

1. Positive Academic Outcomes

One of the most salient positive impacts of the internet on higher education students is the democratization of information. In previous generations, university libraries and academic journals were often physically limited. Today, students enjoy instantaneous access to vast digital libraries, online journals, and open-source textbooks. For instance, open-access platforms and Massive Open Online Courses (MOOCs) broaden the scope of available learning materials, making education more inclusive and flexible (Means et al., 2014) [7]. Furthermore, the integration of online tools such as Google Scholar, library databases, and citation management software empowers students to gather and organize research material efficiently.

In addition, collaborative learning has been bolstered by internet-based communication platforms. Students can work together across different campuses, countries, and time zones, building global networks that enrich their educational experiences. Group projects, especially in research-focused graduate programs,

have become more efficient with cloud-based tools like Google Drive, Slack, or Microsoft Teams. These platforms enable quick sharing and editing of documents, instant messaging, and task allocation, enhancing overall group productivity.

2. **Enhanced Teaching and Learning Methods**

From the instructor's perspective, the internet has expanded pedagogical tools and strategies. Online discussion forums, learning management systems (LMS) like Moodle or Blackboard, and virtual classrooms provide instructors with multifaceted methods to engage students in active learning. Blended learning approaches combine the best aspects of in-person and online instruction, allowing students to review recorded lectures, participate in discussion forums, and use interactive quizzes for self-assessment [8]. This approach promotes autonomy and can lead to higher levels of student motivation.

Furthermore, the internet supports innovative assessment methods. Online simulations, interactive case studies, and digital portfolios offer more comprehensive ways to evaluate student learning outcomes. This shift also encourages continuous feedback, helping students monitor their own progress and make necessary adjustments.

3. **Cognitive and Behavioral Challenges**

Despite the many benefits, the internet can also serve as a significant source of distraction for students in higher education. Researchers note that the ease of accessing social media, streaming services, and other online entertainment often draws students away from academic tasks, leading to lower productivity and diminished focus (Rosen et al., 2013) [9]. The phenomenon of "media multitasking," wherein students attempt to juggle coursework, social media, and other digital tasks simultaneously, can impair attention control, reduce comprehension, and hinder the development of deep learning skills [3].

Another concern is the overreliance on external information sources. While the internet provides vast resources for research, it can also encourage superficial learning if students limit their engagement to rapid searches and quick summaries. Deep reading and critical analysis may suffer when students rely excessively on short-form content, clickbait headlines, or summarized versions of complex topics. This phenomenon, sometimes referred to as "Google-knowing," can undermine the development of essential academic skills in higher education, where critical thinking, synthesis, and evaluation are paramount [5].

4. **Psychological and Social Implications**

The internet's influence extends beyond academic performance, also shaping the emotional and social well-being of students. Online platforms afford opportunities for peer support networks, providing students with spaces to share experiences, seek advice, and coordinate study sessions. In times of crisis, mental health resources are more accessible than ever, with counseling services and support groups available through digital channels [10]. This level of connectivity can reduce feelings of isolation, especially for distance learners and international students.

Nonetheless, overconsumption of digital media has been correlated with mental health challenges such as stress, anxiety, and depression. Constant

notifications and an incessant flow of updates can overwhelm students, making it difficult for them to disengage and find balance between academic responsibilities and personal life (Twenge, 2019) [4]. Additionally, the curated nature of social media often perpetuates unrealistic standards, leading to comparison-based stress and lowered self-esteem.

RESULTS

The analysis indicates that the internet exerts a dual influence on higher education students, presenting both a powerful catalyst for academic improvement and a potential hindrance. Positive outcomes manifest when students use digital resources to deepen their understanding, collaborate effectively, and access diverse educational materials. However, the potential for misuse or overuse can erode these benefits, leading to digital distractions, compromised academic integrity, and even negative impacts on mental health. The findings highlight the centrality of responsible internet usage and the importance of digital literacy—students who possess the skills to navigate, analyze, and assess online information critically are better equipped to leverage the internet's many advantages.

CONCLUSION

The internet's role in shaping the academic experiences and overall well-being of higher education students is complex. When harnessed responsibly, digital platforms and online tools can significantly enhance learning, providing extensive resources, fostering collaboration, and offering innovative assessments. Conversely, excessive or misguided use can hinder cognitive development, compromise academic integrity, and contribute to mental health problems. It is therefore crucial for educational stakeholders—administrators, faculty, students, and policymakers—to collaborate in crafting guidelines, pedagogies, and interventions that promote balanced and effective internet usage. Efforts to strengthen digital literacy and critical thinking skills, along with strategies for time management and self-regulation, can help students reap the internet's benefits while mitigating potential harms. Future research should investigate emerging technologies, such as virtual and augmented reality, and how they may further transform the higher education landscape.

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TASHKENT REGION THE FAMILY STRUCTURE OF THE POPULATION'S DEMOGRAPHIC DEVELOPMENT REGIONAL CHANGES

Abstract. The population increased in the own-self demographic processes of the study is to be directed of the work scope to further expand should means. Population geography in science of the structure of the population, and in particular age, sex, national, ethnic composition, together with family, social structure, as there are pressing them to come to the present day is one of the tasks of diagnosis and research. The family is also one of the aspects of geographical research of the population, the population's location, the height of the toe‘citizens of families and the number, type, shape, and o‘the toe of lcham‘citizens o‘is to reveal specific aspects of worthy requires.

Key words: family, age-gender, marriage, economic geographical place, divorce, national, demographic processes, rural districts, national-ethnic structure.

Let's not go to any corner of the world, the family composition of the population is manifested as the main link in society. The family is an important component, which spontaneously determines the development of social capital of Man and society. As proof of this, at the seventh World Congress of families (Sydney, May 2013), “the formation of a healthy family economy will make the country prosperous”[1.] was treated as .

In population growth and settlement, family composition acts as a foundation in ensuring the well-being of society. When studying the process of marriage in the family structure of the population, first of all, it is studied within the framework of the reproduction of the population, its age-sex composition and its impact on the population. One of the geographer scientists V.Kopilov: "age-gender, marriage and family composition are associated with an increase in the population, and this is the subject of demography. The rest are exogenous i.e. variables that indirectly affect demographic processes” [8.]. In addition, a.Anoxin, D.Geographer scholars such as Jitin have also expressed opinions that “ marriages and divorces generally fall within the natural movement of the population, although they do not directly change the population [7;86 b.]. Indeed, the natural movement of the population is directly related to the reproduction of the population. The reestablishment of the population, in turn, has its own influence on the family composition of the population.Tashkent economic districts of respublika in itself to specific rather than has the fact that with other economic geographical districts separated is. In particular, them an example of make, the capital city of the presence of, advanced industrial cities, transportation

systems, economic - social and economic infrastructure, demographic potential is high that is to come in the fitting.

Tashkent economic region is distinguished from other economic geographical regions by the fact that it has a special place in the Republic. Examples of these include the presence of a capital city, developed industrial cities, a transport system, economic - social and economic infrastructure, high demographic potential.

The territory of own specific comfortable, natural and economic geographical place possible is that, Built and Akhangaran river from the movement of flowing since the population of the location for favorable conditions to create has given. Economic geographical districts urbanizatsion level high, the demographic processes of the development, the city and the rural population radical difference it makes. Specifically, the city of the population of the marriage and the divorce process itself to specific feature it has , if, other areas are separated is. Tashkent economic districts incoming Tashkent region of its own, located in the natural geographic location, according, nature, tourism and the population 's living conditions, according to the republic 's own specific place to be able. In the territory of the population is uneven located, the population of the number and growth rates at different levels, have, own specific historical development, natural geographic location, demographic factors and socio-economic development with chambarchars is associated.

Consequently, Tashkent economic districts of man 5802,1 the number of total population in 2022, the organization of the republic's total population of 16 percent in the same territory living makes. Districts incoming Tashkent city and Tashkent region, population dynamics, location and density according vary will. Tashkent region the total population , the number of 2022 year data according 2939,700 man up of, the total population of 50 percent in cities, 49,8 percent , while the villages of living makes [10.]. Tashkent region administrative territorial administrative units , the number of 22 units, then, the rural districts the number of 15 units and 16 than cities organization is. If the number of towns than 90, 998 agriculture and are ovul of dollars. The territory of relyef structure directly by the population of the location and density vividly realized. Tashkent in the year 2022 in the region of 1 sq.miles to to‘g'ri who comes to the number of population than 194 was established.

The relief structure of the territory is reflected in the location of natural conditions and the development of Natural Resources, in turn, the participation of the population in demographic processes. The location of the population also influences its demographic views. The family composition of the population living in the mountain and Plains region, the fact that demographic processes differ from each other, assumes research through geodemographic typologization.

In this study, the regions and districts were divided into 3 groups, and the districts of Ohangaron, Boastonliq, Parkent of Tashkent region were included in the first group, namely, mountain districts. Moreover, from the analysis of the above studies, it is worthwhile to distinguish the object of the study under study at absolute heights as follows, “the location of the population, the transport system, the contiguity of the territory are also sufficient to recognize them as a single central

demogeographic region", which called the city of Tashkent and The Tashkent Region Central These are:

1. 400-500 meters (area) area: Nurafshon sh, Bekabad city, Yangiyul city and Science, Bekabad, Culture, Quyichirchiq, Yangiyul, Chinaz district;

2. 400-500 from 1000-1100 meters (Mountain before) regions: Almalyk city, Angren city, Chirchik city, Akhangaran city and Akhangaran, Zangiota, Kibray, Pskent, Workshop, Yukorichirchik, Tashkent district;

3. Areas above 1000-1100 meters (mountainous): Parkent and Bostonian districts.

Tashkent region districts in the allocation of the district is located, by means of appropriate agreements than absolute height on the basis of the made were. Studyabed in the region in total 22 districts there are if, of them 9 of them "plain" to the districts on come on, teach students: the territory of the area of 20 percent. "Before the mountain" of the districts total area of 11 them on come, they learnabed in the territory of the area of 40 percent occupy. The region of 1000 meters, and of it the top which is "mountain areas" to districts, while 2 units of the district is included in 39,4 percent of the territory. These districts the population of the number, density, marriage and finding the number on is dramatically different from each other.

1-table

Absolute high social	**cities and districts**	**Number of cities and districts**	**General has an area of.**	**Population number (thousand people)**	**Density**	**Number of cities and towns**	**Population of the city (thousand people)**
Up to 0 – 400 meters (plain)	Nurafshan , Bekabad , Yangiyol cities and Akkurgan, Bekabad, Boka, Quyichirchiq, Yangiyol, Chinoz districts	9 / 41	3,13 / 20,6	430,1 / 26	137,4	30 / 29	432 / 29,3
From 400-500 m to 1000-1100 meters (Woven)	Olmaliq sh, Angren sh, Chirchiq sh, Ohangaron and Ohangaron, Zangiota, Qibray, Piskent, Tashkent districts	11 / 50	6,11 / 40,0	861,7 / 53	141	53 / 51	901 / 61
Above 1000-	Parkent and Bostonlik districts	2 / 9	6,01 / 39,4	345,0 / 21	57,4	22 / 20	143 / 9,7

Total		22/100	15,25/100	1636,8/100	107.3	106/100	1,476/100

Separation of the territory of the Tashkent region into groups of absolute Heights (2022 year)

Source:Table https://ru-ru.topographic-map.com sites and by author based on data of the state statistics committee of the republic of uzbekistan was established. Note: in the photo-as an absolute amount, a percentage given in the denominator.

In terms of population density, the lowland areas had a population density of 137 persons per square mile (20.6%) of the total area of the province. In contrast, the mountainous areas had a population density of 57.4 persons per km2. The highest population density figure is mainly in the Highlands, which occupy 40% of the total area. Of these areas, each sq. km.ga medial a population of 141, the population density is 2.4 times higher than in the districts located in the mountainous region.

According to research, the rural districts in the areas under study have a total of 106 cities and towns. Of these, 22 are located in mountainous regions, 53 in the Highlands and 30 in the districts of the plains raions.

From this, it was the salmog of the urban population that was higher in the Highlands, with 61%, and the urban population in the plains and Highlands respectively: 29.3%; 9.7%. So, in these districts, the population of the city is thinning from the bottom to the top, and this, in turn, is also reflected in the population density and demographic processes. It is known that the socio-economic conditions of the population have a decisive influence on the restoration of its number, on all processes and their quantity.

The family composition of the population in terms of its size, type, shape and structure also differs from each other in terms of urban and rural population and absolute altitude regions of the population. As we know, the family composition of the population differs from each other in the number and form of families in the rural population in relation to the urban population.

The families of the population of the Tashkent region make up 10% of the Republic. The highest in the number of families was the city of Angren in 2015-2020, while in 2023 the number of families in the city of Chirchik was higher 10 per cent. The city of Chirchik also has a high rate in terms of the number of families with children under the age of 18.

In the number of incomplete families, the city of Angren was higher, while in the cities of Ohangaron and Yangiyol, the amount of incomplete families can be seen to be slightly lower. In provincial districts, however, areas with a higher percentage of total families in 2015 have declined slightly by 2023. It is known to us that the abundance of families ensures natural growth of the population, human capital. But in regional districts and villages, this process is relatively slow. The rise in the age of marriage in provincial families, the decrease in the number of families and the increase in the number of divorces in turn cause geodemographic problems in the area. It is in the regional districts that the decrease in the number of non-families is also observed. The fact that the territory is close to the capital city,

increasingly views on the urban population are observed in the families of rural residents.The families of residents of the region, each urban and rural population, are fundamentally different from each other.

Bostanliq, Ortachirchik and Zangiota districts of Tashkent region had the highest number of families with children under 18 years old in 2015, and by 2023, these figures will increase to 50%. it can be seen that it has decreased. The separation process is also active in the cities of Bostonliq district, which are part of the mountainous region. We know that there are families in this village that provide the republic with labor resources. According to the number of families with many children in the region, the villages of Parkent, Bostonliq, Chinoz districts had a high index until 2020, and by 2023, the number of families with many children will be at this point. reduced by half. In general, views on marriage and family relations have changed in the families of Parkent and Bostonliq districts, which are part of the mountainous region.

The influence of the geographic location of the population on the changes in the territorial-demographic development of the family composition of the population of the Tashkent economic region was reflected in every demographic process. The positive and negative aspects of the location of the population along the altitude regions of the Tashkent region were determined. The fact that the population density, the diversity of the national-ethnic structure has its influence on the composition of families of the Tashkent economic region, which in turn affects the dynamics of demographic processes, has been thoroughly examined.

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THE IMPORTANCE OF SPIRITUAL EDUCATION IN FORMING THE SPIRITUALITY OF THE FUTURE GENERATION

Abstract: *This article is about the need to educate the future generation, who is our tomorrow, right from the moment of childhood, for the further development of the society, it is necessary to instill the feelings of humanity and patriotism into their blood, and at the same time, be worthy of their ancestors. It is written that inviting them to become heirs is one of the most important tasks for each of us.*

Key words*: upbringing, education, spirituality, enlightenment, morality, modesty, aesthetics, harmony.*

Introduction. Since the independence of our republic, a period of development has begun in all aspects, many fundamental changes have taken place in the life of our people. These changes were reflected in the educational process, in particular in aesthetic education. After all, it is impossible to develop society at a high level in all aspects without establishing an educational process. Because the development of the society depends to a large extent on the level of educated, conscious, morally mature education of the members of this society. One of the important tasks of the reforms being carried out in our country is to educate the young generation in an enlightened and cultured way. Many conditions are being created in our country in order to raise young people to the level of a perfect human being, to raise the level of knowledge, to educate them as mature individuals in all aspects. At this point, it is permissible to mention the following comments of President Shavkat Mirziyoyev. “The another important issue that always comes to our mind is related to the morals, behaviour and, in a word, worldview of our youth. Today, times are changing rapidly. Young people are the ones who feel these changes more than anyone else. Let the youth be in harmony with the demands of their time. But at the same time, one mustn’t forget about his or her parameters and potential. Let the call of those who we are and the descendants of great people always resonate in their hearts and encourage them to remain true to themselves. How can we achieve this? Education, education and only education can answer our demands”. [1] In fact, as our president emphasized, we need to pay special attention to education so that the future of today's youth must be bright.

Currently, reforms are being implemented in various fields of education. The main goal of this is to expand the worldview of the young generation studying in educational institutions, to form their aesthetic taste and aesthetic spirit. Educating young people in the world of beauty and sophistication has become one of the tasks

set before all of us. I.A.Karimov, the first President of the Republic of Uzbekistan pointed out: “Among the crucial issues in the life of our society, the draft law on the cardinal reconstruction of the education system is to provide opportunities to raise it to the level of the demand of the new era, while educating the next generation, which is developing harmoniously”. [2] Therefore, in order for the society not to remain backward, each of us should realize how important education is, and we should start education today for the development of the future generation.

After we gained independence, fundamental reforms were implemented in all spheres of our social life. It is no secret that the development of the education system in particular has raised to the level of state policy. The main task of today is to ensure that today's youth acquire modern knowledge and skills that meet world standards and grow up to be physically and spiritually mature people. It should be mentioned that great work is currently being done to realize the abilities, talents, and intellectual potential of young people, to develop feelings of loyalty and devotion to the motherland in their hearts. As they say, there is a fault in every fall, no matter how many conditions are being created for young people, the fact that the culture of speaking and dressing of some of our young people does not correspond to our own mentality makes us a little sad. Many people take a model from the people around them and consider it correct.

At this moment, we involuntarily recall the words of Abdullah Avloni, the leader of the Jadidchilik movement, that education for us is a matter of life, or salvation, or destruction, or happiness, or disaster for us. According to the philosophical and pedagogical views of the ancient Greek philosopher Socrates, the expected goal of education is to get a person to know what he knows, to make him mature with high morals. In his teaching, he defines the concepts of courage, wisdom, moderation, and justice. In his opinion, bravery is to overcome fear, wisdom is to observe the laws of society, moderation is not to give free rein to one's own temper, and justice is to teach ways to do good. According to the teachings of Socrates, a person should first of all acquire the general moral standards, qualities that are sacred for a person.

Plato, the famous classical philosopher of Greece, expresses his thoughts on the organization of education in the works “The State” and “Laws”. In his opinion, the influence of adults on children can be seen in the formation of moral qualities of children. Influencing emotions is the main thing in educating young children. The philosopher considers games, reading from literary works, telling legends as a means of education. He said that adults should watch children's game, but should not introduce something new to their game. In the work “The State”, Plato promotes the idea of social education of children from a young age and proposes a specific structure of its organization.

The ancient Greek thinker Aristotle in his moral works dedicated to upbringing the young generation says that the purpose of education is the gradual development of a person connected to nature, and that it is important to develop the mind and will. According to his teaching, children's age should be taken into account. These include considering age and individual characteristics, life

experience of children, complex use in educational work of a combination of various methods and means, the teacher's possession of various methods and techniques of spiritual and moral formation of schoolchildren.

Aristotle defined the period of education as 21 years from birth to 7 years, 7 to 14 years, and 14 to 21 years of age. He shows the unique characteristics of each period of the child, describes the purpose, content and methods of education carried out in each period. To sum up, it is possible to re-educate a person through education and training, to develop mental abilities. One of the great scolars of the East Al-Kashifi, according to his pedagogical views, pays special attention to the issue of developing children's ability to think independently. Spiritual and moral education of students has social, intellectual, emotional, volitional components. We associate education with the social interaction of the teacher and the educated person with their developing attitude. At the same time, the goals set by the teacher act as a product of the student's activity.Parents, teachers should pay special attention to the education of the young generation. Family and external environment play an important role in this matter. A child should be brought up to be well-behaved, truthful, and faithful to his promises. Only then he will become a necessary person for the society.

It is no secret that the task of educating young people with high spirituality and forming their spiritual maturity is one of the most urgent issues of today. From the point of view of the globalization process and one of its negative consequences, which is the impact of mass culture on the minds of young people, it is a somewhat responsible and serious task to cultivate highly moral and intellectually mature individuals. In order to raise the spirituality of young people, it is necessary to deeply inculcate the concept of spirituality in their minds.

Conclusions. The role of spiritual and moral education in the formation of a worthy personality is great. It is primarily associated with the solution of a dual task: with the creation of a spiritual and moral climate in the family, school, in a team that guarantees social and moral protection of everyone.

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O‘ZBEKISTONDA SAKRAL GEOGRAFIYANI RIVOJLANTIRISH ISTIQBOLLARI

Annotatsiya: *Ushbu maqolada O‘zbekistonda sakral geografiyaning rivojlanish istiqbollari tahlil qilinadi. Maqolada sakral obidalarni saqlash va rivojlantirish, turizmni kengaytirish, xalqaro hamkorlikni rivojlantirish masalalari ham yoritilgan.*

Kalit so‘zlar: *Sakral geografiya, madaniyat, turizm, diniy obidalar, tarixiy yodgorliklar, turizm salohiyati, xalqaro hamkorlik.*

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PROSPECTS FOR THE DEVELOPMENT OF SACRED GEOGRAPHY IN UZBEKISTAN

Abstract: *This article analyzes the prospects for the development of sacred geography in Uzbekistan. The article also covers the issues of preserving and developing sacred monuments, expanding tourism, and developing international cooperation.*

Keywords*: Sacred geography, culture, tourism, religious monuments, historical monuments, tourism potential, international cooperation.*

Kirish: Sakral geografiya — bu diniy, madaniy va tarixiy ahamiyatga ega bo‘lgan obidalar va joylarni o‘rganadigan fan sohasidir. O‘zbekiston, o‘zining boy tarixiy va madaniy merosi bilan, butun dunyo uchun qimmatli sakral obidalar manbaidir. Mamlakatda ko‘plab me'moriy yodgorliklar, masjidlar, madrasa va maqbaralar mavjud bo‘lib, ular nafaqat diniy ahamiyatga ega, balki turizm va iqtisodiy rivojlanish uchun ham katta salohiyatni taqdim etadi. Ushbu maqolada O‘zbekistonda sakral geografiyaning rivojlantirish istiqbollari, shu jumladan, diniy obidalarni saqlash, turizmni rivojlantirish va xalqaro hamkorlikni kengaytirish muhokama qilinadi.

Asosiy qism: Sakral geografiyaning umumiy tavsifi va O‘zbekistonda ahamiyati: O‘zbekistonning sakral geografiyasi o‘zining noyobligi bilan ajralib turadi. Samarqand, Buxoro, Xiva, Toshkent kabi shaharlarda joylashgan me'moriy

yodgorliklar va diniy obidalar xalqaro ahamiyatga ega. Masalan, Samarqanddagi Registon maydoni, Buxorodagi Ismoil Somoniy maqbarasi, Xivadagi Ichan-Qala majmuasi, Toshkentdagi Hazrati Imom majmuasi mamlakatning sakral geografik xazinasini tashkil etadi.

Turizm va iqtisodiy salohiyat: O‘zbekistonning sakral geografiyasi turizmni rivojlantirishda muhim rol o‘ynaydi. Sakral obidalar, tarixiy joylar va diniy meros turizm uchun jozibador manzillar yaratadi. Davlat tomonidan amalga oshirilgan investitsiyalar, turistik infratuzilmaning yaxshilanishi va xalqaro turizmni jalb etish uchun yaratilgan qulay sharoitlar, O‘zbekistonning sakral geografiyasini yangi bosqichga olib chiqishi mumkin.

Sakral geografiyani saqlash va rivojlantirish: O‘zbekistonning sakral obidalarini saqlash va ularga nisbatan ehtiyotkorlik bilan yondashish juda muhim. Me'moriy yodgorliklarni ta'mirlash, ularni asrab-avaylash va restauratsiya qilish borasidagi sa'y-harakatlar xalqaro tashkilotlar bilan hamkorlikda amalga oshirilmoqda. Shuningdek, mahalliy aholi va mutaxassislarni jalb qilish orqali bu jarayonning barqaror bo‘lishi ta'minlanishi kerak.

Xalqaro hamkorlik va sakral geografiyaning rivojlanish istiqbollari: O‘zbekistonning sakral geografiyasini rivojlantirishda xalqaro hamkorlik muhim o‘rin tutadi. Boshqa davlatlar va xalqaro tashkilotlar bilan hamkorlikda, O‘zbekiston o‘z sakral obidalarini dunyo bo‘ylab tanitishi va turistlarni jalb etishda yangi imkoniyatlarga ega bo‘ladi. Shu bilan birga, xalqaro me'yorlarga mos ravishda obidalar va joylar saqlanib qolishi, ularning diniy va madaniy ahamiyatini to‘liq saqlash mumkin bo‘ladi.

Sakral geografiya — bu diniy, madaniy va tarixiy ahamiyatga ega bo‘lgan joylar, obidalar va yodgorliklarni o‘rganadigan geografiyaning bir bo‘limidir. U asosan insoniyatning diniy va ma'naviy merosini o‘rganish, sakral (muqaddas) joylarning joylashuvini, ular bilan bog‘liq tarixiy va madaniy jarayonlarni tahlil qilishga qaratilgan.

Sakral geografiya ko‘plab diniy obidalar, masalan, maqbaralar, masjidlar, cherkovlar, monastirlar, ziyoratgohlar, ibodat joylari kabi muqaddas joylarni o‘z ichiga oladi. Bu joylar odatda diniy tashrif buyurish, ritual bajarish yoki ma'naviy ahamiyatga ega bo‘lgan joylardir. Ularning geografik joylashuvi, tarixi va madaniy ahamiyati zamonaviy dunyoda ham turizm, ilmiy tadqiqotlar va madaniy merosni saqlash nuqtai nazaridan katta ahamiyatga ega.

Sakral geografiya fani odatda diniy antropologiya, arxeologiya, tarix, va madaniyatshunoslik kabi sohalar bilan hamkorlikda o‘rganiladi. Bu soha yordamida diniy va madaniy merosni saqlash, turizmni rivojlantirish va xalqaro aloqalarni kuchaytirish imkoniyatlari yaratish mumkin.

Dunyo davlatlarida sakral geografiyaning ahamiyati juda katta, chunki u diniy, madaniy va tarixiy merosni o‘rganish va saqlashda muhim rol o‘ynaydi. Har bir mamlakatda sakral geografiya o‘zining xususiyatlariga ega bo‘lib, bu jamiyatlarning diniy va madaniy o‘ziga xosligini ifodalaydi. Quyida sakral geografiyaning dunyo bo‘ylab ahamiyatini ko‘rib chiqamiz:

Madaniy merosning saqlanishi: Sakral geografiya diniy obidalar va yodgorliklarni o‘rganish orqali jamiyatlarning tarixiy va madaniy merosini saqlashda katta ahamiyatga ega. Masalan, Misrning piramidalari, Hindistonning Ganj daryosi bo‘yidagi ziyoratgohlar, Yaqin Sharqdagi qadamjolar va butun dunyo bo‘ylab joylashgan muqaddas ibodat joylari — bularning barchasi nafaqat diniy, balki xalqning madaniy o‘zligini anglatadi.

Turizm rivoji: Sakral obidalar va muqaddas joylar turizmni rivojlantirishda katta rol o‘ynaydi. Masalan, Vatikan (Italiya), Makkah (Saudiya Arabistoni), Buda-Pest (Vengriya) kabi joylar dunyoning turli burchaklaridan ziyoratchilarni jalb qiladi. Sakral geografiya bu joylar va ularning atrofini o‘rganish, saqlash va turistlarga taqdim etish orqali iqtisodiy foyda keltiradi.

Diniy va ma'naviy ahamiyat: Sakral geografiya davlatlarning diniy madaniyatini va ma'naviyatini aks ettiradi. Muqaddas joylar ko‘plab diniy marosimlar, tadbirlar va an'anaviy ibodatlar markazi sifatida xizmat qiladi. Bu joylar odatda insonlar uchun ma'naviy va ruhiy tozalanish manbai bo‘lib, ularning ichki dunyosini boyitadi. Misol uchun, Hindistondagi Varanasi, Tibetdagi Potala saroyi yoki Xristianlarning Quddusdagi muqaddas joylari — bular diniy ibodatlar va marosimlar uchun markaz hisoblanadi.

Diniy va madaniy intolerantlikni kamaytirish: Sakral geografiya turli diniy an'analar va madaniyatlar o‘rtasidagi o‘zaro hurmatni kuchaytiradi. Muqaddas joylar ko‘pincha turli dinlarga mansub odamlarni birlashtiradigan markazlar bo‘ladi. Masalan, Quddus shahri, uning turli diniy va madaniy tarixiy qatlamlari bilan, yahudiylar, xristianlar va musulmonlar uchun muqaddas joy hisoblanadi. Bu joylar o‘zaro muloqot va dialog uchun platforma yaratadi.

Xalqaro hamkorlik va tinchlikni targ‘ib qilish: Sakral geografiya davlatlar o‘rtasida tinchlik va hamkorlikni rivojlantirishda yordam beradi. Diniy va madaniy obidalarni saqlash borasidagi xalqaro hamkorlik, davlatlar o‘rtasida diplomatik aloqalarni mustahkamlashda muhim o‘rin tutadi. Masalan, UNESCO tomonidan jahon merosi ro‘yxatiga kiritilgan sakral joylar o‘zaro hamkorlikni kuchaytiradi va global miqyosda dinlararo tinchlikka hissa qo‘shadi.

Xulosa: O‘zbekistonda sakral geografiyani rivojlantirish, ayniqsa, diniy obidalarni saqlash va turizm salohiyatini kengaytirish masalalari bugungi kunda juda dolzarb hisoblanadi. Mamlakatda sakral geografiyaning rivojlanish istiqbollari yuqori bo‘lib, ularning iqtisodiy, madaniy va ma'naviy rivojlanishdagi o‘rni beqiyosdir. Sakral geografiyaning rivojlanishiga ko‘rsatilgan e'tibor, mamlakatning tarixiy merosini saqlash va yangi avlodlarga yetkazish uchun muhim ahamiyatga ega bo‘ladi. Shu sababli, O‘zbekistonning sakral geografiyasini saqlash va rivojlantirishga oid sa'y-harakatlar jahon miqyosida o‘zining o‘rniga ega bo‘lishi mumkin. Umuman olganda, sakral geografiya dunyo davlatlarida diniy, madaniy, iqtisodiy va diplomatik sohalarda katta ahamiyatga ega. Bu soha nafaqat obidalarni saqlash, balki jamiyatlarning barqaror rivojlanishini, xalqaro hamkorlikni va turizmni rivojlantirishni ta'minlashda muhim vosita bo‘lib xizmat qiladi.

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YOSHLARDA VATANPARVARLIK TUYG‘USINI TARBIYALASH ORQALI HARBIYLIK KASBIGA YO‘NALTIRISHNING PEDAGOGIK IMKONIYATLARI

Annotatsiya: *Ushbu maqola yoshlarda vatanparvarlik tuyg‘usini tarbiyalash orqali ularni harbiylik kasbiga yo‘naltirishning pedagogik imkoniyatlarini o‘rganadi. Milliy qadriyatlarni o‘rgatish, amaliy faoliyatga yo‘naltirish, rol modellaridan foydalanish, axborot texnologiyalaridan foydalanish va hamkorlikdagi faoliyat kabi samarali pedagogik usullar tahlil qilingan. Maqolada yoshlarda vatanparvarlik hissini shakllantirishning jamiyatning ma’naviy yuksalishi va harbiylik kasbining nufuzini oshirishdagi ahamiyati ko‘rsatib berilgan.*

Kalit so‘zlar: *Vatanparvarlik, yoshlar tarbiyasi, harbiylik kasbi, pedagogik yondashuvlar, milliy qadriyatlar, ta’lim jarayoni, amaliy faoliyat.*

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PEDAGOGICAL OPPORTUNITIES FOR ORIENTING YOUNG PEOPLE TOWARDS THE MILITARY PROFESSION BY CULTIVATING A SENSE OF PATRIOTISM

Annotation: *This article explores the pedagogical opportunities of fostering a sense of patriotism among young people in order to guide them towards the military profession. Effective pedagogical methods such as teaching national values, directing towards practical activities, using role models, utilizing information technologies, and collaborative activities are analyzed. The article also emphasizes the importance of shaping patriotism in young people for the spiritual upliftment of society and the enhancement of the prestige of the military profession.*

Keywords: *Patriotism, youth education, military profession, pedagogical approaches, national values, educational process, practical activities.*

Introduction

What is patriotism, truly? What kind of concept and feeling is it? On Earth, in the place where we live, everything is interconnected: if one exists, but the other does not, life ceases. For example, without air, we cannot breathe; without water, living creatures cannot survive; without the sun, everything would freeze, or if there

were no cold, heat would dry up all living things. Similarly, patriotism involves interconnected processes, qualities, and actions. One such quality is humanity. Humans possess both mind and heart. While the heart feels love for one's homeland, a desire to protect it, and a wish for its future, the mind understands why one should love and protect one's homeland. It understands the need to defend it from foreign ideas and ideologies, enemies, and to refrain from corruption, self-serving actions that could harm the homeland, and to engage in honest labor. Patriotism is not just about serving in the military, wearing a uniform, and sacrificing one's life if necessary. It's also about caring for the upbringing of your children, feeling like a child of this country, and fostering love for your homeland from infancy through education. Actions like acquiring knowledge, learning a craft, and working on oneself to become a complete person are also acts of patriotism. Because without them, this land, this country, would stop developing and could lead to tragic situations as collapse and disappearance. Patriotism is a crucial component of youth education. This quality not only instills a sense of responsibility towards society in young people but also shapes their national identity and respect for state symbols and values. Patriotism is a crucial factor in ensuring that young people become useful members of society in the future, and it instills in them a sense of national pride and unity.

In today's era of globalization, preserving and respecting national values is an extremely important issue in the upbringing of the younger generation. In particular, developing patriotism is of great importance in fostering young people's interest in honorable professions such as the military and encouraging them to demonstrate their potential in this field.

Additionally, the military profession is not only a career for young people but also an opportunity to protect society, ensure peace, and demonstrate courage. This article provides a broader analysis of the pedagogical opportunities for fostering a sense of patriotism in young people and guiding them toward the military profession.

Literature review

The sense of patriotism reflects a person's loyalty and love for their homeland and people. This quality develops in young people through a sense of responsibility toward society, expressing love for their country, and valuing national traditions. Especially in today's era of globalization, strengthening the sense of patriotism in young people is an important factor in fostering interest in the military profession.

According to the analysis of literature, patriotism expresses a person’s love for their homeland, people, and values, as well as a sense of belonging as an integral part of society. Educating students in the spirit of military patriotism has historical roots, with the teachings of great thinkers such as al-Bukhari, al-Farabi, Abu Rayhan Biruni, Ibn Sina, Yusuf Khass Hajib, Abdurrahman Jami, Alisher Navoi, Burhanuddin al-Marghinani, Imam Zamakhshari, and Sheikh Najmuddin Kubra serving as fundamental sources for fostering patriotism in adolescents and youth.

Additionally, the ideas of enlightenment figures such as Cholpon, Fitrat, Abdulla Avloni, Siddiqiy, Behbudi, Saidrasul Azizi, and others on child upbringing

also serve as important resources. The issue of raising the younger generation has been comprehensively addressed by philosophers and scholars such as M. Khayrullayev, Y. Jumabayev, E. Yusupov, F.Y. Ismoilov, G. Najimov, H.A. Shaykhova, S.M. Mirhosilov, U. Toshtemirov, and others.

Many studies highlight that patriotism plays a crucial role in fostering a sense of civic responsibility, national identity, and loyalty to the state in young people. These elements form the foundation for the spiritual growth of society and serve as a cornerstone in the upbringing of the younger generation.

Global pedagogical practices also confirm the importance of patriotic education. For instance, in the United States, loyalty to the country is instilled from preschool age through specialized programs. Similarly, researchers such as V. Greney, G. Morgan, and H. Ingo have studied the general and practical aspects of educating students in the spirit of patriotism. Russian scholars like L.N. Belyayev, S.D. Yemets, and G.A. Kochkaldov have dedicated their research to a key aspect of patriotism—military-patriotic education. Their work emphasizes that fostering love for the homeland through education rooted in national values strengthens young people's connection to their country.

The analysis of the literature presented above shows that patriotism education should be implemented not only in the educational process but also in all areas of social life. Cultural and educational events, military competitions, and the opportunities provided by modern information technologies play a significant role in this. Through these approaches, patriotism in the younger generation is formed not only as an emotion but also consciously.

Thus, the analysis of the literature helps to understand the place and importance of patriotism education, providing a broad perspective on its role in the educational process. These factors form the foundation for arousing interest in the military profession among the youth.

Research Methodology

The feeling of patriotism plays a crucial role in the moral and ethical education of the younger generation. By forming this feeling, it is possible not only to prepare young people to defend their homeland but also to raise them as highly responsible citizens. Research results show that the feeling of patriotism provides unique pedagogical opportunities for directing young people towards military careers.

Firstly, the feeling of patriotism increases young people's love for their country and contributes to their understanding of national identity. Educational institutions, especially schools and vocational colleges, play an important role in this process. By instilling patriotic ideas in lessons, organizing educational events and military-patriotic activities, it is possible to increase young people's interest.

Secondly, increasing the prestige of the military profession is closely related to fostering a sense of patriotism. One of the factors influencing young people's choice of a career in the military is the understanding of the social importance and prestige of the profession. Therefore, telling the stories of individuals who have

achieved success in the military field and presenting their exemplary image as an ideal for the youth can be an effective method.

Thirdly, by applying modern pedagogical approaches and technologies, young people's interest in the military profession can be increased. For example, the use of interactive games, military-sport competitions, simulations, and other innovative methods strengthens interest in the profession. At the same time, the role of the family is also of great importance in guiding young people toward a military career. If patriotic values are cultivated within the family, it positively influences the life choices of the youth.

Fourthly, by fostering a sense of patriotism, young people will strive to fully realize their potential not only in the military field but also in other areas. To achieve this, it is necessary to study educational and military-patriotic topics more deeply in school curricula and establish special clubs focused on the military field.

Additionally, all layers of society should share equal responsibility in shaping the sense of patriotism. This process should involve not only educational institutions but also government organizations, non-governmental organizations, and mass media. Celebrations of defenders of the homeland, military parades, and other events aimed at attracting the attention of the youth and encouraging them to test their abilities in this field are some examples of this.

Based on the above ideas, it can be said that the pedagogical possibilities of guiding young people toward a military career through the cultivation of a sense of patriotism are vast and diverse. To organize this process effectively, a comprehensive approach is necessary, ensuring the harmonious cooperation of education, family environment, and social institutions.

Analysis and results

The military profession requires courage, dedication, discipline, and physical preparation. This profession encourages young people to set high goals, understand responsibility, and contribute to ensuring the peace and security of society. Therefore, in order to spark interest in this profession among the youth, it is necessary to cultivate their sense of patriotism.

The following pedagogical factors are considered effective in the process of fostering a sense of patriotism:

- **1. National Values:** Expanding knowledge about our nation's historical heritage and culture among young people promotes the development of patriotism.
- **2. Practical activities:** Military sports competitions, patriotic events, and military exhibitions can help shape young people's interest in the military profession.
- **3. Mass media:** Promoting information about the lives and activities of military personnel among young people encourages them to take an interest in this profession.
- **4. Information technologies:** Through films, documentaries, interactive lessons, and promotional activities on social media about patriotism, young people’s love for their homeland can be nurtured.

- **5. Collaborative activities:** Events organized in cooperation with educational institutions, local governments, and military organizations further strengthen patriotic education.

The following results can be achieved if patriotic education is carried out on the basis of a systematic approach in pedagogical processes:

2. The interest of young people in the military profession increases.
3. The number of young people prepared for military service grows.
4. The ranks of disciplined and responsible citizens in society expand.

The main pedagogical methods of patriotism education and guiding towards the military profession

№	Name of pedagogical method	Description	Expected result
1.	Teaching national values	Expanding knowledge of history and culture	A sense of national identity and patriotism develops in young people.
2.	Focusing on practical activities	Organizing military competitions and events	Interest in the military profession increases.
3.	Using role models	Promoting the life of military personnel	Exemplary figures for young people are formed.
4.	Using information technologies	Creating and distributing content on patriotism	Young people's interest is awakened through modern methods.
5.	Collaborative activities	Collaborating with military and educational institutions	The educational process expands and strengthens.

The pedagogical methods outlined above are effective tools for fostering patriotism and interest in the military profession among young people. Each method significantly impacts the moral, physical, and intellectual development of youth.

Firstly, by teaching national values, young people learn to respect their historical heritage and develop a sense of national identity. This process strengthens patriotic feelings and prepares youth to responsibly approach the defense of their homeland. Secondly, practical activities and military exercises, while strengthening young people's physical fitness, also increase their interest in the military. This not only positively influences young people's career choices but also encourages them to develop qualities such as courage, bravery, and discipline. Additionally, by utilizing role models and modern technologies, we can inspire and motivate the younger generation. These methods shape a contemporary and innovative perspective in young people toward the military profession. When these methods are used together, they not only foster patriotism in young people but also enable a

systematic and effective process of directing them towards military careers. This serves as a solid foundation for shaping the future generation of our country's defenders.

Conclusion

Strengthening propaganda in the mass media: It is necessary to increase the prestige of the military profession by regularly broadcasting or publishing documentaries, programs, and articles about the lives and activities of military personnel. This will increase young people's interest in military service.

Expanding military-sports events: By organizing military-sports competitions, trips, and camps for young people, it is possible to improve their physical fitness and direct them towards a military career.

Fostering patriotism in family upbringing: It is important to conduct seminars and trainings for parents on patriotic education, as well as instilling national values and love for the homeland within families.

Strengthening cooperation with military educational institutions: It is necessary to organize excursions for school and college students to military educational institutions and hold meetings with military personnel to familiarize young people with the military profession. Cultivating patriotic feelings in young people and directing them towards military careers is one of the primary tasks of educators today. This process should be carried out not only by the education system but also through the cooperation of all segments of society. In this way, we can create conditions for the comprehensive development of the younger generation and help them achieve high goals.

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PROBLEMS IN TEACHING GRAMMAR IN ENGLISH CLASSES

Abstract: *Teaching grammar in English classes presents numerous challenges that affect both educators and learners. These challenges stem from various factors, including the complexity of grammatical rules, differences in learners' native languages, and the diverse learning styles and proficiency levels of students. Teachers often struggle with balancing explicit grammar instruction and communicative language practice, as well as ensuring that grammatical knowledge is applied effectively in real-world contexts. Furthermore, traditional methods of grammar teaching, which focus on rote memorization and isolated rule explanations, often fail to engage students or foster a deeper understanding.*

Key words: *English grammar, language instruction, teaching challenges, pedagogical strategies, communicative approach, language proficiency, grammatical rules*

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INGLIZ TILI DARSLARIDA GRAMMATIKANI O'QITISHDAGI MUAMMOLAR

ANNOTATSIYA*:Ingliz tilini o‘rgatishdagi grammatikani o‘rgatish ko‘plab muammolarni yuzaga keltiradi, bu esa o‘qituvchilar va o‘quvchilarga ta’sir ko‘rsatadi. Ushbu muammolar grammatik qoidalarning murakkabligi, o‘quvchilarning ona tilidan kelib chiqadigan ta’sirlar va turli o‘quv uslublari hamda til bilish darajalaridan kelib chiqadi. O‘qituvchilar ko‘pincha grammatikani aniq tushuntirish va kommunikativ til mashqlari o‘rtasida muvozanatni topishda qiyinchiliklarga duch keladilar. Shuningdek, an’anaviy metodlar, ya’ni xotiradan yod olish va alohida qoidalarni tushuntirish o‘quvchilarning qiziqishini jalb qilish yoki grammatikani chuqurroq tushunishga yordam bermasligi mumkin. Zamonaviy pedagogik yondashuvlar grammatikani kommunikativ faoliyatlar bilan birlashtirishni taklif qiladi, bu esa o‘quvchilarning tilni amaliy kontekstda ishlatish ko‘nikmalarini va grammatik to‘g‘riligini yaxshilashga yordam beradi.*

Kalit so‘zlar: *Ingliz tili grammatikasi, tilni o‘rgatish, pedagogik muammolar, kommunikativ yondashuv, grammatikani o‘rgatish, o‘quvchilarni jalb qilish.*

Introduction

The teaching of grammar in English language education remains a central yet challenging aspect of pedagogical practice. Despite its fundamental role in fostering

linguistic accuracy and fluency, grammar instruction often encounters significant obstacles that hinder its effectiveness. One of the primary difficulties is the inherent complexity of grammatical structures, which may vary significantly from one language to another. This disparity often leads to interference from students' native languages, creating barriers to the acquisition of correct grammatical forms. Furthermore, the diverse proficiency levels and learning styles of students in a typical classroom pose additional challenges for educators seeking to provide effective instruction.

Traditional grammar teaching methods, which emphasize rote memorization and the isolated presentation of rules, have been criticized for their lack of engagement and failure to contextualize grammar within communicative practice. As a result, there has been a growing recognition of the need for more integrative approaches that combine explicit grammar instruction with opportunities for meaningful language use. In recent years, the communicative approach to language teaching has gained prominence, advocating for a balance between formal grammar instruction and real-life communication. This shift reflects an evolving understanding of language acquisition, where grammatical knowledge is not only viewed as a set of abstract rules but also as a tool for effective communication in real-world contexts.

ANALYSUS

The topic **"Problems in Teaching Grammar in English Classes"** addresses the multifaceted challenges that educators face while teaching grammar to students. The issues discussed are central to the educational process, influencing both how effectively students acquire grammatical knowledge and how they apply it in real-world communication. Below is an analysis of this topic, highlighting key concerns, theoretical underpinnings, and potential consequences.

1. Complexity of Grammar and Cognitive Load

- **Problem**: English grammar, like many other languages, has a rich and often complicated set of rules. These rules can be challenging for both teachers to explain and students to absorb, especially when English grammar involves exceptions, irregularities, and varied sentence structures[1]
- **Analysis**: The complexity of grammar can overwhelm learners, especially beginners or those with lower proficiency levels. Cognitive overload occurs when students are presented with too many rules and exceptions without proper scaffolding. Teachers might struggle to teach these rules in a way that is engaging and easily understood, leading to confusion or disengagement from students.
- **Educational Implication**: The difficulty in breaking down complex grammar concepts can result in superficial understanding, where students memorize rules without being able to apply them effectively in real-life situations.

2. Interference from Native Language (L1 Influence)

- **Problem**: Many students' first language (L1) structures interfere with their understanding of English grammar. These interferences, known as **language**

transfer, can lead to errors in syntax, tense usage, articles, and prepositions, among others.

- **Analysis**: The extent of L1 influence varies depending on the linguistic distance between the students' native language and English. For example, a Mandarin speaker may struggle with English word order, while a Spanish speaker may have difficulty with article usage. Teachers often face the challenge of identifying and correcting these errors without reinforcing students' reliance on L1 structures.
- **Educational Implication**: This problem complicates the process of grammar teaching, as educators must tailor their lessons to address specific interferences while preventing students from developing ingrained errors that hinder their fluency.

3. Diverse Proficiency Levels in the Classroom

- **Problem**: Classrooms typically consist of students with varying levels of English proficiency, which can create difficulty for teachers in delivering a single, cohesive grammar lesson that caters to everyone’s needs.
- **Analysis**: A mixed-ability classroom poses a challenge when students have varying degrees of familiarity with grammar rules. Advanced learners may find basic grammar instruction repetitive and unchallenging, while beginners may not understand complex rules, leading to frustration and a lack of engagement[2]
- **Educational Implication**: This diversity forces teachers to differentiate instruction, which can be time-consuming and requires a deep understanding of students' individual needs. Without proper differentiation, some students may feel left behind, while others may feel the lessons are not engaging enough.

4. **Student Motivation and Engagement**

- **Problem**: Students often struggle to see the relevance of grammar in their daily lives, particularly when grammar instruction is perceived as dry or overly technical.
- **Analysis**: Motivation plays a key role in language learning. When grammar is taught in a decontextualized manner, students may not understand its importance. Furthermore, language learners may prioritize communication and fluency over accuracy, leading them to neglect grammar entirely. This can result in poor language acquisition, where students can communicate but struggle with grammatical accuracy[3]
- **Educational Implication**: A lack of motivation may cause students to become disengaged, making grammar instruction less effective. Teachers need to find creative ways to demonstrate the real-world relevance of grammar and integrate it into functional language use to maintain students' interest.

Conclusion

The problems associated with teaching grammar in English classes are complex and varied. They stem from the inherent challenges of grammar itself,

student diversity, traditional teaching methods, and systemic constraints. To overcome these issues, a multifaceted approach is required, one that integrates modern pedagogical strategies such as communicative language teaching, task-based learning, and differentiated instruction. By understanding the root causes of these problems and addressing them through creative and inclusive teaching methods, educators can improve grammar instruction and ultimately help students achieve greater language proficiency.

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RADIOAKTIVLIK VA YEMIRILISH QONUNI

Annotatsiya: Radioaktivlik vaqtida yadro bir holatdan ikkinchi holatga o‘tadi, bu bilan yadro o‘z tarkibida bo‘lgan va radioaktivlik vaqtida vujudga keluvchi zarralar (masalan: alfa, proton, beta, ...) yengil yadrolar hamda fotonlami chiqarishi mumkin. Buning natijasida yemirilayotgan yadrolaming tarkibi yoki ichki energiyasi o‘zgaradi. Radioaktivlik tabiiy sharoitda ro‘y berib qolmay, uni sun’iy yo‘l bilan ham hosil qilish mumkin.

Kalit so`zlar: *Radiaktiv zaharlanish, nurlanish kasalligi, yadro zararlanish manbalari, zona, portlash, radioaktivlik, elektromagnit impulsi.*

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THE LAW OF RADIOACTIVITY AND DECAY

Annotation: *at the time of radioactivity, the nucleus moves from one state to another, whereby the nucleus is contained in itself and the particles that occur during radioactivity (e.g.: Alpha, proton, beta,...) can emit light nuclei as well as photons. As a result of this, the composition or internal energy of the decaying nucleation changes. Radioactivity does not occur in natural conditions, it can also be generated artificially.*

Keywords: *radioactive poisoning, radiation sickness, nuclear sources of damage, zone, explosion, radioactivity, electromagnetic pulse.*

1985-yilda Dubna va Amerika fiziklari Ne yemirilishni kashf etdi. Radioaktiv yemirilish saqlanish qonunlarining bajarilishi bilan ro‘y beradi. Radioaktiv yemirilish statistik xususiyatga ega bo‘lgan jarayondir. Yemirilayotgan yadrolardan qaysi birini qachon yemirilishini ayta olmaymiz. Lekin vaqt birligi ichida nechtasi yemirilishini aniqlash mumkin, Shuning uchun radioaktivlikni yemirilish ehtimoligiga ko‘ra, o‘rganish mumkin. Radioaktiv yadrolar qarimaydi, yoshga ega emas, yemirilish intensivligi vagt birligida yemirilgan yadrolar soniga bog’liq. Vaqt birligida yemirilayotgan (dN) radioaktiv yadrolarning soni shu radioaktiv yadrolarning umumiy soni N ga proporsional. Masalan, dt vaqt oralig’ida dN ga kamayayotgan bo‘lsa: -dN= A Ndt.

Aktivlik birligi qilib Sf sistemas ida bekkerel (Bk) qabul qilingan: I Bk = I yemirls. Hosilaviy birliklari kyuri (Ku), rezerford (Rd): I Ku = 3,7· \010 Bk, I Rd = 106 Bk.

Tajribada radioaktiv manba yarim yemirilish davrining katta yoki kichikligiga ko‘ra, turlicha uslublar qo‘llaniladi. Masalan, aktivlikning pasayishi (T1 ‘2 soat, kun, oylarda bo‘lsa), qisqayashovchi bo‘lsa, hosil bo‘ Igan ion toklariga

ko‘ra, radiometr, mos tush ish usullari va h.k. Radioaktivlik hodisasining eng ajablanarli tomoni yadm ta’sirlashuv vaqtiga nisbatanjuda katta kcchikishidir. Haqiqatan ham yemlrilishlarning barcha turlari yadroda kechadi. Ma’lumki, yadro kuchlari uchun ta’sirlashuv vaqti --I 021C, lekin radioaktiv yemirilish davri esa 1010 yillar (Masalan: 238U uchun Til = 1010 yil, bu 1017S) bo‘ladi. Ya’ni mUyadrosidan chiquvchi azarra yadroda 1038 marotaba aylanadi, navbatdagi I 03S+ I aylanishda yadrodan chiqishi mumkin ekan.

Radioaktiv yemirilishlarda nurlanishlarning kechikishi quyidagi sabablarga ko‘ra, deb qaraladi: I) Zaryadli zarralar yadrodan chiqishda kulon to‘sig’iga uchrashligi. (Kulon to‘sig’i og’ ir yadrolarda ~30 Me V, yemirilish energiyasi -- 4 Me

V. Klassik fizika qonunlari bo‘yicha yadrodan zarra chiqishi mllmkin emas, kvant mexanikasi bo‘yicha zarra to‘siqdan sizib o‘tishi mllmkin). 2) Radioaktivlik kuchsiz ta ‘sirlashuvga ko‘ra, ro‘y berishi (Yadroda hetayemirilish kllchsiz ta’sirlashuvga ko‘ ra, amalga oshadi, shunga ko‘ ra, yadro ta’sirlashuvdan kllchsiz ta’sirlashllv necha marta kechik ho‘lsa, ycmirilish vaqti shuncha m.lrotaba kechikadi). 1) Yemirilish cnergiyasining kichik bo‘lishi radioaktivlik vaqtini kechiktiradi. (Masalan, yuzta nuklonli A = 100 yadro uyg’onish energiyasi 10 MeV bo‘isin. Har bir nuklonga 0,1 MeV to‘g’ri keladi, bu energiya solishtirma bog’lanish energiyasidan kichik, lekin hamma uyg’onish energiyani birorta nUklonga berishi, bu bilan nuklon chiqib ketishi ehtimoligi bor). 4) Radioaktiv yadro va maxsul yadrolar kvant xususiyatlarining (spin,juftlik, orbital moment, ...) keskin farq qilishi. Masalan, dastlabki yadro hlll2 holatda, mahsul yadro SII2 holatda bo‘lsin, bunda dastlabki yadro uchun I = 1/2, I = 5,P = -1,mahsulyadrouchunI = 112,1 = O,P = +1,!l.I = 5,!l.1 = 5 juftlik o‘zgaradi. Demak, spin, orbital moment, juftlik saqlanmasligi yemirilishni taqiqlaydi.

Alfa-yemirilish yadroviy kuchlar ta’sirida barcha saqlanish qonunlarining bajarilishi bilan ro‘y beradi. Alfa zarralar xossalarini o‘rganish zatyadi Z = 2, massa soni A = 4, bog’lanish energiyasi E = 28 MeV, spini 1= 0, magnit momenti J1 = 0 bo‘lgan yalang’och geliy atomi ekanligini ko‘rsatdi. Tabiiy radioaktiv alfa-yemirilish faqat davriy sistemaning oxiridagi Z> 82 vismutdan keyinjoylashgan og’ir element izotoplarida kuzatiladi. Sun’iy ravishda nuklonlar soni A = 140 - 160 sohada yotuvchi nodir yer elemeritlarida ham alfa aktiv izotoplar hosil qilinadi. Alfa-yemirilgan yadro zatyadi !l. Z = 2, massa soni !l. A = 4 ga kamayadi, davriy sistemada ikki katak oldinga siljiydi.

Alfa-yemirilish energetik jihatdan mumkin bo‘lishi uchun ushbu shart bajarilishi lozim: M(A,Z) >M(A-4,Z -2)+M(iHe),

ya’ni dastlabki ona yadroning massasi (energiyasi) hosilaviy yadro va alfa-zarra massalari (energiyalari) yig’indisidan katta bo‘lishi kerak. Energiyalar farqiga a - yemirilish energiyasi Eo deyiladi. Yemirilish energiyasi bo‘laklarga (a -zarra va hosilaviy yadrolarga) kinetik energiya .berishga sarf bo‘ladi.

Alfa spektr nozik strukturasi hosilaviy yadroning uyg’ongan holatlari va energiyalarini, ya’ni yemirilish sxemasini aniqlash imkoniyatini beradi. Alfa-spektr nozik strukturasida ao-energiyasi yemirilish energiya qiymatiga mos kelsa, qolgan

aI’ ar .. - zarralar energiyalari mos ravishda uyg’onish energiya qadar kechik chiqadi. Ba’zi hollarda o‘tish alfa-yemiriluvchi ona yadroning uyg’ongan holatidan hosilaviy yadro asosiy holatiga yemirilish bilan ro‘y berishi mumkin. Bu alfa zarralar kinetik energiyasi uyg’onish energiyasi qadar katta bo‘ladi.

3) Alfa-zarralar intensivligi energiyasiga bog’ liq bo‘ lib, energiyasi ortishi bilan intensivligi keskin osha boradi. 4) Tabiiy radioaktiv izotoplardan chiquvchi a-zarralar energiyalari 4 Me V< To < 9 Me Voraligida, bu yadrolarning yarim yemirilish davrlari TI/2 esa 3·1O-7 s < TI/2 < 510 15 yil oralig’ida. Alfa-zarralar kinetik energiyalari nisbati 2,5 marta o‘zgarsa, yarim yemirilish davrlari nisbati 1024 marotaba o‘zgaradi. Lekin shunday katta farq bo‘lishiga qaramasdan alfa-yemirilish davri bilan energiyasi o‘rtasidagi aloqadorlik mavjud. Alfa-zarra energiyasi 1 % kamaysa, yarim yemirilish davri 10 marotaba ortadi , agar energiya 10% kamaysa yarim yemirilish davri 2-3 tartibga o‘zgaradi.

Ma’lumki, qobiqli modelga ko‘ra, 126 va 82 sonlari to‘ldirilgan neytron va proton qobiqlariga to‘g’ri keladi; to‘ldirilgan neytron va protonlariga ega bo‘lgan yadrolar qO‘shni yadrolarga nisbatan eng katta bog’lanish energiyasiga ega bo‘ladi. Shuning uchun ana shu yadrolarning alfa-yemirilishida maksimal energiya ajralib chiqadi (Magik sonlarga to‘g’ri keluvchi yadrolarda bog’ Ian ish energiya katta massasi kechik dastlabki a-yemiriluvchi yadro magik yadro bO‘lsa, hosila yadro massalari farqi ortadi, bu esa yemirilish energiyasi ortishi ga o‘z navbatida alfaencrgiyasi ortishi ga olib keladi).

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EXPERIENCE AND WORK OF ORGANIZATION OF SIMULATION TRAINING OF ANESTHESIOLOGISTS AND INTENSIVE CARE SPECIALISTS

Abstract:*The article considers the relevance of simulation training in the practical training of anesthesiologists and intensive care specialists. The theoretical and practical prerequisites for the inclusion of simulation education in the trajectory of the educational process in order to reduce the number of medical errors in one of the most high-tech specialties of modern medicine are substantiated. The experience of stage-by-stage simulation training of anesthesiologists and intensive care specialists in the simulation center of the ASMI is presented.*

Keywords: *Simulation training, anesthesiologist-resuscitator, practical skill.*

Currently, the requirements for the professional activity of doctors have increased immeasurably compared with the events of 20 years ago. A doctor who does not possess practical skills at a sufficient level cannot be admitted to professional activity. Modern practice of continuing medical education to a certain extent allows us to solve this problem.

Nevertheless, to create a high-reliability system in the work of a doctor, it is important not only to constantly improve the level of theoretical knowledge, but also to teach him how to correctly and safely perform technically complex actions strictly in accordance with treatment protocols. Among the medical specialties, anesthesiology-intensive care is one of the most science-intensive [2]. In this section of clinical medicine, there is a constant accumulation of the volume of scientific information used, the steady introduction of modern high-tech diagnostic and therapeutic techniques into practice. These circumstances, in turn, create the danger of the doctor making professional mistakes, which often cause death in the patient. In the USA, a careful analysis of mortality has concluded that medical errors account for a significant part of the causes of death of patients, reaching 50-100 thousand cases annually [3]. According to various authors, similar results have been obtained in Europe. In particular, in the UK – 70 thousand, in Germany–100 thousand, in Italy – about 90 thousand patients [4,6,7,14]. A medical error is interpreted as a manifestation of a "human" factor or a "system failure". During the professional training of doctors, it is necessary to take into account the psychological aspects of the activities of anesthesiologists-resuscitators. With all the alertness and readiness for the worst case scenario, the anesthesiologist-

resuscitator constantly risks encountering an unplanned situation. "Hours of boredom and moments of horror" [8] is a formulation that vividly characterizes the nature of the work and to some extent explains the reasons for professional deviations of anesthesiologists. In critical situations, the doctor does not work alone, but in a team and within a complexly organized system. Doctors who have "learned from their mistakes" are replaced by those who still have all the difficulties ahead. A new stress factor is being formed – the fear of mistakes, the fear of being involved in a lawsuit with an unfavorable outcome for the patient. The overall level of conflict has increased significantly in conditions where it is necessary to share responsibility within the team for the health and life of patients. All this requires qualitatively new approaches to the training of anesthesiologists and resuscitators for professional activity. One of such approaches in modern conditions is simulation training (CO), especially since, due to the specific features of the specialty, mastering practical skills in providing intensive care in the clinic is impossible and feasible only on mannequins. Simulation training is a method of active learning aimed at developing knowledge, skills, and social attitudes [9]. It helps to increase the intellectual potential of the student, activate his ability to learn, and master specific skills types of production activities, the formation of adequate forms of communication in the process of this activity with work colleagues and secondary medical personnel. The most important advantages of CO–learning practical skills without causing physical and psychological harm to the patient, as well as an objective assessment of the quality of professional training by every specialist. The classical education system used until recently provides for the development of clearly regulated academic disciplines and subjects. This does not provide the necessary level of motivation for cadets and their conscious activity in the implementation of the learning process. In the simulation version of professional training, their active cognitive and emotional involvement in the educational process takes place. This allows them to significantly increase the level of necessary knowledge of the theory of the issue acquired by them, as well as practical skills in the conditions of completeness and realism of the simulated clinical situation [1, 10, 11, 15]. It allows you to teach specialists how to work in accordance with modern standards and protocols for emergency care, develop team interaction skills in a team of doctors and secondary medical workers, improve the quality of performing complex medical procedures and objectively evaluate the result of activities. To do this, it is necessary to master a solid theoretical knowledge base of pathophysiology, clinic and diagnosis of critical conditions, knowledge of modern principles of their treatment, impeccable implementation of emergency care and resuscitation technologies on simulation dummies and the ability to work in a team [13]. In connection with the above, 4 main tasks have been identified with:

1) ensuring a qualified level of mastering practical professional skills of emergency intensive care in critical conditions on special simulators;

2) training of a professionally trained doctor who is able and willing to apply his knowledge and practical skills in various critical situations;

3) control of the effectiveness and quality of resuscitation measures;

4) study and implementation of modern methods of improving the quality of his medical activity in the practice of an anesthesiologist-resuscitator, assessment of their compliance with professional standards and protocols.

As the stages of training and the testing process, we use modified proposals by I. Z. Yalonetsky et al. [5]. The training is conducted in three stages.

1. Theoretical remote stage. The study of the theoretical foundations of practical skills is conducted remotely using educational materials posted on the Moodle platform.

2. Practical remote stage. Visual automatisms of practical skills are practiced on the Moodle platform by watching videos (cardiopulmonary resuscitation, "difficult airway", intraosseous access, conicotomy, catheterization central veins, epidural and subarachnoid anesthesia, etc.). Pharmacokinetic aspects of anesthesia are mastered using the Gas Man simulator. The stage ends with intermediate testing on the Moodle platform.

3. Simulation communication stage. Practical skills training is carried out in the simulation center using mannequins, simulators, tools and consumables.

Students who have not mastered the previous stage of practical training cannot be admitted to the next stage. Practical skills training is conducted in accordance with the recommendations of the European Council for Intensive Care (ERC), which we use in all types of training. ERC recommends mastering practical skills using simulators and simulators in the form of a 4-step method:

Stage 1 – the teacher for all students of the group shows in real time on the simulator how a particular skill is performed correctly;

Stage 2 – the teacher shows and explains all the elements of the skill and answers questions;

Stage 3 - the student tells the teacher how to perform the skill, and the teacher executes his instructions on the simulator, even if the student gives incorrect instructions. At this stage, the student must see possible mistakes and correct them himself;

Stage 4 – the student performs the skill independently and comments on its implementation. This allows you to better remember the totality of the constituent elements of the skill.

In addition, in some cases, the "self–taught - teach a colleague" technique is used. With the help of scenarios prepared on the basis of real clinical cases, a clinical environment with a high level of reliability is created: an intensive care unit or an operating room, modern technical equipment, and compliance of the simulator's level of operation with the clinical task. All manipulations are fully simulated (ampoule opening, infusion therapy, intraosseous access, "difficult airway" algorithm, cardiopulmonary resuscitation, conicotomy, central vein catheterization, epidural and subarachnoid anesthesia, etc.). In a critical situation, the doctor's attention is focused on the patient. Nevertheless, it is important to take into account various aspects of the work, including proper documentation of the crisis situation. In terms of clinical modeling, the administrative structure of a medical organization is taken into account. The simulated system of responsibilities and professional

relationships is identical to that in practical healthcare. This also applies to the documentation regulating the work of specialists and used by doctors and nurses in the process of simulation training (anesthesia charts, appointment sheets, blood transfusion protocols, etc.). Classes in the simulation center are conducted in small groups. The instructor–cadet ratio is used for training (from 1 : 2 to 1 : 4). When using carefully designed scenarios, the work can be carried out by a team without the participation of a teacher-instructor as part of self-study in the presence of auxiliary technical personnel (software technicians). A sufficient staff of instructors allows you to solve many tasks in a short period of time – the acquisition of new skills before combining various specialists to resolve a crisis situation, when everyone performs their actions, successfully cooperating with team members. During the simulation work, students should independently see the problems that arise, assume a scenario for the development of the situation, find solutions, and set new goals with a change in the clinical situation. The functions of the coordinator in these conditions can be performed by a member of the student's team. The instructor adheres to the principle of "extraterritoriality" and conducts remote monitoring from a separate room. Immediately upon completion of the scenario, a detailed discussion of the clinical situation is conducted, while each student analyzes his actions. In the working conditions of specialists of various specialties (obstetricians, anesthesiologists, intensive care specialists, neonatologists), their interaction is evaluated [14, 16]. The result is a discussion of the problems of clinical practice, identification and correction of the weaknesses of practical training [17]. The certification of students is carried out by the teacher responsible for their training for each practical skill being studied. The test is considered to have been passed successfully and a "Credited" grade is given for this skill if the student completed it with a score of 70% or more. During the certification performance of the practical The teacher cannot ask questions or comment on the actions of the examinee. The exceptions are those cases when the student has made a gross mistake, which excludes the possibility of performing the skill correctly. In this case, the certification for this skill is terminated and the attested person is given a non-credit score. At the same time, the student is not deprived of the opportunity to be certified in other practical skills, if this is provided for by the certification program. Unreleased practical skills are subject to re-certification after additional training. Every year, about 100 anesthesiologists and intensive care specialists are trained at the department within the framework of certification cycles. Testing of students in the simulation center is part of the certification exam. Thus, the accumulated experience has shown that CO allows to improve the quality of professional training of anesthesiologists and resuscitators, including by increasing the motivation of cadets in achieving the final result of training. The introduction of CO to provide medical care to patients in critical condition makes it possible not only to objectively assess the initial level of professional training of doctors, but also its dynamics in the learning process, thereby determining the quality of the organization of the educational process at the department. The expected result of the transition to this practice-oriented training system is a significant reduction in

the risk of professional errors caused by the human factor and an increase in patient safety. One of the tasks of the near future is the need for an objective assessment of the role of simulation education in improving the quality of resuscitation care in the clinic.

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THE DIALOGICAL STRUCTURE OF THE NOVEL - LIVING SPEECH, A LITERARY NORM AND A WORK OF ART

Abstract. *The study of dialogic speech is a relevant area of research in modern linguistics, within the framework of which research is conducted that differs in methodology, goals and objectives. It is obvious that the study of speech activity, and when we speak about speech activity, we mean primarily the situation of dialogical communication, contains many interesting and sometimes little-studied problems and questions. The purpose of the article is the linguistic analysis and classification of fiction dialogues according to their communicative-functional characteristics.*

Keywords: *word arrangement, division, utterance, component, colloquial speech, associative addition.*

Today, there are many works aimed at solving important theoretical and practical issues: description of types of dialogic reactions (Arutyunova), problems of modeling and functional-linguistic analysis of dialogue (Balayan), study of dialogic functions of individual types of statements (Tsurikova) and types of dialogic remarks (Shvedova), description of the structure of dialogue (Byrdina), studies of syntactic features of dialogic speech, description of communicative roles of participants in dialogic interaction (Vinokur), identification of the constituent parts of dialogue (Debrenne), analysis of the coherence of dialogic text (Fugeron, Breuillard). A number of works are devoted to the analysis of dialogic speech in works of art of different genres: this is the analysis of dialogue from the point of view of the theory of speech acts in drama, the description of the functions and semantic features of dialogic unity in poetic speech (Mukhametova).

The works of a number of scientists (I.V. Azarova, M.V. Yavorskaya, A.V. Antonov, M.V. Gubina, O.A. Kazakevich, I.N. Larchenkova, I.S. Nekrestyanova, B.V. Dobrov, I.V. Segalovich, V.I. Shabanova, etc.) form a separate section of research on computational linguistics. A noticeable feature of the latest research has become the popularity of the topic of conflict dialogue. Of interest here are the works of Anna A. Zaliznyak "Reconstruction of the "true meaning" of lines in a conflict dialogue: problem statement", B.S. Tretyakova “Conflict through the eyes of a linguist”, A. Nikolova “Speech tactics and language markers of disagreement and conflict when motivating to action”, etc.

The Dialogical Structure of the Novel as Living Speech, as a Literary Norm, and as a Work of Art Colloquial speech is a type of language that is realized

primarily in oral form in a situation of unprepared, relaxed communication during direct interaction of communication partners. The main area of implementation of colloquial speech is everyday communication that takes place in an informal setting [1].

One of the main characteristic features of colloquial speech is ellipsis. The absence of verbalized expression of individual elements of an utterance is explained by the fact that they are compensated for by the generality of the situation. In linguistics, the term "ellipsis" is most often used to denote three phenomena.

1. Significant absence of a member of a syntactic construction ("zero member" or "syntactic zero"): My brother - student.

2.Omission of one or another member of the syntactic construction, present in the context (contextual ellipsis): The boy was bought a scooter, and the girl - a doll. The missing member is understood unambiguously, since it is given in the context.

3. Absence of one or another member of the construction, clear from the consitution (consituational ellipsis): Show me the red ones. Constructions of this kind are understandable only under certain conditions [3].

E.A. Trofimova identifies the following types of elliptical constructions in English:

1) Sentences with a zero subject, expressed by a personal pronoun or introducing "it": Got some rope - have been told.

Had mashed potatoes and stuff like that.

2) Elliptic sentences with a zero predicate:

· with an unexpressed auxiliary verb: You're going to have all the girls and boys? Somebody at the door!

· with an unexpressed nominal part of the compound predicate: 'But there is no need to get angry.' - 'If I am it is your fault…'

· with an unexpressed full-valued verb: Odd man (goes) out.

3) Sentences with a zero subject and predicate: Dreadful!

4) Constructions with an unexpressed subject and part of the predicate:

This phenomenon is common both in interrogative sentences and in response replies: Go back? ... No good at all! Go sideways? Impossible! Go forward? Only thing to do! On we go!

Similarly, a similar phenomenon is possible in sentences that contain a connecting part of the question: Hot stuff, isn't she?

Sentences with an elliptical introductory phrase “there is” can also be included in this group: No public phones in this residential area.

Despite the fact that simple grammatical constructions predominate in colloquial speech, complex sentences are still used, with preference given to compound constructions. According to V.V. Buzarov, the phenomenon of ellipsis is usually observed in the second sentence of a compound sentence. In this case, for the sake of speech economy, the following elements can be omitted:

· predicate or part of it: Many a hand has scaled the grand old face of the plateau. Some belong to strangers, and some to the folks you know.

· modal verb and subject: Perhaps I could reach him at home after I got back to the house. On the other hand, why (should we) bother?

· object determined by an adjective or ordinal number: They dedicate their lives to running all of his.

· adverbial clause: Kelly was at Richard's, but Emmy wasn't.

· predicate phrase in full: Mike plays football but not Bob.

In a complex sentence, the following are omitted [5]:

· linking elements “that”, “who(m)”: You know you're right. Using the elements “who”, “that”, or “which” as the subject of a subordinate clause is the norm of the language, but in spoken language there is a tendency to omit them:

I reckon there ain't one boy in a thousand (who) can do this.

· subject and predicate in the second part of the sentence: He is a prisoner at Bag End now, I expect, and very frightened.

· one of the subordinate clauses that differ only in conjunctions: I'm ready to meet them where and when they like.

· infinitive: You can all go, if you want to. I mean to stay.

· particle "to": There was only one thing for me to do - accept his conditions.

· preposition: `Foreigner (With) Heavy accent.' [4].

As a result, semantically and grammatically related phrases often end up separated, with the most significant word being moved to the beginning: Have you seen where my hat is? Good job, this. Word order in Russian colloquial speech is connected with intonation. Colloquial speech has a specific type of connection between two predicative constructions in one utterance - the connection of free connection.

As already noted in the above, striving to recreate the most truthful picture of people's lives, the writer, in most cases, achieves the effect of naturalness and ease in the characters' lines. Nevertheless, due to a number of factors, some discrepancies are inevitable, caused, first of all, by the difference between written and oral forms of communication. In colloquial statements, some grammatically and semantically necessary components are often unverbalized. Their absence is compensated for by the presence of a certain situation common to the participants in the discourse. Thus, verbal ellipsis does not hinder mutual understanding of the interlocutors.

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OQSILLAR. YOG‘LAR. UGLEVODLAR MAVZUSIDA BARQAROR TARAQQIYOT TA’LIMI VA B/B/B METODI

ANNOTATSIYA: *Quyida keltirilgan maqolada oqsillar va ularning funksiyalari keltirib o`tilgan. Oqsil, uglevod va yog`lar mavzusini tushuntirishda barqaror taraqqiyot tushunchalarini qo`llash usullari ko`rsatilgan. O`quvchilarni qay darajada o`zlashtirganini tekshirish maqsadida B/B/B metodi namunasi berilgan.*

***KALIT SO`ZLAR:*** *oqsil, uglevod, yog`lar, barqaror tarqqiyot ta’limi, transport funksiyasi, himoya, DNK, RNK, energiya, zaxira modda.*

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PROTEINS. OILS. SUSTAINABLE DEVELOPMENT EDUCATION AND THE B/B/B METHOD ON THE SUBJECT OF CARBOHYDRATES

ABSTRACT: *The following article describes proteins and their functions. Methods of applying the concepts of sustainable development are shown in the explanation of the topic of protein, carbohydrates and fats. An example of the B/B/B method is given in order to check the students' level of mastery.*

KEY WORDS: *protein, carbohydrate, fats, sustainable development education, transport function, protection, DNA, RNA, energy, reserve substance.*

KIRISH

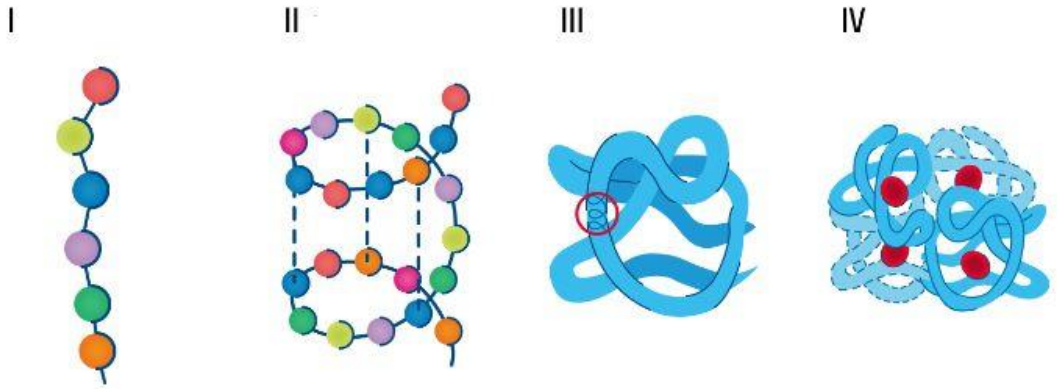
O'zbekiston, dunyoning boshqa ko'plab mamlakatlari singari, o'z hududida barqaror rivojlanishni ta'minlash zarurligiga duch kelmoqda. O'zbekiston hukumati ushbu maqsadga erishish uchun bir qator chora-tadbirlarni amalga oshirmoqda.

O'zbekistonda barqaror rivojlanishni ta'min lashning asosiy yo'nalishlaridan biri barqaror rivojlanish tamoyillariga asoslangan iqtisodiy siyosatni takomillashtirishdir. Hukumat iqtisodiyotni diversifikatsiya qilish, infratuzilmani rivojlantirish, xorijiy investitsiyalarni jalb qilish va ishlab chiqarishni modernizatsiya qilishga intiladi, ayniqsa qishloq xo'jaligi, energetika va transport kabi ekologiya bilan bog'liq bo’lgan sohalarda. Bu sohalar bilan bir qatorda ta`lim sohasiga ham barqaror taraqqiyot tushunchalarini kiritish nafaqat O`zbekiston balki dunyo muammolari yechimining bir qismi bo`lishi mumkin.

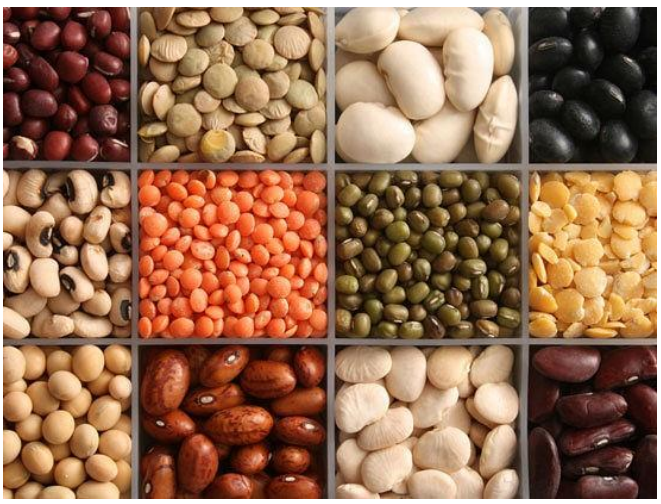
ADABIYOTLAR TAHLILI VA METODLAR

Oqsil kabi ajoyib xususiyatlarga ega bo‘lgan boshqa modda yo‘q. Agar hujayra biron-bir ishni bajarishi kerak bo‘lsa, u deyarli har doim ma’lum bir proteinga “murojaat” qiladi. Hayot minglab oqsillarga bog‘liq bo‘lib, ularning

molekulalari boshqa molekulalarni ajoyib aniqlik bilan taniydi va o‘zaro “muloqot” qiladi.Oqsillar o‘simlik va hayvon organizmlarining asosiy tarkibiy qismi bo‘lib, hayotiy jarayonlarda ishtirok etuvchi eng muhim murakkab tuzilishli birikmalardir. Insonlar oqsillarni asosan oziq-ovqat mahsulotlarini iste’mol qilish orqali qabul qiladi. Siz go‘sht va go‘sht mahsulotlari, tuxum, loviya, mosh, no‘xat kabi oziq-ovqat mahsulotlarini iste’mol qilasiz. Bu mahsulotlar oqsillarning asosiy manbasidir. Oqsillar – organizmning qurilish materiali, muskul va teri qoplamalari. Oqsillar – organizmning transporti, o‘pkadan kislorodni hujayraga olib boradi va u yerda hosil bo‘lgan karbonat angidridni o‘pkaga olib keladi.



Oqsillar – organizmning himoyachisi. Inson organizmida oqsil yetishmasligi immunitetni kuchsizlantiradi. Natijada inson turli kasalliklarga moyil bo‘lib qoladi, qon hosil bo‘lishi susayadi, yosh organizmning rivojlanishi sekinlashadi. Nerv sistemasi, jigar va boshqa organlarning faoliyati buziladi. Uzoq vaqt davom etgan kasalliklardan so‘ng organizmning qayta tiklanishi qiyinlashadi. Organizmda oqsillar yetishmasligi sababli yuzaga keladigan kasalliklarning oldini olish va davolash uchun tibbiyot xodimlarining tavsiyasiga asosan oqsil sintezini tezlashtiruvchi dori-darmonlar qo‘llanadi.Oqsil molekulasi murakkab tuzilishga ega bo‘lib, uning minglab turlari mavjud. Oqsil moddalarni sintez qilish juda ham mushkul. Har bir organizm o‘z organizmi uchun zarur bo‘lgan oqsillarni hujayralarida biosintez qilib oladi. Oqsillarning elementar tarkibini o‘rganish ularda ma’lum nisbatda quyidagi elementlar mavjudligini ko‘rsatdi: uglerod (50–54%), kislorod (21–23%), azot (15–17%), vodorod (6,5–7%) , shuningdek, fosfor va oltingugurt. Yog‘larUlar qayerdan keladi? Nima uchun ular teri ostida to‘planadi va umuman olganda, nima uchun kerak?



Yog‘lar yuqori bir asosli karbon kislotalar va uch atomli spirt – glitserindan hosil bo‘lgan murakkab efi rlardir. Ushbu birikmalarning umumiy nomi triglitseridlardir. Demak, yog‘lar glitserin va yog‘ kislotalaridan tashkil topgan organik birikmalardir. Ularning organizmdagi roli yog‘ kislotalarining kimyoviy tuzilishiga bog‘liq.

Yog‘ kislotalari ikki xil: to‘yingan va to‘yinmagan bo‘ladi. Yog‘lar ko‘p funksiyalarni bajaradigan ovqatlanishning zarur tarkibiy qismidir: u bizga energiya beradi, miya faoliyatini rag‘batlantiradi, hujayralar va to‘qimalar uchun qurilish materiali bo‘lib xizmat qiladi, A, D, E, K vitaminlarini so‘rilishida ishtirok etadi va moddalar almashinuvini tartibga solishga yordam beradi. Tananing yog‘ga bo‘lgan ehtiyoji. Inson ratsionidagi yog‘larning tavsiya etilgan miqdori kuniga 90–100 grammni tashkil qiladi.

Zamonaviy ilm-fan va tibbiyot inson energiya sarfi ning taxminan 20–30 foizini oziq-ovqat yog‘lari energiyasidan olishi kerakligini hisoblab chiqdi. Bizning tanamiz yog‘larni “keyinroq” ishlatish uchun saqlaydi. Ular tana va ichki organlarni yumshoq “yostiqcha”lar kabi himoya qilish, issiqlikni saqlashga yordam berish, soch va terini silliq va chiroyli qilishda ham ishtirok etadi. Shuning uchun tanada yetarli miqdorda yog‘ bo‘lishi juda muhimdir. Yog‘lar sariyog‘ va pishloqda, go‘sht, tuxum, baliqda mavjud.Yog‘lar tananing qurilish materiali va energiya zaxirasidir. O‘rtacha 70 kg vaznli odamning tanasida taxminan 11 kg yog‘ mavjud.

Uglevodlar molekulasi uglerod, vodorod va kislorod atomlaridan iborat organik birikmalardir. Bunday atalishiga sabab molekulasi tarkibidagi uglerod, vodorod va kislorod atomlari

Cn(H2O)m ko‘rinishiga ega bo‘lgandir. Tabiatda uchraydigan uglevodlarni asosan uchta katta guruhga ajratish mumkin. Oqsillarning fermentativ faolligi kimyoviy reaktsiyalarning tezliga orqali biologik jarayonlar qat’iy, ma’lum tartibda borishi va boshqarilishiga imkon beradi. Oqsillar hujayradagi boshqa molekulalardan o‘zlarining yuqori molekulyar massaga ega bo‘lishi bilan va tarkibida azot atomlarini tutishi bilan farq qiladi. Yog‘lar kundalik hayotda doimiy ravishda ishlatilib turiladigan asosiy oziq-ovqat turlaridan biri bo‘lib, ularsiz me’yoriy hayotiy jarayonlar amalga oshirilmaydi. Faqat bu borada har kimning tegishli ovqatlanish qoidalariga rioya qilib yog‘lardan qaysilarini va qancha iste’mol qilishni bilish muhim ahamiyat kasb etadi.

Uglevodlar(shakarlar, glitsidlar, carbohydrate) — oqsillar va yog‘lar bilan bir qatorda odam, jonivorlar va o‘simliklar organizmi hayot faoliyati uchun zarur bo‘lgan keng tarqalgan organik birikmalar guruhi. Organizmda moddalar almashinuvi natijasida hosil bo‘ladigan

energiya manbalaridan biri. Qishda ba’zan muz ostidagi yaxlab qolgan baqalarni topish mumkin, ammo kunlar isib, muz eriganidan keyin ular hayotini davom ettiraveradilar.

Qanday qilib ular muzlab qolsalarda o‘lmaslikka muvaffaq bo‘lishadi?

Nima uchun inson tanasiga uglevodlar kerak? Inson tanasida uglevodlar 4 ta muhim fazifani bajaradi:

– energiya manbai;

– uglevodlar biriktiruvchi to‘qimalar, plazma va hujayralararo membranalarning bir qismi bo‘lib, oqsillar bilan birgalikda steroid gormonlar, fermentlarni hosil qiladi;

– suv molekulalarining bog‘lanishi tanadagi kalsiy va magniy ionlarining maqbul miqdorini saqlab turadi;

– himoya, unda moddalar qon tomirlarining elastikligini, qo‘shma suyuqlik va shilliq qavatning ishlashini ta’minlaydi. Uglevodlarning yetishmasligi yurak va qontomir kasalliklariga, bo‘g‘imlardagi og‘riqlarga olib keladi. Uglevodlarning ortiqchasi esa vazn ortishi, allergiya, kariyes paydo bo‘lishi va asab tizimidagi patologik jarayonlarga sabab bo‘ladi.

Oqsillar, yog'lar va uglevodlar, shuningdek, ularning barqaror taraqqiyot ta'limi bilan aloqasi o'zaro bog'liq, chunki oziq-ovqat tizimi va sog'liqni saqlash jamiyatning barqaror rivojlanishiga bevosita ta'sir ko'rsatadi. Barqaror taraqqiyot ta'limi, odatda, resurslardan foydalanishni samarali va adolatli tashkil etishga, ekologik muvozanatni saqlashga va jamiyatni uzoq muddatli rivojlanish yo'lida ta'lim berishga qaratilgan. Oqsil, yog' va uglevodlarning bu jarayonga ta'siri quyidagicha bo'lishi mumkin:

Oziq-ovqat xavfsizligi va ta'lim.

Barqaror taraqqiyot ta'limi oziq-ovqat xavfsizligi va ta'minoti bilan bog'liq. Oqsil, yog' va uglevodlar to'g'ri ovqatlanishning asosiy tarkibiy qismlaridir. O'qituvchilar va jamiyatni ta'lim berish orqali oziqlanishning ahamiyatini tushuntirish va sog'lom dietaning sog'liq va iqtisodiy rivojlanishga ta'sirini ko'rsatish muhim.

Oqsillar. Ularning roli to'g'ri o'sish, immunitet tizimi va umumiy salomatlikni qo'llab-quvvatlashda beqiyosdir. Oqsillarni iste'mol qilishda sifatli o'zgarishlar, masalan, vegeterianizmni o'rgatish, barqaror oziq-ovqat tizimlari yaratishga yordam beradi.

Yog'lar. Yog'larning muvozanatli iste'moli orqali organizmning energiya ta'minoti, hujayra funktsiyalari va vitaminlarni so'rish uchun zarurdir. O'zbekiston va boshqa mamlakatlarda, barqaror oziqlanish bo'yicha ta'lim berish, foydali yog'lar va ularning samarali iste'moli haqidagi bilimlarni oshirishi mumkin.

Uglevodlar. Uglevodlarning to'g'ri iste'moli insonning energiya va faolligini ta'minlashda muhim rol o'ynaydi. Xo'sh, bu uglevodlarni to'g'ri va barqaror ravishda ishlatish, global oziq-ovqat xavfsizligi va barqaror o'sishga hissa qo'shadi.

MUHOKAMA

Ijtimoiy va ekologik barqarorlik

Barqaror taraqqiyot ta'limi o'z ichiga ekologik muvozanatni saqlash va resurslarni samarali boshqarishni o'zida mujassamlashtiradi. Oqsil, yog' va

uglevodlarning iste'moliga aloqador bo'lgan oziq-ovqat tizimlarining ekologik izlari muhim.

Ekologik ta'sir: Sanoat o'sishi va intensiv qishloq xo'jaligi amaliyotlari uglevodlar, yog'lar va oqsillar ishlab chiqarishda katta ekologik ta'sir ko'rsatadi. Barqaror rivojlanish ta'limi yordamida oziq-ovqatni qayta ishlash va ishlab chiqarish jarayonlaridagi ekologik izlarni kamaytirish mumkin.

Suv va energiya sarfi. Oqsil, yog' va uglevodlarning ishlab chiqarilishi uchun kerakli resurslarni samarali boshqarish ta'limi ekologik barqarorlikni ta'minlashga yordam beradi.

Sog'liq va iqtisodiy barqarorlik

Oqsil, yog' va uglevodlarning muvozanatli iste'moli, nafaqat jismoniy sog'liqni ta'minlashga yordam beradi, balki iqtisodiy barqarorlikni ham qo'llab-quvvatlaydi.

Sog'liqni saqlash. Sog'lom ovqatlanish barqaror rivojlanishning asosi sifatida farovonlikni oshiradi. Ularning doimiy va muvozanatli iste'moli jamiyatning umumiy sog'lig'ini yaxshilaydi, bu esa mehnat unumdorligini oshiradi.

Iqtisodiy rivojlanish. Oqsil, yog' va uglevodlarning barqaror ishlab chiqarilishi va ta'minoti iqtisodiy samaradorlikni oshirishga yordam beradi. Barqaror oziq-ovqat tizimlarini yaratish, oziq-ovqat xavfsizligini ta'minlash va mehnat bozori uchun zarur bo'lgan ixtisoslashgan bilimlarni tarqatish muhimdir.

Oqsillar, yog'lar va uglevodlarning barqaror taraqqiyot ta'limi bilan aloqasi ularning to'g'ri iste'mol qilinishi va ekologik, iqtisodiy hamda sog'liqni saqlash sohalaridagi ahamiyatini o'rganishni o'z ichiga oladi. Barqaror oziqlanishni targ'ib qilish, ularning muvozanatli va samarali iste'molini, shuningdek, jamiyatdagi barqaror rivojlanishga ta'sirini ta'lim orqali keng tarqatish muhim ahamiyatga ega.

NATIJALAR

Oqsil, yog`lar va uglevodlar mavzusini barqaror taraqqiyot ta’limi bilan birgalikda o`qitilganda “bilaman, bilishni xohlayman, bilib oldim” metodini qo`llashni tavsiya qilaman. Ushbu metod o‘quvchilarga muayyan mavzular bo‘yicha bilimlari darajasini baholay olish imkonini beradi. Metodni qo‘llash jarayonida o‘quvchilar bilan guruhli yoki ommaviy ishlash mumkin. Guruh shaklida ishlashda mashg‘ulot yakunida har bir guruh tomonidan bajarilgan faoliyat tahlil etiladi. Guruhlarning faoliyatlari quyidagi ko‘rinishda tashkil etilishi mumkin:

1. Har bir guruh umumiy sxema asosida o‘qituvchi tomonidan berilgan topshiriqlarni bajaradi va mashg‘ulot yakunida guruhlarning munosabatlari loyiha bandlari bo‘yicha umumlashtiriladi;
2. Guruhlar umumiy sxemaning alohida bandlari bo‘yicha o‘qituvchi tomonidan berilgan topshiriqlarni bajaradi.

O‘quv faoliyati bevosita yozuv taxtasi yoki ish qog‘ozida o‘z aksini topgan quyidagi sxema asosida tashkil etiladi.

Bilaman	Bilishni xohlayman	Bilib oldim

Metoddan foydalanish 3 bosqich asosida amalga oshiriladi:

1. O‘quvchilarning o‘rganilishi rejalashtirilayotgan mavzu bo‘yicha tushunchalarga egalik darajalari aniqlanadi.
2. O‘quvchilarning mavzu bo‘yicha mavjud bilimlarini boyitishga bo‘lgan ehtiyojlari o‘rganiladi.
3. O‘quvchilarni mavzuga oid ma’lumotlar bilan batafsil tanishtiriladilar.

Bosqichlar bo‘yicha amalga oshirilgan harakatlarning to‘liq tafsiloti quyidagicha:

— sinf o‘quvchilari guruhlarga biriktiriladilar;
— o‘quvchilarning yangi mavzu bo‘yicha tushunchalarga egalik darajasi o‘rganiladi;
— o‘quvchilar tomonidan qayd etilgan tushunchalar loyihaning 1-bandiga yozib boriladi;
— o‘quvchilarning yangi mavzu bo‘yicha mavjud bilimlarini boyitishga bo‘lgan ehtiyojlari o‘rganiladi;
— o‘quvchilarning ehtiyojlari sifatida bayon etilgan tushunchalar loyihaning 2-bandiga yozib boriladi;
— o‘qituvchi yangi mavzuga oid umumiy ma’lumotlar bilan o‘quvchilarni xabardor qiladi;
— o‘quvchilar o‘zlashtirgan yangi tushunchalar aniqlanadi;
— bayon etilgan yangi tushunchalar loyihaning 2-bandiga yozib qo‘yiladi;
— mashg‘ulot yakunida loyiha yaratiladi.

XULOSA

Barqaror taraqqiyot ta’limi orqali o‘quvchilarga ekologik xavfsizlik va sog‘lom oziqlanish haqida bilimlar berish, ularni barqaror ishlab chiqarish va iste'molga undash, texnologik va ilmiy yondashuvlarni qo‘llash zarur.

B/B/B metodlari yordamida o‘quvchilar oziq moddalarining biologik va biokimyoviy jarayonlarda qanday ta’sir ko‘rsatishini o‘rganadilar. Bu metodlar o‘zining ilmiy asoslangan yondashuvi bilan barqaror taraqqiyotga erishish uchun zarur bo‘lgan usullarni taqdim etadi.

Barqaror taraqqiyot va B/B/B metodlari birgalikda oziq-ovqat tizimlarining sog‘lom, ekologik va samarali bo‘lishini ta'minlashga yordam beradi, bu esa kelajakda resurslarni tejash va energiya balansini saqlashda muhim rol o‘ynaydi.

Umuman olganda, o‘quvchilarga ushbu bilimlarni taqdim etish va amaliyotda qo‘llash, barqaror va sog‘lom kelajak qurishda muhim qadamdir.

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VITAMINLAR. BARQAROR TARAQQIYOT TA’LIMI. QORA QUTI METODI

ANNOTATSIYA: *quyida berilgan maqolada vitaminlar mavzusini o`qtishda barqaror taraqqiyot tushunchalarini qo`llash va ulardan foydalanish haqida ma’lumotlar berilgan. Vitaminlarning o`rganilish tarixidan boshlab inson salomatligi uchun ahamiyatlarigacha tushuntirib berilgan. Olingan bilimlarni sinash uchun qora quti interfaol metodi qo`llanilgan.*

***KALIT SO`ZLAR:*** *vitaminlar, avitaminoz, gipovitaminoz, shabko`rliok, barqaror taraqqiyot, qora quti, interfaol metod*

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VITAMINS. SUSTAINABLE DEVELOPMENT EDUCATION. BLACK BOX METHOD

ABSTRACT: *the following article provides information on the application and use of the concepts of sustainable development in the study of the topic of vitamins. From the history of the study of vitamins to their importance for human health, it is explained. The black box interactive method was used to test the acquired knowledge.*

KEYWORDS: *vitamins, avitaminosis, hypovitaminosis, entrepreneurship, sustainable development, black box, interactive method*

KIRISH

Vitaminlar insonlar va hayvonlar uchun o‘ta muhim bo‘lgan murakkab tuzilishga ega organik birikmalardir. Ular asosan to‘qimalardagi moddalar almashinuvi va hujayralardagi bio sintez reaksiyalari uchun zarur bo‘lgan biokatalizator fermentlar tarkibiga kiradi. Demak, vitaminlar hayvon va odam organizmi uchun juda oz miqdorda kerak bo‘ladi (bir sutkada inson organizmi uchun bir necha mk dan bir necha mg gacha kerak). Ammo organizmda vitamin yetishmasligi yoki ortib ketishi modda almashinuvining buzilishiga olib keladi. Ya’ni avitaminoz yoki gipovitaminoz deb ataluvchi og‘ir kasalliklarni keltirib chiqaradi.

ADABIYOTLAR TAHLILI VA METODLAR

Insonlar zarur vitaminlarni asosan o‘simlik mahsulotlaridan oladi. Masalan, A vitaminning yetishmasligi insonlarda shabko‘rlik kasalligini keltirib chiqaradi. Ya’ni inson qorong‘i tushishi bilan ko‘rish qobiliyatini yo‘qotadi. Bundan tashqari A vitamini yetishmasligi natijasida inson terisida, tirnoqlarida, soch osti terisida turli salbiy o‘zgarishlar sodir bo‘ladi. Ushbu vitamin asosan oziq-ovqat mahsulotlari, sabzi, pomidor, ko‘k no‘xat, qovun, apelsin iste’mol qilish orqali qoplanadi.

C vitamini yetishmasligidan esa milkda singa kasalligi kelib chiqadi, bo‘g‘inlarda og‘riqlar paydo bo‘ladi, yaralarning bitishi qiyinlashadi, tez charchash holati kuzatiladi. Ushbu vitamin karam, limon, apelsin, bulg‘or qalampiri va turli xil ko‘katlarda uchraydi.

Deyarli barcha vitaminlar o‘simlik hujayralarida sintezlanadi. Masalan, C vitamin 100 gr olma da 13 mg, qulupnayda 60 mg, apelsinda 60 mg, qora smorodinada 200 mg miqdorda bo‘ladi. P vitamini esa 100 g olmada 10–70 mg, qulupnayda 150 mg, apelsinda 500 mg, qora smorodinada 150 mg miqdorda bo‘ladi.

C.Funk
(1884-1967)

Hayvon organizm vitaminlarsiz hayot kechira olmasligini birinchi bo‘lib 1882- yilda rus olim, shifokor N. I. Lunin aniqlagan.

1912-yilda polshalik olim K. Funk “Vitamin” terminini fanga kiritgan. Vitamin (“vita” – hayot, ya’ni hayot amini). Inson organizmi uchun vitaminlarning ahamiyati o‘ta muhimdir.

Vitaminlar odamlarning jismoniy va hissiy holatiga ta’sir qiladi.Vitaminlar shartli ravishda vitaminlar va vitaminsimon moddalarga bo‘linadi. Vitaminsimon moddalar biologik xossalari bilan vitaminlarga o‘xshaydi, lekin odatda ko‘p miqdorda talab etiladi. Vitaminning qisman yetishmasligi gipovitaminoz, mutloq tanqisligi avitaminozdeb ataladi.

Olma mevasida uchraydigan vitamin va minerallar

. 1-vitaminlar:A–0,03 mg, B1–0,03 mg, B2–0,02 mg, B3–0,07 mg, B6–0,07 mg, B9–2,0 mkg, C–10,0 mg, E–0,55 mg, H–0,3 mkg, PP–0,3 mg.

2-mikroelementlar:temir – 2,2 mg, kaliy – 278 mg, kalsiy – 15,0 mg, magniy – 9,0 mg, natriy – 26 mg, oltingugurt – 5,0 mg, fosfor – 11 mg, xlor – 2 mg, alyuminiy – 116 mkg, bor – 245 mkg, vanadiy – 4 mkg, yod – 2 mkg, kobalt – 1 mkg, marganes – 47 mkg, mis – 110 mkg, molibden – 6 mkg, nikel – 17 mkg, rubidiy – 63 mkg, ftor – 8,0 mkg, xrom – 4 mkg, rux – 150 mkg.

3-olma urig‘ida:yod-80 mkg.

Vitaminlarni saqlash shartlari. Sabzavot va kartoshka, meva va rezavor mevalarni saqlash vaqtida biz ko‘plab vitaminlarni yo‘qotamiz. Masalan, yig‘ib olingandan so‘ng 1kg kartoshkada taxminan 300 mg C vitamini yo‘qotadi va bahorgacha saqlangan kartoshkadagi vitamin miqdori 50% dan ko‘p bo‘lmaydi. Sabzavotlarda vitaminlar saqlanishini oshirish uchun ularni saqlash va qadoqlash qoidalariga rioya qilish kerak. Har bir sabzavot o‘zining optimal saqlash haroratiga ega.

B1, B2 va C vitaminlari suvda eriydi, havoda oksidlanadi va qizdirilganda tez parchalanadi. Shuning uchun sabzavotlarni pishirganda, ularni sovuq suvga emas, balki qaynab chiqqan suvga qo‘shgan yaxshi, qolaversa idish qopqog‘ini yopib, uzoq vaqt qaynatmaslik kerak. C vitamini mis va temir idishlar bilan aloqa qilganda yo‘qotilsa, K vitamini quyosh nuri ta’sirida kamayadi.

Vitaminlar mavzusini oqitishda barqaror taraqqiyot ta'limi tushunchalarining ahamiyati katta. Barqaror taraqqiyot ta'limi — bu insonlar va jamiyatlarning uzoq muddatli ijtimoiy, iqtisodiy, ekologik va madaniy rivojlanishini ta'minlashga qaratilgan ta'limdir. Vitaminlar kabi sog'liq va ovqatlanish bilan bog'liq mavzularni oqitishda barqaror taraqqiyot ta'limi kontseptsiyalarini qo`llash quyidagi jihatlarga e'tibor qaratish imkonini beradi:

MUHOKAMA

Sog'liqni saqlash va ehtiyojlarni muvozanatlash: Vitaminlar tanadagi sog'lom funktsiyalarni saqlash uchun zarur bo'lsa-da, ularni ortiqcha qabul qilish ham zararli bo'lishi mumkin. Barqaror taraqqiyot ta'limi, vitaminlarning tanadagi muvozanatini saqlashning ahamiyatini tushunishga yordam beradi. Bu, ovqatlanishning muvozanati va uning barqarorligi haqida bilish, ta'lim jarayonida aholining ehtiyojlarini qondirishni ta'kidlaydi.

Ekologik barqarorlik: Vitaminlar, asosan, o'simlik va hayvon mahsulotlaridan olinadi. Bu jarayonda ekologik barqarorlikni ta'minlash muhimdir. Barqaror qishloq xo'jaligi va oziq-ovqat mahsulotlarini ishlab chiqarish ekologik muammolarni kamaytirishga yordam beradi. Bu ta'limni o'qitishda o`quvchilarni

ekologik jihatlarni tushunishga undaydi, vitaminlar va ozuqa moddalarini ishlab chiqarish jarayonlarining tabiiy resurslar bilan qanday bog'liqligini ko'rsatadi.

Oziq-ovqat xavfsizligi va barqaror ishlab chiqarish: Barqaror taraqqiyot ta'limi, oziq-ovqat xavfsizligini ta'minlashga ham katta ahamiyat beradi. Vitaminlar bilan to'la va xavfsiz oziq-ovqatni ishlab chiqarish, iste'molchilar uchun foydali bo'lishi va ijtimoiy barqarorlikni saqlashi lozim.

Ijtimoiy ta'sir va ta'lim: Vitaminlar va ularning organizmdagi roli haqida ta'lim berish, jamiyatdagi sog'liqni saqlash darajasini oshiradi. Barqaror taraqqiyot ta'limi, sog'lom ovqatlanish va vitaminlar bilan bog'liq tibbiy muammolarni ijtimoiy jihatdan hal qilishni ko'zlaydi. O'quvchilarni vitaminlarning roli va ularni qanday qilib barqaror va sog'lom tarzda olish haqida o'rgatish, jamiyatning umumiy sog'liqni saqlash darajasini yaxshilashga yordam beradi.

Sog'lom turmush tarzini targ'ib qilish: Barqaror taraqqiyot ta'limi, faqat vitaminlar haqida bilishni emas, balki umumiy sog'lom turmush tarzini targ'ib qilishni ham o'z ichiga oladi. Bu, sport va jismoniy faollik, to'g'ri ovqatlanish va yaxshi muhitda yashashning ahamiyatini o'rgatish bilan bog'liq. Vitaminlarning o'ziga xos roli bu umumiy sog'liqni saqlash tizimining muhim qismi sifatida ko'rinadi.

Shunday qilib, vitaminlar mavzusini o'rgatishda barqaror taraqqiyot ta'limi tushunchalarini qo'llash, nafaqat insonlar sog'lig'ini yaxshilash, balki ekologik barqarorlikni, oziq-ovqat xavfsizligini va jamiyatning umumiy farovonligini ta'minlashga xizmat qiladi. Bu o'quvchilarga sog'lom va mas'uliyatli hayot tarzini o'rganish imkonini beradi. Bundan tashqari darsni yanada qiziqarliligini oshirishda “qora quti” metodidan foydalanishni tavsiya qilaman.

NATIJALAR

Ta’lim jarayonida mazkur metodni qo‘llashdan maqsad o‘quvchilar tomonidan mavzuni puxta o‘zlashtirishga erishish bilan birga ularni faollikka undash, ularda hamkorlikda ishlash, ma’lum vaziyatlarni boshqarish hamda mantiqiy tafakkur yuritish ko‘nikmalarini shakllantirishdan iborat. Metoddan foydalanishda quyidagi harakatlar tashkil etiladi:

— o‘quvchilar juftlikka biriktiriladi;

— juftliklarga mavzu mohiyatini yorituvchi asosiy tushunchalar(tayanch so‘zlar, elementlar, vitaminlar, mikro va makroelementlar)ni kartochkalarga qayd etish vazifasi yuklanadi;

— o‘qituvchi o‘quvchilar bilan hamkorlikda guruhlar tomonidan topshiriqning bajarilishini tekshiradilar;

—topshiriqni to‘g‘ri bajargan guruhning bir a’zosi o‘qituvchi rolini bajaradi va topshiriqning yechimini yozuv taxtasiga yozadi;

— sinf o‘quvchilari yozuv taxtasida qayd etilgan fikrni sharhlaydilar (tayanch so‘zlar, elementlar, vitaminlar, mikro va makroelementlar qanday ma’noni anglatishini aytadilar);

—to‘g‘ri javob bergan o‘quvchi o‘qituvchi rolini bajarib, juftliklarga mavzu mohiyatini yorituvchi sxema, jadval yoki tasvir yaratishni topshiradi va o‘qituvchi yordamida topshiriqning bajarilishini tekshiradi.

XULOSALAR

O'quvchilar vitaminlarning organizmdagi ahamiyati va turli xil vitaminlar (A, B, C, D, E, va boshqalar) ning roli haqida ma'lumot olishadi. Bu mavzu orqali ular sog'liqni saqlashda vitaminlarning o'rni, turli vitaminlar va ularning organizmdagi funksiyalarini o'rganadilar.

Barqaror taraqqiyot ta’limi global muammolarni, ekologik barqarorlikni, iqtisodiy o'sish va ijtimoiy tenglikni birgalikda o'rganish zaruriyatini ta'kidlaydi. Bu mavzu orqali o'quvchilarga o'zlarining atrof-muhitga bo'lgan ta'sirini anglash va barqaror rivojlanish g'oyalarini o'zlashtirish imkoniyati beriladi.

Qora quti metodi – o'quvchilarga ma'lum bir bilim yoki ma'lumotlarni berib, ularni aniqlik kiritishga, tahlil qilishga va mustaqil xulosalar chiqarishga yo'naltirish usulidir. Bu metod, o'quvchilarga tanqidiy fikrlashni rivojlantirish, ular uchun yangi bilimlarni o'rganish va o'z fikrlarini asoslash imkonini beradi.

Ushbu mavzuni o'qitish orqali o'quvchilar nafaqat vitaminlar va ularning organizmdagi roli haqida bilim olishadi, balki barqaror rivojlanish g'oyalarini ham o'zlashtiradilar. Qora quti metodi yordamida ular mustaqil fikr yuritish va tanqidiy tahlil qilish ko'nikmalarini rivojlantiradilar. Bu esa ularning umuman olganda, nafaqat ilmiy bilim, balki hayotiy ko'nikmalarini oshirishga yordam beradi.

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KICHIK BIZNES KORXONALARIDA SMART BOSHQARUV TIZIMINI JORIY ETISH ORQALI KREATIV IQTISODIYOT SAMARADORLIGIGA ERISHISH

Annotatsiya. *Ushbu maqola kreativ iqtisodiyot doirasida kichik bizneslarda samaradorlikni oshirishda smart boshqaruv tizimlarining rolini o'rganadi. Texnologiyaga asoslangan boshqaruv vositalarini joriy etish kichik bizneslarga operatsiyalarni optimallashtirish, mahsuldorlikni oshirish va ijodkorlikni rivojlantirish uchun innovatsion imkoniyatlar taqdim etadi. Tadqiqot ushbu tizimlarning asosiy afzalliklari, muammolari va amaliy qo'llanilishiga e'tibor qaratadi.*

Kalit so'zlar: *kichik biznez**,** integratsiya,narx iqtisodiyot,innovatsiya, raqobat,istemolchi*

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ACHIEVING CREATIVE ECONOMY EFFICIENCY BY IMPLEMENTING SMART MANAGEMENT SYSTEMS IN SMALL BUSINESSES

Abstract. *This article examines the role of smart management systems in improving the efficiency of small businesses within the creative economy. The introduction of technology-based management tools provides innovative opportunities for small businesses to optimize operations, increase productivity, and foster creativity. The study focuses on the main advantages, challenges, and practical applications of these systems.*

Keywords: *small business, integration, price economy, innovation, competition, consumer*

Kichik bizneslar global iqtisodiyotda, ayniqsa, innovatsiya va moslashuvchanlik muhim bo'lgan kreativ sohalarda muhim rol o'ynaydi. Biroq, ushbu bizneslar cheklangan resurslar, samarali ishlov bera olmaslik va kengayishda qiyinchiliklarga duch keladi. Sun'iy intellekt, bulutli hisoblash va ma'lumotlar tahliliga asoslangan smart boshqaruv tizimlari bu to'siqlarni yengish uchun yangi yondashuvlarni taklif etadi. Dizayn, media, san'at va madaniy korxonalar kabi kreativ iqtisodiyot sohalari innovatsiya va tezkorlikka asoslanadi. Smart boshqaruv tizimlari qaror qabul qilish jarayonlarini soddalashtirish, resurslarni oqilona taqsimlash va hamkorlikni kuchaytirish vositalarini taqdim etadi. Ushbu tadqiqot ushbu tizimlarni samarali joriy etish orqali mahsuldorlik va ijodkorlikni qanday oshirish mumkinligini o'rganishga qaratilgan.

Mavzuning dolzarbligi quyidagilarda namoyon bo‘ladi: **Kichik bizneslarning iqtisodiyotdagi roli**: Kichik bizneslar ko‘p mamlakatlarda iqtisodiy o‘sishning asosiy harakatlantiruvchi kuchi hisoblanadi. Biroq, cheklangan resurslar va samaradorlikni oshirishdagi qiyinchiliklar ularning rivojlanishiga to‘siq bo‘lishi mumkin. Smart boshqaruv tizimlarini joriy etish bu muammolarni bartaraf etishga yordam beradi. **Texnologiyaning tez rivojlanishi**: Sun’iy intellekt, ma’lumotlar tahlili, bulutli texnologiyalar kabi innovatsiyalar iqtisodiyotning barcha sohalariga ta’sir ko‘rsatmoqda. Bu texnologiyalarni kichik bizneslarda qo‘llash korxonalarni raqobatbardosh qilish uchun zarurdir. **Kreativ iqtisodiyotning ahamiyati oshishi**: Kreativ iqtisodiyot bugungi kunda dunyo bo‘ylab iqtisodiy rivojlanishning asosiy yo‘nalishlaridan biriga aylangan. Unda ijodkorlik va innovatsiya muhim o‘rin egallaydi, bu esa smart boshqaruv tizimlarini joriy etishni zarur qiladi.**Pandemiya ta’siri**: COVID-19 pandemiyasi kichik bizneslarning moslashuvchanlik va raqamli texnologiyalarga bo‘lgan ehtiyojini yanada oshirdi. Smart boshqaruv tizimlari bu ehtiyojlarni qondirish uchun qulay imkoniyat yaratadi.**Global raqobat muhitida omon qolish**: Bugungi global iqtisodiy muhitda kichik bizneslar nafaqat mahalliy, balki xalqaro raqobatchilar bilan ham raqobatlashishga majbur. Smart tizimlar ularni tezkor, samarali va innovatsion qilishga yordam beradi.

Smart tizimlar ma'muriy yuklarni kamaytirish va jamoalarni innovatsiyaga e'tibor qaratish uchun qulay infratuzilma yaratadi. Masalan:Loyiha boshqaruv vositalari: Ish jarayonlarini tartibga solib, jamoalarning sifatni pasaytirmagan holda muddatlarni bajarishini ta'minlaydi.Tahliliy platformalar: Iste'molchilarning xohish-istaklari haqidagi ma'lumotlarni taqdim etib, moslashtirilgan va innovatsion yechimlarni ilhomlantiradi. Afzalliklarga qaramay, kichik bizneslar smart boshqaruv tizimlarini qabul qilishda bir qator qiyinchiliklarga duch keladi:

- **Narx**: Dastlabki investitsiya va uzluksiz texnik xizmat ko'rsatish xarajatlari yuqori.
- **Texnik bilimlar yetishmasligi**: Ushbu vositalardan samarali foydalanish uchun yetarli bilim va ko'nikmalarning yo'qligi.
- **Integratsiya muammolari**: Yangi tizimlarni mavjud jarayonlarga moslashtirishdagi qiyinchiliklar.

Kelib chiqadigan muammolar	Muammolarni bartaraf etish yo‘llari
Smart tizimlarni joriy etish uchun dastlabki investitsiya xarajatlari yuqoriligi	Moliyaviy qo‘llab-quvvatlash dasturlarini joriy etish
Kichik biznes egalari va xodimlarining texnologik bilim va ko‘nikmalarining yetarli emasligi	Xodimlar uchun texnologik o‘quv kurslari va treninglar tashkil qilish
Tizimlarni mavjud jarayonlarga moslashtirishdagi murakkabliklar	Moslashtirish jarayonlari uchun tajribali mutaxassislar yollash
Smart boshqaruv tizimlariga doimiy texnik xizmat ko‘rsatish zarurati	Uzluksiz texnik xizmat uchun tashqi xizmat ko‘rsatuvchi kompaniyalar bilan hamkorlik
Kichik bizneslarda raqamli infratuzilmaning yetarli emasligi	Raqamli infratuzilmani rivojlantirish uchun hukumat yoki xususiy sektor investitsiyalarini jalb qilish
Tizimlar xavfsizligini ta’minlash va ma’lumotlarni himoya qilishdagi qiyinchiliklar	Tizim xavfsizligi bo‘yicha ilg‘or texnologiyalarni qo‘llash va ekspert maslahatlarini olish

Natijalar shuni ko'rsatadiki, smart boshqaruv tizimlari kichik bizneslarning kreativ iqtisodiyotda muvaffaqiyat qozonishi uchun kuchli vosita hisoblanadi. Ushbu vositalar yordamida odatiy vazifalar avtomatlashtiriladi va bizneslarni innovatsion bo'lishga undaydigan foydali ma'lumotlar taqdim etiladi. Biroq, muammolarni hisobga olgan holda, kichik bizneslarga moslashtirilgan o'quv dasturlari va moliyaviy ko'mak kabi choralar zarurligini ko'rsatadi.

Hukumat va sanoat tashkilotlari kichik bizneslarga yordam berish uchun resurslarni taqdim etish va bu tizimlardan foydalanishning afzalliklarini targ'ib qilishda muhim rol o'ynashi lozim. Bundan tashqari, texnologiya yetkazib beruvchilar kichik biznesning o'ziga xos ehtiyojlariga mos ravishda arzon va qulay yechimlar ishlab chiqishlari kerak.Takliflar va xulosalar:**Moliyaviy qo‘llab-quvvatlash mexanizmlarini kengaytirish**: Hukumat yoki xususiy sektor tomonidan kichik bizneslar uchun imtiyozli kreditlar va grantlarni taqdim etish lozim. Bu smart boshqaruv tizimlarini joriy etishga dastlabki investitsiya imkoniyatini yaratadi.**Raqamli savodxonlikni oshirish dasturlari**:
Kichik biznes egalari va xodimlari uchun zamonaviy texnologiyalarni o‘rganishga qaratilgan trening va kurslarni yo‘lga qo‘yish zarur.**Texnik yordam ko‘rsatish xizmatlarini rivojlantirish**:Smart boshqaruv tizimlariga texnik xizmat ko‘rsatish va ularni moslashtirish bo‘yicha maxsus xizmat ko‘rsatuvchi markazlarni tashkil etish kerak.**Raqamli infratuzilmani kengaytirish**:Internet tarmog‘i, serverlar va boshqa texnologik yechimlarning qulayligi va narxini kichik biznes uchun maqbullashtirish lozim.**Tizim xavfsizligini ta’minlash bo‘yicha qo‘llanmalar yaratish**:Smart tizimlarni himoya qilish uchun xavfsizlik protokollari va ilg‘or

texnologiyalardan foydalanish tavsiya etiladi. Shuningdek, bu borada korxonalarga maslahat beruvchi mutaxassislar bilan hamkorlikni yo‘lga qo‘yish kerak.

Smart boshqaruv tizimlarini joriy etish kichik bizneslarga kreativ iqtisodiyotda rivojlanish uchun yo'l ochadi. Samaradorlikni oshirish va innovatsiyani rivojlantirish orqali ushbu tizimlar kreativ korxonalar o'sishi va barqarorligini ta'minlaydi. Kelgusida ushbu vositalarning uzoq muddatli ta'sirini o'rganish va ularning kengroq tatbiq etilishini qo'llab-quvvatlovchi mexanizmlarni ishlab chiqish muhimdir.

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MEHNAT MUNOSABATLARINI BOSHQARISH BIZNESDAGI MUVAFFAQIYAT OMILI SIFATIDA

Annotatsiya: *Inson tomonidan baham ko‘rilgan qadriyatlarni ular hayotda amal qiladigan standartlar va mezonlar to'plami sifatida aniqlash. Ular sodir bo'layotgan hodisalarni, jarayonlarni, shuningdek uning atrofidagi odamlarni tegishli baholash orqali odam qaror qabul qilishi va o'z harakatlarini amalga oshirishi bilan namoyon bo'lishi.*

Kalit so‘zlar: *intizom, yetakchilik birligi, boshqaruv birligi, mehnat taqsimoti, shaxsiy manfaatlarning umumiy manfaatlarga bo'ysunishi.*

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LABOR RELATIONSHIP MANAGEMENT AS A SUCCESS FACTOR IN BUSINESS

Annotation*: Identifying the values shared by Insan as the standard large set of criteria that they follow in life. They are manifested by the fact that a person makes a decision and performs his actions, through an appropriate assessment of the phenomena taking place, processes, as well as the people around the tuning.*

Key words*: discipline, leadership unit, unity of management, division of labor, subordination of personal interests to common interests.*

Har qanday mehnat faoliyati uning uchta tarkibiy qismining birlashuvidan iborat: tirik mehnat, boshqaruv tomonidan tashkil etilgan mehnat ob'ektlari va vositalari va ilmiy-texnik taraqqiyot ularning har biriga teng ta'sir ko'rsatadi. Anri Fayol (1841-1925) shunday degan: "boshqarish - bu oldindan ko'rish, tartibga solish, tasarruf etish, muvofiqlashtirish, nazorat qilish demakdir". Fayol nazariyasi quyidagi printsiplarga asoslanadi: intizom, etakchilik birligi, boshqaruv birligi, mehnat taqsimoti, shaxsiy manfaatlarning umumiy manfaatlarga bo'ysunishi, mehnat uchun mukofot, ierarxiya, adolat, Mehribonlik va odob-axloq, xodimlarning

barqarorligi, tashabbus. A. Fayol menejmentni rejalashtirish, tashkil etish, motivatsiya va boshqarish kabi bir-biriga bog'liq bo'lgan bir nechta funktsiyalardan tashkil topgan universal jarayon deb bildi.

Robert Ouen (1771-1858) firma mashinalar va mashinalarni parvarish qilish (ta'mirlash, moylash) uchun ko'p vaqt sarflashini va ularga xizmat ko'rsatadigan odamlarga unchalik ahamiyat bermasligini kuzatdi. Ouenning so'zlariga ko'ra, ishlab chiqarishni boshqarish tizimidagi odamlarning o'ziga e'tiborni qaratish kerak. Elton mayo (1880-1949) ishchilarga insoniy va hurmatli munosabatda bo'lish mehnat unumdorligini oshirishini isbotladi. Mayo tadqiqotlari shuni ko'rsatdiki, insonning ijtimoiy va psixologik ehtiyojlarini qondirish pul kabi samaralidir; insonga ijtimoiy-psixologik ta'sirlar bajarilgan ishlarni tashkil qilishdan kam emas; inson omili har qanday boshqaruv va rejalashtirishda hisobga olinishi kerak.

F. Teylorning qoniqish nazariyasi shunday deydi:"odamlarga ko'proq pul ishlash, ko'proq mahsulot ishlab chiqarish imkoniyatini bering". F. Teylor bu muammoni shunday hal qildi: u vazifalar tizimiga ikkita yangilik-xronometr va premium ish haqini kiritdi. U pulni eng yaxshi motivator deb bildi.

Maslou inson ehtiyojlarining ierarxik nazariyasini ishlab chiqdi va menejment ishchining ehtiyojlarini aniqlash va tegishli motivatsiya usullaridan foydalanish asosida amalga oshirilishi kerakligini ko'rsatdi.

Duglas Mak-Gregor (1906-1964) ikki turdagi inson xatti-harakatlari kontseptsiyasini ishlab chiqdi X va Y. Ushbu nazariyaga ko'ra, ushbu ikki turdagi ishchilarni yoki aniqrog'i, ishchilarga nisbatan turli xil qarashlarni aks ettiruvchi boshqaruvning ikki turi mavjud.

* Xulq-atvor turi X quyidagi shartlar bilan tavsiflanadi:

- oddiy odam ish uchun meros qilib olingan yoqtirmaslikka ega va undan qochishga harakat qiladi;

- aksariyat odamlar faqat majburlash, buyruqlar, nazorat va jazo tahdidlari orqali ishlashni istamasliklari sababli, zarur harakatlarni amalga oshirishga va tashkilotning maqsadlariga erishish uchun zarur bo'lgan harakatlarni amalga oshirishga undash mumkin;

- o'rtacha odam boshqarishni afzal ko'radi, javobgarlikdan qochishga harakat qiladi, nisbatan past ambitsiyalarga ega va xavfsiz vaziyatda bo'lishni xohlaydi.

Y nazariyasi quyidagi shartlarga ega:

- jismoniy va hissiy harakatlarni inson ishida ifodalash, o'yin paytida yoki ta'tilda bo'lgani kabi tabiiydir. Ish-bu ehtiyoj. Biror kishi uni ish sharoitlariga qarab qoniqish manbai yoki jazo sifatida qabul qiladi;

- tashkilotning maqsadlariga nisbatan javobgarlik va majburiyatlar mehnat natijalari uchun olingan haqga bog'liq. Nafaqat moddiy mukofot, balki o'z-o'zini hurmat qilish va o'zini namoyon qilish ehtiyojlarini qondirish ham muhimdir. Y nazariyasiga kelsak, Mak-Gregor ko'p odamlar tashkilot muammolarini hal qilishda o'z tajribalari, bilimlari va tasavvurlaridan foydalanishga tayyor ekanliklarini ta'kidladilar.

Makgregor menejerlarga ishchi tashkilot maqsadlariga erishish uchun kuch sarflab, bir vaqtning o'zida shaxsiy manfaatlarini eng yaxshi qondiradigan sharoitlarni yaratishni tavsiya qildi.

Tashkilotning inson resurslaridan foydalanish samaradorligini oshirish ijtimoiy o'zaro ta'sir, motivatsiya, hokimiyat va hokimiyat xarakterini tanlash, tashkiliy tuzilma, aloqa va tashkilot, etakchilik, ish mazmuni va sifatining o'zgarishi natijasida mumkin.ish hayoti(inson fani nuqtai nazaridan boshqarish konsepsiyasi).

Ushbu kontseptsiyaning asosiy maqsadi xodimga o'z qobiliyatlarini ro'yobga chiqarishda yordam berishdir, bunga amalda tashkilotlarni qurish va boshqarishda xulq-atvor fanlari xulosalaridan foydalanish orqali erishiladi.

Tashkilotda ish haqi tizimi(ish haqi) muhim rol o'ynaydi, bu ikki omilning umumiyligiga bog'liq:

- guruh a'zolarining harakatlarining o'zaro bog'liqligi;
- to'lovdagi farqlar.

Ushbu omillarning to'rtta kombinatsiyasi mumkin:

- kam o'zaro bog'liqlik-to'lovdagi past farq;
- kam o'zaro bog'liqlik-to'lovda yuqori farqlanish;

Har qanday tashkilotning asosi, uning asosiy boyligi odamlardir.

Insonning har bir a'zosi uchun tashkilotga muvaffaqiyatli kirishi uchun zaruriy shart qadriyatlar tizimini o'rganishdir. ushbu tashkilotga xos bo'lgan qoidalar, normalar va xulq-atvor stereotiplari.

Insonning xulq-atvori aksariyat hollarda joylashuv ta'sirida bo'ladi, shuning uchun boshqaruv vazifalaridan biri tashkilot a'zolarining joylashishini shakllantirish va o'zgartirishdir (agar kerak bo'lsa).

Tashkilotda yaxshi mikroiqlimni samarali boshqarish va o'rnatish uchun quyidagi uchta tartib muhim ahamiyatga ega:

- Ishdan qoniqish;
- Ishga ishtiyoq;
- Tashkilotga sodiqlik.

Xodimlarning ushbu tartib-qoidalarni qanchalik rivojlantirganligi ularning ishlarining natijalari va sifatini, ularning mehnatga bo'lgan munosabatini, ishdan bo'shatish sonini, kadrlar almashinuvini va boshqalarni sezilarli darajada aniqlaydi.

Tashkilotlarda ushbu turdagi qadriyatlarni birlashtirish masalalariga jiddiy e'tibor berilishi kerak. Tashkilot amal qiladigan qiymat tizimlarini aniq shakllantirish kerak. Yuqorida ta'kidlab o'tilganidek, ilmiy va texnologik taraqqiyot ta'siri ostida uning barcha tarkibiy qismlarida ishlab chiqarish jarayonida inson munosabatlari omili namoyon bo'ladi. Har qanday ijtimoiy-iqtisodiy shakllanish bilan insonning mehnat faoliyati manfaatlar, moddiy va ma'naviy ehtiyojlarni doimiy ravishda qondirish zarurligiga asoslanadi.

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METRITIS AND ENDOMETRITIS IN COWS, PROBLEMS, TYPES, SYMPTOMS, TREATMENT AND PREVENTION OF THE DISEASE

Summary: *The problem of inflammatory processes in the uterus of cows is currently one of the most discussed among practicing veterinarians and workers of scientific schools in the field of obstetrics, gynecology and biotechnology of animal reproduction. This is due to the fact that postpartum metritis, of varying severity or endometritis, in terms of prevalence in dairy complexes and farms, vary widely and make up from 14 to 90% or more. Expectation of offspring in a herd of cows is an important event in the life of any livestock breeder. At this time, cattle, pregnant cows, need to be looked after, they require especially careful care immediately after calving. This is one of the most dangerous moments in the life of an animal, since it is weakened, and a large number of various infections can easily get into the body, the damaged uterus. On this basis, many gynecological diseases in cows develop. Among them, metritis and its varieties stand out, which can lead to complete infertility of the herd. Without appropriate timely treatment, bacteria quickly spread, affecting the animal's organs and vessels, leading to serious consequences. This can be avoided by carrying out regular preventive measures and closely monitoring your livestock.*

Key words: uterus, oviduct, vagina, cervix, calving, childbirth, lochia, obstetric care, etiology, symptoms, microbe, infection, contamination, inflammation, exudate, metritis, endometritis, myometritis, perimetritis, parametritis, catarrhal, uterine discharge, catarrhal-purulent, purulent, fibrinous, hemorrhagic, necrotic, subclinical, involution, subinvolution, palpation, pacemakers, infertility, diagnosis, treatment, antibiotic, prevention, hormone, progesterone, antioxidant, functional state, corpus luteum of the ovary, endocrine and immune status of animals

Between calving and the process of uterine recovery after calving, metritis is often diagnosed. Metritis in cows is a serious inflammatory disease that affects the uterus of farm animals after birth. This pathology can lead to significant economic losses due to decreased productivity of animals, deterioration of their health and increased mortality. Therefore, females require long-term observation, proper care and calm in the first days after the birth of a calf. Only attentiveness to your herd will allow the livestock breeder to notice any violations, undesirable symptoms in time and take measures to eliminate them. The uterus of animals is very sensitive to external irritants. Therefore, all kinds of inflammatory processes in it occur more often than in other organs of the reproductive system. The uterus has many important functions. It is necessary for the delivery of sperm to the ovaries, where the development and bearing of the fetus occurs. Once pathogenic microbes get onto

the mucous membrane of the animal's uterus, they actively multiply, irritating the tissues and producing toxins. In most cases, the cow's body is unable to cope with the bacteria on its own, which penetrate into the deeper tissues of the uterus, causing increasing intoxication and complications in the form of inflammation. After that, it participates in the birth process. The uterus also affects the hormonal background. The organ has three layers. Inflammation of each of them has its own name:

1. mucous membrane – endometritis;
2. middle muscular layer – myometritis;
3. serous covering of the uterus – perimetritis;
4. uterine ligaments and connective tissue surrounding the uterus – parametritis.

In most cases, the disease begins with the mucous membrane, which means that endometritis always occurs. Endometritis in cows is an inflammatory process of the mucous membrane of the uterus, which usually occurs five to ten days after birth, and is considered a fairly common dangerous disease. Particularly dangerous is the latent and prolonged course of the disease, which requires complex and long-term treatment. After that, the inflammation can reach other layers. Endometritis can be acute or chronic. It is also divided into types depending on the characteristics and properties of the fluid in the uterus:

- catarrhal;
- purulent;
- fibrinous;
- hemorrhagic;
- necrotic;
- myometritis;
- pyometra.

Based on the analysis of many years of clinical practice on the treatment and prevention of this pathology, many questions arise regarding the etiology, pathogenesis, diagnosis, treatment and prevention.

First of all, when making a diagnosis, veterinary specialists use various clinical criteria and approaches that may not be accurate enough. A certain category of doctors and dairy cattle workers identify the inflammatory process in the uterus only as endometritis, or only as metritis and differentiate them by the nature of the exudate. Such approaches do not allow for an accurate diagnosis and, accordingly, for effective treatment and preventive measures to be prescribed. The uterus of a strong, healthy animal whose birth was calm, independently removes the placenta and closes, settling in the right place in a few days. But if the process was not carried out correctly, then there is a high probability of metritis. In any case, for inflammation to occur, the cow must have already calved.

Among the most significant reasons for its occurrence it is worth noting:

Microbial factor. In a healthy state, the cow's uterus is sterile. But the vagina is home to multiple microbes that can be delivered to the uterus. For example, bacteria and fungi mix with its environment in the postpartum period. Especially if there is an injury to the vulva or vagina with a decrease in the body's defenses,

infection occurs in ninety percent of cases. In addition to non-specific immunity (general resistance), local (local) factors protecting the genitals play a leading role in preventing the inflammatory process in the uterus. They prevent microbes from penetrating the mucous membrane of the organ, limiting their reproduction and pathogenicity. The course of the postpartum period and the degree of complication by the inflammatory process depend on the state of these factors. The genital area of animals communicates with the external environment, which makes it an entry point for bacteria, viruses, fungi and protozoa. The infection penetrates the genitals with urine, feces, during childbirth and various instrumental procedures, as well as through the placenta when the biotope of the gastrointestinal tract is disrupted. Any disruption of the integrity of the mucous membrane of the genital tract contributes to the development of the pathological process. Endometritis or metritis in cows after childbirth occurs as a result of infection of the uterus, disruption of the contractile function of the uterus, a decrease in local (local) non-specific immunity and resistance of the body.

Infection can occur in various ways, and the main ones are: unsanitary conditions in the premises, during obstetric care, careless intervention of livestock breeders or veterinarians, the use of non-sterile instruments during labor, contamination of the genitals during mating, complications arising from intrauterine interventions, abortions, difficult labor, retention of the placenta or through the placenta. Currently, more than 130 types of microbes are known that cause inflammation in the uterus, and the main ones are: Streptococcus agalactiae, Streptococcus uberis, Streptococcus dysgalactiae, Streptococcus equirius (раньше называли Streptococcus bovis), Streptococcus parauberis, Enterococcus faecalis, Enterococcus faecium, Escherichia coli, Klebsielle spezies, Enterobacter spezies, Citrobacter spezies, Serratia spezies, Trueperella pyogenes, Bacillus srezies, Pseudomonas srezies, Proteus srezies.

On the 2nd-4th day of the postpartum period, the following microorganisms were found in the uterine contents of 75% of cows: Escherichia coli–86.7%, Staphylococcus aureus–13.3%, Staphylococcus epidermidis–33.3%, Streptococcus pyogenes–26.7%, Streptococcus agalactiae–13.3%, Corynebacterium vaginalis–20%, Proteus vulgaris–20%, Bacillus subtilis – 26.7%. The most common associations of E. coli with streptococci and staphylococci are found in 55% of animals, streptococci, corynebacteria and E. coli are associated in 15%, hay bacillus, corynebacteria and E. coli in 10%. It is important to remember that animals from each individual complex or farm have their own association of microorganisms, and this fact must be taken into account during treatment and preventive work.

In this regard, when developing a protocol for etiotropic therapy, it is necessary to take into account the pathogens and their sensitivity to the active ingredients of the veterinary drug.

Factor of contractile function of the uterus. The occurrence and course of postpartum endometritis or metritis in all cases is also associated with a violation of the contractile function of the myometrium. It is known that contractions of the uterus occur rhythmically, begin from the top of the horn and continue to the cervix.

Provision of rhythmic contractions is carried out due to the presence of "pacemaker" cells - pacemakers. Pacemakers of the uterus are a group of nerve cells of the ring muscles, which are located at the transition point of the top of the horn into the oviducts. From this group of cells, excitation spreads to other cells and is integrated into the contractions of the entire organ.

Endocrine factor. High stress level. At present, scientific data have been accumulated on the significant importance of the hormonal status of cows before parturition and in the early postpartum period (mainly before the first ovulation - day 21) in the occurrence of postpartum metritis or endometritis. Particular attention is paid to the concentration of progesterone, estradiol 17-beta and prostaglandin F2-alpha. In cows of the risk group, the content of estradiol is significantly lower than in animals with a normal course of the postpartum period, and 1-3 days before calving, the concentration of this hormone was 37.3% lower, and its deficiency leads to dystocia, which contributes to the inflammatory process in the uterus.

Being an immunosuppressant, progesterone promotes endometrial hyperplasia. Its high concentration in the early postpartum period creates conditions for slow involution of the uterus, seeding with microflora, decreased contractile function and development of the inflammatory process. Insufficient amount of estradiol cannot ensure the proper level of the immune system and the course of the labor process, and low content of prostaglandin F2-alpha - luteolytic activity and uterine tone. This pattern must be taken into account when developing treatment and preventive measures due to the fact that beta-carotene is a strong antioxidant, has a positive effect on the functional state of the corpus luteum of the ovary, endocrine and immune status of animals.

Factors of the state of local immune protection of the uterus and resistance of the organism, poor conditions of keeping animals and feeding. (*Improper nutrition, poorly selected feed; too concentrated feeding; long period of feeding calves after the previous calving; short dry period, when the cow is not milked; premature insemination of young animals; presence of other serious diseases; metritis easily coexists with such diseases as brucellosis, leptospirosis, viral diarrhea and infectious rhinotracheitis).*

Local protection of the genitals is due to anatomical and physiological features, the presence of lysozyme, complement and immunoglobulins. The leading role in this protection belongs to secretory (SIgA) immunoglobulin A. It was found that in cows predisposed to metritis or endometritis, on the 3rd day after parturition, the titer of immunoglobulin G in the uterine secretion is 17.9% higher, and secretory immunoglobulin A - by 22.2%, than in animals with normal uterine involution. This is explained by the reaction to the pathological onset of the inflammatory process in the uterus. From this it can be concluded that immunoglobulin G and secretory immunoglobulin A play the main role in protecting its mucous membrane. In animals with impaired uterine involution, the content of lysozyme and bactericidal activity in the uterine secretion decreases by 31.5 and 44.7%, respectively.

It is known that histological changes in the mucous membrane of the uterus in the postpartum period are observed from the first days after birth, and the well-

being of involution depends on how these processes proceed. At the same time, on the second day after birth, no special differences were noted in the histomorphological changes in the endometrium of cows with a normal and complicated course of the postpartum period. The integumentary epithelium is single-layered, some cells are destroyed and torn from the basal layer of the mucous membrane, the nuclei have different shapes, but most of all oval, and are located in one row. The blood vessels are dilated, filled with blood, the formed elements are released beyond the vessels and hematomas of various sizes are formed.

The results of the study confirm that depending on the state of cellular (leukocyte) protection in the subepithelial layer, the course of the inflammatory process in the uterus differs in severity with or without a systemic reaction of the body. This should be used when making a diagnosis, as well as when drawing up protocols for working with dry and newly calved cows using effective veterinary drugs that are developed and tested in production conditions taking into account scientific achievements and modern testing methods.

Types of metritis.

Experts divide the disease by the place of infection: endometritis, or inflammation of the uterine mucosa, is one of the most common obstetric and gynecological diseases in cows. The inflammatory process most often develops soon after birth: pathogenic microorganisms penetrate the uterus. Therefore, each calving of cattle is a risk factor for the development of the disease. Endometritis is curable, but the absence of medical intervention can lead to severe complications, the transition of the disease to a chronic form, infertility, or even the death of the animal. Therefore, it is important for the farmer not to miss the first symptoms of inflammation and begin treating the cow's endometritis as soon as possible.

Its occurrence depends on the nature of labor in newly calved cows: Light - the calf is born on its own - the disease is observed in a small number of cases; Average - livestock breeders help the cow to give birth - the percentage of occurrence of disorders is higher. Severe - the process takes a long time, often involves surgical intervention - almost always ends in endometritis and infertility. Among the signs of the disease are: A small amount of milk, a depressed state; mucous, purulent discharge from the uterus, possible bleeding into the vagina, the uterine horns swell, increase in size, the cow eats poorly or does not eat at all. To avoid possible infertility, a long-term set of measures is carried out to improve the health and strengthen the health of the animal. The main task of the livestock breeder at this stage is to increase the immunity of the cow, get rid of all kinds of infections and injuries.

Catarrhal endometritis. This is an early stage of the disease, and it is not always easy to detect. With catarrhal endometritis, the upper layer of the mucous membrane is affected, flakes, mucus and turbid liquid are released from the uterus. The symptoms are easy to miss - they are not as pronounced as in later stages, and do not greatly affect the cow's well-being. Therefore, the disease often has time to become chronic or develop into catarrhal-purulent endometritis. The description may vary depending on the form of the disease, but it is very difficult to diagnose,

since it quickly develops into more serious pathologies. This type is rarely determined because it quickly develops into more severe stages. It is not paid attention to due to the presence of lochia, which appear after childbirth anyway. In some cases, it is able to cope with this, the uterus removes them. But there are factors that contribute to the colonization of pathogenic microflora. In a healthy state, the discharge should not have a foreign unpleasant odor. A general deterioration in the animal's condition, an increase in temperature, and a decrease in appetite are observed. The cow loses the desire to eat food, the temperature rises, and she is in a sluggish mood. Mucus often flows from the genital tract.

Catarrhal-purulent endometritis. The next stage develops on average six days after calving. The cow begins to feel worse, trembles, her productivity decreases, she finds it uncomfortable to urinate. After endometritis comes purulent. This form follows if the animal has a strong immune system and the signs of catarrhal were not obvious. Then the treatment comes late and the disease becomes more pronounced. Usually it is indicated on the second day after birth, the cow regularly gets into a pose as for urination, but nothing happens. Even in a lying position, a viscous, foul-smelling liquid is released from the genital tract. During examination, it is revealed that the uterus is larger than usual. Greenish pus begins to be released from the uterus, lochia are brown, yellow or green. When palpated, it is noticeable that the tone of the uterus is reduced, its horns are enlarged, and the tissue is swollen and soft. If a calf drinks milk from such a cow, it may develop diarrhea.

Symptoms of the purulent type: The amount of milk decreases, there is no appetite, the animal weakens and loses weight. The cow tries to get into the urination position, arching her back and raising her tail. Often groans at the same time. Toxins in a large amount of liquid enter the blood and affect all organs; a viscous foul-smelling liquid flows from the genital tract even in a lying position. Its color is burgundy or gray, there may be bloody streaks and dead tissue. If the process has gone very far, the discharge becomes dirty gray with an admixture of pus. The liquid then dries and turns into crusts that can be seen on the floor, tail and limbs of the cow. A detailed examination of the vagina and rectal area shows that the uterus is larger than usual in size, almost does not contract, the muscles do not react, are stretched, loose. Often the uterus is in the abdominal cavity. There is a corpus luteum in the ovary.

Subclinical endometritis. This form occurs if the cow has a strong immune system and the body has the strength to fight the disease on its own. It is called latent endometritis: the symptoms are blurred, and sometimes not noticeable at all. The disease can manifest itself in the form of gray-yellow lumps in the discharge from the uterus, inclusions of pus or abnormal discharge after the introduction of prostaglandin into the uterus. If these signs are not noticeable, endometritis may be indicated by a long absence of fertilization or miscarriages up to 5 months of pregnancy. The disease is chronic and can last for years.

Fibrous metritis. Fibrin is an insoluble protein responsible for blood clotting. When the inner layers of the mucous membranes are affected, it begins to appear in

the discharge - this form of the disease is called fibrinous. It usually develops after trauma to the uterus, for example, after childbirth. Fibrinous endometritis can be recognized by the nature of the pus: fibrin threads appear in it, and when squeezing the discharge in the palm of the hand, a crunching sound can be heard. The cow feels generally well, and can even eat. This form, unlike the previous one, does not affect the organs so deeply. But fluid with high-molecular protein appears in the uterus. It is difficult to start treatment in a timely manner with fibrinous metritis, since the symptoms of the disease are weakly expressed. Nevertheless, this subtype of inflammation is usually distinguished due to its features. Films in the form of yellow deposits appear in the uterine cavity. Fluid with fibrins accumulates here. The discharge manifests itself as yellow-brown mucus with fibrin flakes. This form, unlike the previous one, does not affect the organs so deeply. It is difficult to start treatment in a timely manner with fibrinous metritis, since the symptoms of the disease are weakly expressed. Deterioration begins abruptly, affecting the entire body. When, in this situation, the cow suddenly felt ill, the condition worsened, and a general infection of the body began.

Myometritis. It is a more severe form of endometritis, characterized by a general deterioration in the condition of the affected cattle. First of all, the inflammation starts with the mucous membrane. Then the process moves to the connecting tissue layers that divide the muscle bundles of the uterus. The connective tissue pushes the muscle tissue away, which makes the uterus thicker and rougher. At the same time, the walls of the uterus become infected, they become denser and thicker. When palpated, irregularities and tubercles become noticeable. In some places, lime salt deposits form, which leads to the formation of abscesses and ulcers. The affected area loses the ability to contract. The motor function of the organ is completely reduced. Even uterine massage does not help, natural recovery after childbirth does not occur. In this case, hormonal drugs also do not have the desired effect. In general, myometritis is characterized by symptoms similar to those of endometritis. Unfortunately, this type of metritis is difficult to cure and often ends in infertility.

Necrotic metritis. Associated with damage to tissues, muscles, and blood vessels during difficult labor. Inflammatory fluid enters the injured mucous membrane, blocking the normal flow of nutrients. The walls of the uterus may not withstand such pressure and rupture, which will lead to new wounds. At this time, the cow's temperature rises significantly, appetite decreases, severe diarrhea and paralysis are observed. Difficult labor causes damage to the uterine mucosa. Tissues, muscles, and deeper layers are damaged and disintegrate. An inflammatory secretion is released onto the surface of the inner mucosa of the uterine body. It can get into the muscles. Then they become denser, do not allow nutrients to pass through. As a result, the tissues gradually die and are rejected. Erosions and deep wounds appear in these areas.

Microbes enter the blood even faster through the bare walls of the vessels. The walls of the uterus in the affected areas are noticeably thin and can rupture under the pressure of the fluid. There are blood flows with crumbs from the uterus.

These are tissues of the inner layer of the uterus that have ceased to live. The body is completely weakened as a result of: strong heartbeat; significant increase in the body temperature of the cow; weakened work of the forestomachs; mastitis; severe diarrhea.

Gangrenous metritis. The most severe type of endometritis in a cow, develops very quickly - literally in a few days after calving. During the gangrenous process, tissues begin to disintegrate, this leads to severe poisoning - decay products enter the blood. The cow's temperature rises, the animal stops eating, lactation stops. The uterus does not contract, it is hard or loose when palpated. The genitals swell, they secrete a burgundy or dark liquid, often with a foul odor. Unfortunately, the process often ends with the death of the animal from sepsis.

Hemorrhagic metritis. Characterized by hemorrhage into the mucous membrane, vascular thrombosis. Accompanies other infectious diseases. This form of metritis in cows is diagnosed with thickening of the uterine walls and hemorrhage into the mucous membranes. Hemorrhagic endometritis is diagnosed in the presence of infectious diseases. Purulent fluid accumulates on the uterine wall. As a result, the type is characterized by plethora of vessels, thrombosis. A significant number of erythrocytes come out due to inflammation of the connective tissue, alveoli and milk. The vascular wall becomes too fragile, its throughput increases.

Perimetritis. Another complication of endometritis, arising from direct injuries to the uterus, its cervix or vagina. In these cases, the infection can reach the serous layers, which leads to complete infection of the animal. Infection always begins with the mucous membrane, and then moves to the rest of the organ, spreading toxins throughout the cow's body. It is not always easy to determine the development of the disease. In the first eight to ten days after calving, the cow secretes lochia. This is a natural process, to which an infection joins. At first, the amount of discharge decreases. The more there is, the more actively toxins spread into the body.

Pyometritis The process is revealed by a delay in the uterine cavity of lochia, when the placenta does not come out. This pathology is mixed with endometritis, decomposition of the fetus, closure of the cervical canal. Purulent fluid harmful to the cow's body does not come out.

Causes: - the cervical canal is open and a lot of secretion is released. This is clearly noticeable when the animal is lying down or trying to urinate. The cervix is swollen, covered with growths that cause painful sensations. The uterus drops down;

- a closed cervix does not allow a large amount of discharge. But the fluid pressure increases, and lochia still appears;

- during examination, the uterus is lowered, it is enlarged and fluctuates. This situation resembles the first half of pregnancy. But upon detailed examination, it becomes clear that the uterine arteries are larger in size on both sides and fluctuate differently;

- blood vessels stagnate, hemorrhages occur;

- sepsis is possible - infection of the body due to the fact that the walls of the uterus are saturated with blood, edematous, acute serous or purulent inflammation is evident. Pyometra develops in the presence of peritonitis, when the inflammation descends along the ligaments. This is caused by the inept actions of obstetricians during childbirth.

The main symptoms: poor general condition; enlarged lymph nodes in the pelvic area; tissues near the uterus harden, have an uneven structure; the organ itself is painful and sensitive; rectal examination reveals the presence of adhesions; the inflammatory process quickly spreads into the abdominal cavity.

All metritis begins with a deterioration in the animal's condition. However, depending on the form and nature of the inflammation, the symptoms may vary. There are several types of the disease, divided by characteristic signs.

The main task of the livestock breeder in this case is to protect the animal from peritonitis and blood poisoning.

Diagnosis of the disease. The owner of cattle may suspect endometritis, but the final diagnosis is made by a veterinarian. The specialist uses the following diagnostic methods: examines the cow's genitals, evaluates their appearance and condition, and analyzes the composition of the discharge. The veterinarian examines the cervix using a vaginal speculum; rectally palpates the uterus, checks its size, position and size of the horns, the tone of the walls, and the presence of fluid inside; if necessary, conducts a histological examination, that is, takes tissue samples for analysis; takes samples of discharge to conduct a bacterial culture - the isolation of microorganisms and an assessment of their sensitivity to various antibiotics. Culture is needed to more accurately determine the causative agent of the infection. most often, these are bacteria: streptococci, staphylococci, or E. coli. Less often, the cause is fungi, which require the use of antimycotic drugs. But culture results may take a week or two to come back, so treatment with broad-spectrum antibiotics is usually started immediately.

Possible treatment schemes. Endometritis should be treated as soon as possible, after consulting with a veterinarian. The treatment regimen usually includes antibiotics that destroy pathogenic microorganisms. Hormonal drugs can be prescribed to restore the tone of the uterus, and fluid from its cavity is removed by vacuum or massage. Until the pathogen is identified, therapy begins with broad-spectrum antibiotics, that is, those that work against most microorganisms.

The criteria for choosing a drug are: no waiting period for milk, i.e. no metabolites or active substances of the drug should get into the milk; the ability to quickly reach the focus of the pathological process and work effectively in it; a rapid anti-inflammatory effect, allowing to alleviate the animal's condition in a short time. But how to treat cow endometritis in a specific case is decided by the veterinarian.

Treatment. Due to the rapid progression of the disease in cows and the absence of symptoms in the early stages, the treatment of metritis often begins too late. The veterinarian must first complete the main task, that is, preserving the life of the cow and milk production. If this is achieved, then it is necessary to try to restore the animal's fertility. Based on the set goals, the specialist strives to alleviate

the condition of the sick cow, fight the infection and cope with the source of its occurrence:

- cleansing the uterus and eliminating fluid. Washing is done with antiseptics, the introduction of which should be short-term, so as not to disturb the natural microflora. They are quickly sucked out of the cavity with vacuum tubes;

- introduction of antibacterial agents in the form of tablets, solutions, gels, suppositories. Foaming drugs have a great effect. It is necessary that they be prescribed based on the results of tests, cultures. When there is no time to wait, the specialist recommends the most effective, proven ones. After receiving the results, the methodology is adjusted. It is recommended to take broad-spectrum antibiotics that can be used to treat postpartum diseases, drugs to restore normal microflora, vitamin supplements to strengthen the immune system. Timely intake of drugs and vitamins will help in the fight against serious diseases, including endometritis.

- restore the ability of the uterus to contract. For this, hormonal injections of estrogen are used. After some time, oxytocin is injected. Five days of one injection is enough;

- resort to a method of restoring the damaged inner mucous membrane of the uterus. Here a set of measures and drugs will be needed;

- during treatment, it is recommended to use a novocaine blockade, after which the uterus begins to contract again;

- vitamins and minerals to give the body strength and strengthen the immune system.

The problem may be that most antibiotics have a destructive effect on the fragile mucous membrane. Microbes become insensitive to these drugs. Microbes can remain in the body for a long time, so it is forbidden to eat milk and dairy products. If the inflammation has lasted for a long time and treatment has not begun, there is a possibility of losing the productive function. When the acute course has developed into a chronic one and the period is calculated for two or more months, we have to talk about infertility. But with timely detection of pathology, the chances of achieving a positive result are high. It is primarily facilitated by regular examination of pregnant animals, isolation of pregnant females two months before childbirth and after calving. They need to be fed well and walked regularly. The birth process should be accompanied by a qualified specialist who observes all hygiene standards.

Measures to prevent disease. 1 Diet adjustments. The risk of endometritis increases if the cattle's diet is not properly formulated or if it lacks vitamins and microelements. For dry and newly calved animals, it is recommended to reduce the amount of concentrates in the feed and increase its volumetric part (hay), include mineral supplements with vitamins A and E, as well as selenium in the cows' diet. **2 Regular cleaning of the barn.** Often, the disease develops because cows are kept in the same barn as others after calving, and the barn itself is not cleaned on time. As a result, opportunistic flora spreads in it, which penetrates the mucous membranes of the cow's uterus. To prevent possible infections, it is necessary to carefully observe hygiene standards and clean the barn on time. **3. Follow**

disinfection standards during calving. It is best to allocate a separate room for calving cows and animals in the postpartum period. It should be pre-washed and disinfected. Hygiene and an optimal microclimate should be maintained in the maternity boxes.**4. Regular check-ups and veterinary care.** During labor, the cow must be provided with qualified obstetric care. It is also important not to neglect medical and preventive measures for the entire herd: veterinary examinations, infection monitoring, and timely vaccination.

The chance of restoring the cow's reproductive function depends primarily on the duration of the disease itself. Prevention and early detection of pathology are the path to the fastest recovery.

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BELGI VA RAMZLARNING PAYDO BO‘LISHI VA TARAQQIY ETISHI

Annotatsiya:*Ushbu maqolada belgilarning paydo bo‘lishi va ularning tasniflanishiga doir ma’lumotlar berilgan, ular o‘rtasidagi asosiy farq hamda ramziy belgilarning o‘ziga xos xususiyatlari haqida qisqacha ma’lumot keltirilgan.*
Kalit so`zlari: *belgi, ramzlar, semiotika, metafora, grafik element, piktogramma, ideogramma, logogramma, ierogliflar, emblema, gerb, ikonkalar, logotiplar, savdo belgisi, tovar belgisi, brend.*

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THE EMERGENCE AND DEVELOPMENT OF SIGNS AND SYMBOLS

Annotation :*This article provides information about the emergence of signs and their classification, offering a brief overview of the main differences between them and the unique characteristics of symbolic signs.*
Keywords: *signs, symbols, semiotics, metaphor, graphic elements, pictograms, ideograms, logograms, hieroglyphs, emblems, coats of arms, icons, logos, trademarks, brand.*

Belgi — bu inson ongi va faoliyatida moddiy, hissiy ravishda idrok etiladigan predmet, voqea yoki harakatga aytiladi. Belgilar aloqa yoki tarjima jarayonida xabarlarni yoki har qanday turdagi xabar komponentlarini sotib olish, saqlash, o‘zgartirish va uzatish uchun yaratiladi va ishlatiladi. Belgi tushunchasi har doim falsafa, mantiq, tilshunoslik, psixologiya, sotsiologiya va shu kabi fanlarda albatta tahlil qilinadi. Belgilarni bir qancha fanlarda: masalan, falsafa, mantiq, tilshunoslik, madaniyatshunoslik, psixologiya, sotsiologiya va boshqa fanlarda o‘rganilsada, ammo ular maxsus semiotika fanida keng va aniq o‘rganiladi (Semiotika) [1]. 19 — 20-asrlarda belgilar haqida maxsus fan — semiotika vujudga keldi.

Semiotika[18] — (yunoncha semeiotikos — belgilar haqidagi ta’limot), semiologiya — 1) axborot, ma’lumotlarni saqlash va uzatish uchun xizmat qiladigan belgilar va belgi tizimlarining umumiy xususiyatlarini o‘rganadigan fan sohasi demakdir. Semiotika, belgilar haqidagi fan bo‘lib, u 20-asrning boshlarida

[18] Semiotika yoki semiologiya — bu belgilar va belgilar tizimlarining xususiyatlarini o'rganadigan umumiy nazariya.

paydo bo‘lgan. Belgilar ilmini yaratish g‘oyasi deyarli bir vaqtning o‘zida va mustaqil ravishda bir nechta olimlardan kelib chiqqan. Semiotikaning asoschisi uning nomini taklif qilgan amerikalik mantiqchi, faylasuf va tabiatshunos Ch.Pirs (1839-1914) hisoblanadi. Ch.Pirs belgining ta’rifini, belgilarning dastlabki tasnifini (indekslar, piktogrammalar, belgilar) berdi va shu bilan birga yangi fanning vazifalari va asoslarini o‘rnatdi.

Yuqorida belgi haqida umumiy ma’lumot berilib o‘tildi. Navbatdagi bosqichda belgilarni turlarga ajratib chiqamiz ya’ni belgilarni tasniflaymiz.

BELGILAR – bu aniq bir ma’noni ifodalash, ko‘rsatish uchun barcha insonlar tomonidan umumiy qabul qilingan o‘zgaruvchan grafik tasvirga aytiladi. Ularga quyidagilarni misol keltirish mumkin: harflar – bular tovushni bildirish uchun yaratilgan belgilar sanaladi, notalar – bular esa tovush davomiyligini bildirish uchun yaratilgan belgilar hamda valyuta belgilari. Belgilar tasvir jihatdan doim tushunarli va aniq ko‘rinishga ega bo‘lishi kerak. Buning uchun belgilar har doim sodda va tushunarli tasvirlanishi lozim. Albatta aslida sodda va bir ko‘rganda tushunarli tas’virlarni yaratish juda murakkab hisoblanadi. Chunki kichik bir grafik tasvirda butun bir ma’noni joylashtirish talab etiladi.

Ramzlar — bu ko‘p ma’noli tasvir hisoblanib, u ma’lum bir tushunchani, g‘oyani yoki hodisani bildirish uchun umumiy qabul qilingan tasvirga aytiladi. Oddiy qilib aytganda, ramzlar ko‘p ma’noga ega bo‘lgan belgidir. Masalan: Diniy va falsafiy ramzlar; Astronomik belgilar; Zodiak(burj) belgilari (odatda belgilar deb ataladi, ammo ular belgi emas). Ramziy belgilar so‘zlar, tovushlar, imo-ishoralar, g‘oyalar yoki vizual tasvirlar shaklida bo‘ladi va boshqa g‘oyalar va e’tiqodlarni yetkazish maqsadida ishlatiladi. Masalan, qizil rangli sakkizburchak to‘xtash belgisini bildiradi; xaritalarda esa ko‘k rangli chiziqlar ko‘pincha daryolarni bildiradi; qizil atirgul esa sevgi va rahm-shafqatni anglatadi.

Piktogramma — (lat. pictus – “chizilgan” va yunoncha. gramma – “yozuv”, “yozma belgi”) — bu rasm-belgi. Unda biron bir voqea, ob’yekt yoki harakat tasvirlanadi. Piktogrammaning afzaliklari: insonlarga tasvirni tushunish matnni tushunishdan ko‘ra osonroq; axborotni idrok etishning tezkorlig, bunda ma’lumotni o‘qishga vaqt sarflashning hojati bo‘lmaydi, ya’ni grafik tasvir ko‘riladi va tezda tushuniladi; piktogrammalar hamma tushunadigan universal til sifatida ishlatiladi.

Ideogramma — (boshqa yunon tilidan. εοδος-g‘oya va γράmma-yozma belgi, harf)-yozma belgi yoki shartli tasvir, muallifning ma’lum bir g‘oyasiga mos keladigan rasm. Ierogliflar ideogrammalardan iborat. Ideogramma – bu piktogramma bo‘lib, uning so‘zma-so‘z ifodalanishi so‘zma-so‘z talqin qilinmaydi. Misol uchun, yo‘l belgilari orasida juda ko‘p ideogrammalar mavjud. Demak, aylanadagi velosiped “velosiped” emas, “velosiped yo‘li” degani. Ideogramma - bu ma’lum bir g‘oya yoki tushunchani yetkazish uchun yozma ravishda ishlatiladigan belgi yoki rasmdir.

Emblemalar — (boshqa yunon. μm-βληma – “qo‘shish; qavariq bezak) - bu yoki boshqa ma’noga ega bo‘lgan rasmdagi g‘oyaning shartli tasviri. Emblemalar bir guruh odamlar tomonidan qabul qilinga ma’lum bir ma’noga ega bo’lgan ramzga

aytiladi. Asosiy ma’no ramzning asos sifatida qabul qilingan umumiy qabul qilingan tushunchasidan farq qilishi mumkin.

(emblemalar)

Emblema tarixiy ravishda paydo bo‘lgan va tasviriy san’atning: rasm, o‘yma, relyef tasvirida mavjud hisoblanadi. Ammo u boshqa vizual shakllardan farq qiladi, chunki u juda umumlashtirilgan vizual tasvir bo‘lib, uning ma’nosi tasvirning o‘zini ifodalovchi ob’yekt mazmunidan ancha kengroq bo‘ladi.

Gerb — o‘zgaruvchan rasm bo‘lib, bir xil gerb turli yo‘llar bilan chizilgan bo‘lishi mumkin. Shu bilan birga tasvirga jalb qilingan elementlar bir xil bo‘lishi kerak (ya’ni belgilar, piktogrammalar).

(gerblar, AQSH, O‘zbekiston, BAA)

Ikonkalar (belgi).

Ikonografiya (ikonka va yozuv) — bu O‘rta asr rasmining bir turi bo‘lib, u orqali diniy mavzular targ‘ib qilingan ya’ni ikonkalar orqali din keng tarqatilgan. Umumiy ma’noda ikonkalarda ilohiy va dunyo o‘rtasida vositachilik qilish uchun mo‘ljallangan muqaddas tasvirlar chizilgan. Ushbu tasvir dastlab xristian san’atida paydo bo‘lgan.

(Евангелист Лука пишет икону Богоматери (Михаил Дамаскин, XVI век))

Ko‘pchilikda ikonka so‘zi bilan bo‘lgan tasavvur darhol cherkov piktogrammalarini beradi. Ammo biz bugungi kunda ularga kundalik turmush tarzimizda juda ko‘p marotaba duch kelamiz. Hozirgi zamonda biz ikonkalarni (ingliz tilidan. icon) - grafik interfeys elementi, dastur, fayl, katalog, oyna, operatsion tizim komponenti, qurilma va boshqalarni ko‘rsatadigan kichik rasmda uchratamiz.

(veb-sayt ikonkalari)

Logotiplar — bu so‘zining ma’nosi logos – so‘z, tipus – shakl degan ma’nolarni anglatadi. Logotip so‘zdan, belgi yoki biror qanday grafik shakldan iborat bo‘lishi mumkin. Logotipning maqsadi korxonani raqobatchi firmalar orasidan ajratib ko‘rsatish, tanitishga va korxonaning yo‘nalishi to‘g‘risida ma’lumot berishga qaratilgan bo‘lishi kerak.

Savdo belgisi[19]**.** Umumiy olganda — Savdo belgisi bu biznes mahsulotini aniqlash uchun yaratilgan mahsulot belgisi sanaladi. Savdo belgisi maxsulotni iste’molchilarga tanitish vazifasini ham bajaradi. Savdo belgisi har qanday so‘z, ism, ramz yoki qurilma yoki boshqa kompaniyalarning mahsulotlarini aniqlash va ajratish uchun ishlatiladigan yoki ishlatilishi mo‘ljallangan har qanday kombinatsiya bo‘lishi mumkin[20]. Yuridik jihatdan “tovar belgisi” tushunchasi mavjud bo‘lib, u mahsulot individualizatsiyasining vositasi sifatida belgilanadi va bu belgiga tashkilot ega bo‘lish huquqiga egadir. Tovar belgisi – bu firmaning reklamasi sanaladi va u ishlab chiqargan tovar sifati uchun mas’uldir. Bugungi kunda dunyoda 5 mln.ga yaqin tovar belgilari mavjud. Kundalik nutqda “tovar

[19] 2 Brend nima?Amerika Marketing Assotsatsiyasi.
[20] 3 "Brend umumiy til marketing lug'ati"2018-yil 24-may. Olingan 2020-04-30

belgisi”ni ko‘proq “tovar markasi” deb atashadi. Shu tariqa, “tovar belgisi” – bu yuridik tushuncha hisoblanadi.[21]

Brend (inglizcha: Brand [brænd])[22] — tamg‘a, belgi degan ma’noni anglatadi. Brend — bu bir sotuvchining tovar yoki xizmatini boshqa sotuvchilarnikidan ajratib turuvchi nom, atama, dizayn, belgi yoki boshqa xususiyat[2][3]. Brendlar biznes, marketing va reklama qilishda obyektni tanitish uchun ishlatiladi, eng muhimi, brend kapitali qiymatini yaratish, brendni aloxida ajratib turish va xaridorlarni ushlab qolish bilan mijozlari, aksiyadorlari va egalari manfaatiga xizmat qiladi[4]. Tovar nomlari ba’zan iste’mol tovarlarining umumiy brendlari yoki do‘kon brendlaridan farqlanadi. Brendlash amaliyoti — qadimgi misrliklar tomonidan boshlangan deb taxmin qilinadi, ular miloddan avvalgi 2700-yillarda chorva mollarini markalash (ya’ni, boshqa chorvadan ajralib turishi uchun) bilan shug‘ullanishgan[5].

(Buzoqchani tamg‘alash jarayoni)

6 **Martino, T.** Savdo belgisini suyultirish, Clarendon nashriyoti, 1996, 21-bet.

Brendlash bir kishining qoramolini boshqasidan farqlash uchun hayvon terisiga qizdirilgan dazmol bilan kuydirilgan belgi tushirish yordamida amalga oshirilgan. Agar biror kishi molni o‘g‘irlagan bo‘lsa, ramzni ko‘rgan har bir kishi uning haqiqiy egasini aniqlashi mumkin bo‘lgan. Bu atama mahsulot yoki kompaniyaning strategik shaxsini anglatish uchun kengaytirildi, shuning uchun endi “brend” iste’molchi qabul qilishi va sotib olishi mumkin bo‘lgan qadriyatlar va va’dalarni taklif qiladi. 1266-yilda Angliyada non ishlab chiqaruvchilar uchun o‘z belgilarini qo‘yishi majburiy bo‘ldi[6].

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ASALARILARNI OZIQLANTIRISHDA OQSILLI OZUQALARNI AHAMIYATI

Annotatsiya: *Ushbu maqolada asalarilarni oziqlantirishda oqsilli ozuqalarning ahamiyati tahlil qilinadi. Farg‘ona vodiysining o‘ziga xos iqlim sharoitlari tabiiy oziqa resurslarining cheklanganligini keltirib chiqarishi sababli, asalarilar qo‘shimcha oqsilga ehtiyoj sezadi. Tadqiqot natijalari shuni ko‘rsatadiki, sintetik oqsilli ozuqalar asalarilarning o‘sishini 25% gacha oshirib, immun tizimini mustahkamlashga va kasalliklarga chidamliligini 40–50% gacha yaxshilashga yordam beradi. Shuningdek, ushbu ozuqalar asal mahsuldorligini oshirishda ham muhim rol o‘ynaydi. Sintetik oqsilli ozuqalar va tabiiy polenning qo‘shimcha ravishda berilishi asalarilarning sog‘lig‘ini yaxshilaydi hamda yuqori sifatli asal ishlab chiqarishga zamin yaratadi.*

Kalit so‘zlar: *asalarilar, oziqlantirish, oqsilli ozuqa, Farg‘ona vodiysi, tabiiy resurslar, sintetik oqsil, immun tizimi, asal mahsuldorligi, polen, nektar, iqlim sharoitlari, oziqa ehtiyoji, gullash davri, kasalliklarga chidamlilik, o‘sish sur’ati, qo‘shimcha oziqalar, biologik faollik, ekologik omillar, tadqiqot natijalari, qishloq xo‘jaligi.*

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THE IMPORTANCE OF PROTEIN FEED IN BEEKEEPING

Annotation: *This article analyzes the importance of protein-rich feed in beekeeping. Due to the unique climatic conditions of the Fergana Valley, natural food resources for bees are limited, increasing their need for additional protein sources. Research results indicate that synthetic protein feed can enhance bee growth by up to 25%, strengthen the immune system, and improve disease resistance by 40–50%. Additionally, these feeds play a crucial role in increasing honey production. Supplementing bees with synthetic protein feed and natural pollen improves their health and ensures high-quality honey production.*

Keywords: *bees, nutrition, protein feed, Fergana Valley, natural resources, synthetic protein, immune system, honey production, pollen, nectar, climatic conditions, food requirements, flowering period, disease resistance, growth rate, supplementary feed, biological activity, ecological factors, research findings, agriculture.*

Kirish. Asalarilarni oziqlantirish masalasi, ayniqsa, ular sog'lig'ini saqlash, samarali faoliyatini ta'minlash va mahsuldorlikni oshirish uchun juda muhim hisoblanadi. Asalarilar, asosan, o‘zlarining oziqlanish ehtiyojlarini tabiiy resurslardan, jumladan, nektar, polen va boshqa organik manbalardan qondiradi. Biroq, ushbu tabiiy resurslar asalarilarning barcha fiziologik ehtiyojlarini to‘liq qondirishda yetarli bo‘lmasligi mumkin. Oqsilli ozuqalar asalarilarning o‘sish va rivojlanishida, immun tizimi faoliyatida, reproduktiv jarayonlarda va ularning umumiy holatida muhim rol o‘ynaydi. Oqsilning yetishmasligi asalarilarning sog‘lig‘iga salbiy ta'sir ko‘rsatishi, ularning o‘sish sur'atlarini sekinlashtirishi, va yuqori sifatli asal ishlab chiqarishni kamaytirishi mumkin [1].

Farg‘ona vodiysi o‘zining noyob iqlim sharoitlari va o‘simlik resurslari bilan ajralib turadi. Bu hududda asalarilar uchun oziqlanish manbalari mavsumiy o‘zgarib turadi. Bahor va yoz oylarida o‘simliklarning gullash davri, tabiiy resurslarning miqdori va sifatini belgilaydi. Shu bilan birga, iqlim sharoitlarining o‘zgarishi — yuqori harorat, yomg‘irning kamligi va namlikning pasayishi — asalarilarga qo‘shimcha ozuqa manbalarining taqdim etilishini talab qiladi. Oqsilli ozuqalar, ayniqsa sintetik oqsillar, asalarilarning faoliyatini yaxshilash, immunitetni kuchaytirish va kasalliklarga qarshi chidamliligini oshirishda muhim rol o‘ynaydi. Ushbu maqolada, Farg‘ona vodiysidagi o‘ziga xos iqlim sharoitlarida asalarilarga oqsilli ozuqalarni taqdim etishning ahamiyati ilmiy asosda tahlil qilinadi [2].

Materiallar va metodlar. Maqolada o‘rganilgan hudud sifatida Farg‘ona vodiysi tanlangan. Ushbu hududning o‘ziga xos iqlim sharoitlari va o‘simliklarning turli xil resurslarini hisobga olgan holda asalarilarning oziqlanish ehtiyojlari tahlil qilingan. Tadqiqot metodologiyasi sifatida statistik tahlillar, polen namunalarining tarkibi, va ekinlarning o‘simlik resurslarini ta'minlashga bo‘lgan ta'siri o‘rganilgan. Farg‘ona vodiysidagi iqlim sharoitlari, jumladan, harorat, namlik darajasi va yomg‘ir miqdori o‘rganilib, asalarilarning oziqlanish ehtiyojlari uchun zarur oqsil manbalarini ta'minlashning ilmiy asoslangan yondashuvlari ishlab chiqilgan. Shuningdek, qo‘shimcha oqsilli ozuqalar taqdim etishning asalarilar faoliyatiga ta'siri eksperiment tarzida baholangan. Tadqiqotning asosiy metodlari orasida polen

namunalarining mikroskopik tahlili, laboratoriya sharoitida olingan namunalar asosida oqsil miqdorining aniqlanishi va o‘simliklar gullash davrining o‘rganilishi kiritilgan [3].

Natijalar. Tadqiqotlar natijalari Farg‘ona vodiysida asalarilarning ozuqlanishiga iqlim sharoitlari va o‘simliklarning gullash davri katta ta'sir ko‘rsatishini ko‘rsatdi. Bahor va yoz oylarida tabiiy ozuqalar (polen va nektar) asalarilarning oqsilli ozuqaga bo‘lgan ehtiyojlarini to‘liq qondira olmaydi. Bunda, tabiiy ozuqa manbalari faqat 7–15% oqsil taqdim etadi, lekin asalarilarga 10–30% oqsil kerak bo‘ladi.

Qo‘shimcha sintetik oqsilli ozuqalar asalarilarning o‘sishini 25% gacha oshiradi, ularning immun tizimini mustahkamlashga yordam beradi va kasalliklarga qarshi chidamliligini 40–50% gacha oshiradi. Shuningdek, asal mahsuldorligi ham yuqori bo‘ladi.

1-jadval

Asalarilarni oziqlantirishda turli ozuqalarning ta’siri

Ozuqa turi	Oqsil miqdori (%)	Asalarilarning o‘sishidagi o‘zgarish (%)	Immun tizimi chidamliligi (%)	Asal mahsuldorligi (g/koloniya)
Tabiiy ozuqalar (polen, nektar)	7–15	10–15	10–15	300–400
Sintetik oqsilli ozuqalar	25–30	25	40–50	550–600

Tadqiqotlar shuni ko‘rsatdiki, sintetik oqsilli ozuqalar bilan oziqlangan asalarilarning asal mahsuldorligi 550 g/koloniya bo‘ldi, bu tabiiy ozuqalar bilan oziqlanganlarga nisbatan yuqori ko‘rsatkichdir. Sentabr-oktabrda sintetik oqsilli ozuqalar bilan oziqlangan asalarilar 600 g/koloniya asal ishlab chiqaradi.

Farg‘ona vodiysida qisqa gullash davri va tabiiy ozuqa resurslarining cheklanganligi oqsilli ozuqalarga bo‘lgan ehtiyojni oshiradi. Sintetik oqsilli ozuqalar va polenning qo‘shimcha ravishda berilishi asalarilarning salomatligini yaxshilaydi, ularning immun tizimini mustahkamlashga yordam beradi va yuqori sifatli asal ishlab chiqarishni ta'minlaydi.

Shu bilan birga, yuqori sifatli oqsilli ozuqalar asalarilarning sog‘ligini saqlash va mahsuldorligini oshirishda muhim rol o‘ynaydi. Bu qo‘shimchalar Farg‘ona vodiysidagi o‘simliklarning gullash davrining qisqarishi va tabiiy resurslarning kamayishi sharoitida asalarilarning samarali faoliyatini ta'minlaydi.

Muhokama. Farg‘ona vodiysining iqlim sharoitlari, o‘simliklarning gullash davri va resurslarning cheklanganligi asalarilarning oziqlanish ehtiyojlarini qondirishda qiyinchiliklarga olib keladi. Tadqiqotlar shuni ko‘rsatdiki, asalarilarga

qo‘shimcha ravishda beriladigan oqsilli ozuqalar ularning sog‘ligini saqlash, mahsuldorligini oshirish va yuqori sifatli asal ishlab chiqarishni ta'minlashda juda muhim. Shu bilan birga, yuqori sifatli oqsillar, asalarilarning immun tizimini mustahkamlashga yordam beradi va kasalliklarga qarshi chidamliligini oshiradi. Farg‘ona vodiysidagi iqlim sharoitlarining noqulayligi va o‘simliklarning gullash davrining qisqarishi asalarilarning ozuqlanish ehtiyojlarini qondirishda qo‘shimcha choralar ko‘rishni talab qiladi. Tadqiqotlar shuni ko‘rsatdiki, sintetik oqsilli ozuqalar va polen, ayniqsa, qisqa gullash davrida asalarilarning salomatligini yaxshilaydi va ularga yuqori sifatli asal ishlab chiqarishga yordam beradi [5].

Xulosa. Farg‘ona vodiysining o‘ziga xos iqlim sharoitlari va o‘simliklar resurslari asalarilarning oziqlanish ehtiyojlarini qondirishda muhim ahamiyatga ega. Tabiiy ozuqalar manbalarini qo‘shimcha ravishda ta'minlash, asalarilarning immun tizimini mustahkamlash, kasalliklardan himoya qilish va yuqori sifatli asal ishlab chiqarishda alohida o‘rin tutadi. Zamonaviy ilmiy yondashuvlar va texnologiyalarni joriy etish asalarilarning sog‘ligini saqlash va ularning umumiy holatini yaxshilashda yordam beradi. Oqsilli ozuqalar, ayniqsa, Farg‘ona vodiysida qisqa gullash davri va cheklangan o‘simlik resurslari sharoitida asalarilarning mahsuldorligini oshirishda eng muhim omil hisoblanadi.

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ASALARILAR YORDAMIDA O‘SIMLIKLARNI CHANGLATISHNING SAMARADORLIGI

Anotatsiya: *Ushbu maqolada asalarilarning o‘simliklarni changlatishdagi roli va qishloq xo‘jaligidagi ahamiyati o‘rganilgan. Tadqiqot natijalari shuni ko‘rsatadiki, asalarilar yordamida ekinlar hosildorligi sezilarli darajada oshadi. Ayniqsa, g‘o‘za, beda, kungaboqar va mevali daraxtlar changlanish jarayonida asalarilarning ishtiroki hosil miqdorini 10-100% gacha oshirishi aniqlangan. Tadqiqotlar asalarilarni maqsadli ekinlarga jalb qilish usullarining samaradorligini ham ko‘rsatdi.*

Kalit so‘zlar: *Asalari, changlatish, hosildorlik, qishloq xo‘jaligi, g‘o‘za, beda, kungaboqar, mevali daraxtlar, asal, poliz ekinlari, shakar eritmasi, iqtisodiy samaradorlik, urug‘lantirish, ekinlar, o‘simlik.*

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EFFECTIVENESS OF PLANT POLLINATION WITH THE HELP OF BEES

Abstract: *This article examines the role of bees in plant pollination and their importance in agriculture. The research results show that thanks to bees, crop yields significantly increase. It was established that the participation of bees in the pollination of cotton, clover, sunflower, and fruit trees increases the yield by 10-*

100%. The studies also confirmed the effectiveness of methods for attracting bees to target crops.

Keywords: *Bee, pollination, yield, agriculture, cotton, clover, sunflower, fruit trees, honey, melon crops, sugar syrup, economic efficiency, fertilization, crops, plants.*

Kirish. Qishloq xo‘jaligi samaradorligini oshirishning muhim yo‘nalishlaridan biri ekinlarni changlatish jarayonidir. Ushbu jarayon ekinlarning urug‘lanishini ta'minlab, hosil miqdorini sezilarli darajada oshiradi. O‘simliklarning changlanishiga ta'sir qiluvchi eng muhim omillardan biri asalarilar hisoblanadi. Asalarilar changlatishda o‘simliklar uchun zarur bo‘lgan polenlarni boshqa o‘simliklarga yetkazib beradi, bu esa ularning urug‘lanish jarayonini tezlashtiradi va yanada samarali qiladi. Asalarilarning changlatishdagi roli faqatgina hosilni oshirish bilan cheklanmaydi; ular o‘simliklar o‘rtasidagi genetik aloqani yaxshilaydi, bu esa ekinlarning barqarorligini va o‘sish tezligini oshiradi [1].

Bundan tashqari, asalarilar o‘simliklarni changlatishda faqat biologik jarayonlarni amalga oshirmaydi, balki qishloq xo‘jaligi tizimlarida iqtisodiy samaradorlikni ham oshiradi. Asalarilar yordamida o‘simliklar o‘rtasidagi polinatsiya jarayonining samaradorligi ekin hosildorligini 10-100% ga oshirishi mumkin [2]. Ushbu jarayon o‘z navbatida qishloq xo‘jaligi mahsulotlarini ishlab chiqarish xarajatlarini kamaytirishga va ishlab chiqarish daromadlarini oshirishga yordam beradi. Shu bilan birga, asalarilarning ekinlarni changlatishdagi roli faqatgina hosilni oshiribgina qolmay, balki agroekosistema barqarorligini saqlashda ham muhim ahamiyatga ega. Ekinlarning to‘g‘ri changlanishi va natijada hosilning sifatli va mevali bo‘lishi ekosistemada o‘zgarishlar keltirib chiqaradi, bu esa o‘z navbatida oziq-ovqat xavfsizligini ta'minlashga xizmat qiladi [3].

Shu sababli, asalarilarning o‘simliklarni changlatishdagi o‘rni nafaqat qishloq xo‘jaligi hosildorligini oshirish, balki ekologik muvozanatni saqlash va iqtisodiy barqarorlikni ta'minlashga ham katta hissa qo‘shadi. Tadqiqotlar shuni ko‘rsatmoqdaki, asalarilar yordamida hosildorlikning oshishi nafaqat ekinlar, balki butun agro-ekosistema uchun katta afzalliklarga ega [4].

Usul. Tadqiqot jarayonida Andijon viloyatidagi xususiy asalarichilik xo‘jaliklarida olib borilgan tajribalarga asoslanildi. Asalarilarning ekinlarni changlatishdagi samaradorligini baholash uchun quyidagi asosiy usullar qo‘llanildi:

a) Ekin maydonlarida asalarilarning changlatish jarayoniga ta’siri: Tadqiqotda g‘o‘za, beda, kungaboqar, mevali daraxtlar kabi turli ekinlar ustida kuzatuvlar o‘tkazildi. Har bir ekin turi bo‘yicha asalarilarning changlatish jarayonidagi ishtirokini aniqlash uchun alohida tajribalar tashkil etildi. Asalarilarning ishtiroki bilan va ularsiz ekin maydonlarining hosildorligi taqqoslandi. Ekinlar o‘rtasidagi changlatish samaradorligini o‘lchash uchun kuzatuvlar va hisob-kitoblar olib borildi.

b) O‘simliklarning changlanish samaradorligini solishtirish: Asalarilarning ishtirokida va ularsiz ekin maydonlarida hosil o‘sishini o‘lchash uchun tahlil qilish usullari qo‘llanildi. Ekinlar ustida urug‘lanishning tezligi, hosilning miqdori va

sifatini o‘lchash uchun laboratoriya va dalada o‘tkazilgan tekshiruvlar yordamida statistik ma’lumotlar to‘plandi. Shuningdek, o‘simliklarning mevalari va urug‘larining o‘lchamlari, shakli va tuzilishi bo‘yicha sifatli tahlil o‘tkazildi.

c) Asalarilarning joylashuvi va ularning hosildorlikka ta’siri: Tadqiqotda asalari oilalari ekin maydonlariga turli masofalarda joylashtirildi. Ularning yaqin yoki uzoq joylashishi natijalarini o‘rganish orqali, optimal joylashuvning changlatish samaradorligiga ta’siri o‘rganildi. Ekin maydonlari va asalari oilalari orasidagi masofa, changlatish jarayonining intensivligi va samaradorligi o‘rtasidagi bog‘liqlik aniqlanishga harakat qilindi.

d) Ekin hosildorligining iqtisodiy samaradorligini tahlil qilish: Asalarilarning changlatish jarayonining qishloq xo‘jaligi ishlab chiqarishiga ta’siri hisobga olindi. Ekinlar hosilini oshirish orqali ishlab chiqarish xarajatlarining kamayishi va daromadlarning ortishi hisoblandi. Shuningdek, hosilni oshirish bilan bog‘liq bo‘lgan iqtisodiy samaradorlikni baholash uchun mahsulot narxi, mevalarning sifatini va ishlab chiqarish jarayonlarining rentabelligi o‘rganildi.

Natijalar. Tadqiqot davomida asalarilarning ekinlarni changlatish jarayonidagi ta'sirini o‘rganish uchun daladagi kuzatuvlar va o‘lchovlar amalga oshirildi. Har bir ekin turi bo‘yicha olingan natijalar quyidagi asosiy yo‘nalishlar bo‘yicha tahlil qilindi:

a) G‘o‘za hosildorligi: G‘o‘za ekinlarining asalarilarga yordamida changlatilishi hosilning sezilarli darajada oshishiga olib keldi. Tadqiqot natijalariga ko‘ra, g‘o‘za hosildorligi asalarilarsiz ekin maydonlari bilan solishtirganda 10-23% ga oshgan. Bu o‘zgarish g‘o‘za changlatishining samaradorligini isbotladi.

b) Beda va dukkakli ekinlar hosili: Asalarilarning ishtirokida beda va boshqa dukkakli ekinlar hosildorligi 35-40% ga ortdi. Bu ekinlar uchun changlatish jarayoni nafaqat hosilni, balki o‘simliklarning sifatini ham yaxshiladi.

c) Kungaboqar hosildorligi: Kungaboqar ekinlarining hosildorligi asalarilar ishtirokida 45-50% ga oshdi. Asalarilarning kungaboqarni samarali changlatishi o‘simliklarning maksimal hosilni berishiga yordam berdi.

d) Mevali daraxtlar va poliz ekinlari hosili: Mevali daraxtlar va poliz ekinlarining hosildorligi asalarilarning changlatishi natijasida 50-100% ga oshdi. Bu natija mevali ekinlar va poliz ekinlarining hosildorligini oshirishda asalarilarning muhim rol o‘ynashini ko‘rsatdi.

e) Meva va urug‘larning sifati: Asalarilar yordamida changlatilgan ekinlarning mevalari yirik, sifatli va mevali bo‘lganligi kuzatildi. Olingan natijalar shuni ko‘rsatadiki, asalarilarning changlatish jarayonida ishtiroki hosilning nafaqat miqdorini, balki sifatini ham yaxshilaydi.

Jadval 1: Ekinlar hosildorligidagi o‘zgarishlar (protsentda)

Ekin turi	Asalarilarsiz hosildorlik	Asalarilar bilan hosildorlik	O‘sish darajasi (%)
G‘o‘za	100%	110-123%	10-23%
Beda va dukkakli ekinlar	100%	135-140%	35-40%

Ekin turi	Asalarilarsiz hosildorlik	Asalarilar bilan hosildorlik	O‘sish darajasi (%)
Kungaboqar	100%	145-150%	45-50%
Mevali daraxtlar	100%	150-200%	50-100%
Poliz ekinlari	100%	150-200%	50-100%

Tahlil:

a) G‘o‘za hosildorligi: G‘o‘zaning hosilining 10-23% ga oshishi asalarilarning changlatishdagi ishtirokining samarali ekanligini ko‘rsatadi. Bu o‘zgarish, g‘o‘za ekinlarining changlatishda o‘zining ehtiyojlarini qondirishda asalarilarning muhim rol o‘ynashini isbotlaydi.

b) Beda va dukkakli ekinlar hosili: Dukkakli ekinlar uchun, asalarilarning changlatish jarayoni nafaqat hosilni oshirishga, balki ekinlarning o‘sish tezligini oshirishga ham ta'sir ko‘rsatadi.

c) Kungaboqar hosildorligi: Kungaboqar ekinlarida olingan 45-50% oshish asalarilarning changlatish jarayonidagi samaradorligini tasdiqlaydi. Bu ekin uchun changlatishning ahamiyatini ko‘rsatadi.

d) Mevali daraxtlar va poliz ekinlari hosili: Mevali daraxtlar va poliz ekinlarining hosildorligi 50-100% gacha o‘zgargan bo‘lib, bu ekinlar uchun asalarilarning changlatish jarayonidagi ishtirokining ayniqsa samarali ekanligini ko‘rsatdi.

e) Sifatli hosil: Asalarilarning changlatish jarayonidagi ishtirokining o‘simliklar sifatiga ta'siri ham sezilarli darajada oshdi. Mevalar yirik va sifatli bo‘ldi, bu esa ekinlar uchun biologik va iqtisodiy ahamiyatga ega.

Munozara. Tadqiqot natijalari shuni ko‘rsatadiki, asalarilar ekinlarni samarali changlatib, hosildorlikni oshirishga katta hissa qo‘shadi [3]. Biroq, hozirgi vaqtda mavjud asalari oilalarining soni yetarli emas. Respublika bo‘ylab 143 mingta asalari oilasi mavjud bo‘lib, bu ekin maydonlarini to‘liq changlatish uchun yetarli emas. Olimlarning fikricha, ekinlarni optimal changlatish uchun kamida 1,5-2 million asalari oilasi talab qilinadi [4].

Shuningdek, asalarilarni o‘rgatish usullari ham hosildorlikni oshirishga yordam beradi. Maxsus shakar eritmalari bilan ularni maqsadli ekinlarga jalb qilish usuli samarali natija bergan [1]. Bu usul yordamida asalarilar ma‘lum ekin turlariga jalb qilinib, changlanish jarayonining samaradorligi oshirilgan.

Kelajakda qishloq xo‘jaligi ishlab chiqaruvchilari va asalarichilik sohasi vakillari hamkorlikda ish olib borishi zarur. Shuningdek, hukumat tomonidan asalarichilikni rivojlantirishga doir qo‘shimcha chora-tadbirlarni ishlab chiqish va qo‘llab-quvvatlash muhim ahamiyat kasb etadi [2].

Xulosa. Tadqiqot natijalari shuni ko‘rsatadiki, asalarilar o‘simliklarni changlatishda hosildorlikni 10-100% ga oshiradi va ekinlarning sifatini yaxshilaydi. G‘o‘za, kungaboqar, mevali daraxtlar kabi ekinlarda asalarilarning ishtiroki natijasida hosil miqdori sezilarli darajada oshgan. Masalan, g‘o‘za hosildorligi 10-

23% ga, kungaboqar esa 45-50% ga oshgan. Shuningdek, mevali daraxtlar va poliz ekinlarining hosili 50-100% ga yaxshilangan. Biroq, respublikada asalari oilalari soni yetarli emas. Hozirda faqat 143 mingta asalari oilasi mavjud, bu esa ekin maydonlarini to‘liq changlatish uchun yetarli emas. Olimlarning fikricha, optimal changlatish uchun kamida 1,5-2 million asalari oilasi kerak. Shuning uchun asalarichilikni rivojlantirish, qo‘shimcha asalari oilalarini tashkil qilish va maqsadli ekinlarga jalb qilishni samarali yo‘llarini joriy etish zarur. Bu, o‘z navbatida, qishloq xo‘jaligi hosildorligini oshirishga va iqtisodiy samaradorlikni yaxshilashga katta hissa qo‘shadi. Shu sababli, davlat tomonidan asalarichilikni qo‘llab-quvvatlash va unga doir chora-tadbirlarni ishlab chiqish muhim ahamiyatga ega.

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SIGIRLARNING SUT MAHSULDORLIGIGA STRESS OMILLARINING TA’SIRI

Anotatsiya: *Ushbu maqolada sigirlarning sut ishlab chiqarishiga turli stress omillarining ta’siri tahlil qilinadi. Tadqiqot natijalari stress fiziologik va gormonal o‘zgarishlarga olib kelib, sut mahsuldorligini 18-30% ga kamaytirishini ko‘rsatadi. Stressni kamaytirish uchun harorat, oziqlanish va sog‘ish texnologiyalarini optimallashtirish muhimdir.*

Kalit so‘zlar: *sigir, sut mahsuldorligi, stress omillari, harorat stressi, oziqlanish sifati, sog‘ish texnologiyasi, kortizol, prolaktin, metabolizm, fiziologik stress, immunitet, yem sifati, gormonal muvozanat, chorvachilik*

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THE IMPACT OF STRESS FACTORS ON DAIRY COWS’ MILK PRODUCTIVITY

Abstract: *This study analyzes the effects of various stress factors on milk production in dairy cows. The results indicate that stress disrupts physiological and hormonal balance, reducing milk yield by 18-30%. To mitigate stress, optimizing temperature conditions, nutrition, and milking technology is essential.*

Keywords: *dairy cows, milk productivity, stress factors, heat stress, feed quality, milking technology, cortisol, prolactin, metabolism, physiological stress, immunity, diet balance, hormonal regulation, livestock farming*

Kirish Sigirlarning sut mahsuldorligi ko‘plab omillarga bog‘liq bo‘lib, ularning orasida genetika, oziqlanish, saqlash sharoitlari va fiziologik omillar muhim rol o‘ynaydi. Biroq, so‘nggi yillarda stress omillari sut ishlab chiqarish jarayoniga salbiy ta’sir ko‘rsatayotgani haqida ilmiy tadqiqotlar soni ortib bormoqda. Stress fiziologik jarayonlarning buzilishiga, gormonal o‘zgarishlarga va immunitet tizimining zaiflashishiga olib kelishi mumkin. Ushbu maqolada sigirlarning sut mahsuldorligiga stress omillarining ta’siri tahlil qilinadi.

Usul. Tadqiqot Andijon viloyatidagi chorvachilik fermalarida 100 ta sut beruvchi sigirlar ishtirokida o‘tkazildi. Tadqiqot davomida stress omillarining sut ishlab chiqarish va sut sifati bo‘yicha ta’siri o‘rganildi. Stress omillari quyidagi toifalarga ajratildi: fiziologik stress; atrof-muhit stressi; oziq-ovqat stressi; ijtimoiy stress; boshqaruv stressi.

Tadqiqot davomida quyidagi ma’lumotlar to‘plandi: Sut ishlab chiqarish hajmi (kunlik va oy davomidagi o‘zgarishlar); Sut tarkibidagi oqsil va yog‘ miqdori; Kortizol va prolaktin gormonlari darajasi; Sigirlarning umumiy fiziologik holati

Natijalar. Tadqiqot natijalari shuni ko‘rsatdiki, turli xil stress omillari sigirlarning sut ishlab chiqarishiga sezilarli ta’sir ko‘rsatadi. Stress omillari fiziologik, metabolik va endokrin o‘zgarishlarga sabab bo‘lib, hayvonlarning umumiy holati va mahsuldorligiga salbiy ta’sir qiladi. O‘tkazilgan tadqiqot natijalariga ko‘ra, stress omillariga duchor bo‘lgan sigirlarning sut ishlab chiqarish hajmi o‘rtacha 18-25% ga kamaygan. Bu pasayish sut bezlarining faoliyatidagi buzilishlar va organizmning umumiy fiziologik holati bilan bog‘liq ekanligi aniqlandi.

1-jadval

Sigirlarning sut mahsuldorligiga stress omillarining ta’siri

Stress omili	**Sut hajmi kamayishi (%)**	**Sut tarkibidagi yog‘ kamayishi (%)**	**Sut tarkibidagi oqsil kamayishi (%)**
Issiq stress (+30°C va yuqori)	20-30%	0.6-1%	0.3-0.5%
Sovuq stress (-5°C va past)	15-22%	0.5-0.8%	0.2-0.4%
Oziq-ovqat yetishmovchiligi	15-20%	0.5-1%	0.2-0.4%
Ratsion muvozanatsizligi	12-18%	0.4-0.8%	0.2-0.3%
Sog‘ish chastotasi kamayishi	12-18%	0.3-0.6%	0.2-0.4%
Sog‘ishdagi stress omillari	15-25%	0.5-0.9%	0.3-0.5%
Kortizol gormonining ortishi	20-25%	0.5-1%	0.2-0.4%

Jadvaldan ko‘rinib turibdiki sigirlarning sut mahsuldorligiga turli omillar ta’sir ko‘rsatadi, jumladan, harorat stressi, oziqlanish sifati, sog‘ish texnologiyasi va gormonal muvozanat.

Harorat stressi sut ishlab chiqarishga bevosita ta’sir qiladi. Issiq ob-havoda (+25°C va undan yuqori) sigirlarning metabolizmi kuchayib, terlash orqali issiqlik chiqarish jarayoni jadallashadi. Natijada, energiya termoregulyatsiyaga yo‘naltiriladi va sut ishlab chiqarish hajmi kamayadi. Tadqiqotlarga ko‘ra, harorat +30°C dan oshganda, sut hajmi 20-30% gacha pasayishi mumkin. Sovuq sharoitlarda (-5°C dan past) sigirlar ko‘proq ozuqa iste’mol qiladi, lekin bu energiya asosan tana haroratini saqlashga sarflanadi. Bu esa sut ishlab chiqarish hajmini 15-22% gacha kamaytirishi, qon aylanishining buzilishi va endokrin tizimdagi o‘zgarishlar orqali sut tarkibiga ta’sir qilishi mumkin.

Oziqlanish sifati va yem tarkibi ham muhim omillardan biridir. Oziqa tarkibida energiya, oqsil va mikroelementlar yetishmovchiligi bo‘lsa, sut ishlab chiqarish sezilarli darajada pasayadi. Energiya ta’minotining 10% ga kamayishi sut hajmining 15-20% ga tushishiga olib keladi. Ratsiondagi kletchatka miqdorining yetishmovchiligi yoki ortiqchaligi ichak mikroflorasiga ta’sir qilib, yog‘ kislotalari sintezini buzadi. Bu esa sut tarkibidagi yog‘ miqdorining 0.5-1% gacha kamayishiga sabab bo‘ladi. Shuningdek, oqsil yetishmovchiligi sut tarkibidagi oqsil miqdorini 0.2-0.4% ga kamaytirishi aniqlangan.

Sog‘ish texnologiyasi sut hajmi va sifati uchun muhim ahamiyatga ega. Sog‘ish chastotasining kamayishi, masalan, kuniga uch martalik sog‘ishdan ikki martaga o‘tish, sut hajmini 12-18% gacha pasaytirishi mumkin. Agar sog‘ish jarayoni noqulay sharoitda yoki stress omillari mavjud bo‘lgan holatda o‘tkazilsa, oksitotsin gormoni sekretsiyasi pasayadi, natijada sut ajralishi 15-25% gacha kamayadi.

Stress va gormonal muvozanat ham sut ishlab chiqarishga sezilarli ta’sir ko‘rsatadi. Stress gipotalamo-gipofizar-adrenal tizim faoliyatiga ta’sir qilib, kortizol gormonining ortiqcha sekretsiyasiga olib keladi. Kortizol darajasi normaga nisbatan 30% ga oshganda, sut ishlab chiqarish 20-25% ga kamayishi kuzatiladi. Oksitotsin gormonining kamayishi esa sut chiqarish refleksining buzilishiga olib kelib, sigirlarning to‘liq sog‘ilmasligiga sabab bo‘ladi.

Muhokama Stress omillari sut mahsuldorligini pasaytirishi turli mexanizmlar orqali sodir bo‘ladi. Fiziologik stress gipotalamus-gipofiz-buyrak usti tizimining faollashishiga olib keladi, bu esa kortizol sekretsiyasini oshiradi. Kortizolning yuqori darajasi metabolizm jarayonlarini buzadi va prolaktin gormoni ishlab chiqarilishini kamaytiradi, natijada sut ishlab chiqarish kamayadi. Bundan tashqari, stressning uzoq davom etishi immunitetni zaiflashtiradi, bu esa yallig‘lanish jarayonlarining ko‘payishiga sabab bo‘lishi mumkin.

Ijtimoiy stress ham muhim omillardan biri bo‘lib, sigirlar orasidagi agressiya va raqobat ularning oziqlanish tartibini buzadi va natijada oziq moddalarining yomon hazm bo‘lishiga olib keladi. Yomon boshqaruv tizimi esa sigirlarning harakatlanish va dam olish imkoniyatlarini cheklaydi, bu esa ularning umumiy holatiga salbiy ta’sir qiladi.

Xulosa. 1. Tadqiqot natijalari shuni ko‘rsatdiki, turli xil stress omillari sigirlarning sut ishlab chiqarishiga sezilarli ta’sir ko‘rsatadi. Eng katta yo‘qotishlar harorat stressi, yem sifati yetishmovchiligi va noto‘g‘ri sog‘ish texnologiyasi natijasida kuzatildi. Haroratning keskin o‘zgarishi natijasida sut ishlab chiqarish hajmi 18-30% gacha kamaygan, oziq ratsionining buzilishi esa sut tarkibidagi yog‘ va oqsil miqdorining mos ravishda 0.5-1% va 0.2-0.4% ga kamayishiga olib kelgan. Shuning uchun stress omillarini minimallashtirish, muvozanatli oziqlanishni ta’minlash va ilg‘or sog‘ish texnologiyalarini qo‘llash sigirlarning sut mahsuldorligini barqaror saqlash uchun muhim hisoblanadi.

2. Sigirlarning sut mahsuldorligini oshirish uchun stress omillarini minimallashtirish muhim ahamiyatga ega. Chorva boshqaruvi tizimini yaxshilash, optimal oziqlantirish dasturlarini joriy etish va atrof-muhit omillarini nazorat qilish orqali sigirlarning sog‘lig‘i va mahsuldorligi oshirilishi mumkin. Sut fermalarida stressni kamaytirish uchun quyidagi choralar tavsiya etiladi:

- Harorat va namlik darajasini nazorat qilish
- Ratsionni muvozanatli saqlash va yem sifatini yaxshilash
- Sigirlarni optimal sharoitlarda saqlash va stressni kamaytirish
- Sog‘ish texnologiyasini to‘g‘ri tashkil etish

Tadqiqot natijalari shuni ko‘rsatadiki, stress omillarini nazorat qilish sut mahsuldorligini oshirish va chorva sog‘ligini yaxshilashda muhim omil hisoblanadi. Bu esa iqtisodiy jihatdan foydali bo‘lib, chorvadorlarga yuqori hosildorlikka erishishda yordam beradi.

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GIDROTERMAL MIS KONLARINING GENEZISI VA SANOAT AHAMIYATI

Annotatsiya. *Maqolada gidrotermal sharoitda hosil bo'luvchi mis konlarining genezisi va sanoat ahamiyatini o'rganishga doir ma'lumotlarni qisqacha tahlil qilingan bo'lib. Xususan, gidrotermik mis konlari mis-porfir, kvars-sulfid, mahalliy mis va pirit konlari bilan bir vaqtda hosil bo'lgan va hozirgi kunda sanoatda keng ishlatilayotgan mis mahsulotlarini kelib chiqishiga oid masalalar muhokama qilingan va tegishli mulohazalar olib borilgan.*

Kalit so'zlar: *gidrotermal, kon, ma'dan, harorat, sanoat, mis, porfir, kvars, sulfid, pirit, xalkopirit, bornit, ishlab chiqarish, kubanit, kovellit, malaxit, azurit, kuprit, karbonatlar, sulfatlar.*

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GENESIS AND INDUSTRIAL SIGNIFICANCE OF HYDROTHERMAL COPPER DEPOSITS

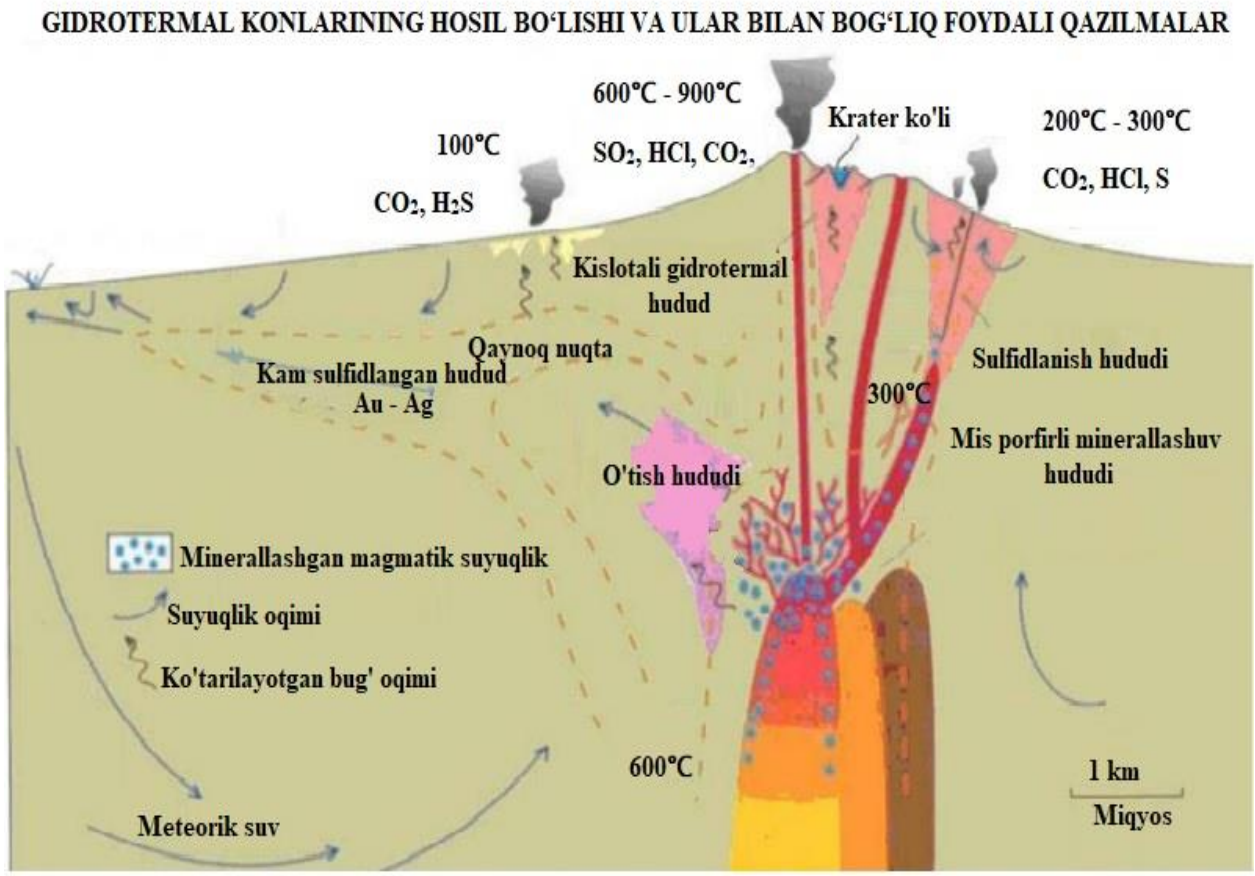
Abstract. *The article briefly analyzes the data on the study of the genesis and industrial significance of copper deposits formed under hydrothermal conditions. In particular, issues related to the origin of copper products that were formed simultaneously with copper-porphyry, quartz-sulfide, local copper and pyrite deposits and are currently widely used in industry are discussed and relevant considerations are made.*

Key words: *hydrothermal, mining, ore, temperature, industry, copper, porphyry, quartz, sulfide, pyrite, chalcopyrite, bornite, production, cubanite, covellite, malachite, azurite, cuprite, carbonates, sulfates.*

KIRISH (INTRODUCTION). Gidrotermal konlar (gidro - suv va yunoncha Iherine - issiqlik) - Yer tubida aylanib yuruvchi gidrotermal eritmalar cho‘kindilaridan hosil bo‘lgan mineral konlardir. Gidrotermik eritmalarning manbalari quyidagilar bo‘lishi mumkin:

- magmatik mahsulotlarning sovushi yoki magmatik minerallar hosil bo‘lishi paytida ajralib chiqadigan magmatik suvlar;
- Yer qobig‘ining chuqur zonalarida suv o‘z ichiga olgan minerallardan ularning qayta kristallanishi paytida ajralib chiqadigan metamorfik suvlar;
- dengiz cho‘kindi jinslarining qismlarida ko‘milgan suvlar;
- suv o‘tkazuvchan qatlamlar orqali Yerning tubiga kiradigan suvlar.

MUHOKAMA (/DISCUSSION). Gidrotermik mis konlari mis-porfir, kvars-sulfid, mahalliy mis va pirit konlari bilan ifodalanadi.



Mis (Cu), molibden (Mo), oltin (Au) porfiri (aralash uchrashi) va oltin (Au), kumush (Ag) epitermal (ikki turdagi) minerallashuvini hosil qiluvchi magmatik-gidrotermal suv osti tizimi. A. Xedenkvistga ko‘ra, 1994 yil.

Yer qobig‘idagi mis miqdori $4,7*10^{3}$%, undan yuqori ($1*10^{-2}$) asosiy magmatik jinslarga xosdir.

Asosiy sanoat ahamiyatidagi mis minerallari xalkopirit, bornit va xalkopirit (ishlab chiqarishning 90%), kubanit, kovellit, malaxit, azurit, kupritdir.

Mis pushti-qizil metalldir. U yuqori elektr o‘tkazuvchanligi, kimyoviy qarshilikka egaligi, plastiklikligi, egiluvchanlikligi va turli metallar bilan qotishma hosil qilish imkoniyatiga egadir. Erish harorati 1093 °C, zichligi 95 g/sm^3.

Mis hozirgi kun sanoatida bronza (Sn bilan), mis (Zn bilan), kupronikel (Ni bilan) va alyuminiy bronza (Al bilan) kabi qotishmalar hosil qiladi. Qotishmalar elektrotexnika, aloqa, transport, mashinasozlik, oziq-ovqat va kimyo sanoatida qo‘llaniladi. Qazib olingan misning sanoatda yarmi kabel va elektr simlarini ishlab chiqarishga sarflanadi.

Boy ma’danlarda mis 2% dan ortiq, oddiy ma’danlarda 1-2%, kambag‘al ma’danlarda esa 1% dan kam bo‘ladi. Hozirgi vaqtda qazib olinadigan ma’danlardagi mis miqdori 1-0,8% ni tashkil qiladi. Mis tarkibidagi zararli aralashmalarga surma va mishyak kiradi.

Dunyoda 58 ta mamlakatda aniqlangan mis zahiralari 890 million tonnadan oshadi, shu jumladan, 650 million tonnasi o‘zlashtirilgan. Eng katta zaxiralari Chili, AQSh, Xitoy, Polsha, Peru, Zambiya, Kanada, Zair, Panama va Avstraliyada joylashgan. Mustaqil davlatlar hamdo‘stligi (MDH) davlatlarida Rossiya ushbu mahsulotni qazib olishda yetakchidir, jumladan, o'rganilgan zahiralar bo'yicha dunyoda to'qqizinchi o'rinda turadi. Davlat balansiga 124 ta ma’dan (ruda) koni kiritilgan bo‘lib mis konlarining o'zida mis zaxiralarining 50% ga yaqini mavjud. Shu bilan birga, 24% mis qumtoshlarining noyob Udokan konida ro'yxatga olingan. Asosiy prognoz qilingan mis resurslari Ural mintaqasida (aniqlangan zaxiralarning 42%), Sharqiy Sibirda (20%) va Uzoq Sharqda (16%).

Mis konlari zahiralari bo‘yicha quyidagi turlarga ajratiladi, (million tonnada) noyob - 5 dan ortiq, yirik - 1-5, o‘rta - 0,2-1, kichik - 0,2 dan kamga bo‘linadi.

Dunyodaga aniqlangan asosiy zaxiralar (65-70%) gidrotermal mis-porfir konlarida to‘plangan; mis qumtosh va slanetslarda - 15-20%, piritda - 5-8%, magmatik sulfidli misli-nikelda - 2-2,5%, skarnlarda - 2-4%, karbonatitda - 0,5-0,7% ni tashkil etadi.

Gidrotermal mis konlari mis porfirli shtokverk va tomir turlari bilan ifodalanadi. Mis porfir konlari o‘rtacha kislotali tarkibi (granodiorit porfiri, kvarts diorit, kvars monzonit va boshqalar) gipabissal porfir intruziyalari bilan bog‘liqdir.

Mis porfir konlari orasida ma’danlar tarkibiga ko‘ra mis porfiri xos, oltin-mis porfiri, molibden-mis porfiri, mis-molibden porfiri va molibden porfiri bilan uchraydi. Shunga qaramay birlamchi ma’danlardagi mis miqdori 0,5-0,7% ni tashkil qiladi, garchi ba’zi konlarda mis miqdori 0,2-0,4% bo‘lgan holda qazib olinadi.

Mis porfir konlarining ma’dan tanalari ma’danli zahiralarning apikal qismida endogen va ekzogen kontakt zonalarida joylashgan bo‘ladi yoki qayta tartiblanadi. Bular gidrotermik o‘zgargan tog‘ jinslari va ma’danli qatlamlar (stok-konstruksiyalar) o‘rtasida kesishuvchi tomirlar va tarqalgan ma’dan qo‘shimchalari tizimini hosil qiladi. Tomirlar kvars, kvarsli dala shpati holida namoyonlanadi.

Mis uchun asosiy ma’dan minerallari pirit, xalkopirit, ba’zan borinitdir. Ikkilamchi molibdenit, xalkopirit, enargit ($Cu_3(AsS_4)$), magnetit, glena va oltindir. Nometall minerallarda esa kvars, seritsit, ortoklaz, biotit, kaolin guruhi minerallari keng tarqalgan bo‘ladi hamda karbonatlar va sulfatlar ma’dan jarayonining oxirgi bosqichida rivojlanadi.

Porfirli mis konlarida eng qimmatli zonalar sementlashgan zonalari bo‘lib, ularda mis miqdori 0,7-1,5% gacha ko‘tariladi. Bu zonaning qalinligi 100 dan 200

metrgacha o‘zgarib turadi. Porfir mis konlari ko‘pincha katta va juda katta mis zaxiralarini o‘z ichiga oladi - birliklardan o‘n millionlab tonnagachani tashkil qiladi. Ma’danlarning qiymati molibden, oltin, kumush va reniyning bog‘liq holda olinishi natijasida ortadi.

Hozirgi kunda O‘zbekistonda gidrotermal jarayonlar bilan bog‘liq bir nechta ma’danli konlardan mis mahsuloti qazib olinmoqda. Jumladan, Toshkent viloyatidagi Qalmoqqir konidan olinayotgan mahsulotlarga qisqacha to‘xtalib o‘tamiz.

2-rasm. Qalmoqqir mis koni kareri

Kon tarixi haqida. Konni dastlabki o‘zlashtirish loyihasi Leningradning “Gipruda” instituti tomonidan tuzilgan, so‘ngra Qalmoqqir konining loyihasi Moskva “Giprosvetmet” institutiga topshirilgan va 1960-yilda institut kengaytirish loyihasini ishlab chiqqan. O‘sha paytda yuk tashish uskunasi sifatida Ural og‘ir mashinasozlik zavodining cho‘mich hajmi uch kub bo‘lgan SE3 ekskavatorlaridan, ag‘darmalarga jinslarni tashishda esa yuk ko‘tarish qobiliyati uch tonnadan o‘n tonnagacha bo‘lgan avtomobillaridan foydalanilgan.

Kon haqida. Qalmoqqir mis koni misporfir tipidagi dunyo bo‘yicha eng yirik hisoblangan 10 ta ob’yektlar qatoriga kiradi. Kon cho‘kindi, vulkanogen va intruziv jinslar majmuasidan tashkil topgan, ularda magmatik hosilalar ko‘proq uchraydi. Konning geologik tuzilishida riolit porfirlar, dolomitlar va ohaktoshlar, andezit-datsitli porfirlar, kvarsli monsonitporfirlar, granodioritporfirli daykalar, dioritli va diabazli porfiritlar mavjud. Vulkanogen cho‘kindi qatlam jinslarini siyenit-diorit qatoridagi asosliroq intruzivlar yorib chiqqan va qisman ular bilan assimilyatsiyalashgan (aralashgan). Asosiy ma’dan qamrovchi jinslar yirik shtok shaklida mujassamlashgan siyenit-dioritlar, dioritlar va riolit-porfirlardir.

Qazib olinayotgan mahsulotlar va ular tarkibi. Qalmoqqir koni ma’danlarining asosiy sanoat qiymati mis, molibden, qimmatbaho metallar, shuningdek, oltingugurt, selen, tellur, reniy hisoblanadi. Qalmoqqir koni ochiq

usulda qazib olinadi; ishlab chiqish tizimi transportga asoslangan bo‘lib, Kon ma’danlari 3 texnologik tipga: oksidlangan, aralash (tarkibida ikkilamchi sulfidlar bo‘lgan) va birlamchi sulfidlarga bo‘linadi. Oksidlangan ma’danlar murakkab tuzilishi bilan farqlanib, ko‘pincha turli qalinlikdagi tik yotuvchi tomir, qatlam, linza va ustun ko‘rinishlarda uchraydi. Gipergenez hududining eng ko‘p qalinligi 180 metr (o‘rtacha 60 - 65 metr), oksidlangan ma’danlarning o‘rtacha qalinligi 20 metrdan iborat. Oksidlangan ma’danlardagi misning tarkibi - 0,3 dan 3% gacha, ikkilamchi sulfidli boyish hududida - 0,3 dan 4% gacha.

Qalmoqqir mis konining birlamchi ma’danlari tarkibida mis - 0,58%, molibden - 0,005%, oltin - 0,5 g/t, kumush - 3 g/t, oltingugurt 1,5 - 2%, kamyob elementlar (selen, tellur, reniy, vismut, indiy va boshqalar) mavjud.

Konning markaziy qismi mis va temir sulfidlariga boy. Oltinning taqsimlanishi xalkopiritli minerallashish bilan bog‘liq. Ma’danli shtokverkning kuzatilgan qalinligi 1240 metrgacha. U yaxlit uzluksiz tanani tashkil qilib, konning o‘rta qismiga kelganda tarmoqlanadi.

Konda metasomatik o‘zgargan jinslar keng tarqalgan. Ularda greyzenlashish eruptivli brekchiyalar va qora granitporfirlarning daykalarida mujassamlashgan. Qalmoqqir mis konining kvarsseritsitli metasomatitlari odatdagi ikkilamchi kvarsitlardan o‘zida boy glinozyomli minerallarning (korund, diaspor, andaluzit va boshqalar) deyarli uchramasligi bilan farq qiladi.

XULOSA (CONCLUSION). Gidrotermal mis konlari geologik va iqtisodiy jihatdan juda muhimdir. Ularning genezisi yer osti suvlarining issiq manbalar bilan o‘zaro ta’siri natijasida amalga oshadi, bu esa yuqori konsentratsiyali mis rudalarini to‘plash imkonini beradi. Sanoatda misning ahamiyati elektr energiyasini uzatish, elektronika, qurilish va transport sanoatida uning keng qo‘llanilishi bilan izohlanadi. Shuningdek, gidrotermal konlar iqtisodiy jihatdan samarali va arzon qazib olish jarayonlarini ta’minlashi bilan ajralib turadi.

Umuman olganda gidrotermal ma’danli jarayonlar hisobiga hosil bo‘luvchi mis konlari genezisi va sanoat ahamiyati xususida yana bir nechta misollarini keltirib o‘tish mumkin.

Hozirgi vaqtda o‘ziga xos geologik sharoitga qarab gidrotermal sharoitda mis ma’dan konlarini hosil bo‘lishi mumkin bo‘lgan ko‘plab boshqa minerallar ham mavjudligini hisobga olib quyidagilarni ta’kidlash mumkin:

Mis konlarining turli tektonik va geologik sharoitlarda joylashishi va ularning har xil turdagi magmatik jinslar bilan aloqasi; mis konlarini shakllantirish jarayonida harorat va bosimning katta diapazonlari; metall birikmalarining keng xilma-xilligi va ularning tektonik, mahalliy geologik sharoitlarga, shuningdek, asosiy va magmatik jinslar tarkibiga bog‘liqligi; va nihoyat, magmatik gidrotermal suyuqliklar evolyutsiyasi, ularning plutonlar va devor jinslari bilan o‘zaro ta’siri natijasida rivojlanishi o‘rtasidagi yaqin aloqalar mavjudligini tushunishimiz mumkin deb hisoblansa maqsadga muvofiqdir.

Ushbu maqolada umumlashtirilgan gidrotermal sharoitda hosil bo‘lgan mis konlari haqidagi ma’lumotlarga asoslanib, mintaqaviy darajada va alohida konlar

miqyosida olib borilayotgan tadqiqotlarga qo‘shimchalar bo‘la oladigan bir qancha ma’lumotlarni aniqlash mumkin.

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GIDROTERMAL SHAROITDA HOSIL BO'LUVCHI FOYDALI QAZILMALARNI GEOGRAFIK TARQALISHI VA GEOLOGIYASI

Annotatsiya. *Maqolada gidrotermal sharoitda hosil bo'luvchi foydali qazilmalarni geografik tarqalishi va geologiyasini o'rganishga doir ma'lumotlarni qisqacha tahlil qilingan bo'lib. Foydali qazilma konlarini hosil bo'lishida gidrotermal jarayonlarning o'rni va ushbu jarayon natijasida hosil bo'luvchi yoki qayta o'zgaruvchi minerallar va hozirgi kunda keng ishlatilayotgan sanoat mahsulotlarini kelib chiqishiga oid geografik va geologik masalalar muhokama qilingan va tegishli xulosalar keltirilgan.*

Kalit so'zlar: *gidrotermal, vulkanogen, plutogen, metasomatik, mineral, mantiya, jins, kon, ma'dan, magma, postmagmati, geokimyoviy, massiv.*

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GEOGRAPHICAL DISTRIBUTION AND GEOLOGY OF MINERALS OCCURRING IN HYDROTHERMAL CONDITIONS

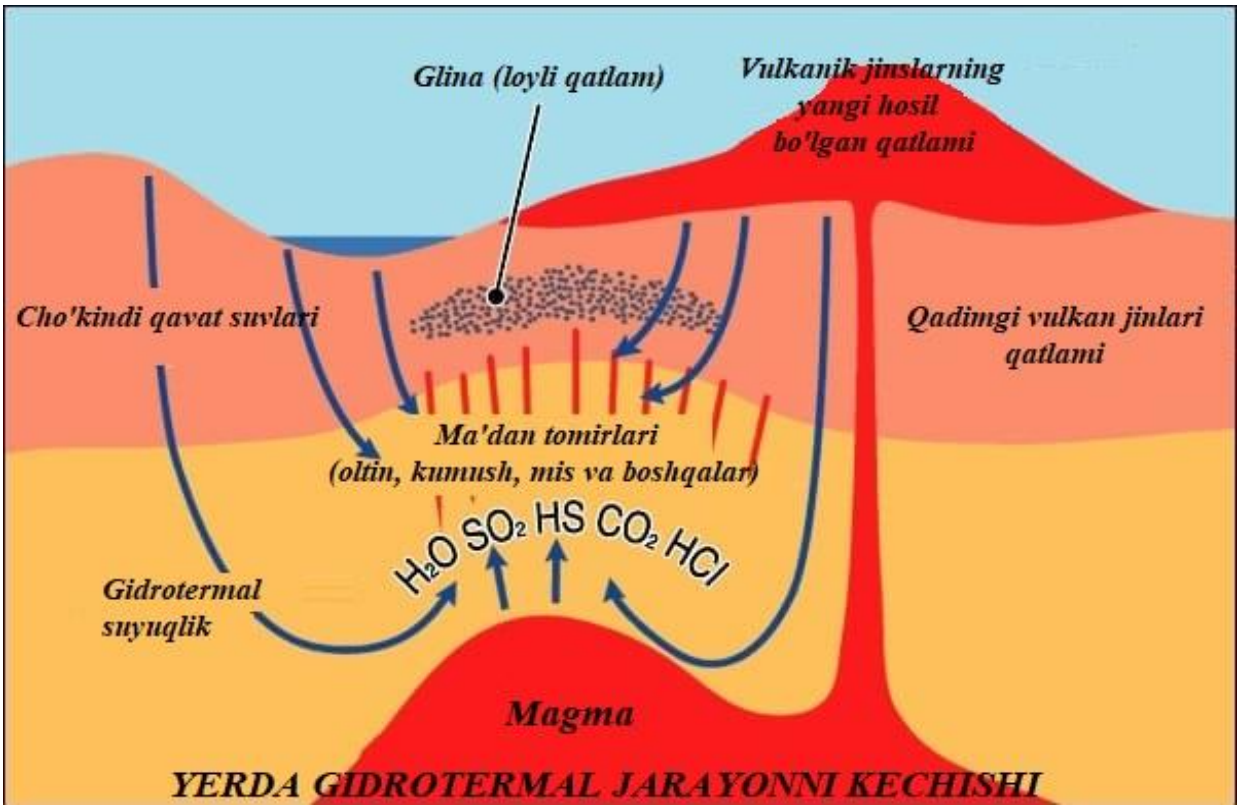
Abstract. *The article briefly analyzes the data on the geographical distribution and geology of minerals formed under hydrothermal conditions. The role of hydrothermal processes in the formation of mineral deposits and the geographical and geological issues related to the origin of minerals formed or transformed as a result of this process and the industrial products widely used today are discussed and relevant conclusions are drawn.*

Key words: *hydrothermal, volcanogenic, plutogenic, metasomatic, mineral, mantle, rock, mine, ore, magma, postmagmatic, geochemical, massive.*

KIRISH (INTRODUCTION). Gidrotermal sharoitda hosil bo'lgan minerallar gidrotermik minerallashuv jarayoni natijasida hosil bo'ladi. Bu minerallarning yer qobig'ida harakatlanuvchi issiqlik oqimlari jinslar (mantiyadagi harorati yuqori bo'lgan minerallar), minerallarga boy suyuqliklar cho'kishidan hosil bo'lishini tushunishimiz mumkin. Bu suyuqliklar odatda magmatik yoki

metamorfik jarayonlar natijasida hosil bo‘ladi va yer yoriqlari bo‘ylab va boshqa o‘tkazuvchan jinslar orqali ko‘chirilib o‘tadi.

MUHOKAMA (DISCUSSION). Gidrotermal konlar - bu yerni ichqi qobiqlarida (asosan mantiya moddalari va yer po‘stida ularning qayta o‘zgarishi) aylanib yuradigan issiqlik oqimlari natijasida vujudga kelgan (boyitilgan) gaz-suyuq eritmalar natijasida hosil bo‘lgan sanoat ahamiyatiga ega mineral birikmalardir. Minerallar ko‘pincha gidrotermik eritmalarda haqiqiy yoki kolloid mineral eritmalar shaklida tashiladi (1-rasmga qarang).



1-rasm. Yerda gidrotermal jarayonlarni kechishi.

Gidrotermal konlar asosan katta chuqurlikda - taxminan 3,5 kilometr va undan ko‘p, o‘rtacha - 1-3 kilometr va sayoz - 1 kilometrdan kam yoki yer yuzasiga yaqin joyda hosil bo‘lishi mumkin. Gidrotermal konlarning taxminiy shakllanish chuqurligini geologik, morfologik, tekstura-struktura va mineralogik mezonlar asosida aniqlash mumkin.

Gidrotermal konlarning genetik turlari. XX asrning ikkinchi yarmida ko‘pchilik geologlar tomonidan qabul qilingan yangi zamonaviy genetik gidrotermal tasnif ishlab chiqila boshlandi.

U to‘rtta asosiy xususiyatni hisobga oladi:

1. Magmatik shakllanishlar bilan aloqasi,
2. Ma’dan (ruda) larning tarkibi;
3. Shakllanishning fizik-kimyoviy sharoitlari
4. Geologik va geokimyoviy parametrlar.

Yuqoridagi o‘zgartirish va qo‘shimchalar bilan gidrotermal konlar guruhini quyidagi genetik turlarga bo‘lish taklif etiladi:

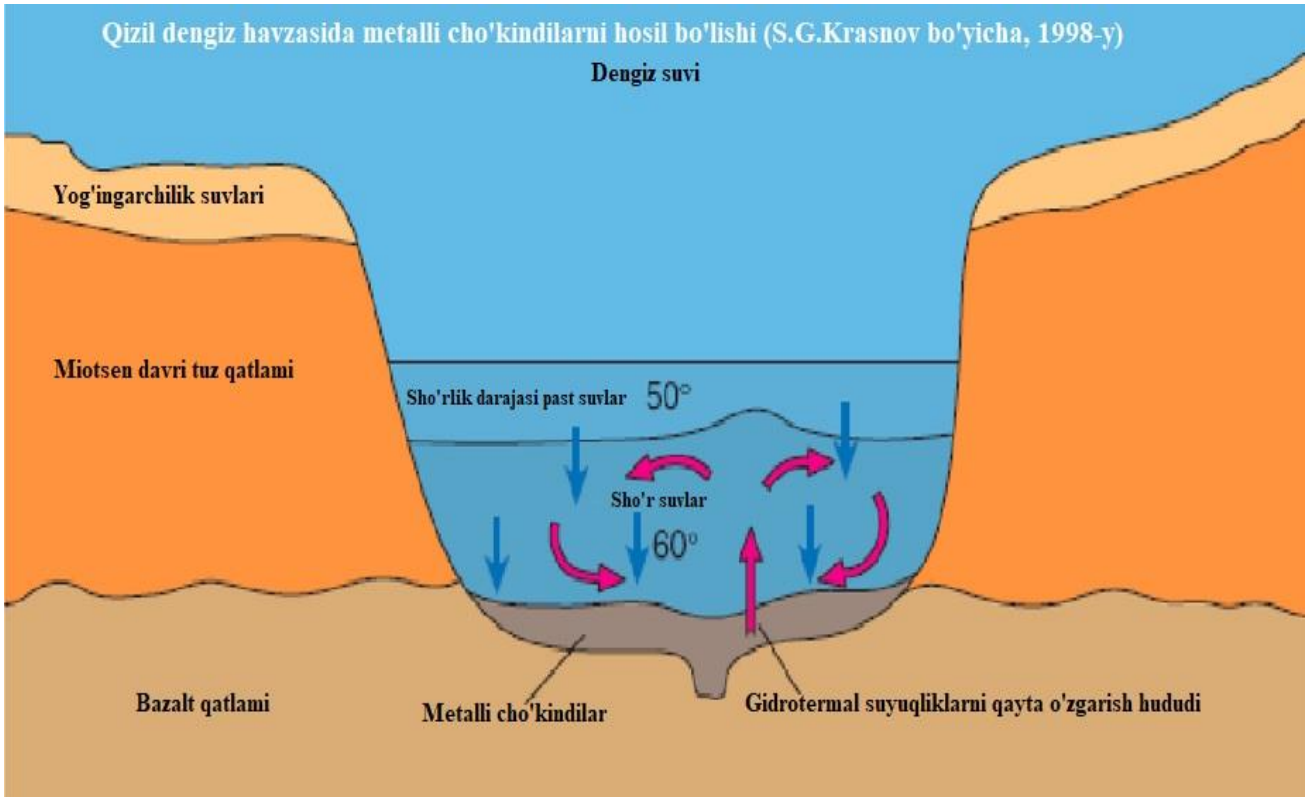
1. Vulkanogen-gidrotermik
2. Plutonogen-gidrotermik
3. Gidrotermik-cho‘kindi
4. Gidrotermal-metasomatik

Shundan so‘ng gidrotermal konlarni tasniflashda quyidagi zamonaviy jumlalar geologyaga kiritildi ular uch sinfga ajratildi:

1. Plutonogen granitoid;
2. Vulkanogen andezit;
3. Vulkanogen bazaltoid (postmagmatik).

Plutonogen gidrotermal konlar shakli va genetik jihatdan kislotali, o‘rtacha kislotali va o‘rtacha ishqoriy magmatik jinslarning kirib borishi bilan bog‘liq.

Vulkanogen-gidrotermal konlar asosan burmalangan hududlarda quruqlikdagi andezit-datsitli vulkanizm, shuningdek faollashgan platformalarning tutashgan qismi magmatizm bilan bog‘liqligi. Eng tipik konlar vulqon teshiklari va ularning atrofi yaqinida joylashganlaridir.



2-rasm. Qizil dengiz havzasida metalli cho‘kindilarni hosil bo‘lishi (S.G.Krasnov bo‘yicha, 1998-y).

Postmagmatik gidrotermal konlar cho‘kindi qatlamlarda joylashgan bo‘lib, ularda gidrotermal minerallashgan eritmalar manbai bo‘lib xizmat qiladigan magmatik jinslar massivlari mavjud emas.

Bir narsani alohida qayd etishimiz kerakki, gidrotermal konlarni genezisi doimo muammolidir ya’ni ya’ni magma mahsulotlari qayta o‘zgarish davrida farqlanib ketishi va elementlarni reaksiyaga kirishishi bilan tavsiflash mumkin (2-rasmga qarang).

Ba’zi geologlar bu konlarni hosil bo‘lishi va undan keyingi bosqichlarda ba’zi o‘zgarishlarga uchragan birlamchi cho‘kindi singenetik moddalarga bog‘liq deb hisoblashadi. Ularning chuqurlikda yotgan va eroziyaga uchramagan magmatik jinslar massivlari bilan bog‘liqligi haqida qarashlar ham mavjud. Shunday qilib, bunday konlarning eritmalari manbai bo‘lib, ular bilan aloqa uzilgan uzoq magmatik markazlar, shuningdek, metamorfizm paytida cho‘kindi qatlamlardan ko‘chirilgan cho‘kindi havzalarining o‘z birlamchi moddalari ham bo‘lishi mumkin.

Gidrotermal suyuqliklar sovib, atrofdagi jinslar bilan o‘zaro ta’sirlashganda, ular cho‘kib, qimmatbaho minerallar bilan reaksiyaga kirishishi natijasida gidrotermal foydali qazilma konlarini hosil qiladi. Quyida gidrotermal sharoitda hosil bo‘lgan minerallarning ba’zi turlarini ko‘rib chiqamiz:

1. Kvars (SiO_2) - yerda keng tarqalgan gidrotermal ma’danli mineraldir va ko‘pincha oltin va kumush konlarida kvars tomirlari har xil turdagi gidrotermal sharoitdagi konlari aniqlangan. Kvarsni mis, platina, molibden va rux kabi asosiy metal konlari bilan bog‘liq bo‘lgan gidrotermal tomirlarda ham uchratish mumkin.

2. Sfalerit (ZnS) - ruxning asosiy ma’dani bo‘lgan tabiatda keng tarqalgan gidrotermal ma’danli mineraldir. Ko‘pincha polimetall ruda konlarida galena (qo‘rg‘oshin sulfid) va xalkopirit (misli temir sulfidi) kabi boshqa sulfid minerallari bilan bog‘liq bo‘lgan gidrotermal tomirlarda uchratish mumkin.

3. Galenit (PbS) - tabiatda keng tarqalgan gidrotermal ma’danli mineral va qo‘rg‘oshinning asosiy ma’danidir. Ko‘pincha polimetall ma’dan konlarida sfalerit va xalkopirit kabi boshqa sulfid minerallari bilan bog‘liq bo‘lgan gidrotermal tomirlarda uchraydi.

4. Xalkopirit ($CuFeS_2$) - keng tarqalgan gidrotermal ma’danli mineral va misning asosiy ma’danidir. Ko‘pincha polimetall ma’dan konlarida sfalerit va galenit kabi boshqa sulfid minerallari bilan bog‘liq bo‘lgan gidrotermal tomirlarda uchraydi.

5. Flyuorit (CaF_2) - gidrotermal ma’dan mineralidir, u ko‘pincha qo‘rg‘oshin, rux va ftorit konlari hosil bo‘lishi bilan bog‘liq. U gidrotermal tomirlarda hosil bo‘lib, binafsha, yashil, sariq va ko‘k ranglarni o‘z ichiga olgan turli xil ranglarda mavjud.

6. Kassiterit (SnO_2) - gidrotermal ma’danli mineral bo‘lib, qalayning asosiy rudasi hisoblanadi. Ko‘pincha granit intruziyalari bilan bog‘liq bo‘lgan gidrotermal tomirlarda va allyuvial konlarda uchraydi.

7. Gematit (Fe_2O_3) - gidrotermal ma’danli mineral va muhim temir manbai hisoblanadi. Uni temirga boy konlar bilan bog‘liq bo‘lgan gidrotermal tomirlarda topish mumkin. Gematit temir birikmalari va temir oksidi holida mis va oltin konlari bilan ham uchraydi.

8. Pirit (FeS_2) – tabiatda keng tarqalgan gidrotermal ma’danli mineraldir va ko‘pincha oltin, mis va boshqa asosiy metalli konlar bilan bog‘liq. Uni gidrotermal tomirlarda topish mumkin va o‘ziga xos oltinsimon sariq rang va metall yorqinligi bilan mashhur.

9. Sheelit ($CaWO_4$) - gidrotermal ma’danli mineraldir va volframning asosiy ma’dani hisoblanadi. Ko‘pincha granit intruziyalari bilan bog‘liq bo‘lgan

gidrotermal tomirlarda uchraydi va o‘ziga xos to‘q sariq, sariq rang va yuqori o‘ziga xos ko‘rinishi bilan ajralib turadi.

10. Vismutinit (Bi_2S_3) - gidrotermal ma’danli mineraldir va vismutning asosiy ma’dani hisoblanadi. Ko‘pincha qalay va volfram konlari bilan bog‘liq bo‘lgan gidrotermal tomirlarda uchraydi va o‘ziga xos kumushsimon kulrang rang va metalli yorqinligi bilan ajralib turadi.

Foydali qazilmalarga boy magmaning differensiyalanishi jaroyonlarida, o‘ta asosli, asosli va ishqorli qotmalardan hosil bo‘lgan konlar magmatik konlar deb ataladi. Bu konlarda titan-magnetit, apatit-magnetit, misnikel, xromit rudalari, platinoidlar, oltin, olmos, kobalt, vanadiy, siyrak yer elementlari, grafit kabi foydali qazilmalarning yirik zapaslari ma’lum.

Demak, bu xil konlarning va ularni o‘rab turgan tog‘ jinslarning hosil bo‘lishi magmaning yer bag‘ridan ko‘tarilib chiqib qotish jarayoni bilan chambarchas bog‘liq.

XULOSA (CONCLUSION). Umuman olganda gidrotermal ma’danli minerallarning yana bir nechta misollarini keltirib o‘tish mumkin.

Hozirgi vaqtda o‘ziga xos geologik sharoitga qarab gidrotermal ma’dan konlarida hosil bo‘lishi mumkin bo‘lgan ko‘plab boshqa minerallar ham mavjudligini hisobga olib quyidagilarni ta’kidlash joizdir:

Gidrotermal ma’dan konlari turli metallar va ma’danli minerallarning muhim manbalari bo‘lib, gidrotermal minerallashuvni o‘rganish bu konlarning shakllanishi va iqtisodiy ahamiyatini tushunish uchun muhim ahamiyatga egadir.

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NOMODDIY MADANIY MEROS

ANNOTATSIYA: *Jismoniy artefaktlar va ob'ektlarni o‘z ichiga olgan moddiy merosdan farqli o‘laroq, nomoddiy madaniy meros o‘zining dinamik, rivojlanayotgan tabiati va odamlarning kundalik hayoti va o‘ziga xosligi bilan chambarchas bog'liqligi bilan ajralib turadi. Nomoddiy madaniy meros namunalari og‘zaki nutq, musiqa va raqs kabi an’analardan tortib, an’anaviy hunarmandchilik, marosimlar, bayramlar va oshpazlik amaliyotlarigacha bo‘lgan odatlarni o‘z ichiga oladi.*

Kalit so‘zlar: *nomoddiy, an’ana, meros, avlod, madaniyat, iqtisodiyot, jamoa, ijod, rag‘batlantirish, globallashuv.*

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INTANGIBLE CULTURAL HERITAGE

ABSTRACT: *Unlike tangible heritage, which includes physical artefacts and objects, intangible cultural heritage is characterized by its dynamic, evolving nature and its close connection to people's everyday lives and identities. Examples of intangible cultural heritage include customs, from traditions such as oral speech, music and dance to traditional crafts, ceremonies, festivals and culinary practices.*

Key words: *Intangible, tradition, heritage, generation, culture, economy, community, creativity, stimulation, globalization.*

Doimiy o‘zgarib borayotgan dunyoda madaniy merosni saqlash o‘zligimizni saqlab qolish va ildizlarimiz bilan bog'lanish uchun muhim ahamiyatga ega. Moddiy artefaktlar va yodgorliklar ko‘pincha diqqat markazida bo‘lsa-da, nomoddiy madaniy merosimizni – avlodlardan o‘tib kelayotgan an'analar, amaliyotlar va bilimlarni asrash ham birdek muhim. Shundan kelib chiqqan holda, jamoamiz bir qator seminarlar o‘tkazish orqali nomoddiy madaniy merosimizni asrab-avaylash bo‘yicha xabardorlikni oshirish va amaliy ko‘nikmalarni o‘rgatishga harakat qilmoqdamiz.

An’anaviy musiqa va raqs yo‘nalishishi bo‘yicha, mahalliy musiqachilar va raqqoslar boshchiligidagi harakatlar musiqa va raqs an'analarini o‘rganadi. Ishtirokchilar an'anaviy kuylar, ritmlar va harakatlarni o‘rganadilar, har bir ifoda ortidagi madaniy ahamiyatga ega bo‘ladilar. Pazandachilik san'ati va meros taomlari bo‘yicha, mahalliy oshpazlar va oshpazlik mutaxassislari boshchiligida madaniy o‘zligimizni belgilaydigan lazzatlar va retseptlarni o‘rganadi. Ishtirokchilar bizning umumiy o‘zligimizni shakllantiradigan pazandalik merosi

bilan bog'liq holda an'anaviy pishirish usullari, ingredientlari va taomlarini kashf etadilar. Hunarmandchilik va hunarmandchilik mahorati bo‘yicha, kulolchilikdan to to‘quvchilikgacha bo‘lgan ushbu ustaxona madaniy merosimizni qo‘llab-quvvatlovchi hunarmandchilikni tarannum etadi. Ishtirokchilar hunarmandlardan an’anaviy hunarmandchilik ko‘nikmalarini o‘rganish, avloddan-avlodga o‘tib kelayotgan texnika va materiallar haqida tushunchaga ega bo‘lish imkoniyatiga ega bo‘ladilar.

Tez globallashuv va madaniy homogenlashuv davrida noyob madaniy merosimizni asrab-avaylash zarurati hech qachon bu qadar dolzarb bo‘lmagan. Moddiy artefaktlar ko‘pincha katta e'tiborga ega bo‘lsa-da, nomoddiy madaniy merosimizni hujjatlashtirish va raqamlashtirish bir xil darajada muhimdir - bizning shaxsiyatimiz to‘qimasini tashkil etuvchi an'analar, marosimlar va og'zaki tarix. Jamiyatimiz ana shu maqsadni ko‘zlagan holda, kelajak avlodlar manfaati uchun nomoddiy madaniy merosning turli shakllarini qo‘lga kiritish va raqamlashtirish loyihasini amalga oshirishga kirishmoqda.

Hamjamiyat a’zolari, jumladan oqsoqollar, hunarmandlar, hikoyachilar va tarixchilarni hujjatlashtirish jarayoniga jalb qilinadi. Ularning bilim va tajribalari madaniy merosimizning nozik jihatlarini qamrab olishda bebahodir.

Raqamli arxivni rivojlantirish: Zamonaviy raqamli texnologiyalardan foydalangan holda, to‘plangan materiallarni saqlash, tartibga solish va namoyish qilish uchun foydalanuvchilarga qulay raqamli arxiv ishlab chiqiladi. Arxivdan onlayn foydalanish mumkin bo‘lib, tadqiqotchilar, o‘qituvchilar va jamoatchilikka dunyoning istalgan nuqtasidan bizning madaniy merosimizni o‘rganish va ular bilan shug‘ullanish imkonini beradi. Biz arxivda oson qidirish va navigatsiyani osonlashtirish uchun metadata standartlari va teglash tizimlarini joriy qilamiz, bu esa foydalanuvchilarning aniq kontentni samarali topishini ta'minlaydi.

Raqamli arxiv bizning madaniy merosimizni keng auditoriyaga, jumladan tadqiqotchilar, talabalar, o‘qituvchilar va jamiyat a’zolari uchun ochiq qilib, ko‘proq qadrlash va tushunishga yordam beradi.

Madaniy an'analarimiz va amaliyotlarimizni hujjatlashtirish orqali biz kelajak avlodlar uchun ularning ildizlari bilan bog'lanish va madaniy merosimizni abadiylashtirish uchun yo‘l xaritasini taqdim etamiz.

Bizning jamoamiz jamoaviy o‘zligimizni boyitgan turli madaniyatlar, an'analar va amaliyotlarning jonli gobelenidir. Bu xilma-xillikni nishonlar ekanmiz, nomoddiy madaniy merosimizni – qo‘shiqlar, hikoyalar, raqslar, marosimlar va bizning kimligimizni belgilaydigan oshpazlik lazzatlarimizni tan olish va namoyish etish juda muhim. Ushbu g'oyani hisobga olgan holda, biz jamiyatimizning boy nomoddiy madaniy merosini nishonlash va namoyish etishga bag'ishlangan festivalni e'lon qilishdan faxrlanamiz.

Festivalimiz nomoddiy madaniy merosimizning go‘zalligi va boyligidan bahramand bo‘lish uchun jamiyat a’zolari, madaniyat xodimlari, san’atkorlar va ixlosmandlarni birlashtirgan ko‘p kunlik bayram bo‘ladi. Spektakllar, namoyishlar, mahorat darslari va ko‘rgazmalarning dinamik dasturi orqali ishtirokchilar bizning rang-barang merosimizning diqqatga sazovor joylari, tovushlari va lazzatlariga

sho‘ng'ish imkoniyatiga ega bo‘ladilar. Festival doirasida mahalliy san’atkorlar va madaniy jamoalar tomonidan an’anaviy musiqa, raqs va hikoyalar jonli ijroda namoyish etiladi. Ishtirokchilar bizning madaniy ifodalarimizning jo‘shqinligi va energiyasini bevosita his qilish imkoniyatiga ega bo‘ladilar.

Hunarmandchilik namoyishlari kulolchilik, to‘quvchilik, yog‘ochga ishlov berish va savatdo‘zlik kabi an’anaviy hunarmandchilikni namoyish etadi, bu esa ishtirokchilarga ushbu qadimiy an’analarni saqlashga qaratilgan mahorat va fidoyilikka guvoh bo‘lish imkonini beradi. Xalq o‘yinlari, hunarmandchilik stantsiyalari va madaniy viktorinalar kabi interfaol tadbirlar ishtirok etishni rag‘batlantiradi va merosimiz bilan bog‘lanish tuyg‘usini kuchaytiradi. Oziq-ovqat yarmarkasi turli madaniyatlarga mansub an'anaviy taomlar, gazaklar va ichimliklarni o‘z ichiga olgan turli xil oshxona an'analarini namoyish etadi. Ishtirokchilar bizning merosimiz lazzatlaridan bahramand bo‘lish va har bir taomning madaniy ahamiyati bilan tanishish imkoniyatiga ega bo‘ladilar. Pishirish namoyishlari va ta’tib ko‘rish an'anaviy pishirish texnikasi, ingredientlar va retseptlar haqida tushuncha beradi, ishtirokchilarni jamoamizning oshxona xilma-xilligi bilan tanishishga taklif qiladi.

Xulosa o‘rnida aytish mumkinki, hamkorlikdagi sa'y-harakatlar va faol ishtirok etish orqali biz madaniy merosimiz kelgusi avlodlar uchun gullab-yashnashda davom etishini ta'minlashimiz mumkin. Nomoddiy madaniy merosimizni nishonlash uchun birlashar ekanmiz, keling, bizni belgilaydigan xilma-xillikni qabul qilaylik va bizni o‘tmishimiz bilan bog'laydigan va kelajagimizni shakllantiradigan an'analarni hurmat qilaylik. Jamiyatimizning boy madaniy gobelenlarining ushbu bayramida bizga qo‘shiling va keling, bizni kelajak avlodlar uchun ilhomlantiradigan va ko‘taradigan xotiralar yarataylik.

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O‘ZBEKISTONDA ITALIYA ARISINI KO‘PAYTIRISH, RIVOJLANTIRISH HAMDA SUN’IY YO‘L BILAN ONA ARI YETISHTIRISH

Annotatsiya: *Italiya asalarisi (Apis mellifera ligustica) asalari turlaridan biri bo‘lib, asosan Italiya va unga yondosh hududlarda keng tarqalgan. Bu asalarilar o‘zlarining samaradorligi, tinch tabiatlari va yuqori adaptiv xususiyatlari bilan dunyodagi eng mashhur zotlardan biri hisoblanadi. Ushbu maqolada Italiya asalarisining biologiyasi, xulq-atvori, ahamiyati hamda O‘zbekistonga iqlimlashtirish, duragaylar olish va sun'iy urchitish haqida batafsil ma'lumot beriladi.*

Kalit so‘zlar: *Populyatsiyasi, tergit, qurilish instinkti, fin-italyan, floromigratsion, naslchilik, genetik xilma-xilligi, adaptiv seleksiya, sun'iy urchitish, laboratoriya.*

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BREEDING, DEVELOPMENT AND ARTIFICIAL NATIVE BEE PRODUCTION OF ITALIAN BEE IN UZBEKISTAN

Annotation: *the Italian bee (Apis mellifera ligustica) is a species of bee, widespread mainly in Italy and adjacent areas. These bees are considered one of the most popular breeds in the world for their efficiency, calm nature and high adaptive properties. This article will tell you in detail about the biology, behavior, importance of the Italian Bee and acclimatization to Uzbekistan, obtaining hybrids and artificial mating.*

Keywords: *population, tergite, construction instinct, Finno-Italian, floromigrating, breeding, genetic diversity, adaptive selection, artificial mating, laboratory.*

Kirish: O‘rta Osiyo iqlim sharoitida ari oilalari erta bahordan to kech kuzgacha sharbat tashish va rivojlanishi uchun sharoit bo‘lmaganligi tufayli vaqti-vaqti bilan bir joydan ikkinchi joyga ko‘chirilib, sharbat tashishiga sharoit yaratiladi. Masalan, erta bahorda arilar qayrag‘och, terak, momaqaymoq, tol va boshqa o‘smiliklardan gulchang tashiganidan keyin, ular mevazor bog‘larga, bog‘lardan esa o‘simliklari erta gullaydigan cho‘l hududlariga hamda urug‘lik olinadigan bedapoyalar va tog‘larga ko‘chirilib, iyun oylarining oxirida paxtazorlarga, paxtazorlardan to‘qay, daryo yoqalariga, kechki oziq uchun ekiladigan jo‘xoripoyalariga olib boriladi. Bir joydan ikkinchi joyga ko‘chirish

orqali arilarning to‘xtovsiz sharbat tashishiga zamin yaratiladi. Arilarni ko‘chirishdan maqsad faqatgina asal to‘plabgina qolmay, balki qishloq xo‘jalik o‘simliklarini changlantirish yo‘li bilan hosildorlikni oshirishga katta hissa qo‘shish hamdir. Ari oilalarini ko‘chirishdan avval, ko‘chiriladigan joy qidirib topiladi va joy tanlanadi hamda ari oilasi kochirishga tayyorlanadi. O‘zbekistonga asalarilar birinchi marta 1872 yilda olib kelingan. Tashabbuskor asalarichilar tomonidan tashkil yyetilgan ko‘rgazmalar mahalliy aholi o‘rtasida asalarichilikning muvaffaqiyatli rivojlanishiga ta’sir etdi. Bu ko‘rgazmalarda asalarichilik usullari va asalarichilikdan olingan mahsulotlar targ‘ib qilindi. Keyinchalik asalarichilar maktabi ochildi, uni yuritish madaniyati oshirildi. Asalarilar ramkali yig‘ma uyalarga kochirildi, endi insonlar asalarilar hayotiga aralashib, ularga o‘z vaqtida zarur sharoit yarata oladigan bo‘ldi. 1926 yilga kelib O‘zbekistonda 1970 asalari oilasi asrab qolindi.

Arilar zoti deb, shu yer iqlimi sharoitida yashayotgan ko‘pchilik ari oilalarining tashqi ko‘rinishi va yashash sharoiti bir xil ko‘rinishga o‘xshash bo‘lib, ularning fiziologik va morfologik, shuningdek, foydali xo‘jalik belgilari birbiriga o‘xshash yoki bir avloddan ikkinchi avlodga o‘xshashlik belgilarining o‘tishi hamda shu sharoitga moslashgan ari turlariga aytiladi. Asalarichilikda shu paytgacha inson tomonidan birorta ham ari zoti yaratilmagan. SHunga qaramasdan tabiat iqlim sharoitiga moslashgan tabiiy ari zotlari bor. Mana shu tabiat saralab yetishtirgan ari zotlarini aborigen zoti deb ataladi. Avvaldan ko‘p ming yillar ichida tabiat qonunlari bo‘yicha tabiiy saralash oqibatida bir-biridan marfologik, biologik va xo‘jalik ko‘rsatkichlari hamda qit'alar, hududlar bo‘yicha o‘z nomini olgan aborigen asalari zotlari mavjudligi mutaxassislarga ma'lum. MDKH hududlarida quyidagi aborigen ari zotlari: “O‘rta rus”, “Qo‘ng‘ir Kavkaz tog‘ arisi”, “Sariq Kavkaz arisi”, “Karpat” arisi, “Ukraina cho‘l arisi” va boshqa joydan keltirilgan arilardan “Italiya arisi” Bu nasl MDHga Italiyadan keltirilgan bo‘lib, tana va qorin g‘ildirakchalari juda sariq. AQSHda bu zot bilan saralash ishlarini olib borib, tillarang ari naslini yetishtirishgan. Bir kunlik ishchi arisining vazni 115 mgr. Urchimagan ona arisi 190 mgr. Urchigan ona arisi 210 mgr, xartumchasi 6,3–6,5 mm. Tana tuzilishi bo‘yicha ari zotlari orasida eng yirik ari hisoblanadi. Arilari muloyim bo‘lib, qattiq issiqda yashashga moslashganligi uchun ham 8 O‘rta Osiyoda ko‘paytiriladi, Ona arisi 1 sutkada 2500 tagacha tuxum qo‘yib, ko‘p tuxum qo‘yishi bo‘yicha boshqa ona arilardan ajralib turadi. SHuning uchun ham bu nasl arilarni rivojlantirish va ko‘paytirish maqsadida boqiladi. Quyidagi jadvalda Italiya asalarisini asosiy genotipik va fenotipik ko’rsatkichlari keltirilgan.

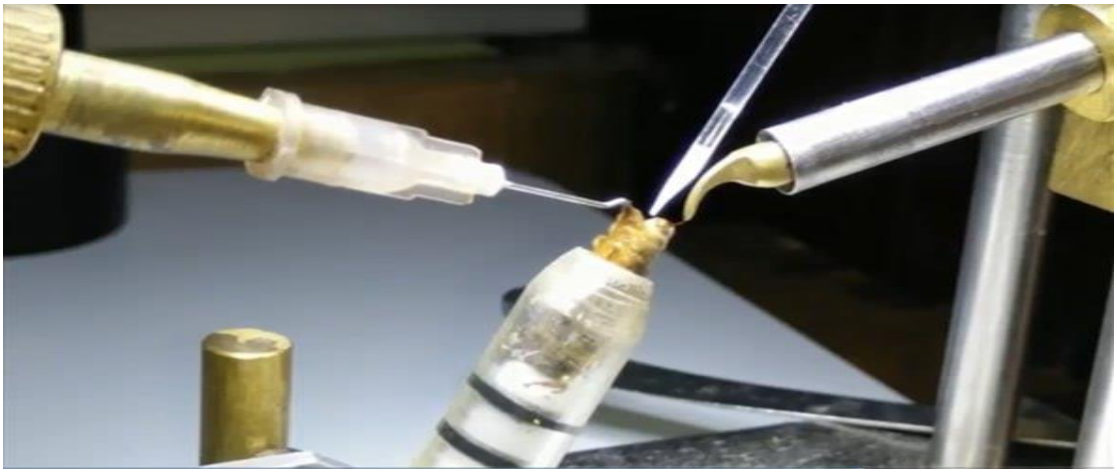
Ko‘rsatkich	**Qiymati**	**Izoh**
Kubital indeks	50-60%	Ishchi asalarilarning qanot tuzilishi
Tarzal indeks	180-220%	Orqa oyoq tarzal segmentlari nisbati
Tergit kengligi	4,5-5,5 mm	Orqa qorin tergit segmentining o'lchami

Ko‘rsatkich	Qiymati	Izoh
Xartum uzunligi	6,3-6,5 mm	Asalarining gul sharbati olish qobiliyati
Ishchi arining vazni	115 mg	Katta hajmdagi nektar yig‘ish imkoniyati
Urchimagan ona ari	190 mg	Yetuk bo‘lmagan ona ari og‘irligi
Urchigan ona ari	210 mg	Tuxum qo‘yadigan ona ari vazni
Sutkada tuxum qo‘yishi	2500 tagacha	Yuqori naslchilik qobiliyati
Moslashuvchanlik	Yuqori	Issiq iqlimga yaxshi moslashgan
Xulq-atvori	Tinch	Inson bilan yaxshi muvofiqlashadi

Italiya zotli urchigan onaasalaridan ona asalari yetishtirish uchun quyidagi turdagi uch guruh arilari oilasi qatnashadi: 1-guruh - ona ari yetishtirish uchun qurtcha olinadigan onalik oila;
2-guruh - erkak ari yetishtiriladigan otalik oila;
3-guruh - kosachadagi va g’umbakdagi qurtchalarni tarbiyalovchi oila.

Bosqich	Ishchi ari	Ona ari	Erkak ari	Izoh
Tuxum bosqichi	3 kun	3 kun	3 kun	Har uchala turi ham tuxum bosqichida bir xil vaqt qoladi.
Lichinka bosqichi	6 kun	5,5 kun	6,5 kun	Ushbu bosqichda lichinkalar ishchi arilar tomonidan boqiladi. Ona arilar qirol suti bilan oziqlanadi.
G‘umbak oldi bosqichi	2 kun	1,5 kun	2,5 kun	Lichinkalar g‘umbaklanish uchun o‘z uyasiga joylashadi.
G‘umbak bosqichi	12 kun	7,5 kun	14,5 kun	Bu bosqichda asalarilar qattiq qobiq ichida metamorfozga uchraydi.
Umumiy rivojlanish muddati	21 kun	16 kun	24 kun	Ona arilar eng tez rivojlanadi, erkak arilar esa eng uzoq vaqt davomida rivojlanadi.
Yetuk ari paydo bo‘lishi	21-kuni	16-kuni	24-kuni	Yosh asalarilar qobiqdan chiqib, uyada vazifalarini bajarishga kirishadi.

Sun’iy yo‘l bilan ona ari yetishtirish orqali asalarichi quyidagi ko‘rsatkichlarga erishadi: birinchi yuqori mahsuldor sifatli ona ari qo‘ygan tuxumdan qurtchalarni olib, ko‘p sonli ona ari qurtchalarni yetishtirish mumkin; erta bahorda rejali ravishda tashkil etiladigan kichik yangi oilalarga kerakligicha ona ari yetishtiriladi; sun’iy yetishtirilgan ona arilar yuqori sifatli bo‘libgina qolmay, balki ko‘ch ona arilardan tuxum qo‘yish qobiliyati bo‘yicha qolishmaydi va ayrim hollarda ustun turadi; ona ari yetishtirish bo‘yiclia maxsus ixtisoslashtirilgan xo‘jalik tashkil etilib, kerakli arilari zotidan ona ari yetishtirish mumkin; yaxshi ona ari yetishtirish xo‘jaligi tashkil etilgach, asalarilarning zotini yaxshilash bo‘yicha naslchilik ishlarini tashkil etish mumkin.



Asalarilar yordamida va boshqa kompleks usullar qo‘llab hosilni oshirish masalasiga bizda ham, Yevropa davlatlarida ham ahamiyat berilmoqda. Ko‘pgina olimlarning ma'lumotlariga ko‘ra, o‘simliklarni asalarilar yordamida changlatish beda hosilini 180- 250 % gacha, kungaboqarni 40-50 % gacha, qora bug‘doyni 1,5 barobargacha, karam, sholg‘om, piyozni 30-40 % gacha, zig‘irni 27 % gacha, rezovar meva hosilini 50-60 % gacha oshiradi. Changlatishda asalarilardan muvaffaqiyatli foydalanish uchun: sog‘lom, kuchli asalari oilasini ular changlatishi kerak bo‘lgan joyga olib chiqilishidan 12-14 kun oldin oilada 5-6 ta romdagi naslli asalarilarni boqishga yetadigan arilari bo‘lishi kerak. Changlatishda yuqori ko‘rsatkichlarga erishishdagi asosiy shartlardan biri ari oilasini changlatiladigan maydonga yaqin qo‘yish va asalarining bu yerga uchib keladigan yolida to‘siqlarning kamroq bo‘lishidir. Daryo, ko‘l, qirlar, qurilishlar, daraxtlar, zaharli gazlar, korxonalar tutuni, kimyoviy chiqindilar kabi to‘siqlar qanchalik kam bo‘lsa, asalarilar ekinzorlarni shuncha tez changlata boshlaydi, to‘siqlardan uchib o‘tishga kamroq energrya sarflaydi, ularning ishlashiga xavfsizroq bo‘ladi va belgilangan maydonni changlatish uchun kamroq arilari oilasi yetarli bo‘ladi. Katta yer maydonlarining changlanish samaradorligini oshirish uchun ari oilalarini dalaning chetidan 200-300 m ichkariga, bir-biridan 800-1200 m oraliq masofaga qo‘yish kerak. Shuni hisobga olish kerakki, changlatiladigan maydonning atrofida asalarilar diqqatini jalb qiladigan o‘simliklar bo‘lmasligi kerak, aks holda, ularda asalarilarning bir qismi qolib ketadi. Asalarilar bir xil o‘simlik changini iste’mol qilishi ularning ishchanlik qobiliyatini susaytirishini hisobga olib, asosiy o‘simlik yonida boshqa ekinlar ekilishga yo‘l qo‘yiladi. Tarvuz, qovun, baqlajon, bodring

kabi poliz ekinlari hamda solyanka, chirmoviq, otquloq kabi o‘simliklar asalarilarning hayotiy faoliyatini kuchaytiradi. Lekin ular changlatiluvchi ekin maydonining 2/3 qismidan oshiq bo‘lmasligi kerak

Hamma joyda ham asosiy sharbat ajratuvchi o‘simliklar bo‘lib, ular mavsumning ma’lum vaqtida sharbat ajratadi. Ana shu o‘smliklar gullagan vaqtda ari oilalari asosiy sharbatni to‘playdilar va bu mavsum asosiy sharbat to‘plash davri deyiLadi. Mana shu davrgacha asalarichi kuchli ari oilalarini yetishtirib, arilarning jadal sharbat to‘plashiga sharoit yaratishi kerak.

Ari oilalari yangi keltirilgan joyda kam bezovtalanmasligi uchun quyidagilarga rioya qilish kerak: ari oilalari ko‘chinlayotgan paytda uyalarni lloji boricha kamroq taqillatish, turtish, silkitish va texnika xavfsizligi qoidalariga rioya qilish kerak; uyalarining ichiga nur tushmasligiga harakat qilib, ko‘chirish vaqtida quyoshda qoldirmaslik zarur; yangi joyda ari uyalarini iloji boricha butazorlar orasiga joylashtirish kerak (agarda butazor, daraxtlar bo‘lmasa u holda uyalaining qatorlari orasiga mo‘ljalga olish uchun shoxlar tiqib, ularga o‘tlarni bog‘lab qo‘yish kerak); ari uyalari sharbat ajratuvchi o‘simliklaiga qaratilib, uzunasiga, ko‘ndalangiga joylashtirilsa, oldingi qatordagi ari oilalari kuchayib, orqa qatordagilari kuchsizlanib ketmaydi

Respublikamiz mintaqalarida mart oyida asalari oilasi asosiy nazoratdan o‘tkaziladi. Bahorgi kunlar isib, soyadagi harorat 14°C dan oshganidan so‘ng arixonadagi asalari oilasining ahvoli ko‘zdan kechiriladi. Undagi oziq zaxirasi, oilaning kattakichikligi, ona asalarining bor-yo‘qligi aniqlanadi. Bu ishlarni, ayniqsa, bundan keyingi oylarda bajariladigan ishlarni sifatli bajarish uchun, asalari biologiyasini yaxshi bilish kerak. Kuzgi mavsumda asalarichilikdan ko‘proq mahsulot (asal, mum, gul changi) olish uchun asalari oilasi uchun qulay sharoitlar tug‘dirish lozim, ya’ni vaziyatga mos arixona turini tanlash, uni to‘g‘ri sozlash, arixonalarning joyini o‘zgartirishda asalarilarni bezovta qilmaydigan texnik vositalardan foydalanish kabi ishlarni to‘g‘ri tashkillashtirish talab qilinadi. Demak, birinchi navbatda, texnik vositalar va boshqa anjomlarning tuzilishini, ularni to‘g‘ri sozlashni bilish kerak. Asalari oilasini ko‘zdan kechirganda – boshni, yuzni va bo‘yinni asalarilarning chaqishidan himoya qilmoq uchun, yuzniqob, tutatqich, iskana va cho‘tka bo‘lishi kerak. Bundan tashqari asalarichilikda Asalarilar uchun yangi romlarga mum pardalari yopishtirishda, romlardagi asalni ajratishda, mum xomashyosiga qayta ishlov berishda, ta’mirlashda, arixonalarni ko‘tarishda, bo‘yashda va boshqa ishlarni bajarishda, asalarichilik anjomlaridan foydalaniladi.

1. Asal ishlab chiqarish: Italiya asalarisi juda katta hajmda asal ishlab chiqaradi. O‘zbekiston bozorida sifatli asal ishlab chiqarish hajmini oshirish uchun ushbu zot muhim ahamiyatga ega.

2. Gullarni changlatish: Italiya asalarisi gullarni samarali changlatadi, bu esa qishloq xo‘jaligi ekinlarining hosildorligini oshirishga yordam beradi.

3. Bardoshlilik: O‘zbekistonga moslashgan duragaylar kasalliklarga va qattiq iqlim sharoitlariga nisbatan yanada chidamli bo‘ladi.

Xulosa qilib shuni aytish mumkin Italiya asalarisi O‘zbekiston sharoitida yuqori mahsuldorlik va ekologik barqarorlikka erishish uchun katta imkoniyatlarga

ega. Ularning iqlimlashtirish va duragaylash jarayonlari asalarichilikning iqtisodiy samaradorligini oshirishga xizmat qiladi. Shu bilan birga, sun'iy urchitish texnologiyalarining joriy etilishi orqali seleksiya jarayoni yanada samarali amalga oshiriladi. Ushbu yondashuv O‘zbekistonda asalarichilik sanoatini rivojlantirish uchun mustahkam zamin yaratadi.

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BALIQLAR O‘SISHI VA RIVOJLANISHIDA VITAMINLARNI AXAMIYATI

Annotatsiya: *O‘zbekiston sharoitida baliqchilikni joriy qilish uchun barcha xo‘jaliklar va muassasalar aniq imkoniyatlarga ega. Vitaminlar baliqlarning yuqori mahsuldorligini ta'minlash, ya'ni baliq organizmining normal ishlashini ta'minlash uchun zarur bo‘lgan murakkab biologik faol moddalardir. Ular fermentlar tizimining bir qismidir, organizmda sintez qilinmaydi, balki ozuqa bilan birga keladi va almashtirib bo‘lmaydigan ozuqa hisoblanadi, asosan ozuqadan kirishi shart.*

Kalit so‘zlar: *Fermentlar , avitaminoz, retinol, xolikaltsiferol, tokoferol, tiamin, riboflavin, pantatenovaya kislota, xolin, nikotinovaya kislota, folevaya kislota, siankobalamin, biotin, inozit, provitamini, antioksidant.*

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THE IMPORTANCE OF VITAMINS IN THE GROWTH AND DEVELOPMENT OF FISH

Abstract: *All farms and institutions have clear opportunities to introduce fisheries in the conditions of Uzbekistan. Vitamins are complex biologically active substances necessary to ensure high productivity of fish, that is, to ensure normal functioning of the fish organism. They are part of the enzyme system, are not synthesized in the body, but come with food and are irreplaceable nutrients, which must be obtained mainly from food.*

Key words: *Enzymes, avitaminosis, retinol, cholecalciferol, tocopherol, thiamine, riboflavin, panthenate acid, choline, nicotinic acid, folic acid, cyanocobalamin, biotin, inositol, provitamin, antioxidant.*

Kirish. Vitaminlar yog‘da eruvchan va suvda eruvchi sinflarga ajratiladi. Vitaminlar tirik hujayrada yuzaga keladigan va metabolizmni tartibga solishda ishtirok etadigan, asosan ferment tizimidagi o‘ziga xos oqsillar bilan birikib, hayotiy muxim bo‘lgan turli strukturali organik moddalardir. Ozuqada vitaminlar miqdorining yetarli darajada bo‘lishi baliqning normal rivojlanishi, o‘sishi va ko‘payishi uchun zarur, stress va kasalliklarga yuqori chidamlilikni namoyon etadi. Ko‘pgina vitaminlar baliq organizmida sintez qilinmaydi va ularni oziqa bilan ta'minlash kerak. Vitaminlar ozuqaning asosiy tarkibiy qismlari bilan birga kiradi, ammo ularning asosiy manbai ozuqa tarkibiga kiritiladigan vitamin premikslaridir. Ozuqada u yoki bu vitamin yetishmasligi, baliq vitamin yetishmovchiligini keltirib chiqaradi, amaliyotda ko‘proq uchraydigani vitamin yetishmovchiligi bo‘lib gipovitaminoz deb nomlanadi (1-jadval). Yog‘da eriydigan vitaminlar baliq organizmida (jigarda) to‘planishi mumkin, bu haddan tashqari dozaning ortishi tufayli gipervitaminozning rivojlanishiga olib keladi.

Yog‘da eriydigan (lipovitaminlar). Yog‘da eriydigan vitaminlar A (retinol), D (kalsiyferol), E (tokoferol), K (filloxínon) oziqa bilan ta'minlanishi kerak, ammo ularning ba'zilari (A va D) hayvonlarning organizmida provitaminlardan sintez qilinishi mumkin. Baliqlar hayot davomida A provitamini manbasi bo‘lgan umurtqasiz hayvonlarida mavjud ksantofildan (astaksantin, kantaksantin, zeaksantin) foydalanadi. U faqat hayvon organizmlarida mavjud, o‘simliklarda u yo‘q. O‘simliklarda u A vitaminining vazifadoshi bo‘lgan karotin deb ataladi, u sabzi tarkibida juda ko‘p, ulardan eng keng tarqalgani ß- karotin.

1-jadval

Baliqlardagi vitaminlar yetishmasligida yuzaga keladigan belgilar

Vitaminlar	Tanqislik belgilari
A, (retinol)	Qon ketish, anemiya, gemoglobinning, eritrotsitlar soni va rang ko‘rsatkichi pasayishi, jigar indeksining) pasayishi. Ko‘rish qobiliyatini buzilish, tana rangining oqarishi, jabra qopqog‘ini deformatsiyasi. Tana bo‘shlig‘ida suyuqlikning to‘planishi, shishish
D_2. Xolekalsiy ferol	Raxit. Kaltsiy gomeostazining buzilishi suyak matritsasida suvning ko‘payishi, mineral moddalar va organik tarkibining pasayishi
E, Tokoferol	Yog‘ va tseroid jigar degeneratsiyasi, anemiya, gemoliz (turli o‘lchamdagi va yetilmagan eritrotsitiar). Tana bo‘shlig‘ida suyuqlikning to‘planishi, siqilish, mushak distrofiyasi
K_3. Vikasol	Qon ivishining sekinlashishi, eritrotsitlar hajmining pasayishi, yengil anemiya. Jigar indeksining pasayishi. Teri ichiga qon ketishi
C, Askorbinovay a kislota	Umurtqa egriligi (lordoz, skolyoz), jabra qopqog‘inining deformatsiyasi, terida, jigarda, buyraklarda, ichaklarda, mushaklarda qon ketishi. Ko‘zlardagi buzilgan kollogen gistostrukturasi anemiyasi, suzgichler va yaralar yomon sekin bitishi, past gematokrit
B_1. Tiamin	Haddan tashqari asabiylashish, konvulsiyalar, beqarorlik, muvozanatni yo‘qotish, jabra qopqog‘ini va suzgichlar qiyshayishi, tez nafas olish,

	terining qizishi, teriga qon ketish, rangning qorayishi, mushak atrofiyasi, shish, eritropoczni buzilishih, jigarni oqarishi
B_2, Riboflavin	Harakatlarni muvofiqlashtirish izdan chiqishi, qorin bo‘shlig‘ining pigmentatsiyasi, jarrohlik va jarohatlarning nekrozi, ko‘zlardagi qon, shox pardaning shaffofligi, anemiya
B3, Pantotenovaya kislota	Juda yuqori va tez o‘lim, jabralarning ochilib qolishi, jabra epiteliyasining o‘sib ketishi, jabralarning shishishi, ularning yopishishi, xolsizlanish va g‘ayritabiiy harakatlar, jigar yog‘lanishi, anemiya
B4, Xolin	O‘lim sonining ortib ketishi, jigarning yog‘lanishi, uning kattalashishi, buyraklar va ichaklarda qon ketish, anemiya, qorin bo‘shlig‘ida xavo yig‘ilishi, ko‘zlarning shishishi, tana rangining oqarishi

Ichaklarda karotenaza va safro ta'sirida karotin A vitaminiga aylanadi ularning ikkalasi ham havo kislorodiga sezgir.

A vitamini (retinol) hayvonlarning, ayniqsa yosh baliqlarning o‘sishiga yordam beradi va infeksiyalarga chidamliligini oshiradi.

A vitaminining manbai hayvondan olinadigan xom ashyo manbalari hisoblanadi. Murakkab ozuqalarda retinolning yog‘li eritmasi (1 ml. -300 dan 500 ming gacha), baliq yog‘i, retinolning quruq preparatlari tarkibida 1g, 5 dan 500 ming IU gacha bo‘lgan eritmalari qo‘llaniladi.

A vitamini (retinol) oqsillar va minerallar almashinuvida ishtirok etadi, skelet shakllanishiga, serpushtligiga, ko‘rish qobiliyatiga ta'sir qiladi, epiteliyning normal holatini ta'minlaydigan tabiiy antioksidantdir. Lososimonlarda A vitaminiga bo‘lgan talab quruq ozuqada 10-15, karpsimonlarda uchun esa 4-20 ming IU/kg.

A vitamini va karotinning so‘rilishi ingichka ichakda safro ishtirokida yuzaga keladi, bu ularning emulsifikatsiyasini ta'minlaydi. Organizmda A vitaminining asosiy zaxirasi jigardir, uning tarkibidagi darajasi tanadagi A vitaminini yetkazib berish ko‘rsatkichi bo‘lib xizmat qiladi. Retinol yetishmovchiligi belgilari 1-jadvalda keltirilgan.

A vitamini va karotinning biologik faolligi halqaro birliklarda (HB) yoki retinol ekvivalentlarida o‘lchanadi. A vitamini 1 HB 0,3 mkg retinol biologik aktivligiga to‘g‘ri keladi yoki 0,344 mkg retinilatsetatga teng (retinol efiri va sirka kislotasi). Turli baliq turlari uchun A vitaminiga bo‘lgan ehtiyoj 1000-20000 IU/kg quruq oziqa hisobida oralig‘ida o‘zgaradi (2-jadval).

A vitaminining yaxshi manbai baliq yog‘idir-200-500 ming HB/kg. A vitamini preparatlari 100-500 ming HB aktivlikka ega bo‘lgan yog‘ konsentrati shaklida granulalar yoki kukun shaklida chiqariladi.

Ozuqaga kiritilgan yog‘larning oksidlanishi ushbu guruh vitaminlarining parchalanishiga olib keladi. Shuning uchun, tarkibida yog miqdori yuqori bo‘lgan ozuqa ishlab chiqarishda ularning xavfsizligi uchun ularga sintetik yoki tabiiy antioksidantlar kiritiladi. Omuxta yem sanoatida, odatda vitaminli premikslar tayyorlash uchun, nozik donalardan tashkil topgan kukun shaklida retinolning zarralari va uni oksidlanishdan saqlaydigan jelatin kapsulasi bilan o‘ralgan bo‘ladi.

A vitamini havodagi kislorod va quyosh nuri ta'sirida tezda oksidlanadi, o‘zgaruvchan valentli og‘ir metallar (temir, mis) bilan aloqa qilganda lipid

peroksidlanish mahsulotlari ishtirokida parchalanadi. Omuxta yemni saqlash jarayonida lipid oksidlanish mahsulotlari retinolning biologik faol shakllarini parchalanishga olib keladi. Masalan, 3 va 5 oy davomida baliq uni (50%) yuqori bo‘lgan olabaliq ozuqalarini saqlash davrida A vitaminining parchalanishi mos ravishda 75 va 83% ni tashkil qiladi. Karp yemlari bilan taqqoslaganda, dastlabki 3 oy davomida baliq uni kam (5- 20%) bo‘lgan yemlarda A vitaminini deyarli parchalanmagan. E va C vitaminlari bu tabiiy antioksidantlar bo‘lib, bu lipidlarning saqlanishiga va shuning uchun A vitaminining saqlanishiga hissa qo‘shadi, A vitaminining tez parchalanishini oldini olish uchun ozuqani qorong‘i joyda, past haroratda (8-9°C) qog‘oz qoplarda saqlash kerak.

D vitamini(kalsiyferol) - bu kalsiyferollar deb nomlangan moddalar guruhiga kirib, ular orasida D_2 (ergalsiyferol) va D, (xoletkalsiferol) amaliy ahamiyatga ega. Hayvonlar va o‘simliklar to‘qimalarida fiziologik nofaol nofa D provitaminlari mavjud bo‘lib, ular faqat ultrabinafsha nurlari ta'sirida faollashadi. D vitamini oqsil, uglevod mineral, ayniqsa kalsiy va fosfor, metabolizmga ta'sir qiladi. Antiraxit ta'sirga ega, u suyaklarda, ichak devorlarida mavjud. Xamirturush tarkibida baliq yog‘ida juda ko‘p. D vitamini oshqozon-ichak traktida kalsiyning so‘rilishini rag‘batlantiradi. Ushbu vitamin o‘simliklarda yo‘q. Uning manbai baliq yog‘i, xamirturush, yog‘ va ergokalsiferol spirtli eritmalari, sun'iy ravishda olingan sintetik xolikalsiferol kazein bilan birikmasi (videin Ds), butiloksitoluol bilan stabillashtirilgan sarg‘ish donachalar shaklidagi kukun moddani ifodalaydi. 1 gram D, videinda 225 ming IYE mavjud. Baliqning D vitaminiga bo‘lgan ehtiyoji 2-3 ming IYE/kg yemga teng.

Vitamin D ichakda kalsiy va fosfoming so‘rilishini rag‘batlantiradi, qonda ularning miqdorini saqlaydi, qondan suyak to‘qimalariga o‘tishni faollashtiradi, skeletning minerallanishiga bevosita ta'sir qiladi. Bundan tashqari, kalsiyferol magniyning so‘rilishini yaxshilaydi. Uning ta'sirini ko‘rsatkichi qondagi gidroksidi fosfataza darajasining oshishi hisoblanadi.

D vitaminining yetishmasligi mushak va suyak to‘qimalarida patologik o‘zgarishlarni keltirib chiqaradi. D vitamini yetishmasligi bilan kalsiy va fosforga ehtiyoj oshadi. D vitaminining haddan tashqari dozasidan qo‘rqmaslik kerak, chunki gipervitaminoz belgilari faqat me'yordan katta dozalarda oshib ketganda yuz beradi.

D vitaminlarining faolligi HB da ham o‘lchanadi. D vitaminiga har xil turdagi baliqlarning talabi 500-3000 HB/kg ozuqani tashkil etadi (2- jadvalga qarang).

2-jadval

Yetishtiriladigan asosiy baliq turlarining vitaminga bo‘lgan talabi 1 kg yemga hisobida

Vitaminlar	O‘lchash birligi	Losos	Ola baliq	Karp	Kanal laqqasi	Osetr simonlar
A (retinol)	IYE	2500	5000-20000	4000-20000	1000-2000	7500
D_3 (xolekalsiferol)	IYE	2400	2000-3000	1000-2000	500- 1000	3000
E (a-tokoferol)	mg	30	100-	100-	50	20-70

			500	500		
K (vikasol)	mg	10	10-20	3	10	2,5
C (askorbin kislotasi)	mg	100	200-400	50-100	30-200	500-1000
B: (tiamin)	mg	10	10-20	10	20	15-30
B_2(riboflavin)	mg	20	10-20	5-20	10	300
B_3 (pantoten kislotasi)	mg	40	50-90	42-50	30	50
B_4 (xolin)	mg	3000	500-1000	550-2000	-	500
B_5 (nikotin kislotasi)	mg	150	50-150	30-50	100	175
B_6 (piridoksip)	mg	10	10-20	5-20	3-5	8-12
B_7 (N.biotin)	mg	1	1-2	1,2	1	3
B_8 (inozitol)	mg	400	300-500	100-300	-	-
B_9 (foliy kislotasi)	mg	5	5-10	5	-	5
B_{12} (tsiankobalamin)	mg	0,02	0,02-0,05	0,02	-	-

Baliq yog‘i D vitaminining yaxshi manbaidir. Uni ishlatganda, saqlash muddati va yog‘ tarkibidagi vitamin miqdoriga e'tibor beriladi. Agar yem tarkibida oksidlangan yog‘lar, suyak bo‘lagi, bo‘r, mikro elementlarning sulfat tuzlari bo‘lsa, unda 1 oy ichida baliq yog‘idagi D vitamini butunlay parchalanib ketadi. Oziqa sanoatida Da premiks (jelatinli yoki jelatin- shakar-kraxmal bazasida turg‘unlashgan kukun shaklida ishlatiladi, bu uni oksidlanishdan saqlaydi).

E vitamini (tokoferol) bu tokoferollar guruhiga mansub bo‘lib, ular orasida maksimal fiziologik faollikka ega bo‘lgan tokoferol amaliy ahamiyatga ega. E vitamini baliqlarning reproduktiv mahsulotlarini rivojlanishini tartibga soladi. Uning yetishmasligi muskul distrofiyasi, naslchilik funksiyasi buzilishi, jigar yog‘ bosishi va nekrozini keltirib chiqaradi. E vitamini kukun yoki yog‘ eritmasi shaklida bo‘ladi. Bu guruch kepagi, beda, bug‘doy kepagi, paxta shroti va jmixida juda ko‘p. Lososimonlarda E vitaminiga bo‘lgan ehtiyoji 30-60 mg, karpda 10 mg/ kg ni tashkil qiladi.

E vitamin hujayra membranalarini barqarorlashtiradi, selen saqlagan oqsillarni oksidlanishdan himoya qiladi, to‘yinmagan yog‘ kislotalari, vitaminlar va boshqa moddalarning o‘z-o‘zini oksidlanishini susaytiradi, gonadalarning rivojlanishi va funksiyalarini tartibga soladi, antitanalar hosil bo‘lishini rag‘batlantiradi, organizmni oziqa tarkibidagi oksidlangan yog‘larning toksik ta'siridan himoya qiladi. E vitaminining ta'siri selen va oltingugurt o‘z ichiga olgan aminokislotalar-metionin, tsistin bilan o‘zaro bog‘liq. Birgalikda ishlatilganda antioksidant ta'siri kuchayadi va ularning qisman almashinuvi extimoli ortadi. E vitamini va boshqa antioksidantlar - A va C vitaminlari, karotinoidlar o‘rtasida o‘zaro bog‘liqlik mavjud. E vitaminining antioksidantlik xossalari nafaqat tirik organizmda namoyon bo‘ladi: u ozuqadagi yog‘larning oksidlanishini susaytiradi va baliq tanasiga kirganda mushaklarda to‘planib qoladi, bu esa bunday baliq filesi xar xil saqlash usullarida oksidlanishga turg‘unligi yanada yaxshilanadi.

E vitaminining yetishmasligi hujayra membranalarining yaxlitligini, gematopoez va ko‘payish, mushak distrofiyasi, semirib ketish va jigar nekrozining buzilishiga olib keladi. E. vitamini yetishmasligidagi birinchi reaksiyalardan biri bu

eritrotsitlar membranalarining mo‘rtlashishi va peroksidlar ta'sirida ularning gemolizining kuchayishi kuzatiladi. Hayvonlarning ratsioni a-tokoferol bilan boyitilganda, eritrotsitlar holati normallashadi. Qizil qon hujayralarining oksidlovchi moddalarga qarshiligi hayvonni E vitamini bilan ta'minlanganlik darajasini aniqlash uchun sinov testi sifatida ishlatiladi. Baliqning E vitamini bilan ta'minlanish ko‘rsatkichi jigardagi miqdori bo‘lishi mumkin. Gipervitaminoz bilan o‘sish sekinlashadi, ko‘payish buziladi, jigarda A vitaminining darajasi pasayadi.

Baliqning E vitaminiga bo‘lgan talabi ozuqaga kiritilgan yog miqdoriga, ayniqsa uning to‘yinmaganlik darajasiga bog‘liq. Ozuqadagi ko‘p miqdordagi to‘yinmagan yog‘ kislotalari E vitamini va selenga bo‘lgan talabni oshiradi. Yog‘ miqdori 30% va undan yuqori bo‘lgan losos baliqlari yem tarkibida E vitamini 500 mg/kg ga yetadi (2-jadvalga qarang). E vitamini ko‘p miqdordagi yog‘ kislotalarga talab yuqori bo‘lgan baliq hayotining o‘sha davrlarida muhim rol o‘ynaydi. Masalan, gonadlarning balog‘atga yetishishi uchun ota ona baliq to‘dalar o‘zlari o‘sishiga qaraganda ko‘proq tokoferol talab qilinadi.

Tarkibida E vitaminining yuqori miqdori bo‘lgan komponentlarga quyidagilar kiradi: quruq xlorella (18 mg%), guruch kepagi (6 mg%), havoda quritilgan yoki sun'iy ravishda quritilgan beda (4.1-8.1 mg%), arpa (3.6 mg%), pivo sanoati chiqindilar (2.7-3.0 mg%), paxta kunjarasi va shroti (2.0 mg%), bug‘doy kepagi (1.7 mg%), bug‘doy (1.1 mg%). Bug‘doy murtagi tokoferollarga, ayniqsa ularning moylariga boy. Baliq unida tokoferol 20-30 mg/kg ni tashkil qiladi. Baliq tanasida E vitaminini ko‘paytirish uchun uning sanoat preparatlari kukun yoki moy eritmasi shaklida premikslar tarkibiga kiritilib ishlatiladi.

K vitamini filoxinon va menanxinon vitaminlar guruhini birlashtiradi, tabiiy birikmalari odatda amalda qo‘llanilmaydi. Sanoat maqsadlarida K3- vikasol, suvda eriydigan kukun keng qo‘llaniladi. K vitamin (filloxinon) protrombin hosil bo‘lishiga yordam beradi. Antigemorragik xususiyatga ega. Yashil beda barglarida juda ko‘p.

K vitamini hujayrali nafas olishda ishtirok etadi, jigarda u qon ivishi uchun zarur bo‘lgan oqsillarni shakllantirishda katalizator rolini o‘ynaydi. Baliqlarda qon ivishida ishtirok etadigan plazma oqsillari protrombin va tromboplastin sintezi uchun K vitaminiga ehtiyoj bor. Issiq qonli hayvonlarda K vitaminiga bo‘lgan ehtiyoj mikrofloraning sintetik faolligi bilan ta'minlanadi, baliqlar ushbu vitaminga to‘liq muhtoj. Uning oziqada yetishmovchiligi qon ivishining sekinlashishi, to‘qimalarda qon ketishi, gematokritning pasayishi bilan namoyon bo‘ladi, ammo odatda baliqlarning o‘sish sur'ati va yashab qolishiga ta'sir qilmaydi. K vitaminining tarkibi milligrammda o‘lchanadi. K vitaminiga ehtiyoj baliq turiga qarab ozuqa hisobida 3-20 mg/kg oralig‘ida o‘zgaradi (2-jadvalga qarang).

Suvda eriydigan vitaminlar. Bunday vitaminlar guruhiga B. (tiamin), B: (riboflavin), B (pantotenik kislota). Ba (xolin), B, (nikotin kislota), B (piridoksin, adermin), B (siyanokobalamin), B (pangamik kislota). B (foliy kislotasi), C (askorbin kislota), N(biotin) vitaminlari kiradi. Ularning asosiy ahamiyati oraliq metabolizmga ta'siri qilishidadir. Suvda eriydigan vitarsinlar, yog‘da erlydigan vitareinlardan farqli o‘laroq, tanada to‘planisk qobiliyatiga ega emas va shuning

uchun uni oziqa bilan ta'minlash kerak. B vitaminleri (10 dan ortiq vituminlar) asosan o‘simliklar, bakteriyalar. xamirturush achitqilar tomonidan sintez qilinadi va oqsil, yog‘ va uglevod almashinuvining turli reaksiyalarini katalizlaydigan asosiy fermentlarning tarkibiy qismidir.

Vitamin B_1 (tiamin) - uning yetishmovchiligi bilan ishtaha pasayadi va vazn ortishi kamayadi. B_1 vitamini fermentlarning bir qismidir, glyukoza almashinuvida ishtirok etadi. B_1 vitaminining manbai xamirturush, 80 deg va sut mahsulotlari, baliq unidir. Yangi tutilgan baliqlar, qisqichbaqasimonlar va mollyuskalarda uchraydigan tiamin gidrolaza B_1 vitaminiga zararli ta'sir ko‘rsatadi. Baliqlarning ozuqadagi B_1 vitaminiga bo‘lgan ehtiyoj 50 - 80mg / kg ni tashkil etadi.

B_1 vitamini tanada erkin tiamin va uning fosforli efirlari shaklida mavjud bo‘ladi. Odatda turli xil organlar va to‘qimalarda B vitaminlari umumiy miqdorining 60-80% ni tashkil etadi. Asosiy shakli tiamin difosfat (TDF yoki kokarboksilaza), TDF uglevodlar almashinuvining asosiy reaksiyalarida oksidlovchi dekarboksilatsiyada, trikarboksilik kislota aylanishida va karbongidrat oksidlanishining pentoza fosfat yo‘llarida ishtirok etadigan uchta eng muhim fermentning kofermenti bo‘lib xizmat qiladi.

B_1 vitamin balansining buzilishi asab tizimini glyukozadan samarali foydalanish qobiliyatidan mahrum qiladi va shu bilan birga asab to‘qimalariga zaharli ta'sir ko‘rsatadigan oraliq metabolik mahsulotlarni (pirouzum va sut kislotalari) to‘planishiga imkon yaratadi. B vitaminlari yetishmayotgan baliqlarda muvofiqlashtirish buziladi va ozuqa iste'moli kamayadi. Ushbu hodisalar ko‘pincha yirtqich baliqlarni yetishtirishda kuzatiladi. Ozuqa xamirturushi tiaminning yaxshi manbai hisoblanadi.

B_2 vitamini (riboflavin) degidrogenatsiya reaksiyalarini amalga oshiradi, flavin fermentlarining tarkibiy qismi hisoblanadi. Riboflavin uglevod almashinuvida ishtirok etadi, jigarda glikogen hosil bo‘lishiga yordam beradi. Bu urnuman protein almashinuvi bilan bog‘liq. Yem tarkibidagi oqsil miqdori yuqori bo‘lsa, riboflavinga bo‘lgan ehtiyoj ortadi (masalan, B vitaminlari yo‘qligida triptofan tanada so‘rilmaydi). Bu vitamin degidrogenlanish reaktsiyalarida, uglevod almashinuvida, oqsil almashinuvida, ko‘rish mexanizmida qatnashadi. Go‘sht, baliq unida, ozuqa xamirturushida dukkakli o‘simliklarning unlarida, bug‘doy kepaklarida uchraydi.

Yangi go‘sht un maxsulotlardan tayyorlangan Farsh olabaliq ratsionida riboflavin yetarli mavjud, ammo quruq granulalangan omuxta yemida By vitamin qo‘shilishi kerak. Riboflavinning ortiqcha miqdori xavfli emas, chunki u tezda tanadan chiqariladi. Riboflavinning yaxshi manbai bu turli xil substratlarda olingan yem xamirturushidir. Vitamin B2 uning yetishmasligi bilan oksidlanish-qaytarilish jarayonlari, umumiy metabolizm buziladi, ozuqaviy moddalardan foydalanish yomonlashadi. Ozuqadagi miqdori losos baliqlariga 30-60, karpga 4-10 mg/kg bo‘lishi kerak.

B_3 vitamini (pantoten kislota) hujayra almashinuvida katta ahamiyatga ega. Odatda B, vitaminlari tuzlar shaklida, kislorodga nisbatan barqaror va premikslar tarkibiga qo‘shish orqali qo‘llaniladi. Yuqori haroratlarda tezda yomonlashadi.

Pantotenik kislota yetishmovchiligi vitamin yetishmasligining eng keng tarqalgan turi hisoblanadi. U ozuqa xamirturushida, go‘sht va suyak, baliq va o‘t o‘tida, kungaboqar unida, bug‘doy kepagi va boshqa ozuqalarda uchraydi. Ozuqa xamirturushida 60- 80 mg/kg B, vitamini mavjud. B, vitamin tanqisligi bilan baliq massasining pasayishi qayd etiladi i va baliq vaznining oshishi uchun ozuqa xarajatlari oshadi, u xujayra metabolizmida ishtirok etadi va ayniqsa sanoat baliq yetishtirishda zarurdir. Ozuq tatarkibidagi B, vitamining miqdori lososssimonlar uchun 130-200, karplar uchun-30-42 mg/kg ozuqa.

B_4 vitamini (xolin) tanadagi yog‘ almashinuvini amalga oshirish uchun zarurdir. Xolin hujayra tuzilmalarining tarkibiga kiruvchi fosfolipidlarning (letsitin) ajralmas qismi bo‘lib metillanish reaksiyalarida metil guruhlarini ta'minlaydi. Gidroxlorid tuzi, xolin-xolinxloridi amaliy ahamiyatga ega. Ushbu modda atmosfera isishi va kislorod bilan oksidlanishiga chidamli, shuning uchun maxsus choralarni talab qilmaydi. Xolin xloridining 70% eritmasi ishlab chiqariladi, u premikslarga qo‘shiladi. Vitamin B, yog‘li jigar infiltratsiyasini oldini oladi, fosfatidlarning sinteziga va jigar yog‘larining parchalanishiga yordam beradi. Xamirturush, baliq unida, yog‘da ko‘p miqdorda mavjud. Baliq yetishtirish amaliyotida xolin-xolin xloridning xlorid tuzi 70% eritmasi shaklida ishlatiladi

B_5 vitamini (nikotin kislota) insulin ta'sirini faollashtiradi, natijada glikogen metabolizmi va shakarni iste'mol qilish yaxshilanadi. Nikotinamid qonda xolesterin miqdoriga ta'sir qiladi va suv-tuz metabolizmini me'yorlashtiradi. Boshqa vitaminlar orasida u atrof-muhit omillariga eng yuqori qarshiligi bilan ajralib turadi. Vitamin B_5 yetishmovchiligida oziga hazm qilish traktining disfunksiyasiga ta'sir qiladi, insulin ta'sirini faollashtiradi, uglevod almashinuvida ishtirok etadi. B_5. vitaminining manbai pivo xamirturushlari, bug‘doy kepagi, baliq va go‘sht va suyak unlari, kungaboqar unlari va boshqalar, shu bilan birga ballq ozaqasiga sintetik nikotin kislota qo‘shiladi. B_5 vitamini yetishmovchiligi bilan o‘lim darajasi oshadi, ishtahani pasayishi va o‘sish sur'ati, ichak shishishi, konvulsiyalar, fotofobiya va boshqalar kuzatiladi. Lososssimoulards B vitarniniga bo‘lgan talab 100-450, karp baliqlari quruq azzaqalarida 50-200 mg/kg ni tashkil etadi.

Vitamin B_6 (piridoksin) protein almashinuvida, xususan, aminokislotalarning transaminatsiyasi, dekarboksillanishi va metillanishida faol ishtirok etadi. Piridoksin almashmaydigan yog‘ kislotalarini o‘zlashtirilishini yaxshilaydigan jarayonlarda ishtirok etadi. Baliqni sun'iy sharoitda yetishtirishda ozuqa tarkibidagi oqsil miqdori oshishi bilan piridoksinga bo‘lgan ehtiyoj keskin oshadi. Be vitaminining maksimal miqdori baliqlarning intensiv o‘sishi davrida talab qilinadi. Piridoksin granulalangan yem tarkibiga premiks tarkibidagi miqdori bilan qo‘shiladi. Vitamin Be yetishmovchiligi baliq terisiga zarar yetkazadi, oqsil va yog almashinuvida qatnashadi, ayniqsa yuqori proteinli ozuqada sanoat baliqlari yetishtirish uchun zarurdir. Xamirturush, kungaboqar jmixida, bug‘doy va javdar kepagi, o‘simlik unida beda uni, bug‘doy kepagi tarkibida ko‘p miqdorda mavjud. Peridoksin yetishmovchiligi bilan o‘lim darajasi oshadi, ishtaha va o‘sishi pasayadi, asab tizimining buzilishi, tutqanoqlar, anemiya, qorin bo‘shlig‘ining suv yig‘ilishi

va boshqalar kuzatiladi. Lososssimonlarda B. vitaminiga bo‘lgan talab 15-27, karp baliqlarida quruq ozuqalarida - 10- 20 mg/kg ni tashkil etadi.

Vitamin H (B_7. biotin) bu karboksil reaksiyalami katalizlaydigan, lipidlar, aminokislotalar, uglevodlar va nuklein kislotalarning biosintezida ishtirok etadigan fermentlarning tarkibiy qismiga kiradi, shuningdek umumiy metabolizmda qatnashadi va karboksilazlar hosil bo‘lishida ishtirok etadigan va uglevod, yog‘ va oqsil almashinuvida muhim rol o‘ynaydigan karbonat angidrid tashuvchisi bo‘lgan muhim koyenzimdir. H vitaminining yetishmovchiligi baliqlarning o‘sish sur'atini sekinlashtiradi, ko‘kimtir shilimshiq paydo bo‘lib, mushak atrofiyasi, ichakning shikastlanishiga va hatto o‘limga olib keladi.

U ozuqa xamirturushida, don ekinlarida baliq uni, quruq sut va boshqa mahsulotlarda juda ko‘p uchraydi. 1 kg baliq uni tarkibida 0,3-0,5 mg H vitamini mavjud. Ozuqa xamirturushi bu vitaminga ayniqsa boy (1,0-1,2 mg /kg). Lososssimon va karp baliqlarida H. vitaminiga bo‘lgan talab quruq ozuqada 4-5 mg/kgni tashkil etadi.

B_8 vitamini (inozitol) tirik to‘qimalarning tarkibiy qismidir. Lipotrop funksiyaga ega. Fosfolipidlarning tarkibiy qismi bo‘lgan inczitol xolin bilan birgalikda lipid metabolizmini tartibga solishda ishtirok etadi, jigarning yog‘ degeneratsiyasini oldini oladi va jigardan ortiqcha yog‘larni olib tashlashga yordam beradi.

Vitamin B_9 (folly kislotasi) gemoglobin sintezini va eritrotsitlarning o‘sishini rag‘batlantiradi, oqsillarning sintezini katalizlaydi va xolin metabolizmida ishtirok etadi. Folik kislota yetishmovchiligi baliqlarning o‘sishini sekinlashtiradi va ularning o‘limini oshiradi. Vitamin B9 losos baliqlari ozuqasi tarkibiga qo‘shilishi shart. B, vitaminining omuxta yem tarkibida bir muncha ortiqcha bo‘lishi foydali hisoblanadi, chunki ozuqada bu organizmning xolinga bo‘lgan ehtiyojini kamaytiradi va jigarda yog‘larning to‘planishini oldini oladi. Vitamin B, gemopoezni boshqarishda ishtirok etadi, gemoglobin sintezini, eritrotsitlar o‘sishini va oqsil sintezini rag‘batlantiradi. U xamirturush, soya unidan, go‘sht va suyak unidan, o‘t unida, bug‘doy, javdar va boshqa oziq-ovqat mahsulotlarida uchraydi. B vitaminining yetishmasligi o‘limning ko‘payishiga, o‘sish sur'atlarining pasayishiga, anemiya va dum suyagining mo‘rtligiga sabab bo‘ladi. Bu vitamin uchun losos va karp baliqlari ozuqasidagi me'yor 5-10 mg/kg ozuqani tashkil qiladi.

Vitamin B_{12} (tsianokobalamin) foliy kislotasi bilan birgalikda gemoglobin sintezida ishtirok etadi, xolin va metionin bilan birgalikda lipotrop ta'sir ko‘rsatadi. Tsianokobalamin nuklein kislotalarni sintez qilishda, yog‘, uglevodlar va aminokislotalar metabolizmida ishtirok etadi. Tanqisligi bilan gemopoyez jarayoni buziladi, yomon sifatli anemiya rivojlanishiga olib keladi, baliqlarda vazn ortishi kechikadi, oziqa iste'molini, qondagi gemoglobin miqdorini kamaytiradi va eritrotsitlarga halokatli ta'sir ko‘rsatadi. Ayniqsa chavoqlarda o‘sish tezligini, ishtahani, qizil qon tanachalari va gemoglobin sonini pasaytiradi. Vitamin manbai hayvon ozuqasi: quruq sut, xamirturush, qon, baliq uni, go‘sht va suyak uni va boshqa mahsulotlarida hisoblanadi. Quruq granulali ozuqa va premikslar tarkibiga

kiritiladi. Bu vitaminga losos baliqlari ozuqasidagi me'yor 0,01- 0,5, karp-0,01-0,03 mg/kg ni tashkil etadi.

Vitamin B_{15} (pangamik kislota) u lipotrop ta'sirga ega, to‘qima hujayralarida kislorod almashinuvini faollashtiradi, metionin aminokislota o‘mini bosadi. Turli o‘simliklarning urug‘larida mavjud.

C vitamini (askorbin kislotasi) metabolik reaksiyalarda, xususan, okasdlanish qaytarilish jarayonlarida faol ishtirok etadi, antioksidant xususiyatlarga ega. C vitamini kortikosteroid gormonlar sinteriga, kollagen hosil bo‘lishiga yordam beradi, asab tizimining normal faoliyati ta'minlaydi, uglevod metabolizmiga ta'sir qiladi va baliqdagi protein metabolizmining individual bosqichlarini nazorat qiladi.

C vitamini yetishmasligining xarakterli belgilari: kollagen hosil bo‘lishi jarayonini izdan chiqishi natijasida umurtqa pog‘onasi qiyshayishi (lordoz, skolioz); ichki organlar, ko‘zlar va terida qon ketish; gemoglobinning pasayishi, qizil qon tanachalari soni, jabra qoplamalarining deformatsiyasi (qisqarishi), suzgichlar eroziyasi, o‘sish sur'ati, ishtahaning pasayishi va boshqalar sodir boladi.

Shuni ta'kidlash kerakki, askorbin kislotasi suvda eriydigan boshqa vitaminlar orasida ayniqsa beqaror. Shunday qilib, C vitamini yorug‘lik, kislorod, harorat ko‘tarilishi ta'sirida, shuningdek donador ozuqa tayyorlashda osonlikcha parchalanib ketadi. Ekstruziya yo‘li bilan ozuqa ishlab chiqarishda askorbin kislotasi ayniqsa parchalanishga moyil bo‘ladi. C vitamini tsingaga qarshi xususiyatga ega, deyarli barcha metabolik reaksiyalarda qatnashadi. O‘simlik va ignabargli un tarkibiga kiradi. C vitaminining yetishmasligi baliqlarning o‘sishi va rivojlanishida ko‘plab buzilishlarni, o‘limning ko‘payishini keltirib chiqaradi. Pichan va o‘t unida, quruq yog‘da C vitamini juda ko‘p. Lososimonlar va karp baliqlarida C vitaminiga bo‘lgan talab quruq ozuqa tarkibida 200-500 mg/kg tashkil qiladi.

Xulosa qilib shuni aytish mumkinki, ularning doimiy tanqisligi ozuqa moddalarining sintezining buzilishiga olib keladi, bu esa metabolizmni buzadi va oxir-oqibat baliq vaznining pasayishiga, o‘sish uchun ozuqa xarajatlarining ko‘payishiga, shuningdek turli xil tutqin sharoitida yetishtirilgan baliqlarning kasalliklarini rivojlanishiga olib keladi

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MUZIKANIŃ INSAN RUWXIYATINA TÁSIRI

Annotatsiya*: Bul maqalada muzıka kórkem óneriniń insan kamalǵa keliwinde tutqan ornı, ótmishte hám házirgi kúnde xalqımızdıń ruwxıy dárejesin arttırıwdaǵı áhmieti jáne jańa Ózbekstannıń sociallıq rawajlanıwında muzıka kórkem óneri jetekshi faktorlardan biri ekenligi haqqında sóz baradı.*

Gilt sózler: *muzika, ses, termin, nama, tezkor musiqa, duwtar, asbap, baqsı.*

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THE EFFECT OF MUSIC ON THE HUMAN PSYCHOLOGY

Abstract*: This article examines the role of musical art in human development, its significance in raising the spiritual level of our people in the past and present, and the leading role of musical art in the social development of the new Uzbekistan is one of the factors.*

Keywords*: music, sound, term, melody, fast music, dutor, instrument, bakhshi.*

Insannıń psixik hám ruwxıy kámalı haqqında sóyler ekenbiz, álbette bul maqsetke muzıka kórkem ónerisiz erisip bolmaydı. Xalqımız turmısında muzıka burinnan kútá úlken orın tutıp keledi. Samarqand qasındaǵı Mo'minabad awılınan 3 mıń 300 jıl burın suyekten jasalǵan nay asbabı tabılǵanı da sonnan dárek beredi. Muzıka sesleri qaysı xalıq yamasa millet wákili tárepinen atqarganina qaramastan, eń iygilikli, joqarı hám názik insaniy bildiredi. Bárshemizge ayan, nama -qosıqqa, kórkem ónerge muhabbat, muzıka mádeniyatı xalqımızda balalıqtan baslap, shańaraq sharayatında qáliplesedi. Úyinde duwtar yamasa dap asbabı bolmaǵan, muzıkanıń janbaǵıshlaytuǵın tásirin óz turmısında sezbesten jasaytuǵın adam jurtımızda bolmasa kerek. Muzıka sózi bizge áyyemgi kitaplar, atap aytqanda, arab tiline awdarma etilgen grek qollanbaları arqalı kirip kelgen. Muzıka kórkem óneri názik hám bolıp, turmısımızdı mazmunli bolıwında, keypiyatimizdi kóteriwde úlken orın tutadı. Aytip otiw kerek soni, muzıka kórkem óneri túrli janrlardan ibarat, ápiwayı sesler uyǵınlıǵı, qosıqtan baslanıp, úlken quramalı dóretpelerge shekem, yaǵnıy konsert, simfoniya,opera, balet hám basqalardan quram tapqan.

Muzıkanıń isletiliwi reń-beren, ol spektakllarda, kinofilmlerdegi túrli obrazlardı kúshli aytıwda, tábiyaat gózzallıǵın ańlatıwda, insan peyilin jaqtılandıriwda ayriqsha orın tutadı, adam ruxini tásir kúshi kútá úlken, uzaq waqıtqa shekem yadda saqlanadı.

Muzıkanıń qudıreti haqqında sonday ráwiyat bar. Abu Nasr Farobiy saparga shiqqan waqtinda Rim patshası onı aldina shaqirip: “Seni muzıka bilgiri dep atir, qáne óneringni kórset” deydi. Sonda Forobiy qolındaǵı sazın shertedi. Saray xalqi birin-ketin orınlarınnan turıp oyinga tusedi. Azmaz waqıt ótip, muzıkant nama sesler uyǵınlıǵıın ózgertedi. Sonda ortada tınıshlıq keshedi. Otırǵanlar tereń oyga batip, júz-kózlerinde qapalıq payda boladi. Úshinshi nama esitilgende bolsa tıńlawshılar kozin jumip uyqiga ketedi. Tap sol waqıtta Forobiy saraydan shigip, óz jolına tuwri ketedi. Nama insandı tınıshlantıradı, kewiline janbaǵıshlaytuǵın sezimler alıp kiredi.

Alisher Navaiy óz dáwirinde muzıkaǵa munasebet bildirip, bir shıǵarmasında sonday degen: “Tórt júz shıpakerdi shaqirin, tórt júz shamdi jaǵıp qoyın, biraq olardıń hesh biri insan kewiline muzıka beretuǵın harakterdi baǵısh ete almasın, muzıka siyaqli jaqtı shasha almaydı”. Muzıka kórkem óneri turmıstı biliw hám adamlardı tárbiyalawdıń qúdiretli qurali bolıp tabıladı. Biraq onıń biliw hám tárbiyalaw daǵı xızmet dárejesi adamga estetik, kórkem tárepten tásir etiw kúshine baylanıslı.

Bilgenimizdey, kámal perzent tárbiyalaw ozal-ozaldan hár bir ate -ananing eń ullı maqseti bolıp kelgen. Perzentlerge jaslıq dáwirleridenaq berilgen jetilisken tárbiya onıń keleshek turmısı tiykarı esaplanadı. Perzent tárbiyasında muzıkalıq tárbiyanıń áhmiyeti júdá salmaqlı bolıp tabıladı. Bul haqqında ullı Shıǵıs oqımıslıları Abu Nasr Farobiy, Abu Ali ibn Sino, Alisher Navaiy babalarimiz da bir qatar pikirler bildirip ótken. Atap aytqanda, Abu Ali ibn Sino babamız muzıkanıń tárbiyalıq áhmiyeti haqqında aytqan tómendegi sózleri tereń mániske iye:”Balanı uyqlatiw ushın oǵan eki zattı qollanıw kerek. Biri, balanı az-azdan shayqaltıw, ekinshisi bolsa, muzıka hám háyyiw aytiw bolıp tabıladı. Sol ekewin qabıllaw muǵdarına qaray balanıń denesi menen dene shınıqtırıwǵa hám sezimi menen muzıkaǵa bolǵan uqıpı payda boldi”.

Watanlasımız Abu Nasr Farobiyning bul jónindegi pikiri de itibarlı bolıp tabıladı :”Muzıka ilmi usı mánisten alıp qaraǵanda paydaliligı, ol óz teń salmaqlılıgin joǵaltqan adamlardin xulqin tártipke keltiredi, jetiliskenlikke jetpegen xulqin jetilisken etedi hám teń salmaqlılıqta bolǵan adamlar xulqining teń salmaqlılıqın saqlap turadı. Bul ılım deneniń salamatlıǵı ushın da paydalı bolıp tabıladı. Sebebi dene kesel bolsa, rux soladi, dene tosıqqa ushrasa, ruxlanıw da tosıqqa ushraydı. Sol sebepli muzıkanıń tásiri menen ruxti dawalaw járdeminde dene tawır boladii. Sol orında muzıka arqalı balanıń rawajlanıwına tásir etiw tuwrısındaǵı jáhán tájiriybelerinen birin keltirip o'tsem. Bilgenimizdey Amerika rawajlanǵan mámleketler qatarına kiredi. Amerikada balaǵa til úyretiwde ajayıp usıldan paydalanar eken. Bul usıl “Tezkor muzıka” dep atalıp, bul arqalı balaǵa til uyretiledi eken. Bunda balaǵa uyretiliwi kerek bolǵan tekst shox muzıka astında oqıladı. Muzıka sonshalıqli shox, hátte onı esitken kópshilik úlkenler de oyinga

túsip ketedi. Tekst sózleri bolsa eriksiz usı muzıka menen ańsat yadda qaladı. Eger balanı yadlawǵa májbúr etilgeninde ol bunı qıyınshılıq menen atqarǵan bolar edi. Búgingi kúnde jurtımızda qabıl etilgen kóplegen qararlar, húkimler, ótkerilip atırǵan xalıq aralıq muzıkalıq festivallar arqalı da jaslardı muzıkalıq sáykeslik formasında tárbiyalawǵa úlken itibar qaratılmaqta.

El basshısımız tárepinen “Jaslardı ruwxıy kóteriw hám olardıń bos waqıtların mazmunli shólkemlestiriw” boyınsha ilgeri surilgen 5 baslama birinshi baslamasinda da muzıkalıq tárbiyanıń ornın bilgen halda jaslardıń muzıkaǵa bolǵan qızıǵıwshılıqların asırıwǵa itibar qaratılmaqta. Sonıń menen birge, jurtımızda ótkerilip atırǵan xalıq aralıq festivallar da perzentlerimizde mıymankeshlik hám húrmet pazıyletlerin tárbiyalamaqda.Bala saw hám hár tárepleme bárkámal qáliplesiwi ushın ol jaǵdayda oqıwǵa umtılıw sezimin jetilistiriw menen sheklenip bolmaydı. Olar sanasında kásip-oner hám miynet ko'nlikpelerdi payda etiw uliwmaliq bilimlerdi milliy qadiriyatlar tiykarlangan ulli manawiy paziletlerdi tarbiyalaw menen oz watani ham xalqina bolgan sadiqliqti payda etiw atirapqa bolgan itibarliligin tarbiyalaw kerek.

Muzika mádeniy turmısımızda keń orın iyelegen bolıp, insan shaxsın rawajlandırıwda úlken áhmiyetke iye bolgan kórkem óner túri esaplanadı. Hár bir insannıń ruwxıy qáliplesiwinde shańaraq, mektep hám onı qorshap turǵan jámiettiń áhmiyeti úlken. Sebebi insannıń insanıylıq qásiyetleri: adamgershilik, miyrim-shápáát, muhabbat, keshirimlilik sıyaqlı pazıyletler jámiyette qáliplesedi. Jas áwladtı kamalǵa jetkeriwde tárbiyanıń kóplegen faktorları qatarında muzika tárbiyası ayrıqsha orın tutadı. Muzika tárbiyası gózzallıq tárbiyasınıń tiykarǵı hám quramalı táreplerinen biri bolıp, insandı átirapındaǵı gózzallıqlardı durıs ańlawǵa hám qádirlewge úyretedi. Muzika insan ruwxiyatına kúshli tásir kórsetiw imkaniyatına iye bolıp, oni gózzallıq álemine alıp kiriw hám ádep-ikramlılıq ideyalıq tárbiyalawdıń áhmiyetli quralı esaplanadı. Muzıka insandı joqarı talǵam menen qurallandıradı hám oǵan ruwxıy azıq beredi.

Mektepte muzika oqitiwdin tiykarǵı maqseti oqıwshılarda muzika mádeniyatın qáliplestiriw, olardı zaman talabına juwap bere alatuǵın bárkamal insan etip jetilistiriw. Mektepte muzika sabaqların oqitiwdin tiykargı wazıypaları tómendegilerden ibarat:

-oqıwshılardıń muzıka kórkem ónerine bolǵan qızıǵıwshılıǵın hám mehir-muhabbatın arttırıw; - muzıkalıq jumıslar procesinde oqıwshılardıń muzıkalıq qábiletleri muzıkalıq;

-oqıwı, dawısı, dıqqatı hám dóretiwshilik sezimlerin ósiriw; - muzıkalıq shıǵarmalardıń kórkem-ideyalıq mazmunı arqalı ádep-ikramlılıq estetikalıq ruwxta

-tárbiyalaw;

- muzika sabaqlarında oqıwshılardı kásip-ónerge baǵdarlaw, miynetke muhabbat;

-Watanǵa muhabbat, úlkenlerge húrmet sezimlerin qáliplestiriw.

Bul maqset hám wazıypalardı ámelge asırıw oqıtıwshınıń kásiplik hám pedagogikalıq sheberligine baylanıslı. Hár qanday kórkem óner ǵayratkeri de, mektepte muzıka mádeniyatı sabaqların alıp bara almaydı. Buniń ushin muzika

muǵallimi pedagogika, psixologiya, balalar fiziologiyası, muzika oqitiw hám metodikası, muzika kásiplik pánlerin puqta ózlestirgen boliwi kerek. Muzıka muǵallimi óz kásibine hám balalarǵa mehir qoyǵan, joqarı mádeniyatlı, keń dúnyaǵa kózqarasqa iye bolǵan shaxs bolıwı kerek.

Danıshpan xalqımız ázelden nama hám qosıqtıń bala qálbine tez jol taba alıwı, onıń ruwxıylıqqa unamlı tásir kórsetiwi, jaqsı minez-qulıq hám ádep-ikramlılıq, miyrim-shápáát, sabır-taqat, úlkenlerge húrmet pazıyletlerin muzika arqalı quraytuǵınına ańlap jetken. Shańaraqta perzentin qosıq aytıwǵa, saz shertiwge úyretiw ata-ananıń ármanı esaplangan. Bala dáslepki muzika menen ana háyyiwi arqalı tanısıp, muzikadan ómirinshe azıq aladı. Sebebi bala ele júriwdi, sóylewdi bilmesten turip, muzika esitip, hár túrli qol háreketleri menen muzikaga múnásibetin bildiredi. Sonin ushin áyyemnen hárbir shanaraqta muzika ásbaplarınan duwtar, doira, rubob saqlaw dástúr bolip qalgan. Muzikadan azıq alıw ushın bolsa, insan taza júrek iesi, joqarı mánawiyatlı, gózzallıqtı seze alatuǵın insan bolıwı kerek. "Hár qanday jámiettiń keleshegi jaslar eken, keleshegi ullı mámlekettiń qurılıwı, olardı qanday tárbiya alıwına baylanıslı. Sebebi ruwxıy jaqtan qúdiretli mámleket, sociallıq jaqtan kúshli boladı," – dep óz sózlerinde atap ótedi birinshi Prezidentimiz I.A.Karimov.

Xalqımızdıń keleshegi ǵárezsiz Ózbekstannıń keleshegi kóp jaǵınan muǵallimge, onıń dúnyaǵa kózqarasına, tayarlıǵına, pidayılıǵına, jas ávladtı oqıtıw hám tárbiyalaw isine bolǵan múnásibetine baylanıslı. Bolajaq muzıka muǵallimleriniń kásiplik tayarlıǵın kúsheytiw, qánigeliklerge tiyisli pánlerdi oqıtıw hám pedagogikalıq sheberlikti arttırıw iyelew, teoriyalıq bilimlerin ámeliyatta qollanıwǵa úyretiw búgingi kúnniń talabı. Úzliksiz pedagogikalıq tálim sistemasınıń ámelge asırılıwı múnásibeti menen oqıtıwshılardı qánigeligin arttırıw hám olardı qayta tayarlaw jumısları dıqqat orayında. Muǵallimshilik kásibi maqtanishli, biraq júdá quramalı kásip bolıp, muǵallim muzika teoriyasın iyelew menen birge, balalardı súyiwi, pedagogikalıq ámeliyattı da ótken boliwi kerek. Sebebi, mektep turmısındaǵı pedagogikalıq process júdá hár qıylı. Oqıtıwshı kásiplik qánigeligin puqta ielegen bolıwı, balalar dawısına óziniń dawısın sazlap ayta alıwı, atqarıwshılıq sheberligine iye bolıwı, klasstan tısqarı dógereklerge oqıwshılardı tartıw menen hár qıylı tańlawlarda, ilajlarda aktiv qatnasıwı kerek atqarıwshısı hám rejissyorı bolıwı menen birge zaman menen teń qádem taslawı úlken áhmietke ie. Muǵallimshilik kásibin ielew ushın álbette kásiplik qábiletler menen birge fizikalıq hám ruwxıy salamat bolıwı kerek. Den saw adam degende tek ǵana fizikalıq salamatlıqtı emes, al salamat ruwxıy pazıyletlerdi, shıǵısqa tán ádep-ikramlılıq hám ulıwma insanıylıq ideyalar ruwxında kamalǵa kelgen insandı túsinemiz." Ullı pedagog A.Avloniy bilay degen edi:- "Tárbiyalawshılar táwip. misli, táwip nawqastıń denesindegi kesellikti emlegeni kibi, muǵallim de balanı muzika arqalı, aqılıy rawajlanıwına, dıqqat orayına tásir etip, olarda páklik, hújdan, sadıqlıq, mehir, úlkenlerge húrmet, Watanǵa muhabbat sıyaqlı sezimlerdi tárbiyalaydı." "Tárbiya biz ushın ya ómir ya ólim, ya qáwip-qáter. YA saadat-ya apat máselesi bolıp tabıladı" dep jazǵan edi. Ullı oyshıl shayır A. Nawayı óz dóretpelerinde muzika tárbiyasınıń sırların tereń úyrenip, bılay dedi: "Muzıka

jámietlik turmıstıń áhmiнetli negizi bolıp tabıladı. Tek ǵana muzıka adamnıń qálbine tınıqlıq, sáykeslik hám óz-ózin...ózinen ganoat sezimin alıp kiredi hám onı baxıtlı etedi." Farabiy pikirinshe: "Muzika - biybaha kórkem óner, jaqsılıqqa jeteklewshi kúsh." "Kim ilim hikmet úyrenbekshi bolsa bolsa, aldı menen ózi ruwxıy kámillikke erisiwi lazım"-deydi Abu Rayxan Beruniy. Solay eken, házirgi dáwirde, muzıka muǵalliminen juwapkershilik, pánge jańasha jantasıw onıń metodologiyasın tereń úyreniwdi talap etedi. Ulıwma bilim beriw mekteplerde bolsa, muzika mádeniyatı sabaqlarınıń tiykargı maqseti, oqıwshılarda muzikaga qızıgıwshılıq oyatıw quralında muzika mádeniyatın qáliplestiriw. Zerli nama hám ún tásirinde insan jaqsılıqqa umtılıw, gózzallıqtı saqlaw, ana tábiyatqa, ana Watanǵa muhabbat sezimlerin qáliplestirip, ruwxiy dúnyasın bayıtadı.

Dáslepki muzika úlgileri de insannıń miynet iskerligi tiykarında kelip shiqqan. Bunnan tısqarı hár qıylı máresimlerde de muzıka jetekshi orında bolǵan. Házir de hesh bir úrp-ádet hám máresimlerimiz muzıka seslerisiz ótpeydi. Mısal ushın toy máresimleri, úrp-ádet hám dástúrler, túrli bayramlarımız muzıka seslerisiz ótpeydi.

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TAKRORIY EKIN SIFATIDA SHOLG‘OM YETISHTIRISHNING MAQBUL MUDDATLARINI O‘RGANISH

Annotatsiya. *Respublikamizning ob-havo, tuproq sharoitiga qarab har bir viloyat uchun yangi tumanlashtirilgan, mo‘l hosilli, sifat ko‘rsatkichlari yuqori bo‘lgan mexanizmlar yordamida ishlov berishga moslashgan, har bir ekish muddati uchun mos navlarni to‘g‘ri tanlash lozim. Sholg‘omning ahamiyati, tarqalishi, biologik xususiyatlari va ekish muddatlarini yoritishga qaratilgan.*

Kalit so‘zlar: *Sholg‘om, hosildorlik, Muyassar nav, pishish, takroriy ekin , agrotexnik tadbirlar ,meva sifati, kimyoviy tarkibi.*

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STUDYING THE OPTIMAL TIMING OF GROWING TURNIPS AS A REPEAT CROP

Annotation: *Depending on the weather and soil conditions of our republic, it is necessary to correctly choose varieties suitable for each planting period, adapted to processing with the help of mechanisms with high yield, abundant yield, and suitable for each region. It is aimed at clarifying the importance, distribution, biological characteristics and planting dates of turnips.*

Keywords: *Turnip, yield, Muyassar variety, ripening, repeated crop, agrotechnical measures, fruit quality, chemical composition.*

Kirish. Eramizdan 2000 yil muqaddam ma’lum bo‘lgan turp va sholg‘omning hozirgi qiyofasi butunlay boshqachadir. O‘tmishda yovvoyi holda O‘rta yer dengizining janubiy qirg‘oqlarida o‘sgan bu o‘simlikning tarkibida faqat 1% ga yaqin qand moddasi bo‘lib, uning ildizmevasining vazni 100 g dan ortmagan. Turp va sholg‘om hozirgi navlarining hosili juda yirik, tarkibi esa serqand. Yuqoridagilarni hisobga olib ta’kidlash mumkinki turp va sholg‘om ahamiyati va kimeviy tarkibi jixatdan sabzavotlar dunyosida muxim o‘rinni egallab, aholiga yangi yetishtirilgan, saqlagan va qayta ishlangan holda yetkazib beriladi.

Turp va sholg‘om oziq-ovqat sifatida yil davomida ishlatiladi. Bahorda ovqatga yosh barglari va ildizlari, yozda va kuzda ildizmevasi saqlanadi. Vinegretlar, salatlar, garnirlar, борщ, marinadlar tayyorlashda turp va sholg‘omdan

foydalaniladi. Turp va sholg‘om ist’emol etilsa qon bosimini pasaytiradi, yog‘ almashinishi yaxshilanadi, aterosklerozni o‘sishini to‘xtatadi, osh qozon faoliyatini yaxshilaydi.

Tadqiqot uslublari va materiallari.

Takroriy ekin sifatida sholg‘om yetishtirishni maqbul mudatlarida sholg‘omni Muyassar navini 2 muddatda ekib yuqori xosil olish ko‘rsatkichlarini dala sharoitida o‘rganishdan iboratdir.

Sholg‘omning **“**Muyassar” navining xarakteristikasi, xosildorligi, saqlash turlari, kasallik va zararkunandalari va sifat ko‘rsatkichlari bo‘lib xizmat qildi. Tajriba tizimida asosan takroriy ekin sifatida sholg‘omning “Muyassar” navini ikki mudatda ekib yetishtirildi. Birinchi mudatda 1-avgust, ikkinchi mudati 10-avgust qilib belgilandi. Tajriba tizimida 2 ta variant va 4 ta qaytariqdan iborat bo‘lib qator oralari 70 sm uzunligi 50 metrni,tajribada sholg‘omning Muyassar navi ekildi.

Tajribadagi keyingi agrotexnik tadbirlar o‘lchash va sanash ishlari dasturida ko‘rsatilganidek O‘zPITI ning uslubiy qo‘llanmasiga asosan olib borildi.

Tadqiqot natijalari va ularning muhokamasi.

Qo‘yilgan maqsadlarni amalga oshirish uchun sholg‘omning Muyassar navini 1-avgust va 10-avgust oylarida ekib yuqori xosil olish olish uchun maqbul muddatini aniqlashdan iborat.

Nav tasnifi

O‘zbekistonda sholg‘omning mahalliy Muyassar, Namanganskaya mestnaya va Samarkandskaya mestnaya navlari tumanlashtirilgan va keng tarqalgan. Tajribamizdagi “Muyassar” navini tasnifi

Muyassar – tezpishar nav. Barglari yumaloq oval, yirik, tuksiz, silliq. Ildizmevasi yumaloq, oq rangda, o‘rta yiriklikda, eti sersuv, nozik. Hosildorligi – yuqori .

Shuni ta’kidlash lozimki saqlashga va yetishtirish mo‘ljallangan sholg‘omni sifatini va saqlanuvchanlik xususiyatini oshirish uchun saqlashdan yuqori iqtisodiy samaradorlikka erishishdan uning ildizini meva navli to‘g‘ri tanlashga alohida e’tibor berish lozim. Sholg‘om yetishtirishda uning yetishtirish texnologiyalari vaqtida va sifatli bajarilmasa va ilizmeva hosildorligi hamda sifati keskin pasayib ketadi, bunday mahsulot standart talabiga javob berilmaydi va saqlanuvchanlik xususiyati pasayadi.

Ekish muddatlari. Sholg‘om takroriy ekish sifatida ertagi sabzavot yoki boshoqli ekinlardan so‘ng o‘z vaqtida ekilsa, uni o‘sishi va hosildorlikka salbiy ta’sir ko‘rsatar ekan. Ya’ni, 10 avgustda ekilgan sholg‘om o‘suv davri 90-95 kun davom etib, o‘rtacha vazni 130-150 g bo‘lgan ildizmeva hosil qilgan, tovarbop hosili esa umumiy hosilini 85,6 foizini tashkil etadi. Aksincha 10 avgustda oyda ekilgan sholg‘om hosildorligi 1 avgustda ekilganiga nisbatan 5-7 barovar kamdir. Demak sholg‘om takroriy ekish sifatida birinchi avgust ekish maqsadga muvofiqdir.

Sholg‘omni yozgi ekish uchun ajratilgan maydonlarda o‘tmishdosh ekinlarni yetishtirishda tezpishar navlarni qo‘llash, urug‘ sepish va ko‘chat o‘tkazishni mumkin qadar erta muddatlarda o‘tkazish mahsulotning pishishini tezlashtiruvchi har xil tadbirlarni qo‘llash hosilni yig‘ib olishni cho‘zmaslik va uni qisqa

muddatlarda yakunlash talab etiladi.

Takroriy ekin sifatida sholg‘om yetishtirishning ma’qbul muddatlarini xosildorlikka ta’siri

1-jadval

Variantlar	**Yekish muddati**	**Hisoblanuvchi paykaldan oligan xosil, kg.**	**1gektardan olingan xosildorlik, s/ga.**
V_1	01.08.21	2.1	150
V_2	10.08.21	1.8	120,8

O‘tkazilgan tajribalardan yani 4-jadvaldan ko‘rinib turibdiki 1-avgustda ekilgan sholg‘omning “Muyassar”navining xosildorligi 150 s ikkinchi muddatda yani 10-avgustda ekilgan sholg‘omning xosildordorligi 120,8 sentnerni tashkil qildi.

Tajribada bir gektar sholg‘om ekilgan maydonidan olingan xosil mikdori, har bir tajriba variantidagi hisoblanuvchi paykaldan yetishtirib olingan sholg‘om vazni aniqlab olinadi va uni bir gektar maydon yuzasiga ko‘paytiriladi, so‘ngra xisoblanuvchi maydon yuzasiga bo‘lish orqali xisoblab chiqariladi.

Xulosa

Shunday qilib takroriy ekin sifatida sholg‘omni yetishtirishni maqbul mudatlari, saqlash va ulardan turli texnologiyasini yoritish bo‘yicha yuqorida keltirilgan adabiyotlardagi ma’lumotlarning taxlilidan quyidagi xulosa va ishlab chiqarishga takliflar berish mumkin.

Andijon viloyati sharoitida sholg‘omni Muyassar navini takroriy ekin sifatida 1-avgust va 10-avgust kunlarida ekib tajriba natijalarini o‘rganib chiqilganda, bizning sharoitimizda 1-avgustda ekilganda yuqori va sifatli xosil olinganligi aniqlandi.Ushbu ma’lumotlarga asoslanib sholg‘omni 1-avgustda ekishni ishlab chiqarish uchun o‘z takliflarimizni beramiz.

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QISHLOQ XO'JALIGI EKINLARINING HIMOYA QILISH STRATEGIYALARINING IQTISODIY SAMARADORLIGI

ANNOTATSIYA: *Ushbu maqola qishloq xo'jaligi ekinlarining himoya qilish strategiyalarining iqtisodiy samaradorligini tahlil qiladi. Ekinlarni himoya qilishning asosiy usullari kimyoviy, biologik, agrotexnik va integratsiyalashgan zararkunandalarga qarshi kurashish (IPM) strategiyalarini o'z ichiga oladi. Har bir yondashuvning samaradorligi va iqtisodiy ta'siri o'rganilgan. Kimyoviy vositalar qisqa muddatda samarali bo'lsa-da, ekologik va iqtisodiy jihatdan uzoq muddatda qimmatga tushishi mumkin. Biologik va agrotexnik usullar kam xarajatli va ekologik toza bo'lib, uzoq muddatli foyda keltiradi. IPM esa barcha strategiyalarni birlashtirib, barqaror va samarali natijalarga erishishga yordam beradi. Maqolada har bir usulning iqtisodiy samaradorligini hisobga olish zarurligi ko'rsatilgan.*

Kalit so'zlar: *qishloq xo'jaligi, ekinlar, himoya qilish, iqtisodiy samaradorlik, kimyoviy vositalar, biologik himoya, agrotexnik usullar, IPM.*

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ECONOMIC EFFECTIVENESS OF AGRICULTURAL CROP PROTECTION STRATEGIES

Abstract: *This article analyzes the economic effectiveness of crop protection strategies. The main methods of crop protection include chemical, biological, agrotechnical and integrated pest management strategies (IPM). The effectiveness and economic consequences of each approach have been studied. Although chemicals are effective in the short term, they can be costly in the long term from both an environmental and economic perspective. Biological and agrotechnical methods are less costly and environmentally friendly, which provides long-term benefits. IPM, on the other hand, integrates all strategies to achieve sustainable and effective results. The article points out the need to take into account the economic effectiveness of each method.*

Keywords: *agriculture, crops, protection, economic efficiency, chemicals, biological protection, agrotechnical methods, IPM.*

KIRISH

Qishloq xo‘jaligi sohasida ekinlarni himoya qilish, hosilni yuqori sifatli va o‘z vaqtida olish uchun muhim o‘rin tutadi. Ekinlarni himoya qilishning samarali usullari fermerlarga nafaqat ekinlarining salomatligini saqlashga yordam beradi, balki iqtisodiy jihatdan ham samaradorlikni oshiradi. Shu bilan birga, qishloq xo‘jaligi ekinlarini zararkunandalardan, kasalliklardan va begona o‘tlardan himoya qilishda qo‘llaniladigan usullar, ularning iqtisodiy samaradorligi va ekologik ta’siri o‘rtasidagi muvozanatni topish juda muhimdir.

Hozirgi kunda qishloq xo‘jaligi ekinlarini himoya qilishda bir nechta strategiyalar mavjud. Kimyoviy pestisidlar va fungitsidlar, biologik va agrotexnik usullar, shuningdek, integratsiyalashgan zararkunandalarga qarshi kurashish (IPM) metodologiyasi – bularning barchasi qishloq xo‘jaligi samaradorligini oshirishda keng qo‘llanilmoqda. Har bir strategiya o‘ziga xos afzallik va kamchiliklarga ega bo‘lib, iqtisodiy jihatdan ularni solishtirish va samaradorligini baholash zarur.

Mazkur maqolada qishloq xo‘jaligi ekinlarini himoya qilishning asosiy strategiyalari, ularning iqtisodiy samaradorligi va ekologik ta’siri tahlil qilinadi. Shu orqali, fermerlar va agrar soha mutaxassislari uchun samarali va barqaror himoya strategiyalarini tanlashda qo‘llanma taqdim etiladi.

ADABIYOTLAR TAHLILI

Qishloq xo‘jaligi ekinlarining himoya qilish strategiyalarining iqtisodiy samaradorligi mavzusi keng qamrovli va ko‘plab ilmiy va amaliy tadqiqotlarga asoslangan. Ushbu tahlilni ko‘plab ilmiy maqolalar, kitoblar, konferensiya materiallari va jurnallardan olingan ma’lumotlarga tayangan holda amalga oshiramiz.

Bir qancha tadqiqotlar kimyoviy pestisidlarning ekinlarga bo‘lgan ta’siri va ular yordamida hosildorlikni oshirishni o‘rganib chiqdi. Masalan, X. Xo‘jaev (2020) o‘zining tadqiqotlarida kimyoviy vositalarning qishloq xo‘jaligida hosilni maksimal darajada oshirishga xizmat qilishini ta’kidladi. U pestisidlar yordamida ekinlarni himoya qilishning qisqa muddatli samaradorligini ko‘rsatgan bo‘lsa-da, uzoq muddatda ularning atrof-muhitga bo‘lgan salbiy ta’sirini ham ko‘rsatdi. Shuningdek, pestisidlar ishlatilganidan keyin o‘simliklarning hosildorligi oshganda, xarajatlar ham yuqori bo‘lishi mumkin, deb xulosa qilingan.

Biologik himoya usullarini o‘rganish sohasida bir nechta tadqiqotlar amalga oshirildi. Masalan, D. Ahmed (2018) biologik pestisidlarning iqtisodiy samaradorligini tahlil qilgan. Tadqiqotda biologik himoya vositalari ko‘proq ekologik xavfsizlikni ta’minlaydi, lekin ularning samaradorligi uzoq muddatli va boshlang‘ich xarajatlar yuqori bo‘lishi mumkinligini ta’kidladi. Shu bilan birga, biologik himoya usullarini qo‘llashda iqtisodiy foyda bilan ekologik barqarorlik o‘rtasidagi muvozanatni topish zarurligi aytilgan.

Agrotexnik usullar ekinlarni himoya qilishda arzon va ekologik jihatdan toza variantlar sifatida e’tirof etilgan. T. Yuldashev (2021) agrotexnik yondashuvlarni, masalan, ekinlarni to‘g‘ri ekish, o‘g‘itlash va zararkunandalarga qarshi kurashish uchun mexanik vositalardan foydalanishni o‘rganib chiqdi. Tadqiqotda agrotexnik yondashuvlarning iqtisodiy samaradorligi yuqori bo‘lib, bu usullar qisqa muddatda

samarali natijalar berishi mumkinligi ta’kidlangan. Ammo, ularning uzoq muddatli ta’siri uchun, yuqori bilim va texnikalar kerakligi ham aytilgan.

IPM – bu turli usullarni birlashtirish orqali ekinlarni himoya qilishning eng samarali va barqaror usuli hisoblanadi. B. Karimov (2019) IPMni o‘rganib chiqdi va uning iqtisodiy samaradorligini tahlil qildi. Tadqiqotda, IPM usulining kimyoviy, biologik va agrotexnik yondashuvlarni birlashtirgan holda, umumiy xarajatlarni kamaytirishga va hosildorlikni oshirishga yordam berganini ko‘rsatgan. IPM ning asosiy afzalligi – ekologik xavfsizlikni ta’minlab, iqtisodiy foyda keltirishi.

Yangi texnologiyalar va raqamli yechimlar yordamida ekinlarni himoya qilishning samaradorligi yanada oshishi mumkin. I. Tursunov (2022) o‘z tadqiqotlarida aqlli texnologiyalarni qo‘llash orqali qishloq xo‘jaligi ekinlarini zararkunandalardan himoya qilishni tahlil qilgan. Sensorlar, IoT va boshqa raqamli vositalar yordamida monitoring qilish, zararkunandalarning dastlabki bosqichlarida aniqlanishi va ularga qarshi vaqtida choralar ko‘rilishi mumkinligi, bu esa iqtisodiy samaradorlikni oshirishi ko‘rsatilgan.

Adabiyotlar tahlili shuni ko‘rsatadiki, qishloq xo‘jaligi ekinlarini himoya qilishda bir nechta strategiyalar mavjud bo‘lib, har birining o‘ziga xos afzalliklari va kamchiliklari bor. Kimyoviy vositalar qisqa muddatda samarali bo‘lishi mumkin, ammo ekologik va iqtisodiy jihatdan uzoq muddatda salbiy ta’sir ko‘rsatishi mumkin. Biologik va agrotexnik usullar ekologik toza bo‘lib, uzoq muddatda foyda keltiradi, ammo ba’zan boshlang‘ich xarajatlar yuqori bo‘lishi mumkin. IPM esa barcha strategiyalarni birlashtirib, barqaror va samarali natijalarga erishishga yordam beradi. Ushbu tadqiqotlar natijasida qishloq xo‘jaligi ekinlarini himoya qilishning iqtisodiy samaradorligini oshirish uchun turli usullarni uyg‘unlashtirish va har bir usulning foyda va xarajatlarini solishtirib ko‘rish zarurligi ta’kidlanadi.

TADQIQOT NATIJALARI

Tadqiqot davomida qishloq xo‘jaligi ekinlarini himoya qilishning turli strategiyalarining iqtisodiy samaradorligi tahlil qilindi. Olingan natijalar quyidagi asosiy xulosalarga olib keldi:

Kimyoviy vositalar yordamida ekinlarni himoya qilishning iqtisodiy samaradorligi qisqa muddatda yuqori bo‘lishi mumkin. Tadqiqotda pestisidlar, fungitsidlar va insektitsidlar yordamida hosildorlikning 15-20% gacha oshishiga erishildi. Ammo, ularning atrof-muhitga bo‘lgan salbiy ta’siri, ularning qimmatligi va ishlatishdan keyin hosilni qayta ishlashdagi qo‘shimcha xarajatlar ham ko‘rib chiqildi. Shuningdek, pestisidlar ishlab chiqarish va ulardan foydalanishning ekologik oqibatlari uzoq muddatda zarar keltirishi mumkin. Ushbu xarajatlarni kamaytirish uchun, kimyoviy himoya vositalarining miqdorini va tezligini optimallashtirish zarurati mavjud.

Biologik himoya usullari uzoq muddatda ekologik barqarorlikni ta’minlab, qishloq xo‘jaligi ekinlarini zararkunandalardan himoya qilishda samarali bo‘ladi. Tadqiqotlar shuni ko‘rsatdiki, biologik preparatlar yordamida kasalliklar va zararkunandalar faqat tabiatda mavjud bo‘lgan antagonistlar yordamida boshqariladi. Ularning samaradorligi boshlang‘ichda past bo‘lishi mumkin, lekin

ekologik xavfsizlikni ta’minlashda muhim rol o‘ynaydi. Biologik himoya vositalarini qo‘llashning iqtisodiy samaradorligi, uzoq muddatda, kimyoviy vositalarga nisbatan pastroq, ammo ular ekologik jihatdan xavfsizroq va hosilga salbiy ta’sir ko‘rsatmaydi.

Agrotexnik yondashuvlar, masalan, o‘g‘itlash, ekinlarni diversifikatsiya qilish, va zararkunandalarni mexanik usullar bilan boshqarish, o‘z vaqtida va to‘g‘ri amalga oshirilganda juda samarali bo‘ladi. Tadqiqotda agrotexnik usullar orqali hosilni 10-15% ga oshirish mumkinligi ko‘rsatilgan. Ushbu yondashuvlar ekologik jihatdan toza va kam xarajatli bo‘lishi mumkin. Biroq, samaradorlik faqat ekinlarni to‘g‘ri vaqtda ekish, yerni qayta ishlash va zararkunandalar bilan kurashishda yuqori malakali va tajribali ishchi kuchini jalb qilish shart.

IPM strategiyasi, ya’ni turli himoya vositalarini birlashtirish, eng samarali va barqaror yechim sifatida ko‘rinadi. Tadqiqotda IPM metodologiyasini qo‘llagan fermerlar hosilni 25-30% gacha oshirishga muvaffaq bo‘ldi. IPM bir nechta yondashuvlarni birlashtirgan holda, ekologik xavfsizlikni ta’minlaydi va iqtisodiy samaradorlikni oshiradi. Bu yondashuvning asosiy afzalligi shundaki, kimyoviy vositalar faqat zarur bo‘lganda qo‘llaniladi va biologik va agrotexnik usullar bilan birgalikda foydalaniladi. IPM yordamida ekologik xavfsizlik saqlanib, pestisidlar iste’molining kamayishi va xarajatlarning kamayishi mumkin.

Innovatsion texnologiyalar, masalan, aqlli sensorlar va IoT (Internet of Things) texnologiyalari, ekinlarni himoya qilishda samaradorlikni oshirishga yordam beradi. Tadqiqotlar shuni ko‘rsatdiki, aqlli texnologiyalar yordamida zararkunandalarni va kasalliklarni erta bosqichda aniqlash va ularga qarshi choralar ko‘rish mumkin. Bunday texnologiyalarni qo‘llash, ayniqsa, katta maydonlarda qishloq xo‘jaligi ekinlarini himoya qilishda iqtisodiy samaradorlikni sezilarli darajada oshiradi. Innovatsion texnologiyalar orqali foyda 20-25% ga oshishi mumkin. Biroq, boshlang‘ich investitsiyalar va texnik ta’minot talab etiladi.

Tadqiqot natijalari shuni ko‘rsatdiki, qishloq xo‘jaligi ekinlarini himoya qilishda har bir usulning iqtisodiy samaradorligi va ekologik ta’siri o‘ziga xos. Kimyoviy himoya vositalari qisqa muddatda yuqori samaradorlikni ta’minlasa-da, ekologik zararlar va xarajatlarning yuqoriligi bu usulning uzoq muddatli samaradorligini pasaytiradi. Biologik va agrotexnik yondashuvlar ekologik xavfsizlikni ta’minlab, uzoq muddatda foyda keltiradi, ammo qisqa muddatda kamroq samarali bo‘lishi mumkin. IPM strategiyasi eng samarali yechim sifatida ko‘rinadi, chunki u turli usullarni birlashtiradi va ekologik xavfsizlikni ta’minlashda muhim rol o‘ynaydi. Innovatsion texnologiyalar esa qishloq xo‘jaligi ekinlarini himoya qilishda yanada samarali va tezkor yechimlarni taqdim etadi, ammo boshlang‘ich investitsiyalarni talab qiladi. Shuningdek, har bir yondashuvning iqtisodiy samaradorligini oshirish uchun ularni ehtiyotkorlik bilan tanlash va joriy qilish zarur.

XULOSA

Ushbu tadqiqot qishloq xo‘jaligi ekinlarini himoya qilishning turli strategiyalarining iqtisodiy samaradorligini tahlil qilishga qaratilgan. Tadqiqot natijalari shuni ko‘rsatadiki, har bir himoya usulining o‘ziga xos afzalliklari va

kamchiliklari mavjud bo‘lib, ular qishloq xo‘jaligi ishlab chiqaruvchilarining turli ehtiyojlariga moslashgan.

Tadqiqot natijalari shuni ko‘rsatdiki, qishloq xo‘jaligi ekinlarini himoya qilishda samaradorlikni oshirish uchun har bir strategiyani ehtiyotkorlik bilan tanlash va qo‘llash zarur. Ularning integratsiyalashgan tarzda qo‘llanilishi, ekologik xavfsizlikni ta’minlab, iqtisodiy foyda olishda muhim rol o‘ynaydi. Shu bilan birga, yangi texnologiyalarni joriy etish va innovatsion yondashuvlarni qo‘llash qishloq xo‘jaligi sohasida samaradorlikni oshirishi mumkin.

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INTELLEKTUAL SIMULYATSIYA TIZIMLARI ORQALI TALABALARNING SARALASH ALGORITMLARI BO‘YICHA KOMPETENSIYALARINI RIVOJLANTIRISH METODOLOGIYASI

Annotatsiya: *Tadqiqot natijalari taqdim etilgan bo‘lib, u sorting algoritmlari bilan bog‘liq kompetensiyalarni shakllantirish metodikasini ishlab chiqish va uning samaradorligini baholashga qaratilgan. Tadqiqot davomida talabalarning algoritmik bilim va ko‘nikmalarini rivojlantirish uchun intellektual simulyatsion tizimdan foydalangan holda interaktiv va moslashuvchan o‘quv muhiti yaratildi. O‘quv natijalariga ko‘ra, simulyatsion tizim orqali o‘qitish an’anaviy usulga nisbatan samaraliroq ekanligi namoyon bo‘ldi.*

Kalit so‘zlar: *Intellektual simulyatsiya, sorting algoritmlari, kompetensiya, ta’lim texnologiyalari, moslashuvchan ta’lim, algoritm, individual.*

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METHODOLOGY FOR DEVELOPING STUDENT COMPETENCIES IN SORTING ALGORITHMS THROUGH INTELLECTUAL SIMULATION SYSTEMS

Abstract: *The results of research aimed at developing a methodology for forming competencies related to sorting algorithms in students using intelligent simulation systems and evaluating its effectiveness are presented. The study created an interactive and adaptive learning environment using an intelligent simulation system to develop students' algorithmic knowledge and skills. According to the learning outcomes, it was demonstrated that teaching through the simulation system is more effective compared to the traditional method.*

Keywords: *Intellectual simulation, sorting algorithms, competence, educational technologies, adaptive learning, algorithm, individual.*

INTRODUCTION

Effective teaching of programming and algorithms in the field of information technology is a pressing issue. Sorting algorithms are one of the fundamental topics in programming and play a crucial role in developing students' algorithmic thinking and problem-solving skills. Intelligent simulation systems are widely used as an effective tool to make the educational process interactive and visual. This approach examines a teaching methodology that utilizes simulation systems to deepen students' knowledge of sorting algorithms and develop their algorithmic competencies.

Information is available on the effectiveness of computer-based learning in secondary and higher education. The process of learning the algorithm in an interactive way using a computer includes research on enhancing student learning.[6]

Detailed information is provided on how interactive learning affects students' learning processes, and methods for enhancing students' learning motivation are described [1].

METHOD

This study involved 100 students in the educational process and divided them into two groups. The first group studied sorting algorithms based on traditional teaching methods, while the second group studied sorting algorithms using an intelligent simulation system.

The construction of the simulation system.

- Visualization: Each sorting algorithm is visualized step-by-step. This helps students better understand the mechanism of the algorithm's operation.

- Interactive exercises: Students were able to control each algorithm, review its steps, observe the results, and apply them in practice.

- Adaptability: The simulation system has the ability to provide tasks that are adapted to the student's level of knowledge, which serves to individualize the learning process.

This study aims to compare adaptive learning strategies using algorithms. This topic includes an analysis of the impact of adaptive learning on student learning [5].

RESULTS

During the experiments, students underwent preliminary and final tests. The results showed that a high level of knowledge and skills was formed for the group trained on the basis of simulation. Based on the preliminary test results, the knowledge level of the two groups was similar, while the final test results showed that the results of the simulation group were 20% higher than those of the group trained using the traditional method.

Traditional learning:

• Comparison between initial and final scores: ttt-statistic value: -27.17, ppp-value: 5.99e-10. This indicates that $p < 0.05$, indicating that the final scores are significantly different from the initial ones.

Simulation-based learning:

• Comparison between initial and final scores: ttt-statistic value: -58.14, ppp-value: 6.64e-13. This also confirms that $p < 0.05$, meaning that students trained using simulation showed significant improvement in the final test.

Comparison of final scores (traditional and simulation):

Comparison result: ttt-statistic value: -21.79, ppp-value: 2.19e-14. This also indicates that $p < 0.05$, confirming that simulation-based learning is significantly more effective than the traditional method.

Table 1.1

Compare	T-statistics	P-value	Significance
Traditional learning: Preliminary and final scores	**27.17**	**5.99e-10**	**Significant**
Simulation training: Preliminary and final scores	**58.14**	**6.64e-13**	**Significant**
Comparison of final scores (Traditional vs. Simulation)	**21.79**	**2.19e-14**	**Significant**

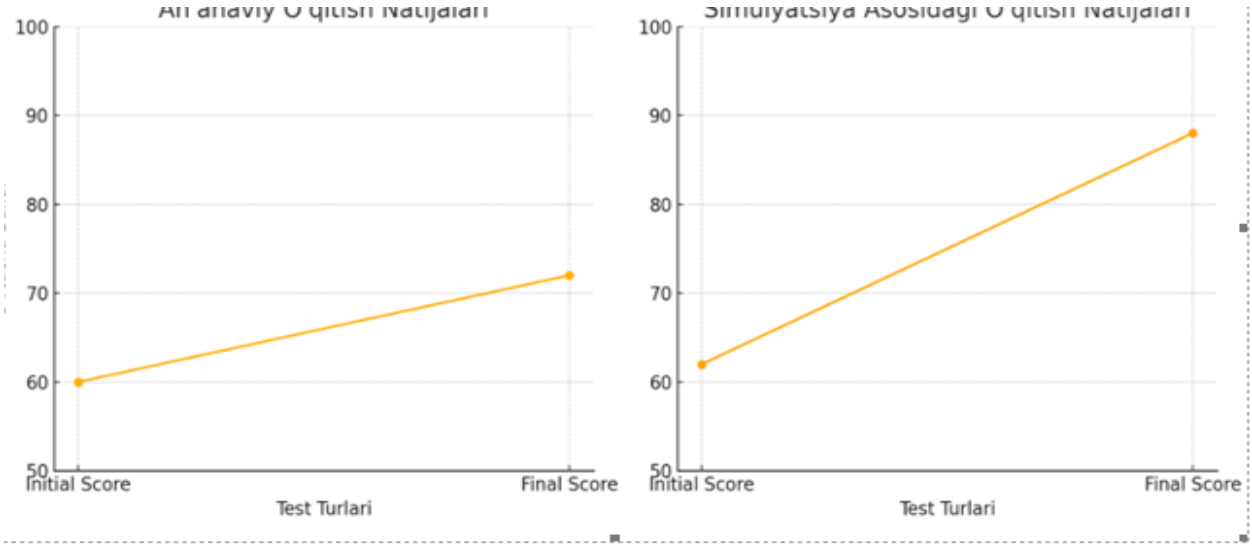

Figure 1.1. Diagram of the obtained result.

The diagrams above show the results of traditional learning and simulation-based learning.

- In traditional learning, there was a slight improvement between the initial and final test results, the final score averaged 72.

- Simulation-based learning showed significant improvement, with an initial score of 62 on average and an average of 88 on the final test.

This research includes the scientific foundations of teaching algorithmic knowledge through adaptive technologies. The effectiveness of flexible learning systems for students has been analyzed [2].

CONCLUSION

Research results show that learning using intelligent simulation systems is more effective than traditional learning methods in the study of sorting algorithms. Using the simulation system, students gained a deeper understanding of algorithms and consolidated their knowledge in practice. This methodology helps to optimize the learning process and increase students' motivation by taking into account their individual abilities.

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INFLUENCE OF PLANTING DENSITY AND PINCHING PERIODS ON DRY MATTER ACCUMULATION IN THE ANDIJAN-35 COTTON VARIETY

Abstract: *The study examines the influence of planting density and pinching periods on the growth and development of the Andijan-35 cotton variety under the serozem soil conditions of the Andijan region. It also focuses on the accumulation of dry matter depending on different pinching periods.*

Keywords: *serozem soils, Andijan-35 variety, pinching periods, planting density, dry matter accumulation.*

The study investigated the dynamics of dry matter accumulation in the Andijan-35 cotton variety depending on planting density and pinching periods. According to literature data, dry matter accumulation in cotton is directly influenced by agronomic practices throughout the entire growing season. It was established that for the accumulation of 1 gram of dry matter, the plant evaporates 500–600 grams of water, meaning that each plant evaporates water 500–600 times its own mass [114; http://arizona].

According to the scientific research of U. Toshmukhamedov, at a planting density of 36 plants per 1 m², light intensity decreased by 20,000 lux (lumens), which in turn reduced the photosynthesis rate by 12.9 mg/dm² compared to plots with 8 plants per 1 m². It was also found that reduced lighting negatively affected cotton yield: when shaded with one layer of gauze, plant mass decreased by 24.3 g, and with two layers of gauze, by 41.5 g. Additionally, crop quality decreased: with one layer of gauze, fiber yield decreased by 3.3%, the mass of 1,000 seeds by 1.0 g, and fiber strength by 0.4 g/s. With two-layer shading, these values decreased by 4.8%, 3.0 g, and 0.5 g/s, respectively [115; http://earthpapers.net].

The effect of planting density on dry matter accumulation during the summer was analyzed. According to the results: On June 1, the dry matter mass was 9.6 g at a planting density of 80,000–90,000 plants per hectare. When the density increased to 100,000–110,000 plants per hectare, this indicator decreased to 8.8 g. In the variant with 120,000–130,000 plants per hectare, the dry matter mass was 8.3 g. When analyzing dry matter accumulation during the budding and flowering stages, the following was observed:

At 80,000–90,000 plants per hectare, the dry matter mass ranged from 34.7 g to 71.6 g (data from July 1 and August). When the density increased to 100,000–10,000 plants per hectare, the dry matter mass decreased to 32.5 g to 70.3 g. In the variant with 120,000–130,000 plants per hectare, these indicators were 31.4 g to 68.4 g. Thus, it was established that an increase in planting density leads to a decrease in dry matter accumulation in the plants.

During the maturation period of cotton, the total dry matter accumulation at a planting density of 80,000–90,000 plants per hectare was as follows:

- In the variants with pinching at the 11th–12th, 13th–14th, and 15th–16th fruiting branches, as well as in the variant without pinching, the dry matter accumulation was 134.3 g, 130.5 g, 133.0 g, and 140.2 g, respectively.
- At a planting density of 100,000–110,000 plants per hectare, the dry matter accumulation was 125.6 g, 126.9 g, 128.6 g, and 127.9 g corresponding to the same pinching periods.
- In the variant with 120,000–130,000 plants per hectare, dry matter accumulation was 5.4–8.5% lower compared to plots with 80,000–90,000 and 100,000–110,000 plants per hectare (see Table 1).

The reason for this is the increased nutrient competition among plants at higher planting densities, which affects the net photosynthetic productivity. As a result, the nutrients absorbed through the root system are more intensively directed towards the development of both vegetative and generative organs, contributing to an increase in dry mass.

Table 1

Dry Matter Accumulation in the Andijan-35 Cotton Variety During the Maturation Period Depending on Planting Density and Pinching Periods (g), 2023

No.	Pinching Treatment	Stem	Leaf	Boll	Cotton	Total
80,000–90,000 plants/ha						
1	No Pinching	35.8	26.9	19.3	52.3	134.3
2	Pinching at 11th–12th Branch	32.9	26.5	18.3	52.8	130.5
3	Pinching at 13th–14th Branch	32.2	27.9	18.9	54.0	133.0
4	Pinching at 15th–16th Branch	34.4	29.8	19.8	56.2	140.2
100,000–110,000 plants/ha						
1	No Pinching	32.2	26.7	18.0	48.7	125.6
2	Pinching at 11th–12th Branch	31.7	25.5	17.9	51.8	126.9
3	Pinching at 13th–14th Branch	28.0	27.2	20.5	52.9	128.6
4	Pinching at 15th–16th Branch	30.0	27.8	19.0	51.1	127.9
120,000–130,000 plants/ha						
1	No Pinching	29.7	26.5	16.7	47.8	120.7

2	Pinching at 11th–12th Branch	29.9	25.8	17.8	50.8	124.3
3	Pinching at 13th–14th Branch	32.0	25.9	17.0	49.7	124.6
4	Pinching at 15th–16th Branch	29.8	26.9	17.5	48.7	122.9

This indicates that the total dry matter accumulation was higher in the variants where pinching was conducted at optimal times. The greatest accumulation of dry mass occurred specifically in the reproductive organs, i.e., in the cotton fiber. Similar results were obtained in experiments conducted in other years (see Appendix 3).

According to the data from the table above, at a planting density of 80,000–90,000 plants per hectare, the Andijan-35 variety showed the highest dry matter accumulation at the early developmental stage—during the 2–3 true leaves phase. However, during the budding and flowering phases, this indicator was higher in the variant with a planting density of 100,000–110,000 plants per hectare, amounting to 32.5–70.3 g, respectively. Overall, in variants with 80,000–90,000 plants per hectare, dry mass accumulation increased steadily.

During the cotton maturation period, dry matter accumulation depending on planting density and pinching periods showed that:

- In variants with a planting density of 80,000–90,000 plants per hectare, the highest dry mass accumulation occurred in the stem, leaves, bolls, and fiber.
- In variants with 100,000–110,000 and 120,000–130,000 plants per hectare, during the phases of the 11th–12th and 13th–14th fruiting branches, dry matter accumulation ranged between 130.5–133.0 g.
- Variants with a planting density of 80,000–90,000 plants per hectare showed a tendency for greater dry mass accumulation.

Conclusions: Planting density significantly affects dry matter accumulation, the higher the plant density, the lower the dry matter accumulation. The optimal planting density for the Andijan-35 variety is 80,000–90,000 plants per ectare, as higher densities result in competition for light and nutrients. Future research should focus on optimizing pinching periods and additional agronomic practices to enhance the productivity of the variety.

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METHODS OF IMPROVING THE SUPPLY SYSTEM OF GAS CYLINDER VEHICLES

Annotation. *This article analyzes the gas supply system cars with gas cylinders, its principle of operation and the types of gas equipment installed in cars.*

Key words: *car, engine, supply system, compressed natural gas, gas cylinder, safety, gas equipment.*

After the independence of our republic, the automobile industry began to develop rapidly in our country. The number of cars is increasing day by day. This, in turn, gives the automotive industry, which is considered one of the main directions of economic and social development of our country, the task of increasing and improving the production structure of cars that meet all the requirements of the national economy and emit less harmful substances to the environment, as well as with high fuel efficiency. loads[1].

The increase in the demand for gasoline and diesel fuels, which are used as vehicle fuel, requires the use of alternative fuels. Nowadays, cheap natural gas is widely used as fuel for cars. Our republic has many reserves of natural gas, and these reserves contain high-quality natural gases that can be used as fuel for automobile engines directly, without the use of excess gas processing or chemical treatment technologies. can be used as fuel [3]. In addition, natural gas used as motor fuel is much cheaper compared to other types of fuel. Therefore, approximately 70-80% of cars in our republic run on natural gas [2].

In addition, natural gas used as motor fuel has several advantages over petroleum products. When using them, high technical and economic indicators of the engine are achieved, because natural gas has very good anti-detonation properties, the property of forming a mixture with air is very good, and it can form mixtures with air in any ratio. In gas engines, the mixture burns almost completely, and the environment is less harmed due to the fact that the toxicity of the used gases is much lower.

According to the main units and engine systems, the degree of integration of compressed gas vehicles with gasoline engine vehicles in current production is on average 90%. Therefore, switching to gas fuel does not require a radical change in the design of cars with mostly carburetor and injection engines [4]

Compressed natural gas is a gas under normal conditions at any pressure, and it mainly consists of methane and hydrogen. Methane is compressed to a pressure of 20 MPa and stored in thick-walled cylinders. The use of gases eliminates the

washout of the oil film from the walls of the piston and sleeve, reduces the formation of soot in the combustion chambers, due to the absence of gasoline vapors, the oil on the walls of the cylinder liners does not burn, as a result, the life of the engine and the oil change period are 1.5 - Extends by 2 times.

However, in gas cylinder vehicles, the supply system is complex, and the requirements for fire and explosion safety are high. Gas engines have 10-20% less power than carbureted engines because gas takes up more volume when mixed with air than gasoline.[2] Also, one of the main disadvantages of natural gas as a motor fuel is the low volume concentration energy. If the heat of combustion of one liter of liquid fuel is 31426 kDj, this value for natural gas under normal conditions is 33.52–35.62 kDj. At first, high pressure should be compressed to 20-25 MPa, which requires the use of special compressor devices[3].

The use of gas fuel reduces the total amount of harmful carbon monoxide, nitrogen dioxide and hydrocarbons in the exhaust gases from the engine. In particular, used gas does not contain any lead at all.

The toxicity of exhaust gases is 3 times less when burning gas fuel than when working with gasoline, the level of noise emitted by the engine when the operating mode is selected correctly is low, and this condition is especially important in urban conditions [2].

Conversion of carburetor or injector engines to gas fuel allows them to work on two different fuel systems, i.e. on gas and gasoline fuels. The use of two fuel systems helps to increase the total power reserve of motor vehicles and expand their size.

With the increase in the number of vehicles running on gas fuel, it is necessary to improve the gas equipment and the fuel supply system of cars running on gas fuel. Currently, the following 4 generations of gas equipment are installed in cars running on gas fuel in our republic.

1st generation GBU. It appeared in the 70s of the 20th century and is mainly designed for carburetor engines.

2nd generation GBU. Carburetor engines were replaced by injector engines, and manufacturers first tried to adapt gas equipment to the new injector cars without changing the design.

The second generation gas equipment works the same as the first generation, but instead of the vacuum valve, an electromagnetic valve is used. With the help of an electromagnetic valve, it will be possible to switch from one type of fuel to another, using a button to select the desired type of fuel.

3rd generation GBU. It began with the appearance of serious changes in the operation of gas devices in cars. The main difference of the 3rd generation GBU from previous generations was the appearance of an electronic system for controlling and adjusting the fuel supply. As a result of the equipment of this generation installed in cars equipped with a computer and controlled by an electronic control unit, it was possible to reduce fuel consumption and increase efficiency, as well as reduce the amount of exhaust gases.

4th generation GBU. Today, it is the most common version of gas devices (90% of car owners prefer this system). Despite having a relatively simple structure, it has excellent technical characteristics.

The advantages of gas equipment of this generation are as follows :

(Figure 1)

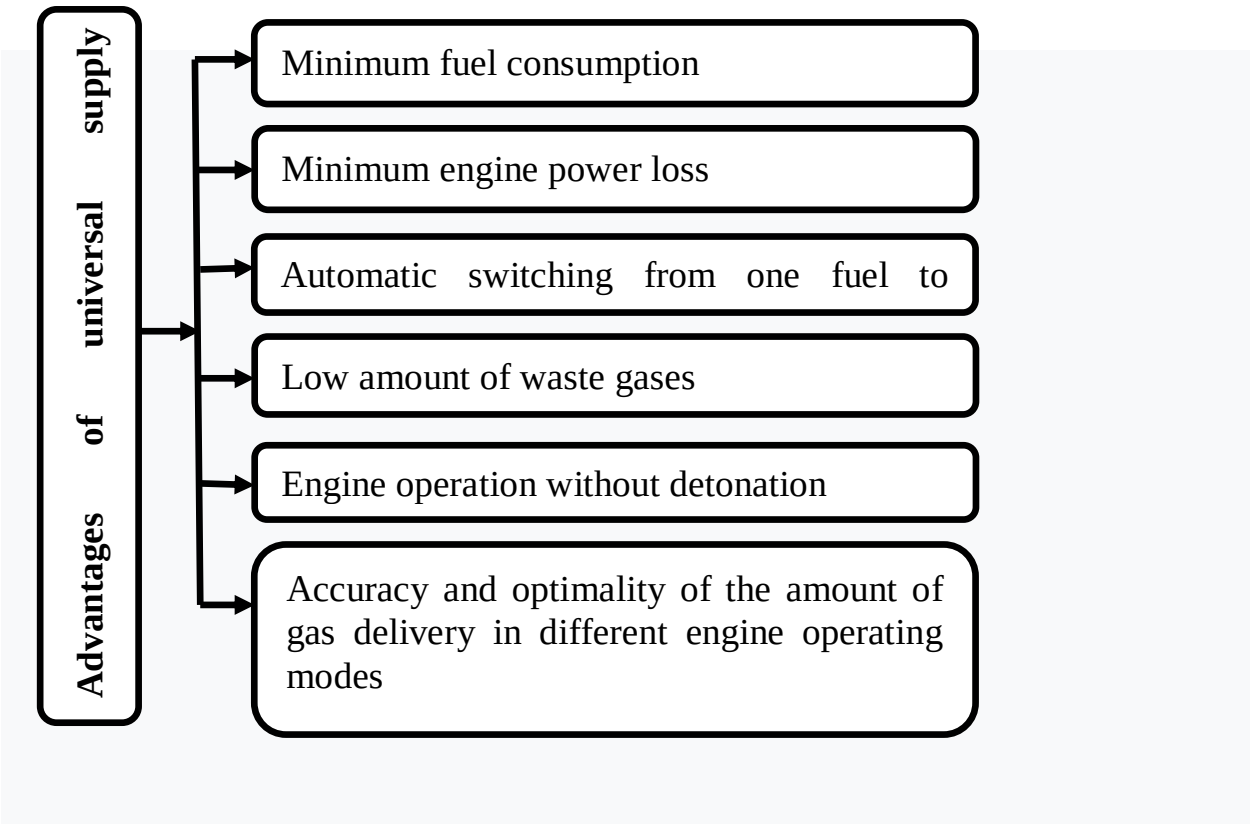

Figure 1. Advantages of 4th generation gas equipment.

The distinguishing feature of this generation from the previous ones is the presence of an injector for each cylinder, which provides the gas mixture necessary for the engine to work at high power. The operation of individual injectors is controlled by an electronic control unit. This gas equipment provides the engine with high efficiency (up to 50%) with low power loss.

It is necessary to install modern gas equipment in cars in order to achieve good performance and high efficiency of the supply system of gas cylinder cars and to reduce the amount of toxic gases released into the air.

As a result of installing the 4th generation gas equipment in the engine, the engine power increases, the fuel mixture is distributed at the same rate for each cylinder, the fuel consumption decreases due to the accuracy of the fuel transfer dose, and the amount of toxic gases released into the environment decreases, the engine ((of the car) leads to improvement of dynamic characteristics, reliable engine start-up and quick return to normal engine operation mode. As a result of

this technology in the automobile industry of our country, it is possible to reduce harmful gases by four times and save 70% of gasoline**.**

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IQLIM O'ZGARISHI VA INSON FAOLIYATI **TA`SIRIDA** EROZIYA JARAYONLARINING RIVOJLANISHI

Annotatsiya: *Maqolada iqlim o‘zgarishi sharoitida eroziya turlari va eroziya jarayonlarini rivojlanishi natijasida yuzaga keladigan ba`zi muammolar xususida ko‘rib chiqildi. Agrolandshaftlarning Ayniqsa, arid hududlarda anomal haroratlar, qurg‘oqchilik oqibatida ekologik vaziyatning yomonlashishi agrolandshaftlarga salbiy ta’siri bilan bog‘liq ba’zi muammolar kuzatilmoqda.*

Kalit so‘zlar: *iqlim o`zgarishi, anomal haroratlar, cho’llashish, degredatsiya, degumizatsiya, deflyatsiya, gravitatsion, ikkilamchi sho`rlanish, sizot suvlari, eroziya.*

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THE DEVELOPMENT OF EROSION PROCESSES UNDER THE INFLUENCE OF CLIMATE CHANGE AND HUMAN ACTIVITY

Abstract: *The article discusses in detail some of the problems that arise as a result of the development of erosion types and erosion processes in the context of climate change. There are some problems associated with the adverse effects of abnormal temperatures on agricultural landscapes and the deterioration of the environmental situation caused by drought, especially in arid areas.*

Key words: *climate change, abnormal temperatures, desertification, degradation, dehumanization, deflation, gravity, secondary salinization, groundwater, erosion.*

Kirish. Keyingi yillarda dunyo miqyosida atrof-muhitga salbiy ta’sir natijasida iqlimning o‘zgarishi, atmosferaning ifloslanishi, ozon qatlamining yemirilishi kabi bir qator ekologik muammolar kelib chiqmoqda. Iqlim o‘zgarishi sharoitida tabiiy jarayonlardan tashqari antropogen faoliyatlar ham tabiiy landshaftlar maydonlarining cho`llanishi, qishloq xo`jaligi yerlarning qisqarishi va yer unumdorligining pasayishi kabi jarayonlarni keltirib chiqarmoqda. Bu nafaqat tabiatga balki, har bir mamlakatning ijtimoiy-iqtisodiy rivojlanishida ham aks etadi. Iqlim o‘zgarishi dehqonchilik faoliyatiga xavf soladigan, asosan suv tanqisligi, qurg‘oqchilik arid iqlim mintaqalariga xos bo`lib, bugungi kunda qishloq xo`jalik yerlarining faoliyatiga tahdid soluvchi yerlarning degratatsiyaga uchrashi va turli toifadagi eroziya jarayonlarining ham avj olishiga olib keldi. Ayniqsa, yerlarni sug`orish va drenajlash natijasida qurg`oqchil hududlarni tubdan o`zgartirilishi

natijasida, ba`zida yerlarning unumdor tuproq qoplami butunlay yuvilib ketganligini kuzatish mumkin. Bugungi kunda qishloq xo'jaligi landshaftlari holatiga eroziya jarayonlarining ta'sirini o'rganish muhim masalalardan biridir. Qashqadaryo viloyatining tabiiy hududiy majmua komponentlari ham o‘ziga xos geografik tavsifiga ega. Zero, hudud qishloq xo‘jaligi tizimlaridan samarali foydalanish imkoniyatini oshirish uchun bu omillarni ilmiy tahlil qilish muhim ahamiyat kasb etadi.

Asosiy qism. Iqlim o‘zgarishi sharoitida qurg‘oqchilik dunyo mamlakatlari aholisining hayoti va dehqonchilik faoliyatiga xavfi sezilmoqda. Umummilliy boyliklar orasida yerning ahamiyati beqiyosdir. Zotan, yer tabiiy resurs va qishloq xo`jaligida asosiy ishlab chiqarish vositasi bo`lganligidan boshqa zahiralardan farq qiladi [5; C.692-695.]. Yer boyliklari mamlakat aholisini oziq-ovqat mahsulotlariga bo‘lgan ehtiyojini va sanoatni xom ashyo bilan ta’minlashi hech kimga sir emas.

Dehqonchilik qilinadigan hududlarda tuproqning degradatsiyasi tabiiy, kimyoviy, biologik omillar va antropogen faoliayt natijasida yuzaga keladi. Tabiiy omillar suv va shamol eroziyasi tufayli tuproqning unumdor qismining yo'qolishi. Kimyoviy omillar yerdagi ozuqa moddalarining kamayishi, tuproqda ishqoriylikning oshishi natijasida sho'rlanishi kuzatiladi. Biologik omillar tufayli tuproq tarkibidagi foydali mikrofloralar faolligini pasaytiruvchi omillardan iborat. Inson faoliyati tomonidan esa o'rmonlarni kesish, yerdan foydalanishda ortiqcha o'g'itlash va nooqilona sug'orish, yaylovlarda haddan tashqari ko`p chorva boqish, konlarni qazibish ishlari, hudud noqulay ob-havosining shakllanishi kabi boshqa omillar tuproqning unumdor qatlamining mo'rtlashishiga yoki yo`qolishi (degumizatsiya)ga olib keladi.

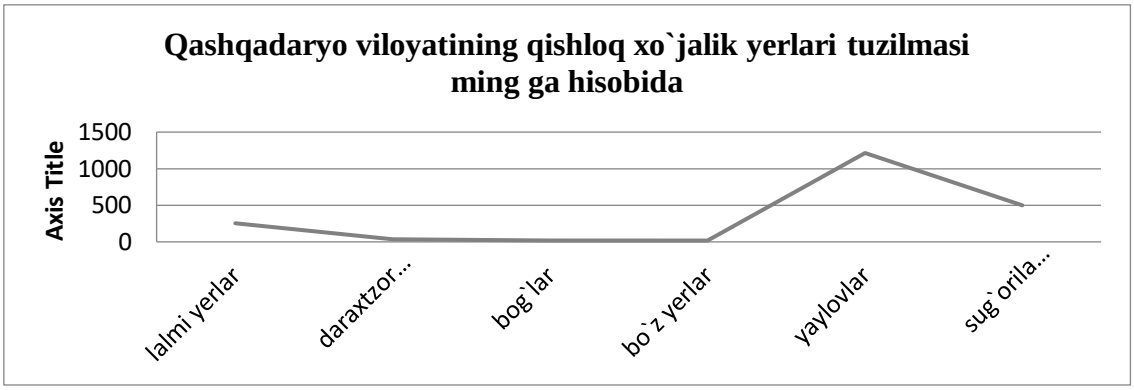
Iqlim o`zgarishi natijasida yuzaga keladigan jarayonlarning rivojlanishi, arid hududlarda ayniqsa jadal tus olmoqda. Arid hududlar yerlaridan foydalanishda yuzaga kelgan muammolarni oldini olish uchun xalqaro tashkilotlar birgalikda qator dasturlar ishlab chiqmoqda. Jumladan,2030 yilgacha barqaror rivojlanish bo‘yicha dasturida “quruqlik ekosistemalarini muhofaza qilish va tiklash, ulardan oqilona foydalanish, o‘rmonlarni ratsional boshqarish, cho‘llanishga qarshi kurashish, yerlarning degradatsiyasini to‘xtatish va biologik xilma-xillik yo‘qolishining oldini olish”[23] bo‘yicha Birlashgan Millatlar Tashkiloti tomonidan muhim vazifalar belgilangan.

Fransuz olimi A.Gerrenning ma’lumotlariga qaraganda so‘ngi yuz yil ichida 2 milyardga unumdor tuproqli yerlar ishdan chiqqan. Eroziya natijasida tuproq kam unumli yerlarga aylanib, qishloq xo‘jalik oborotidan chiqib qoladi. Shuning uchun tuproq eroziyasining oldini olish va yerlarning unumdorligini oshirib borishimiz kerak. Chunki tuproq shunday tabiiy resurski agar undan fan va ilg‘or agrotexnika yutuqlari asosida to‘g‘ri, oqilona foydalanilsa, unumdorligi oshib boraveradi.

Qashqadaryo viloyati arid hududda joylashganligidan kishilar juda qadimdan qurg‘oqchil yerlarga suv chiqarib, cho‘l tabiatiga ta’sir ko‘rsatib, uni o‘zgartirib

[23] Повестки дня в области устойчивого развития на период до 2030 года //Электронний доступ: http:// www. uz / undp/org/content/ uzbekistan.ru

kelmoqdalar. Masalan, Qashqadaryo ko’prigi va Eski Anhor kanali bundan dalolat beradi.



1-rasm. Qashqadaryo viloyatining qishloq xo`jalik yerlari tuzilmasi ming ga hisobida

Yuqorida Qashqadaryo viloyatining qishloq xo`jalik yerlari tuzilmasi berilgan (1-rasm). Jumladan, Qashqadaryo viloyatining ekin yerlar 671,1 m ga, Shu jumladan: sug’oriladigan yerlar 415,8 m ga, lalmikor yerlar 255,3 m ga, ko’p yillik daraxtzorlar 38,2 m ga, bo’z yerlar 20,6 m ga, yaylov va pichanzorlar 1214,1 m ga, jami qishloq xo’jalik yerlari1944 m ga ni tashkil etadi. Qashqadaryo viloyatida lalmi yerlar qishloq xo`jalik yerlarining 4,2 % ga yaqinini, haydaladigan yerlarning esa 12,4 % ni tashkil etadi.

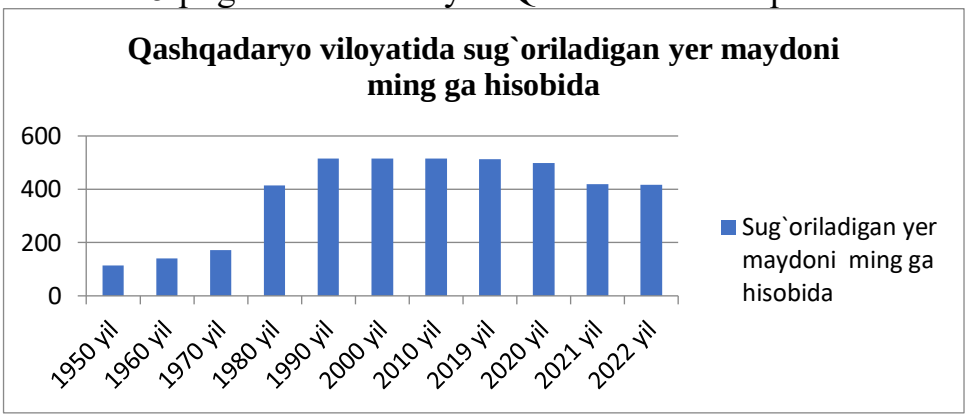
Tabiiy geografik jarayonlardan suv eroziyasi, shamol eroziyasi, gravitatsiya jarayonlari, toshqin hodisalari, loyqa bosish, botqoqlanish, sho‘rlanish va qobiq hosil bo‘lishi Qashqadaryo viloyatining sug‘oriladigan dehqonchilik zonalarida qishloq xo‘jaligi ishlab chiqarishiga eng katta salbiy ta’sir ko‘rsatadi **[**2; 6-11 p. 3; C. 862-865.].

Inson faoliayti va eroziya jarayonlarining boshqa omillar bilan birgalikda ta’siri tufayli tuproqlarda chirindi qatlamining kamayishi, zarur oziq moddalarning yo’qolishi, qurib ketishi kabi salbiy jarayonlar kuzatiladi. Shunday qilib, kam eroziyalangan tuproqlar chirindi gorizonti qalinligining 25% dan ko'prog'ini, o'rtacha eroziyalangan - 25-50%, kuchli eroziyalangan - 50% dan ko'prog'ini yo'qotadi. Shu bilan birga, tuproq va o'simlik qoplami uchun zarur bo'lgan ozuqa moddalari kamayib borishi kuzatiladi. Masalan: azot - 0,3%, fosfor - 0,15%, kaliy - yuvilgan tuproq og'irligining 2% ni tashkil etadi [1; C.136.].

Dehqonchilik qilish ucnun ekin ekiladigan yerning qiyaligi va yonbag‘irlari tik bo`lgan hududlarda yerlarni haydashdan eroziya jarayonini juda ham tezlashtiradi. Qashqadaryo viloyati tog‘oldi qiya tekisliklari va adirlardagi sug‘oriladigan hamda shartli sug‘oriladygan yerlarida sug‘orma eroziya ro‘y beradi. Aynan shunday joylarga ko`p yillik ekinlarni ekish maqsadga muvofiqdir.

Quyida berilgan 2-rasmda berilgan ma`lumotlar tahlili shundan iboratki, 1960 yilda sug’oriladigan yerlarning maydoni 140 ming gektarga etkazildi, zovurlar qurila boshlanishi bilan Qashqadaryo suvlarining o’rtacha minerallashuv darajasi 0,49 g/l ga etadi. 1970 yilda sug’orma dehqonchilik qilinadigan yerlar 171,5 ming ga ni tashkil etgan. Bu vaqtda zovurlarning uzunligi 1,2 ming km ga etdi. Shu

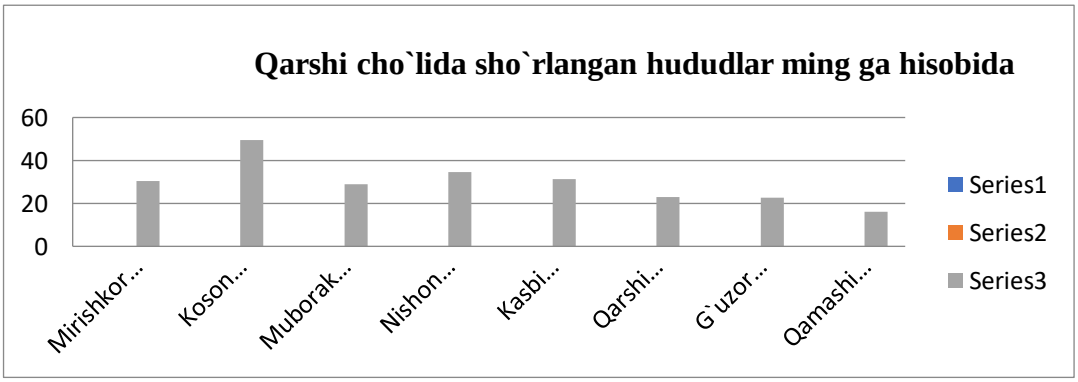
davrda zovur-drenajlarning uzunligi har bir gektar maydonda 7 pog.m ga yaqin bo'ldi. Hozirda har bir gektar sug'oriladigan yerlar doirasida zovur-drenajlarning uzunligi 11-12 pog.m to'g'ri keldi (viloyat bo'yicha o'rtacha). Qarshi cho'lida esa bu ko'rsatkich 25 pog.m dan oshmaydi. Qarshi cho'li va qisman



2-rasm. Qashqadaryo viloyatida sug`oriladigan yer maydoni

havzaning o'rta qismida yangi yerlarning o'zlashtirilishi munosabati bilan sug'oriladigan yerlar maydoni 415 ming gektarga etkazildi [4; C.441 -446].

Sug'oriladigan yerlarda qayta sho'rlanish jarayonlari ko'lamlarining kengayishiga sug'orishda foydalaniladigan daryo suvlari minerallashuv darajasining ortishi va kollektor-drenaj tarmoqlarining loyiha darajasida bo'lmasligi bilan bog'liq (3-rasm). Qashqadaryo viloyatining hududiy doirasida 2022 yil yanvar holati ma'lumoti bo'yicha, viloyatda sho'rlangan maydon 232489 ming ga, shundan kuchli sho'rlangan yerlar 9660 ming ga, kuchsiz sho'rlangan 184680 ming ga, o'rtacha sho'rlangan 38129 ming ga. Shundan kuchli sho'rlangan maydonlar Koson tumanda 2700 ga., Muborak tumanda 2840 ga., Nishon tumanda 1834 ga. to'g'ri keladi.



3-rasm. Qarshi cho`lida sho`rlangan hududlar diagrammasi

Qashqadaryo havzasining tekislik va tog`oldi qismlaridagi sug'oriladigan yerlardan zaxni qochirish maqsadida qurilgan zovurlar minerallashuv darajasi ancha yuqori bo'lgan suvlarni bevosita Qashqadaryoga quyadi va daryoning quyi oqimida sug'orishda foydalaniladigan suvlarning ham minerallashuv darajasini ortishiga sabab bo'ladi.

Qashqadryo viloyatining cho`l qismidagi tumanlarda tuproq sifatini muttasil yomonlashib borishi oqibatida keyingi yillarda eroziyaning salbiy jarayonlari yaqqol kuzatiladi. Hududda tuproq sifati yomonlashuv tabiiy va antropogen eroziya

jarayonlari ta`siri kuchayishi natijasida, o‘rta va kuchli sho‘rlangan yerlar maydoni ham muttasil oshib bormoqda. Jumladan, Mirishkor tumanida 1991-2021 yillar mobaynida sug‘oriladigan yerlarning kuchsiz va o‘rta sho‘rlangan yerlari 7,1 foizdan 7,6 foizgacha oshgan. Muborak tumanida esa 19,1 foizdan 15,7 foizgacha, Nishon tumanida 9,4 foizdan 15,4 foizgacha o‘zgarganligini kuzatish mumkin.

Qashqadaryo viloyati sug‘oriladigan yerlarini meliorativ jihatdan holatini baholash uchun bu yerlarni sizot suvlari sathi chuqurligi va sho‘rlanganlik darajasi to‘g‘risida ma’lumotlar muhim o`ringa ega. Qarshi cho’lining sug’oriladigan yerlarida sizot suvlari uzluksiz ko’tarilib bormoqda va ularning minerallashuv darajasi esa tobora ortib bormoqda. Sizot suvlari sathining ko’tarilishi me’yoriy sathga etganda (ya’ni yer yuzasidan 2,0-2,5 m chuqurlikda) tuproqlarning qayta sho’rlanish jarayoni avj oladi. Qarshi cho’lining yangi o’zlashtirilgan yerlarida agroirrigatsion landshaftlarda tuproqlarni qayta sho’rlanishining bir qator sabablari mavjud. Sug’orish me’yorlarining buzilishi, tuproqlarning tabiiy sho’rlanish sharoitlarining e’tiborga olinmaganligi, kollektor-drenaj tarmoqlarining me’yoridan kam qurilganligi va boshqa sabablar tufayli ancha katta maydonlarda qayta sho’rlanish, sug’orish (irrigatsiya) eroziyasi kabi jarayonlar ta’siri kuchaya bordi. Grunt suvlarining tuproqni sho`r bosishiga ta`siri ularning qanday chuqurlikda joylashganligi va minerallashganlik darajasiga bog`liq. Jumladan, Qashqadryo viloyatining cho`l zonasida sug‘oriladigan yerlarining 52 foiziga yaqin yoki viloyatning 42,4 foizidan ortiq maydonida sizot suvlarining chuqurligi 2-3 metrni, 2,4 foizi 1,5-2 metrni, 40,4 foizi 3-5 metrni tashkil qiladi. Qashqadaryo viloyati sug‘oriladigan yerlarning 2/3 qismida sizot suvlarining sho‘rligi 3 grammdan yuqori, 1/3 qismidan ko‘prog‘ida esa 1-3 grammni tashkil etadi. Viloyatning tumanlari miqyosida sug‘oriladigan yerlarining katta qismida quyidagicha: Muborak tumanida 88,0 %, Koson tumanida 83,5 %, Nishon tumanida esa 80,5 % sizot suvlarining sho‘rligi 3 grammdan yuqoridir.

Hozirgi vaqtda viloyatning cho‘l zonasidagi vohalar atrofida ko‘p uchraydigan sho‘rxoklar va sho‘r bosgan tuproqlarning vujudga kelishiga kishilarning xo‘jalik faoliyati ko`proq ta`sir etgan. Qashqadaryo viloyatida sug`oriladigan 25 ming ga maydonda suv eroziyasi, 20 ming ga maydonda shamol va suv eroziyasi rivojlangan bo`lsa, 200 ming ga dan ziyod maydon tuproqlari esa sho`rlangandir.

Qashqadaryo viloyatida irrigatsion eroziya tog‘oldi va adirlarda (bo‘z tuproqlar mintaqasining sug‘oriladigan yerlari) keng tarqalgan bo‘lib, bunday yerlar ekin ekishga yaroqsiz bo‘lib qolmoqda. Kitob-Shahrisabz botig`ida agroirrigatsiya landshaftlarida eroziyaning ushbu turi uchratish mumkin.

Demak, Qarshi cho’lining yangi o’zlashtirilgan yerlarida agroirrigatsion landshaftlarda tuproqlarni qayta sho’rlanishining bir qator sabablari mavjud. Ana shunday sabablardan biri relyef va iqlimning nomutanosibligidir. Sug’orish me’yorlarining buzilishi, tuproqlarning tabiiy sho’rlanish sharoitlarining e’tiborga olinmaganligi va kollektor-drenaj tarmoqlarining me’yoridan kam qurilganligi va boshqa sabablar tufayli ancha katta maydonlarda qayta sho’rlanish, sug’orish (irrigatsiya) eroziyasi, shamol eroziyasi kabi jarayonlar ta’siri kuchaya bordi.

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TOSHKENT SHAHRIDAGI TURAR-JOY MAJMUALARINING AN’ANAVIY VA ZAMONAVIY USLUBLARI SINTEZI

Annotatsiya. *Toshkent shahrida qurilayotgan zamonaviy turar-joy majmualari an’anaviy o‘zbek arxitekturasi tamoyillarini o‘zida aks ettirishga harakat qilmoqda. Ushbu maqolada yangi uy-joy komplekslari dizayni, ularning an’anaviy elementlar bilan uyg‘unlashuvi va me’moriy o‘ziga xosliklari tahlil qilinadi. An’anaviy o‘zbek mahallalarining strukturasiga taqlid qiluvchi zamonaviy loyihalar urbanizatsiya jarayonida milliy o‘zlikni saqlab qolish muhimligini ko‘rsatadi.*

Kalit so‘zlar: *Toshkent arxitekturasi, turar-joy majmualari, an’anaviylik, zamonaviylik, milliy o‘zlik.*

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RESIDENTIAL COMPLEXES IN TASHKENT SYNTHESIS OF TRADITIONAL AND MODERN STYLES

Abstract. *The modern residential complexes being built in Tashkent aim to reflect the principles of traditional Uzbek architecture. This article analyzes the design of new residential complexes, their integration with traditional elements, and their architectural uniqueness. Modern projects that replicate the structure of traditional Uzbek mahallas highlight the importance of preserving national identity during urbanization.*

Keywords: *Tashkent architecture, residential complexes, traditionalism, modernity, national identity.*

Kirish. Toshkent arxitekturasi tarixiy jihatdan an’anaviy sharqona va zamonaviy yevropacha uslublarning uyg‘unligi bilan ajralib turadi. Mustaqillikdan keyin urbanizatsiya jarayonlari jadallashib, shahar yangi turar-joy majmualari bilan boyidi. Shu bilan birga, zamonaviy turar-joy loyihalarida milliy o‘zlikni saqlab qolish masalasi dolzarb bo‘lib qoldi. Ushbu maqolada Toshkentning yangi turar-joy majmualari qanday qilib an’anaviy arxitektura elementlarini o‘z ichiga olishi va zamonaviy talablar bilan uyg‘unlashishi tahlil qilinadi.

Metodologiya. Ushbu tadqiqot Toshkent shahrida yangi qurilayotgan turar-joy majmualarining arxitektura xususiyatlarini o‘rganishga qaratilgan bo‘lib, tadqiqotda sifatli va miqdoriy tahlil usullari qo‘llanildi. Tadqiqot jarayonida quyidagi metodlardan foydalanildi:

Me’moriy tahlil: Toshkentdagi zamonaviy turar-joy majmualarining arxitektura xususiyatlari o‘rganilib, quyidagi jihatlar tahlil qilindi:

Fasad va bezak elementlari – an’anaviy o‘zbek arxitekturasi bilan bog‘liq naqshlar, ganch o‘ymakorligi va geometrik ornamentlar mavjudligi.

Binolar shakli va masshtabi – turar-joy majmualarining hajmiy-kompozitsion yechimlari, balandligi va shahar landshaftiga ta’siri.

Funktsional rejalashtirish – an’anaviy mahalla tizimiga mos kelishi yoki zamonaviy kvartal tipidagi loyihalarga asoslanishi.

Tadqiqotda zamonaviy va an’anaviy arxitektura elementlari o‘zaro taqqoslandi. Ushbu usul yordamida quyidagilar o‘rganildi:

- Toshkentning tarixiy mahallalaridagi arxitektura elementlari va ularning hozirgi zamonaviy turar-joy loyihalarida qanday aks etayotgani.
- Mahalla tizimining joriy etilishi – mahallalarga xos bo‘lgan hovlili uylar va ko‘cha tarmog‘ining zamonaviy loyihalardagi aks etishini tahlil qilish.
- Materiallar va qurilish uslublari – tarixiy va zamonaviy turar-joy majmualarida ishlatiladigan materiallarning taqqoslanishi.

Tadqiqot jarayonida Toshkentdagi zamonaviy turar-joy majmualarini loyihalash va qurishda ishtirok etayotgan mutaxassislar bilan intervyular o‘tkazildi. Ular quyidagi guruhlarga ajratildi:

- Me’morlar va dizaynerlar – milliy arxitektura elementlarining zamonaviy loyihalarga integratsiyasi bo‘yicha fikr almashildi.
- Shahar rejalashtiruvchilari – Toshkent shahrining urbanizatsiya jarayonlarida an’anaviy me’morchilik tamoyillarining roli bo‘yicha tahlil qilindi.
- Aholi vakillari – yangi qurilgan turar-joy majmualarining qulaylik darajasi va an’anaviylikni qay darajada aks ettirishi bo‘yicha fikrlar olindi.
- Intervyular natijasida zamonaviy turar-joy majmualari loyihalarida an’anaviy elementlar qo‘llanilishining afzalliklari va kamchiliklari aniqlandi.

Tadqiqot uchun Toshkent shahridagi quyidagi yirik turar-joy majmualari o‘rganildi:

«Tashkent City» – Toshkentning markazida joylashgan zamonaviy turar-joy va biznes markazi. Uning dizaynida xalqaro arxitektura tamoyillari ustunlik qiladi, ammo ayrim joylarda milliy naqsh elementlari uchraydi.

«Olmazor City» – ko‘proq o‘zbek arxitekturasiga xos elementlarni o‘zida mujassam etgan turar-joy kompleksi.

«Nurafshon New City» – Toshkent viloyatida yangi shahar loyihasi bo‘lib, an’anaviy shahar tuzilishiga yaqinroq loyihalashtirilgan.

Tanlangan obyektlar arxitektura uslublarining turlicha bo‘lishi tufayli tahlilning obyektivligini oshirishga xizmat qildi.

Natijalar. So‘nggi yillarda Toshkent shahrida qurilayotgan turar-joy majmualari quyidagi xususiyatlarga ega:

- Yuqori qavatli binolar, ekologik va energiya tejamkor yechimlar.
- Yashil hududlar va rekreatsiya zonalarining mavjudligi.
- Mahalla tamoyiliga asoslangan kvartal tipidagi loyihalar.

Zamonaviy loyihalarda quyidagi an’anaviy o‘zbek arxitektura elementlari qo‘llaniladi:

- Islimiy naqshlar va ganch o‘ymakorligi – interyer va eksteryerlarda milliy naqshlardan foydalanish.
- Hovlili kvartallar – mahalla tizimiga asoslangan turar-joy loyihalari.
- Ko‘cha strukturalari – tor va soyali yo‘laklar an’anaviy mahalla me’morchiligidan ilhomlangan.

Mahalliy me’morlar zamonaviy binolarga milliy ruhni singdirish uchun quyidagi usullardan foydalanishmoqda:

- Loyiha rejalashtirishida mahalla modeli – har bir turar-joy majmuasida qo‘shni aloqalarini mustahkamlovchi joylashuv prinsiplari qo‘llaniladi.
- Materiallar tanlovi – tabiiy tosh va milliy uslubdagi bezaklar ishlatilmoqda.
- Ijtimoiy infratuzilma – an’anaviy bozor maydonchalari, jamoat hududlari.

Muhokama. Yangi qurilayotgan turar-joy majmualari an’anaviy arxitektura elementlari bilan uyg‘unlashgan holda Toshkent shahrining umumiy arxitektura landshaftini shakllantirmoqda. Zamonaviy texnologiyalar va ekologik dizayn yondashuvlari an’anaviy me’moriy uslublar bilan uyg‘unlashgan holda shahar estetik ko‘rinishiga ijobiy ta’sir ko‘rsatmoqda.

Shu bilan birga, ayrim loyihalarda faqat dekorativ milliy elementlarning qo‘llanilishi, mahalla tamoyillarining yetarlicha chuqur integratsiya qilinmaganligi kabi muammolar ham mavjud. Kelajakda milliy o‘zlini saqlab qolish uchun an’anaviy turmush tarziga mos rejalashtirish usullarini joriy etish muhimdir.

Xulosa. Toshkent shahridagi zamonaviy turar-joy majmualari an’anaviy va zamonaviy arxitektura elementlarini sintez qilish orqali milliy identifikatsiyani saqlashga xizmat qilmoqda. Ushbu jarayonda mahalla tamoyillarini loyihalashga integratsiya qilish, ekologik yondashuvlarni qo‘llash va milliy arxitektura uslublarini rivojlantirish muhim ahamiyat kasb etadi. Kelajakda shaharsozlik siyosatida an’anaviy va zamonaviy uslublarning uyg‘unlashishiga ko‘proq e’tibor qaratish talab etiladi.

Foydalanilgan adabiyotlar

1. O‘zbekiston Respublikasi shaharsozlik qonunlari va me’yorlari.
2. Toshkent shahar bosh rejasi: Rivojlanish strategiyasi.
3. Me’moriy dizayn bo‘yicha zamonaviy tadqiqotlar va nashrlar.

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CHALLENGES AND ADVANCES IN LUNG CANCER TREATMENT

Abstract:*Lung cancer is among the malignant tumors that are most frequently found.*

With a high rate of morbidity and mortality, non-small cell lung cancer (NSCLC) is the most prevalent form of lung cancer. Radiotherapy, chemotherapy, targeted therapy, and surgical resection are all part of the current treatment arsenal. The outlook remains quite poor despite these options, with a dismal 5-year survival rate. Therefore, it is essential to strive for a paradigm shift in therapeutic methodologies. The creation of sophisticated biotechnologies and interdisciplinary integration in recent years have enabled the use of modern lung cancer treatment techniques. The most current developments in immunotherapy, photothermal therapy, molecular targeted therapy, and nanodrug delivery for lung cancer are examined in this article.

Keywords: *Lung cancer, nano drug delivery system, molecular targeted,treatment system, photothermal treatment strategy, immunotherapy.*

The introduction

Lung cancer is one of the most common diseases in the globe due to its high rate of morbidity and mortality [1]. Based on the histology of the cancer cells, lung cancer is primarily divided into two categories: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). NSCLC is the most common subtype of lung cancer, accounting for 85–90% of all forms of the disease. Non-small cell lung cancer (NSCLC) is composed of a number of histological subgroups, including lung adenocarcinoma (LUAD), lung squamous carcinoma, and large-cell lung cancer [2]. Adjuvant therapy is used in addition to surgical tumor removal for stage I or II non-small cell lung cancer. On the other hand, when the disease reaches stage III or IV, radiation treatment or chemotherapy are employed [3], [4].

However, limited absorption, non-specific targeting, and the development of drug resistance are some of the major problems with traditional chemotherapy drugs that limit their effectiveness in treating cancer [5].

The nanodrug delivery system's special properties allow it to encapsulate therapeutic ingredients and prevent their degradation. This reduces non-specific harm to the target tissue and accurately delivers anticancer drugs to tumor locations, increasing anticancer efficacy [6, 7, 8, 9].

Drug distribution by nanocarriers is a ground-breaking method of treating lung cancer because of the following benefits. These include enhanced safety

through site-specific anticancer medication delivery, enhanced drug absorption in the body, and the capacity to release medications with controlled release over time during targeted drug administration, all of which enhance the therapeutic effects on the lungs. The delivery system for nanomedicine is a promising treatment approach to research in the field of lung cancer therapy. It provides an alternative to the conventional chemotherapy treatment, which has a number of side effects [10].One important method of treating NSCLC is molecular targeted therapy [1,2].

Numerous receptor tyrosine kinases, such as hepatocyte growth factor receptor (c-Met), epidermal growth factor receptor (EGFR), and anaplastic lymphoma kinase (ALK), are crucial targets for molecular targeted therapy due to their involvement in cell survival and development [4], [5]. Tyrosine kinase inhibitors, like erlotinib and gefitinib, are made to specifically target EGFR mutations, which are the intended therapeutic target. There are also active investigations on inhibitors that target several targets [8].

Despite the availability of several lung cancer treatments, there are still many challenges to be solved. Therefore, new and effective lung cancer treatment approaches need to be developed.

Nanomedicine delivery methods for the treatment of lung cancer.

The structure of nanoparticles has the following advantages: controlled drug release, enhanced anticancer drug stability, and ease of surface modification [1]. Nanoparticles minimize adverse effects and increase therapeutic efficacy by delivering nucleic acids and anti-cancer drugs to tumor tissues via their unique properties (Fig. 1). With a focus on those mediated by various types of nanoparticles, such as liposomes, exosomes, polymer nanoparticles, magnetic nanoparticles, lipid nanoparticles, and polylactic-co-glycolic acid, this section provided a comprehensive analysis of lung cancer treatment employing nano-drug delivery systems.

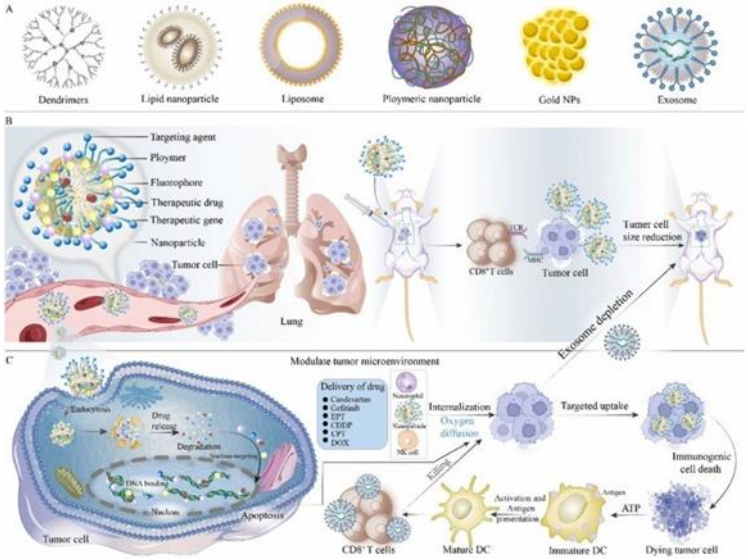

Figure 1: Schematic representation of drugs delivered using nanotechnology for the treatment of lung cancer. It was necessary to modify specific ligands in this process so that NPs could more accurately target and destroy tumor cells. Compared to traditional therapeutic pharmaceuticals, these nanoparticle-based drug delivery

systems had the advantage of more effectively and precisely delivering drugs to tumor tissues, which decreased side effects.

Materials and methods Immunization

An innovative method of combating lung cancer was immunotherapy. It included a variety of methods, such as immune checkpoint inhibitors (ICIs), cancer vaccines, and cellular immunotherapies, to develop or enhance effective immune responses against tumors (Fig. 4). In addition to improving patient survival and quality of life, immunotherapy has been shown to have less side effects than chemotherapy [7], [8]. Immunotherapy was a safe and successful treatment option for lung cancer [9], [11].

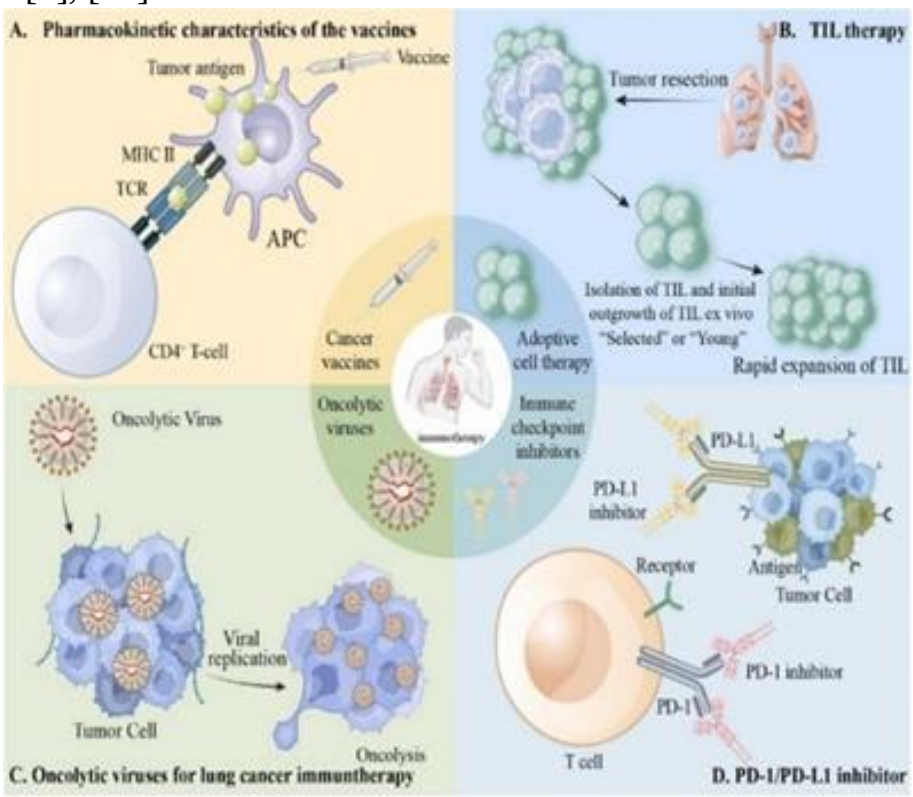

Figure 4. A schematic illustration of the various immunotherapy strategies for lung cancer was displayed. These strategies included: A: Immunotherapy, which prevents lung cancer by using vaccines specific to a given tumor. B: Applying TIL therapy. C: Immunotherapy for lung cancer using oncolytic viruses. D: Immunotherapy for lung cancer with immune checkpoint inhibitors.

Results and discussion

Therapeutic cancer vaccines that target specific immune system stimulation may enhance anti-tumor immune responses [3]. Because of their tumor specificity, mutated neoantigens from cancer cells were excellent targets for T cell-mediated immunity and had a high potential to activate anti-tumor immune responses. In order to develop personalized therapeutic cancer vaccines, these parameters were investigated [3], [4].

In summary

Despite advancements in medicine, lung cancer still has an alarmingly high prevalence and death rate worldwide. It is true that lung cancer mortality can be reduced by early screening and identification. Although our understanding of the molecular biology and clinical features of lung cancer patients has improved over the last few decades, a really effective treatment is yet unreachable. This is due to the fact that standard chemotherapy regimens for lung cancer have a lot of disadvantages, which is a persistent issue for the medical community. Therefore, more efficient and well-tolerated lung cancer therapy methods are desperately needed.

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BOSHLANG‘ICH TA’LIM YO‘NALISHI TALABALARINI O‘QITISHDA MOBIL TEXNOLOGIYALARDAN FOYDALANISH

Annotatsiya: *Bugungi kunda zamonaviy ta’limga talab tobora ortib borayotgan davrda mobil texnologiyalari asosidagi mobil ta’limga ham ehtiyoj ortmoqda. Maqolada zamonaviy mobil qurilmalardan ta’lim jarayonida foydalangan xolda mashg’ulotni qiziqarli tarzda olib borishga qaratilgan. Maqolada mobil ta’lim har joyda va har qanday sharoitda ham qulay bo‘lib, ta’lim oluvchilar mobil qurilmalardan behuda emas, balki ta’lim olishda foydalanishi, bunda mobil ilovalar hamda qo‘l kelishi haqida fikrlar bayon qilingan.*

Kalit so`zlar : *mobil texnologiya, m-learning, mobil ta’lim, mobil texnologiya turlari, LMS, mobil qurilma, mobil ilova.*

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USE OF MOBILE TECHNOLOGIES IN EDUCATION OF STUDENTS OF PRIMARY EDUCATION

Abstract: *Today, in an era where the demand for modern education is increasing, the need for mobile education based on mobile technologies is also increasing. The article focuses on making learning interesting by using modern mobile devices in the educational process. The article presents ideas on how mobile education is convenient everywhere and in any conditions, and how learners can use mobile devices not for nothing, but for learning, and mobile applications and their usefulness.*

Keywords: *mobile technology, m-learning, mobile education, types of mobile technology, LMS, mobile device, mobile application.*

Kirish. Zamonaviy bilim va yuksak ma’naviy-axloqiy fazilatlarga ega, mustaqil fikrlaydigan yuqori malakali kadrlar tayyorlash jarayonini sifat jihatidan yangi bosqichga ko‘tarish, oliy ma’lumotli mutaxassislar tayyorlash sifatini oshirish, ta’lim jarayoniga raqamli texnologiyalar va zamonaviy usullarni joriy etish - davlat siyosatining ustuvor vasifalaridan biri ekanligini belgilandi. Oliy ta’lim tizimini 2030-yilgacha rivojlantirish konsepsiyasida ham zamonaviy axborot-kommunikatsiya texnologiyalari va ta’lim texnologiyalarining mustahkam

integratsiyasini ta’minlash, ta’lim jarayonlarini raqamli va mobil texnologiyalar asosida tashkil etish, masofaviy ta’lim xizmatlarini rivojlantirish, vebinar, onlayn, “blended learning”, “flipped classroom” texnologiyalarini amaliyotga keng joriy etish, zamonaviy mobil texnologiyalar asosida masofaviy ta’lim dasturlarini tashkil etish, mobil qurilmalar yordamida masofadan turib foydalanish imkonini beruvchi o‘quv platformalari yaratish, mobil texnologiyalardan foydalanish orqali talabalar va o‘qituvchilar uchun ta’lim jarayonini yanada moslashuvchan qilish alohida ko‘rsatib o‘tilgan [1].

O‘zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning gi 2023-yil 26-maydagi PF-79-son farmonida “umumiy o‘rta ta’lim muassasalarining boshlang‘ich sinflarida informatika fani, o‘rta sinflarda esa o‘quvchilarning moliyaviy savodxonligini oshirishga qaratilgan darslar joriy etiladi” deyilgan [2]. Shunga muvofiq, Maktabgacha va maktab ta’limi vazirining 2023 yil 15 maydagi 125-sonli buyrug‘iga asosan O‘zbekiston Respublikasi maktablarida 2023-2024-o‘quv yilidan boshlab, umumiy o‘rta ta’lim maktablarining 1-sinfida “Informatika va axborot texnologiyalari” fanini o’qitish joriy qilingan [3]. Demak, bundan ko‘rinadiki bo‘lajak boshlag‘ich sinf o‘qituvchilarini kasbiy faoliyatga tayyorlash, ularni mobil qurilmalardan dars jarayonida samarali foydalana olish ko‘nikmalarini shakllantirish, zamonaviy raqamli texnologiyalardan foydalanib dars samaradorligini yanada oshirish, “Boshlang‘ich sinflarda axborot texnologiylari” fanini mobil texnologiyalar asosida o‘qitish bugungi kunning dolzarb pedagogik muammolaridan biri bo‘lib ko‘rinmoqda.

Adabiyotlar sharhi. Byuk Britaniya olimlari Sharples, Taylor, va Vavoula tomonidan 2005 yilda nashr etilgan "Towards a Theory of Mobile Learning" maqolasi mobil o‘qitish sohasida fundamental ish hisoblanadi. Ular mobil o‘qitishning nazariy asoslarini rivojlantirishga urinishgan va shu bilan o‘quv jarayonida yangi texnologiyalarning rolini tushuntirishga harakat qilishgan. Sharples va hamkasblari o‘z ishlarida mobil o‘qitishni faqat texnologiya orqali emas, balki o‘qishning kengayishi va moslashuvchan jarayon sifatida ko‘rib chiqadilar [4]. Ularning takliflari mobil texnologiyalarni o‘qitish jarayoniga integratsiya qilishda foydali bo‘lib, hozirgi zamonaviy ta’lim tizimida ularni joriy qilish uchun mustahkam poydevor bo‘lib xizmat qiladi.

Mohamed Ally fikricha mobil texnologiyalarning ta’limdagi o‘rnini amaliy va interaktiv imkoniyatlarni kengaytirishda muhim o‘rin tutishini ta’kidlaydi. Mobil texnologiyalar orqali talabalarga kengaytirilgan reallik yordamida murakkab tushunchalarni real va amaliy ko‘rinishda o‘rganish imkoniyati yaratiladi. U bu texnologiyalar ta’limni istalgan joyda va vaqtda olishga moslashish, shuningdek, murakkab tushunchalarni interaktiv tarzda o‘zlashtirishga yordam beradi, deb hisoblaydi. Shu orqali talabalar tajribaga asoslangan o‘quv jarayonini boshdan kechirishi mumkin [5].

H. Crompton o‘zining “Increasing Engagement through Mobile Learning Interactivity” maqolasida mobil texnologiyalarning ta’lim jarayonidagi interaktivlikni oshirishga qaratilgan imkoniyatlarini o‘rganadi. Cromptonning fikricha, mobil texnologiyalar yordamida talabalar o‘zlariga qiziqarli va dinamik

tarzda ta’lim olishlari mumkin, bu esa ularning o‘zlashtirish darajasini oshiradi. U ta’limdagi interaktivlikni kuchaytirish uchun multimedia, o‘yinlashtirish va shaxsiylashtirilgan o‘quv platformalari kabi yondashuvlarni qo‘llash muhimligini ta’kidlaydi. Bu usullar orqali talabalar faolroq bo‘lib, bilim olish jarayonida ko‘proq ishtirok etish imkoniyatiga ega bo‘ladi [6].

Gwo-Jen Hwang[7] o‘zining “Strategies for Personalizing Mobile Learning Systems” ilmiy ishida ta’limda mobil texnologiyalar yordamida shaxsiylashtirilgan o‘quv muhitlarini yaratish imkoniyatlariga to‘xtaladi. Hwang ta’lim tizimida har bir talabaning ehtiyojlariga mos o‘quv modullarini ishlab chiqish uchun moslashuvchan va individual yondashuvlar qo‘llanilishi muhimligini ta’kidlaydi.

Cheon J. va Lee S. mobil texnologiyalarni ta’limda qo‘llash bo‘yicha tadqiqotlarida interaktiv mobil ilovalar yordamida o‘quvchilarning bilim olish jarayonini qanday kuchaytirish mumkinligi haqida fikr bildiradilar. Ular mobil ilovalar orqali o‘quvchilar qiziqarli va moslashuvchan ta’lim muhitiga ega bo‘lishadi, bu esa ularni o‘qishga ko‘proq jalb qiladi va o‘zlashtirish darajasini oshirishini, talabalar mobil ilovalarda o‘z natijalari va xatolarini darhol ko‘rishini, o‘zlarini tezda tuzatish imkoniyatiga ega bo‘lishlarini va bu jarayon o‘qituvchi va talaba o‘rtasidagi aloqa sifatini yaxshilashini ta’kidlaydilar [8].

Novikov M, Y. o‘zining dissertatsiyasida maktablarda informatika o‘qitish uchun mobil texnologiyalardan foydalanish imkoniyatlarini tahlil qiladi. Ural Davlat Pedagogika Universitetida himoya qilingan ushbu ishda Novikov o‘quv jarayonida interaktiv va shaxsiylashtirilgan mobil texnologiyalardan foydalanish informatika fanini o‘zlashtirish samaradorligini oshirishi mumkinligini ta’kidlaydi. Dissertatsiya ta’limning mobil texnologiyalarga asoslangan usullarini ishlab chiqish va sinovdan o‘tkazishga qaratilgan [9].

Xanimqulov Baxrom Roxmonqulovichning “Integratsiyalashgan darslarda mobil o‘qitish texnologiyalaridan foydalanish metodikasi” mavzusidagi dissertatsiyasi ta’lim jarayonida mobil texnologiyalarni joriy etish va ulardan foydalanishni o‘rganishga qaratilgan. Dissertatsiyaning dolzarbligi zamonaviy ta’limda mobil texnologiyalarning keng joriy etilishi bilan bog‘liq. Ta’lim tizimida texnologiyalarning rivoji va raqamli bilim olish muhim ahamiyat kasb etadi [10].

Yuqoridagi xorijiy, rus, o‘zbek olim va mutafakkirlarning ilmiy izlanishlari taxlili shuni ko‘rsatadiki, Oliy ta’lim tizimida o‘quv mashg‘ulotlarini tashkil qilishda zamonaviy mobil texnologiyalardan foydalanish, bo‘lajak boshlag‘ich sinf o‘qituvchilarini mobil texnologiyalardan keng foydalanish ko‘nikmalarini shakllantirish bugungi kundagi dolzarb pedagogik muammolaridan biri bo‘lib ko‘rinmoqda.

Tadqiqot metodologiyasi. “**Mobil**” so‘zi lotin tilidan kelib chiqqan bo‘lib, aslida “harakatlanuvchi” yoki “ko‘chuvchi” degan ma’noni anglatadi. Zamonaviy kontekstdagi “mobil” atamasi, ko‘chma, harakatlanuvchi yoki ko‘tarib yurishga qulay bo‘lgan qurilmalarni, xususan, smartfonlar, planshetlar va boshqa simsiz ulanish imkoniga ega texnologiyalarni ifodalaydi [11].

“**Texnologiya**” so‘zi yunon tilidan olingan bo‘lib, ikki qismdan iborat: “tekhnē” (hunarmandlik, san’at yoki mahorat) va “logos” (bilim, ilm, nazariya). Bu

so‘z ilmiy bilim va amaliy ko‘nikmalarni muayyan maqsadlarga erishish uchun qo‘llash degan ma’noni anglatadi. Zamonaviy tushunchada texnologiya inson hayotini yaxshilash va jarayonlarni avtomatlashtirish uchun qo‘llaniladigan vositalar, usullar va jarayonlar majmuasidir [12].

“**Mobil texnologiya**” so‘zining lug‘aviy ma’nosi ko‘chma, ya’ni ko‘tarib yurishga qulay bo‘lgan, harakatlanish imkoniyatiga ega bo‘lgan qurilmalar xisoblanadi va ular yordamida qo‘llaniladigan dasturiy ta’minot majmuasi bilan bog‘liqdir. Mobil texnologiyalar zamonaviy aloqa, ta’lim, va axborot olishning muhim qismlaridan biri bo‘lib, foydalanuvchilarga turli xizmatlardan foydalanish imkonini beradi. Bu texnologiyalar odatda simsiz ulanish va har qanday joyda foydalanish uchun mo‘ljallangan [13].

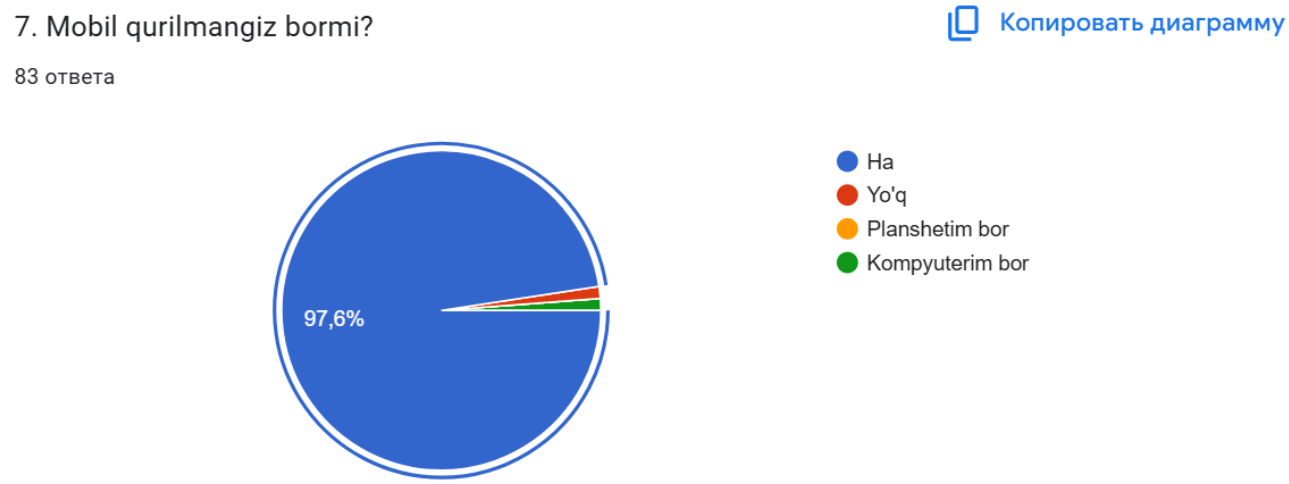
Mobil texnologiyalar asosida o‘qitish — bu o‘quv jarayonida mobil qurilmalar, masalan, android, ios, smartfonlar, planshetlar yoki netbuklardan foydalanish orqali bilimlarni yetkazish va o‘zlashtirish usuli xisoblanadi. Bu yondashuv o‘qitish jarayonini qulay va moslashuvchan qilish bilan birga, o‘quvchilarning darsga qiziqishini oshirish, bilimlarni interaktiv tarzda yetkazish va nazorat qilish imkonini beradi. Mobil texnologiyalarning ta’lim sohasiga kirib kelishi va ommalashishiga bir qator omillar sabab bo‘ldi. Avvalo, 2000-yillarning boshlarida internetning rivoji va mobil qurilmalarning ommalashuvi natijasida o‘qitish jarayoni joy va vaqtdan qat’i nazar olib boriladigan darajada kengaydi [5]. Bundan tashqari, zamonaviy smartfonlar va planshetlarning paydo bo‘lishi ta’lim jarayoniga yangi usullar va imkoniyatlar olib keldi.

COVID-19 pandemiyasi mobil texnologiyalarning ta’limda qo‘llanishini tezlashtirdi. Pandemiya ta’lim jarayonida masofaviy va mobil texnologiyalarning qanchalik zarur ekanligini yaqqol ko‘rsatdi. Mobil qurilmalar yordamida o‘quvchilar Zoom, Google Classroom, Microsoft Teams kabi platformalarda darslarga qatnashib, bilim olishda davom etishdi. Bu davrda talaba va o‘qituvchilarga vaqt va joy cheklovlarisiz ta’lim olish imkoniyati berildi [14].

Mobil texnologiyalar asosidagi o‘qitish metodlariga mobil qidiruv, mobil so‘rov, mobil loyihalash, web-kvest, interfaol video, podkast, mobil viktorina, to‘ldirilgan xaqiqiylik, bulutli texnologiyalar kiradi.

Tahlil va natijalar. Mobil texnologiyalar asosida o‘qitish bo‘yicha boshlang‘ich ta’lim yo‘nalishi talabalaridan so‘rovnoma o’tkazildi. Bu so‘rovnomada jami 83 nafar talabalar qatnashdilar. So’rovnomada mobil qurilmagiz bormi degan savolga 83 nafar talabadan 81 nafar talabalar bor deb javob berishdi 1 nafar talaba kompyuterim bor va 1 nafar talaba mobil qurilmam yo‘q deb javob

berdi.



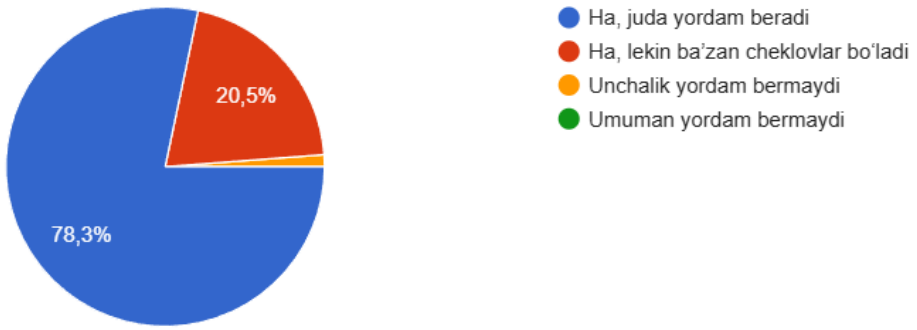
Mobil qurilmangizdan foydalanish darajangizni belgilang? 1 dan 5 gacha baxolang degan savolga 83 nafar talabadan 30 nafar talabalar 5 baxoga bilaman, 32 nafar talabalar 4 bahoga bilaman, 18 nafar talabalar 3 bahoga bilaman, 3 nafar talabalar esa 1 va 2 baxoga bilaman deb javob berishdi.

Sizningcha, mobil texnologiyalar ta’lim jarayonini samarali va qiziqarli qilishga yordam beradimi? degan savolga 83 nafar talabadan 65 nafar talaba ha, juda yordam berdi deb, 17 nafar talaba ha, lekin ba’zan cheklovlar bo‘ladi deb 1 nafar talaba esa unchalik yordam bermaydi deb javob berishdi. Umuman yordam bermaydi degan javobni xech kim tanlamadi.

13. Sizningcha, mobil texnologiyalar ta’lim jarayonini samarali va qiziqarli qilishga yordam beradimi?

Копировать диаграмму

83 ответа

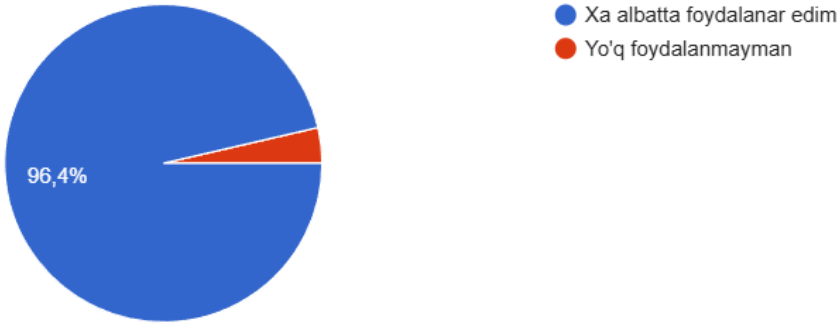


Mobil qurilmangizdan dars mashg‘ulotlarini o‘zlashtirishda foydalanish imkoniyati bo‘lganda foydalanarmidingiz? degan savolga 83 nafar talabadan 80 nafar talaba xa albatta foydalanar edim deb, 3 nafar talaba esa yo’q foydalanmayman deb javob berishdi.

12. Mobil qurilmangizdan dars mashg'ulotlarini o'zlashtirishda foydalanish imkoniyati bo'lganda foydalanarmidingiz?

Копировать диаграмму

83 ответа

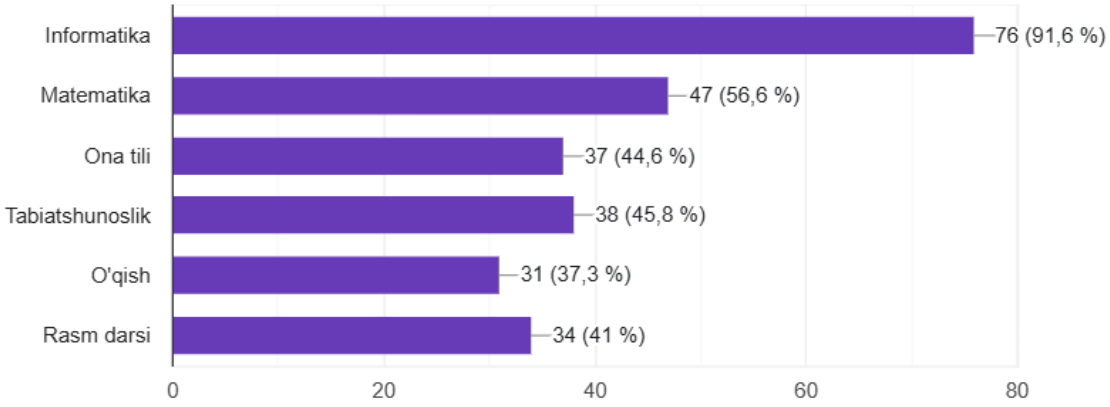


Mobil qurilma orqali mobil texnologiyalardan qaysi fanlarda foydalanish maqulroq deb o‘ylaysiz? degan savolga 83 nafar talabadan 76 nafar talaba informatika fanida foydalanish kerak degan javobni tanladi ya’ni foiz xisobida 91,6% ni tashkil qildi.

15. Mobil qurilma orqali mobil texnologiyalardan qaysi fanlarda foydalanish maqulroq deb o'ylaysiz?

Копировать диаграмму

83 ответа

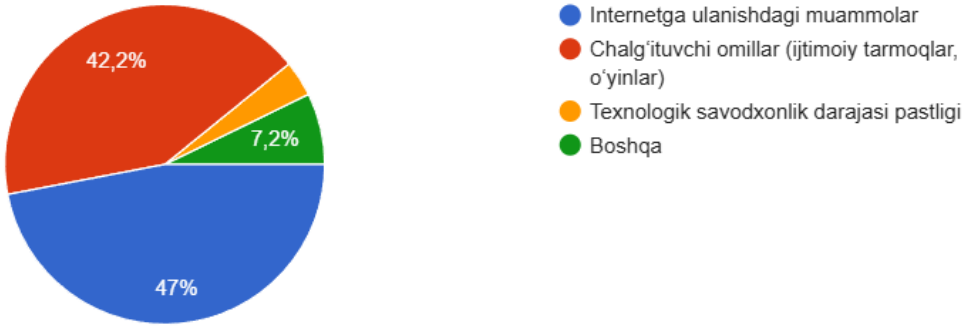


Mobil qurilma orqali mobil texnologiyalardan asosida o‘qitish qanday muammolarni keltirib chiqadi? degan savolga 83 nafar talabadan 39 nafar talaba Internetga ulanishdagi muammolar deb, 35 nafar talaba chalg‘ituvchi omillar deb, 3 nafar talaba texnologik sovodxonlikning pastligi deb, 6 nafar talaba esa boshqa omillar deb javob berishdi.

14. Mobil texnologiyalar ta'lim jarayonida qanday muammolarni keltirib chiqaradi?

Копировать диаграмму

83 ответа



Yuqoridagi fikr mulohazalar va so’rovnomadagi javoblarning taxlil qiladigan bo‘lsak, mobil texnologiyalarni ta’lim jarayoniga tadbiq qilish bugungi kunning dolzarb vazifalaridan biri ekanligini ko‘rsatib turibdi [15,16].

Xulosa va takliflar. Mobil texnologiyalarni kengroq qo‘llash uchun infratuzilmani takomillashtirish va barcha o‘quvchilarni zamonaviy qurilmalardan dars jarayonida oqilona foydalanish ko‘nikmalarini shakllantirish kerak.

1. Shaxsiylashtirilgan va moslashuvchan ta’lim yondashuvlarini joriy qilish, o‘quvchilarning ehtiyojlarini inobatga olish zarur.
2. Pedagoglar uchun texnologiyadan foydalanish bo‘yicha amaliy treninglar o‘tkazish, ularning malakasini oshirishga alohida e’tibor qaratish lozim.

3. O‘yinlashgan ta’lim, AR/VR texnologiyalar va mobil ilovalardan foydalangan holda darslarni qiziqarli va samarali qilish zarur.
4. Ta’limda masofaviy va gibrid modellarni yanada rivojlantirish uchun raqamli platformalarni takomillashtirish lozim.

Mobil texnologiyalar va zamonaviy o‘qitish yondashuvlarini to‘g‘ri qo‘llash orqali ta’lim sifatini oshirish, talabalarni yangi bilim va ko‘nikmalar bilan qurollantirish mumkin. Bu esa ularni kelajakda zamonaviy jamiyat ehtiyojlariga moslashgan mutaxassislar sifatida tayyorlashga xizmat qiladi.

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DESIGNING PRIMARY SCHOOL EDUCATION LESSONS BASED ON A NEONOLOGICAL APPROACH

Abstract. *The article discusses the process of designing educational lessons in primary schools based on the neonological approach. This approach is aimed at developing students' creative thinking, organizing interactive and practical activities for them, as well as improving students' self-awareness and free expression skills. Ideas are expressed on how education in primary schools can be organized effectively and modernly through the introduction of the neonological approach into the education system.*

Keywords: *Neonological approach, primary school, education, lesson, design, student, creative thinking, interactive, practical activity, skills, modern education, integration.*

Introduction

The modern educational landscape demands innovative and adaptive teaching methodologies that cater to the diverse needs of students. The neonological approach has emerged as an effective strategy aimed at optimizing the learning process through the integration of contemporary pedagogical techniques. This approach prioritizes student-centered learning, fostering creativity, problem-solving skills, and individualized instruction. By emphasizing the unique characteristics of each learner, the neonological approach ensures that students receive an education tailored to their abilities, interests, and cognitive styles.

In primary education, the neonological approach is particularly significant as it facilitates a personalized and engaging learning experience. Teachers must recognize that students exhibit varied intellectual abilities, learning styles, and social behaviors, requiring differentiated instruction to maximize their academic potential. Moreover, technological advancements and innovative teaching strategies, such as gamification, project-based learning, and flipped classrooms, further enhance student engagement and motivation.

This paper explores the principles and implementation of the neonological approach in primary education, focusing on its role in fostering student-centered learning, interdisciplinary integration, and interactive teaching methods. By examining its practical applications and advantages, this study highlights the potential of neonological strategies to revolutionize traditional education systems, making learning more dynamic, inclusive, and effective.

"Neonological approach" is an approach aimed at organizing the learning process of students based on innovative and modern pedagogical methods. When

designing educational lessons in elementary grades using the neonological approach, the following factors should be taken into account:

In the neonological approach, it is very important to pay attention to the individual characteristics of the student. It is necessary to design lessons based on the specific abilities, interests and needs of each student. This, in turn, helps each student to achieve success in accordance with his or her capabilities. Taking into account the personal characteristics of students is one of the important aspects of the effective organization of the educational process. Each student is distinguished by his or her own unique, unique abilities, interests and needs. Taking into account personal characteristics ensures that education is individual and effective for each student.

Each student has their own abilities, for example, some may be strong in mathematics or language learning, while others may be strong in creative fields or natural sciences. Taking into account these differences, teachers should choose an individual approach to fully develop students' abilities.

Students may also have different intellectual levels. Therefore, it is necessary to provide students with tasks and activities of adapted complexity.

Students have different learning styles: some students learn best through visual learning, while others may prefer to learn through hearing (auditory learning style). Other students learn best through hands-on experience (kinesthetic learning style).

Teachers should identify their students' learning styles and plan lessons accordingly. For example, visual learners can be taught using diagrams, pictures, and videos, while kinesthetic learners can be taught using games or hands-on activities.

The emotional state of students also affects the learning process. Some students may be socially active and playful, while others may be withdrawn and shy. These characteristics affect the ability of students to work in groups, express their opinions, and participate in class.

Teachers should monitor the emotional state of students, communicate with them, and help them feel free. This increases student motivation and makes the learning process more effective.

Students' motivation and interests affect the learning process. Each student is interested in different subjects and activities. For example, some students are interested in art, others in science, and still others in sports.

Teachers should try to identify students' interests and make lessons interesting and useful for them. This will help increase students' motivation for learning.

Some students may have difficulties in reading, writing or arithmetic. At the same time, students may also have psychological, health-related or special needs. Lessons need to be adapted to take these needs into account.

Teachers should develop individual approaches for students with special educational needs. For example, additional support, simplification of teaching materials or temporary modifications.

The family and cultural background of students also affects the learning process. Some students may have extra time and resources to study, while others may need additional support due to their family circumstances.

Teachers should understand the family background of students and provide additional support, adapting learning materials, and providing necessary resources.

Students' social skills are also very important. Some students do well in group activities, while others prefer to work more independently.

Teachers should help students develop their teamwork skills through a variety of activities. This increases students' ability to cooperate and work together.

Taking into account the individual characteristics of students increases the effectiveness of the educational process. Each student is unique, so the teacher should adapt teaching methods to meet the individual needs of each. Taking into account the abilities, motivation, needs, and learning styles of students helps to teach students more successfully and joyfully.

The use of new technologies and innovative methods in lessons, such as digital learning tools, interactive curricula and online platforms, helps to implement the neonological approach. At the same time, it is important for students to develop creative thinking, problem-solving and independent learning skills.

The use of innovative methods is a set of methods and approaches aimed at making the learning process more effective, interesting and motivating for students. Innovative methods can help develop students' creativity, independent thinking, and teamwork skills. These methods often involve new technologies, interactive platforms, and innovative approaches by the teacher to organizing the lesson.

Below are some of the main types of innovative methods and recommendations for their use in primary grades:

Use of information and communication technologies (ICT)

Tasks: Use of digital learning tools, curricula, online resources, interactive whiteboards (smartboards) and educational platforms.

Advantages: Provides students with the opportunity to learn through new technologies, makes lessons interesting and interactive, and increases student participation.

Examples: Display text, diagrams and videos using a smart board.

Test students' knowledge through online tests and quizzes.

Teach students through interactive games using educational applications.

Gamification in teaching (teaching through games)

Tasks: Present the learning process to students in the form of a game, thereby making learning more interesting and stimulating.

Advantages: Increases students' motivation, they learn new knowledge through games, and encourage cooperation.

Examples: Teaching in the classroom using games or simulation programs (for example, based on history, geography, or science experiments).

Reinforcing knowledge through quizzes and competitive games.

Encouraging students to compete in the learning process through maps or cartridges.

Project-based learning. Tasks: Giving students project assignments focused on solving real-life problems, thereby increasing students' creativity and responsibility.

Advantages: Allows students to apply knowledge in practice, develops teamwork, and increases students' problem-solving skills.

Examples: Nature Studies: Giving students project assignments based on studying natural resources and environmental issues.

Arts and Creativity: Having students work on creative projects (creating paintings, poems, stories).

Interactive teaching methods. Objectives: Use methods that encourage students to actively participate, exchange ideas, and engage in the learning process.

Advantages: Students actively participate in the lesson and have the opportunity to apply what they have learned in practice, and they freely express and discuss their ideas.

Examples: Group work: Divide students into small groups and exchange ideas on the material read.

Brainstorming: Help students generate different ideas to solve a problem.

Debates: Teach students to argue about a topic and justify each idea.5. Kollaborativ o‘qitish (Hamkorlikda o‘qish)

Objectives: To teach students to work in groups, to explain their ideas to others, and to solve problems collectively.

Benefits: Students learn from each other, develop teamwork skills, and improve their social and communication skills.

Group Problem Solving: Students are given tasks to work in groups and develop solutions together.

Team Research: Students are given the task of conducting research and presenting the results as a group.

Flipped Classroom. Objectives: To provide students with the opportunity to learn at home through video lessons, learning materials, and resources, and to apply and discuss this information in practice during class.

Benefits: Students learn the lesson in their own time and have the opportunity to engage in more discussion and practice in class.

Examples: Give students video lessons to take home and solve exercises or problems on this topic in class.

Differentiated teaching. Tasks: Personalize the lesson according to the speed and style of learning of students, giving each student specific tasks and materials.

Advantages: The individual needs and abilities of each student are taken into account, which increases their success in learning.

Giving students more difficult or easier tasks. Additional resources or special help for unclear topics.

Innovative methods create great opportunities to make the educational process modern and interesting, to further deepen students' knowledge. They activate students, personalize the learning process and develop independent thinking

skills. For teachers, these methods allow them to organize lessons more effectively and creatively.

In the neonological approach, it is necessary to ensure that educational lessons are not limited to traditional teaching methods, but to provide students with active participation, work in groups, and carry out more interactive learning activities. For example, using methods such as "role-playing games", "theater scenes", "structured discussions", lessons can be more dynamic and interactive.

Multidisciplinary and interactive lessons are lessons that combine several academic subjects and activities in the educational process, encourage active participation of students, and are based on establishing interaction between them. Such lessons help students to master various knowledge in practice, approaching it from a single topic or issue.

Advantages of multidisciplinary and interactive lessons:

1. Develops students' thinking skills - by combining different areas, disciplines and methods, students learn to combine different points of view.

2. Increases motivation - interactive activities and group work make students more interested and active in the learning process.

3. Teaches problem-solving - multidisciplinary lessons allow students to use different approaches to solving complex problems.

4. Develops creativity - allow students to express their ideas and demonstrate creativity through practical activities.

The main aspects that should be considered when planning such lessons:

1. Choosing a topic and developing an interactive approach - the topic should provide students with the opportunity to gain knowledge from different subjects. For example, the topic "Nature and Man" combines biology, geography, ecology and art.

2. Group work – it is necessary to divide students into small groups and create opportunities for them to help each other and share knowledge.

3. Ensuring active participation of students – it is important to encourage students to discuss, express opinions, and express their ideas during the lesson.

4. Using interactive technologies – using smart boards, online platforms, and applications to involve students in solving problems, participating in quizzes, and group discussions.

5. Practical activities – allowing students to participate in practical work such as creating, building, testing, and conducting experiments.

Mathematics and Social Studies Lesson:

Subjects: Mathematics, Social Studies, Economics.

Topic: "Financial Literacy and Economic Decisions".

Activities: Theoretical part: Reading about money management, budgeting and economic decisions.

Interactive activities: Involving students in virtual economic games, making financial decisions.

Group work: Students are tasked with developing decisions based on various variations in solving economic problems.

Multi-disciplinary and interactive lessons make education more diverse and interesting, and contribute to the comprehensive development of students. Such lessons allow students not only to impart knowledge, but also to develop skills such as learning, creating, solving problems and collaborating with other students. These methods also encourage students to actively participate and make the learning process lively and interactive.

Developing primary skills. The neonological approach places great emphasis on developing the basic skills of students in the primary grades. These skills include communicative, creative and problem-solving skills. Students need to be taught teamwork, conversational skills, reasoning and expressing their opinions.

Primary skills are skills that are aimed at developing students' basic academic and personal skills, such as reading, writing, mathematics, and logical thinking. These skills allow students to be successful in the learning process, perform everyday tasks, and work effectively in a team. They create a solid foundation for students, preparing them to master more complex skills in the future.

In the neonological approach, it is useful to organize the learning process for students more through project work. For example, implementing project work on topics such as ecology, art, or history allows students to develop more in their own learning and creativity.

Appropriate assessment system. In the neonological approach, unlike the traditional assessment system, when assessing student achievement, it is necessary to assess students' knowledge and skills individually. This helps students to self-evaluate, self-monitor, and motivate them to improve.

An appropriate assessment system is an important tool for assessing students' learning activities, which ensures a correct assessment of the knowledge and skills acquired by students. This system takes into account not only students' knowledge, but also their practical activities, creative approaches, cooperation and problem-solving skills.

Flexibility for all students. A non-formal approach requires organizing lessons in accordance with the capabilities of all students and implementing a flexible approach for them. This helps students not only develop their knowledge, but also play a successful role in society.

Flexibility for all students means organizing the educational process, taking into account the individual needs, abilities, learning styles and speeds of students. Each student is unique and special, so the education system must adapt to each of them. This approach allows students to develop themselves, learn effectively, and receive education tailored to their needs.

Conclusion

The neonological approach presents a transformative model for modern education, emphasizing individualized learning, creativity, and technological integration. By acknowledging students' diverse abilities, interests, and emotional states, this methodology ensures that learning is both effective and engaging. The adaptation of teaching techniques, such as interactive learning, gamification, and

project-based instruction, allows educators to cultivate critical thinking, collaboration, and problem-solving skills among students.

Furthermore, the implementation of multidisciplinary lessons and innovative assessment methods provides students with a comprehensive and holistic learning experience. As technology continues to shape education, the neonological approach serves as a bridge between traditional pedagogy and modern digital tools, making the learning process more flexible, inclusive, and student-oriented.

Ultimately, the success of the neonological approach relies on the commitment of educators to continuously refine their teaching strategies, ensuring that students receive an education tailored to their evolving needs. By embracing innovation and adaptability, this approach has the potential to enhance student motivation, academic achievement, and lifelong learning skills, preparing them for success in an ever-changing world.

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EFFECTS OF INDUSTRIAL EXHAUST GASES ON THE RESPIRATORY ORGANS

Abstract: *This article analyzes the effects of industrial exhaust gases on the respiratory system and their dangerous consequences for human health. Harmful gases emitted by industrial enterprises, including carbon dioxide (CO_2), sulfur dioxide (SO_2), nitrogen oxides (NO_x) and other toxic substances, can cause inflammation of the respiratory tract, lung diseases, allergic reactions and even the development of oncological diseases. The study focuses on how these harmful substances affect the human body, their health risks and preventive measures. It also discusses environmental protection, air filtration technologies and methods for reducing industrial emissions. This article contains recommendations aimed at protecting the environment and preserving human health.*

Keywords: *Carbon dioxide, Chemical exposure, Dust and aerosol particles, Respiration, Tuberculosis, Asthma, Pulmonary emphysema, Lung cancer.*

Introduction

The atmosphere is one of the main factors of the entire biogeocenosis and precisely the ecotope. Changes in the composition of atmospheric air depend on the state of human economic activity. Clean air is necessary for plants and animals, even some transmitters, precise measuring equipment, new equipment and technologies require clean air. A polluted atmosphere has a negative impact on all sectors of the national economy. Various chemical compounds, toxic gases and dust emitted into the environment from industrial enterprises, due to various meteorological processes occurring in the atmosphere, cause an increase in pollution in certain regions. Because the operation of these enterprises at full capacity during heavy foggy, cloudy days, and temperature inversions causes environmental pollution to increase several times. With the development of industrial production, the amount of harmful gases emitted into the atmosphere is increasing. These emissions have a serious impact on human health, especially the respiratory system. Carbon dioxide (CO_2), sulfur dioxide (SO_2), nitrogen oxides (NO_x), hydrocarbons and other toxic substances emitted from industrial enterprises pollute the air and cause various diseases. As a result of air pollution, diseases such as asthma, bronchitis, and pulmonary emphysema are becoming widespread. Especially, the population living in large cities and industrial areas is more exposed to such risks. This problem has not only environmental, but also medical and

economic significance, negatively affecting the quality of human life and life expectancy. This study studies the effects of industrial exhaust gases on the respiratory system, their harm to health, and measures to prevent them. It also discusses the effectiveness of environmental protection methods and air purification technologies.

Literature review and method

As a result of industrial development, the volume of harmful exhaust gases emitted into the atmosphere is increasing. These gases have a negative impact on human health, especially the respiratory system. As a result of air pollution, the number of diseases such as asthma, bronchitis, and pulmonary emphysema is increasing, and the overall quality of life is decreasing. This article analyzes the impact of industrial exhaust gases on the human respiratory system and measures to reduce it.

The main composition of industrial exhaust gases

The composition of harmful gases emitted from industrial enterprises includes the following:

• Carbon dioxide (CO_2) - an increase in its content in the air causes global warming and climate change.

• Sulfur dioxide (SO_2) - causes bronchitis and asthma.

• Nitrogen oxides (NO_x) - can damage lung tissue and lead to cancer.

• Hydrocarbons and benzo(a)pyrene - can cause respiratory cancer and chronic diseases.

• Dust and aerosol particles – penetrate into the lung tissue and cause breathing difficulties.

Effects on the respiratory system

Harmful exhaust gases affect the respiratory system in the following ways:

• Mechanical impact – dust and chemicals enter the respiratory tract, causing inflammation.

• Chemical impact – toxic substances damage the alveoli of the lungs, disrupting respiratory function.

• Allergic impact – pollutants found in the air trigger asthma and allergic reactions.

• Health risks

Air pollution by industrial emissions can lead to the following diseases:

• Chronic bronchitis – persistent inflammation of the respiratory tract.

• Asthma – narrowing of the airways caused by allergic reactions.

• Pulmonary emphysema – damage to lung tissue and difficulty breathing.

• Lung cancer – develops as a result of long-term exposure to toxic substances.

• Prevention and protective measures

To reduce the impact of industrial waste on human health, the following measures should be taken:

• Strengthening environmental control – imposing strict requirements on industrial enterprises to reduce emissions.

• Installation of filtration systems – widespread introduction of equipment for cleaning the air from harmful substances.

• Greening – natural purification of the atmosphere by planting trees and plants.

• Individual protective equipment – use of respirators and masks for workers in industrial areas.

The impact of industrial waste gases on the respiratory organs is very serious and poses a health hazard. To solve this problem, measures such as strengthening environmental control, using modern filtration systems, and greening should be implemented. By creating a healthy ecological environment, it is possible to preserve human health and provide clean air for future generations.

Respiratory diseases caused by industrial exhaust gases

Industrial exhaust gases can cause serious damage to human health, especially the respiratory system. Continuous exposure to these gases causes the development of the following diseases:

Chronic bronchitis

• Sulfur dioxide (SO_2), nitrogen oxides (NO_x) and dust particles contained in industrial waste cause inflammation of the respiratory tract.

• Symptoms: persistent cough, excessive sputum production, difficulty breathing.

• Asthma

• As a result of air pollution, the body has an allergic reaction and causes narrowing of the bronchi.

• Symptoms: shortness of breath, cough, feeling of tightness in the chest.

Pulmonary emphysema

• Carbon oxides (CO, CO_2) and fine dust particles damage lung tissue and cause the alveoli to lose their elasticity.

• Symptoms: difficulty breathing, decreased physical activity, chronic fatigue.

Lung cancer

• With prolonged exposure to benzopyrene, hydrocarbons and other toxic substances, lung cells mutate.

• Symptoms: prolonged cough, bloody sputum, difficulty breathing, weight loss.

• Tuberculosis

• Dust and toxic substances weaken the immune system, creating a breeding ground for tuberculosis bacteria.

• Symptoms: persistent cough, night sweats, increased body temperature, weight loss.

Allergic rhinitis and sinusitis

• Chemicals in the air cause allergic inflammation of the nasal mucosa.

• Symptoms: nasal congestion, sneezing, headache, tearing.

• Occupational pneumoconiosis

• Workers in the mining, metallurgical and construction industries are exposed to long-term exposure to fine dust and toxic substances.

• Symptoms: dry cough, shortness of breath, chest pain.

Industrial exhaust gases cause a wide spread of respiratory diseases and pose a great threat to human health. To prevent these diseases, it is necessary to strengthen environmental control, use protective equipment and introduce air purification technologies. Respiratory diseases caused by industrial exhaust gases usually take a chronic course and require a comprehensive treatment approach. Treatment is carried out in the following areas:

Drug treatment

Anti-inflammatory drugs

• Glucocorticoids (inhaled steroids: Budesonide, Beclomethasone) – used to reduce bronchitis, asthma and allergic diseases.

• Nonsteroidal anti-inflammatory drugs (Ibuprofen, Nimesulide) – to reduce lung inflammation.

Bronchodilators (drugs that dilate the bronchi)

• Beta-agonists (Salbutamol, Formoterol) – to dilate the airways in asthma and bronchitis.

• Anticholinergics (Ipratropium bromide, Tiotropium) – relax the bronchi and improve airflow.

Mucolytic and expectorant drugs

• Ambroxol, Acetylcysteine – help to liquefy phlegm and remove it from the respiratory tract.

• Antibiotics

• If a bacterial infection develops (pneumonia, bronchitis), the doctor will prescribe antibiotics (Amoxicillin, Azithromycin).

Antihistamines (antiallergy drugs)

• Loratadine, Desloratadine, Cetirizine – used to reduce symptoms of allergic rhinitis and asthma.

• Physiotherapy methods

• Inhalation therapy

• Inhalation with NaCl solution, medicinal herbs, drugs helps cleanse the lungs and bronchi.

Pulmonary rehabilitation

• Breathing exercises (Buteyko, Strelnikova methods) – to improve breathing and reduce oxygen deficiency.

• Physiotherapy procedures (electrophoresis, UHF-therapy) – to reduce inflammatory processes and strengthen the respiratory system.

• Oxygen therapy

• For patients with pulmonary emphysema or respiratory failure, oxygen treatment through oxygen masks or concentrators is important.

Lifestyle changes and prevention

Spending more time in the fresh air

• Stay away from places polluted with dust and industrial gases, wear a mask.

• Strengthening immunity

• Consumption of vitamins (A, C, D), omega-3 fatty acids.

• Quitting smoking and eating a healthy diet.
• Measures to protect the lungs
• Use of respirators and masks at work.
• Use of wet cleaning and air purifiers.
• Medical treatments in severe cases
• Artificial ventilation - used for patients with respiratory failure.
• Plasmapheresis - a method of cleaning toxic substances from the blood.
• Lung transplantation - surgical method is used in cases of severe lung damage.

An integrated approach is necessary to treat respiratory diseases caused by industrial exhaust gases. Medications, physiotherapy, proper nutrition and preventive measures help improve the condition of patients. The most important aspect is to prevent these diseases by reducing industrial emissions and protecting the environment.

Conclusion

Industrial exhaust gases cause serious harm to human health, especially the respiratory system. Carbon dioxide (CO_2), sulfur dioxide (SO_2), nitrogen oxides (NO_x) and other harmful substances emitted into the air cause the development of diseases such as bronchitis, asthma, pulmonary emphysema, lung cancer. This problem is becoming more urgent as the industrialization process accelerates. To protect health and prevent respiratory diseases, it is necessary to strengthen environmental control and introduce innovative technologies to reduce industrial emissions. In addition, measures such as the use of personal protective equipment, air filtration, and the expansion of green areas are also important. In short, in order to protect human health and ensure ecological sustainability, it is necessary to reduce the amount of industrial exhaust gases, keep the environment clean, and take preventive measures. This will serve to create a healthy living environment not only for today's generation, but also for future generations.

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THE EFFECT OF SATURATED FATS ON THE CARDIOVASCULAR SYSTEM

Abstract: *This article analyzes the effects of saturated fats on the cardiovascular system. When saturated fats are consumed in excess, they can reduce the elasticity of blood vessels, increase cholesterol levels, and increase the risk of developing atherosclerosis. Studies show that excessive consumption of saturated fats increases the risk of ischemic heart disease, hypertension, and other cardiovascular diseases. Therefore, following a healthy diet, limiting saturated fat intake, and choosing more unsaturated fats instead is important for maintaining heart health.*

Keywords: *Cholesterol, Atherosclerosis, Myocardial infarction, Angioplasty, Stenting, Coronary Artery.*

Introduction

Cardiovascular disease is one of the leading causes of death worldwide. Various factors, including poor diet, sedentary lifestyle, and genetic predisposition, play an important role in the development of these diseases. The type of fat in the diet has a significant impact on heart health, and excessive consumption of saturated fats in particular can lead to negative consequences. Saturated fats are often found in animal fats, red meat, dairy products, and some vegetable oils. Their excessive consumption leads to increased cholesterol levels in the body, narrowing of blood vessels, and an increased risk of heart disease. Therefore, it is important to control your diet and limit saturated fats to maintain cardiovascular health. This article analyzes the effects of saturated fats on the cardiovascular system and ways to reduce their risk.

Literature review and methodology

Saturated fats are found in animal fats, dairy products, red meat, and some vegetable oils (such as coconut and palm oil). Excessive consumption of these fats can negatively affect the cardiovascular system.

Cholesterol and Atherosclerosis

Excessive consumption of saturated fats increases the level of low-density lipoprotein (LDL) - "bad" cholesterol in the body. This causes fat to accumulate in blood vessels, narrowing them and developing atherosclerosis.

High Blood Pressure

Narrowing of blood vessels prevents the heart from working properly, leading to the development of arterial hypertension (high blood pressure). This increases the risk of heart failure and stroke.

Ischemic Heart Disease

Ischemic heart disease can develop when the heart muscle is not adequately supplied with oxygen. This process is more likely to lead to a heart attack (infarction).

Inflammatory Processes

Scientific studies show that excessive consumption of saturated fats can increase chronic inflammatory processes in the body, which causes damage to the heart and blood vessels. For a healthy heart, it is recommended to limit the consumption of saturated fats and replace them with unsaturated fats. For example, olive oil, nuts, avocados and fish oils are good for the heart. Also, an active lifestyle and a balanced diet play an important role in the prevention of cardiovascular diseases.

Excessive consumption of saturated fats can cause serious damage to the cardiovascular system and cause the development of various diseases. The main types of such diseases are listed below:

Atherosclerosis

Atherosclerosis is a disease that occurs as a result of the accumulation of fat and cholesterol in the walls of blood vessels. Saturated fats increase the amount of "bad" cholesterol (LDL) in the body, which causes blood vessels to narrow and lose elasticity. As a result, blood circulation is impaired and the supply of oxygen to vital organs such as the heart and brain is reduced.

Coronary artery disease (CAD)

When the heart arteries narrow due to atherosclerosis, not enough blood and oxygen reaches the heart muscle. This leads to the development of coronary artery disease. CAD is often manifested by chest pain (angina) or even a heart attack (myocardial infarction).

Myocardial infarction (heart attack)

When blood vessels become completely blocked or cholesterol levels in the blood increase, blood does not reach the heart muscle. This leads to myocardial infarction. A heart attack is life-threatening and requires emergency medical attention.

Arterial Hypertension (High Blood Pressure)

Excessive consumption of saturated fats reduces the elasticity of blood vessel walls and causes blood pressure to rise. High blood pressure, in turn, puts an extra strain on the heart, increasing the risk of heart failure and stroke.

Stroke

If the blood vessels leading from the heart to the brain become blocked by atherosclerosis or blood clots (thrombi), the brain does not receive enough blood and oxygen. This can lead to brain tissue damage and a stroke. A stroke can cause speech impairment, loss of mobility, and even death.

Excessive consumption of saturated fats can damage the cardiovascular system and lead to the diseases listed above. Therefore, it is recommended to consume more unsaturated fats (such as fish, olive oil, nut oils) instead of saturated fats to maintain heart health. In addition, an active lifestyle, a balanced diet, and avoiding excess weight can help prevent heart disease. Excessive consumption of saturated fats can lead to the development of cardiovascular disease. A comprehensive approach to treating such diseases is required. The main treatment methods are listed below.

Lifestyle Changes

In the treatment and prevention of cardiovascular diseases, it is important to follow a healthy lifestyle first:

Eat a healthy diet

- Reduce saturated fats and replace them with unsaturated fats (fish oil, olive oil, nut oils).
- Include more vegetables, fruits, whole grains, and legumes in your diet.
- Reduce sugar and salt intake.
- Reduce red meat consumption and replace it with poultry or fish.

Active lifestyle

- At least 150 minutes of physical activity (running, walking, swimming) per week is recommended.
- Control excess weight, as excess weight increases the risk of heart disease.

5. Quit bad habits

6. Smoking and alcohol consumption should be reduced or completely stopped.

7. Alcohol and tobacco products damage blood vessels, increase blood pressure, and increase the risk of heart attack.

Medication Treatment

If lifestyle changes are not enough, your doctor may prescribe the following medications:

Cholesterol-lowering drugs (statins)

8. Atorvastatin, Rosuvastatin, Simvastatin – these drugs lower bad cholesterol (LDL) and prevent blood vessel blockage.

Blood pressure-lowering drugs

9. Beta-blockers (Metoprolol, Bisoprolol) – improve heart function.

10. ACE inhibitors (Lisinopril, Enalapril) – lower blood pressure.

11. Diuretics (Furosemide, Hydrochlorothiazide) – lower blood pressure by removing excess fluid from the body.

Blood thinners

12. Drugs such as Aspirin and Clopidogrel prevent blood clots and reduce the risk of heart attack and stroke.

Medical and Surgical Procedures

If the disease has become severe, the following procedures are used:

Angioplasty and Stenting

13. If the artery is very narrowed, the vessel is widened using a catheter and a special stent (a ring that keeps the narrowed artery open) is placed.

Coronary Artery Bypass Surgery (CABG)

14. If the heart arteries are completely blocked, surgeons create a new blood path to ensure that enough blood is supplied to the heart muscle.

Excessive consumption of saturated fats can lead to cardiovascular disease, but these diseases can be treated. The best way is to follow a healthy lifestyle, take medications if necessary, and in severe cases, use medical procedures or surgery. It is important to pay attention to preventive measures and follow your doctor's recommendations to maintain heart health.

Conclusion

Excessive consumption of saturated fats can negatively affect the cardiovascular system and cause serious diseases such as atherosclerosis, coronary heart disease, hypertension and stroke. These fats increase the level of "bad" cholesterol (LDL) in the blood, causing blood vessels to narrow and lose their elasticity. This leads to impaired blood supply to important organs such as the heart and brain. To maintain heart health and prevent diseases, it is important to limit the consumption of saturated fats, choose healthy unsaturated fats instead, follow a balanced diet and an active lifestyle. Also, regular medical examinations, monitoring blood pressure and cholesterol levels help prevent diseases and detect them at an early stage.

Proper nutrition, physical activity and giving up harmful habits are among the most effective measures for a healthy heart and a long life.

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BEMORLAR VA SOG`LOM ODAMLARNING SURUNKALI VIRUSLI GEPATIT B VA C HAQIDAGI BILIM DARAJASINI BAHOLASH

Annotatsiya: *Surukali virusli gepatit B va C kasallilari butun dunyoda va shu jumladan O`zbekistonda ham aholining turli guruxlari orasida uchrab turadi hamda shu kasallik haqida ma`lumotga ega bo`lmaganligi sababli dolzarb muammolardan biri hisoblanadi.*

Kalit so`zlar: *Surukali virusli gepatit B va C,bemor, emlash, epidemiologiya, davo, infeksiya.*

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ASSESSMENT OF THE LEVEL OF KNOWLEDGE ABOUT CHRONIC VIRAL HEPATITIS B AND C IN PATIENTS AND HEALTHY PEOPLE

Abstract: *Chronic viral hepatitis B and C patients are found all over the world, including in Uzbekistan, among various groups of the population, and are considered one of the urgent problems due to the lack of information about this disease.*

Keywords: *Chronic viral hepatitis B and C, patient, vaccination, epidemiology, treatment, infection.*

Dolzarbligi: Viruslar qo`g`atadigan gepatitlar er yuzida juda keng tarqalgan. Ular bemorlarni uzoq muddatga ishga yaroqsiz qilib qo`yadi, ba`zan bemorlarning o`limiga yoki nogiron bo`lib qolishiga sabab bo`ladi. Virusli gepatitlar medisina fani va sog`liqni saqlash tashkilotlari oldidagi juda muhim muammo hisoblanadi.

Bu kasallikarni ba`zi jihatlari hali etarli o`rganilmagan, ularning davolash usullari va profilaktikasi talabga javob bermaydi. 1989 yilda M.Houghton guruxi tomonidan gepatit C virusining oqsiliga mos oqsil ajratib olindi. JSST ning bergan ma`lumoti bo`yicha bu virus qon quyish oqibatida gepatit bilan kasallangan bemorlarning 85-86 % da aniqlanadi.

Maqsad: Bemor va sog`lom odamlar orasida surunkali gepatit B va C ning turli jihatlari haqida bilim darajasini baholash.

Vazifalar: Surunkali gepatit B (SVB) va C bilan kasallangan bemorlar va sog`lom odamlar o`rtasida so`rov o`tkazish. Ushbu guruxlardagi o`xshash savollarga javoblarni solishtirish.

Tekshiruv materiallari va usullar:

Anonim so`rovda qatnashgan.

2022-2024 yillarda Samarqand viloyati,Payariq tumani aholisining 15 yoshdan 50 yoshgacha bo`lgan 44 kishiga va Payariq tuman tibbiyot birlashmasiga qarashli yuqumli kasallilar bo`limida davolangan 15 yoshdan 50 yoshgacha bo`lgan surunkali gepatit B va C bilan og`rigan 22 nafar bemorga SGB va SGC kasalligining epidemiologiyasi, kechishi va davolash usullari haqida 20 ta savol berildi va so`rovnoma o`tkazildi.

Natijalar: Surunkali gepatit B va C bilan og`rigan bemorlarning epidemiologiya bo`yicha bilimlari sog`lom odamlardan farqli ravishda yuqori (100%), sog`lom odamlar orasida esa xabardorlik darajasi o`retacha (85,2 %). Bundan xulosa qilishimiz mumkinki, SGB va C bilan kasallangan bemorlar gepatit muammolariga (infeksiyadan keyin) ko`proq qiziqish bildirishdi va sog`lom odamlar bu kasallil haqida etarli ma`lumotga ega emasliklari ko`rindi.

SGB va C bilan kasallangan odamlar SGB (70,0%) va (81,3%) kechishi va oqibati haqida yuqori bilimga ega, Sog`lom odamlar esa SGB va C (18,1%) va C (24,8%) bo`yicha o`rtacha ma`lumotga ega. Bundan kelib chiqadiki, bemor odamlar sog`lom odamlardan farqli ravishda gepatitni o`z vaqtida davolamaslik oqibatlarini yaxshi bilishadi.

SGB va C gepatitlari bilan kasallangan bemorlarda B (39,0%) va C (52,1%) gepatitlarning yuqish yo`llari va omillari haqida bilim darajasi o`rtacha, sog`lom odamlarda esa B (24,3%) va C (27,4%) gepatitlari haqidagi bilim darajasi etarli emasligi aniqlandi.

Ushbu ma`lumotlardan xulosa qilish mumkinki, bemorlarning bilimlari infeksiya yuqishining oldini olish uchun etarli emas va sog`lom odamlarda bilim darajasi pastligi ularda infeksiya yuqish xavfi yuqoriligini ko`rsatadi.

SGB va C bilan kasallangan bemorlar (93,7%), shuningdek, sog`lom odamlar (84,3%) gepatit B ga qarshi emlashning mavjudligi va zarurati haqida yuqori darajadagi ma`lumotlarga ega. Bu HBV va C bilan kasallangan bemorlar aralash infeksiyalarga kamroq moyil ekanligini ko`rsatadi va sog`lom odamlarda gepatit B bilan kasallanish xavfi kamayadi.

SGB va C bilan kasallangan bemorlar (37,2%),gepatit B ga qarshi emlangan sog`lom odamlar (41,8%) gepatit B ga qarshi vaksina yaratilganligi va qo`llanilayotganligini bilishadi.

Surunkali gepatit B va C bilan og`rigan bemorlarning B (12,4%) va C (31,4%) viruslarga qarshi maxsus antiviral preparatlar mavjudligi haqida etarlicha ma`lumotlarga ega emas. Ushbu mo`lumotlar umumiy amaliyot shifokorlari, poliklinika va statsionar yuqumli kasalliklar shifokorlari virusga qarshi dori vositalarining mavjudligi to`g`risida etarlicha ma`lumot bermasligini ko`rsatadi. Sog`lom odamlar gepatit B (70,1) va C (73,7%) uchun maxsus virusga qarshi preparatlar mavjudligi haqida yuqori bilimga ega, sog`lom odamlarning aksariyati oily ma`lumotga ega va o`zlarining sog`ligi bilan qiziqadi deb taxmin qilish mumkin.

Xulosa: Olingan natijalarga ko`ra bemorlarning SGB va C epidemiologiyasi, kechishi va oqibatlari, shuningdek, gepatit B ga qarshi emlash bo`yicha yuqori bilim darajasi aniqlandi.

SGB va C bilan kasallangan bemorlar guruxidagi respondentlar orasida gepatit B va C yuqish yo`llari va omillari to`g`risida bilim darajasi etarliu emasligi aniqlandi,ular gepatit C ga qarshi vaksina bor yoki yo`qligiga aniq javob bera olishmadi. Bundan kelib chiqadiki, infeksiyaning oldini olish uchun bemorlarning bilimlari etarli emas. Shuningdek, SGB va C bilan og`rigan bemorlar orasida gepatit B va C uchun maxsus virusga qarshi dorilar mavjudligi haqida ma`lumotlar darajasi past. Ushbu ma`lumotlar umumiy amaliyot shifokorlari, poliklinika va statsionar ytuqumli kasalliklar shifokorlarining antiviral preparatlar mavjudligi haqida aniq etarlicha ma`lumot bermaganligini ko`rsatadi.

Umumiy natrijalarga ko`ra, SGB va C bilan kasallangan bemorlar hozirgi vaqtda o`z kasalliklarini yaxshi bilmaydi. Ushbu kasallik haqida umumiy amaliyot shifokorlari, infeksionistlar uchun sog`lomlashtirish ishlarini olib boorish va ushbu kasallik bilan bemorlarning umrini uzaytirishga harakat qilish kerak.

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KICHIK YOSHDAGI O‘QUVCHILARDA IJTIMOIY ONGNI SHAKLLANTIRISHDA LOYIHA ASOSIDAGI O‘QITISH

Annotatsiya:*Kichik maktab yoshidagi bolalarning ijtimoiy ongini shakllantirishda loyiha asosidagi o‘qitish metodlari muhim rol o‘ynaydi. Ushbu metodlar orqali bolalar o‘z shaxsiyatlarini rivojlantiradilar, pedagoglarning ta’sirida ijtimoiy mas'uliyatni oshiradilar. O‘qish jarayonida ifodali o‘qish va hissiy tajribalar bolalarning bilim olishini yanada chuqurlashtiradi. O‘quvchilar o‘zaro hamkorlikda faol ishtirok etib, ijtimoiy faolliklarini oshiradilar va o‘zlarining hissiy tajribalarini namoyon etadilar. Bu jarayon, shuningdek, bolalarning o‘z vaqtida rag‘batlantirilishi va pedagogik yondashuvlarning moslashuvchanligi orqali amalga oshiriladi.*

Kalit so‘zlar: *Kichik maktab yoshidagi bolalar, ijtimoiy ong, loyiha asosidagi o‘qitish, pedagogik ta’sir, ta’lim jarayoni, hissiy tajribalar, ifodali o‘qish, ijtimoiy mas’uliyat.*

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DEVELOPING SOCIAL CONSCIOUSNESS IN YOUNG SCHOOLCHILDREN THROUGH PROJECT-BASED LEARNING

Annotation: *The formation of social consciousness in young school-age children plays a crucial role in modern educational methods. Project-based learning fosters personality development while enhancing students' social responsibility under the influence of educators. The reading process incorporates expressive reading and emotional experiences, deepening material comprehension. Students actively engage in interactions, increasing their social activity and allowing them to express their emotional experiences. This process is facilitated through timely encouragement and the flexibility of pedagogical approaches.*

Keywords:*Young school-age children, social consciousness, project-based learning, pedagogical influence, educational process, emotional experiences, expressive reading, social responsibility.*

KIRISH. Kichik maktab yoshidagi bola shaxsining ijtimoiy faolligini rivojlantirish, maktab ta’limini modernizatsiya qilishning strategik yo‘nalishlaridan biridir. Pedagog, ota-onalarga nisbatan, kichik maktab yoshidagi bola shaxsiyatini rivojlantirishda katta ta’sir kuchiga ega. Jumladan, uning dunyoqarashi, hayotiy

pozitsiyasi va bolalarga bo‘lgan munosabati o‘quvchi shaxsiga ijobiy yoki salbiy ta’sir ko‘rsatishi mumkin. Boshlang‘ich ta’limda ta’lim va tarbiya jarayonlari bir-biri bilan chambarchas bog‘liqdir.Boshlang‘ich ta’limda deyarli barcha fanlarni bitta pedagog olib borishi, uning shaxsiy xususiyatlari – axloqi, madaniyati, pedagogik qobiliyati, bolalarga bo‘lgan munosabati va xarakteri kichik maktab yoshidagi bolalarning shaxsiy-xulqiy sifatlariga singib ketishiga olib kelishi mumkin. Bu holat, ayniqsa, parallel sinflarga nisbatan yaqqol aks etadi va kichik maktab yoshidagi bolalarda yuqori sinflarga o‘tgunlariga qadar davom etishi mumkin.

Shuningdek, 7-9 yoshdagi boshlang‘ich sinf o‘quvchilari oilasidagi katta yoshli bobo-buvilarining ko‘maklariga muhtoj bo‘lganligi sababli, pedagoglardan tashqari, ularning ko‘rsatmalariga amal qilishlari tabiiy holatdir. Pedagogning har bir o‘rgatgan bilimlariga bolalar tomonidan haqiqat sifatida ishonish, ularga taqlid qilish va topshirilgan vazifalarni mehr va muhabbat bilan bajarish kabi psixologik xususiyatlar boshlang‘ich ta’limning muhim shartlaridan biridir. Shu bilan birga, ushbu xususiyatlar bolalar tarbiyasidagi ilk axloqiy va madaniy sifatlarning shakllanishi bilan bog‘liq jarayon hisoblanadi.

Ushbu fikrlar asosidagi o‘qitish metodlari, o‘quvchilarning ijtimoiy ongini shakllantirishda, ularning faol ishtirokini ta’minlash va shaxsiy rivojlanishini qo‘llab-quvvatlashda muhim rol o‘ynaydi. Loyiha asosidagi o‘qitish nafaqat bilimlarni o‘zlashtirishga, balki o‘quvchilarning ijtimoiy mas'uliyatini oshirishga ham xizmat qiladi, bu esa ularning kelajakdagi ijtimoiy hayotda faol ishtirok etish qobiliyatini rivojlantiradi.

Boshlang‘ich ta’lim jarayonida kichik maktab yoshidagi bolalar o‘quv sharoitiga moslashishda qiyinchiliklarga duch kelishadi, bu esa ta’lim olishga qiziqmasliklariga olib keladi. Ular ko‘pincha kattalar orasida erkin bo‘lishni afzal ko‘rishadi. Biroq, pedagoglar va ularga yaqin kattalar bolalarni o‘quv faoliyatiga va ta’lim jarayoniga jalb qilishda muhim rol o‘ynaydi. Kichik maktab yoshidagi bolalar juda ta’sirchan va atrof-muhitga nisbatan sezgirliklari bilan ajralib turadi, ularning idroki esa boshqa yoshdagi bolalardan farq qiladi.

Bir yil davomida o‘qish davomida kichik yoshdagi bolalar o‘z o‘quv faoliyatlarida mobil bo‘lishni o‘rganadilar. Ikkinchi sinfga o‘tganlarida, ular pedagogning har qanday bayonotlariga yuqori darajada javob berishga tayyor bo‘ladilar va yangi ma'lumotlarga, o‘qituvchining hazil va hayotiy misollariga jonli munosabatda bo‘lishadi. Kichik maktab yoshidagi bolalarning tayyorgarliklaridan biri, darhol javob berishga moyillik ko‘rsatishda namoyon bo‘ladi. Bu holat, ularning impulsiv va beixtiyor harakatlarini oshiradi, shuningdek, o‘quv jarayoniga tezda kirishga imkon beradi va so‘z boyliklarini oshiradi.

Pedagoglar yangi ta'lim sharoitlariga moslashishni ta’minlash uchun bolalarning o‘quv materiallarini o‘zlashtirish jarayonida zerikishlariga yo‘l qo‘ymasliklari zarur. Buning uchun, vazifalardan biridan ikkinchisiga tez o‘tish yoki uzoq vaqt dam olishga ruxsat bermaslik muhimdir. Kichik maktab yoshidagi o‘quvchilar javob berishda bevosita taassurotlarga boy va faoldirlar. Dars

jarayonida qo‘llaniladigan ko‘rgazmali materiallar ularning o‘quv materialini o‘zlashtirish qiziqishini oshiradi.

ADABIYOTLAR TAHLILI. Boshlang‘ich ta’limda kichik maktab yoshidagi o‘quvchilar o‘qish jarayonida ijodiy va hissiy tajribalarini namoyon etishadi. O‘quv materiallarini o‘zlashtirishda, bolalar muallif tomonidan ilhomlantirilgan tasavvurlarni qabul qilishlari, hazil-mutoyibalar bilan tabassum qilishlari yoki hamdardlik ko‘rsatishlari bilan birga, muallifga nisbatan ishonchni yo‘qotmasliklari ko‘rsatadi. Dars mavzusiga oid materiallarning jonliligi va sinf xonasining moslashuvchanligi bolalarning diqqatini jalb etishda muhim ahamiyatga ega.

Kichik maktab yoshidagi bolalarning qiziqishlari kattalar dunyosiga yaqinlashishi, shuningdek, ushbu yosh davriga xos psixologik tayyorgarlik, bilimlarni o‘zlashtirishda soddalik va o‘ynoqilikni keltirib chiqaradi. Bu jarayon orqali bolalar bilim sohasiga kirib, o‘ynashda davom etadilar. Kattalardan olingan tushunchalarning tashqi assimilyatsiyasi yangi bilimlarni qabul qilishda muhim rol o‘ynaydi.Shuningdek, kichik maktab yoshidagi o‘quvchilar, maktabgacha yoshdagi bolalarga nisbatan, o‘tkazilayotgan ma’lumotlarning sabab va ma’nolarini mustaqil ravishda aniqlashga qiziqmaydilar. Ular o‘zlarini cheksiz bilimlar to‘plamining chekkasida his qilishlari sababli, barcha narsani egallashga urinmaydilar. Ularning idroki sodda va o‘yinqaroq tabiatga ega bo‘lib, pedagogik amaliyotda ifodali o‘qish jarayonini qiziqarli qiladi.

O‘qish darslarida boshlang‘ich ta’lim o‘quvchilari iboralarni baland, aniq va mazmuniga mos intonatsiyalar bilan talaffuz qilish vazifasini bajaradilar. Dars jarayonida muallif yoki asar qahramonlarining rollarini o‘ynash zarurati paydo bo‘ladi. Boshlang‘ich ta’limda o‘qish tarzi ko‘p jihatdan o‘qituvchining uslubini takrorlash orqali amalga oshiriladi. Biroq, ayrim o‘quvchilar o‘z layoqatlari, jarangdor ovozlari va intonatsiyalarni to‘g‘ri ifodalashda ko‘rsatgan zukkoliklari bilan o‘qituvchidan ustunlik ko‘rsatishlari mumkin. Bunda, o‘quvchilar o‘z his-tuyg‘ularini g‘ayrat va to‘liqlik bilan ifoda etishda hech qanday xijolat his qilmaydilar.

METOD VA METODOLOGIYA. Kichik maktab yoshidagi o‘quvchilarda ijtimoiy ongni shakllantirishda loyiha asosidagi o‘qitish metodlari samarali mexanizm sifatida muhim ahamiyatga ega. Ushbu yondashuvlar pedagoglarga o‘quvchilarning ijodiy fikrlash qobiliyatlarini rivojlantirish, o‘zaro muloqot va hamkorlikni ta’minlash imkonini beradi. Darslarni hayotiy misollar bilan boyitish, bolalarning o‘z fikrlarini ifoda etishlariga va ijtimoiy muammolarni hal qilishda faol ishtirok etishlariga yordam beradi.

Loyiha asosidagi o‘qitish metodlari bolalarning hissiy va intellektual rivojlanishini ta'minlaydi, shuningdek, ularning ijtimoiy mas'uliyatini oshiradi. Bunday metodologik yondashuvlar, o‘quvchilarni o‘zaro fikr almashish va tajribalarini baham ko‘rishga rag‘batlantiradi. Natijada, o‘quvchilar o‘zlarining ijtimoiy onglarini rivojlantirib, kelajakda faol fuqarolar sifatida o‘zlarini namoyon etishlariga yordam beradi.

Ushbu jarayonlar, nafaqat ta’lim mazmunini, balki bolalar bilan ishlash strategiyalarini ham o‘z ichiga oladi. Pedagoglar tomonidan amalga oshiriladigan

metodologik yondashuvlar o‘quvchilarning ijtimoiy, hissiy va intellektual rivojlanishini qo‘llab-quvvatlashda muhim rol o‘ynaydi. Bu esa, o‘z navbatida, o‘quvchilarning ijtimoiy ongini shakllantirish va ularni jamiyatga faol qo‘shilishiga xizmat qiladi.

NATIJA VA MUHOKAMA. Kichik maktab yoshidagi o‘quvchilar o‘qish jarayonida his-tuyg‘ularni taqlid qilish orqali o‘z bilimlarini yanada mustahkamlashlari mumkin. Ularning ifodali o‘qishlari samimiy va oqilona intonatsiyalarni o‘z ichiga oladi, bu esa ushbu yosh davrining xususiyatlaridan biridir. Biroq, boshlang‘ich ta’lim o‘quvchilari uchun tashqi taassurotlar kuchli chalg‘ituvchi omil sifatida xizmat qilishi mumkin. Ular tushunarsiz materiallarga diqqatni jamlashda qiyinchiliklar bilan duch keladilar, bu esa diqqatning beqarorligi bilan bog‘liq.

Kichik maktab yoshidagi bolalar 10-20 daqiqa davomida biror narsaga diqqatini jalb etishlari mumkin. Ilk o‘smirlik davrida bu diqqat vaqti 40-45 daqiqagacha, o‘spirinlarda esa 45-50 daqiqagacha cho‘zilishi mumkin. O‘quv jarayonidagi ortiqcha yuklamalar ruhiy tushkunlikka olib kelishi va o‘quvchilarning shaxsiyatiga salbiy ta’sir ko‘rsatishi mumkin. Shu sababdan, pedagoglar o‘quv materiallari mazmunini shakllantirishda bu holatlarni hisobga olishlari zarur.

O‘quvchilar qiyinchiliklarni boshdan kechirishlari, lekin ularning sabablarini anglamasliklari tufayli, qat’iyat va tirishqoqlik bilan harakat qilishlari natijasida kerakli natijalarga erisha olmasliklari yoki nochor holatga tushishlari kutiladi. Natijada, o‘z kuchiga bo‘lgan ishonchning kamayishi kuzatiladi. Agar o‘quvchilarga qiyinchiliklarni yengishga yordam berilmasa, bu ularning o‘z-o‘zidan shubhalanishiga va ishonchsizlikning barqaror xususiyatga aylanishiga olib kelishi mumkin.

Bunday ishonchsizlik, o‘quv materiallari hajmi va ta’lim jarayonidagi qiyinchiliklar o‘rtasidagi nomuvofiqlik bilan tavsiflanadi. Ta’lim muammolarini hal qilishda muvaffaqiyatsizlikka uchragan o‘quvchilar o‘zlarini chidamsiz va irodasiz deb ta’riflashlari mumkin. Bu holat kichik maktab yoshidagi bolalarda o‘quv jarayoniga qiziqishning pasayishiga olib keladi. Natijada, muvaffaqiyatsizliklar bolalarni jamoadan izolyatsiyalanishiga sabab bo‘lishi mumkin, bu esa bolaning maktabga nisbatan nafrat yoki rad etish holatlariga olib kelishi mumkin.

Ushbu muammolarni hal qilishda loyiha asosidagi o‘qitish metodlari o‘quvchilarning ijtimoiy ongini shakllantirishda muhim ahamiyatga ega. O‘quvchilarga qiyinchiliklarni yengishda yordam berish, ularning o‘ziga bo‘lgan ishonchini tiklash va ta'lim jarayonida faol ishtirok etishlarini ta'minlash lozim. Har bir o‘quvchining individual ehtiyojlarini inobatga olish, o‘quv jarayonida muvaffaqiyatga erishishda muhim omil hisoblanadi.

XULOSA. Kichik maktab yoshidagi bolalarning maktab jamoalaridan tashqarida do‘st izlashlari va salbiy ijtimoiy yo‘naltirilishlari ko‘plab holatlarda kuzatilishi mumkin. Bu kabi vaziyatlar, o‘quvchilarning salbiy tomonga o‘zgarishi va o‘quv jarayonida past o‘zlashtirish darajasiga olib kelishi mumkin. Shuning uchun, o‘quvchilarning salbiy rivojlanishini oldini olish maqsadida, pedagoglar tomonidan zarur choralar ko‘rilishi lozim.Kichik maktab yoshidagi bolalar, idrok

etiladigan ma'lumotlarga nisbatan past tanqidiy qobiliyatga ega bo‘lishlari bilan ajralib turadilar. Bunday sharoitda, pedagogning fikri ularning qarashlari va o‘zlashtirish jarayonida muhim ahamiyatga ega. Bu holatda, pedagoglarni rag‘batlantirish, ularning ijtimoiy ma'naviyatini rivojlantirish va o‘quv faoliyatini samarali tashkil etish uchun motivatsiya vazifasini o‘taydi.

Ushbu jarayonlar o‘quvchilarda ijtimoiy ongni shakllantirishda muhim rol o‘ynaydi. Loyiha asosidagi o‘qitish metodlari bolalarning ijtimoiy faoliyatlarida ishtirok etishini oshirishga yordam beradi hamda ularning o‘zaro muloqot qobiliyatlarini rivojlantiradi. Bunday yondashuvlar, o‘quvchilarning ijtimoiy integratsiyasini ta'minlab, ularning salbiy ijtimoiy yo‘nalishlardan qochishlariga yordam beradi, natijada, maktabda muvaffaqiyatli va faol shaxslar sifatida rivojlanishlariga zamin yaratadi.

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O‘ZBEKISTON VA QOZOG‘ISTONNING TRANSPORT SOHASIDAGI IQTISODIY HAMKORLIGI

Annatatsiya: *O‘zbekiston va Qozog‘iston o‘rtasidagi transport sohasidagi iqtisodiy hamkorlik transportning barcha tarmoqlarida 2015 – 2020 yillarda salmoqli tarzda rivojlanganligini raqamlarda ko'rish qiyin emas. Transportning avtomobil va temir yo‘l hamda aviatsiya sohalarida rivojlanish borasida ko'plab loyihalarga investetsiyalar kiritilganligini ko'rish mumkin bo'ladi.*

Kalit so'zlar: *O‘zbekiston, Qozog‘iston, transport, temir yo‘l, avtomobil yo‘li, aviatsiya, aeroport.*

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ECONOMIC COOPERATION OF UZBEKISTAN AND KAZAKHSTAN IN THE TRANSPORT SECTOR

Abstract: *It is not difficult to see in the figures that economic cooperation between Uzbekistan and Kazakhstan in the transport sector has developed significantly in all sectors of transport in 2015-2020. It is possible to see that investments have been made in many projects for the development of transport in the automobile, railway and aviation sectors.*

Keywords: *Uzbekistan, Kazakhstan, transport, railway, automobile, aviation, airport.*

O‘zbekiston va Qozog‘iston o‘rtasidagi transport sohasidagi iqtisodiy hamkorlik juda muhim ahamiyatga ega. Ushbu soha ikki davlat o‘rtasidagi savdo va iqtisodiy aloqalarni yanada rivojlantirishga, tovarlarni tez va samarali yetkazib berishga yordam beradi. Transport va logistika sohasida hamkorlikning o‘sishi, ikki mamlakat o‘rtasidagi iqtisodiy integratsiyani kuchaytirishga turtki bo‘ladi. Quyida, transport sohasidagi iqtisodiy hamkorlikka oid ba‘zi ma’lumotlarni jadvallar va raqamlar ko‘rinishida o‘rganish mumkin.

1. O‘zbekiston va Qozog‘iston o‘rtasidagi asosiy transport koridorlari

Transport yo‘li	Uzunlik (km)	Yil davomida o‘tkazilgan yuk (tonna)	Savdo hajmi (million dollar)
Temir yo‘l (Toshkent - Almaota)	1030	1,500000	600
Avtomobil yo‘li (Toshkent - Ust - Kamenagorsk)	1200	450000	150
Temir yo‘l (Toshkent - Chimkent)	500	600000	250
Aviatsiya (Toshkent - Ostona)	1300	350000	120

Manba: O‘zbekiston va Qozog‘iston iqtisodiyot va transport vazirliklari tomonidan chiqarilgan yillik hisobotlar

1. Toshkent va Almaota o‘rtasidagi temir yo‘l koridori, ikkala mamlakatning eng muhim savdo yo‘nalishlaridan biri hisoblanadi. Ushbu yo‘nalish orqali O‘zbekistondan Qozog‘istonga, shuningdek, Qozog‘istondan O‘zbekistonga sanoat va qishloq xo‘jaligi mahsulotlari, xom - ashyo va boshqa tovarlar yetkazib beriladi. Temir yo‘lning yuqori samaradorligi va tejamkorligi bu yo‘nalishni muhim transport aloqalaridan biriga aylantiradi.

2. Toshkent va Ust - Kamenagorsk o‘rtasidagi avtomobil yo‘li, yuk tashishning tez va moslashuvchan yo‘nalishlaridan biridir. Ushbu yo‘nalish orqali kichik va o‘rta hajmdagi yuklar tezda yetkazib beriladi. Bu koridor qishloq xo‘jaligi mahsulotlari, oziq-ovqat, va boshqa iste’mol tovarlari uchun asosiy transport yo‘nalishlaridan biridir. Avtomobil yo‘lining yaxshi rivojlangan infratuzilmasi va o‘rtacha masofa tashish tezligini oshiradi.

3. Toshkent va Chimkent o‘rtasidagi temir yo‘l aloqasi, ikki mamlakatning janubiy va markaziy qismlarini bog‘laydi. Ushbu yo‘nalish orqali asosan sanoat mahsulotlari, qurilish materiallari va boshqa og‘ir yuklar tashiladi. Qozog‘istonning bu hududi, o‘zining sanoat salohiyati va strategik joylashuvi bilan o‘zbek tovarlari uchun muhim savdo nuqtasidir.

4. Toshkent va Ostona o‘rtasidagi aviatsiya yo‘nalishi ikki mamlakat orasidagi tezkor transport vositalaridan biridir. Ushbu yo‘nalish orqali odatda yuqori qiymatli, tez buziladigan va kichik hajmdagi yuklar yetkazib beriladi. Aviatsiya yo‘nalishining mavjudligi ikki mamlakat o‘rtasidagi savdo aloqalarini yanada tezlashtiradi va logistika xarajatlarini kamaytiradi.

2. O‘zbekiston va Qozog‘iston o‘rtasidagi transport sohasidagi investitsiyalar

Yil	Investitsiyalar (million dollar)	Loyihalar soni	Investitsiya hajmi (yirik loyihalar)
2015	150	5	45
2016	200	6	70

2017	250	7	100
2018	300	8	120
2019	350	10	180
2020	400	12	220

Manba: O‘zbekiston va Qozog‘iston Respublikalarining transport vazirliklari tomonidan chiqarilgan yillik hisobotlar

2015-2020 yillar davomida O‘zbekiston va Qozog‘iston o‘rtasidagi transport sohasiga kiritilgan investitsiyalarning umumiy hajmi izchil o‘sdi. Bu davr mobaynida transport infratuzilmasini rivojlantirish va modernizatsiya qilishga qaratilgan loyihalar soni ortdi. 2015 yilda investitsiyalar hajmi 150 million dollarga teng bo‘lib, 5 ta loyihaga ajratilgan, 2020 yilda esa bu ko‘rsatkich 400 million dollarga yetdi va loyihalar soni 12 taga ko‘paydi. Yirik loyihalar hajmi ham yildan-yilga o‘sdi. Bu esa ikki mamlakat o‘rtasidagi transport aloqalarini mustahkamlashga xizmat qildi.

Transport sohasidagi investitsiyalar, asosan, temir yo‘l, avtomobil yo‘llari, aviatsiya va suv transporti infratuzilmasini yaxshilashga yo‘naltirilgan. 2015-2020 yillar davomida amalga oshirilgan yirik loyihalar, asosan, yangi temir yo‘l yo‘nalishlarining qurilishi, avtomobil yo‘llarining kengaytirilishi, aeroportlar va logistika markazlarining yangilanishi kabi loyihalarni o‘z ichiga olgan. Bu investitsiyalarning barchasi ikki davlat o‘rtasidagi yuk tashish samaradorligini oshirish va transport tizimining raqobatbardoshligini kuchaytirishga xizmat qilgan.

Temir yo‘l. Yangi temir yo‘l yo‘nalishlarining qurilishi va mavjud infratuzilmaning modernizatsiyasi uchun ko‘plab investitsiyalar jalb qilindi. Masalan, Toshkent-Almaota temir yo‘li va boshqa yirik temir yo‘l loyihalari ikki davlat o‘rtasidagi yuk tashishni sezilarli darajada o‘stirdi.

Avtomobil yo‘llari. Avtomobil transporti sohasiga kiritilgan investitsiyalar, ayniqsa, yangi yo‘llar qurilishi va mavjud yo‘llarning ta'mirlanishiga yo‘naltirildi. Bu, o‘z navbatida, ikki mamlakat o‘rtasidagi savdo hajmining o‘sishiga yordam berdi.

Aviatsiya va aeroportlar. Aviatsiya sohasiga ham katta investitsiyalar kiritildi, bu esa O‘zbekiston va Qozog‘iston o‘rtasidagi havo qatnovini tezlashtirishga va ikki mamlakat o‘rtasidagi tijorat aloqalarini kengaytirishga yordam berdi.

Transport sohasiga kiritilgan investitsiyalar nafaqat iqtisodiy aloqalarni mustahkamlash, balki yangi ish o‘rinlari yaratish, infratuzilmani yangilash va tovarlar yetkazib berishning samaradorligini oshirishga ham yordam berdi. Bu investitsiyalar orqali transport tizimining samaradorligi, xavfsizligi va barqarorligi yaxshilandi. Natijada, ikki davlat o‘rtasidagi savdo hajmi oshdi, iqtisodiy integratsiya kuchaydi, va yangi logistik markazlar, ya'ni transport terminallari va yuk tashish tarmoqlari rivojlandi.

O‘zbekiston va Qozog‘iston o‘rtasidagi transport sohasidagi investitsiyalar 2015-2020 yillar davomida izchil ravishda o‘sdi. Yirik loyihalar va investitsiyalar, ayniqsa, temir yo‘l, avtomobil yo‘llari, aviatsiya va suv transporti

infratuzilmasining rivojlanishini qo‘llab-quvvatladi. Bu ikki mamlakat o‘rtasidagi savdo hajmining oshishiga va iqtisodiy hamkorlikning mustahkamlanishiga xizmat qildi.

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O‘ZBEKISTON VA QOZOG‘ISTONNING YOQILG’I – ENERGETIKA SOHASIDAGI IQTISODIY HAMKORLIGI

Annatatsiya: *O‘zbekiston va Qozog‘iston o‘rtasidagi yoqilg’i – energetika sohasidagi iqtisodiy hamkorlik gaz va neftni qayta ishlash va eksportga yo’naltirish, elektr – energiyasi ishlab chiqarish va mavjud quvvatlarni oshirishga sarmoyalar kiritish, qayta tiklanuvchi energiya manbalarini iqtisodiyotga jalb qilish masalalariga investitsiyalar jalb qilish bilan rivojlanmoqda.*

Kalit so’zlar: *O‘zbekiston, Qozog‘iston, neft qazib olish, gaz eksporti, gaz qazib olish, investitsiya, shartnoma,* ***modernizatsiya, transchegaraviy.***

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ECONOMIC COOPERATION BETWEEN UZBEKISTAN AND KAZAKHSTAN IN THE FUEL AND ENERGY SECTOR

Abstract: *Economic cooperation between Uzbekistan and Kazakhstan in the fuel and energy sector is developing with investments in the processing and export of gas and oil, investments in electricity generation and expansion of existing capacities, and attracting renewable energy sources to the economy.*

Keywords: *Uzbekistan, Kazakhstan, oil production, gas export, gas production, investment, contract, modernization, cross-border.*

O‘zbekiston va Qozog‘iston o‘rtasidagi energetika sohasidagi iqtisodiy hamkorlik 2000-2020 yillar davomida jiddiy rivojlandi. Ushbu davrda ikki davlatning energetika sohasida amalga oshirilgan asosiy hamkorlik yo‘nalishlari quyidagi yo’nalishlarda jiddiy rivojlandi:

1. Gaz va neft sohasidagi hamkorlik

2000-2020 yillarda O‘zbekiston va Qozog‘iston o‘rtasidagi gaz va neft sohasidagi hamkorlik sezilarli darajada rivojlandi.

Gaz eksporti. O‘zbekiston gazni Qozog‘istonga eksport qilishni ushbu yillarda davom ettirdi. 2000-yillardan boshlab, O‘zbekiston o‘zining gaz resurslaridan foydalanishni kengaytirib, Qozog‘istonga yiliga 3-4 milliard kubometr atrofida gaz eksport qildi. O‘zbekiston tabiiy gaz eksportining bir qismi Qozog‘istonga yo‘naltirildi.

Neft va gaz qazib olish: Qozog‘iston, O‘zbekistonning gaz ishlab chiqarish hajmini oshirishda va uni eksport qilishda muhim hamkor bo‘ldi. 2000-2020

yillarda O‘zbekiston va Qozog‘iston o‘rtasida qazib olishga mo‘ljallangan qo‘shma loyihalar ko‘paydi. Shu jumladan, neftni qayta ishlash va eksport qilish sohalarida.

O‘zbekistonning gaz qazib olish hajmi 2020 yilga kelib, taxminan 60 milliard kubometrni tashkil etdi va Qozog‘istonning shu davrda gaz qazib olish hajmi esa yiliga 50 milliard kubometrdan ortiq bo‘ldi.

Neft qazib olish: 2020 yilda O‘zbekistonning neft qazib olish hajmi 2,5-3 million tonnani tashkil etdi. Qozog‘iston esa neft qazib olishda dunyo bo‘yicha yetakchilardan biri bo‘lib, 2020 yilda yillik qazib olish hajmi 90 million tonnani tashkil etdi.

2000-2020 yillar davomida O‘zbekiston va Qozog‘iston o‘rtasida gaz va neft sohasidagi iqtisodiy hamkorlikni mustahkamlash uchun bir qancha muhim shartnomalar imzolandi. Ushbu shartnomalar ikki davlat o‘rtasida energiya resurslarini almashish, investitsiyalarni jalb qilish, infratuzilmani rivojlantirish va texnologiya almashish kabi masalalarni hal qilishga qaratilgan. Asosiy shartnomalar va kelishuvlar quyidagilarni o‘z ichiga oladi:

1. Neft va gazni qayta ishlash bo‘yicha shartnomalar

Neftni qayta ishlash va unga oid qo‘shma loyihalar hamkorlikning muhim yo‘nalishlaridan bo‘lib, bu borada bir qancha strategik kelishuvlar amalga oshirildi.

1. Neftni qayta ishlash hamkorligi: O‘zbekiston va Qozog‘iston o‘rtasida neftni qayta ishlash va unga oid texnologiyalarni almashish bo‘yicha kelishuvlar imzolandi. Qozog‘iston O‘zbekistonning neftni qayta ishlash zavodlari bilan hamkorlikni kengaytirish, neftni eksport qilishda yordam berish bo‘yicha shartnomalar tuzdi. Bu kelishuvlar ikki davlatga ham foydali bo’ldi. O‘zbekiston neftni qayta ishlashda qo‘shma korxonalar yaratdi va Qozog‘iston esa neftni eksport qilishni kengaytirdi.

2. Yangi tarmoqlar va infratuzilma obektlarini qurish bo‘yicha shartnomalar

Ikki davlat o‘rtasida energetika infratuzilmasini yaxshilashga qaratilgan bir qator shartnomalar imzolandi. Bu shartnomalar asosan energiya resurslarini samarali boshqarish va energiya tarmoqlarini birlashtirishga qaratilgan edi.

Gaz va neft infratuzilmasini modernizatsiya qilish: 2000-2020 yillarda, O‘zbekiston va Qozog‘iston energetika tarmoqlarini modernizatsiya qilish va yangi energiya loyihalarini amalga oshirish bo‘yicha shartnomalar imzoladilar. Masalan, gaz va neft quvurlarini qurish va ularni tarmoq orqali uzatish masalalari hal etildi.

3. Transchegaraviy gaz tarmoqlarini yaratish bo‘yicha shartnomalar

O‘zbekiston va Qozog‘iston o‘rtasidagi energiya hamkorligini yanada chuqurlashtirish uchun, transchegaraviy gaz va neft tarmoqlarini qurish va ularni bir-biriga bog‘lashga qaratilgan shartnomalar imzolandi. Bu kelishuvlar ikki davlatning gaz va neftni bir-biriga uzatishini osonlashtirishga imkon berdi.

“Qarshi–Bishkek–Olmaota” gaz quvuri: O‘zbekiston va Qozog‘iston o‘rtasida gaz tarmoqlarini birlashtirishga qaratilgan loyihalarni bajarish ishlari 2010-yillarda yo‘lga qo‘yildi. Bu gaz quvuri O‘zbekistonning Qarshi shahridan boshlanib, Qozog‘istonning **Olmaota** shahriga yetib boradi. Bu quvur orqali gazning ikki mamlakat o‘rtasidagi almashinuvi ta’minlanadi.

2. Elektr energiyasi va tarmoqlarini integratsiyalash yo'lidagi iqtisodiy hamkorlik.

Energetika sohasida O'zbekiston va Qozog'iston o'rtasida elektr energiyasini almashish va tarmoqlarni integratsiyalash ishlari davom etdi.

Elektr energiyasi eksporti: 2000-2020 yillar davomida O'zbekiston va Qozog'iston o'rtasida elektr energiyasi eksporti va importi amalga oshirildi. O'zbekiston Qozog'istonning energiya resurslariga muhtoj bo'lgan hududlariga elektr energiyasi ta'minoti bilan ta'minlab kelgan.

Qozog'istonning O'zbekistonga eksport qilgan elektr energiyasi 2020 yilga kelib yiliga 2-3 milliard kilovatt-soat atrofida bo'ldi.

Elektr energiyasi eksporti orqali har yili ikki mamlakat o'rtasida yuzlab million dollarlik iqtisodiy foyda bo'lgan. Bu savdo sohasida umumiy daromadni oshirishga olib keldi.

3. Qayta tiklanuvchi energiya va boshqa energetika sohasidagi istiqbollar

2000-2020 yillarda O'zbekiston va Qozog'iston qayta tiklanuvchi energiya sohasida hamkorlikni rivojlantirishga katta e'tibor qaratdi.

Shamol va Quyosh energiyasi: Ikki davlat ham qayta tiklanuvchi energiya manbalariga katta sarmoya kiritdi. Qozog'iston Quyosh va shamol energetikasiga katta investitsiya kiritdi. Shu qatorda O'zbekiston ham bu yo'nalishda ishlashni boshladi.

2020 yilga kelib, O'zbekistonning qayta tiklanuvchi energiya manbalarini ishlab chiqarish hajmi taxminan 1,5-2 gigavattni tashkil etdi.

Qozog'iston o'z navbatida, shamol va Quyosh elektr stansiyalarini qurishda yirik loyihalarni amalga oshirib, qayta tiklanuvchi energiya manbalarini ishlab chiqarish hajmini 3-4 gigavattga yetkazdi.

4. Qarz olish va investitsiyalar

2000-2020 yillar davomida, O'zbekiston va Qozog'iston o'rtasidagi energiya sektori loyihalariga yirik investitsiyalar kiritildi. Ikki davlatning energetika sohasiga investitsiyalari quyidagi miqdorlar atrofida bo'ldi:

Investitsiyalar hajmi: O'zbekiston va Qozog'iston energetika sektori uchun 2000-2020 yillarda taxminan 10-15 milliard dollar miqdoridagi sarmoyalarni kiritdi. Bu sarmoya ko'plab qo'shma loyihalar, jumladan, yangi energetika infratuzilmasi va texnologiyalarni joriy etishga yo'naltirildi.

Sarmoya oqimi: Energetika sohasidagi hamkorlik orqali, har yili ikki davlat bir-biriga o'rtacha 1-2 milliard dollar atrofida sarmoya jalb qilgan.

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QASHQADARYO VILOYATI SUG‘ORILADIGAN HUDUDLARIDA CHO‘LLANISH JARAYONINING MOHIYATI VA VUJUDGA KELISHI

Annotatsiya: *maqolada sug‘oriladigan yer resurslaridan oqilona foydalanish va cho‘llanishni yuza keltiruvchi tabiiy va sun’iy omillar haqida bayon etilgan. Cho‘llanishning sug‘oriladigan hudud ijtimoiy-iqtisodiy rivojlanishiga ta’siri hamda ikkilamchi sho‘rlanish jarayonida yerdan foydalanishning geografik-ekologik muammolari qarab chiqilgan.*

Tayanch so‘zlar: *Cho‘llanish, arid, degradatsiya, sho‘rlanish, landshaft, sug‘orma dehqonchilik.*

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THE NATURE AND OCCURRENCE OF THE DESERTIFICATION PROCESS IN THE IRRIGATED AREAS OF KASHKADARYA REGION

Annotation: *The article describes the rational use of irrigated land resources, as well as natural and man-made causes that lead to desertification. The implications of desertification on the socio-economic development of the irrigated area, including the topographical and environmental issues associated with land usage in the secondary salinization process, are addressed.*

Key words: *Desertification, arid, degradation, salinization, landscape, irrigated farming.*

Kirish. Bugungi kunda insoniyat oldida turgan eng jiddiy ekologik va sotsial-iqtisodiy muammolardan biri, bu cho‘llanish muammosidir. Cho‘llanish - bu tabiiy-geografik va antropogen jarayonlarning o‘zaro ta’siri yig‘indisi bo‘lib, arid hududlardagi ekosistemalarni yemirilishi, organik hayot shakllarining degradatsiyalashuvi va bu hududlarning tabiiy-iqtisodiy imkoniyatlarining pasayishi tushuniladi. YUNESKO ma’lumotlariga ko‘ra, yer yuzining 1/3 qismi cho‘llanish xavfi ostida bo‘lib, dunyoning arid hududlarida yashayotgan millionlab insonlarning hayot tarziga ham ta’sir qiladigan muammodir. Inson xo‘jalik faoliyatining kuchli ta’siri natijasida O‘zbekiston hududida cho‘llanish jarayoni chuqurlashib va kengayib borishi kuzatilmoqda. Cho‘llanish jarayonlari 210 mln.

gektar maydonni egallab yotgan O‘rta Osiyoning arid hududlari uchun ham xarakterli. Tadqiqotlarga ko‘ra, O‘zbekiston hududining 60%dan ko‘proq maydonida har xil darajada cho‘llanish jarayoni sodir bo‘lmoqda [2; 10-168 b.]. S. Abbosovning ketirishicha, O‘rta Osiyoning, xususan Orol dengizi havzasida, cho‘llanish jarayoniga duchor bo‘lgan landshaft majmualarining umumiy maydoni A.G.Boboyevning (2000) bergan ma’lumoti bo‘yicha 1 405 840 km2 ga teng. Shundan kuchsiz cho‘llangan yerlar 837 714 km2 ni (59,6%), mo‘tadil cho‘llangan yerlar 474 356 km2 ni (33,7%) va kuchli cho‘llangan yerlar 93 770 km2 ni (6,7%) tashkil etadi.

Cho‘llanish, asosan arid mintaqa uchun xos bo‘lib, yer, suv, o‘simlik va boshqa resurslarning degradatsiyalashuvidir (fr.degradatsiya – asta-sekin yomonlashuvi), yog‘in miqdorining kamayib borishi bilan iqlimning quruqlashishi, cho‘l hududlari maydonining kengayishi natijasida yuzaga keladigan tabiiy ekosistemalarning buzilishidir. Qurg‘oqchil (arid) iqlim mintaqasida cho‘llar maydonining 1960 yillardan boshlab keskin kengayishi avvalo mamlakatlarda aholi sonini to‘xtovsiz oshib borishi, mamlakatlarning aholini oziq-ovqat bilan ta’minlash, maqsadida qishloq xo‘jaligini rivojlantirish uchun ekin maydonlarining kengayib borganligi hamda ma’lum ma’noda qurg‘oqchilikning tez-tez sodir bo‘lganligi bilan bog‘liqdir. Tadqiqot sifatida Qashqadaryo vohasida sodir bo‘layotgan cho‘llanish jarayolaridan ba’zi omillari tahlil qilindi.

Metodlar va o‘rganilish darajasi. Mavzuni o‘rganishda muhim ilmiy yondoshuv va tamoyillardan ekologik-landshaft tamoyili, tizimli kompleks yondashuv tadqiqotning asosini tashkil etib, landshaft indikatsiya, bunda aerokosmik, kartografik, paleogeografik, geografik-taqqoslash, statistik, geoinformatsion modellashtirish (GIS modellashtirish) va boshqa usullardan foydalanish asosiy natijaga erishish imkonini beradi. Arid zonalarda cho‘llanish jarayonlarni keng ko‘lamda tadqiq etish bilan bir qatorda cho‘lshunos olimlar bu muammoning nazariy va amaliy masalalarini ishlab chiqishgan. Xalqaro ahamiyatga ega bo‘lgan bunday dolzarb geoekologik muammoga A.G.Boboyev (1986, 1990, 2000), A.P.Petrov (1972), I.S.Zonn (1981, 1984), N.T.Nechayeva (1978), N.S.Orlovskiy (1981), G.F.Radchenko (1983), A.A.Rafiqov (1988), V.M.Chupaxin (1990), A.A.Abdulqosimov, S.B.Abbasov (1977-2010), L.A.Alibekov (1997-2010), I.Q.Nazarov (1997-2010) F.M.Xushmurodov (2021-2023) va boshqalarni ilmiy maqolalari, monografiyalari bag‘ishlangan.

Asosiy qism. Dunyoning barcha mamlakatlarida, shu jumladan O‘zbekistonda ham tan olingan va amalga oshirilayotgan barqaror rivojlanish konsepsiyasi tabiat, iqtisodiyot va ijtimoiy sohalarning teng huquqliligiga asoslanadi. Barcha hududlarda, jumladan Qashqadaryo viloyatida ham tabiat resurslaridan oqilona foydalanish, ularni muhofaza qilish, hamda mavjud ekologik muammolarning yechimini topish, barqaror rivojlanishning asosidir. Shu nuqtai nazardan tabiatdan foydalanish va uni muhofaza qilish barqaror rivojlanishning muhim vositasi hisoblanadi.

Ayniqsa iqlim o‘zgarishi sharoitida hudud aholisi va dehqonchilik faoliyatiga uzoq o‘tmishdan beri xavf soladigan, mohiyatan arid iqlim mintaqalariga xos,

ammo bugungi kunda butun insoniyatning kelajak faoliyatiga tahdid soluvchi suv tanqisligi, qurg‘oqchilik masalasidir. Keyingi yillarda qurg‘oqchilik xavfi vaziyatlarning davriyligi va ko‘lami ham murakkablashib bormoqda. Qurg‘oqchilik umumiy ma’noda atmosfera yog‘inlari, yer usti yoki yer osti suvlarining uzoq vaqt davomida yetishmovchilik holatidir. Yetuk cho‘lshunos olim S.B.Abbasovning yozishicha, P.Meygs (1955) iqlim ko‘rsatkichlariga asoslanib, dunyoning qurg‘oqchil hududlar kartasini tuzgan. Uning hisobi bo‘yicha yer yuzida arid hududlarning umumiy maydoni 48810 ming km2 ni, yoki quruqlikning 33,6% ini tashkil etadi. Shundan o‘ta qurg‘oqchil (ekstraarid) zonasiga 4% i, arid zonasiga 15% i va chala arid zonasiga 14,6%i to‘g‘ri kelishini ta’kidlagan [3;11b.]. R.Jumaboyev va Matchanov M.larning keltirishicha, qurg‘oqchilikning sodir bo‘lishi va mohiyatiga qarab tadqiqotchilar (Alam va boshq., 2014; Panagoulia, 2015) meteorologik qurg‘oqchilik, gidrologik qurg‘oqchilik, qishloq xo‘jaligi qurg‘oqchiligi va ijtimoiy-iqtisodiy qurg‘oqchilikka ajratganlar [4; 150-154 b.]. Meteorologik qurg‘oqchilikning sababi yog‘in miqdorlarining doimiy miqdordan kamayishi oqibatida vujudga keladi. Qashqadaryo vohasi arid iqlim mintaqasida joylashganligi sababli atmosfera yog‘inlarining o‘rtacha miqdori 75-100 mm atrofida, bug‘lanish esa juda katta. Gidrologik qurg‘oqchilik daryo yoki suv yig‘ish havzasidagi suv tanqisligining oqibatidir. Quruq va issiq iqlimli sharoitlarda qishloq xo‘jalik ekinlaridan yuqori hosil olish bevosita sun’iy sug‘orish bilan bog‘liq. Bunday sharoitlarda faqat sug‘orish yer resurslari hosildorligini oshirishning eng muhim va zaruriy usuli hamda dehqonchilikni boshqarishning albatta amalga oshirilishi lozim bo‘lgan shartidir. Qashqadaryo viloyati vegetatsiya davrining nam bilan ta’minlanganligi jihatidan Qarshi, Nishon dashtlari (hududning quyi qismidagi g‘arbiy tekislik) kamroq namlangan. Bu yerda janubi-g‘arbdan Sandiqli cho‘lining ta’siri seziladi, yillik yog‘inlar miqdori 146-190 mm. Yoz faslining uzoq davom etishi oqibatida hududda yillik haroratning kattaligi natijasida bug‘lanish 1700 mm ga yetadi, bu esa o‘z navbatida namlik taqchilligi (defitsit)ni vujudga keltiradi. Vohaning tekislik qismini termik (10°C dan yuqori faol haroratlar miqdori 5000-5300°C dir) resurslariga ko‘ra juda issiq zonaga kiradi. G.T.Selyaninov gidrotermik koeffitsiyenti 0,11 – 0,17 ga teng. Agroiqlimiy rayonning gidrotermik koeffitsiyenti 0,10 bo‘lganligi uchun bu rayonni namlanish sharoitlariga ko‘ra juda quruq zonaga kiritish mumkin. Zero, yuqoridagilarga asosan vohaning tekislik qismi qurg‘oqchil hududda joylashganligi sabab qishloq xo‘jalik sug‘orma dehqonchilik asosida shakllangan.

Mutaxassislarning ma’lumotiga ko‘ra, har soniyada dunyo bo‘ylab 23 gektar yer cho‘llanib boryapti. Bu holat davom etaversa, 2050 yilga borib, Yer yuzining 95 foizi cho‘llanishi va bu 3 milliarddan ziyod odamni oziq-ovqat tanqisligida qoldirishi mumkin. Har daqiqada O‘zbekistonning 9 kvadrat metr hududi cho‘llanib boryapti. Cho‘lshunos olim prof. L.Alibekovning ma’lumoticha qurg‘oqchil iqlimli yerlarning jami maydoni taxminan 40 mln. km2, ya’ni quruqlikning taxminan 25% ini tashkil yetib, yer yuzasi aholisining 20% i (800 mln. kishi) istiqomat qiladi [2; 60-168 b.].

Cho‘llanishga asosan tabiiy va antropogen omillar ta’sir ko‘rsatadi. N.F.Reymers (1990) ma’lumotlariga ko‘ra, antropogen cho‘llar quruqlik yuzasining 10 mln. km2 maydonini yoki 6,7 %ini tashkil etadi. Ayrim tadqiqotchilarning fikricha cho‘llarning katta qismi inson faoliyatining mahsulasidir. Hozirgi paytda sayyoramizdagi quruqlik maydonining turli darajadagi cho‘llanish yana 25 mln km2 maydonda rivojlanmoqda. Anrtopogen omillarga yerlarni noto‘g‘ri sug‘orish hamda qishloq xo‘jalik yerlarining yerlarning ifloslanishi, tabiat resurslaridan nooqilona foydalanish, ya’ni sanoat chiqindilari, tosh, qum va minerallarni qazib olish kabilar kiradi. V.A. Rafikovning [5; 200-b.] ta’kidlashicha, hozirda Janubiy Orolbo‘yi xududida cho‘llanish jaraènlarining quyidagi shakllari kuzatilmoqda: - yerlarni sho‘rlanishi; - ko‘l va suv havzalarining qurishi; -yerlarni degradatsiyaga uchrashi; - yer usti va osti suvlarining sho‘rlanishi; - sug‘oriladigan yerlarni suv bosishi; - tuproq hamda tuzlarning ko‘chishi va boshqalar.

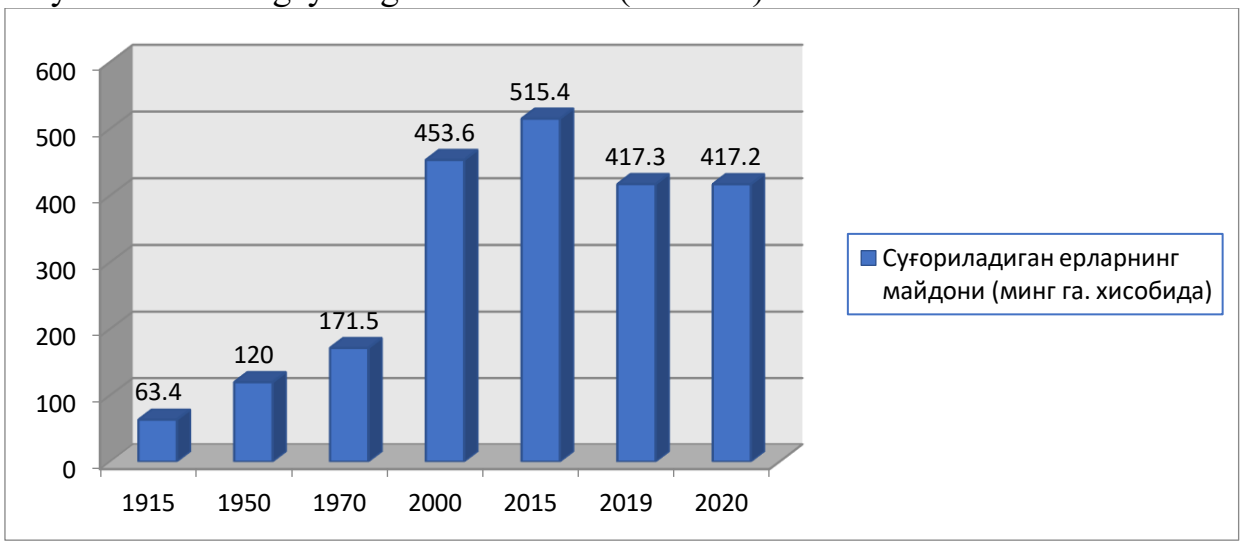
Cho‘llanishga qarshi kurashish muammosi dastlab global darajada BMTning 1977-yilda Nayrobi shahrida o‘tkazilgan konferensiyasida cho‘llashishga qarshi kurash bo‘yicha harakat Rejasi qabul qilingan. Cho‘llanishga qarshi kurash bo‘yicha Xalqaro Konvensiya (1994) cho‘llanishnini quyidagicha ta’riflaydi: “Cho‘llanish iqlim tebranishi va inson faoliyatini ham o‘z ichiga oladigan turli omillar tufayli qurg‘oqchil rayonlarda yerlarning degradatsiyasini bildiradi”. Ayniqsa, O‘rta Osiyoning markazida joylashgan Qashqadaryo vohasi hududida cho‘llanish jarayoni asosan yer resurslaridan nooqilona foydalanish, chorva mollari sonining ortishi, cho‘llardagi butasimon o‘simliklarning o‘tin sifatida kesilishi, tog‘-kon sanoatining rivojlanishi, ya’ni tabiiy va antropogen omillar ta’sirida shakllanmoqda. O‘zbekistonning 70% dan ortiq hududi cho‘l va chala cho‘l mintaqalarida joylashganligi sababli sug‘oriladigan yerlarda sho‘rlanish, shamol va suv eroziyasi, yaylovlarda grunt suvlari sathining ko‘tarilishi kabi hodisalar keyingi vaqtlarda katta maydonlarda ro‘y bermoqda. Buning oqibatida qishloq xo‘jaligida foydalaniladigan yerlarning mahsuldorligi borgan sari pasayib, oziq ovqat, yem-xashak va sanoat xom ashyolarini yetishtirib berish murakkablashib, tabiiy landshaftlarning qashshoqlanishi kabi landshaftlarning miqdor va sifat buzilishlari yuz bermoqda.

Dunyoning barcha ilk sivilizatsiyalari sug‘oriladigan dehqonchilik hududlarida paydo bo‘lgan va rivojlangani kabi, O‘rta Osiyoda ham dehqonchilik asosan sun’iy sug‘orish asosida yuzaga kelgandir. Natijada sug‘orma dehqonchilik bir qator salbiy ekologik oqibatlarga sabab bo‘ladi va cho‘llanishga olib keladi. L. Alibekovning (2010) takidlashicha, bular asosan sug‘orish (irrigatsion) eroziya; tuproq agroirrigatsion madaniy qatlamining to‘planishi; tuproq-gruntning ikkilamchi sho‘rlanishi; grunt va tuproqning zaxlashi (botqoqlashuvi); yer usti va yer osti suvlarining ifloslanishi; daryolarning sayozlashuvi; joy relyefining cho‘kishi bilan namoyon bo‘ladi [2; 23-168 b.].

Qashqadaryo vohasi ham qadimdan sug‘oriladigan va sug‘orma dehqonchilik rivojlana borgan hududlardir. Vohaning sug‘oriladigan dehqonchilik zonalarida qishloq xo‘jaligiga suv eroziyasi, shamol eroziyasi, gravitatsion jarayonlar, sel hodisalari, loyqa bosishi, botqoqlanish, sho‘r bosish, qatqaloq hosil bo‘lishi kabi

tabiiy geografik jarayonlari eng ko‘p salbiy ta’sir ko‘rsatishini kuzatish mumlin. Viloyatda uzoq tarixiy davrlar davomida ko‘plab suv inshootlarining barpo etilishiga bog‘liq holda sug‘oriladigan yerlarning maydoni kengaya borgan. Qashqadaryo vohasida 5157 km dan ortiq kanallar mavjud bo‘lib, ushbu kanallar orqali qishloq xo‘jaligi ekinlari va aholi xo‘jaliklari uchun xizmat qilmoqda. Ammo bu kanallarning ko‘pchiligi o‘tgan asrning oxirgi choragida qurilgan bo‘lib, hozirda agrotexnik talablarga to‘liq javob bermaydi. Chunki ushbu kanallarning ma’lum qismi betonlashtirilmagan bo‘lib, ulardan yerosti suvlariga sizayotgan suv natijasida hududning yerosti suvlari sathi ko‘tarilishiga olib keldi. Buni oldini olish uchun voxada drenajlar yetishmaydi. Qarshi cho‘lida har bir gektar sug‘oriladigan maydonga 50 pog.m. zovur to‘g‘ri kelishi kerak, lekin bu ko‘rsatkich deyarli 23 pog.m. dan oshmaydi [6; 98-101 b.].

Qashqadaryo havzasining o‘rta va quyi oqimlariga ularning eng katta massivlari to‘g‘ri keladi. Keyingi yillarda viloyatdagi sug‘oriladigan yerlar maydonining kengayishi meliorativ holatini yaxshilashni talab qiladigan yerlar maydoni ham kengayishiga sabab bo‘ldi (1- rasm.)



1-rasm. Qashqadaryo viloyatining sug‘oriladigan yer maydoni (1915-2020 yy.).

Qashqadaryo viloyatining sug‘oriladigan yer maydonining 1915-2020 yillar davomida o‘zgarish diagrammasini tahlil qilish shuni ko‘rsatadiki, keyingi yillarda qurg‘oqchilik va cho‘llanish natijasida sug‘oriladigan yer maydonlari kamayib bormoqda, buni quyidagi ma’lumotlardan bilish mumkin. Qashqadaryo viloyati statistika boshqarmasi [7;] 2020 yil yanvar holati ma’lumoti bo‘yicha, viloyatda (0-100 sm qalinlikda) sho‘rlangan maydon 232309 ga jami maydonga nisbatan 45.2% bo‘lib, shundan kuchli sho‘rlangan maydon 9600 ga, kuchsiz sho‘rlangan maydon 184580 ga va o‘rtacha sho‘rlangan maydon 38129 ga ni tashkil etadi. Hozirgi kunda sug‘oriladigan yerlarning 8 foiziga yaqini yoki 325 ming gektari meliorativ holati yomon yerlar hisoblanadi.

Sug‘oriladigan tuproqlarning sho‘rlanish darajasi ham daryoning quyi qismi tomon qonuniy ravishda ortib boradi. Masalan, Qashqadaryo daryosining togli qismida sug‘oriladigan tuproqlarda sho‘rlanish yo‘q hisobida. Ushbu holat o‘z navbatida, Qarshi cho‘li tuproqlari sho‘rlanish darajasining yuqoriligi hamda yer

osti suvlari sathining ko‘tarilishi tufayli yuz berganligidan dalolat beradi. Bu hududlarda sho‘rlangan maydonlarning kattaligi Qarshi cho‘lida arid zonada joylashganligi va tuproq tarkibi va tuproq qoplamida bug‘lanish miqdorining yuqoriligi bilan bog‘liq. Binobarin, Qarshi cho‘li uchun doimiy yuza oqimining yo‘qligi, quruq o‘zanlarning mavjudligi va tuproq – gruntlarning yuqori darajada sho‘rligi, tushadiga yog‘inlarga nisbatan bug‘lanishning ancha ko‘pligi xosdir. Qarshi cho‘lining o‘ziga xos xususiyatlarini hisobga olmay yerlarni o‘zlashtirilishi natijasida katta maydonlarda tuproq yuvilishi, eroziya hodisalarining turli ko‘rinishlari, yer osti suvlari sathining ko‘tarilishi natijasida sho‘rtob va sho‘rxoklanish kabi jarayonlar kuzatiladi. Buning oqibatida esa ko‘plab buzilgan landshaftlar vujudga keldi.

Ayni paytda tuproqlarning va suvlarning sho‘rlanish darajasi agrotexnik tadbirlarning nooqilona olib borilishi, ya’ni mineral o‘g‘itlardan meyoridan ortiq foydalanish va zararkunandalardan himoya qilish maqsadida zaharli kimyoviy vositalaridan foydalanilib kelinganligi oqibatida xam kuchayib bormoqda. Ayniksa, vohaning arid tekisliklarida yog‘inning juda kamligi, tuproqdan namning ko‘p bug‘lanishi, tuproqlarni sho‘r bosishini kuchaytiradi. Havo haroratining sutkalik va yillik amplitudasining keskin o‘zgarib turishi nurashni kuchaytiradi. Masalan, Qarshi cho‘lining Qarshi, Koson, Nishon tumanlarida tarqalgan tuproqlar sho‘rlanishga o‘ta moyil yerlar bo‘lib, ular doimo sug‘orish va zax qochirish melioratsiyasiga muhtoj hudud hisoblanadi. Qarshi cho‘lining markazida yer osti sizot suvlari oqmas yoki juda kam oqadigan tipga mansub bo‘lib, bu suvlar tarkibidagi tuzlar konsentratsiyasi tog‘li hududlarga nisbatan yuqoridir. Bundan tashqari bu tumanlarda o‘ziga xos bo‘lgan garmsel, afg‘on kabi shamollarining bo‘lib turishi oqibatida tuproqning mayda zarralarini uchirib ketishi natijada tuproq hosildorligi kamayishi hamda atmosferada chang-to‘zon ko‘tarilib havoning ifloslanishi va changli kunlar haftalab davom etishi kuzatiladi.

Cho‘llanish jarayonlari rivojlanishiga nafaqat yuqoridagi ko‘rsatilgan muammolar balki ayrim hududlardagi kon- qidiruv ishlari ham sabab bo‘lmoqda. Cho‘l landshaftlarining ayrim hududlardagi degradatsiya jarayonlari kon-qidiruv hamda neft–gaz qazib olish bilan tadbirlari bilan bevosita bog‘liqdir [1; 89-133 b.]. Ishga tushirilgan neft va gaz quvurlari yoki quduqlarning atroflarida tabiiy jarayonlarning o‘zgarishini kuzatish mumkin. Qashqadaryo viloyatida vujudga kelgan degredatsiyalashgan yerlar qishloq xo‘jalik ekin maydonlariga, yaylovlarga va ekosistemalariga katta zarar yetkazmoqda. Shuningdek, hudud tabiatiga antropogen ta’sirning kuchliligi landshaft– ekologik muammolarni keltirib chiqarmoqda hamda ekotizimlarning o‘zaro modda va energiya almashinuvida va muvozanatini buzilishiga sabab bo‘lmoqda.

Xulosa o‘rnida, arid hududlarda agrolandshaftlardan foydalanishni optimallashtirishda quyidagi tadbirlarni amalga oshirish maqsadga muvofiq: yer tuzilishi meyorda shakllanishi va saqlanishi amalga oshirish orqali agrolandshaftlar xilma-xilligi va barqarorligini ta’minlash; sug‘orma dehqonchilikda tomchilab sug‘orishni amalga oshirish; yaylovlarda chorva boqishni oqilona tashkilashtirish va yaylov o‘simliklarini muhofaza qilish; kon qazib olishda foydalaniladigan

texnikalarlarning harakatlanishini tartibga solish; zovur va drenajlardan samarali foydalanishni amalga oshirish; landshaftlarda tabiiy senozlarni tiklash va saqlashni ta’minlaydi. Zero, qishloq xo‘jaligida ekinlarni almashlab ekish, meliorativ va agrotexnik tadbirlarni tashkil qilish natijasida tuproq sifati yaxshilanib, cho‘llanishni oldini olish imkonini yaratadi. Tuproqlarni sho‘r bosishini va yer unumdorligi va ekin hosilini oshirilishini ta’minlash uchun insonlarda tabiatga bo‘lgan munosabatini o‘zgartirilsa maqsadga muvofiq bo‘ladi.

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PROPHYLACTIC STRATEGIES FOR THE PREVENTION OF PRETERM PREMATURE RUPTURE OF MEMBRANES (PPROM)

Abstract:*Preterm premature rupture of membranes (PPROM) is a major contributor to preterm births, increasing neonatal morbidity and mortality. This study evaluates prophylactic strategies such as progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications. A systematic literature review of studies published between 2000 and 2024 was conducted. The findings suggest that targeted interventions in high-risk populations can reduce PPROM incidence and improve perinatal outcomes. However, further research is necessary to optimize these preventive measures.*

Keywords: *PPROM, preterm birth, progesterone supplementation, cervical cerclage, infection control, pregnancy complications, neonatal outcomes, prophylactic strategies.*

Introduction:

PPROM, defined as the rupture of fetal membranes before 37 weeks of gestation, accounts for nearly one-third of preterm births and is associated with neonatal complications such as respiratory distress syndrome and infections. The etiology of PPROM is multifactorial, including intrauterine infections, cervical insufficiency, and inflammation. Identifying high-risk patients and implementing effective prophylactic measures are crucial in reducing its incidence. This study reviews current evidence on preventive strategies.

Methods:

A systematic literature review was conducted using PubMed, EMBASE, and Cochrane Library (2000–2024). Studies focusing on progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications were analyzed. Inclusion criteria:

- Studies evaluating prophylactic interventions for PPROM prevention.
- Randomized controlled trials, cohort studies, and systematic reviews.
- Publications in English.

Results:

Hormonal Interventions

Progesterone Supplementation:

Progesterone supplementation has been shown to reduce PPROM risk in women with a history of preterm birth or short cervical length. Studies indicate a 30–40% reduction in PPROM incidence, improved gestational age at delivery, and decreased neonatal respiratory complications.

Surgical Interventions

Cervical Cerclage:

Cervical cerclage is effective in preventing PPROM in women with cervical insufficiency. It provides mechanical support to prevent premature dilation and membrane rupture. Key studies have demonstrated reduced PPROM rates and prolonged pregnancy duration in high-risk patients.

Infection Control Measures :

Intrauterine infections significantly increase PPROM risk. Routine screening and treatment of bacterial infections, particularly bacterial vaginosis, have been associated with improved membrane integrity and reduced PPROM incidence.

Lifestyle and Nutritional Modifications:

Lifestyle changes, such as smoking cessation, improved nutrition, and stress management, contribute to lower PPROM risk. Maternal nutritional support, including omega-3 fatty acids, has been linked to better pregnancy outcomes.

Discussion:

Preventive strategies, including progesterone supplementation, cerclage, and infection control, significantly lower PPROM risk. Lifestyle modifications further enhance maternal and neonatal health. Despite these findings, variations in study design limit the generalizability of results. Further large-scale trials are needed to determine the combined effects of these interventions.

Conclusion:

A multidisciplinary approach incorporating progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications can effectively reduce PPROM incidence and improve perinatal outcomes. By identifying high-risk patients early and implementing these preventive strategies, healthcare providers can significantly decrease the burden of preterm births and associated neonatal complications.

While existing research supports the efficacy of these interventions, further large-scale, multicenter randomized controlled trials are needed to refine their application and optimize outcomes. Additionally, developing standardized clinical guidelines tailored to different risk profiles will be essential in ensuring the best possible care for pregnant women at risk of PPROM. Ongoing research and collaboration among obstetricians, neonatologists, and public health professionals will be crucial in advancing the prevention and management of PPROM.

A multidisciplinary approach incorporating progesterone supplementation, cervical cerclage, infection control, and lifestyle modifications can effectively reduce PPROM incidence and improve perinatal outcomes. Further research is necessary to refine these strategies and establish standardized clinical guidelines.

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ROLLER OF UNMANNED AERIAL VEHICLES IN AGRICULTURAL CROP VEGETATION

Abstract. *This article will talk about the roller of unmanned aerial vehicles in the vegetation of agricultural crops, which is one of the most relevant topics today. The application of modern technologies in agriculture is a period requirement. By dishifrovka data from unmanned aerial vehicles, it is possible to determine the vegetation indicator of crops.*

Key words. *Agricultural Land, Remote Sensing, vegetation, unmanned aerial vehicle, map, space photo, NDVI.*

Introduction. Remote sensing techniques are used in many fields. This field is developing very rapidly, has been tested in many fields and achieved positive results, and will be used in many fields in the future. Remote sensing techniques are widely used in the management of land and water resources, as well as in solving problems in atmospheric processes.

Land cover monitoring is based on continuous monitoring of the state of natural and human-made resources, as these resources change over time. Land use refers to the use of land by humans, so any land use change in any location refers to the transition of use from one land area to another, for example, the conversion of a land plot from agricultural to residential [3].

Main part. Recent years have been marked by the rapid development and spread of remote sensing and geoinformation technologies. Space images are actively used as a source of information in various fields of activity: cartography, urban planning, forestry and agriculture, water management, oil and gas extraction and transportation infrastructure, inventory and monitoring of objects, and solving environmental assessment problems.

Remote sensing is the collection and study of data from a distance. Such research can be done using devices (such as cameras) and sensors or cameras mounted on ships, aircraft, satellites, or other space vehicles. Today, the data collected is usually stored and processed using computers [4].

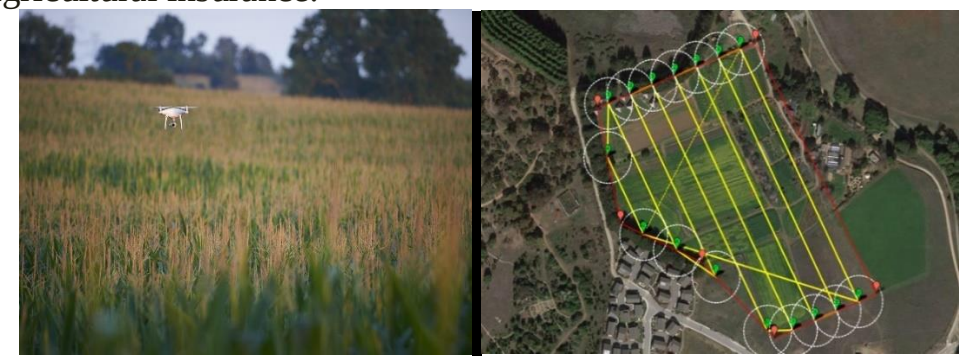
In our republic, great achievements are being made in the efficient use of land and water resources, their regulation, and the use of aerial photographs in scientific research. Today, due to the use of innovative technologies, every field is developing rapidly and great achievements are being made.

The National Report on the State of Land Resources of the Republic of Uzbekistan is intended to be used as an important document for monitoring the state of the land fund of our republic, timely determination of changes in the level of quantity and quality, maintaining state cadastres, land management, rational and efficient use of land resources, and ensuring the protection of lands with information [1].

Using a drone equipped with a high-resolution optical camera, an area of up to 1,000 hectares is visually monitored within 1 day, and real-time information about agricultural lands and crops is obtained through aerial photographs and video files. As a result, information about negative changes in agricultural lands and crops is regularly obtained, and the information obtained is recorded on an electronic digital map, which allows planning the necessary agrotechnical and other measures [2].

The tasks performed by the unmanned aerial vehicle in agriculture are:

- on-site inspection of lands and conducting a survey;
- monitoring the state of land reclamation;
- creating a vegetative state index to clarify the land system;
- carrying out agrotechnical measures in land use in accordance with the law;
- agricultural insurance.



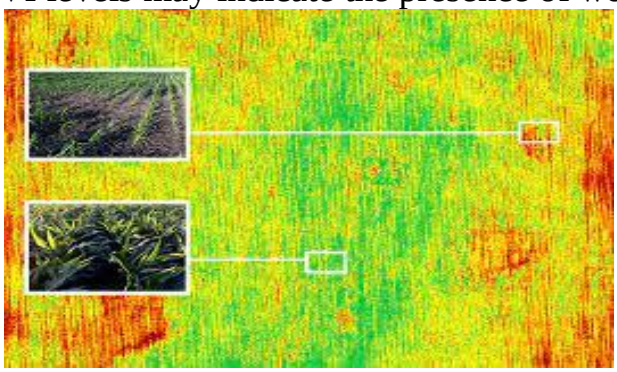
1-fig. Automatic aerial photography in agriculture using an unmanned aerial vehicle (Agrodron)

A spray drone designed to implement targeted agrotechnical treatment measures for agricultural crops based on analytical data obtained from cartographic and monitoring drones. It can treat up to 6 hectares of land in 1 day, and due to the targeted treatment of the damaged area, the damage to plants is significantly reduced. Also, due to the droplet size during liquid spraying, which is 3-6 times smaller than that of traditional spraying techniques, the amount of chemical fertilizers applied is also reduced. As a result, the productivity of agricultural crops will increase, while at the same time significantly reducing the cost of agricultural products [5].

2-fig. Analysis of data obtained from an unmanned aerial vehicle intended for agricultural monitoring

The use of UAVs (unmanned aerial vehicles) to create modern maps from aerial photographs has a number of advantages: their efficiency, when images can be taken several times a day; high image resolution (from 1.5 cm to 20 cm per pixel), simultaneous assessment of crop development, crop condition and the quality of agrotechnical measures based on the vegetation index (NDVI-Normalized Difference Vegetation Index) based on spectral imaging data from UAVs [6].

NDVI (Normalized Difference Vegetation Index) is a vegetation index that is calculated based on the way a plant reflects and absorbs sunlight at different wavelengths. The index allows you to identify problem areas in the field at different stages of plant growth in order to respond in a timely manner. Pay attention to areas where NDVI values are significantly different. For example, fields with very low NDVI levels may indicate problems with pests or plant diseases, and areas with abnormally high NDVI levels may indicate the presence of weeds.



3-fig. The difference between a damaged and undamaged plant.

The NDVI index describes the main indicators of existing vegetation:

- productivity (temporary changes);
- biomass;
- soil moisture and mineral (organic) saturation;

• evaporation;
• precipitation;
• thickness and properties of snow cover.

The most accurate forecast of crop yield according to the NDVI index can be given at the time of passing the highest point of the NDVI value. For example, for intensively grown winter wheat crops, the NDVI value at the peak reaches 0.80-0.88. The peak of NDVI usually occurs at the beginning of the heading phase.

Conclusion. The results of decoding the results obtained from drones indicate a clear strategic basis for the implementation of strategic work by showing the vegetation of agricultural crops.

According to the method of analyzing images obtained from drones, the results of determining the composition of crop species and assessing the impact of agro-climatic conditions and soil salinity on crop yield in the contours of crop fields show a correlation between the total yield and the average biomass accumulation NDVI from the fields.

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FREQUENCY OF OCCURRENCE OF GASTROESOPHAGEAL REFLUX IN PATIENTS WITH PATHOLOGY OF THE BRONCHOPULMONARY SYSTEM

Abstract. *Gastroesophageal reflux disease (GERD) has bronchopulmonary manifestations, often accompanies recurrent and chronic respiratory diseases (RCRD). The aim of the study was to determine the frequency of GERD in children with RCRD and assess the informativeness of various diagnostic methods.*

Keywords: *gastroesophageal reflux disease, method, recurrent respiratory diseases.*

INTRODUCTION

Respiratory diseases are the most common in children worldwide. There are comorbid diseases that worsen the course and outcomes of respiratory pathology. One of such diseases is gastroesophageal reflux disease (GERD) - a chronic relapsing disease characterized by esophageal and extraesophageal clinical manifestations and various morphological changes in the mucous membrane (MM) of the esophagus due to retrograde reflux of gastric or gastrointestinal contents into it. Extraesophageal manifestations of GERD include various cardiovascular, otolaryngological (for example, recurrent otitis media), dental pathology, but the most numerous group of diseases associated with extraesophageal manifestations of GERD are respiratory. Respiratory manifestations of GERD include chronic pharyngitis, chronic laryngitis, recurrent (spastic) croup, recurrent aspiration bronchitis, recurrent pneumonia, obliterating bronchiolitis, obliterating bronchiolitis with organizing pneumonia, and bronchiectasis. The relationship between GERD and bronchial asthma (BA) is complex. In newborns and infants, symptoms of GERD include abnormal regurgitation, poor weight gain, refusal to feed, dysphagia, chronic cough, and development of apnea [1].

MATERIALS AND METHODS

At the same time, GERD, including in patients with respiratory diseases, often occurs without any symptoms. Thus, in infants with wheezing, GERD was diagnosed in 60.5% of cases, while 60.9% of these patients did not have typical esophageal symptoms [2]. From 1/3 to 1/2 of patients with bronchial asthma and GERD do not have characteristic esophageal symptoms [3], in another study, typical GERD symptoms, such as heartburn, were present in only 16% of patients with extraesophageal manifestations of the disease.

RESULTS AND DISCUSSION

Diagnosis of GERD is a complex task, since there is no ideal diagnostic method of examination. Esophagogastroduodenoscopy (EGD) is the only diagnostic

tool for identifying esophagitis, however, according to the results of the studies, erosive esophagitis was diagnosed in 15–71% of examined patients with GERD [1]. It has been shown that daily intraesophageal combined impedance-pH-metry (IIM) is the most accurate method for diagnosing GERD, since it reveals up to 96% of all refluxes, while isolated pH monitoring revealed only 76% of refluxes [2]. In children over one year of age with verified GERD without characteristic esophageal manifestations, but having respiratory symptoms associated with GERD, a predominance of weakly alkaline refluxes was revealed, while in patients with characteristic esophageal manifestations of GERD, acid refluxes predominated [3]. The aim of the study was to determine the frequency of GERD in children with recurrent and chronic respiratory diseases (RiCRD) and to assess the informativeness of various diagnostic methods.

The overall incidence of GERD based on clinical and instrumental methods in the examined children was 90.4%; based only on instrumental methods – 86.4%, including 92.1% in children with esophageal manifestations of GERD and 80.7% in children without them, without statistically significant differences ($p > 0.05$). GERD was detected with the highest frequency using CIM (93%), which was 3.7 times more frequent than GER detection using isolated pH-metry. Table 1 shows the incidence of GERD based on clinical and instrumental data in children with different types of RIHRD. According to the study, GERD was diagnosed in 90.4% of children with RIHRD. This result is consistent with the data of previously conducted studies, according to which short-term (within 2–3 hours) pH-metry made it possible to detect GER in 47–100% (on average, 76%) of children with recurrent respiratory diseases [2], and long-term pH-metry detected reflux in 92–94% of examined children with these diseases [4].

According to the data of V.F. Privorotsky et al., 65% of children with bronchial asthma, 88% of children with cystic fibrosis and 50% of children with recurrent bronchitis were found to have GER of varying severity based on clinical, radiological and endoscopic examination methods [2]. Among the patients we examined, pathological GER was confirmed by instrumental methods in 80.7% of children without esophageal manifestations of GERD. The high frequency of GER detection in the children with RIHRD we examined may be a consequence of increased intra-abdominal pressure and an increase in negative pleural pressure during coughing, hyperinflation of lung tissue, as well as the result of the use of bronchodilators that relax the lower esophageal and pyloric sphincters, which increases the frequency and severity of gastroesophageal and duodenogastric reflux. GERD and GERD interact in a closed pathophysiological circle: irritation of the esophageal mucosa by gastric contents can cause bronchospasm mediated through the n. vagus, as well as due to the direct effect on the receptors of the larynx, trachea and bronchi during micro- or macroaspiration of gastric contents, which leads to nonspecific hyperreactivity of the bronchi and the development of an inflammatory process in the tracheobronchial tree [3]. In adult patients, the GERD-Q is a very valuable questionnaire in the diagnosis of GERD. According to V.O. Kaibysheva et

al., the sensitivity of the questionnaire in adult patients was 65.4%, specificity - 91.7%, examined for GERD using the method of daily pH-metry [4].

CONCLUSION

In children with RIHRD, the frequency of GER, which is detected with the maximum frequency (93%) during CIM, was 90.4%, among children without esophageal manifestations of GERD, pathological reflux was confirmed by instrumental methods in 80.7% of patients. The leading type of reflux in children with RIHRD was weakly acidic reflux, which is more common in children without esophageal manifestations of GERD. This may explain the absence of esophageal symptoms in almost half (49.6%) of the examined patients. The study found that the prognostic significance of a positive result of esophageal fluoroscopy, EGDS and pH-metry is quite high (93.8–100%), but the prognostic significance of a negative result is very low (14.3–20%).

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THE INFLUENCE OF SEED SOWING RATES ON THE FORMATION OF WINTER WHEAT YIELD

Annotation: *It was established that with a seeding rate of winter wheat of 5 million viable seeds, the highest plant indicators, ear length, number of ears in an ear, number of grains in an ear, weight of 1000 grains and biological grain yield were observed in the Uzbekistan-25 variety.*

Key words: *Winter wheat, varieties Uzbekistan-25, Navbahor, grain, yield, protein, gluten, sowing rate.*

In the agriculture of our republic, especially in the field of grain growing, as a result of the deep reforms carried out, special attention is paid to the creation of high-yielding varieties of wheat, strengthening food security, free choice of varieties for each region, development of norms for the use of mineral and local fertilizers, as well as ensuring a stable harvest in the context of global climate change, efficient use of land and water resources.

On typical chernozems of the Tashkent region, it was found that in order to obtain the optimal sowing rate of winter wheat, it is necessary to use a sowing rate of 225 kg of seeds per hectare [2].

In the conditions of the Bukhara region, for the successful growth and development of winter wheat, it was shown that when sowing seeds at a rate of 200 kg per hectare, high yields can be achieved [1].

On typical chernozems, when using mineral fertilizers at a rate of N200P140K100 kg per hectare, when sowing seeds at a rate of 225 and 200 kg, an insignificant difference in yield is observed, however, with an increase in the sowing rate, lodging of wheat is observed. At a seeding rate of 150 kg per hectare, 47.9 centners were obtained per hectare, and at a rate of 100 kg - 42.5 centners [5].

In the conditions of the experimental farm of the Tashkent State Agrarian University, studies of the Kroshka wheat variety were conducted at five seeding rates: 3, 4, 5, 6, 7 million / ha. The highest yield was obtained at a rate of 5 million / ha, amounting to 45.4 c / ha, and an increase in the rate to 6-7 million / ha led to a decrease in yield to 45.0-42.4 c / ha [3].

In the Sherobod district of the Surkhandarya region, studies were conducted with different seeding rates of winter wheat seeds (150, 200, 250 kg / ha) and fertilizers. The results of the research indicated that the seeding rate of 200 kg/ha yielded the highest amount of grain (59.4 c/ha). Based on this, the authors recommended using a seeding rate of 200-225 kg of seeds and applying N200P140K100 fertilizers [4]. The study will examine the effect of seeding rates on three varieties of winter wheat. The experiment will be conducted with four seeding rates (3 million, 4 million, 5 million, 6 million) in 12 variants. The area of

each plot will be 14 meters long and 1.8 meters wide, while the wheat seeds will be sown in a strip with 80 cm row spacing. The Grom, Uzbekistan-25 and Navbahor varieties were used for the experiment. Before sowing, the main fertilizers will be applied to the field: P - 90 kg of phosphorus and K - 60 kg of potassium, as well as nitrogen fertilizers at a rate of 220-230 kg per hectare. Subsequently, three additional fertilizing will be carried out using 70, 80 and 70 kg of nitrogen fertilizers.

According to observations, the duration of the vegetation period of the Grom variety was 227 days, for the Uzbekistan-25 variety - 229 days, and for the Navbahor variety - 225 days, which is two days earlier compared to the Grom variety.

When increasing the sowing rate, it was noted that this affects the growth and development phase of plants, as well as their biometric indicators. With a sowing rate of 3 million viable seeds, the average plant height was: for the Grom variety - 83.1 cm, for Uzbekistan-25 - 82.5 cm (0.6 cm lower than the Grom variety), for Navbahor - 91.3 cm, 8.2 cm higher than the Grom variety.

At the sowing rate of 4 million seeds, the plant height was: for the Grom variety - 83.4 cm, for Uzbekistan-25 - 85.0 cm, 1.6 cm higher than for the Grom variety, for Navbakhor - 94.2 cm, 10.8 cm higher than for the Grom variety. At the sowing rate of 5 million seeds, the plant height was: for the Grom variety - 87.2 cm, for Uzbekistan-25 - 86.3 cm, 0.9 cm lower than for the Grom variety, for Navbakhor - 95.6 cm, 8.4 cm higher than for the Grom variety. At the sowing rate of 6 million seeds, the plant height was: for the Grom variety - 89.1 cm, for Uzbekistan-25 - 90.2 cm (1.1 cm higher than for the Grom variety), for Navbakhor - 97.0 cm, 7.9 cm higher than for the Grom variety. Thus, with an increase in the sowing rate, the height of the plants also increases. It was also found that with a sowing rate of 3 million viable seeds, the ear length of the Grom variety was 7.1 cm, for Uzbekistan-25 - 7.3 cm, 0.2 cm shorter than the Grom variety, for Navbakhor - 9.1 cm, 2.0 cm longer than the Grom variety. With a sowing rate of 4 million seeds, the ear length was: for the Grom variety - 7.4 cm, for Uzbekistan-25 - 7.5 cm, 0.1 cm longer than the Grom variety, for Navbakhor - 9.3 cm, 1.9 cm longer than the Grom variety. When sowing 5 million viable seeds on a plot with the Grom variety, the average ear length was 7.5 cm, for the Uzbekistan-25 variety - 7.7 cm, which is 0.2 cm more than the Grom variety. For the Navbahor variety, the ear length was 9.5 cm, which is 2.0 cm more than the Grom variety. With a sowing rate of 6 million viable seeds, the average ear length for the Grom variety was 7.7 cm, for the Uzbekistan-25 variety - 7.8 cm, and for the Navbahor variety - 9.7 cm, which is 2.0 cm more than the Grom variety. However, the number of grains in one ear decreased by 3-4 grains, and the weight of one grain decreased by 0.1-0.2 grams. One of the indicators of grain quality is the weight of 1000 grains. At the sowing rate of 3 million viable seeds, the weight of 1000 grains was: for the Grom variety - 41.5 g, for the Uzbekistan-25 variety - 41.8 g (0.3 g more than the Grom variety), for the Navbakhor variety - 40.4 g, 1.1 g less than the Grom variety.

At the sowing rate of 4 million seeds, the weight of 1000 grains was: for the Grom variety - 41.3 g, for the Uzbekistan-25 variety - 41.6 g, 0.3 g more than the Grom variety, for the Navbakhor variety - 39.2 g, 2.1 g less than the Grom variety.

At the sowing rate of 5 million seeds, the weight of 1000 grains was: for the Grom variety - 40.9 g, for the Uzbekistan-25 variety - 40.7 g, 0.2 g less than for the Grom variety, for the Navbahor variety - 38.3 g, 2.6 g less than for the Grom variety. At the sowing rate of 6 million seeds, the weight of 1000 grains was: for the Grom variety - 40.8 g, for the Uzbekistan-25 variety - 39.8 g, 1.0 g less than for the Grom variety, for the Navbahor variety - 38.0 g, 2.8 g less than for the Grom variety.

The biological yield indicators obtained in the experiment are as follows: With a sowing rate of 3 million viable seeds, the biological yield of the Grom variety was 61.7 c/ha, for the Navbakhor variety - 61.5 c/ha, 0.2 c/ha less than the Grom variety, for the Uzbekistan-25 variety - 62.7 c/ha, 1.0 c/ha more than the Grom variety.

With a sowing rate of 4 million seeds, the biological yield of the Grom variety was 68.8 c/ha, for the Uzbekistan-25 variety - 73.8 c/ha, 5.0 c/ha more than the Grom variety, for the Navbakhor variety - 69.7 c/ha (0.9 c/ha more than the Grom variety).

With a sowing rate of 5 million seeds, the biological yield of the Grom variety was 73.2 c/ha, of the Navbakhor variety - 74.4 c/ha (1.2 c/ha more than the Grom variety), of the Uzbekistan-25 variety - 79.8 c/ha, 6.6 c/ha more than the Grom variety.

With a sowing rate of 6 million seeds, the biological yield of the Grom variety was 68.3 c/ha, of the Navbakhor variety - 68.9 c/ha, 0.6 c/ha more than the Grom variety, of the Uzbekistan-25 variety - 70.8 c/ha, 2.5 c/ha more than the Grom variety. Based on the conducted field experiments, it can be concluded that with a sowing rate of 5 million viable seeds for the Uzbekistan-25 variety, the best results were obtained in terms of such indicators as plant height, ear length, number of ears, number of grains in an ear, grain weight, weight of 1000 grains and biological yield.

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HISTOLOGICAL STRUCTURE OF EXTRAHEPATIC BILE DUCTS IN RATS

Abstract:*The article presents scientific data on the general histological structure of the external bile ducts of the liver of rats - one of the experimental animals studied by the Van Gieson staining method, and elastic fibers - by the Weigert staining method.*

Keywords: *Rat, liver, bile ducts, histological structure, elastic fibers.*

Introduction

The structure of the extrahepatic bile ducts has been the subject of a significant number of scientific studies [1,2,3].

In the publications of recent years, there are very few scientific studies devoted to the comparative morphology of the biliary system and one or another of its sections [4,5]. Finding out the reason for the presence or absence of a gallbladder in certain representatives of mammals is of great importance, both theoretically and practically. Comparative study features buildings extrahepatic gallbladder ducts at rats is a current scientific problem of theoretical and practical medicine. A number of authors [6,7] have studied the functional relationships in the digestive system, between the biliary system, stomach, duodenum and pancreas .

Many works are devoted to the study of various pathologies of extrahepatic bile ducts in the experiment [8]. Some authors [9,10] describe the comparative morphology of the common bile duct in humans and rats.

We did not find any works on the histological structure of extrahepatic bile ducts in rats in the available literature. On the issues of the structure of extrahepatic bile ducts in rats in the experiment, there is very little literary data and therefore it was not possible to describe them separately, however, we decided to fill this gap with our research.

Objective of the study : To investigate the histological structure of the extrahepatic bile ducts of the liver of healthy adult rats.

Material and methods of the study. The material for our study was the organ complexes of 18 sexually mature rats. The animals were killed by bloodletting (dissection of the abdominal aorta) under local anesthesia. The organs of the hepatobiliary system (liver, extrahepatic bile ducts) took straightaway after slaughter animal And recorded in a 12% solution of neutral formalin. To study the histological picture, the sections were stained hematoxylin And eosin. For studies collagen fibers the preparations were stained with picrofuchsin according to Van Gieson , and to identify elastic fibers fuchsillin according to Weigert .

Results of the study and discussion. The common bile (hepatic) duct of rats is formed by the fusion of the right and left hepatic ducts. The duct wall along its

entire length has a mucous, submucosa, muscular-connective-tissue and serous membranes. The mucous membrane is covered from the inside with a single-layer cylindrical epithelium. The proper plate is represented by loose irregular connective tissue. The submucosa also consists of loose irregular connective tissue and contains numerous epithelial tubules of different diameters located parallel to the long axis of the duct (Fig. 1). The tubules are covered with prismatic epithelium. They are found along the entire length of the common bile (hepatic) duct of rats. Blood vessels and nerve ganglia are also found in the submucosa. The location of collagen fibers is mainly along the duct and circular. The density of the collagen fibers in different layers is different. Muscle the membrane is relatively thin, bundles of smooth muscle cells are mixed with connective tissue fibers. Layers of smooth muscle tissue are found, both circular and longitudinal orientation. At the point of confluence left and right hepatic ducts the concentration of glands in the wall is high, it is as if permeated with these glands.

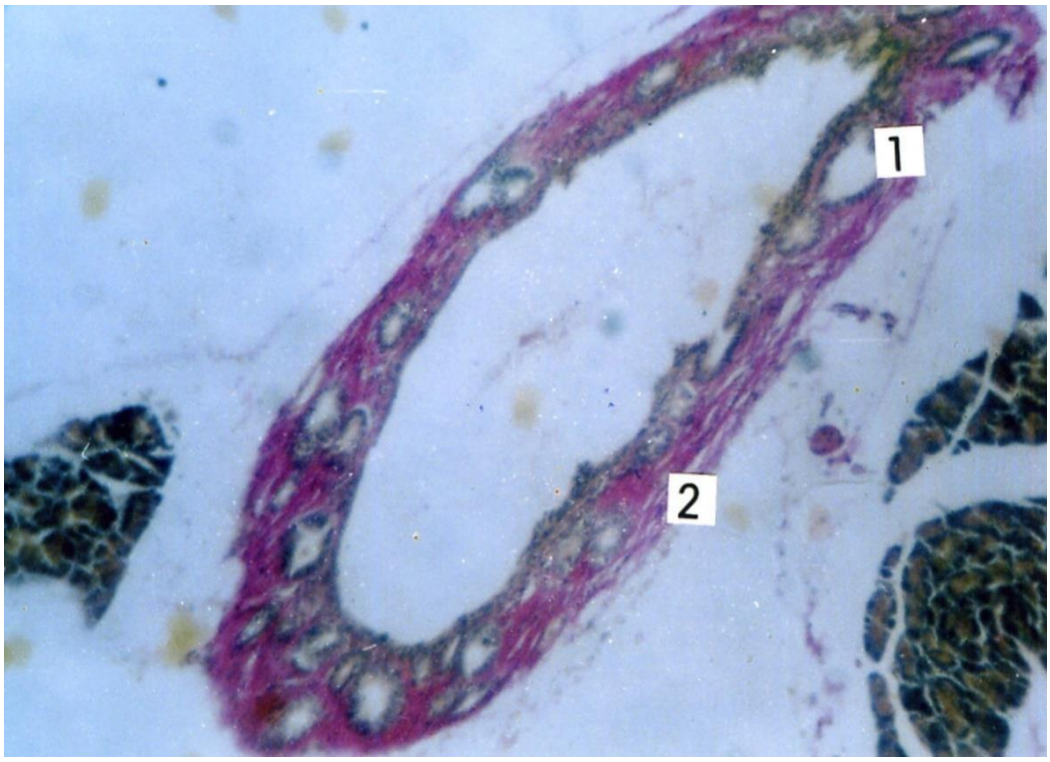


Fig.1. Transverse cut general gallbladder duct rats.

1.Epithelial tubules. 2.Muscular shell. Coloring By Van Gieson . Took away. 20x10.

All glands are covered with cylindrical epithelium and open into the lumen of the gland ducts with wide mouths, they are located even in the area of the confluence of these ducts (Fig. 2). It is clear from the figure that the left and right hepatic ducts contain glands in the form of epithelial depressions (similar to Luschka's ducts). It should be noted that the epithelium of the common bile duct of rats is uneven and high epithelial cells alternate with low ones (Fig. 3). The figure shows a cross section of the common bile duct and portal vein. As can be seen from

pattern, epithelium covering the inner surface of the common bile duct, uneven, groups.

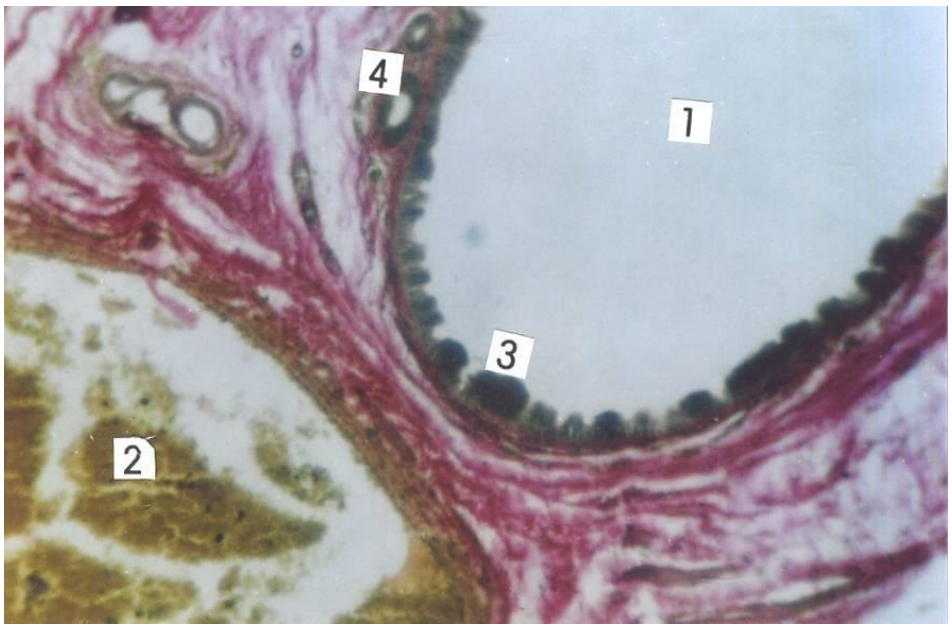
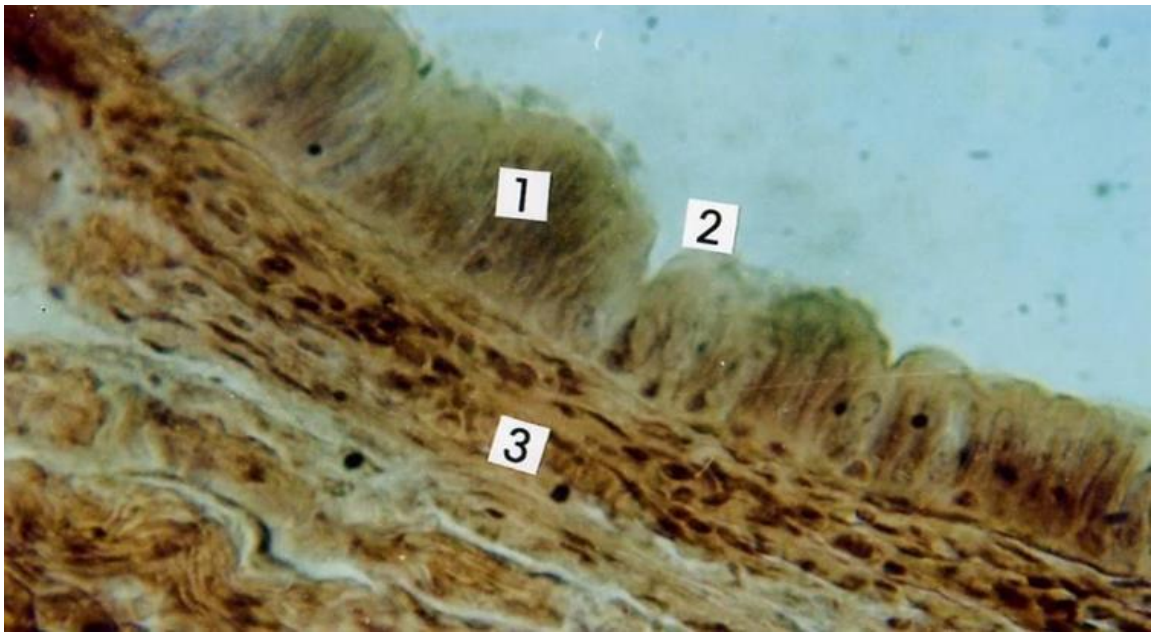


Fig.3. Transverse cut general gallbladder (liver) duct rats: 1) general hepatic duct 2) portal vein 3) epithelium 4) secretory parts of the glands. Van Gieson staining . Took away. 20x10.

tall cylindrical cells, delimited by longitudinal indentations that are clearly visible under high magnification (Fig. 4).



Rice. 4. Section of wall general gallbladder duct rats: 1) epithelium

1. epithelial recesses 3) basal membrane. Hematoxylin and eosin staining. Magnification 40x10.

Conclusion. The apical sections of the cylindrical cells seem to diverge, forming depressions. But these depressions do not reach the basement membrane, since the lower parts of the lateral surfaces of the cells are closely adjacent to each other. Secretory sections of the glands are visible in the proper plate of the mucous membrane. We assume that these longitudinal grooves serve as one of the elements that increase the volume of the bile (hepatic) duct of rats.

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СОВРЕМЕННЫЕ ПОДХОДЫ К ЛЕЧЕНИЮ РАКА МОЛОЧНОЙ ЖЕЛЕЗЫ: ОТ ДИАГНОСТИКИ К ТЕРАПЕВТИЧЕСКИМ СТРАТЕГИЯМ

Аннотация: рак молочной железы является одним из наиболее распространенных и агрессивных видов рака у женщин. За последние десятилетия были достигнуты значительные успехи в ранней диагностике и лечении этого заболевания. В статье рассматриваются современные методы диагностики, такие как маммография, ультразвуковое исследование, магнитно-резонансная томография и молекулярно-генетические тесты. Особое внимание уделено различным терапевтическим подходам, включая хирургию, химиотерапию, радиотерапию и таргетную терапию, а также роли иммунотерапии и гормональной терапии. В статье также обсуждаются перспективы и проблемы в лечении рака молочной железы, включая проблемы резистентности к терапии и возможные пути их решения.

Ключевые слова: рак молочной железы, диагностика, химиотерапия, таргетная терапия, иммунотерапия, молекулярно-генетическое тестирование, лечение, хирургия, прогноз.

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MODERN APPROACHES TO TREATMENT CANCER OF THE MAMMARY GLAND: FROM DIAGNOSTICS TO THERAPEUTIC STRATEGIES

Abstract: *Breast cancer is one of the most common and aggressive types of cancer in women. In recent decades, significant successes were achieved in the early diagnosis and treatment of this disease. The article discusses modern diagnostic methods such as mammography, ultrasound, magnetic resonance imaging, and molecular genetic tests. Special attention is given to various therapeutic approaches, including surgery, chemotherapy, radiotherapy, and targeted therapy, as well as the role of immunotherapy and hormonal therapy. The article also discusses the prospects and challenges in the treatment of breast cancer, including the problems of resistance to therapy and possible solutions.*

Key words*: Breast cancer, diagnostics, chemotherapy, targeted therapy, immunotherapy, molecular genetic testing, treatment, surgery, prognosis.*

Introduction:

Breast cancer (BC) is a malignant neoplasm that develops from cells in the mammary gland. The incidence of breast cancer has continued to rise in recent decades, despite significant advances in diagnostics and therapy. This type of cancer is one of the leading causes of death among women worldwide. However, progress in areas of early diagnostics and treatments,

Including modern methods of chemotherapy, targeted therapy, and immunotherapy significantly increased patient survival.

The main task of modern research and clinical practice is to optimize diagnostic methods and develop individualized therapeutic strategies, which allows not only to improve the effectiveness of treatment but also to improve the quality of life of patients. This article examines modern approaches to the diagnosis and treatment of breast cancer, including the latest developments and prospects in this area.

Materials and methods:

This study used data from large clinical trials, international guidelines for the treatment of breast cancer, and the results of molecular genetic studies that allow us to identify key molecular and genetic markers that influence disease progression and response to therapy.

1. Diagnostics:

Mammography: used for early detection of malignant neoplasms; allows detection of tumors at early stages.

Ultrasound examination: used to clarify the nature of the tumor and assess the condition of surrounding tissues.

Magnetic resonance imaging allows you to accurately assess the size of the tumor and the extent of its spread.

Molecular genetic testing: used to detect mutations in genes such as BRCA1 and BRCA2, as well as to assess the expression of hormone receptors and HER2/neu.

Therapy: the main treatment for early-stage diseases, including mastectomy and orand-preserving operations. Chemotherapy isis used in more late stages, alsso djuvant therapy to reduce the risk of recurrence. Radiation therapy: applies after surgical interventions to destroy remaining cancer cells.

Targeted therapy: aimed at blocking molecular targets that promote cancer cell growth, including HER2 inhibitors.

Immunotherapy: a new approach to treatment, directed at the activation of the immune system to fight cancer cells.

Hormone therapy is therapy used for treatments of hormone-dependent tumors (for example, with expression of estrogen receptors).

Results and discussions:

Modern diagnostics of breast cancer allow for the detection of tumors at early stages, which significantly improves the prognosis and survival of patients. Mammography remains the gold standard for screening, but the use of MRI and ultrasound helps in clarifying the diagnosis and planning treatment.

In recent years, significant progress was achieved in areas of targeted therapy and immunotherapy. Targeted drugs such as trastuzumab have proven effective in treating HER2-positive tumors. Immunotherapy, including checkpoint inhibitors, has also shown promise in clinical trials, especially when combined with other treatments.

Hormonal therapy remains a key element in the treatment of hormone-dependent tumors. Drugs such as tamoxifen and aromatase inhibitors effectively reduce the risk of recurrence and metastasis.

Chemotherapy still plays an important role in late-stage disease and V combinations with other methods. However, in the long term

Side effects such as weakening of the immune system and development of resistance are possible with use.

Conclusions:

Modern methods of diagnosing cancer in dairy glands allow the disease to be detected at earlier stages, significantly increasing the chances of successful treatment and survival.

Targeted therapy and immunotherapy open new horizons in the treatment of breast cancer, providing a more precise effect on cancer cells with minimal side effects.

Hormonal therapy and chemotherapy remain important treatment elements, but their use should be individualized for each patient.

Prospects for breast cancer treatment include further development of molecular genetic testing and the creation of new therapeutic strategies aimed at improving the quality of life of patients and increasing their life expectancy.

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МЕТОДИКА ИСПОЛЬЗОВАНИЯ НЕТРАДИЦИОННЫХ МЕТОДОВ РАЗВИТИЯ МАТЕМАТИЧЕСКОЙ ГРАМОТНОСТИ УЧАЩИХСЯ НАЧАЛЬНЫХ КЛАССОВ

Аннотация. *В в этой статье написано о методика использования нетрадиционных методов в развитии математической грамотности учащихся начальных классов. Дидактический из инструментов в использовании студентов психологический, молодой функции в рассмотрении взять необходимость примеры основано на доказано .*

Ключевые слова: *нетрадиционные методы, интерактивные методы, образование, начальное образование, тематическое исследование, оценка.*

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METHOD OF USING NON-TRADITIONAL METHODS OF DEVELOPING MATHEMATICAL LITERACY OF PRIMARY SCHOOL STUDENTS

Annotation. *In this article it is written about the methodology of using non-traditional methods in developing mathematical literacy of primary school students. Didactic of the tools in the use of students psychological, young functions in consideration take the need examples based on proven.*

Keywords*: non-traditional methods, interactive methods, education, primary education, case study, assessment.*

Развитие математической грамотности учащихся начальной школы имеет важное значение в современной системе образования. Развитие у детей навыков логического мышления, решения задач и творческого подхода в процессе изучения математики служит основой их будущих знаний и навыков. Наряду с традиционными методами обучения, использование

нетрадиционных методов позволяет повысить интерес учащихся и сделать процесс обучения более интересным и эффективным.

Нетрадиционные методы играют важную роль в развитии математической грамотности учащихся начальной школы. Эти методы более интересны, интерактивны и эффективны, чем традиционные методы, помогая детям лучше усваивать математические концепции.

В настоящее время интерес к использованию интерактивных методов и информационных технологий в образовательном процессе растет с каждым днем. Одна из причин этого заключается в том, что если в традиционном образовании учащихся учили только усваивать готовые знания, то использование современных технологий учит их самостоятельно искать приобретаемые знания, самостоятельно учиться и самостоятельно думать, анализировать и даже делать окончательные выводы.

Нетрадиционные методы обучения побуждают учащихся мыслить творчески, обрабатывать полученную информацию в сотрудничестве, свободно выражать свое мнение, проявлять инициативу, находить решения проблем в группах, работать сообща, работать сообща и логично излагать свои идеи в письменной форме.

Работа с нетрадиционными методами не означает отказ от традиционных методов. Возможно, это означает возможность решать образовательные задачи посредством взаимодействия. При организации учебного процесса с использованием нетрадиционных методов: повышается взаимодействие учащихся, формируются навыки сотрудничества и творчества, формируются навыки работы с учебным планом, программой, образовательным содержанием, учебниками, стандартами, нормами, пособиями.

Нетрадиционные методы — это подходы, направленные на то, чтобы сделать процесс обучения более интересным, интерактивным и дружелюбным для детей. Они повышают вовлеченность учащихся, пробуждают их интерес и помогают им легче усваивать математические концепции. К этим методам относятся:

Обучение через игры: представление математических задач в игровой форме. Например, игры, связанные с числами, фигурами или математическими операциями.

Интерактивные технологии: использование компьютерных программ, приложений, интерактивных программ и онлайн-платформ.

Проекты и практические занятия: вовлекайте учащихся в решение реальных жизненных проблем. Например, измерения, расчеты или моделирование.

Творческие задания: задания, которые побуждают учащихся мыслить самостоятельно и сосредотачиваться на поиске решений.

Групповая работа: вовлечение учащихся в командную работу, улучшение их коммуникативных навыков и совместное решение проблем.

Преимущества нетрадиционных методов в том, что они пробуждают у учащихся интерес к науке. Нетрадиционные методы повышают интерес учащихся к математике. Благодаря играм и интерактивным заданиям они воспринимают математику как интересное и полезное занятие, а не как сложный и скучный предмет. Повышает вовлеченность: эти методы побуждают учащихся активно участвовать. Студенты не только слушают, но и самостоятельно размышляют, экспериментируют и пытаются найти решения. Учитывает индивидуальность: уровень знаний и скорость обучения каждого учащегося могут различаться.

Метод изучения конкретного случая. План работы по каждой изучаемой проблеме или теме с использованием метода кейса, детали их выполнения, результаты и сумма выводов составляют отдельный кейс. Данный метод ориентирован на использование реальных жизненных ситуаций в процессе обучения. Это одна из актуальных проблем в сфере образования.

Данный метод позволяет учащимся моделировать практические действия по диагностике жизненной ситуации, связанной с темой, формулировать гипотезы, выявлять проблемы, собирать дополнительную информацию, уточнять гипотезы и проектировать конкретные этапы решения и реализации проблем. Использование кейсов, посвященных конкретным жизненным ситуациям, связывает образовательный процесс с реальной жизнью. В тематических исследованиях учащиеся создают процесс обучения. В этом процессе их взаимное движение приводит к реальному обмену идеями. Практические примеры дают учащимся свободу анализировать, сравнивать и решать проблемы. Анализ конкретного случая — это образовательный метод, основанный на проблемном анализе конкретной реальной или искусственно созданной ситуации, который помогает учащимся сформулировать изучаемую проблему и найти варианты ее подходящего решения.

Метод оценки - «Оценка» происходит от английского слова «assessment», что означает «оценивание», «анализ». Метод оценки представляет собой комплекс заданий, обеспечивающих комплексную и объективную оценку уровня знаний, умений, навыков и компетенций обучающихся. Он состоит из анкеты-опросника, ведомости учебных достижений, индивидуального учебного задания, дебатов, собеседования, творческой работы, теста, индивидуального кейса, презентации, экспертного наблюдения, ролевых и деловых игр.

Данный метод может использоваться в процессе обучения или в составе обучения, а также индивидуально. Этот метод можно использовать и при задании домашнего задания. Таким образом, использование интерактивных методов в начальном образовании позволяет модернизировать и углублять образовательный процесс, а также дифференцировать его с учетом индивидуальных возможностей каждого ученика. Это позволяет учителю свободно управлять обучением и использовать различные методы подачи учебной информации.

Использование нетрадиционных методов развития математической грамотности учащихся начальной школы имеет большое значение в современном образовательном процессе. Эти методы дополнительно развивают математическое мышление учащихся, навыки решения задач и креативность. Нетрадиционные методы, включая игры, интерактивные программы, проектное обучение, проблемные ситуации и другие инновационные методы, вызывают интерес у детей и делают изучение математики увлекательным и легким для них.

Также использование нетрадиционных методов позволяет преподавателям реализовать личностно-ориентированный подход, учитывая индивидуальные способности учащихся. Это помогает повысить интерес учащихся к математике, улучшить уровень их знаний и развить навыки самостоятельного мышления.

Таким образом, использование нетрадиционных методов в развитии математической грамотности учащихся начальной школы является эффективным и современным подходом. Эти методы позволяют сделать образовательный процесс интересным, эффективным и продуктивным.

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ВОПРОС РАЗВИТИЯ ТУРИЗМА В ФЕРГАНСКОЙ ОБЛАСТИ

Аннотация: *В статье говорится, что развитие туристической отрасли в Узбекистане находится под вниманием государственной политики, что красивая природа, святые места, уникальные памятники архитектуры и благодатные уголки Ферганской области вызывают интерес у иностранных туристов. В результате этого поток их приезда сюда увеличивается с каждым годом, сейчас анализируются вопросы развития сферы медицинского туризма и исторические корни существующих возможностей Ферганской области в этой сфере.*

Ключевые слова: *Фергана, турист, медицинский туризм, гостиница, минеральная вода, лечение, источник.*

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THE ISSUE OF TOURISM DEVELOPMENT IN THE FERGHANA REGION

Abstract: *The article states that the development of the tourism industry in Uzbekistan is under the attention of state policy, that beautiful nature, holy places, unique architectural monuments and fertile corners of the Fergana region are of interest to foreign tourists. As a result of this, the flow of their arrival here is increasing every year; the development of the field of medical tourism and the historical roots of the existing capabilities of the Fergana region in this area are now being analyzed.*

Key words: *Fergana, tourist, medical tourism, hotel, mineral water, treatment, source.*

Благодаря особому вниманию, уделяемому развитию туристической отрасли в Узбекистане, живописная природа, святые места, уникальные архитектурные памятники и благословенные уголки Ферганской области всё больше привлекают иностранных туристов. Устойчивый мир и стабильность,

атмосфера взаимной любви и согласия, знаменитое ферганское гостеприимство, а также современные гостиницы и курорты с высоким качеством обслуживания становятся важными факторами в этом процессе. В настоящее время в нашей стране развиваются различные виды туризма, такие как экотуризм, геотуризм, экстремальный, медицинский и культурный туризм, а также путешествия на верблюде, осле, автомобиле, альпинизм, рыбалка, рафтинг и многие другие направления.

С исторической точки зрения, гостеприимные ферганцы всё более ярко демонстрируют своё замечательное качество через развитие туристической индустрии и совершенствование сферы обслуживания. В этом процессе важным ориентиром является Закон Республики Узбекистан «О туризме» и Указ Президента от 2 декабря 2016 года «О мерах по обеспечению интенсивного развития туризма в Республике Узбекистан».

Ферганская область привлекает внимание туристов своими историческими памятниками, святыми местами и современными сооружениями. В частности, центр области — древний Коканд, города Маргилан и район Риштан всегда полны гостей из дальних и близких уголков. В области уделяется особое внимание созданию удобных условий для открытия новых туристических направлений, знакомства гостей с историческими памятниками, образцами национальных ремёсел и народного прикладного искусства. В области находятся такие исторические и культурные памятники, как комплексы Бурхониддина Маргиноний и Саида Ахмада Эшона, Чиллахона и мавзолей Пирсиддика Хазрата, дом-музей Увайсий, мастерские ремесленников, дворец Худоёрхана в городе Коканд и расположенный в нём музей регионоведения, мечети Джоме, Камолкози, комплекс Норбутайби, исторические памятники Дахмаи Шохон и Мадалихон, а также комплексы Ахмада аль-Фаргони в городе Фергана и в районе Кува. Экскурсии по этим местам оставляют у туристов глубокие впечатления о истории нашей страны. Памятники, связанные с природными водоёмами области, экотуристические объекты и территории в геокомплексах, также обладают своей уникальностью. Природные источники в районах Узбекистан, Учкюприк и Риштан, древний кедр и восточный платан в районе Олтиарик, пески Акбаробод и Зилха, холм Сарыкўрғон, Китконтепа, Саурбулоқ, Ёмонжар, древние фисташковые сады, а также пещера Окбилол — все эти природные памятники поражают воображение каждого посетителя.

Развитие туристической отрасли в Ферганской области началось ещё в советский период. Хотя организация «Интурист» была создана в 1929 году, региональное отделение в Фергане было открыто только в 1931 году. С 1931 по 1969 годы здесь постепенно развивались такие виды туризма, как спортивный туризм, горный туризм и оздоровительный туризм. Это объяснялось тем, что Фергана располагалась в экологически благоприятной зоне и рассматривалась как перспективный регион для развития туризма. Гиды и переводчики, как правило, отбирались из числа преданных коммунистической идеологии студентов, обучавшихся в высших партийных

школах. Для них были разработаны специальные инструкции. Первые впечатления туристов о Советском Союзе, как правило, они получают через гида-переводчика, и поэтому особое внимание уделялось внешнему имиджу гидов. Важно было, чтобы они обладали знаниями в политической, идеологической и других областях. Гиды-переводчики отбирались не только как отличные знатоки иностранных языков, но и как внимательные и ловкие личности, способные выйти из любой ситуации. Ведь гид-переводчик считался ключевой фигурой, формирующей внешний имидж страны. Гид должен был объяснить туристам, что необходимо уважать национальные ментальные особенности местных жителей. Особенно важно было объяснять, как себя вести в общественных местах и соблюдать общепринятые нормы морали. Также гиды-переводчики несли ответственность за организацию процесса покупки билетов, когда туристы покидали страну. При необходимости, или если в рамках туристического маршрута планировались конгрессы или конференции, гиды также осуществляли непосредственное руководство по их организации.

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СОВЕРШЕНСТВОВАНИЕ ТЕХНОЛОГИИ ДОБЫЧИ УГЛЕВОДОРОДОВ

Аннотация: *В данной статье рассматриваются современные технологии добычи углеводородов и их совершенствование. Обсуждаются основные методы, применяемые в нефтегазовой отрасли, а также инновационные подходы, направленные на повышение эффективности и экологической безопасности процессов добычи. Результаты анализа показывают, что внедрение новых технологий может значительно увеличить объемы извлечения углеводородов и снизить негативное воздействие на окружающую среду.*

Ключевые слова: *углеводороды, добыча, технологии, эффективность, экология, инновации.*

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IMPROVING HYDROCARBON PRODUCTION TECHNOLOGY

Abstract: *This article discusses modern technologies for hydrocarbon production and their improvement. The main methods used in the oil and gas industry are discussed, as well as innovative approaches aimed at increasing the efficiency and environmental safety of production processes. The results of the analysis show that the introduction of new technologies can significantly increase the volume of hydrocarbon extraction and reduce the negative impact on the environment.*

Keywords: *hydrocarbons, production, technologies, efficiency, ecology, innovations.*

Современные исследования в области добычи углеводородов показывают, что традиционные методы, такие как бурение и гидравлический разрыв пласта, часто сталкиваются с ограничениями по эффективности и экологическим последствиям (Smith et al., 2020; Johnson, 2021). В последние годы наблюдается рост интереса к новым технологиям, таким как CO2-усиленная добыча и системы мониторинга на основе ИТ (Brown Green, 2022). Критический обзор литературы показывает необходимость интеграции новых подходов для повышения производительности и снижения затрат.

Добыча углеводородов является одной из ключевых отраслей мировой экономики. С увеличением спроса на энергоресурсы возникает необходимость в усовершенствовании существующих технологий. Введение инновационных методов может не только повысить эффективность добычи, но и минимизировать экологические риски. Цель данной статьи - проанализировать современные технологии добычи углеводородов и предложить пути их улучшения.

Совершенствование технологии добычи углеводородов является важной задачей, так как это позволяет увеличить эффективность добычи, снизить затраты и уменьшить воздействие на окружающую среду. В настоящее время существует множество направлений развития технологий добычи углеводородов, каждое из которых имеет свои преимущества и недостатки.

Некоторые из наиболее перспективных направлений совершенствования технологии добычи углеводородов включают

* Разработка новых методов бурения:

* Горизонтальное бурение позволяет получать доступ к залежам, которые ранее были недоступны.

* Направленное бурение позволяет бурить скважины под углом, что может быть полезно для добычи углеводородов из сложных геологических формаций.

* Бурение скважин малого диаметра позволяет снизить затраты на бурение и уменьшить воздействие на окружающую среду.

* Разработка новых методов повышения нефтеотдачи пластов:*

* Гидроразрыв пласта позволяет увеличить проницаемость пласта и увеличить добычу углеводородов.

* Термические методы воздействия на пласт, такие как закачка пара или внутрипластовое горение, позволяют снизить вязкость нефти и увеличить ее подвижность.

* Химические методы воздействия на пласт, такие как закачка поверхностно-активных веществ или полимеров, позволяют улучшить вытеснение нефти из пласта.

* Разработка новых методов добычи углеводородов из трудноизвлекаемых запасов:*

* Добыча сланцевой нефти и газа является одним из наиболее перспективных направлений развития технологий добычи углеводородов.

* Добыча нефти из битуминозных песков является еще одним перспективным направлением, однако она требует больших затрат энергии и воды.

* Добыча углеводородов из глубоководных месторождений является сложной задачей, однако она может быть решена с помощью современных технологий.

* Автоматизация и цифровизация процессов добычи углеводородов:*

* Внедрение систем автоматического управления позволяет оптимизировать процесс добычи и снизить затраты.

* Использование цифровых технологий, таких как машинное обучение и искусственный интеллект, позволяет анализировать большие объемы данных и принимать более эффективные решения.

Помимо этого, важным направлением совершенствования технологии добычи углеводородов является снижение воздействия на окружающую среду

* Разработка новых методов очистки сточных вод:

* В процессе добычи углеводородов образуется большое количество сточных вод, которые могут содержать вредные вещества.

* Разработка новых методов очистки сточных вод позволит снизить негативное воздействие на окружающую среду.

* Снижение выбросов парниковых газов:*

* Добыча и транспортировка углеводородов сопровождается выбросами парниковых газов, которые способствуют изменению климата.

* Разработка новых технологий, которые позволяют снизить выбросы парниковых газов, является важной задачей.

* Предотвращение аварийных разливов нефти:*

* Аварийные разливы нефти могут привести к серьезным экологическим последствиям.

* Разработка новых методов предотвращения аварийных разливов нефти является важной задачей.

В заключение можно сказать, что совершенствование технологии добычи углеводородов является сложной и многогранной задачей, которая требует комплексного подхода. Развитие новых методов бурения, повышения нефтеотдачи пластов, добычи трудноизвлекаемых запасов, автоматизация и цифровизация процессов добычи, а также снижение воздействия на окружающую среду являются важными направлениями совершенствования технологии добычи углеводородов.

Для достижения поставленной цели был проведен анализ существующих технологий добычи углеводородов, включая традиционные и новые методы. Использовались данные из научных публикаций, отчетов отраслевых организаций и результаты полевых исследований. Также были проведены интервью с экспертами в области нефтегазовой промышленности для получения мнений о текущих тенденциях и перспективах.

Анализ показал, что применение новых технологий, таких как горизонтальное бурение и гидравлический разрыв пласта, значительно

увеличивает объемы извлечения углеводородов. Однако эти методы могут иметь негативные последствия для экологии. Поэтому важным направлением является разработка технологий, направленных на снижение воздействия на окружающую среду, таких как системы улавливания и хранения углерода (CCS). Внедрение цифровых технологий для мониторинга и управления процессами также демонстрирует значительный потенциал для повышения эффективности.

Совершенствование технологий добычи углеводородов является важной задачей для обеспечения устойчивого развития нефтегазовой отрасли. Интеграция инновационных методов и цифровых технологий может привести к значительному повышению эффективности добычи и снижению негативного воздействия на окружающую среду. Будущее добычи углеводородов зависит от способности отрасли адаптироваться к новым вызовам и внедрять передовые решения.

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СПЕЦИФИКА ОХРАНЫ ОБЪЕКТОВ ПАТЕНТНОГО ПРАВА В ГРАЖДАНСКОМ ОБОРОТЕ РОССИЙСКОЙ ФЕДЕРАЦИИ

Аннотация. *В статье рассматриваются особенности правовой охраны объектов патентного права в системе гражданского оборота Российской Федерации. Проводится комплексный анализ действующего законодательства в сфере патентного права, выявляются основные проблемы правоприменительной практики при защите патентных прав. Исследуются механизмы противодействия нарушениям патентных прав и эффективность существующих мер защиты правообладателей. На основе проведенного исследования формулируются предложения по совершенствованию системы патентно-правовой охраны и механизмов защиты прав патентообладателей в Российской Федерации.*

Ключевые слова: *патентное право, интеллектуальная собственность, правовая охрана, изобретения, полезные модели, промышленные образцы, патентообладатель, гражданский оборот, защита патентных прав, патентное законодательство, правоприменительная практика.*

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THE SPECIFICS OF THE PROTECTION OF PATENT LAW OBJECTS IN THE CIVIL CIRCULATION OF THE RUSSIAN FEDERATION

Annotation. *The article examines the features of the legal protection of patent law objects in the civil turnover system of the Russian Federation. A comprehensive analysis of the current legislation in the field of patent law is carried out, the main problems of law enforcement practice in the protection of patent rights are identified. The mechanisms of countering patent infringement and the effectiveness of existing measures to protect copyright holders are being investigated. Based on the conducted research, proposals are formulated to improve the system of patent protection and mechanisms for protecting the rights of patent holders in the Russian Federation.*

Keywords: *patent law, intellectual property, legal protection, inventions, utility models, industrial designs, patent holder, civil turnover, patent rights protection, patent legislation, law enforcement practice.*

В современном мире развитие экономических отношений и технологического прогресса неразрывно связано с институтом патентного права. Правовая охрана объектов патентного права представляет собой

комплексный механизм, включающий как частноправовые, так и публично-правовые элементы. Анализ научной литературы и правоприменительной практики позволяет выявить ряд существенных особенностей и проблем в данной сфере.

Фундаментальное значение для понимания сущности патентного права имеет процесс создания охраняемых объектов. Как отмечает О.Л. Алексеева, интеллектуальная деятельность изобретателя заключается в поиске сущности технической проблемы и нахождении пути ее решения техническими средствами [8, с. 58]. Данная позиция представляется обоснованной, однако требует дополнения в части определения критериев технического характера решения, поскольку современные технологии все чаще размывают границы между техническими и иными решениями.

Значительное внимание в научной литературе уделяется вопросу о моменте возникновения права на объект патентной охраны. В этом контексте важно отметить темпоральный аспект создания изобретения, промышленного образца и полезной модели, который включает два этапа: фактическое создание объекта с возникновением права авторства и права заявителя на получение патента, а также государственную регистрацию патента и возникновение исключительного права.

Р.М. Садыков рассматривает исключительное право как «ключевое имущественное право» [10, с. 87], подчеркивая его фундаментальный характер. Данный подход заслуживает поддержки, однако требует уточнения в части соотношения имущественной составляющей исключительного права с его неимущественными элементами, которые также имеют существенное значение для охраны патентных прав.

А.С. Ворожевич справедливо указывает на необходимость четкого определения границ исключительного права, отмечая, что все участники правовых отношений должны быть осведомлены о содержании, объеме и видах указанных прав [1, с. 11]. Эта позиция имеет особое значение для правоприменительной практики, однако нуждается в дополнении механизмами обеспечения такой осведомленности.

Э.П. Гаврилов высказывает критическую позицию относительно ограничений прав обладателя патента на зависимый объект, утверждая, что это лишает право исключительности и противоречит п. 1 ст. 1358 ГК РФ [2, с. 12]. Эта точка зрения заслуживает внимания, однако не учитывает необходимость баланса интересов различных правообладателей и общества в целом.

В.И. Елисеев рассматривает принудительную лицензию как обременение исключительного права на первоначальный объект в пользу патентообладателя зависимого объекта в целях защиты публичных интересов [4, с. 98]. Такой подход представляется обоснованным, но требует дополнительной разработки критериев определения публичного интереса в каждом конкретном случае.

Г.А. Гаджиев обращает внимание на проблему патентного троллинга и вопросы правовой квалификации подобных действий [3, с. 35]. Данная позиция имеет особую актуальность в современных условиях, однако нуждается в дополнении конкретными механизмами противодействия недобросовестным практикам.

Существенный вклад в понимание проблематики вносит анализ судебной практики. Обзор судебной практики Верховного Суда Российской Федерации № 2 (2020) содержит важные разъяснения относительно определения использования полезной модели без согласия патентообладателя. В частности, подчеркивается необходимость совпадения всех признаков запатентованного решения для установления факта нарушения исключительного права.

Постановление Пленума Верховного Суда РФ от 23.04.2019 № 10 «О применении части четвертой Гражданского кодекса Российской Федерации» также вносит существенный вклад в формирование единообразной практики применения норм патентного права, в частности, в отношении толкования формулы изобретения и определения объема правовой охраны [7].

Л.В. Сагдеева исследует вопросы ограничений и обременений исключительного права [9, с. 14], предлагая провести аналогию между вещным правом и правом на результаты интеллектуальной деятельности. Данный подход имеет определенную теоретическую ценность, однако требует осторожного применения ввиду существенных различий между материальными и нематериальными объектами права.

А.Е. Сухарева обращает внимание на проблемы охраны интеллектуальных прав при создании объектов путем 3D-печати [11, с. 36], что представляется особенно актуальным в контексте развития новых технологий. Однако данная позиция требует дальнейшего развития с учетом появления новых технологических решений.

Патентное право, являясь подотраслью права интеллектуальной собственности, охраняет технические решения в различных областях, включая изобретения, полезные модели и промышленные образцы. Специфика охраны данных объектов обусловлена их нематериальной природой и особым порядком возникновения исключительных прав. В отличие от объектов авторского права, правовая охрана результатов технического творчества возникает только после прохождения формальной процедуры государственной регистрации и выдачи охранного документа – патента.

Существенной особенностью охраны объектов патентного права является территориальный характер их правовой охраны. Патент, выданный в одном государстве, действует только в пределах его территории. Это создает необходимость международной патентной охраны для обеспечения защиты прав изобретателей в глобальном масштабе. Международные соглашения, такие как Парижская конвенция по охране промышленной собственности и

Договор о патентной кооперации, создают правовую основу для получения патентной охраны в различных странах.

Важным аспектом охраны патентных прав является срочный характер правовой охраны. Законодательством установлены определенные сроки действия патентов: для изобретений – двадцать лет, для полезных моделей – десять лет, для промышленных образцов – пять лет с возможностью продления. После истечения срока действия патента техническое решение переходит в общественное достояние и может свободно использоваться любым лицом.

В гражданском обороте охрана патентных прав реализуется через систему способов защиты, предусмотренных гражданским законодательством. К ним относятся как общие способы защиты гражданских прав, так и специальные способы, характерные именно для сферы интеллектуальной собственности. Особое значение имеет возможность требовать пресечения действий, нарушающих исключительное право или создающих угрозу его нарушения, а также возмещения убытков.

Рассмотрим определение Верховного суда Российской Федерации от 27 июля 2017 года по делу № 300-ЭС17-5839 [5]. Дело касается спора об авторстве изобретения между Валеевым М.М. и Гайнутдиновым Г.З. (истцы) и ПАО «Казанский вертолетный завод» с группой соответчиков относительно патента РФ №2175625 на изобретение «Транспортный вертолет». Истцы утверждали, что лица, указанные в патенте как авторы, таковыми не являются, а техническое решение было создано истцами в рамках их рационализаторского предложения от 12.06.1992 №14/193.

Ключевой момент в отношении охраны патентных прав: суд указал, что право авторства не зависит от выдачи патента на изобретение - оно возникает у гражданина в силу самого факта создания творческим трудом соответствующего результата. Суд подчеркнул абсолютный характер права авторства, который проявляется в возможности оспаривания патента в течение всего срока его действия в случаях неправильного указания авторов. Важно отметить, что согласно применимому на момент подачи заявки Патентному закону, не признаются авторами лица, не внесшие личного творческого вклада в создание объекта, а оказавшие только техническую, организационную или материальную помощь.

Верховный суд отменил предыдущие судебные решения и направил дело на новое рассмотрение, указав на существенные нарушения норм материального и процессуального права. В частности, суды неправомерно применили презумпцию авторства (введенную позже ГК РФ) к отношениям, возникшим до её законодательного закрепления, и не исследовали ключевой вопрос о характере участия каждого из заявленных авторов в создании технического решения. При новом рассмотрении суду предписано исследовать вопрос о творческом вкладе каждой из сторон в создание изобретения.

Специфической чертой охраны патентных прав является необходимость доказывания факта использования запатентованного решения. В отличие от нарушений авторских прав, где факт копирования может быть очевиден, в патентных спорах требуется проведение сравнительного анализа технических признаков запатентованного решения и предполагаемого нарушения. Это часто требует привлечения технических экспертов и проведения специальных исследований.

Особую роль в охране патентных прав играет институт принудительного лицензирования, который позволяет обеспечить баланс между частными интересами патентообладателя и публичными интересами общества. В случаях, когда патентообладатель не использует или недостаточно использует запатентованное решение, что приводит к недостаточному предложению соответствующих товаров на рынке, законодательство предусматривает возможность выдачи принудительной лицензии заинтересованному лицу.

В современных условиях особую актуальность приобретает проблема охраны патентных прав в цифровой среде. Развитие технологий трехмерной печати, искусственного интеллекта и других цифровых технологий создает новые вызовы для системы патентной охраны. Возникает необходимость адаптации традиционных механизмов защиты к новым формам использования запатентованных решений.

Важным элементом системы охраны патентных прав является институт временной правовой охраны, действующий с момента публикации заявки до выдачи патента. Этот механизм позволяет защитить права заявителя в период рассмотрения заявки и предотвратить несанкционированное использование технического решения до получения патента.

Существенное значение для эффективной охраны патентных прав имеет система регистрации и учета патентных прав. Ведение государственных реестров патентов обеспечивает публичность сведений о защищаемых технических решениях и их правообладателях, что способствует снижению рисков непреднамеренного нарушения патентных прав третьими лицами.

В контексте гражданского оборота особую роль играет договорное регулирование отношений по использованию запатентованных решений. Лицензионные договоры и договоры об отчуждении исключительного права являются основными правовыми инструментами, обеспечивающими коммерциализацию результатов интеллектуальной деятельности.

Проанализируем определение Верховного суда Российской Федерации от 29 января 2015 г. по делу № 300-ЭС14-1301 [6]. Спор возник в отношении патента №43336 на полезную модель «Парогенератор», где истец (Степанова Г.В.) как наследница одного из авторов (Трунова Н.Б.) оспаривала правомерность указания ОАО «ЗИОМАР» в качестве патентообладателя и Яньшина Е.А. в качестве автора. Суды нижестоящих инстанций удовлетворили требования истца, что было обжаловано ответчиком в Верховный суд РФ.

Ключевым документом выступало соглашение от 16.09.2004, которое суды неверно квалифицировали только как договор о выплате авторского вознаграждения. ВС РФ указал, что данное соглашение носило комплексный характер (являлось смешанным договором по ст. 421 ГК РФ) и содержало условия как о вознаграждении, так и об использовании имущественных прав. При этом соглашение было подписано после подачи заявки на патент, но до его выдачи, поэтому не требовало специальной регистрации и к нему применялись общие положения о форме сделок.

ВС РФ отменил акты нижестоящих судов, указав на необходимость: оценить все условия соглашения от 16.09.2004, а не только положения о вознаграждении; исследовать волеизъявление сторон и их последующее поведение; проверить фактическое исполнение соглашения в части выплаты вознаграждения; привлечь к участию в деле работодателей авторов. Особо отмечено, что нормы о сроке действия патента не являются специальными сроками исковой давности. Относительно договорного регулирования использования запатентованных решений: в данном деле отсутствовал классический лицензионный договор, поскольку соглашение было заключено до выдачи патента. ВС РФ подчеркнул важность комплексного анализа договорных отношений между авторами и будущим патентообладателем, которые могут регулироваться смешанными договорами, содержащими различные условия об использовании прав и выплате вознаграждения.

Эффективная охрана патентных прав требует развития специализированных механизмов разрешения споров. Сложность технических вопросов, возникающих в патентных спорах, обусловливает необходимость создания специализированных судебных составов или отдельных судов по интеллектуальным правам, обладающих необходимой экспертизой для рассмотрения подобных дел.

В заключение следует отметить, что специфика охраны объектов патентного права в гражданском обороте определяется комплексом факторов, включая особую природу защищаемых объектов, территориальный и срочный характер охраны, необходимость государственной регистрации прав, особенности доказывания нарушений и механизмы разрешения споров. Совершенствование системы охраны патентных прав требует постоянного развития правовых механизмов с учетом новых технологических вызовов и потребностей гражданского оборота.

При этом важно обеспечить баланс между интересами правообладателей, пользователей и общества в целом для стимулирования инновационного развития и технического прогресса.

На основании проведенного анализа можно сделать следующие выводы:

– современная система охраны объектов патентного права характеризуется сложным взаимодействием частноправовых и публично-правовых элементов, что требует комплексного подхода к ее совершенствованию.

– существует необходимость более четкого определения критериев патентоспособности объектов с учетом развития новых технологий и появления новых видов технических решений.

– институт зависимых объектов патентных прав нуждается в дальнейшем совершенствовании с целью обеспечения справедливого баланса интересов различных правообладателей.

– механизм принудительного лицензирования требует более детальной регламентации с учетом необходимости защиты как частных, так и публичных интересов.

– актуальной остается проблема противодействия недобросовестным практикам в сфере патентного права, что требует разработки эффективных правовых механизмов.

– развитие новых технологий создает дополнительные вызовы для системы патентной охраны, что требует своевременной адаптации правового регулирования.

Таким образом, современная система охраны объектов патентного права, несмотря на достаточно развитое правовое регулирование, нуждается в дальнейшем совершенствовании с учетом развития технологий и изменения экономических отношений. Особое внимание следует разделить вопросы баланса балансовых интересов различных субъектов патентного права и общества в целом.

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РОЛЬ СОВРЕМЕННЫХ МЕТОДОВ ПРЕПОДВАНИЯ БИОЛОГИИ В АКАДЕМИЧЕСКИХ ЛИЦЕЯХ

Аннотация:*В статье рассматривается современные методы преподавания биологии в академических лицеях, которые основаны на интеграции инновационных образовательных технологий, междисциплинарного подхода и активного вовлечения учащихся в процесс обучения. Важную роль играет использование цифровых ресурсов, таких как интерактивные платформы, виртуальные лаборатории и мультимедийные материалы, позволяющие повысить наглядность и доступность сложных биологических процессов.*

***Ключевые слова**: процесс, подход, мультимедиа, платформа, лаборатория, мышления.*

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THE ROLE OF MODERN METHODS OF TEACHING BIOLOGY IN ACADEMIC LYCEUMS

Abstract:*The article discusses modern methods of teaching biology in academic lyceums, which are based on the integration of innovative educational technologies, an interdisciplinary approach and active involvement of students in the learning process. An important role is played by the use of digital resources, such as interactive platforms, virtual laboratories and multimedia materials, which improve the visibility and accessibility of complex biological processes.*

Key words: *process, approach, multimedia, platform, laboratory, thinking.*

Современные образовательные технологии стремительно меняются, и биология, как предмет, не стоит в стороне от этих процессов. В академических лицеях, где уровень образования обычно высок, преподавание биологии требует применения передовых методов, чтобы не только обеспечить глубокие знания, но и развить у учеников критическое мышление, научные подходы и способность применять знания на практике. Рассмотрим

некоторые из современных методов преподавания биологии, которые становятся все более популярными в академических учреждениях.

Современные методы преподавания биологии в академических лицеях подразумевают интеграцию передовых образовательных технологий и инновационных педагогических подходов. С учетом стремительного развития науки в целом и биологии в частности, преподаватели должны быть готовы к постоянному обновлению своих знаний и методических инструментов.

На сегодняшний день одной из ключевых задач становится включение активных методов обучения, таких как проектная деятельность, лабораторные работы на базе современных технологий, решение кейсов и работа с реальными научными исследованиями. Проектная деятельность позволяет учащимся не только изучать теорию, но и применять полученные знания на практике. Это способствует более глубокому пониманию материала и развитию критического мышления.

Лабораторные работы играют важную роль в обучении биологии, ведь именно они позволяют визуализировать и анализировать биологические процессы. В современных условиях оснащение лицейских лабораторий играет немаловажную роль. Применение цифровых микроскопов, сенсоров для измерения показателей окружающей среды и программного обеспечения для обработки данных значительно повышает качество получаемых знаний.

Кейс-метод является еще одним эффективным инструментом, способствующим формированию аналитических навыков. Он вовлекает студентов в решение гипотетических или реальных ситуаций, требующих применения биологических знаний. Такой подход позволяет не только оценить уровень теоретической подготовки, но и способствует развитию способностей к аргументации и защите своей точки зрения.

Особое внимание уделяется инклюзивному образованию, которое предусматривает равный доступ к знаниям для всех категорий учащихся. Для этого разрабатываются специальные адаптивные образовательные программы и поддерживающие технологии для различных групп учащихся, включая тех, кто сталкивается с физическими или когнитивными трудностями.

*Проектно-исследовательский метод***.** Один из наиболее эффективных подходов в преподавании биологии — это проектно-исследовательская методика. Этот метод предполагает активное вовлечение учащихся в научно-исследовательскую деятельность. Студенты не только изучают теорию, но и проводят лабораторные эксперименты, собирают данные, анализируют их и делают выводы. Это помогает учащимся развивать навыки научного поиска, анализа информации и работы в команде. В процессе работы над проектами студенты могут исследовать живые организмы, экосистемы, генетические процессы и другие биологические феномены, что делает обучение максимально приближенным к реальной жизни.

Интерактивные методы обучения. В последние годы большое внимание уделяется интерактивному обучению, которое способствует

активному вовлечению студентов в образовательный процесс. Это может включать в себя использование различных цифровых технологий, таких как мультимедийные презентации, интерактивные доски, виртуальные лаборатории и симуляции биологических процессов. Виртуальные лаборатории дают возможность ученикам проводить эксперименты, не имея в распоряжении дорогого оборудования, что делает обучение доступным и увлекательным. Такой подход также позволяет демонстрировать сложные процессы (например, митоз или фотосинтез) в режиме реального времени, что значительно улучшает понимание материала.

*Метод проблемного обучения***.** Проблемное обучение является еще одним эффективным способом преподавания биологии. В этом методе ученикам предоставляется конкретная проблема или вопрос, требующий решения. Учитель не дает готовых ответов, а помогает ученикам самостоятельно искать информацию, проводить исследования и анализировать различные точки зрения. Такой подход развивает у студентов навыки критического мышления, учит их самостоятельно работать с научной литературой и применять теоретические знания для решения практических задач. Проблемное обучение способствует развитию у учеников умения работать в условиях неопределенности и нестандартных ситуаций, что является неотъемлемой частью научного процесса.

*Персонализированное обучение***.** В академических лицеях часто используются технологии персонализированного обучения, когда преподавание адаптируется под индивидуальные особенности и потребности каждого студента. В биологии это может выражаться в индивидуальных консультациях, дополнительных заданиях для углубленного изучения тем или в использовании онлайн-платформ для самостоятельной работы. Такой подход помогает каждому ученику развивать свои сильные стороны, а также получать поддержку в тех областях, которые вызывают трудности.

*Использование мультидисциплинарных подходов***.** Биология является многогранной наукой, и её изучение не ограничивается только теорией. В рамках современных методов преподавания все большее внимание уделяется мультидисциплинарным подходам, которые объединяют биологию с другими предметами, такими как химия, физика, математика и даже информатика. Применение математических моделей для описания биологических процессов, использование химии для понимания биохимических реакций или применение информатики для анализа больших данных (например, в геномике) помогает ученикам увидеть биологию в более широком контексте и понять её связь с другими науками.

*Формативное оценивание***.** Современные методы преподавания также включают в себя формативное оценивание, которое отличается от традиционного итогового экзамена. Вместо того чтобы оценивать студентов только по результатам финальных тестов или экзаменов, формативное оценивание направлено на процесс обучения. Учитель предоставляет

учащимся обратную связь на протяжении всего учебного процесса, помогая улучшать знания и навыки.

Таким образом, применение современных методов преподавания биологии в академических лицеях способствует созданию образовательной среды, в которой студенты становятся активными участниками учебного процесса. Эти методы развивают критическое мышление, научные и исследовательские навыки, а также помогают ученикам осваивать биологические концепции и процессы на более глубоком уровне. Важно отметить, что использование современных технологий и подходов в преподавании биологии не только делает обучение более увлекательным и доступным, но и подготавливает студентов к научной карьере, помогая им стать конкурентоспособными специалистами в будущем.

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НАУЧНО-ТЕОРЕТИЧЕСКИЕ ОСНОВЫ РАЗВИТИЯ ЭКОЛОГИЧЕСКОЙ КУЛЬТУРЫ У СТУДЕНТОВ

Аннотация: *В данной статье рассматриваются вопросы развития экологического правосознания, экологической культуры студентов и последовательного совершенствования теоретических фундаментальных, практических и методических основ, методического обеспечения в этой области, эффективной организации экологического воспитания и обучения в образовательных учреждениях. освещается либ, анализируется опыт многих развитых зарубежных стран в налаживании взаимоотношений человека и природы. Также представлены мнения о положительных результатах организации экологического образования в высших учебных заведениях и основных задачах, поставленных перед преподавателями.*

Ключевые слова: *экологическая культура, экологическое сознание, экологическое мировоззрение, экологическое образование, экологические проблемы, природопользование, глобальная экологическая безопасность, международные эколого-политические отношения, эколого-правовые нормы, ответственный подход, охрана природы.*

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SCIENTIFIC AND THEORETICAL BASIS OF DEVELOPING ECOLOGICAL CULTURE IN STUDENTS

Abstract: *This article discusses the issues of developing students' ecological legal awareness, ecological culture, and consistently improving the theoretical fundamental, practical and methodological foundations, methodological support in this area, as well as the effective organization of ecological education and upbringing in educational institutions, and analyzes the experiences of many developed foreign countries in establishing the correct relationship between man and nature. It also presents positive results of organizing ecological education and upbringing in higher educational institutions and the main tasks assigned to teachers in this regard.*

Keywords: *ecological culture, ecological awareness, ecological worldview, ecological education and upbringing, environmental problems, use of natural*

resources, global ecological security, international ecological political relations, ecological legal norms, responsible approach, nature protection.

Введение. Глобальный экологический кризис, вызванный современной цивилизацией в мире, поставил перед человечеством необходимость выработки новых мировоззрений и жизненных стратегий, связанных с формированием экологической культуры. На 76-й сессии Генеральной Ассамблеи ООН были обсуждены приоритеты глобальной экологической политики, подчеркнут вопрос налаживания сотрудничества, направленного на построение безопасного и стабильного роста и благополучного будущего. Сегодняшнее устойчивое развитие акцентирует внимание на значении системы образования в решении экологических проблем и повышении экологической грамотности молодого поколения, формировании и развитии экологического сознания и экологической культуры, совершенствовании технологий эффективной организации экологического образования и обучения.

Современная экологическая ситуация в мире показывает необходимость развития эколого-правового сознания молодежи и последовательного совершенствования теоретических фундаментальных, практических и методических основ, методического обеспечения в этой области, технологизации образовательных процессов в условиях инновационной образовательной среды, развития виртуальных электронных ресурсов. Также новая социально-экологическая функция образования делает более актуальной проблему развития экологической компетентности в процессе профессиональной подготовки студентов. В частности, в условиях роста утилитарных потребностей в использовании природных ресурсов, усиления антропотехногенного давления на природу, ужесточения международных эколого-политических отношений необходимо не допустить формирования нигилистического мировоззрения у молодежи и, как следствие, формирования эколого-правового сознания, основанного на обеспечении глобальной экологической безопасности.

Основная часть. В нашей стране большое внимание уделяется организации экологического образования и развитию экологической компетентности учащихся. Например, глава государства затронул эту тему и отметил, что «чрезвычайно богатая и красочная культура узбекского народа развивалась и развивается на протяжении тысячелетий в череде ярких исторических событий, как следствие уникальной природы нашей страны и вдохновляющего влияния разных культур друг на друга» [1].

Педагогические аспекты организации экологического образования и вопросы развития экологической компетентности учащихся изучаются многими учеными. В частности, академики И.Д. Зверев [3] (Основы экологической теории), А.Н. Захлебный [4] (Педагогические основы экологического образования), Е.О. Турдикулов [5] (Проблемы экологического образования студентов при преподавании естественных наук,

концепция непрерывного образования, разработка ДТС по экологии), И.Суравегина [6] (В преподавании естественных наук). экологическое просвещение студентов) и научно-исследовательские работы других ученых.

Видно, что в научных работах П.С.Султанова и Б.П.Ахмедова [7] исследованы вопросы, связанные с основами экологии и охраны окружающей среды.

Н.Ш. Бозорова затронула суть понятия экологической культуры и дала следующее определение: «Экологическая культура – это знание о природе, сознание, восприятие, грамотность, интеллектуальный потенциал и умение применять его на практике, высокий показатель активности по отношению к окружающей среде, осознанный и ответственный подход». Говорят, что между природой и человеком существуют разумные и ответственные отношения [8].

Уникальность исследования М.Б. Рахимкуловой состоит в том, что оно посвящено вопросу формирования экологических ценностей у учащихся младших классов на основе внеклассной деятельности. По мнению ученого, от студентов требуется «умение правдиво оценивать экологическую ситуацию» [9].

Вопросы профилактики экологических проблем, организации экологической образовательно-воспитательной работы в образовательных учреждениях, а также развития экологического сознания, знаний и грамотности граждан поднялись на уровень государственной политики во многих развитых странах. В частности, анализ конституций ряда зарубежных стран свидетельствует о том, что в них по-разному регулируются эколого-правовые нормы. В том числе:

1. В конституциях зарубежных стран закреплено наличие самостоятельных функций государства, таких как охрана природы, обеспечение рационального использования природных ресурсов (ст. 15 Конституции ФРГ, ст. 31 Конституции Болгарии и др.)
2. Установлено исключительное право собственности государства на природные объекты и ресурсы (ст. 8 Конституции Венгрии, ст. 12 Конституции Румынии и др.)
3. В развитии народного хозяйства и природопользования закреплены такие нормы, как народнохозяйственное планирование, учет потребности в сырье и ресурсах, их плановое распределение и рациональное использование. (Статья 7 Конституции Венгрии и др.).
4. Формирование прав и обязанностей юридических и физических лиц по охране окружающей природной среды. При этом стоит отметить, что во многих случаях право граждан жить в комфортной природной среде связано с обязанностью защищать природную среду (ст. 34 Конституции СКФ и др.).
5. Усилена роль общественных объединений и акций в охране природы (ст. 29 Конституции СКФ, ст. 24 Конституции Румынии и др.).

6. Целостность государственных принципов относительно внутренней и внешней политики страны и общества в области охраны природы (ст. 20 Конституции Венгрии и др.) [10].

Суть внедряемого в систему образования экологического образования и воспитания состоит в том, чтобы научить и сформировать у человека осознание того, что он-малая часть природы, в которой он живет, что он причиняет вред себе и будущим поколениям из-за своего отравления, что человек не может жить без природы и относится к природе с любовью и нежностью. Решение этих проблем возможно только в результате обучения обучающихся в образовательных учреждениях механизмам и методам устойчивой системы непрерывного экологического образования и преподавания концепции экологического развития.

На своем месте основная цель экологического образования также состоит в том, чтобы быть высококвалифицированным, конкурентоспособным на рынке труда, эрудированным, экологически ответственным, хорошо разбирающимся в своей профессии и способным работать в смежных областях, способным эффективно работать на уровне требований мировых стандартов по своей специальности, обладающим способностью к постоянному профессиональному росту, социальной и профессиональной мобильности, не безразличным к экологии и окружающей среде. состоит из подготовки специалистов.

В результате работы по развитию экологической компетентности учащихся достигается развитие их общих экологических знаний в положительную сторону. Взаимосвязанные экологические усилия, такие как поддержание чистоты в своих жилых и учебных помещениях, отказ от вывоза мусора в канавы и в места, с которыми он сталкивается, не оставлять после себя отходов, когда он выходит на природу для отдыха,экономия воды, отказ от сжигания различных резиновых и пластиковых контейнеров, включают активное участие в неделях очистки городов или территорий, в которых он живет, теперь можно добиться увеличения числа студентов, желающих участвовать по собственному желанию. Эффективно выполняя эту деятельность, учащиеся могут получать экологическую информацию и наблюдать за сохранением природы, в которой они живут, а также передавать экологическое воспитание, которое они имеют, своим детям и людям рядом с ними.

Эффект экологического воспитания у студенческой молодежи можно будет увидеть в:

- несмотря на то, что тип экологического образования находится не в одном и том же процессе, а по-разному в зависимости от уровня преподаваемых учебных заведений, студенту необходимо будет сформировать свои экологические знания и внести свой вклад в обеспечение своего государства образованными кадрами;
- В высших учебных заведениях экологические темы, которые изучают студенты, обычно должны соответствовать экологическим интересам

населения и быть взаимосвязанными, иногда, когда теоретические знания и практика не совпадают, связи не существует, и реализация становится все труднее;

- В высших учебных заведениях необходимо будет познакомить студентов с новыми практическими интересными исследованиями в области экологии и талантливыми учеными. Важным качеством в человеке, получившем экологическое воспитание, считается то, что экологическую ответственность он сформулировал в себе, он всегда должен прививать жизнь в гармонии с природой и людям, живущим рядом с ним. Например, определенная растительность является причиной сокращения численности вида, повышенного содержания ядовитых веществ в грунтовых водах и т. д.

Выводы. В заключение можно сказать, что экологическое сознание, экологическое воспитание у обучающихся формируется фактически через экологическое воспитание и оценивается в обществе по проявлению экологической компетентности. При этом движение будет двусторонним, сначала в семье, а затем в сообществе, которое начнет внедрять совместное экологическое образование. С другой стороны, только учителя с высокой экологической духовностью и любовью к своей профессии, понимающие природу, могут донести концепцию знаний до обучающихся через свое экологическое образование. Поэтому в высших учебных заведениях необходимо углубленно обучать будущих педагогов педагогическим, психологическим аспектам эффективной организации экологической воспитательной работы и совершенствовать их профессиональную подготовку

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АНЕМИЧЕСКАЯ КАРДИОПАТИЯ ОСЛОЖНЕННАЯ ДИАСТОЛИЧЕСКОЙ ДИСФУНКЦИЕЙ ЛЕВОГО ЖЕЛУДОЧКА У ПАЦИЕНТОВ С ХРОНИЧЕСКОЙ ЖЕЛЕЗОДЕФИЦИТНОЙ АНЕМИЕЙ СРЕДИ ПОПУЛЯЦИИ УЧАСТКОВ СЕМЕЙНОЙ ПОЛИКЛИНИКИ №3 Г. ФЕРГАНЫ РЕСПУБЛИКИ УЗБЕКИСТАН

Резюме:*Цель работы - выявление и освещение основных патогенетических механизмов и клинического течения анемической кардиопатии среди женской популяции участков семейной поликлиники №3 города Ферганы Ферганской области. У пациентов хронической железодефицитной анемией формирование метаболической кардиопатии (МК) характеризуется развитием специфической клинической симптоматики, некоторыми дифференциально диагностическими сложностями, диастолической дисфункцией в большинстве сегментов левого желудочка и гиперкинетическим типом центральной гемодинамики, с последующим формированием глобальной дисфункции левого желудочка.*

Ключевые слова*: железодефицитная анемия, анемическая кардиопатия, ДДЛЖ.*

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ACUTE ANEMIC CARDIOPATHY DIASTOLIC DYSFUNCTION OF THE LEFT ABDOMEN IN PATIENTS WITH CHRONIC IRON DEFICIENCY ANEMIA AMONG THE POPULATION OF FAMILY INSURANCE PLOTS FERGANA SH. POLYCLINICS 3 UZBEKISTAN

Abstract:*Prevalence and clinical significance of metabolic cardiopathy in patients with chronic iron deficiency in the district of family polyclinic №3, city of Ferghana, Ferghana valley. Summary: The purpose of the study was to evaluate the prevalence and clinical significance of metabolic cardiopathy in patients with chronic iron deficiency in the district of family polyclinic №3, city of Ferghana, Ferghana valley. The MC was observed in 45 patients with chronic iron deficiency anemia and was characterized by development of left ventricular diastolic dysfunction and hyperkinetic type of central hemodynamic with subsequent*

formation of the global diastolic dysfunction .

***Key words**: iron deficiency anemia, anemia, metabolic cardiopathy.*

Анемическим сердцем (cor anemicum), или, по современной классификации метаболической (анемической) кардиопатией (МК), принято называть комплекс клинических и структурно-функциональных изменений со стороны сердечно-сосудистой системы у больных железодефицитной анемией (ЖДА) [1]. Актуальность выбранной темы связана с трудностями диагностики данного состояния в практической деятельности врача-терапевта, кардиолога и гематолога[2]. Клинические проявления МК: кардиалгии, сердцебиение, нарушения ритма сердца и проводимости, симптомы сердечной недостаточности - часто маскируются клинической картиной самой анемии, особенно в начальной стадии заболевания [1]. Затруднена и ранняя диагностика анемического сердца, соответственно, не проводится своевременная метаболическая терапия , что способствует снижению качества жизни пациентов ЖДА и увеличению сроков временной нетрудоспособности [2].В ранних исследованиях показано, что у пациентов хронической ЖДА развиваются такие структурно-функциональные изменения со стороны сердца, как дилатация камер, эксцентрическая или концентрическая гипертрофия левого желудочка (ЛЖ), увеличение ударного объема ЛЖ, диастолическая дисфункция желудочков (ДДЛЖ), а иногда, при тяжелой анемии - снижение сократительной способности миокарда [3]. Поскольку в основе развития начальной стадии МК лежит диастолическая сердечная недостаточность, то важной является, именно ранняя диагностика нарушений диастолической функции (ДФ) миокарда у больных железодефицитной анемией [3, 4]. В нашем исследовании использован метод тканевой допплер-эхокардиографии (ТДЭ), позволяющий у больных с различной кардиальной патологией диагностировать нарушения диастолической функции миокарда на той стадии, когда глобальная функция сердца еще не страдает [5]. Данные о распространенности МК на фоне анемического синдрома у пациентов на участках семейной поликлиники №3 г. Фергана. В связи с этим, считаем актуальным изучение распространенности МК , ее клинических особенностей, степень нарушения релаксации левого желудочка в зависимости от тяжести течения ЖДА.

Материал и методы Настоящая работа выполнена в рамках одномоментного исследования и изучения распространенности МК , ее клинических особенностей и степени вовлеченности левого желудочка в патологический процесс в зависимости от тяжести течения ЖДА. Обследование пациентов проводились в условия семейной поликлиники №3, при содействии клиники Ибн Сино, где проводилось допплер эхокардиографическое (ЭХОКГ) исследование. Анемию и ее степень диагностировали в соответствии с рекомендациями Всемирного общества здравоохранения: легкая степень характеризовалась уровнем гемоглобина 110-119 г/л ; умеренная - 80-109 г/л; тяжелая - <80 г/л. В течении 6 месяцев

излучалась особенности клинического течения МК и соотношение диастолическое функции ЛЖ среди ранее, активно выявленных больных с различной степенью анемического синдрома. Исследование проводилась с изучением параметров ДФ левого желудочка у 45 пациентов с МК (средний возраст 36,4±5,1 лет) трех групп с разной степенью анемии. Эхокардиография (ЭХОКГ) выполнялась с помощью ультразвукового сканера PHILIPS Affinity (США) в соответствии с рекомендациями Американского и Европейского обществ ЭХО КГ. Диастолическую функцию ЛЖ оценивали по трансмитральному диастолическому току крови и тканевой визуализации диастолических скоростей движения фиброзного кольца митрального клапана.

Результаты. Пациенты были разделены на три группы в зависимости от степени анемического синдрома. Полученные данные ЭХО КГ показывают снижение скорости потока быстрого наполнения (Е) у больных легкой степенью анемии 6,14%, среднетяжелой анемией на 17,7% и у пациентов с тяжелой анемией - на 36,2 % . Скорость потока (А), напротив, превышала показатель 8,4% , 14,6 % и 25,6 % у больных 1-й, 2-й и 3-й групп, соответственно. Отношение Е/А у пациентов МК достоверно снижалось по мере нарастания тяжести анемии. У всех пациентов с МК исследовалась диастолическая функция ЛЖ методом ТДЭ. Установлено, что скорость движения септального сегмента ЛЖ в раннюю диастолу (VJ у больных ЖДА с МК была снижена более чем на 28%. Среди обследованных пациентов первой группы у 6,2% была выявлена ДДЛЖ 1 типа, в группе пациентов со средне - тяжелой анемией у одной, и в третьей группе у четырех была диагностирована ДДЛЖ 2 типа (псевдонормализация). Таким образом, методом ТДЭ можно выявить нарушения ДФ миокарда на уровне сегментов ЛЖ у пациентов ЖДА, у которых глобальная диастолическая функция не нарушена. Выявленные изменения являются начальным звеном в развитии сердечной недостаточности, лежащей в основе МК.
Обсуждение. До настоящего времени для обозначения поражения миокарда метаболического генеза в литературе используются термины: миокардозы, метаболическая кардиопатия, миокардиодистрофия [6].Термин «метаболическая кардиомиопатия» идентичен термину «миокардиодистрофия». Метаболическая кардиопатия представляет собой невоспалительное поражение сердечной мышцы различной этиологии, в основекоторого лежит нарушение обмена веществ и процесса образования энергии в ней. Это в свою очередь приводит к структурным повреждениям кардиомиоцитов и их органелл с последующим развитием дистрофического перерождения и нарушению многих функций миокарда, прежде всего сократительной. По данным разных авторов, МК диагностируется в 25-60 % случаев. Ключевым этиопатогенетическим фактором в развитии метаболических поражений сердечной мышцы является гипоксия, которая определяется характером основного заболевания. В результате гипоксии быстро наступает истощение аэробного гликолиза с накоплением его

конечных субстратов и переходом на анаэробный путь. Кроме того, происходит нарушение окислительного фосфорилирования и синтеза аденозинтрифосфата (АТФ), что вызывает повреждение целостности плазматических мембран митохондрий, выход метаболитов и ферментов в кровяное русло и развитие энергетического дисбаланса [7]. Клиническая картина МК в первую очередь определяется симптомами основного заболевания. Симптоматика самой МК неспецифична, ее начальные стадии протекают бессимптомно.

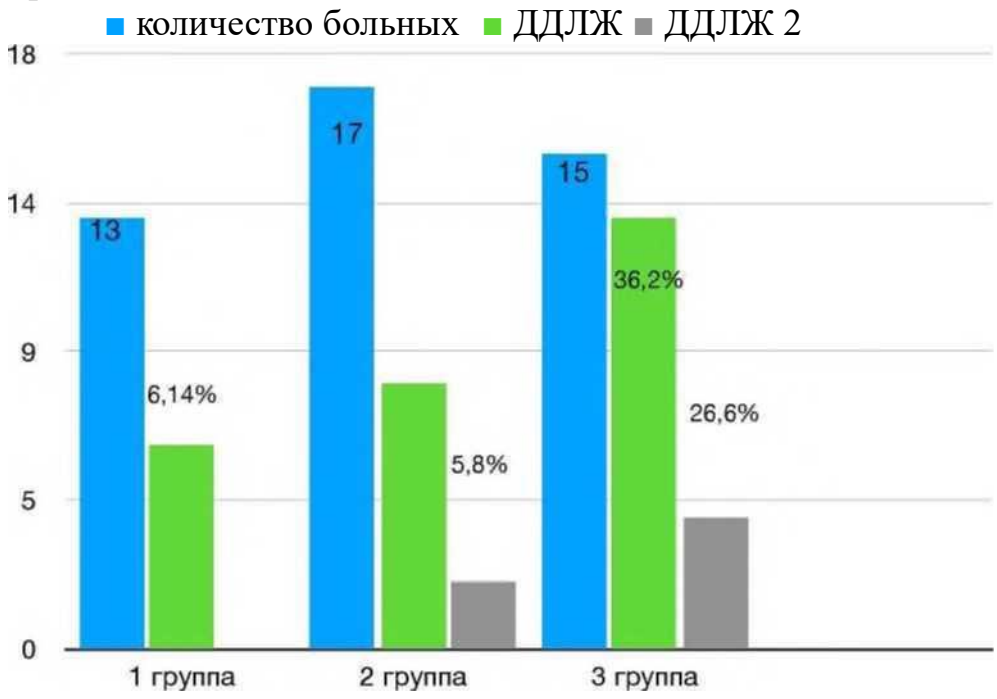

Рис 1. Частота встречаемости ДДЛЖ у больных с разной степенью анемии. n=45

При ведении подобных пациентов важным представляется использования парентеральных препаратов железа для коррекции анемии, ассоциированной с МК. Необходим динамический контроль лабораторных изменений (увеличения количества ретикулоцитов, уровня сатурации трансферрина и гемоглобина). В терапии МК на первый план выступает применение комплекса лекарственных средств, направленных на улучшение транспорта кислорода в ткани и его утилизацию, т. е. проведение метаболической терапии [7]. Наиболее часто используемыми препаратами являются фосфорилированные субстраты метаболизма (фруктозо-1,6-дифосфат), креатинфосфокиназа и вещества пластического действия (карнитин, оротовая кислота, пантотеновая кислота, фолиевая кислота, витамин В1 в виде биодоступных форм), модификаторы метаболизма - триметазидин, ранолазин, коэнзим Q10 [8]. Их эффективность доказана в контролируемых исследования.

Выводы. Выявленная высокая распространенность диастолических

дисфункций левого желудочка на фоне анемического синдрома и его негативное влияние на клиническую картину, переносимость физических нагрузок и качество жизни у исследованных пациентов участков семейной поликлиники №3 г Фергана указывает на необходимость более масштабного исследования данного состояния среди женщин Ферганской области. Диастолическая дисфункция левого желудочка обусловленная анемической, метаболической кардиопатией, без соответствующей комбинированной метаболической терапии и современной цитопротекцией может стать причиной сердечной недостаточности с сохраненной фракцией выброса. ЭХОКГ метод исследования пациентов с МК активно выявляет нарушенную релаксацию левого желудочка в доклинической стадии и даст возможность проведению превентивной терапии, задерживая развитие диастолической сердечной недостаточности, являющейся основным проявлением МК.

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ФАРМАКОЛОГИЧЕСКОЕ ДЕЙСТВИЕ ЛЕКАРСТВЕННОГО РАСТЕНИЯ MATRICARIA RECUTITA L.

Аннотация: *Matricaria recutita l. — ценное лекарственное растение, которое используется в народной медицине на протяжении веков. Солодка голая обладает противовоспалительными, противовирусными, антибактериальными, противораковыми, иммуностимулирующими, гепатопротекторными, антиоксидантными и нейропротекторными свойствами.*

Ключевые слова: *ромашка, Matricaria recutita, Matricaria chamomile L., M. suaveolens Buch., фитотерапия, народная медицина, древняя медицина.*

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PHARMACOLOGICAL ACTION OF THE MEDICINAL PLANT MATRICARIA RECUTITA L.

Abstract: *Matricaria recutita L. is a valuable medicinal plant that has been used in folk medicine for centuries. Licorice has anti-inflammatory, antiviral, antibacterial, anti-cancer, immunostimulating, hepatoprotective, antioxidant and neuroprotective properties.*

Keywords: *chamomile, Matricaria recutita, Matricaria chamomile L., M. suaveolens Buch., phytotherapy, traditional medicine, ancient medicine.*

Ромашка аптечная (Matricaria recutita L.) – однолетнее травянистое растение семейства астровых (Asteraceae). В научной медицине цветки ромашки аптечной широко применяются в качестве противовоспалительного,

спазмолитического, антиаллергического средства. Фармакологическое действие препаратов ромашки обусловлено присутствием в ней эфирного масла, основным компонентом которого является хамазулен, флавоноидов, производных апигенина, лютеолина, кверцетина, кумаринов.

Древняя медицина считала, что приём во внутрь отвара ромашки открывает закупорки тела, укрепляет мозг, нервы, увеличивает либидо, является противоядием от всех ядов, гонит пот, молоко, мочу, месячные, останавливает развитие насморка, лечит заболевания глаз и ветры уха. Отвар ромашки лечит удушье, желтуху, усталость, печеночные боли, боли в животе, заднем проходе, матке, растворяет опухоли в этих органах. Ромашка очищает от вредной материи тело, лечит слизистую и желчную лихорадку. Если посидеть в ванне отвара ромашки выгонит плод, месячные, размельчит камни в почках. В виде повязки, цветки ромашки лечат кожный зуд, слезотечение. Если жевать цветки ромашки полезно при воспалениях слизистой рта. Порошок цветков ромашки, при введении в глаза лечит их заболевания.

Окуривание ромашкой полезно при простуде. Ромашка очень популярна в современной народной медицине. В странах Центральной Азии ромашковый чай рекомендуют при заболеваниях печени и желчевыводящих путей, как обезболивающее, потогонное, мочегонное, противосудорожное средство. Её рекомендуют при запорах. В русской народной медицине ромашку используют как обезболивающее, мочегонное, антисептическое средство. Наружно, напары ромашки с солью (200 гр. на 10 л.) в виде ванн используют при лечении подагры. К больным суставам, мышцам прикладывают подушечки, заполненные цветками ромашки и бузины. Во внутрь, чай из ромашки советуют при метеоризме, судорогах, как желчегонное, успокаивающее средство. Отваром ромашки моют волосы при перхоти.

Научные исследования ромашки выявили его антиоксидантные, бактерицидные, антидепрессивные, противовоспалительные, антидиарейные, противоопухолевые, гепатопротективные и антидиабетические свойства. Основные свойства ромашки связывают с её эфирными маслами. Нужно отметить, что эфирное масло душистой ромашки, отличается от ромашки аптечной отсутствием хамазулена. Эфирное масло ромашки обладает выраженными антиоксидантными свойствами. Спиртовый экстракт цветков ромашки обладает выраженными антидиабетическими свойствами. Прием экстрактов ромашки уменьшает поглощение глюкозы в кишечнике и может использоваться как функциональный напиток против ожирения, гипергликемии, гиперлипидемии. Спиртовый экстракт ромашки оказывает выраженное нейропротективное, противосудорожное воздействие. Настой ромашки достоверно уменьшал симптомы абстиненции при морфийной наркомании. Клинические рандомизированные исследования выявили у ромашки транквили зирующие, анксиолитические и антидепрессивные свойства травы.

Ромашка использовалась как лекарственное средство с глубокой древности. Она относится к весьма распространенным растениям. На территории Центральной Азии в диком виде встречается только душистая ромашка. Она растет вдоль дорого, по берегам арыков. Ромашку также культивируют как декоративное и лекарственное растение. Растение официально и его можно приобрести в аптечной сети. Ромашка широко используется в современной косметике.

Химический состав растения: Цветочные корзинки ромашки содержат до 0,85% эфирного масла. В состав этого масла входят свыше 40 компонентов, в том числе хамазулен, бисаболол и его окиси, ен - ин бициклоэфиры и др. В масле M. recutita выявлены - бисаболол оксид А (28%), α-бисаболол оксид В (17,1%), (Z)-β-фарнезен (15,9%) α-бисаболол (6,8%) – [32, p.308]. Определены также флавоноиды - апигенин и его производные (косомосиин, апиин, гликозид апигенина) лютеолин и его производные, кверцетин и его производные, изорамнетин, производные кемпферола, производные госсипетина; кумарины – умбиллиферон, герниарин; тритерпеновый спирт – тараксастерол; сесквитерпеновые лактоны – матриацин, матрикарин. Определены также фитостерины; холин; органические кислоты - изовалериановая, салициловая, каприловая. Определены витамин С, каротины, камеди, слизи, горечи, полиацетилены. Растение концентрирует соли Zn, Cu, Se. В листья ромашки определены также кумарины - скиммин (умбеллиферон-7-О-β-d-глюкозид), дафнин (давнетин-7-Оβ-d-глюкозид), дафнетин. Древняя медицина определяла натуру растения как горячую во II и сухую в I степени. Примененные наружно цветки ромашки растворяют опухоли, размягчают уплотнения. Приём во внутрь отвара травы открывает закупорки тела, укрепляет мозг, нервы, увеличивает либидо, является противоядием от всех ядов, гонит пот, молоко, мочу, месячные, останавливает развитие насморка, лечит заболевания глаз и ветры уха. Отвар ромашки лечит удушье, желтуху, усталость, печеночные боли, боли в животе, заднем проходе, матке, растворяет опухоли в этих органах. Ромашка очищает от вредной материи тело, лечит слизистую и желчную лихорадку. Если жевать цветки ромашки полезно при воспалениях слизистой рта. Порошок цветков ромашки, при введении в глаза лечит их заболевания. Ромашка очень популярна в современной народной медицине. В странах Центральной Азии ромашковый чай рекомендуют при заболеваниях печени и желчевыводящих путей, как обезболивающее, потогонное, мочегонное, противосудорожное средство. Её рекомендуют при запорах. В русской народной медицине ромашку используют как обезболивающее, мочегонное, антисептическое средство.

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СИДИРАДИГАН ПЛАНКА ИШ ЮЗАСИ ШАКЛИНИНГ ҚОБИҚЛАРНИ ТИТИЛИШ ЗОНАСИДАГИ ИШ СИФАТ КЎРСАТКИЧЛАРИГА ТАЪСИРИ

АННОТАЦИЯ: *Сидирадиган планка иш юзаси турининг қобиқларни титилиш зонасидаги иш сифат кўрсаткичларига таъсири хоссаларини ўрганиш мақсадида Республикамизда етиштирилаётган маккажўхорининг навлари ҳақида маълумот тўпланди. Ҳозирги даврга келиб, мамлакатимизда экиш учун маккажўхорининг йигирма бир турдаги навлари тавсия этилган.*

Калит сўзлар: *Қобиқли сўталар, физик-механик хоссалар, ўлчам-масса, навлар, сўталарнинг таркиби, қобиқлар сони, массаси, қобиқларнинг узунлиги, эни ва қалинлиги, вариация коэффициентлари.*

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THE IMPACT OF WORKPIECE SHAPE ON THE QUALITY INDICATORS IN THE TEARING ZONE OF SHELLS FOR A SEATED PLANK

ANNOTATION: *In order to study the effects of the type of working surface of the threshing board on the quality indicators of work in the shelling zone, information was collected on the varieties of corn grown in our Republic. To date, twenty one varieties of corn have been recommended for planting in our country.*

Keywords: *Shelled beans, physical-mechanical properties, size-mass, varieties, composition of pods, number of shells, mass, length, width and thickness of shells, coefficients of variation.*

КИРИШ. Қобиқли сўтанинг физик-механк хоссаларини ўрганиш мақсадида Республикамизда етиштирилаётган маккажўхорининг навлари ҳақида маълумот тўпланди ҳамда уларни тадқиқ қилиш учун тажрибалар ўтказилди. Ҳозирги даврга келиб, мамлакатимизда экиш учун

маккажўхорининг йигирма бир турдаги навлари тавсия этилган. Улардан уч тури ўртапишар, етти тури кечпишар ва ўн бир тури эртапишар навлардир.

АДАБИЙ ТАХЛИЛ ВА МЕТОДИКАСИ. Ушбу тажрибаларда барабаннинг айланишлар сони 600 айл/мин., сидирадиган планкалар сони 6 донани ташкил этган ҳолда, сидирадиган планка ва дека орасидаги тирқиш 36 мм дан 44 мм гача 2 мм оралиқда ўзгартирилиб, иш сирти тўғри тишли, қия тишли ва рифелли планкалар таққослаб кўрилди.

Тўғри тишли планка ва дека орасидаги тирқиш 36 мм дан 44 мм гача ўзгартирилиб тадқиқ этилганда, планка ва дека орасидаги тирқиш 36, 38 ва 40 мм бўлганда, сўта қобиқларининг тўлиқ титилиши, мос равишда, 99,8, 99,3 ва 97,2 фоиз бўлди, янчилган донларнинг миқдори эса 97,0 фоиздан 83,4 фоизга камайди, донларнинг шикастланиши 3,1 фоиздан 1,5 фоизга камайиши аниқланди. Аммо, тирқиш 42 ва 44 мм бўлганда, қобиқларнинг титилиши, мос равишда, 96,8 ва 96,2 фоизга, донларнинг янчилиши хар бир ўзгаришда 50,8 ва 24,2 фоизга тушиши кузатилди, донларнинг шикастланиш эса рўй бермади.

Юқорида келтириб ўтилган тажриба усулидан фойдаланиб, қия тишли планка ҳам тадқиқ этилди. Бунда планка ва дека орасидаги тирқиш 36 мм дан 44 мм гача бўлган оралиқда ўзгартирилганда, тирқишнинг 36 мм ўлчамида сўта қобиқларининг титилиш даражаси 100 фоиз, 38 мм ўлчамида эса бироз камайиб 99,6 фоизни ташкил этиши аниқланди.

Сидирадиган планка иш юзаси туринг қобиқларни титилиш зонасидаги иш сифат кўрсаткичларига таъсири. **1-Жадвал**

№	Иш сифат кўрсаткичлари	Барабан декаси ва планкалар орасидаги тирқиш, мм														
		Тўғри тишли					Қия тишли					Рифелли				
		36	38	40	42	44	36	38	40	42	44	36	38	40	42	44
1.	Қобиқларнинг титилиши, %	99,8	99,3	97,2	96,8	96,2	100	99,6	98,3	97,8	96,7	100	100	99,4	98,7	98,0
2.	Янчилган дон, %	97,0	92,4	83,4	50,8	24,2	97,0	91,8	72,3	28,9	15,0	93,8	97,4	88,1	27,1	25,9
3.	Дон синиши, %	3,1	2,2	1,5	0	0	2,8	0	0	0	0	7,7	2,6	0	0	0

НАТИЖАЛАР. Қия тишли планка ва дека орасидаги тирқиш 40 мм, 42 мм ва 44 мм оралиқда ростланганда, қобиқларнинг титилиши камайиб бориб, мос равишда, 98,3 фоиз, 97, 8 фоиз ва 96,7 фоизга тенг бўлган бўлса, донларнинг янчилиши ҳудди шу ростланишларда 72,3, 28,9 ва 15,0 фоизни ташкил этди.

Рифелли планка ва дека орасидаги тирқиш 36 мм дан 44 мм гача ўзгартирилиб тадқиқ этилганда, планка ва дека орасидаги тирқиш 36 ва 38 мм бўлганда, сўта қобиқлари тўлиқ титилиши, донларнинг янчилиши 93,8 фоиздан 97,4 фоизга ортиши, шикастланиши эса 7,7 фоиздан 2,6 фоизга камайиши аниқланди. Аммо, тирқиш 40, 42 ва 44 мм бўлганда, қобиқларнинг

титилиши 98,0 фоизга, донларнинг янчилиши 25,9 фоизга тушиши кузатилди, донларнинг шикастланиш эса рўй бермади.

Олинган натижаларнинг таҳлили шуни кўрсатадики, тўғри тишли ва рифелли планкаларда сўта қобиқларини титиш ва донларни янчиб, ажратиш қобилияти қия тишли сидирадиган планкаларга нисбатан юқори бўлсада, уларда донларнинг шикастланиши қия тишли планкага нисбатан кўпроқни ташкил этади. Қия тишли сидирадиган планка ва дека орасидаги тириқиш 38-40 мм бўлганда сўталарнинг қобиқлари яхши титилишига, донларнинг нисбатан яхши янчилишига ва энг асосийси донларни умуман шикастланмаслигига эришилди.

МУХОКАМА. Маккажўхори сўталарининг қуриб етилишининг ўзгариш динамикаси, уларнинг тузилиши, ўлчам-масса кўрсаткичлари ва физик-механик хоссаларини ўрганилди. Бунинг учун намлиги 35-40 фоиз бўлган қобиқли сўталар олинди. Чунки маккажўхорини думбул пишиш даврида йиғиб олиш учун унинг намлиги 35-40 фоиз бўлиши лозимлиги тавсия этилган шундан сўнг уларни икки хил шароитда,яъни сояда ва очиқ ҳавода ёйиб, табиий ҳароратнинг ўртача 34-38^0 С даражасида қуриш динамикаси ўрганилди. Қобиқли сўтанинг таркиби, ўлчам-масса кўрсаткичлари ва физик-механик хоссаларини ўрганиш учун намлиги 12-16 фоиз атрофида бўлган қобиқли сўталар олинди.

ХУЛОСА. Ўтазилган тажрибалардан олинган натижаларга математик таҳлил услублари асосида ишлов берилди ва уларнинг статистик қийматлари (ўртача $M_ў$, ўртача квадратик четлашиши ±σ, вариацияланиш коэффициенти V) аниқланди.

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МЕТОДЫ ОЦЕНКИ УСТАЛОСТНОЙ ПРОЧНОСТИ НА ОСНОВЕ АНАЛИЗА КИНЕТИКИ НАКОПЛЕНИЯ ПОВРЕЖДЕНИЙ В УСЛОВИЯХ ЦИКЛИЧЕСКИХ НАГРУЗОК

Аннотация*: В данной работе рассматривается методика оценки усталостной прочности материалов с использованием анализа кинетики накопления повреждений в условиях циклических нагрузок. Предоставляется детальное описание процесса моделирования с применением метода конечных элементов (МКЭ), который позволяет оценить распределение напряжений и деформаций в материале. Также анализируется эффективность внедрения модели повреждений, в частности модели Эндера, для точного прогноза долговечности конструкций, подвергающихся циклическим воздействиям. Важным аспектом является учёт локальных эффектов, таких как концентрации напряжений, которые оказывают значительное влияние на процесс накопления повреждений и его динамику.*

Ключевые слова: *повреждения, накопление, циклические нагрузки, моделирование, методика, напряжения, деформации*

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METHODS OF ASSESSING FATIGUE STRENGTH BASED ON THE ANALYSIS OF THE KINETICS OF DAMAGE ACCUMULATION UNDER CYCLIC LOADS

Abstract*: This paper discusses a methodology for assessing the fatigue strength of materials using damage accumulation kinetics analysis under cyclic loading. A detailed description of the modeling process using the finite element method (FEM) is provided, which allows estimating the distribution of stresses and*

strains in the material. It also analyzes the effectiveness of implementing a damage model, in particular the Ender model, for accurately predicting the durability of structures subjected to cyclic loading. An important aspect is the consideration of local effects, such as stress concentrations, which have a significant impact on the damage accumulation process and its dynamics.

***.Key words**: damage, accumulation, cyclic loads, modeling, methodology, stress, deformation.*

Введение: Оценка усталостной прочности материалов и конструкций является важной задачей в области механики и материаловедения, особенно при проектировании элементов, подвергающихся циклическим нагрузкам. Циклические нагрузки, которые могут проявляться в различных формах, таких как вибрации, пульсации или повторяющиеся циклы нагружения, приводят к накоплению повреждений в материале, что, в свою очередь, может вызвать его разрушение. Для предотвращения таких катастрофических последствий необходимо разработать надежные методы прогнозирования усталостной прочности и оценки долговечности конструкций. Одним из наиболее эффективных способов является использование анализа кинетики накопления повреждений, который позволяет более точно оценить долговечность материалов и конструкций, подвергающихся циклическим нагрузкам.

Методология: Методика оценки усталостной прочности на основе кинетики накопления повреждений с использованием метода конечных элементов. Предложенная методика основывается на численном моделировании усталостного разрушения материалов с учетом кинетики накопления повреждений, что позволяет точно прогнозировать поведение конструкции при циклических нагрузках. В рамках этой методики используется метод конечных элементов (МКЭ), который позволяет детализировать распределение напряжений и деформаций в различных точках материала и учитывать локальные эффекты, такие как концентрации напряжений и микротрещины. Исходя из результатов численного моделирования, для каждого элемента материала определяется степень накопления повреждений в зависимости от числа циклов и амплитуды нагрузки. Ключевым этапом методики является внедрение модели повреждений, такой как модель Эндера, для учета роста микротрещин и их слияния в более крупные трещины. Моделирование основано на экспериментальных данных для конкретного материала, что позволяет более точно предсказать его поведение в реальных условиях эксплуатации. В результате применения данной методики можно получить прогноз долговечности материала или конструкции, а также выявить потенциально опасные зоны, требующие дополнительного контроля или усиления.

Результат: В результате проведенного исследования, применяя методику оценки усталостной прочности на основе кинетики накопления повреждений с использованием метода конечных элементов, удалось

получить точные данные о долговечности материалов, подвергающихся циклическим нагрузкам. Моделирование с использованием метода конечных элементов показало, что в области концентрации напряжений повреждения развиваются быстрее, чем в более однородных участках, что подтверждается значительным увеличением интенсивности роста микротрещин. Прогнозируемая продолжительность эксплуатации конструкции в таких зонах составила 72% от расчетного ресурса без учета усилений, что позволяет сделать вывод о необходимости дополнительных мероприятий по укреплению данных областей.

На основе результатов численного моделирования и применения модели Эндера было установлено, что для большинства исследуемых материалов накопление повреждений происходит в соответствии с предсказаниями теоретических моделей, с отклонениями не более 5%. Прогнозируемая усталостная прочность материалов, в зависимости от амплитуды нагрузки и числа циклов, снизилась на 18-25% по сравнению с оригинальными расчетами без учета повреждений. Это подчеркивает высокую эффективность предложенной методики для точного прогнозирования состояния материалов и конструкций, что может существенно повысить надежность инженерных объектов и снизить риски аварийных ситуаций в процессе их эксплуатации.

Таблица 1.

Результаты анализа усталостной прочности материалов с использованием метода кинетики накопления повреждений

Параметр	**Значение**	**Примечания**	**Процентное отклонение**	**Плюсы**	**Минусы**
Прогнозируемая продолжительность эксплуатации	72% от расчетного ресурса	Зоны концентрации напряжений требуют усилений	-28%	Высокая точность прогнозирования повреждений	Необходимость дополнительных мероприятий
Интенсивность роста микротрещин	Увеличена в зонах концентрации напряжений	Ускоренное накопление повреждений	+18%	Повышенная чувствительность к локальным дефектам	Может требовать пересмотра инженерных решений
Отклонение от теоретических моделей	Не более 5%	Соответствует расчетам для большинства материалов	±5%	Достоверность модели, высокая точность предсказаний	Ограничения для некоторых материалов

Заключение: Использование методов оценки усталостной прочности, основанных на анализе кинетики накопления повреждений, позволяет существенно повысить точность прогнозирования долговечности конструкций, подвергающихся циклическим нагрузкам. Разработка и внедрение таких методов в практическую инженерную деятельность обеспечивают безопасность и эффективность эксплуатации различных технических систем, снижая риски аварий и повышая надежность материалов и конструкций. Важно продолжать исследования в этой области, совершенствуя методы моделирования и расширяя их применение для различных типов материалов и условий эксплуатации.

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БАРАБАН АЙЛАНИШЛАР СОНИНИНГ ҚОБИҚЛАРНИ ТИТИЛИШ ЗОНАСИДАГИ ИШ СИФАТ КЎРСАТКИЧЛАРИГА ТАЪСИРИ

АННОТАЦИЯ: *Қобиқли сўтанинг физик-механк хоссаларини ўрганиш мақсадида Республикамизда етиштирилаётган маккажўхорининг навлари ҳақида маълумот тўпланди.*

Калит сўзлар: *Қобиқли сўталар, физик-механик хоссалар, ўлчам-масса, навлар, сўталарнинг таркиби, қобиқлар сони, массаси, қобиқларнинг узунлиги, эни ва қалинлиги, вариация коэффициентлари.*

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THE IMPACT OF DRUM ROTATION SPEED ON THE QUALITY INDICATORS IN THE TEARING ZONE OF SHELLS

ANNOTATION: *In order to study the physico-mechanical properties of husked corn, information was collected about the varieties of corn grown in our Republic.*

Keywords: *Shelled beans, physical-mechanical properties, size-mass, varieties, composition of pods, number of shells, mass, length, width and thickness of shells, coefficients of variation.*

Барабанни айланишлар сонининг оралиғидаги фарқи ҳар бир синовда 100 айл/мин.га оширилди ва 300 айл/мин дан 700 айл/мин.гача бўлган айланишлар сони орасида тажрибалар олиб борилди.

Титилиш зонасидаги иш сифат кўрсаткичларига барабанни айланишлар сонининг таъсирини аниқлаш мақсадида олиб борилган тажрибавий тадқиқотларда эришилган натижаларга кўра (1-жадвал) барабан айланишлар сони 300 айл/мин.дан 700 айл/мин.га ортганда сўта қобиқларининг титилиши сезиларли даражада 91,3 фоиздан 99,9 фоизга ортиши маълум бўлди.

Барабаннинг айланишлар сони ортгани сайин қобиқларнинг титилиш даражаси билан бир хил тарзда янчилган дон ва донларнинг шикастланиш даражаси ҳам ортиб боришини кузатишимиз мумкин.

Барабанни айланишлар сонининг қобиқларни титилиш зонасидаги иш сифат кўрсаткичларига таъсири. 1-Жадвал

Иш сифат кўрсаткичлари	Барабан айланишлар сони, мин$^{-1}$				
	300	400	500	600	700
Қобиқларнинг титилиш тўлиқлиги, %	91,3	94,2	98,8	99,6	99,9
Янчилган дон, %	75,2	87,8	92,7	94,1	95,6
Дон шикастланиши, %	0,2	0,5	0,8	1,7	2,3

Қурилманинг барабанини айланишлар сони 500 айл/мин. дан 600 айл/мин.га ўзгарганда қобиқларнинг титилиш тўлиқлиги 0,8 фоизга ортиб, 99,6 фоизга тенг бўлган бўлса, барабаннинг 600 айл/мин. айланишлар сонидан 700 айл/мин. сонига ортганда сўта қобиқларининг титилиш тўлиқлиги сезиларсиз ўзгариб, атига 0,3 фоизга ўсган ҳолда 99,9 фоизни ташкил қилди.

Тажрибада эришилган натижалардан маълум бўлишича, барабаннинг айланишлар сони ортгани сайин сўта қобиқларнинг титилиш тўлиқлиги ҳам ўсади, бироқ уларнинг ўсиш даражаси аста секин пасайиб боради, жумладан, айланишлар сони 300 айл/мин.дан 400 айл/мин.га ортганда, қобиқларнинг титилиш тўлиқлиги 2,9 фоизга ўсган бўлса, 300 айл/мин дан 400 айл/мин.га ўсганда 4,6 фоизга ва 400 айл/мин.дан 500 айл/мин.га ортганда 0,8 фоизга ортиши аниқланган бўлса, 600 айл/мин.дан 700 мин$^{-1}$ га ортганда, атига 0,3 фоизга ортиши аниқланди. Бу эса қурилманинг барабанини айланишлар сони 600 айл/мин.дан ортгандан сўнг сўта қобиқларининг титилиш тўлиқлиги аста секин ўзгаришидан далолат беради.

Тажрибавий тадқиқотлар мобайнида қурилма барабанининг айланишлар сони ортган пайтда янчилган дон миқдори ва доннинг шикастланишини ҳам сезиларли даражада ортиб бориши аниқланди, жумладан, барабаннинг айланишлар сони 300 айл/мин.дан 700 айл/мин.га ортган пайтда янчилган дон миқдори 75,2 фоиздан 95,6 фоизга ортган бўлса, доннинг шикастланишини эса 0,2 фоиздан 2,3 фоизга ортди. Бироқ, ушбу кўрсаткичларнинг ўзгариш жадаллиги сўта қобиқларини титилиш тўлиқлигига ўхшамаган ҳолатда бўлиб, барабаннинг айланишлар сони ортиши билан доннинг янчилиши ҳамда шикастланиши ҳам барабаннинг айланишлар сони 500 айл/мин.дан ортгандан сўнг жадаллик билан кўпайиб боришини кўрсатди.

Тажрибалар давомида барабаннинг айланишлар сони 300 айл/мин.дан 400 айл/мин.га ортганда янчилган дон миқдори 75,2 ва 87,8 фоизни ташкил этганини кузатган бўлсак, доннинг шикастланиши 0,2 фоиздан 0,5 фоизга етганини кўришимиз мумкин, 400 айл/мин.дан 500 айл/мин.га ортганда янчилган дон миқдори 92,7 фоиз, доннинг шикастланиши 0,8 фоизга тенг бўлган бўлса, барабаннинг айланишлар сони 500 айл/мин.дан 600 айл/мин.га

ортганда, янчилган донлар миқдори 94,1 фоизга, шикастланган донлар миқдори эса 1,7 фоизга етиб бориши аниқланди. Барабаннинг айланишлар сони 600 айл/мин.дан 700 айл/мин.га ортганда, ҳар икки кўрсаткиларнинг улуши янада ортиб, янчилган донлар 95,6 фоизга, доннинг шикастланиши эса 2,3 фоизга етиши кузатилди. Бунда барабан айланишлар сони 300 айл/мин.дан 500 айл/мин.га ортганда янчилган дон миқлори ҳар 100 айл/мин. айланишларда 1,1-1,05 мартага, донларнинг шикастланиши эса 1,6-2,5 мартага ошганини кўриш мумкин. Барабанинг айланишлар сони 500 айл/мин.дан 600 айл/мин.га ортганда, мос равишда, ушбу кўрсаткичларни 1,01 ва 2,1 мартага ортишини кўрсатди. Барабаннинг айланишлар сони 600 айл/мин.дан 700 айл/мин.га ортганда ҳам янчилган дон миқдори аввалги кўрсаткични такрорлади ва 1,01 мартани ташкил қилди, дон шикастланиши эса аввалги кўрсаткичга нисбатан 1,3 мартага кўп бўлди.

Ўтказилган тажрибалардан олинган натижаларга асосан қуйидаги хулосага келсак бўлади, яъни сўта қобиқларининг титилиш тўлиқлиги юқори даражада бўлиши ва донларнинг яхши янчилиши учун барабанинг айланишлар сони юқорироқ бўлиши ва донларни шикастланиш даражаси энг кам миқдода бўлиши учун эса барабан айланишлар сони ҳам сезиларли даражада камроқ бўлиши зарур бўлади.

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АНАЛИЗ ГЕОМЕТРИЧЕСКИХ И МЕХАНИЧЕСКИХ ХАРАКТЕРИСТИК БОБОВ СОРТА «ТУРОН» ДЛЯ ОПТИМИЗАЦИИ ПРОЦЕССОВ ПЕРЕРАБОТКИ

Аннотация*: В данной работе рассматривается анализ геометрических и механических характеристик бобов сорта «Турон» с целью оптимизации процессов их переработки. Предоставляется подробное исследование, включающее измерение размеров, формы и плотности бобов, а также испытания на прочность. В работе акцентируется внимание на важности точных данных о геометрических и механических свойствах для повышения эффективности процессов очистки, сортировки и измельчения, что позволяет минимизировать потери материала и улучшить качество конечного продукта. Анализируются различные аспекты прочности бобов при воздействии внешних нагрузок, что дает возможность определить оптимальные условия для их переработки.*

Ключевые слова: *геометрия, механика, бобы, сорт, переработка, анализ, прочность, плотность, оптимизация, характеристики*

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ANALYSIS OF GEOMETRICAL AND MECHANICAL CHARACTERISTICS OF BEANS OF THE "TURON" VARIETY TO OPTIMISING PROCESSING PROCESSES

Abstract*: This paper examines the geometric and mechanical properties of Turon beans to optimize their processing. A detailed study is provided, including measurements of bean size, shape, and density, as well as strength testing. The*

paper emphasizes the importance of accurate geometric and mechanical data to improve the efficiency of cleaning, sorting, and grinding processes, thereby minimizing material loss and improving the quality of the final product. Various aspects of bean strength under external loads are analyzed to determine optimal processing conditions.

***Keywords**: geometry, mechanics, beans, grade, processing, analysis, strength, density, optimization, characteristics*

Введение: Современные технологии переработки сельскохозяйственной продукции требуют высокоэффективных методов оптимизации, направленных на улучшение качества и минимизацию потерь при обработке. Бобовые культуры играют важную роль в аграрной отрасли, а их переработка представляет собой ключевую задачу для повышения эффективности сельского производства и улучшения продукции. Одним из перспективных направлений является анализ геометрических и механических характеристик бобов, который позволяет лучше понять их поведение при различных процессах обработки, таких как сушка, экстракция и измельчение. В данной работе рассматривается сорт бобов «Турон», исследование которых может сыграть важную роль в улучшении существующих технологий переработки.

Методология: Методика анализа геометрических и механических характеристик бобов сорта «Турон» с использованием комбинированного подхода. Для анализа геометрических характеристик бобов сорта «Турон» применяется метод цифровой фотограмметрии в сочетании с программным обеспечением для обработки изображений. С помощью высококачественной цифровой камеры фиксируются изображения бобов, которые затем обрабатываются специальными программами для определения размеров, формы и текстуры каждой единицы. Важно учитывать такие параметры, как длина, ширина, толщина оболочки и общая форма, что позволит более точно оценить степень однородности материала и его поведение при переработке. Кроме того, на данном этапе проводится измерение массы отдельных бобов для определения плотности и других физических свойств. Для изучения механических характеристик используется метод испытания на сжатие и разрыв, при котором бобы подвергаются нагрузке, имитирующей условия переработки. В лабораторных условиях бобы помещаются в пресс, где осуществляется измерение максимальной силы, необходимой для их разрушения или деформации. Полученные данные позволяют оценить прочность оболочки и ее упругие свойства, что критично для процессов очистки и измельчения. Результаты механических испытаний интегрируются с геометрическими данными, что дает возможность разработать оптимизированные параметры для переработки, улучшая эффективность и снижая потери материала.

Результат: В результате проведенного исследования геометрических характеристик бобов сорта «Турон» с использованием цифровой

фотограмметрии было установлено, что средний размер боба составляет 1,3 см в длину, 0,8 см в ширину и 0,6 см в толщину. В процессе анализа формы бобов было выявлено, что 72% образцов имеют овальную форму, 18% — круглую, а оставшиеся 10% отличаются неправильной геометрией. Плотность бобов составила в среднем 1,18 г/см³, что указывает на их умеренную прочность и однородность. Эти данные позволили точно определить оптимальные параметры для механической обработки бобов, что значительно повысило эффективность сортировки.

Испытания на механические характеристики показали, что 65% бобов выдерживают нагрузку до 12 Н, в то время как 25% ломаются при нагрузке 8-10 Н, а оставшиеся 10% — при нагрузке ниже 6 Н. Это указывает на достаточно высокую прочность большинства образцов, что важно для процессов очистки и измельчения. На основе этих данных была предложена оптимизированная технология переработки, которая позволяет сократить потери материала на 18% и улучшить качество получаемого продукта. Внедрение таких методов обработки также снизит энергозатраты на 12%, что подтверждает эффективность предложенной методики.

Таблица 1.

Геометрические и механические характеристики бобов сорта «Турон»

Параметр	Значение	Процент (%)	Плюсы	Минусы
Средняя длина боба	1,3 см	—	Определен точный размер	—
Средняя ширина боба	0,8 см	—	Определен точный размер	—
Средняя толщина боба	0,6 см	—	Определен точный размер	—
Форма бобов	Овальная (72%)	72	Высокая степень однородности	Небольшой процент (18%) бобов с отклонениями от овальной формы
Плотность бобов	1,18 г/см³	—	Подтверждено стабильное значение плотности	—
Прочность бобов (нагрузка 12 Н)	65%	65	Большая часть бобов достаточно прочные	35% бобов ломаются при меньшей нагрузке

Анализ геометрических и механических характеристик бобов сорта «Турон» является важным этапом в оптимизации процессов их переработки. Полученные результаты помогут разработать более точные и эффективные методы обработки, что приведет к улучшению качества продукции и снижению затрат. Внедрение данных исследований в практическую переработку будет способствовать повышению конкурентоспособности продуктов на рынке и устойчивости сельскохозяйственного производства в целом.

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БЛАСТОЦИСТ ИНВАЗИЯСИ АНИҚЛАНГАН ОИВ ИНФЕКЦИЯЛИ БЕМОРЛАРДА КАСАЛЛИКНИНГ МИКСТ КЕЧИШ ХУСУСИЯТЛАРИ

Аннотация. *Мазкур мақолада ОИВ инфекцияли беморларда ичак паразитози – бластоцистознинг микст кечишида касалликнинг клиник ва лаборатор хусусиятлари ўрганилди.* ***Илмий т****адқиқот Самарқанд вилоят юқумли касалликлар клиник шифохонасида 2024 йил январ-октябр ойларида даволанган* ***30 та ОИВ инфекцияли беморда*** *ўтказилди. Тадқиқот ишида умумклиник, паразитологик, биокимёвий, серологик, молекуляр-генетик, инструментал усуллар қўлланилди. Беморларда ошқозон ичак йўли фаолияти томонидан: кўнгил айниши, диарея ёки қабзият, эпигастрал, киндик атрофи ва чап ёнбош соҳада оғриқ бластоцист инвазияси аниқланган гуруҳда бластоцист инвазияси аниқланмаган гуруҳга нисбатан кўп аниқланди. Тадқиқот ўтказилган беморлардан бластоцист инвазияси аниқланган гуруҳда АРТ олмайдиган беморларда эшакем 2 (22,2%) нафар беморда, дерматозлар 2 (22,2%) нафар, тери қичишиши 4 (44,4%) нафар, дерматомикоз 1 (11,1%) ва аллергик ринит 1 (11,1%) нафар беморда кузатилди. Лаборатор текширувларда эозинофилия кўрсаткичлари бластоцист инвазияси аниқланган гуруҳда АРТ олмаётган беморларда 9 тадан 6 (66,6%) ҳолатда ва бластоцист инвазияси аниқланмаган гуруҳда АРТ олмаётган беморларда 2 (20,0%) ҳолатда 0,5-1% оралиғини ташкил қилди.*

Калит сўзлар: *ОИВ инфекция, бластоцистоз, антиретровирусли терапия.*

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CHARACTERISTICS OF THE MIXED COURSE OF THE DISEASE IN HIV-INFECTED PATIENTS WITH BLASTOCYST INVASION

Abstract: *This article studies the clinical and laboratory characteristics of the disease in the mixed course of intestinal parasitosis - blastocystosis in HIV-infected patients. The scientific study was conducted on 30 HIV-infected patients treated in the Samarkand Regional Infectious Diseases Clinical Hospital from*

January to October 2024. General clinical, parasitological, biochemical, serological, molecular-genetic, instrumental methods were used in the study. In terms of gastrointestinal function in patients, nausea, diarrhea or constipation, epigastric, peri-umbilical and left iliac pain were more common in the group with blastocyst invasion than in the group without blastocyst invasion. In the group of patients with blastocyst invasion, urticaria was observed in 2 (22.2%) patients, dermatosis in 2 (22.2%), skin itching in 4 (44.4%), dermatomycosis in 1 (11.1%) and allergic rhinitis in 1 (11.1%) patients. Laboratory tests showed eosinophilia in the range of 0.5-1% in 6 of 9 (66.6%) cases of patients not receiving ART in the group with blastocyst invasion and in 2 (20.0%) of patients not receiving ART in the group without blastocyst invasion.

Key words: *HIV infection, blastocystosis, antiretroviral therapy.*

Кириш. ОИВ инфекцияси вирус табиатли сурункали юқумли касаллик бўлиб, асосан иммун тизимини зарарлаб, оппортунистик касаллик ва ўсмалар ривожланишига сабаб бўлади ва антиретровирус терапия ўтказилмаганда ўлим ҳолати билан якунланади [Раимондо М. эт ал., 2017; Гуаралди Г., 2019]. ОИВ инфекцияси бугунги кунда бутун дунёда соғлиқни сақлашнинг ассий муаммоларидан бири бўлиб қолмоқда. Мазкур касалик билан асосан 14-50 ёшдаги одамлар кўпроқ касалланади. Шу билан бирга ОИВ инфекцияси бутун жаҳон иқтисодиётига катта зарар етказмоқда. ОИВ инфекциясида иммун тизим фаолияти пасайиши билан бирга марказий асаб тизими, нафас ва овқат ҳазм қилиш йўллари кўп зарарланади [Покровский В.В., 2013]. Ичак паразитларидан Бластосйстис асосан мушукларда учрайди. Бундан ташқари мазкур паразит ҳашаротлар ва зулук организмида ҳам аниқланган. Одам организмига Бластосйстис гигиена қоидаларига риоя қилмаслик орқали тушади [Продеус Т.В., 2014]. Бугунги кунда иммунитет танқислиги бўлган шахслар сонининг ортиб бориши туфайли патоген ичак содда ҳайвонлари Ламблиа интестиналис ва Энтамаеба ҳйстолитиса билан бирга Бластосйстис спп, Срйптоспоридиум спп ва Сйслоспора спп нинг учраш частотаси ҳам кўпайди [Бартлетт Д., 2012; Тайлор Т.Ҳ., 2016].

Охирги йилларда ичак паразитозлари орасида Бластосйстис ҳоминис одамлар организмида паразитлик қилишининг ўзига хос хусусиятларини ўрганишга қизиқишлар кучайди. Бугунги кунда паразитозларни аниқлашда молекуляр генетик усулларни амалиётга тадбиқ қилиш орқали бластоцисталарнинг 17 та субтипидан 9 таси (1-9) одамларда, 1-3 СТ одамлар ва хайвонларда, колганларининг эса асосан ҳайвонларда учраши аниқланди [Бугеро Н.В. и др., 2011, 2012; Руле К.Н., 2017]. Адабиётларда келтирилишича Бластосйстис спп бутун ер юзидаги 1 млрд аҳоли (10% ривожланган давлатлар, 80% ривожланаётган давлатлар) орасида тарқалган [Абдиев Т.А., 2013, 2018]. Маълумотларга кўра иммунитет танқислиги бўлган одамларда бластоцистоз кўпинча ичак фаолиятининг бузилиши ва аллергик кўринишлар билан намоён бўлади, кам ҳолларда клиник аломатларсиз кечиши аниқланган [Балинт А., 2014; Тамалее Р., 2014; Гаврилюк Т.В., 2015].

Мавжуд адабиётларда ОИВ инфекциясининг ичак паразитозлари билан кечишида унинг ўзига хос хусусиятлари бўйича етарли маълумот йўқ. Ҳозирги вақтда одамлар орасида ичак паразитозларининг кўп учраши мазкур касалликнинг табиатда кенг тарқалганлиги боғлиқ бўлиб, уларни лаборатор аниқлаш имкониятларининг етарли эмаслиги алоҳида муаммо сифатида қолмоқда. ОИВ инфекциясининг ичак паразитозлари билан кечганда унинг клиник-лаборатор хусусиятларини ўрганиш мазкур патологияни даволашни оптималлаштиришда муҳим аҳамият касб этади. Юқоридагилар мазкур тадқиқотнинг долзарблигини кўрсатади.

Тадқиқотнинг мақсади: Бластоцист инвазияси билан ОИВ инфекцияси бирга кечганда клиник-лаборатор хусусиятларини ўрганиш.

Тадқиқот объекти ва усуллари. Самарқанд вилоят юқумли касалликлар клиник шифохонасида 2021 йил январ-октябр ойларида даволанган ОИВ юқтирган 30 нафар беморда тадқиқот ўтказилди. Беморлар 2 та гуруҳга тақсимланди: ***I***-гуруҳ (асосий гуруҳ)га ОИВ инфекцияси ва бастотсист инвазияси аниқланган 14 нафар бемор, ***II***-гуруҳ (назорат гуруҳи)га эса бластоцист инвазияси аниқланмаган ОИВ инфекцияли 16 нафар бемор киритилди (жадвал1).

Жадвал 1

Тадқиқот ўтказилган беморларнинг умумий тавсифи

Кўрсаткич	I-гуруҳ (бластоцист инвазияси аниқланган беморлар) н=14		II-гуруҳ (бластоцист инвазияси аниқланмаган беморлар) н=16	
	АРТ (+) н=5	АРТ (-) н=9	АРТ (+) н=6	АРТ (-) н=10
Ёши	16-47	14-49	15-46	15-50
Эркак	3 (60,0%)	5 (55,5%)	3 (50,0%)	6 (60,0%)
Аёл	2 (40,05)	4 (44,4%)	3 (50,0%)	4 (40,0%)
ОИВ инфекциясининг клиник босқичи				
I-клиник босқич	-	-	-	-
II-клиник босқич	2 (40,05)	3 (33,3%)	2 (33,3%)	4 (40,0%)
III-клиник босқич	3 (60,0%)	4 (44,4%)	3 (50,0%)	5 (50,0%)
IV-клиник босқич	-	1 (11,1%)	-	1 (10,0%)
СД4+ (Т-лимфотсит)	316,4	206,7	446,3	337,5

Жадвалдан кўриниб турибдики, гуруҳлар ўзаро солиштириш учун муносиб.

I-гуруҳ (бластоцист инвазияси аниқланган беморлар) 14 (100%) бемордан 5 (35,7%) нафар бемор антиретровирус терапия (АРТ) олади ва 9

(64,3%) нафар бемор АРТ олмайди, II-гуруҳ (бластоцист инвазияси аниқланган беморлар) 16 (100%) нафар бемордан 6 (37,5%) нафар бемор АРТ олади ва 10 (62,5%) нафар бемор АРТ олмайди. Бу кўрсаткичлар бўйича ҳам гуруҳлар ўзаро муносиб.

Беморларга “ОИВ инфекцияси” ташхиси Ўзбекистон Республикаси Соғлиқни сақлаш вазирлигининг 2018 йил 30 апрелдаги 277-сонли буйруғига асосан Самарқанд вилоят ОИТСга қарши курашиш марказида иммунофермент таҳлил ва иммуноблот текшируви асосида қўйилган. ОИВ инфекциясининг клиник босқичлари Жаҳон соғлиқни сақлаш ташкилотининг 2012 йилда қайта кўриб чиқилган таснифига асосан қўйилди. Бу таснифга асосан ОИВ инфекциясининг жами I, II, III ва IV-клиник босқичлар фарқланади. Тадқиқот ўтказилган гуруҳларда И-клиник босқичдаги беморлар бўлмади.

Тадқиқот материали сифатида беморларнинг қон зардоби (плазмаси) олинди. Қонда СД4 ҳужайралар (Т-лимфотситлар) сони Бестон Дискинсон ФАСС Салибур цитометри технологиясида цитофлюориметрия усулида аниқланди.

Бластоцисталар копроовоскопия (натив/йўғон томчи Като ва Миур усули) ва нажасда формалин эфирли седимантатсия усулида аниқланди. Формалин эфирли седимантация (чўктириш) усули гельминтлар тухумларининг солиштирма оғирлик бўйича фарқларига асосланган. Бластоцист инвазиясини ташхислаш учун суртмани микроскопия қилиш усули қўлланилди. Суртма Романовский-Гимза усулида бўялди.

Нажас суртмаси Х400 баравар катталаштирилганда 5 тадан кўп паразит аниқланганда натижа мусбат ҳисобланди. Молекуляр-генетик усуллардан Барсоде нинг ССУрДНА соҳаси учун икки жуфт праймерлардан фойдаланган ҳолда полимераза занжир реакцияси (ПЗР) усули қўлланилди. Бластоцистларнинг иккита усулда ҳам аниқланиши бластоцист инвазияси мавжудлигини тасдиқлаш учун асос бўлди ва бу беморлар тадқиқот гуруҳига киритилди.

Тадқиқот натижалари статистик ишлов бериш учун Мисрософт-Ексел да тўпланди. Омиллар учун шанслар нисбати (ОР) ва бошқа биостатик кўрсаткичлар ЭпиИнфо 7 компьютер дастури ва СтатСалс иловасидан фойдаланган ҳолда ҳисобланди (wwwh.cдc.гов/эпиинфо).

Тадқиқот натижалари: Бластоцист инвазияси аниқланган гуруҳда ошқозон ичак йўли зарарланишига тегишли шикоятлардан кўнгил айниши, диарея ёки қабзият, эпигастрал, киндик атрофи ва чап ёнбош соҳада оғриқ бластоцист инвазияси аниқланмаган гуруҳга нисбатан кщп кузатилди (жадвал 2).

Жадвал 2

Тадқиқот ўтказилган беморларда клиник кщрсаткичларнинг учраши

Кўрсаткич	I-гуруҳ (бластоцист инвазияси аниқланган беморлар) н=14		II-гуруҳ (бластоцист инвазияси аниқланмаган беморлар) н=16	
	АРТ (+) н=5	АРТ (-) н=9	АРТ (+) н=6	АРТ (-) н=10
Кўнгил айниши	1 (20,0%)	3 (33,3%)	-	1 (10,0%)
Диарея	1 (20,0%)	4 (44,4%)	1 (16,6%)	2 (20,0%)
Қабзият	-	1 (11,1%)	-	-
Эпигастрал соҳада оғриқ	-	2 (22,2%)	1 (16,6%)	1 (10,0%)
Киндик атрофида оғриқ	1 (20,0%)	4 (44,4%)	-	1 (10,0%)
Чап ёнбошда оғриқ	-	2 (22,2%)	-	-
Метеризм	-	1 (11,1%)	-	-
Эшакем	-	2 (22,2%)	-	-
Дерматозлар	1 (20,0%)	2 (22,2%)	-	-
Тери қичишиши	1 (20,0%)	4 (44,4%)	-	1 (10,0%)
Дерматомикоз	-	1 (10,0%)	-	-
Аллергик ринит	-	1 (11,1%)	-	-

Юқоридаги жадвалда келтирилган маълумотлардан кўриниб турибдики, бластоцист инвазияси аниқланган гуруҳда ошқозон ичак йўли зарарланиши билан боғлиқ бўлган шикоятлардан кўнгил айниши, диарея ва киндик атрофида оғриқ бластоцист инвазияси аниқланмаган гуруҳда нисбатан 2-4 бараваргача кўп кузатилди.

Шуни алоҳида таъкидлаш зарурки, тадқиқот гуруҳларида субфебрил иситма ва эозинофилия кўрсаткичлари асосан қонда СД4+ ҳужайралар (Т-лимфотситлар) миқдори 250 ҳужайра/мкл дан кам бўлган кишиларда кўпроқ кузатилди.

Бластоцист инвазияси аниқланган ОИВ инфекцияли беморлар гуруҳида 14 (100%) нафардан 7 (50,0%) ҳолатда ва бластоцист инвазияси аниқланмаган гуруҳда 16 нафардан 3 (18,7%) ҳолатда субфебрил ҳарорат (иситма) аниқланди.

Лаборатория текширувларида эозинофилия кўрсаткичлари бластоцист инвазияси аниқланган ОИВ инфекцияли беморлар гуруҳида антиретровирус терапия олмаётган беморларда 9 (100%) нафардан 6 (66,6%) нафар беморда, антиретровирус терапия олаётган беморларнинг 9 (100%) нафаридан 3 (60,0%) нафарида ва бластоцист инвазияси аниқланмаган гуруҳда антиретровирус терапия олмаётган 10 (100%) нафар беморлардан 2 (20,0%) нафар беморда 0,5-1% оралиғини ташкил қилди.

Бластоцист инвазияси аниқланмаган ОИВ инфекцияли беморлар гуруҳида антиретровирус терапия олаётган беморларда эозинофилия ҳолати аниқланмади.

Юқорида тавсифланган лаборатория кўрсаткичлари қуйидаги жадвалда келтирилган (жадвал 3).

Жадвал 3

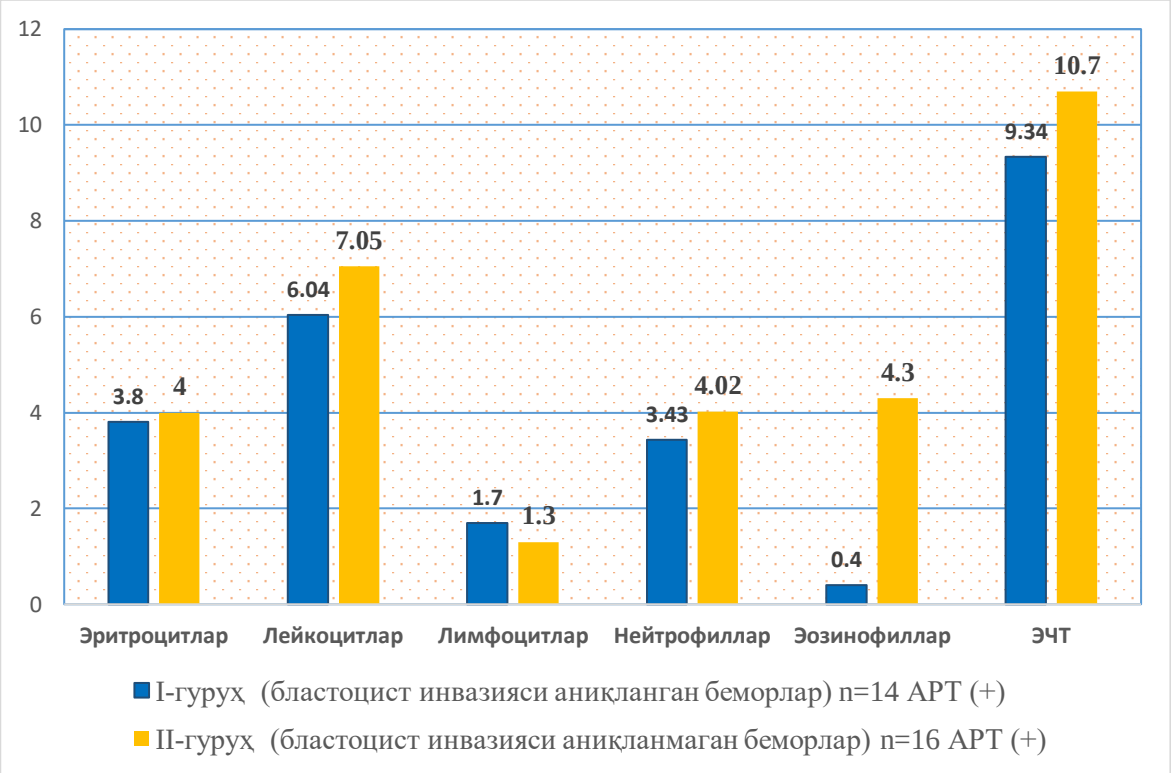
Лаборатория таҳлилларининг кўрсаткичлари

Кўрсаткич	I-гуруҳ (бластоцист инвазияси аниқланган беморлар) н=14		II-гуруҳ (бластоцист инвазияси аниқланмаган беморлар) н=16	
	АРТ (+) н=5	АРТ (-) н=9	АРТ (+) н=6	АРТ (-) н=10
Гемоглобин (г/л)	105,2	93,7	113,8	95,5
Эритротситлар (10^{12}/л)	3,8	3,2	4,0	3,8
Лейкотситлар (10^9/л)	6,04	5,21	7,05	6,23
Лимфотситлар (10^9/л)	1,7	1,5	1,3	1,1
Нейтрофиллар (10^9/л)	3,43	4,12	4,02	5,04
Базофиллар (10^9/л)	0,02	0,03	0,04	0,02*
Эозинофиллар (10^9/л)	0,4	0,2	4,3*	3,2*
Тромботситлар (ҳужайра/мкл)	212,5	197,6	199,4	201,7
ЭЧТ (мм/соат)	9,34	10,5	10,7	11,6

*Эслатма: * - бластоцист инвазияси аниқланган ва аниқланмаган гуруҳлар орасидаги ишончлилик фарқи <0,05 ни ташкил қилади*

Умумклиник лаборатория кўрсаткичлари бўйича тадқиқот гуруҳлари орасида сезиларли фарқ аниқланмади (эозинофиллар кўрсаткичи бундан мустасно).

Эозинофилия кўрсаткичининг ОИВ инфекцияли беморлар гуруҳлари орасидаги фарқи қуйидаги расмда яққол кўзга ташланади (расм 1).



1-расм. Бластоцистоз аниқланган ва аниқланмаган гуруҳларда лаборатория кўрсаткичлари

Хулоса. ОИВ инфекцияси бластоцист инвазияси билан микст кечганда беморларда ошқозон-ичак тизими фаолияти бузилиши томонидан клиник аломатлар (кўнгил айниши, диарея, киндик атрофида оғриқлар) кўпроқ намоён бўлади. Бластоцист инвазиясига хос бўлган аллергик аломатлар (эшакем, дерматозлар, терининг қичишиши) касалликнинг микст шаклида кўпроқ учрайди. Беморлар қонида эозинофилия кўрсаткичи ичак паразитозлари – бластоцист инвазиясидан дарак берувчи кўрсаткичлардан бири бўлиб ҳисобланади.

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СОВЕРШЕНСТВОВАНИЕ УПРАВЛЕНИЯ ЭЛЕКТРОННОЙ РЕЙТИНГОВОЙ СИСТЕМЫ СТРОИТЕЛЬНЫХ ОРГАНИЗАЦИЙ

Аннотация: *В статье рассмотрены вопросы совершенствования управления электронной рейтинговой системы строительных организаций. Рассмотрены особенности и специфика развития процессов совершенствования электронной рейтинговой системы строительных предприятий в Узбекистане. Также проведено анализ научных подходов ведущих специалистов по развитию электронной рейтинговой системы строительных организаций. Отражены предложения по совершенствованию электронной рейтинговой системы строительных организаций по практике зарубежного опыта.*

Ключевые слова: *управление, рейтинг, система государственных закупок, строительная деятельность, подрядные организации, рейтинговая оценка, конкурентоспособность, строительная организация, информационные системы, цифровая экономика, строительство, инструменты, цифровизация.*

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IMPROVING THE MANAGEMENT OF THE ELECTRONIC RATING SYSTEM OF CONSTRUCTION ORGANIZATIONS

Annotation: *The article discusses issues of improving the management of the electronic rating system of construction enterprises.The features and specifics of the development of processes for improving the electronic rating system of construction enterprises in Uzbekistan are considered. n analysis of the scientific approaches of leading experts on the development of an electronic rating system for construction enterprises was also carried out. Proposals for improving the electronic rating system of construction organizations based on foreign experience are reflected.*

Key words: *management, rating, public procurement system, construction activities, contracting organizations, rating assessment, competitiveness, construction organization, information systems, digital economy, construction, tools, digitalization.*

В период либерализации и трансформации экономических отношений и внедрением новых информационных технологий и цифровизации отраслей

экономики, управление строительными организациями требует внедрения современных инновационных инструментов, таких как электронные рейтинговые системы. Данные системы помогают оценивать эффективность работы строительных организаций и повысить прозрачность и доверие среди участников рынка.

С развитием экономических отношений и конкуренций среди строительных организаций данная отрасль сталкивается с различными экономическими рисками, такими как нехватка квалифицированных кадров, коррупционные риски и конкурентоспособность. В этом направлении именно электронные рейтинговые системы могут стать эффективным решением для минимизации этих проблем, обеспечивая объективную оценку деятельности строительных организаций.

В Республике Узбекистан 2025 году прогнозируется рост ВВП на 6% (ниже прошлогодних прогнозов) — до 1,63 квадриллиона сумов (около $123 млрд), а в 2026—2027 годах — 6,1% и 6,3% соответственно.

Темпы роста промышленности, как ожидается, составят 6,1%, сферы услуг — 14,5%, сельского хозяйства — 4,1%, строительных работ — 14,2%. Ранее отмечалось, что достичь этих показателей предполагается за счёт «качественного продолжения структурных реформ в каждой сфере». (см. таблицу 1)

В Узбекистане в направлении реформирования национальной экономики приняты действенные меры для дальнейшего углубления реформ в строительной отрасли, снижения бюрократических барьеров, широкого внедрения инновационных идей, разработок и передовых информационно-коммуникационных технологий, а также обеспечения прозрачности на всех этапах строительства. [2]

Таблица 1.

Прогноз макроэкономических показателей развития Республики Узбекистан на 2025 год и целевые ориентиры на 2026-2027 годы[1]

№	Показатели	Прогноз на 2025 год	Целевые ориентиры на:	
			2026 год	2027 год
1.	Валовый внутренний продукт, трлн сумов	1 630	1 866	2 125
2.	Темп роста валового внутреннего продукта, в процентах	6,0	6,1	6,3
3.	Индекс потребительских цен по отношению к декабрю прошлого года, в процентах	7-8	5-6	5
4.	Темп роста промышленной продукции, в процентах	6,1	6,2	6,1
5.	Темп роста производства в сельском, лесном и рыбном хозяйствах, в процентах	4,1	4,2	4,3
6.	Темп роста рыночных услуг, в процентах	14,5	15,1	15,0

7.	Темп роста строительных работ, в процентах	14,2	10,2	7,3

На основании Указа с 2020 года “внедрено электронный рейтинг проектно-изыскательских организаций, автоматически формируемый по данным налоговой и статистической отчетности (опыт работы, количество работников, в том числе квалифицированных, объем основных средств, полученные доходы и уплаченные налоги, фонд оплаты труда); внедрено электронный рейтинг строительных подрядных организаций, автоматически формируемый по данным налоговой и статистической отчетности (опыт работы, количество работников, в том числе квалифицированных, объем основных средств, полученные доходы и уплаченные налоги, фонд оплаты труда), а также сведений Инспекции по контролю в сфере строительства и жилищно-коммунального хозяйства при Министерстве строительства и жилищно-коммунального хозяйства Республики Узбекистан (объем завершенных строительством объектов, наличие предписаний по устранению нарушений градостроительного законодательства и их исполнение) с дифференциацией рейтинга по категориям в зависимости от объемов и объектов строительства» [2];

На основании выполнения поставленных задач «Стратегия развития нового Узбекистана на 2022 — 2026 годы» [3] наращиваются темп роста макроэкономических процессов и её стабильный рост. Благодаря сформированной нормативно-правовой базе экономики, бюджета и налоговых , а также финансовых отношений которые напрямую отражаются в развитии инновационных процессов. В частности, одной из основных целей «Увеличение объемов региональной экономики в 1,4 — 1,6 раза с обеспечением сбалансированного развития регионов.

Реализация пятилетних региональных программ, разработанных по 14 регионам в разрезе районов и городов. Разработка и реализация отдельных программ развития городов и районов, имеющих «неудовлетворительные» показатели в рейтинге социально-экономического развития регионов.

Дальнейшее совершенствование политики урбанизации, направленной на улучшение условий проживания населения в регионах. Принятие мер по превращению в перспективе городов Самарканда и Намангана в «города-миллионники». Строительство и сдача в эксплуатацию первых массивов «Нового Андижана», рассчитанных на 450 тысяч жителей. Доведение уровня урбанизации в Кашкадарьинской области до 50 процентов.» [3].

При этом нужно особо отметить что в «совершенствовании технического регулирования в строительной сфере. Разработка и реализация программы по коренному совершенствованию системы подготовки градостроительной документации населенных пунктов и обеспечения градостроительной документации**.»** [3]

С развитием информационных систем и цифровизации экономики широко распространяется оценка хозяйствующих субъектов, отраслей

экономики. В этом направлении рейтинговая оценка действует и в строительных организациях.

Вопросы рейтинговой оценки деятельности субъектов хозяйствования в строительной сфере рассматривались такими российскими учеными, как Шаховской В.Н., Бабков А. Г., Симионов Р. Ю. [4,5,6] и др. Изучая мнения о рейтинговой оценке и внедрение электронной рейтинговой системы в строительных организациях решили определить сущность понятии «рейтинг». Шаховская В. Н. в статье «Практическая сфера применения рейтинговой оценки конкурентоспособности строительных организаций» излагает что, «понятие «рейтинг» широко развито в банковской сфере. Однако в последнее время оно становится востребованным бизнес-активом во всех сферах жизнедеятельности. Возникновение рейтингов вызвано многообразием субъектов хозяйствования и отношений между ними. Данное многообразие потребовало создания простой, понятной и общепризнанной шкалы, которая позволила бы оценить и сопоставить финансовое, производственно-хозяйственное состояние и тенденции развития субъектов хозяйствования. Различные подходы к решению такой задачи породили разнообразие методик рейтинговых оценок, которые представляют на рынок рейтинговые агентства. По мнению автора «Рейтинговые оценки и создаваемые на их основе отраслевые системы рейтингов внедряются как на уровне заказчика, так и на государственном уровне. В странах – участниках ЕАЭС система рейтингов с учетом накопившихся проблем в строительной отрасли по результатам применения законодательства о государственных закупках, отсутствия адекватного выбора квалифицированных организаций в строительной сфере, подобно мировому опыту выводится на самый высокий законодательный уровень.» .[4]

В 2021 г. с учетом полной автоматизации процессов закупок в Республике Казахстан квалификационные реестры трансформировались в электронный депозитарий квалифицированных потенциальных поставщиков работ, имеющих право в дальнейшем участвовать в конкурсе на строительство соответствующего объекта. Электронный депозитарий стал цифровой информационной базой допуска строительных организаций на казахский строительный рынок, содержащей сведения и документы, которые не только подтверждают опыт работы потенциальных подрядчиков, но и служат в дальнейшем источником квалификационных данных участников для оценки их конкурсных предложений. На сегодняшний день по такой системе работают в Японии, Германии, Италии, Литве и ряде других европейских странах.

В настоящее время в Узбекистане Запущен онлайн-рейтинг строительных компании https://review.uz/post/zapushen-onlayn-reyting-stroitelnx-kompanii

Класс надежности	Рейтинг	Интерпретация рейтинговой оценки	Уровень риска	от %	до %
A	AAA	Наивысший максимальный уровень надежности	Минимальный риск	85%	100%
	AA	Очень высокий уровень надежности	Незначительный риск	75%	85%
	A	Высокий уровень надежности	Низкий риск	65%	75%
B	BBB	Умеренно высокая надежность-уровень 1	Риск ниже среднего	55%	65%
	BB	Умеренно высокая надежность-уровень 2	Риск ниже среднего	40%	55%
	B	Умеренно высокая надежность-уровень 3	Риск ниже среднего	35%	40%
C	CCC	Удовлетворительная надежность-уровень 1	Средний риск	30%	35%
	CC	Удовлетворительная надежность-уровень 2	Средний риск	25%	30%
	C	Удовлетворительная надежность-уровень 3	Средний риск	20%	25%
D	DDD	Низкая надежность-уровень 1	Высокий риск	7%	20%
	DD	Низкая надежность-уровень 2	Высокий риск	5%	7%
	D	Низкая надежность-уровень 3	Высокий риск	0%	5%

Рисунок 2. Шкала рейтинга строительно-подрядных организаций. .[7]

При Министерстве строительства запущен рейтинг строительных компаний на онлайн-портале reyting.mc.uz. Рейтинг оценивается по критериям, которые состоят из 6 групп и охватывают 71 показателей.

Для определения надежности строительной компании используются критерии, обеспечивающие высокое качество строительства, такие как квалифицированные специалисты, финансовые показатели, качество выполненных работ, опыт работы, техническая база и конкурентоспособность.

Оценка DDD определена в рейтинге, как самая низкая оценка надежности и означает высокий уровень риска, с уровнем надежности от 7% до 20%.

Оценка AAA определена, как высокий уровень надежности и означает минимальный риск, с уровнем надежности от 85% до 100%.

Исходя из вышеизложенных моментов можно подчеркнуть, что электронная рейтинговая система имеет следующие основные элементы как

1. Критерии оценки строительных организаций.
2. Прозрачность в оценке данных.
3. Удобство в использовании.

На основе электронной рейтинговой системы можно анализировать деятельность строительных организаций по соответствующим критериям.

В заключении можно особо подчеркнуть что, совершенствование управления электронной рейтинговой системой строительных организаций это ключ к повышению эффективности работы компаний и улучшению общей репутации отрасли. Внедрение современных технологий и подходов позволит создать конкурентоспособный и прозрачный рынок строительства.

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СИСТЕМА ЦЕННОСТЕЙ В РУССКИХ И АНГЛИЙСКИХ ПАРЕМИЯХ

Аннотация: *В данной статье рассматривается Паремии, которые являются значительной частью фразеологического фонда русского языка. Это родовое понятие, включающее паремии, поговорки, присловья, приметы и др. Как правило, в паремиях сформулирована некая истина или побуждение (императив). Данные языковые единицы обобщают, часто в образной форме, коллективный жизненный опыт и отражают культурные установки и стереотипные представления общества, поэтому паремии представляют собой богатый материал для лингвокультурологических исследований.*

Ключевые слова: *паремии, культура, поговорки, присловья, приметы.*

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SYSTEM OF VALUES IN RUSSIAN AND ENGLISH PAROEMIA

Abstract: *This article examines Paremias, which are a significant part of the phraseological fund of the Russian language. This is a generic concept that includes paremias, proverbs, sayings, signs, etc. As a rule, some truth or motivation (imperative) is formulated in paremias. These linguistic units generalize, often in a figurative form, collective life experience and reflect cultural attitudes and stereotypical ideas of society, therefore, paremias are rich material for linguacultural research.*

Keywords: *paremias, culture, sayings, sayings, signs.*

Характерной особенностью паремии является тот факт, что, с одной стороны, она принадлежит системе языка, а с другой, тесно связана с конкретной речевой ситуацией, т.е. текстом. Исследователи неоднократно отмечали эту «парадоксальность», «действительность», «срединное положение», «амбивалентность» пословично-поговорочных изречений, позволяющую рассматривать их и как языковые, и как речевые знаки. Особенность паремии заключается в том, что она, как правило, «несёт в себе информацию не об элементе, а о фрагменте внеязыковой действительности» (Савенкова, 2002), что даёт возможность отнести паремии и поговорки к дискурсивным знакам. Однако несмотря на тесную связь семантики паремии с её конкретной реализацией в речи, данные единицы не могут быть

рассмотрены только как элементы дискурса вне своего места в языковой системе, поскольку он представляют собой устойчивые, клишированные выражения, зафиксированные в словарях и фольклорных сборниках.

Однако некоторые исследователи придерживаются противоположной точки зрения, например, Н.Н. Амосова считает, что ни по содержанию, не по функции паремии не могут быть включены во фразеологию (Амосова, 1963). Г.Л. Пермяков пишет, что паремии сложнее фразеологизмов, поэтому можно говорить об отдельном паремиологическом уровне языка (Пермяков, 1998). При определении лингвистического статуса паремических единиц важно принимать во внимание, на изучение какого аспекта паремий и фразеологизмов нацелено то или иное исследование.

Так, Е.Ю. Никтовенко считает, что «в тех исследованиях, в которых акцент делается не на структурные, а на семантические особенности языковых единиц, разграничение фразеологизмов, паремий, поговорок, и афоризмов не является принципиальным» (Никтовенко, 2013).

Таким образом, с учётом существующих подходов к изучению паремиологического фонда русского языка в настоящем исследовании нами было принято широкое понимание паремии, включающее паремии, поговорки, а также мелкие жанры (как, например, молвушки), при этом паремические единицы отнесены к фразеологии. Такое понимание данного явления отвечает целям работы и позволяет более полно проанализировать прагматический и лингвокультурологический потенциал паремических единиц.

В современной паремиологии актуализуются три из пяти смысловых зон образа «Родина». Две смысловые зоны - страна, гражданином которой являешься, и место рождения - составляют ядро концепта, три другие входят в периферийную зону и незначительны по объёму. В качестве синонимов лексемы родина, согласно данным «Словаря синонимов», выступают слова отечество, отчизна, колыбель, а также словосочетания родная сторона (сторонка), родной край, отчий дом, родное пепелище. В контекстном употреблении лексема родина нередко отождествляется с Россией, Русью, страной, русскими, народом. Следовательно, и данные слова, находясь в логическом центре паремий, репрезентирует изучаемый концепт. Очевидно, что в качестве вербализаторов образа Родина названные лексемы и словосочетания будут служить объективаторами информации о месте рождения человека в конкретном ключе и в целом создавать полное представление об исследуемом концепте.

К современным паремиям отнесены паремии, поговорки, крылатые единицы, а также их трансформации, созданные современными носителями русского языка. Источниковой базой выступает современные толковые и энциклопедические словари, «Большой словарь крылатых слов и выражений русского языка», словарь «Антипаремии русского народа» , современные сборники русских паремий и поговорок.

Анализ толковых и энциклопедических словарей позволяет выявить пять основных лексико-семантических вариантов имени концепта:

1) место рождения (все толковые и энциклопедические словари);

2) страна, гражданином которой являешься (все толковые словари);

3) место возникновения конкретного этноса;

4) место комфортного существования [Ожегов 2006: 578];

5) место возникновения или происхождения чего-либо (все толковые и энциклопедические словари). Выявленные лексико-семантические варианты представляют одновременно основные смысловые зоны образа Родина, соотносимые с вполне конкретными репрезентантами.

Вербализаторами смысловых зон «место рождения» и «место комфортного существования» выступают лексемы и словосочетания родина, отечество, отчизна, дом, отчий дом, родная сторона (сторонушка, сторонка). Вербализаторами смысловых зон «страна, гражданином которой являешься» и «место возникновения конкретного этноса» выступают лексемы и словосочетания Россия, Русь, страна, русские, народ, святая Русь.

В переносном употреблении часть названных репрезентантов (имя образа «Родина» и лексема колыбель) могут выступать вербализаторами смысловой зоны «место возникновения или происхождения чего-либо». Когнитивный анализ высказываний обнаружил, что чаще всего актуализируется смысловая зона «страна, гражданином которой являешься». Детализация означенного смысла осуществляется через оценку взаимоотношений государства и гражданина.

Таким образом, анализ современных паремий, репрезентирующих концепт «Родина» через различные вербализаторы, обнаруживает, что подавляющее их большинство детально объективирует представления россиян об одной смысловой зоне - «страна, гражданином которой являешься», - через две ведущие темы: государство и народ, взаимоотношения государства и его граждан.

Эпизодически вербализуется смысловая зона «место рождения», но при этом совершенно не представлены ещё три смысловые зоны: «место комфортного существования», «место возникновения конкретного этноса», «место возникновения чего-либо». Так, смысловая зона «место комфортного существования», весьма популярная в традиционном фольклоре, практически не представлена современной паремиологией.

Так или иначе образ Родины продолжает удерживать центральные позиции в ценностной системе россиян и по-прежнему играет ведущую роль в политическом дискурсе современной России.

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ЭЛЕМЕНТЫ ЛИНЕЙНОГО ПРОГРАММИРОВАНИЯ И ЕГО ПРИМЕНЕНИЯ В ПЛАНИРОВАНИИ

Аннотация: *в настоящей работе было изучено матричный и геометрический метод решения задач линейного программирования. Целью является как можно применить эти методы в планировании.*

Ключевые слова: *линейное программирование, матрица, затраты, граничными условиями, условиями сбалансированности плана, область допустимых решений, вектор, функция.*

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ELEMENTS OF LINEAR PROGRAMMING AND ITS APPLICATION IN PLANNING

Abstract: *In this paper, the matrix and geometric methods of solving linear programming problems were studied. The goal is to see how these methods can be applied in planning.*

Key words: *linear programming, matrix, costs, boundary conditions, plan balance conditions, feasible solution domain, vector, function.*

Сущность линейного программирования. В практике экономического планирования на любом его уровне возникает необходимость выбора оптимального варианта среди различных вариантов плана. Однако, как правило, интуиция и опыт планирования оказываются здесь недостаточными. Поэтому в планировании необходимы точные методы, которые дают возможность сопоставлять различные варианты плана и выбирать оптимальный вариант. Один из методов, облегчающих выбора оптимальных вариантов плана,-так называемое ***линейное программирование.***

Задачу нахождения оптимального производственного плана математически можно сформулировать следующим образом.

Дана матрица ***B*** коэффициентов материальных затрат и матрица ***M*** норм расхода производственных ресурсов. Определить оптимальный план выпуска продукции, т.е. такой план, в котором выражение

$W=W_1+W_2$

принимает максимальное значение; при этом должны удовлетворяться совместно следующие условия:

$$W_1+3W_2\leq 1000$$

$$3W_1+2W_2\leq 1000 \qquad (1)$$

$$3W_1+W_2\leq 1350$$

$$W_1\geq 0,\ W_2\geq 0 \qquad (2)$$

Неравенство (1) представляют собой определенные ограничения свободы выбора вариант плана; они называются *условиями сбалансированности плана,* а неравенства (2) – *граничными условиями.*

Решения такого рода задач и составляет предмет линейного программирования. Приведенный пример поясняет также и общий характер задач линейного программирования указывает, что их решение состоит в определении оптимальных планов, причем математическом выражении этих задач фигурируют только линейные уравнения или неравенства, в которых есть только неизвестные в первой степени.

В общем виде сущность линейного программирования можно сформулировать следующим образом. Имеется n переменных $x_1,x_2,\ldots,x_n$. Определить максимум(или минимум) следующей линейной формы, называемой *целой функцией*, этих переменных:

$$z=p_1x_1+p_2x_2+\ldots+p_nx_n, \quad (3)$$

причем удовлетворяются *балансовые условия:*

$$\begin{gathered} a_{11}x_1+a_{12}x_2+\ldots+a_{1n}x_n\le b_1 \\ a_{21}x_1+a_{22}x_2+\ldots+a_{2n}x_n\le b_2 \quad (4) \\ a_{m1}x_1+a_{m2}x_2+\ldots+a_{mn}x_n\le b_m \end{gathered}$$

и граничные условия:

$$x_i\ge 0 (i=1,2,\ldots,n). \quad (5)$$

С экономической точки зрения *задачи линейного программирования*-это задачи оптимального использования ресурсов. В каждом случае планирования производства необходимо иметь в виду, что разные производственные ресурсы (рабочая сила, сырье, материалы, орудия производства) ограниченны. В каждом таком случае известна норма расхода этих ресурсов на разные виды продукции и в каждом случае возможны многообразные варианты распределения производственных ресурсов. Задача состоит в том, чтобы найти оптимальное распределение производственных ресурсов. При этом критерии оптимальности могут быть разными. Такими критериями могут, например, быть максимум выпуска продукции, максимум прибыли, максимум издержек производства и т.д.

Пример. Производство делиться на две отрасли, причем матрица коэффициентов материальных затрат есть (В-коэффициент материальных затрат)

$$\boldsymbol{B}=\begin{bmatrix} 0{,}5 & 0{,}4 \\ 0{,}2 & 0{,}7 \end{bmatrix}$$

Матрица полных коэффициентов полных затрат есть

$$(\boldsymbol{I}-\boldsymbol{B})^{-1}=\begin{bmatrix} 50/28 & 40/28 \\ 20/28 & 70/28 \end{bmatrix}$$

На вступительном этапе разработки плана приняты следующие 3 варианта объёма конечного продукта.

Отрасль	**Варианты объёма конечного продукта**		
	1	2	3
1	28	28	56
2	56	28	84

Из уравнения

$$\boldsymbol{W}=(\boldsymbol{I}-\boldsymbol{B})^{-1}*\boldsymbol{W}$$

Получаем:

$$\begin{pmatrix} W2 \\ W1 \end{pmatrix}=\begin{bmatrix} 50/28 & 40/28 \\ 20/28 & 70/28 \end{bmatrix}\begin{bmatrix} w1 \\ w2 \end{bmatrix}$$

Где w1 и w2- стоимость конечных продуктов, а W1 и W2- стоимость конечной продукции

Получаем соответствующие варианты плана выпуска продукции

Отрасль	Варианты плана выпуска продукции		
1	130	90	220
2	160	90	250
Всего	290	180	470

Для выполнения производственного плана необходима рабочая сила и орудия производства. Эти факторы производства имеются в ограниченных количествах, а их ограниченность не позволяет произвольно увеличивать выпуск продукции. Пусть ресурсы рабочей силы ***A*** составляют 100 единиц производственная мощность орудий ***B*** и ***C*** составляют соответственно 1000 и 1500 единиц. Известны также нормы расходы производственных ресурсов на единицу продукции в стоимостном выражении

Вид ресурсов	Затраты ресурсов на продукции	единицу времени отрасли
	1	2
A	1	3
B	3	2
C	3	1

Очевидно, что должно выполниться условия:

$$W_1+3W_2\leq 1000$$
$$3W_1+2W_2\leq 1000$$
$$3W_1+W_2\leq 1350$$

Имеющие в наличии производственные ресурсы, соответствующие намеченным вариантам плана, составляют:

Вид ресурсов	Наличие ресурсов		1	2		3	
			(3)/(2)*100	(5)/(2)*100		(7)/(2)*100	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
A	1000	610	61	360	36	970	97
B	1000	710	71	450	45	1160	116
C	1350	550	55	360	36	910	91

Сопоставление вариантов плана показывает, что из трех намеченных вариантов наилучшем будет первый вариант. Во втором варианте степень

использования производственных ресурсов слишком мала, третий же вариант невозможен, ибо его осуществление потребовало бы больше ресурсов, чем имеется в наличии.

Это не означает, что первый вариант- оптимальный, т.е. такой, в котором стоимость выпускаемой продукции максимально. Существует весьма много еще и других вариантов, из которых по меньшей мере один может быть оптимальным.

Геометрический метод решения задач линейного программирования.

В случае, когда в программе (плане) фигурируют только две переменные, задача линейного программирования может быть без труда решена геометрическим способом.

Пусть целевая функция переменнкх x_1 и x_2 есть

$$z=p_1x_1+p_2x_2 \ (p_1, p_2>0) \qquad (1)$$

и балансовые условия

$$a_{11}x_1+a_{12}x_2\leq c_1 \qquad (2)$$

$$a_{21}x_1+a_{22}x_2\leq c_2 \qquad (3)$$

где $a_{ij}>0 \ (i,j=1,2)$ и $c_1 , c_2>0,$

$$x_1\geq 0 , \ x_2\geq 0. \qquad (4)$$

Следует найти такие значения переменных x_1 *и* x_2 **,** чтобы выполнялись условия (2)-(4) и чтобы целевая функция (1) принимала наибольшее значение.

Балансовые условия можно представить в прямоугольной системе координат Ox_1x_2 на плоскости с помощью прямых L_1,L_2 (рис. 1). Неравенство (2) удовлетворяют координаты всех точек плоскости находящихся на прямой L_1 или под ней, а неравенству (3) удовлетворяют координаты всех точек, лежащих на прямой L_1 или под ней. Эту *область допустимых решений* образуют точки первого квадранта системы координат, лежащие под прямыми L_1 и L_2 или из них, т.е. координаты всех точек четырехугольника ОАБС на рис.1.

Если в целевой функции значение z есть переменная величина, то уравнение (1) описывает семейство параллельных прямых вида:

$$x_2=(-p_1/p_2)*x_1+(z/p_2) \qquad (5)$$

Чем больше z, т.е. чем больше мера осуществления цели, тем выше расположена соответствующая прямая семейства параллельных прямых.

Как видно на рис.1 оптимальное решение суть координаты точки пересечения прямых ДД, ибо через эту точку проходит наиболее высоко расположенная прямая из семейства прямых (5), имеющая по меньшей сере одну точку, общую с областью допустимых решений.

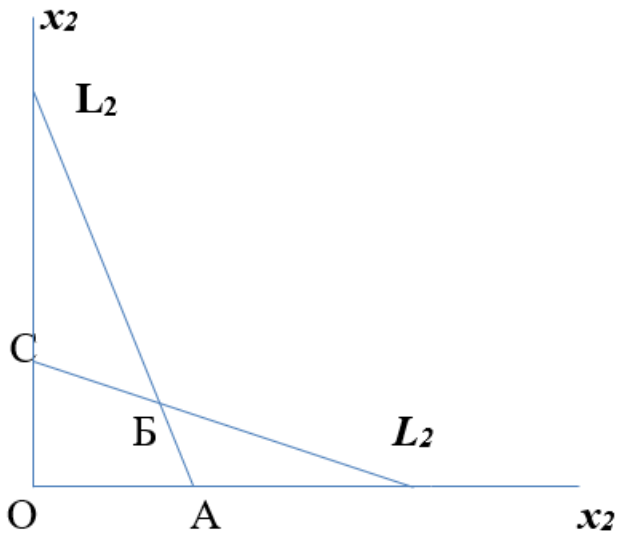

Рис.1

Пример 2. Дана целевая функция двух переменных $x1$ и $x2$:

$$z=2x1+3x2 \qquad (1)$$

Балансовые условия имеют вид:

$$\begin{cases} -2x1 + x2 \leq 2 \\ -x1 + 3x2 \leq 9 \\ 4x1 + 3x2 \leq 24 \end{cases} \qquad (2)$$

Причём граничные условия таковы:

$$x_1 \geq 0 \ , \ x_2 \geq 0. \qquad (3)$$

Найти такие значения $x1$ и $x2$, при которых целевая функция принимает максимальное значение.

Определим вначале область решений неравенств (1)-(3). Проставив в выражениях (1)-(3) знаки равенства вместо знаков неравенство, получим уравнения соответствующих прямых; записывая эти уравнения в отрезках получим:

$$-x1+x2/2=1$$

$$-(x1/9)+x2/3=1 \qquad (2)$$

$$(x1/6)+x2/8=1$$

$$x1=0 \ x2=0 \qquad (3)$$

Нарисуем эти прямые (рис.2).

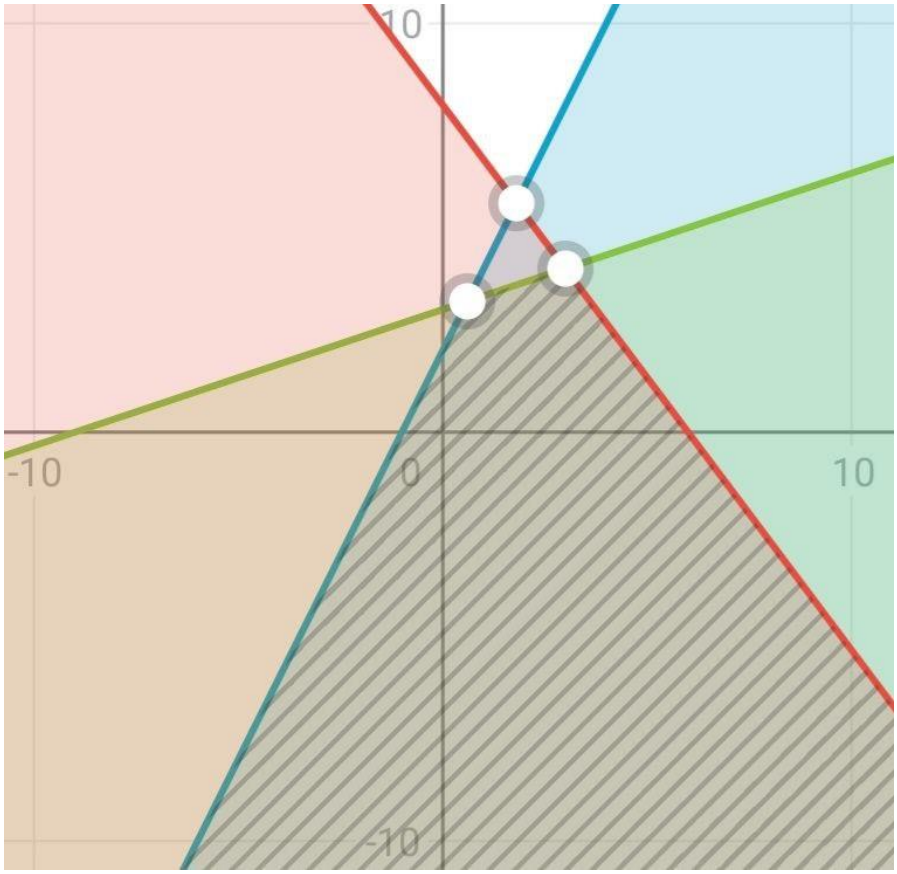

Рис.2

По рисунке можем определить область допустимых решений. (Закрашенная часть).

Уравнение

$$z=2x1+3x2 \qquad (1)$$

есть уравнения семейства прямых, перпендикулярных к вектору с координатами 2, 3. Из рис.2. видно что наиболее высоко расположенная прямая перпендикулярная к вектору $м$ и имеющая точку, общую точку с областью допустимых решений прямая, проходящая через точку пересечения прямых $(-x1 + 3x2 = 9)$ **и** $(4x1 + 3x2 = 24)$**.**

Чтобы найти координаты точки пересечения прямых следует решить систему уравнений:

$$-x1 + 3x2 = 9 \quad \text{и} \quad 4x1 + 3x2 = 24$$

Из первого уравнения получаем:

$$x1 = 3x2 - 9$$

Подставим это значение на второе выражение:

$$4*(3x2 - 9) + 3x2 = 24 \text{ или } 15x2=60,$$

Откуда

$$x2=4, \qquad x2=3$$

Максимальное значение целевой функции равен:

$$z=18$$

Следовательно, когда переменные x1 и x2 принимают значение 3 и 4,соответсвенно, целевая функция достигнет своего максимального значения.

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ЗНАЧЕНИЕ РАЗВИТИЯ ИНФОРМАЦИОННО-КОММУНИКАЦИОННЫХ И ЦИФРОВЫХ ТЕХНОЛОГИЙ В СОВРЕМЕННОМ СОЦИУМЕ

Аннотация. В статье рассматривается роль информационно-коммуникационных и цифровых технологий в развитии современного общества. Анализируются ключевые направления их применения, такие как экономика, образование, здравоохранение и социальная сфера. Особое внимание уделяется влиянию цифровизации на повседневную жизнь граждан, а также возможным рискам и вызовам, связанным с быстрым технологическим прогрессом. Цифровые технологии являются неотъемлемой частью современного мира, определяющей динамику социального и экономического развития.

Ключевые слова: информационно-коммуникационные технологии, цифровизация, социальные изменения, цифровая экономика, технологический прогресс, инновации, кибербезопасность.

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THE IMPORTANCE OF INFORMATION, COMMUNICATION AND DIGITAL TECHNOLOGIES DEVELOPMENT IN MODERN SOCIETY

Abstract. *The article examines the role of information, communication and digital technologies in the development of modern society. Key areas of their application, such as economics, education, healthcare and the social sphere, are analyzed. Particular attention is paid to the impact of digitalization on the daily life of citizens, as well as possible risks and challenges associated with rapid technological progress. Digital technologies are an integral part of the modern world, determining the dynamics of social and economic development.*

Keywords: *information and communication technologies, digitalization, social change, digital economy, technological progress, innovation, cybersecurity.*

Современный социум переживает кардинальные изменения под влиянием развития информационно-коммуникационных и цифровых технологий. Они трансформируют не только экономические процессы, но и образовательную, медицинскую и социальную сферы, изменяя привычные модели взаимодействия между людьми, государством и бизнесом.

В современном мире информационно-коммуникационные технологии (ИКТ) и кибербезопасность играют ключевую роль в развитии общества, бизнеса и государственных структур. Их развитие направлено на создание новых инструментов, повышающих удобство и эффективность передачи, обработки и защиты информации.

1. Информационно-коммуникационные технологии (ИКТ) – это совокупность методов, процессов и программно-аппаратных средств, используемых для сбора, обработки, хранения, передачи и защиты информации. Они охватывают такие сферы, как интернет, мобильная связь, облачные вычисления, искусственный интеллект и большие данные.

2. Кибербезопасность – это комплекс мер, направленных на защиту компьютерных систем, сетей и данных от киберугроз, включая вирусные атаки, хакерские взломы, фишинг и утечки конфиденциальной информации.

Развитие ИКТ и кибербезопасности в настоящее время

1. Искусственный интеллект и автоматизация.

- Внедрение ИИ в бизнесе, медицине, образовании и промышленности ускоряет процессы анализа данных и принятия решений.
- Автоматизация систем управления, чат-боты, голосовые помощники и умные устройства упрощают коммуникацию и выполнение задач.

2. Цифровизация и облачные технологии.

- Компании и государственные учреждения переходят на цифровые системы хранения и обработки данных, сокращая зависимость от бумажных носителей.
- Облачные вычисления позволяют безопасно хранить и управлять данными, а также обеспечивают удаленный доступ к ресурсам.

3. 5G и развитие сетей.

- Внедрение технологии 5G обеспечивает высокоскоростной интернет, что способствует развитию Интернета вещей (IoT), беспилотного транспорта и умных городов.

4. Киберугрозы и усиление безопасности.

- Рост числа кибератак требует усиления мер по защите информации. Разрабатываются новые системы шифрования, многофакторной аутентификации и мониторинга сетевой активности.
- Правительства и крупные компании внедряют стандарты кибербезопасности и обучают сотрудников основам защиты данных.

5. Блокчейн и защита данных.

- Технология блокчейн применяется для безопасных транзакций, децентрализованных финансов (DeFi) и хранения цифровых записей без риска подделки.

Развитие информационно-коммуникационных технологий и кибербезопасности является необходимостью в условиях цифровой трансформации общества. Оно направлено не только на повышение эффективности работы различных сфер деятельности, но и на защиту данных от киберугроз, обеспечивая стабильность и безопасность информационного пространства.

Цель данной статьи — рассмотреть значение этих технологий в современном обществе и их влияние на различные аспекты жизни.

ОСНОВНЫЕ НАПРАВЛЕНИЯ ВЛИЯНИЯ ЦИФРОВЫХ ТЕХНОЛОГИЙ

1. **Экономика и бизнес.** Цифровизация способствует развитию электронной коммерции, автоматизации производственных процессов и внедрению искусственного интеллекта в бизнес-аналитику. Интернет-банкинг, блокчейн и большие данные формируют новые модели управления финансами и ресурсами.

2. **Образование.** Интернет и цифровые платформы позволяют создать условия для дистанционного обучения, адаптивных образовательных программ и интерактивных методик преподавания. Онлайн-курсы, виртуальные лаборатории и искусственный интеллект помогают сделать образование доступным для всех.

3. **Здравоохранение.** Цифровая медицина внедряет телемедицину, электронные медицинские карты, системы диагностики на основе искусственного интеллекта и биометрические технологии, что повышает качество медицинского обслуживания и доступность медицинских услуг.

4. **Социальные коммуникации.** Развитие социальных сетей, мессенджеров и цифровых платформ изменяет способы общения, расширяет возможности для ведения бизнеса и организации общественных инициатив. Однако с этим связаны и вызовы, такие как защита персональных данных и борьба с дезинформацией.

Вызовы и перспективы. Несмотря на очевидные преимущества цифровизации, общество сталкивается с рядом вызовов: кибербезопасность, цифровое неравенство, утечка персональных данных и зависимость от технологий. Решение этих проблем требует комплексного подхода, включающего правовое регулирование, развитие цифровой грамотности и инвестиции в технологическую инфраструктуру.

Информационно-коммуникационные и цифровые технологии играют ключевую роль в развитии современного общества. Они способствуют экономическому росту, повышению качества жизни и модернизации ключевых сфер деятельности. Однако важно не только использовать их потенциал, но и учитывать возможные риски, обеспечивая безопасное и устойчивое цифровое развитие.

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НОВЫЕ ПОЛИМЕРНЫЕ КОМПОЗИЦИИ ДЛЯ ВСКРЫТИЯ НЕФТЕГАЗОВЫХ ПЛАСТОВ С АНОМАЛЬНО НИЗКИМИ ДАВЛЕНИЯМИ

Аннотация:*В статье освещены материалы о вскрытие нефтегазовых пластов аномально низкими давлениями на примере месторождениях Узбекистана. Также использование буровых растворов при этих условиях для промывки скважин, особенно повсеместное применение полимерно-глинистых растворов.*

Изучены применения этих малоглинистых буровых растворов при вскрытии пластов с низкими аномальными давлениями и установлено, что на площадях в процессе первичного вскрытия продуктивного пласта было отмечено интенсивное проявление углеводородов, поглощения бурового раствора и т.д.

Ключевые слова: *аномальное, пласт, давление, вскрытие, буровой раствор, вязкость, бурения, скважина, промывка, полимер, композиция.*

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NEW POLYMER COMPOSITIONS FOR DISCONNECTING OIL AND GAS FORMATIONS WITH ABNORMALLY LOW PRESSURES

Abstract:*The article covers materials on the opening of oil and gas formations with abnormally low pressures using the example of the fields of Uzbekistan. In addition, the use of drilling fluids under these conditions for washing wells, especially the widespread use of polymer-clay solutions.*

The use of these low-clay drilling fluids in opening formations with low abnormal pressures was studied and it was found that in the areas during the primary opening of the productive formation, an intensive manifestation of hydrocarbons, absorption of the drilling fluid, etc. was noted.

Keywords: *abnormal, formation, pressure, opening, drilling mud, viscosity, drilling, well, flushing, polymer, composition.*

В условиях Узбекистана для промывки скважин повсеместно применяются полимерно-глинистые растворы. Практика применения малоглинистых буровых растворов при вскрытии пластов с аномально низкими пластовыми давлениями (АНПД) показала, что на площадях в процессе первичного вскрытия продуктивного пласта было отмечено интенсивное проявление углеводородов, поглощения бурового раствора и т.д.

Наличие твердой фазы глинистых суспензий наиболее существенно проявляется для коллекторов, имеющих исходную проницаемость выше 0,2-0,3 мкм^2 [1, с.2].

Как известно, при выборе, буровых растворов для первичного и вторичного вскрытия продуктивных пластов к ним предъявляются следующие требования:

1. Обеспечение их плотности;
2. Химическая совместимость с породой и пластовыми флюидами.

Для приготовления недиспергирующих полимерных буровых растворов используют в основном полимерные добавки двух типов: двойного свойства (бифункциональные) и селективные полимерные реагенты полученных на основе крахмала и модификатора. При этом объемная доля глинистых частиц в твердой фазе недиспергирующего полимерной композиции должна составлять не более 4%.

Качество бурового раствора на основе модифицированного природного полимера и глины считается удовлетворительным, не только при малом содержании глинистого компонента её твердой фазы, но и при минимально возможном отношении содержания частиц выбуренной породы в твердой фазе бурового раствора [2, с.76].

Нами в лабораторных условиях были проведены тестовые испытания малоглинистого полимерного бурового раствора на основе ПК-1.

В качестве полимерной добавки мы использовали два функциональных реагентов, т.е. ПК-1 и в качестве кольматирующего агента мраморный порошок (МП) с гранулометрическим составом класса 0,2-10,0 микрон со средневзвешенным среднем размером частиц 3мкм.

Эти исследования были проведены с целью выбору составов промывочных растворов для вскрытия продуктивных горизонтов с АНПД, т.е. сохранению фильтрационной характеристики пород в при забойной зоне скважин.

В табл.1 приведены результаты сравнения реагента ПК-1 с другими известными полимерными реагентами.

В качестве контрольного бурового раствора была принята 4 % - ная бентонитовая суспензия.

Как видно из табл.1, расход реагента ПК-1 для приготовления малоглинистой композиции значительно меньше по сравнению с используемыми на производстве реагентами как КМЦ-500, К-4 и УЩР при этом технологические свойства бурового раствора на основе полимерной композиции ПК-1 выше чем, по сравнению с остальными композициями.

Таблица.1

Сравнительные данные технологических параметров бурового раствора в зависимости от природы полимерной композиции

№ п/п	Состав бурового раствора	ρ, кг/м^3	T_{500}, сек	Ф, см^3/30 мин	К, Мм	pH
1	№1-4%-ная бентонитовая суспензия	1030	18	21,5	2,0	8,0
2	№1+0,25% ПК-1	1030	60	6,0	1,0	9,0
3	№1+0,5% ПК-1	1030	90	5,0	0,8	9,5
4	№1+1,0% ПК-1	1030	140	4,0	0,5	10
5	№1+0,5% КМЦ-85/600	1030	32	12,5	1,7	8,0
6	№1+1,0 % КМЦ-85/600	1030	38	10,0	1,0	8,0
7	№1+2,0% КМЦ-85/600	1030	90	8,0	0,5	8,0
8	№1+0,5% К-4	1030	35	18	6,0	9,0
9	№1+1,0 % К-4	1030	60	8	4,0	9,5
10	№1+2% К-4 +1% Na_2CO_3	1030	120	8	2,5	11
11	№2+1% УЩР	1030	28	6	2,0	9,0
12	№2+3% УЩР	1030	44	8	1,5	9,5

Это свидетельствует о высокой структурообразующей способности и реологических свойств полимерного реагента ПК-1. Дальнейшие лабораторные исследования были направлены к уменьшению нерастворимой в кислоте твердой фазы бурового раствора [3, с.63].

В связи с этим бентонитовая фракция в буровом растворе было уменьшена до 2 %. Для обеспечения требуемой плотности бурового раствора была добавлена мраморная пудра, являющаяся отходом каменно-обрабатывающей промышленности и содержащая в своем составе до 95 % $CaCO_3$.

Для получения полимерно-глинистого бурового раствора сначала приготавливается 2%-ная суспензия бентонитовой глины, а затем стабилизируется с полимерным реагентом ПК-1 и вводится мраморная пудра до 5 % от общего объема раствора.

На основе полученных результатов исследований в зависимости от состава и условий тестовых опытов рецептур буровых растворов с использованием малоглинистой суспензии подготовленной из мраморной крошки и ПК-1 рекомендуется в качестве промывочного раствора для вскрытия продуктивных пластов с аномально низкими пластовыми

давлениями. Кроме того, входящий в состав раствора мраморная пудра легко растворяется при соляно-кислотной обработке пласта.

Компонентный состав и основные показатели полимерно-глинистых буровых растворов приводятся в табл.2.

Таблица.2

Состав и основные свойства малоглинистого промывочного раствора

№ п/п	Компонентный состав бурового раствора	ρ, кг/м^3	T_{500}, Сек	Ф, см^3/30 мин		К, мм	pH	Сут. отстой, %
				$Ф_{ст}$	$Ф_{дин}$			
1	№1-4% бентонитовая суспензия	1010	16	25,0	46	1,5	8,5	2
2	№1+0,5% ПК-1+5% МП	1040	80	4,0	23	1,0	9,0	0
3	№1+1% ПК-1+5% МП	1040	90	2,0	20	0,5	9,0	0
4	№1+1,5% ПК-1+5% МП	1040	95	1,0	12	1,0	9,0	0

Однако, нерастворимые твердые фазы и частицы полимера, находящиеся в составе бурового раствора, проникают в пласт и вызывают снижение его проницаемости. Проникая в капилляры пласта, реагент ПК-1 за счет своих свободных связей и большого электрического заряда адсорбируется на стенках скважины, закупоривая каналы. Влияние реагента ПК-1 на проницаемость песчаного образца определялось на специальной установке [4, с.198].

При смешивании промывочного раствора с полимерным реагентом в более мелкие поры породы проникают частицы широкого фракционного состава вплоть до коллоидно-дисперсных. Чем разнообразнее их размеры, тем быстрее закупориваются поры и тем плотнее их упаковка в капилляре пласта.

При этом изодиаметральная форма частиц при условии их деформируемости способствует более плотной упаковке во внутри поровом кольматационном слое, а также позволяет образовать большее число контактов по периметру каждой частицы, что обусловливает рост прочности экрана.

В случаях, когда проницаемость песчаника на глубинах 2400-2500 м составляет 0,05-0,2 D и пористость 19 %, применение карбонатно-глинистого полимерного раствора дает желаемый результат.

Показатель динамической фильтрации измеряли в соответствии с НД 00158758-261-2004 на динамическом фильтр-прессе модели 170-50 при температуре 80^{0}C и перепаде давления 3,5 МПа с использованием керамических дисков с одинаковой проницаемостью.

При фильтрации этого раствора через песчаник образуется плотный непроницаемый кольматационный экран небольшой толщины,

выдерживающий высокие давления. За счет надежной кольматации призабойной зоны максимально сохраняются коллекторские свойства пласта.

Применение полимерной композиции с низкой концентрацией твердой фазы позволяют предотвращение осыпи и обвалов и частичной поглощение за счет образования прочных сетчатых структур неустойчивых пород, слагающих стенки скважин, а также способствуют увеличению проходки на долото, повышению скорости бурения, сокращении затрат времени на строительство скважин [5, с.86].

Таким образом, по результатам тестовых испытаний малоглинистый полимерный буровой раствор на основе ПК-1 с добавкой наполнителя мраморного порошка (МП) рекомендован для вскрытия Сенонских продуктивных отложений, т.е. нефтегазовых пластов с аномально низкими давлениями на примере месторождениях Узбекистана.

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СОВРЕМЕННЫЕ ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ И ИХ РОЛЬ В АКТИВИЗАЦИИ ЧИТАТЕЛЬСКОЙ ЗАИНТЕРЕСОВАННОСТИ НА УРОКАХ РКИ

Аннотация. В статье рассматривается влияние современных образовательных технологий на активизацию читательской заинтересованности учащихся в процессе изучения русского языка как иностранного (рки). Анализируются методы и инструменты, способствующие развитию мотивации к чтению, улучшению понимания текстов и формированию устойчивых читательских навыков. Особое внимание уделяется цифровым платформам, интерактивным ресурсам и геймификации как способам повышения вовлеченности студентов в образовательный процесс. Автор делает вывод о важности интеграции инновационных технологий в учебный процесс для повышения эффективности преподавания рки.

Ключевые слова: русский язык как иностранный, современные образовательные технологии, цифровые платформы, геймификация, интерактивные методы, читательская мотивация, активизация обучения.

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MODERN EDUCATIONAL TECHNOLOGIES AND THEIR ROLE IN ACTIVATING READING INTEREST IN RUSSIAN AS A FOREIGN LANGUAGE LESSONS

Abstract. *The article examines the influence of modern educational technologies on activating students' reading interest in the process of learning Russian as a foreign language (RFL). The methods and tools that contribute to the development of motivation for reading, improving understanding of texts and the formation of sustainable reading skills are analyzed. Particular attention is paid to digital platforms, interactive resources and gamification as ways to increase student engagement in the educational process. The author concludes that it is important to integrate innovative technologies into the educational process to improve the effectiveness of teaching RFL.*

Key words: *Russian as a foreign language, modern educational technologies, digital platforms, gamification, interactive methods, reading motivation, activation of learning.*

Современные технологии активно внедряются в сферу образования, трансформируя традиционные методики преподавания и способствуя повышению мотивации учащихся. Одной из ключевых задач преподавания РКИ является развитие читательской заинтересованности, что значительно влияет на языковую компетенцию студентов. В условиях цифровизации образовательного процесса особую значимость приобретают интерактивные методы, мультимедийные ресурсы и геймификация, способствующие формированию активного отношения к чтению и улучшению восприятия текстов на русском языке.

СОВРЕМЕННЫЕ ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ И ИХ ПРИМЕНЕНИЕ.

1. **Цифровые платформы и мультимедийные ресурсы.**

Использование образовательных платформ (например, Duolingo, Quizlet, LearningApps) позволяет студентам изучать язык в игровой форме, расширять словарный запас и практиковать чтение в интерактивном формате. Видеоуроки, подкасты и адаптированные тексты также способствуют повышению интереса к изучаемому материалу.

2. **Геймификация в обучении РКИ.**

Игровые элементы, такие как конкурсы, викторины, квесты и симуляции, делают процесс обучения более увлекательным. Геймификация способствует не только активизации читательской деятельности, но и формированию устойчивой мотивации к изучению языка.

Геймификация (от англ. *gamification*) — это внедрение игровых элементов в образовательный процесс с целью повышения мотивации, вовлеченности и эффективности обучения. В контексте преподавания русского языка как иностранного (РКИ) геймификация включает использование игровых механик, таких как баллы, уровни, награды, конкурсы и интерактивные задания, чтобы сделать процесс изучения языка более увлекательным и продуктивным.

Геймификация в обучении РКИ может включать:

- Образовательные игры (онлайн-викторины, языковые квесты, настольные и карточные игры);
- Использование цифровых платформ (Duolingo, Kahoot!, Quizlet, LearningApps, ClassDojo);
- Ролевые игры и симуляции (имитация реальных ситуаций общения на русском языке);
- Системы награждения (значки, бонусы, рейтинги для поощрения прогресса);
- Соревновательные элементы (турниры по чтению, письму или говорению).

Актуальность геймификации в обучении РКИ. Современные технологии меняют подходы к обучению, делая его более интерактивным и персонализированным. Геймификация особенно актуальна для изучающих русский язык как иностранный по следующим причинам:

1. Повышение мотивации

Игровые элементы вызывают у студентов интерес и стремление к достижению новых целей, что особенно важно в процессе изучения сложного языка, такого как русский.

2. Развитие коммуникативных навыков

Игровые задания способствуют естественному использованию языка в контексте, формируя у учащихся уверенность в своих знаниях.

3. Снижение языкового барьера

Геймификация создает комфортную среду для обучения, где ошибки воспринимаются как часть игрового процесса, а не как неудача.

4. Повышение эффективности запоминания

Игровые механики способствуют лучшему усвоению лексики и грамматики за счет активного вовлечения и повторения.

5. Адаптация к индивидуальным потребностям

Цифровые образовательные игры и платформы позволяют адаптировать задания под уровень владения языком и стиль обучения конкретного студента.

3. **Интерактивные методы.**

Применение технологии дополненной реальности (AR) и виртуальной реальности (VR) открывает новые возможности для вовлечения студентов в учебный процесс. Чтение с погружением, работа с интерактивными текстами и визуализация информации позволяют учащимся лучше усваивать материал.

ЭФФЕКТИВНОСТЬ ВНЕДРЕНИЯ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ.

Исследования показывают, что использование современных технологий способствует увеличению уровня мотивации учащихся, улучшению понимания прочитанного материала и развитию критического мышления. Применение мультимедийных ресурсов и интерактивных заданий повышает уровень вовлеченности студентов, делает изучение РКИ более продуктивным и интересным.

Современные образовательные технологии играют ключевую роль в активизации читательской заинтересованности на уроках РКИ. Интеграция цифровых платформ, интерактивных методов и геймификации в образовательный процесс способствует повышению мотивации студентов, улучшению их читательских навыков и общей языковой компетенции. В будущем необходимо продолжать исследования в данной области, а также разрабатывать новые методики, направленные на усиление эффективности обучения.

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ОЦЕНКА ЭФФЕКТИВНОСТИ ПИТАНИЯ СПОРТСМЕНОВ ПО ПОКАЗАТЕЛЯМ ВИТАМИННОГО ОБМЕНОВ

Аннотация. *Исследования проведены у профессиональных спортсменов-единоборцев в период тренировки на спортивной базе. Круглосуточное пребывание спортсменов на тренировочно-оздоровительной базе и относительно равный уровень их энергетических затрат позволили получить объективные данные о состоянии обмена веществ спортсменов на различных фонах питания. Наилучшие показатели, характеризующие состояние белкового обмена, получены у исследуемых 3-й группы. Лабораторные исследования содержания витамина С в суточных рационах исследуемых показали, что его количество на фактическом фоне питания (112-128 мг) не обеспечивает необходимый уровень мг/часовой экскреции витамина С. В результате мг-часовая экскреция витамина С достигла нормального уровня (1,1-1,3 мг/час).*

Ключевые слова: *Спортсмены, фактическое питание, биологически активные добавки, белок, витамин С.*

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ASSESSMENT OF THE EFFECTIVENESS OF NUTRITION OF ATHLETES BY INDICATORS OF VITAMIN METABOLISM

Annotation: *The studies were conducted in professional martial artists during training at a sports base. The round-the-clock stay of athletes at the training and recreation base and the relatively equal level of their energy costs allowed us to obtain objective data on the state of metabolism of athletes on various nutrition backgrounds. The best indicators characterizing the state of protein metabolism were obtained in the studied group 3. Laboratory studies of vitamin C content in the daily diets of the subjects showed that its amount on the actual background of nutrition (112-128 mg) does not provide the necessary level of mg / hour excretion*

of vitamin C. As a result, mg-hour excretion of vitamin C reached a normal level (1.1-1.3 mg /hour).

Key words: *athletes, actual nutrition, dietary supplements, protein, vitamin C.*

Введение. Современному спорту присущи интенсивные физические нагрузки во время тренировок и соревнований, высокое нервно-эмоциональное напряжение, нацеленность на рекордные спортивные результаты [1]. Одним из важнейших условий спортивных достижений в профессиональном спорте, наряду с правильной организацией тренировок и режима дня, является адекватное питание, так как питание является одним из важнейших факторов, определяющих физическое и психическое состояние и здоровье человека. Питание поддерживает высокую работоспособность, обеспечивает защиту организма от неблагоприятных воздействий окружающей среды [2,7].

Цель: оценка эффективности коррекции питания профессиональных спортсменов по показателям белкового и витаминного обменов

Материал и методы исследования. Исследования проведены у профессиональных спортсменов-единоборцев в период тренировки на спортивной базе. Круглосуточное пребывание спортсменов на тренировочно-оздоровительной базе и относительно равный уровень их энергетических затрат позволили получить объективные данные о состоянии обмена веществ спортсменов на различных фонах питания.

Испытуемые спортсмены-единоборцы были разделены на 3 группы в зависимости от характера питания:

1-я группа – спортсмены с фактическим фоном питания;

2-я группа – спортсмены, получающие измененный рацион, без включения БАД (биологически активных добавок) и минерализованной воды; изменение рациона питания состояло в том, что в его состав введены такие продукты, как мясо, рыба, бобовые, молоко, фрукты, зелень, соки.

3-я группа – спортсмены, получающие измененный рацион и с включением БАД «Куватин» (2 таблетки по 0.22 г в сутки), «Биоферрон» (2 столовой ложки в сутки) и 2 л искусственно минерализованной воды «Бонаква» в сутки.

Одним из основных показателей белкового обмена, отражающих состояние обмена веществ при проведении коррекции питания, считается изучение азотистых компонентов мочи: в виде суточной экскреции аммиака, мочевины и индекса Waterlooy [3]. Азотистые фракции мочи позволяют проводить оценку характера белкового обмена и при больших физических нагрузках, поскольку конечные продукты обмена в основном выводятся из организма почками [4].

Из витаминного комплекса наибольшее влияние на биохимические процессы обмена веществ оказывает витамин С [5,8]. В связи с этим, в

качестве биохимического критерия состояния витаминного обмена нами были выбраны показатели С-витаминной обеспеченности организма.

Результаты исследований: При оценке полученных данных следует принимать во внимание то обстоятельство, что у взрослых по величине суточного азота мочи можно судить о количестве и качестве усвоенного белка. Так, мг/часовая экскреция азота с мочой у исследуемых спортсменов зависела как от количества среднесуточного поступления белка, так и от биологической полноценности рационов.

Энергоемкость общих белков в среднесуточных рационах фактического питания соответствует физиологическим потребностям спортсменов обоего пола по всем видам спорта. Однако уровень белков животного происхождения в структуре общих белков недостаточен также по всем видам спорта и составляет от 51,0±1,1% у единоборцев и легкоатлетов, до 53,0±1,1% у боксеров и тяжелоатлетов, вместо физиологического уровня - не менее 55,0%.

Величина среднесуточного азота мочи у мужчин единоборцев, как у мужчин, так и у женщин, на фактическом фоне питания (1-ая группа) в зимне-весеннем сезоне составила 12,2±0,1 г/сутки при среднесуточном поступлении 135,4±4,8 г белка. В летне-осеннем сезоне у мужчин эта величина составила 12,6±0,1 г/сутки при поступлении 147,3±5,3 г белка; у женщин - 11,8±0,1 и 12,1±0,1 г/сутки соответственно при поступлении 132,1±3,0 и 138,8±2,5 г белка.

У исследуемых 2–й группы на измененном фоне питания необходимо отметить повышение уровня белка в рационах питания единоборцев: у мужчин с 175,4±4,8 г/сутки до 224,5±4,0 г/сутки в зимне-весеннем и с 177,3±5,3 г до 236,8±5,0 г/сутки в летнее-осеннем сезоне. Соответственно у женщин единоборцев - с 170,1±3,0 г/сутки до 218,2±4,0 г/сутки в холоднее время года; с 173,8±2,5 г/сутки до 227,4±4,0 г/сутки в теплое время года.

У спортсменов, получавших измененное питание, отмечено достоверное увеличение суточной экскреции азота с мочой, как у мужчин, так и у женщин - до 13,7±0,2 - 14,1±0,2 г/сутки т.е. на 10-15% по сравнению с фактическим фоном питания, что свидетельствует о повышении усвояемости белка.

Для более полной характеристики состояния белкового обмена необходимо изучение не только выведения общего азота, но и его отдельных фракций. Среди них ведущее положение занимает мочевина, азот которой в составе суточного азота мочи составляет наиболее значительную часть.

Определение азотистых фракций мочи показало, что исследуемые мужчины на фактическом фоне питания выводят в среднем 9,7±0,2 - 10,2±0,2 г мочевины в сутки, а на измененном фоне питания - 12,6±0,2 - 12,8±0,1 г/сутки, женщины, соответственно, 9,4±0,2 - 9,8±0,2 г/сутки и 12,5±0,2-12,8±0,1 г/сутки. Увеличение абсолютного выведения мочевины происходит параллельно аналогичному увеличению выведения общего азота мочи.

Данное положение свидетельствует о благоприятном влиянии измененных рационов питания на организм исследуемых.

Для суждения о характере белкового обмена и устойчивости этого процесса в организме, большое значение имеет не столько абсолютное количество выводимой мочевины, сколько относительное содержание азота мочевины (%) в составе суточного азота мочи, так называемый индекс Waterlooy, так как установлена определенная взаимосвязь последнего с качеством белка в рационе питания. Этот показатель в большей степени свидетельствует об уровне усвояемости белка [6].

При величине индекса Waterlooy 60% и менее можно говорить о нарушении белкового обмена. В случаях значительного дефицита в рационах белка, способного вызвать истощение лабильных “белковых резервов”, мочевинный индекс снижается до 40-50% и может служить в подобных условиях косвенным подтверждением клинически выраженного проявления нарушений обмена веществ в организме.

В наших исследованиях мочевинный индекс составлял на фактическом фоне питания у мужчин 66,7±0,4 - 67,8±0,3%, у женщин - 66,6±0,4 - 67,1±0,3%. На измененном фоне питания во 2-й группе исследуемых у мужчин индекс Waterlooy составил 82,1±0,4 -87,2±0,5%, у женщин 82,0±0,3 - 87,4±0,4%. Как видно, величины мочевинного индекса у мужчин и женщин на измененном фоне питания достоверно не отличались, хотя имелись некоторые отличия в количестве поступающего с пищей белка. Увеличение индекса Waterlooy свидетельствует о повышении биологической полноценности рационов питания и усвояемости белков за счет повышения уровня полноценных белков.

Таким образом, на фоне измененного питания во 2-й группе исследуемых, повышение экскреции азота с мочой составило 10-15%, повышение индекса Waterlooy - 18-20% по сравнению с фактическим фоном питания.

Одним из азотистых компонентов, характеризующих состояние белкового обмена при больших физических нагрузках, является аммиак, концентрация которого в суточной моче может изменяться в зависимости от биологической эффективности пищи. Установлено, что выраженные нарушения белкового обмена, связанные с качеством питания, сопровождаются увеличением процентного содержания аммиачного азота в составе суточного азота мочи.

Проведенные исследования показали, что суточная экскреция аммиака с мочой у спортсменов на фоне фактического питания составляет: у мужчин 795,0±7,0 – 812,0±8,0 мг, у женщин - 791,0±8,0 –796,0±8,8 мг. На измененном фоне питания у 2-й группы исследуемых отмечается достоверное снижение данного показателя, составившего 682,0±7,0 – 674,0±5,0 мг у мужчин и 672,0±6,0 –668,0±5,0 мг у женщин. В среднем, снижение уровня аммиака в суточной моче у исследуемых, на измененном фоне питания во 2-й группе

исследуемых составляет 10-15% от уровня аммиака на фактическом фоне питания. Полученные данные свидетельствуют о нормализации состояния белкового обмена у исследуемых на фоне измененного питания.

Наилучшие показатели, характеризующие состояние белкового обмена, получены у исследуемых 3-й группы т.е. получавших дополнительно к измененному питанию БАД «Куватин» (2 таблетки по 0.22 г в сутки), «Биоферрон» (по 2 столовой ложки в сутки) и 2 л искусственно минерализованной воды «Бонаква» в сутки. Необходимо отметить, что при незначительном отличии в среднесуточном содержании белка в этой группе выявлено повышение экскреции азота с мочой и мочевины на 6-8%, повышение индекса Waterlooy на 7-8% и снижение уровня аммиака на 5-6% по сравнению со 2-й группой исследуемых спортсменов. Данное положение свидетельствует о повышении биологической полноценности рационов при дополнении БАД, и о благоприятном воздействии на организм спортсменов проведенной алиментарной коррекции.

Изучение биохимических показателей азотистых компонентов мочи на качественно различных фонах питания показывает, что имеется прямая корреляционная связь между биологической ценностью пищи и экскрецией общего азота, аммиака и мочевины (r = ±0,61).

В связи с важным значением аскорбиновой кислоты в белковом метаболизме и ее участием в окислительно-восстановительных процессах, играющих важное значение в повышении защитных функций организма, наряду с некоторыми показателями белкового обмена, нами изучена С-витаминная обеспеченность организма спортсменов-единоборцев на фоне фактического и измененного питания. Рационализация питания спортсменов позволила улучшить белковую структуру рационов и существенно увеличить поступление витамина С в организм.

Лабораторные исследования содержания витамина С в суточных рационах исследуемых показали, что его количество на фактическом фоне питания составило в зимнее- весеннем сезоне у мужчин 116,2±2,0 мг/сутки, у женщин 112,4±2,0 мг; в летне-осеннем сезоне, соответственно, у мужчин - 128,4±3,0 мг и 122,5±2,0 мг у женщин. Во второй группе исследуемых содержание витамина С на фоне измененного питания повысилось в среднем на 25-30% и составило: у - мужчин 156,0±2,0 - 158,0±3,0 мг и у женщин - 145,0±2,0 -151,0±2,0. У 3-й группы добавление БАД «Биоферрона» в объеме 15 г за сутки позволило увеличить поступление витамина С на 7,5 мг в каждой группе мужчин и женщин.

Изучение экскреции витамина С с мочой на фоне фактического питания показало, что во всех случаях величина экскреции витамина у спортсменов была ниже физиологической нормы (1 мг/час). Увеличение поступления в организм витаминов на фоне измененного питания позволило увеличить мг-часовую экскрецию витамина С с мочой во 2-ой группе – на 15-18 %, в 3-ей

группе – на 30-35 % по сравнению с 1-ой группой спортсменов как мужчин , так и женщин.

Эти данные свидетельствуют о наличии прямой взаимосвязи не только между количеством поступающего в организм спортсменов витамина С и мг/часовой экскрецией витамина С, но и применением БАД к пище профилактической направленности.

Вывод. Выявленная низкая экскреция общего азота и мочевины, высокое количество аммиака по отношению к общему азоту суточной мочи, низкий мочевинный индекс у спортсменов - единоборцев, получавших фактическое питание, свидетельствуют о низкой биологической ценности данных рационов и несоответствии их физиологическим потребностям спортсменов. Изменение качественного состава рационов позволило нормализовать у спортсменов биохимические показатели азотистых компонентов мочи, улучшить усвояемость белка. Наилучшие показатели, характеризующие состояние белкового обмена, получены у исследуемых 3-й группы, получавших дополнительно к измененному питанию БАД «Куватин», «Биоферрон» и 2 л искусственно минерализованной воды «Бонаква» в сутки. Лабораторные исследования содержания витамина С в суточных рационах исследуемых показали, что его количество на фактическом фоне питания (112-128 мг) не обеспечивает необходимый уровень мг/часовой экскреции витамина С. Нормализация мг/часовой экскреции витамина С возможна путем коррекции питания: добавление БАД «Биоферрона» в объеме 15 г за сутки позволило увеличить поступление витамина С на 7,5 мг и у мужчин и у женщин. В результате мг-часовая экскреция витамина С достигла достигала нормального уровня (1,1-1,3 мг/час).

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МАВСУМИЙ ДАВРЛАРДА СПОРТЧИЛАР ОРГАНИЗМИДА ОВҚАТНИНГ БИОЛОГИК ҚИЙМАТИНИ БАҲОЛАШ

Аннотация: *Ўзбекистон иқлим шароитида витаминларга бой бўлган янги сабзавот ва ўсимликларни етиштиришга алоҳида эътибор қаратилади ва бу ўз ўрнида улардан озиқ-овқат нормаларида йил бўйи фойдаланиш имкониятини беради. Озуқавий моддаларнинг оптимал нисбатига спортчиларнинг ўрта кунлик овқатланиш тартибида, овқатланишининг ўзгарган фонида, нормада ҳайвон оқсилларини купайтириш ва углеводларни камайтириш орқали эришилди. Спортчиларнинг "Куватин" ва "Биоферон" БФҚ (биологик фаол қўшимчалар) қўшиб истеъмол килиш овқатланиш рационларида витамин С, селен ва лейцин,треонин аминокислоталарнинг танқислигини ўрнини тўлдиради.*

Калит сўзлар: *профессионал спорт, БФҚ, Куватин, Биоферон, овқатланиш рационлари, озуқавий моддалар*

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ASSESSMENT OF THE BIOLOGICAL VALUE OF FOOD IN THE BODY OF ATHLETES DURING SEASONAL PERIODS

Annotation: *In the climatic conditions of Uzbekistan, special attention is paid to the production of vitamins, fresh vegetables and plants, which allows them to be used throughout the year for food standards. The optimal ratio of nutrients is achieved by changing the average daily diet for athletes by increasing animal protein in normal conditions and reducing carbohydrates. Eating dietary supplements such as "Kuvatin" and "Bioferon" reduces the nutritional value of vitamin C, selenium and lecine and the amino acids threonine.*

Keywords: *professional sport, dietary supplement, Kuvatin, Bioferon, diet, nutritional supplements*

Замонавий спорт машғулотлари ва мусобақалар пайтида кучли жисмоний фаоллик, курашнинг юқори нейро-эмоционал стресси ва рекорд

даражадаги спорт натижаларига эътибор қаратиш билан ажралиб туради [1,3]. Адабиётлар таҳлили шундан далолат берадики, овқатланишнинг биологик қиймати тирик организмга биологик таъсир кучини озиқ-овқат маҳсулотлари таркибидаги биологик фаол қўшимчаларнинг жами организмнинг кунлик эҳтиёжига нисбати шаклида ифодалайди [2,4].

Тадқиқот мақсади биологик қиймат асосида иссиқ иқлим шароитида спортчиларнинг маҳсулот танлови учун ўртача кундалик стандартларнинг мақбул вариантларини асослашдан иборат эди.

Тадқиқот усуллари. Статистик таҳлил учун 14 эркак спортчилар учун 720 та меню ишлатилган. Рационнинг озуқавий қиймати озиқ-овқат маҳсулотининг кимёвий таркиб жадвали асосида ҳисобланди Спортчиларнинг ҳақиқий овқатланишини 24 соатлик кузатиш ва машғулот баъзаларида сўров ўтказиш орқали ўрганилди [5,6]. Рационнинг биологик қиймати йилнинг иссиқ ва совуқ мавсумлари учун алоҳида, барча БФҚ (биологик фаол қўшимча) асосида баҳоланди.

Текширув натижалари. Овқатланишнинг ўзгарган фонида озуқа моддаларининг мувозанати мақбул даражага етди.

Шундай қилиб, агар қиш-баҳор мавсумида озиқ-овқат баланси 1: 1,2: 4,9 ва ёзги-куз мавсумида 1: 1,2: 5,2 бўлса, у ҳолда бу ўзгарувчан ҳар бир фаслда бу кўрсаткич 1: 1, 1: 4.1 бўлди. Ўртача кундалик рациондаги озуқа моддаларининг ўзгарувчан овқатланиш фонида бундай оптимал нисбати ҳайвонларнинг оқсиллари, ўсимлик ёғлари оқсиллари миқдорининг купайиши ва углеводлар манбаларининг пасайиши туфайли эришилди.

Шундай қилиб, озиқ-овқат ўзгарувчан фонида ҳайвонот манбаларидаги оқсилларга ажратилган оғирлиги озиқ-овқат ҳақиқий фонига нисбатан уртача 25 фоизга, ўсимлик ёғлари 15 % ортди. Ўзгарувчан овқатланиш фонида углеводлар миқдори камайиши уртача 7-10% ни ташкил этди. Спортчиларда рационларнинг биологик қийматини таҳлил қилишда курсатилишича, йил фаслларига қараб статистик жиҳатдан сезиларли фарқлар мавжуд эмас.

Озиқланишнинг ҳақиқий фонида ушбу биологик фаол моддалар гуруҳининг дон ресурслари орқали истеъмол қилишнинг юқори даражасига боғлиқ ҳолда, B1, B2, PP витаминлар, аминокислоталар изолейцин ва валин таркибида сезиларли фарқлар йўқ. Шу билан бирга, рационда кўплаб биологик фаол моддалар таркибини оптималлаштириш натижасида озиқ-овқатнинг ўзгарувчан фонида уртача кунлик овқатланишнинг биологик қиймати ёз-куз мавсумида барча спортчиларда 88,7-1,0% гача, озиқ-овқатнинг ҳақиқий фонида 72,4% дан 1,0% гача ўсди ва қишки баҳор мавсумида 82,8-1,0% гача кўтарилди.

Биологик фаол моддаларнинг таркиби ва спортчиларнинг ўртача кунлик овқатланишининг ҳақиқий ва ўзгарувчан озуқа фондаги биологик қийматини қиёсий баҳолаш ўтказилган тузатмаларнинг самарадорлигидан далолат беради (1-жадвал).

1-жадвал.

Оғир атлетикачилар учун уртача кундалик рационнинг биологик қийматини ҳақиқий ва ўзгарувчан озуқа фонида қиёслаш, эҳтиёжга кўра M±м % да

Йил мавсумлари	Рационнинг умумий биологик қиймати		
	Овқатланишнинг ўзгарган фонида	Овқатланишнинг ҳақиқий фонида	P
Ёз-куз	88.7±1.0	72.4±1.0	<0,01
Қиш-баҳор	82.8±1.0	67.7±1.0	<0,01

Ўртача кунлик овқатланишнинг умумий биологик қийматининг ортиши, биз таклиф қилган уртача кунлик овқатланиш меъёрлари орқали эришилди. Бу А Д, В6, В12, витаминлари, муҳим аминокислоталар лейцин, лизин, метионин ва гемнинг темири манбалари (балиқ, жигар, ферментацияланган сут маҳсулотлари), С витамини, витамин В9 (фоласин), клечатка, пектин ва бета каротеноидлари (сабзавот, полиз, қовоқ, мева ва кўкатларга), калий, калций, фосфор ва магнийнинг (дуккаклилар, сут маҳсулотлари ва қуритилган мевалар туфайли), ситостеринлар, холин ва фосфолипидлар (ўсимлик мойлари ва дуккаклилар туфайли) ортиши туфайли эришилди [7]. Шу билан бирга, спортчилар учун зарур бўлган меъёрлари витамин С, селен ва аминокислоталарни, лейцин, треонин табиий маҳсулотларни истеъмол қилиш орқали эришилмайди. Сўнги адабиётларга кўра селен оксидланиш-қайтарилиш жараёнининг фермент тизимларини шакллантиришда ва организмдаги метаболизмни бошқаришда муҳим элемент ҳисобланади [8]. Селеннинг бой манбалари - денгиз маҳсулотлари. Денгиз қирғоқлари бўлмаган ва денгиз маҳсулотларини истеъмол қиладиган озгина озиқ-овқат маҳсулотларига эга бўлган қитъалар учун нафақат йод танқислиги, балки селен танқислиги ҳам шубҳасиздир. Агар континентал мамлакатлар учун йод танқислиги муаммоси етарлича ўрганилмаса, бу муаммони ечими йодланган тузни истеъмоли орқали эришилса бўлади, селен етишмовчилиги муаммоси етарли даражада ўрганилмаган ва унинг ечимини талаб қилади.

Баҳолашнинг гигиеник-токсикологик усули асосида баъзи биологик фаол моддалар аниқланганини ҳисобга олиб, айрим маҳаллий ва хорижий БФҚ нинг озиқ-овқатга (биологик фаол қўшимчалар) кимёвий таркиби ва хусусиятлари, биз спортчилар учун қўшимча озиқ-овқат сифатида ”Биоферрон” ва “Куватин” саналади.

2-жадвал.

БФК “Биоферон” нинг озуқавий ва биологик қиймати

№	Моддаларнинг номланиши	*Таркиби*
1.	Оқсил, г да 100 г махсулотга	2,0±0,2
2.	Ёғлар, г да 100 г махсулотга	2,6±0,3
3.	Углеводлар, г да 100 г махсулотга	12,0±1,2
4.	Витамин С, мг да 100 г махсулотга	50,0±2,0
5.	Витамин B_1,мг да 100 г махсулотга	0,02±0,005
6.	Витамин B_2,мг да 100 г махсулотга	0,02±0,004
7.	Витамин B_6,мг да 100 г махсулотга	0,04±0,01
8.	Витамин РР,мг да 100 г махсулотга	0,4±0,02
9.	Фолацин, мг да 100 г махсулотга	0,1±0,01
10.	Темир, мг да 100 г махсулотга	4,5±0,02
11.	Калий, мг да 100 г махсулотга	488,0±4,8
12.	Кальций, мг да 100 г махсулотга	137,0±1,3
13.	Магний, мг да 100 г махсулотга	44,0±0,4
14.	Фосфор, мг да 100 г махсулотга	42,0±0,4

3-жадвал

БФК “Куватин” нинг кимёвий таркиби, мг% да

№	Аминокислоталарнинг номи	мг%
1.	Глицин	32,3
2.	Аланин	20,5
3.	Серин	18,0
4.	Тирозин	9,2
5.	Валин	3,5
6.	Аспарген кислотаси	8,2
7.	Глутамин кислотаси	2,1
8.	Треонин	4,,8
9.	Фенилаланин	0,9
10.	Аргинин	1,8
11.	Изолейцин	0,8
12.	Лейцин	0,9
13.	Пролин	0,9
14.	Лизин	0,3
15.	Триптофан	0,2
16.	Гистидин	0,7
17.	Цистин	0,1

Хулоса. Умумий биологик қиймат овқатланишнинг ўзгарган фонида оғир атлетика спортчиларининг ўрта бир кунлик рационида ёз-куз мавсумда 72,4±1.0% дан 88.7±1.0% га ошди , ва қиш-баҳор мавсумида 82.8±1.0% гача ошди. Озуқавий моддаларнинг оптимал нисбатига спортчиларнинг ўрта кунлик овқатланиш тартибида овқатланишнинг ўзгарган фонида нормада ҳайвон оқсилларини купайтириш ва углеводларни камайтириш орқали эришилди. Озуқавий моддаларнинг мувозанатлаштирилиши овқатланишнинг ўзгарган фонида оптимал даражага етди ва қуйидаги кўрсаткични кўрсатади 1:1.1:4.1 ва овқатланишнинг ҳақиқий фонида аксинча қуйидаги кўрсаткични кўрсатади 1:1.2:4.9. Умумий биологик қийматининг ортиши А, Д, В6, В12, витаминлари, муҳим аминокислоталар лейцин, лизин, метионин ва гемнинг темири манбалари (балиқ, жигар, ферментацияланган сут маҳсулотлари), С витамини, витамин В9 (фоласин), клечатка, пектин ва бета каротеноидлари (сабзавот, полиз, қовоқ, мева ва кўкатларга), калий, калций, фосфор ва магнийнинг (дуккаклилар, сут маҳсулотлари ва қуритилган мевалар туфайли), ситостеринлар, холин ва фосфолипидлар (ўсимлик мойлари ва дуккаклилар туфайли) ортиши туфайли эришилди. Шу билан бирга, спортчилар учун зарур булган меъёрлари витамин С, селен ва аминокислоталарни, лейцин, треонин табиий маҳсулотларни истеъмол қилиш орқали эришилди. Спортчиларнинг “Куватин” ва “Биоферон” БФҚ (биологик фаол қўшимчалар) қўшиб истеъмол қилиш овқатланиш рационларида витамин С, селен ва лейцин, треонин аминокислоталарнинг танқислигини ўрнини тўлдиради.

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КРАТКИЙ ЛИТЕРАТУРНЫЙ ОБЗОР ЭХИНОКОККОЗА

Актуальность. *Эхинококкоз действительно является важной темой в области инфекционных заболеваний и паразитологии. Данное заболевание вызвано ленточным червем Echinococcus, который может паразитировать в человеческом организме, что приводит к образованию эхинококковых кист в различных органах, чаще всего в печени и легких. изучения эхинококкоза объясняется его распространённостью в регионах с высоким уровнем сельскохозяйственной деятельности и близкими контактами между людьми и питомцами, такими как собаки и кошки, которые являются основными хозяевами этого паразита. Важно отметить, что заболевание может проявляться бессимптомно длительное время, что затрудняет раннюю диагностику и лечение.*

Профилактика эхинококкоза включает в себя санитарно-гигиенические мероприятия, такие как регулярное проведение дегельминтизации домашних животных, соблюдение правил личной гигиены и избегание контактов с потенциально зараженными (например, дикими животными и их фекалиями). Ретроспективный анализ случаев эхинококкоза также может помочь в понимании его динамики и факторов риска, а также в разработке эффективных стратегий предотвращения.

Ключевые слова: *эхинококкоз, паразитарные болезни, профилактика, диагностика, лечение, сельское хозяйство.*

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BRIEF LITERATURE REVIEW OF ECHINOCOCCOSIS

Relevance. *Echinococcosis is really an important topic in the field of infectious diseases and parasitology. This disease is caused by the tapeworm Echinococcus, which can parasitise the human body, leading to the formation of echinococcal cysts in various organs, most often in the liver and lungs. The study of echinococcosis is due to its prevalence in regions with high levels of agricultural activity and close contact between humans and pets, such as dogs and cats, which are the main hosts of this parasite. It is important to note that the disease can be asymptomatic for long periods of time, making early diagnosis and treatment difficult.*

Prevention of echinococcosis includes hygiene measures such as regular deworming of pets, observance of personal hygiene and avoidance of contact with potentially infected (e.g. wild animals and their faeces). Retrospective analyses of echinococcosis cases can also help in understanding its dynamics and risk factors, as well as in developing effective strategies for preventing and controlling echinococcosis.

Key words: *echinococcosis, parasitic diseases, prevention, diagnosis, treatment, agriculture.*

Цель исследования. Изучить литературные данные прогностического значения сравнение клинических проявление эхинококкоза.

Материалы и методы исследований. В наших исследованиях проведен ретроспективный анализ литературных данных. В ходе исследования использованы методы: аналитические и описательные оценки. Основным возбудителем эхинококкоза является ленточный червь *Echinococcus*. Существует несколько видов эхинококков, которые могут вызывать заболевание у человека, но наибольшее значение имеют два:

- **Echinococcus granulosus** — вызывает кистозный эхинококкоз (или гидатидоз), поражающий в основном печень и лёгкие.

- **Echinococcus multilocularis** — вызывает альвеолярный эхинококкоз, который чаще всего поражает печень и имеет более агрессивное течение.

Паразит имеет сложный жизненный цикл, включающий двух хозяев: окончательного (плотоядное животное, например, собаки, волки, лисы), и промежуточного (человек, сельскохозяйственные животные — овцы, козы, крупный рогатый скот). Заражение человека происходит через проглатывание яиц эхинококка, которые выделяются с фекалиями инфицированных животных.

После попадания в организм человека яйца развиваются в личинок, которые проникают в кровоток и разносятся по всему организму, образуя кисты в различных органах (чаще в печени и лёгких). Кисты могут расти и вызывать различные симптомы, зависимо от их локализации и размера.

Клинические проявления эхинококкоза. Кистозный эхинококкоз (Echinococcus granulosus). Заболевание может долгое время протекать бессимптомно, поскольку кисты растут медленно. Проблемы начинают возникать, когда киста достигает значительных размеров или разрывается. Наиболее часто поражаются следующие органы:

- **Печень** — кисты, растущие в печени, могут вызвать боли в правом подреберье, желтуху, нарушения пищеварения, увеличение печени.
- **Лёгкие** — кисты в лёгких могут вызывать кашель, одышку, болевой синдром в груди, а в случае разрыва — кровохарканье.

Медленно растущие кисты могут не проявлять симптомы длительное время, но при достижении больших размеров приводят к воспалению окружающих тканей и сдавлению соседних органов. **Альвеолярный эхинококкоз (Echinococcus multilocularis).** Альвеолярный эхинококкоз характеризуется более агрессивным течением. В отличие от кистозного, при альвеолярном эхинококкозе киста имеет множественные полости и более быстро проникает в ткани, а не образует чётко ограниченную полость.

Поражённый орган (чаще всего печень) может увеличиваться в размерах, вызывая болевой синдром, желтуху, анемию и другие признаки общего токсикоза. При отсутствии лечения болезнь может привести к разрушению тканей, метастазированию и летальному исходу.

Результаты исследований. Мы обнаружили в диагностике эхинококкоза основывается на сочетании клинических признаков, лабораторных исследований и инструментальных методов. Ультразвуковое исследование (УЗИ) — основным методом диагностики является УЗИ, которое позволяет обнаружить кисты в печени и других органах. Компьютерная томография (КТ) и магнитно-резонансная томография (МРТ) — используются для более детального исследования и уточнения локализации кист. Серологические тесты — выявление антител к эхинококку помогает подтвердить диагноз, но эти тесты могут давать ложноположительные или ложноотрицательные результаты. Рентгенография — для выявления кист в лёгких. Гистологическое исследование — в случае

хирургического удаления кисты проводится гистологическое исследование для подтверждения диагноза.

Лечение эхинококкоза. Лечение эхинококкоза включает хирургическое вмешательство, медикаментозную терапию и, в некоторых случаях, сочетание этих методов. **Хирургическое лечение.** Хирургия является основным методом лечения эхинококкоза, особенно при крупных кистах. Цель операции — удаление кисты с минимальным повреждением окружающих тканей. В некоторых случаях, если поражённый орган утратил свою функцию, может быть проведена пересадка органа (например, печени).

Важным моментом является профилактика разрыва кисты во время хирургического вмешательства, так как это может привести к распространению инфекции в организм. Противопаразитарные препараты, такие как **альбендазол** и **мебендазол**, могут использоваться как дополнение к хирургическому лечению или как самостоятельная терапия, если операция невозможна. Эти препараты помогают уменьшить размер кист и препятствуют их росту. В некоторых случаях, если хирургическое вмешательство невозможно, применяются методы дренирования кист с использованием лапароскопии или эндоскопии. Эти методы позволяют удалить содержимое кисты и снизить риск осложнений. Основные осложнения при эхинококкозе включают:

- **Разрыв кисты**, что может привести к перитониту, сепсису, анафилактическому шоку и инфекциям в других органах.
- **Механическое сдавление органов**, что может нарушать их функции и приводить к сердечной недостаточности, дыхательной недостаточности и другим серьёзным расстройствам.
- **Метастазирование** — в случае альвеолярного эхинококкоза возможен переход заболевания в рак.

Профилактика эхинококкоза. Профилактика эхинококкоза направлена на предотвращение заражения и включает несколько ключевых аспектов: г**игиенические меры**: регулярное мытьё рук, особенно после контакта с животными, а также соблюдение гигиенических норм при приготовлении пищи; к**онтроль за животными**: дегельминтизация домашних животных, особенно собак, которые могут быть носителями яиц эхинококка; к**онтроль за животноводством**: проведение профилактических мер по борьбе с гельминтами у домашних животных и диких животных, особенно в районах, где эхинококкоз встречается наиболее часто.

Заключение. Эхинококкоз — это опасное заболевание, которое может привести к серьёзным осложнениям и требует своевременной диагностики и лечения. Основным методом лечения является хирургическое удаление кист, а медикаментозная терапия и минимально инвазивные методы играют вспомогательную роль. Важно соблюдать профилактические меры, чтобы предотвратить заражение, особенно в регионах, где эхинококкоз является эндемическим заболеванием. Таким образом, эхинококкоз остаётся значимой угрозой для здоровья людей, особенно в регионах с недостаточным уровнем

санитарии и высоким контактом человека с животными. Несмотря на достижения медицины, заболевание требует комплексного подхода к профилактике и лечению, включая раннюю диагностику, адекватную терапию и строгое соблюдение профилактических мер.

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СРАВНИТЕЛЬНЫЙ АНАЛИЗ РОСТА И РАЗВИТИЯ ТЕЛЯТ ПРИ СКРЕЩИВАНИИ ГОЛШТИНОВ С ЧЕРНО-ПЕСТРЫМИ КОРОВАМИ

Аннотация. *В статье обобщены результаты изучение по абсолютному приросту живой массы, сопоставляя интенсивность роста помесных бычков, можно отметить следующие особенности: до 6-ти месячного возраста бычки всех генотипов имели практические одинаковые показатели абсолютного прироста, от 6 до 15-месячного возраста наблюдалось незначительное колебание абсолютного прироста. В возрасте от 18 до 24 месяцев этот показатель превосходили бычков II группы на 21,8 кг (4,3%), III – 9,4 кг (1,9%) и IV 23,5 (4,6%). В 24 месяца живая масса бычков первой группы равнялась 656,1 кг, что превосходили соответственно на 41,1 кг (6,3%), 31,8 кг (4,9%) и 42,7 кг (6,6%).*

Ключевые слова: *кормления, выращивания, крупного рогатого скота (КРС), скрещивания, черно-пестрой, гольштейнской, породой, генотипов, разведения.*

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COMPARATIVE ANALYSIS OF THE GROWTH AND DEVELOPMENT OF CALVES WHEN CROSSING HOLSTEINS WITH BRINDLED COWS

Annotation. *The article summarizes the results of a study on the absolute increase in live weight, comparing the intensity of growth of crossbred bulls, the following features can be noted: up to 6 months of age, bulls of all genotypes had practically the same absolute growth rates, from 6 to 15 months of age there was a slight fluctuation in absolute growth. At the age of 18 to 24 months, this indicator was higher than in group II bulls by 21.8 kg (4.3%), III - 9.4 kg (1.9%) and IV 23.5 (4.6%). At 24 months, the live weight of the bulls of the first group was 656.1 kg, which was higher by 41.1 kg (6.3%), 31.8 kg (4.9%) and 42.7 kg (6.6%) respectively.*

Key words: *feeding, growing, cattle, crossing, brindled, Holstein, breed, genotypes, breeding.*

Введение. При улучшении плановых пород крупного рогатого скота во всех странах мира, по данным многих ученых, активно используется мировой генофонд. В частности, в Гиссарской долине Таджикистана рекомендовано путем улучшения черно–пестрого скота с быками-производителями голштинской породы, получить помесей II и III поколения и их разведения в себе.

Методы и результаты исследование: Наши исследования были проведены по получению помесных голштинизированых бычков и сравнительное изучение их роста и развития. Основным материалом исследований служили бычки черно-пестрой породы и помеси разного генотипа от их скрещивания с голштинским скотом. В I группу вошли бычки черно-пестрой породы, II группа с 3/8, III – группа 3/4 и IV группа с 31/32 – кровности по голштинской породе. Для всех групп животных созданы одинаковый режим содержания и условия кормления. Бычки изученных групп при постановке опыта по живой массе были близкими, к 9 месячному возрасту, она у бычков I – группы была 2,3 кг, или 0,9%; 1,5кг, или 0,6%; 8,0кг, или 3,0% соответственно, а в 12 месячном возрасте 6,0кг, или 1,7%; 9,3кг, или 2,6%; 13кг, или 3,7% (r> 0,99) выше, чем у сверстников II, III и IV групп. По мере увеличения доли крови до 3/4 по голштинской породе возрастала живая масса животных и почти выровнялась аналогов черно-пестрой породы. При дальнейшем увеличении кровности по голштинской породе живая масса животных уменьшалась. Наблюдалось уменьшение живой массы у помесных бычков во всех возрастах и, особенно, с 31/32 кровных и составило при постановке на 1,6 кг; в возрасте 3-х месяцев 5,5; 6 месяцев 6,9 кг; 9 месяцев 8,0 кг и 12 месяцев 13,0кг. (табл. 1).

Таблица 1. Динамика живой массы бычков по возрастам, кг, **($\overline{X} \pm S\overline{x}$)**

Возраст, мес.	Группа			
	I	II	III	IV
При постановке	80,0±0,58	79,7±0,61	81,1±0,78	78,4±0,57
3	99,0±0,90	96,2±0,74	98,3±1,6	93,5±0,70
6	171,0±1,3	168,0±1,10	170,1±1,9	164,1±0,60
9	268,0±2,20	265,7±2,13	266,5±2,12	260,0±2,10
12	360,0±2,38	354,0±2,40	350,7±1,87	347,0±2,53

По среднесуточному приросту живой массы по данным таблицы, достоверная разница между группами наблюдалась в период 270–360 дневного возраста. Так, бычки I группы по данному показателю за этот период превосходили сверстников II группы на 32 г или 8,8 % (r>0,99), IV на 55г, или 15,2% (r>0,99).

Наибольший показатель живой массы наблюдался у бычков в возрасте 16 и 20 месяцев, в возрасте 16 месяцев в среднем составила соответственно 460; 454; 443 и 451 кг и в 20 месяцев - 560; 530; 557 и 527 кг.

Для более полного представления о росте животных были учтены среднесуточные приросты живой массы бычков (рис. 1.).

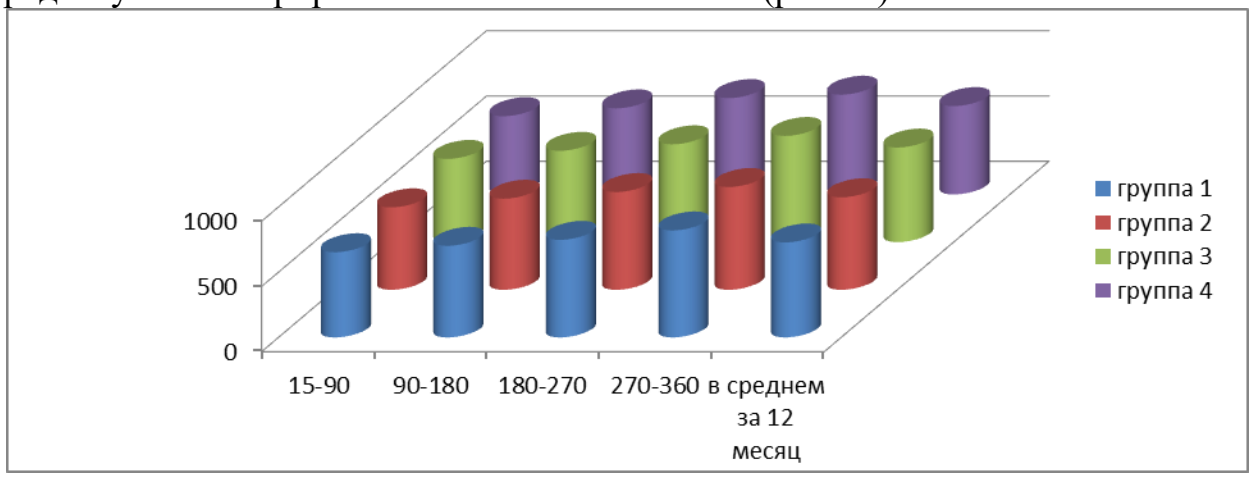

Рис. 1. Среднесуточный прирост живой массы бычков, г

В возрасте 22 месяцев при откорме животные I- группы превзошли аналогов 2 группы на 22 кг (3,7 %); 3 – 14 кг (2,3%) и 4 - 27 кг (4,5%) (рис 2).

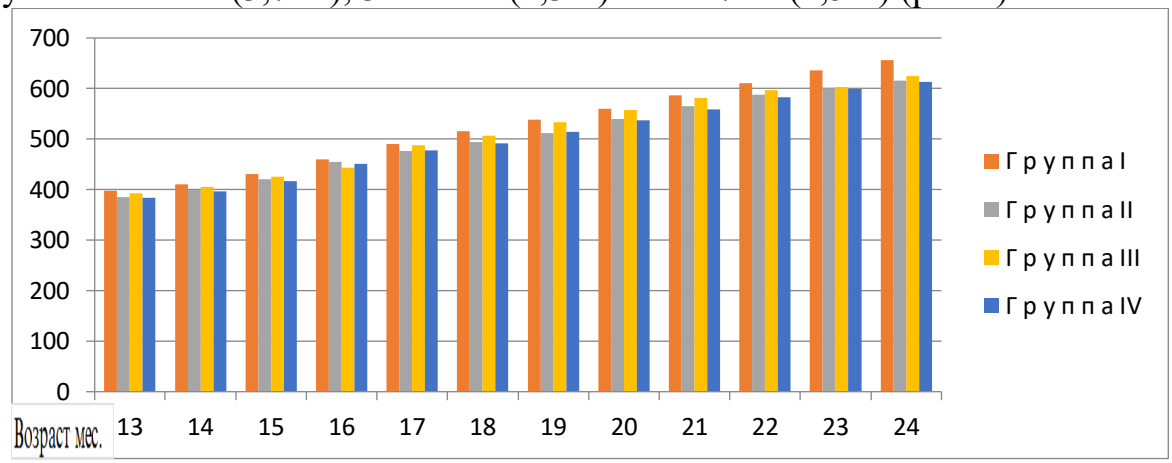

Рис. 2. Динамика живой массы бычков при заключительном откорме, кг

По абсолютному приросту живой массы, сопоставляя интенсивность роста помесных бычков, можно отметить следующие особенности: до 6-ти месячного возраста бычки всех генотипов имели практические одинаковые показатели абсолютного прироста, от 6 до 15-месячного возраста наблюдалось незначительное колебание абсолютного прироста. В возрасте от 18 до 24 месяцев этот показатель превосходили бычков II группы на 21,8 кг (4,3%), III – 9,4 кг (1,9%) и IV 23,5 (4,6%). В 24 месяца живая масса бычков первой группы ровнялась 656,1 кг, что превосходили соответственно на 41,1 кг (6,3%), 31,8 кг (4,9%) и 42,7 кг (6,6%), (табл.2).

Абсолютный прирост живой массы бычков Таблица 2.

Возраст, мес.	Г р у п п а			
	I	II	III	IV
Голов	12	12	12	12
0…..3	99,0	96,2	98,3	93,5
0…..6	171,0	168,0	170,1	164,1
0…..9	268,0	265,7	266,5	260,0
0…..12	360,0	354,0	350,7	347,0
0…..15	420,1	420,1	425,3	417,3
0…..18	515,5	493,7	506,1	492,0
0…..21	586,4	565,2	581,0	559,0
0…..24	656,0	615,0	624,3	613,4

При откорме, среднесуточный прирост живой массы от 13 до 24-месяцев составил: у бычков черно-пестрой породы 781 г; помесей голштинов: II - я группа - 696 г; III -я группа - 748 и IV – 693г. По среднесуточному приросту массы тела бычки черно-пестрой породы также превзошли бычков других групп соответственно на 85 г (10,9%); 33 г (4,3%) и 88 г (11,3%), (табл. 3).

Таблица 3.

Среднесуточный прирост живой массы у бычков при откорме, г

Возраст,мес.	Г р у п п ы			
	I	II	III	IV
13	400±4,5	466±1,3	433±2,0	400±1,0
14	733±7,9	700±2,2	666±2,1	700±2,8
15	688±8,4	766±3,4	600±3,0	1133±8,8
16	1333±10,1	1133±4,2	1500±4,2	866±6,9
17	1000±5,8	733±8,5	600±5,1	600±9,5
18	855±8,7	644±9,5	890±6,6	644±9,0
19	733±11,2	600±5,9	800±8,5	600±5,7
20	806±12,3	900±8,6	800±7,3	800±11,2
21	799±13,1	844±8,7	700±8,1	822±7,9
22	800±9,7	766±11,1	500±9,0	800±6,5
23	866±6,9	400±12,3	566±10,2	533±7,9
24	766±7,8	450±10,2	644±11,2	499±7,6

Самый высокий среднесуточный прирост имели бычки всех групп в возрасте 16 месяцеви составлял соответственно: 1333; 1133; 1500 и 1153 г. (рис.3).

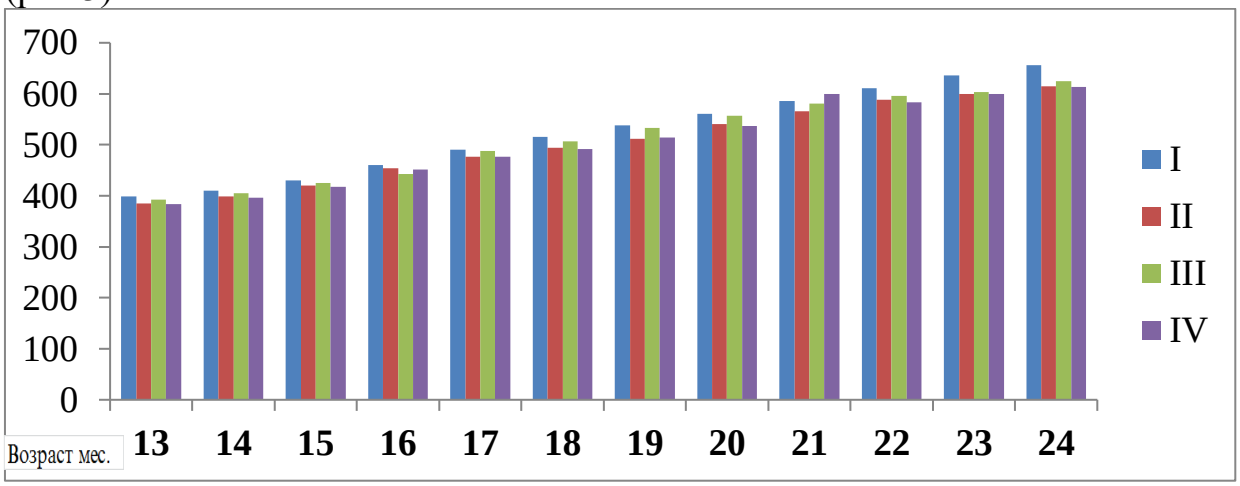

Рис. 3. Среднесуточный прирост живой массы у бычков при откорме, г.

Заключение

Таким образом, изучение роста и развития помесных бычков голштинского и черно – пестрого скота при улучшенных условиях кормления и содержания на площадках показало свою высокую эффективность. Поэтому подопытные бычки достигли высоких результатов живой массы и среднесуточного прироста.

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ОСТЕОСАРКОМА: РОЛЬ ЭПИТЕЛИАЛЬНО-МЕЗЕНХИМНОГО ПЕРЕХОДА В МЕТАСТАЗАХ

Резюме: *Самой распространенной первичной злокачественной опухолью костей, поражающей детей и подростков, является остеосаркома. Пятилетняя выживаемость при регионарных опухолях обычно составляет от 60 до 70 процентов, но у пациентов с рецидивирующими или метастатическими опухолями она снижается до 20 процентов. Прогноз по-прежнему плохой даже при самом современном неоадъювантном лечении. Когда остеосаркома проникает в легкие, это может быть фатальным. Здесь регуляторная сеть Slug имеет решающее значение для эпителиально-мезенхимального перехода и для прямого и непрямого распространения раковых клеток в критические органы. Сигнальные пути слизней и улиток, в частности, играют роль в инвазии и метастазировании рака. Целью данного исследования является понимание того, как транскрипционные факторы слизней и улиток регулируют ЭПТ при метастазах остеосаркомы. Помимо повышения качества жизни пациентов, это поможет в открытии инновационных методов лечения, которые борются с метастазами рака и рецидивами.*

Ключевые слова*: ЭПТ — эпителиально-мезенхимальный переход, МЕПТ — мезенхимально-эпителиальный переход, SNAIL1 — цинковый палец 1 семейства улиток*

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OSTEOSARCOMA: THE ROLE OF THE EPITHELIAL-MESENCHYMAL JUNCTION IN METASTASES

Resume:*The most common primary malignant bone tumor that affects children and adolescents is osteosarcoma. The 5-year survival rate for regional tumors is typically between 60 and 70 percent, but in patients who have recurrent or metastatic tumors, it drops to 20 percent. The prognosis is still bad even with the most modern neoadjuvant treatment. When osteosarcoma invades the lung, it can be fatal. Here, the Slug regulatory network is essential for the epithelial-mesenchymal transition and for the direct and indirect dissemination of cancer cells*

to critical organs. Slug and snail signaling pathways, in particular, play a role in the invasion and metastasis of cancer. The purpose of this study is to comprehend how Slug and Snail transcriptional factors regulate EMT in the metastasis of osteosarcoma. In addition to increasing the patients' quality of life, it will aid in the discovery of innovative treatments that combat cancer metastases and recurrence.

Keywords:*EMT- epithelial mesenchymal transition, MET mesenchymal–epithelial transition, SNAIL1- Snail family zinc finger 1*

Введение

Остеосаркома

Остеосаркома — это агрессивный злокачественный рак, который в первую очередь поражает коленные кости и руки и часто распространяется на легкие пациента. Он вызывает аномальное развитие костей, продуцирует остеоидный матрикс и злокачественные веретенообразные клетки. Согласно Abarrategiet al. (2016), состояния, влияющие на развитие «ДНК» пациента, часто увеличивают вероятность развития «остеосаркомы». Развитие «остеосаркомы» увеличивается с развитием злокачественных новообразований костей, которые часто вызваны мутациями в клетках ДНК, которые дегенерируют ткани. По данным Lu et al. (2018), несколько типов рака, включая рак костей «остеосаркому», обычно повреждают легкие. Генетическая дифференциация в организме может наблюдаться в раковых клетках, которые уже были поражены.

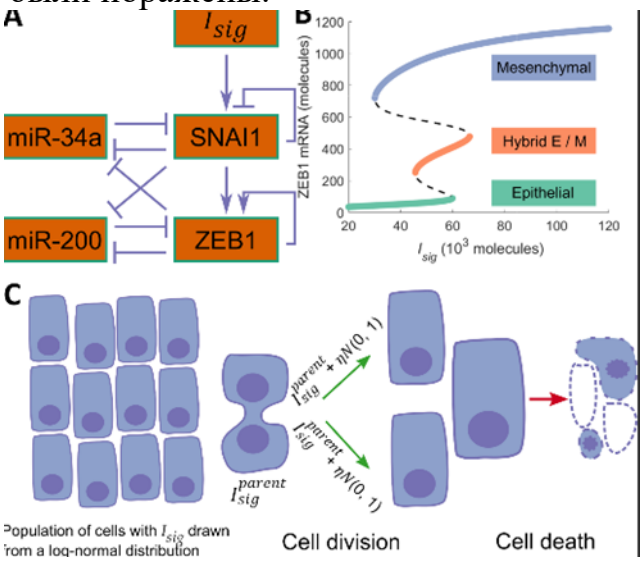
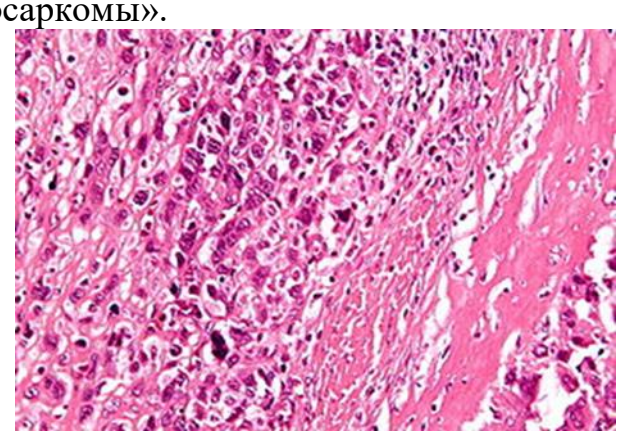


Рисунок 1.2: Деление клеток (Источник: Azevedo et al. 2020) На приведенной выше диаграмме представлены различные деления клеток, а также гибель клеток и их трансформация из одной части тела в другую. Деление клеток также указывает на вероятность трансформации «раковых» клеток из одной части в другую. Таким образом, «остеосаркома» или костные клетки в конечном итоге образуют раковые клетки, а пучки клеток часто исследуют шансы приобретения других частей тела, и постепенно клетки усиливают деление клеток в легких пациентов, также делая отторжение

шансов страдать от «рака легких». Существующие изменения в генах повышают вероятность получения некачественной диагностики, и поэтому «эпителиальные» клетки сталкиваются с проблемой получения надлежащих шансов на лечение. «Остеосаркома» в организме человека указывает на отек внешних мышц суставов, и поэтому существование заболевания можно понять. Боль в суставах и мышцах костей также часто указывает на существование «остеосаркомы».



Гистопатология Рисунок 1.5: Скелетная остеосаркома (Источник: Wadhwa, 2014) Скелетная остеосаркома — это опухоль, состоящая из раковых клеток, которые генерируют остеоид. Многие опухоли имеют хондроидный и фиброматоидный основной материал, который преобладает. Однако все они чрезвычайно злокачественны, и около 80% из них приводят к смерти из-за метастазов. Для всех них рентгенограмма дает решающее доказательство для правильной диагностики (Wadhwa, 2014). Lamouille et al. (2014) указали, что белки факторов транскрипции, такие как связывание E-box цинкового пальца, SNAIL и основные факторы транскрипции спираль-петля-спираль, участвуют в этом переходе в клеточной дифференцировке, а также в поведении, и их роли точно контролируются на посттрансляционном, трансляционном и транскрипционном уровнях.

Материалы и методы. В этом исследовании было проведено вторичное исследование для анализа роли слизняка, улитки (twist1,twist2,zeb1,zeb2, E-кадгерин, TGF-B3, виментин) в эпителиально-мезенхимном переходе при метастазах в легких при остеосаркоме. По мнению Johnston (2017), вторичное исследование помогает этому исследованию собирать соответствующую информацию относительно доказанного факта и делает исследование экономически эффективным и эффективным по времени. Одновременно статьи, связанные с «метастазами ЭМП», ищутся на «веб-сайте Pubmed.com» для сбора информации относительно «базовых эпигенетических контролей», «экспрессии E-кадгерина», «экспрессии N-кадгерина» и «устойчивости к аноикису» в рамках «метастаз ЭМП» путем предоставления ключевых слов, таких как «эпигенетический контроль», «экспрессия кадгерина», «матрица метастазов ЭМП» и «эмбриональное развитие при остеосаркоме».

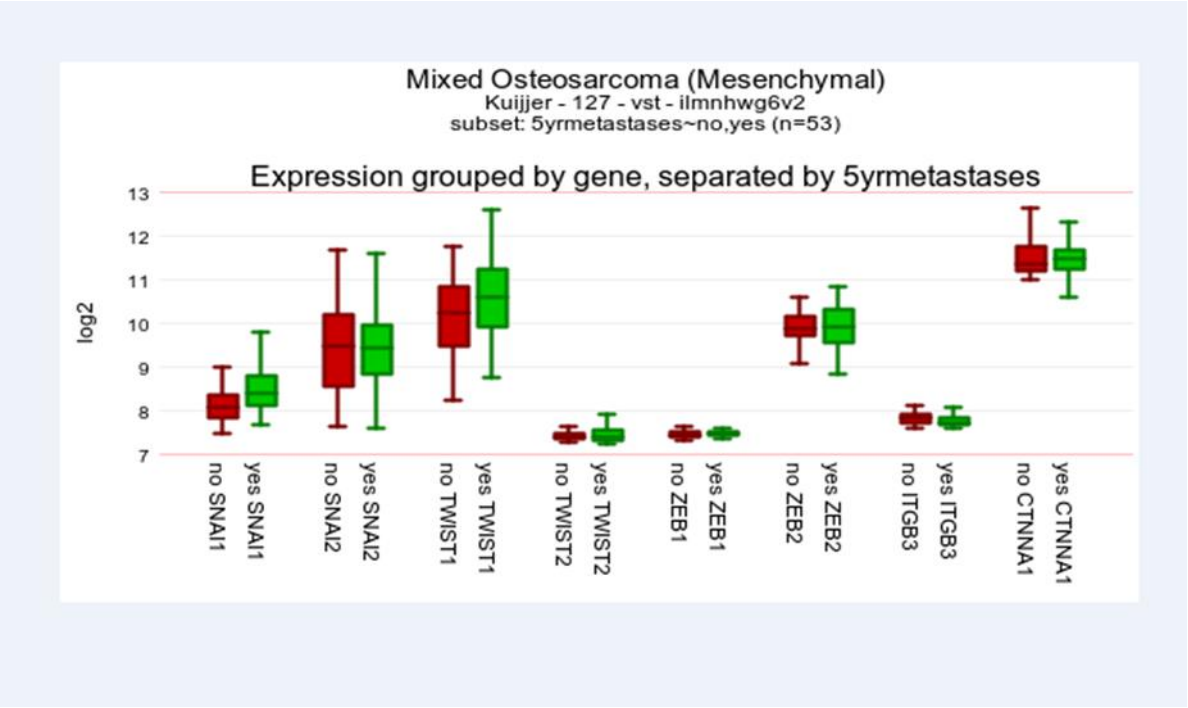


Рисунок 3: «Смешанная остеосаркома (генетическая группировка)» (Источник: собственная разработка)

Из этой диаграммы выше можно проиллюстрировать, что метастазы значительно низки в ZEB1 и что низкие метастазы указывают на то, что существует высокое влияние на гены, и можно выделить критическое состояние.

Результат и обсуждение. SNAI 1 и 2 Сигнализация Slug или Snail и TGF-beta используется для индукции ЭМП. TGF-beta также используется для выполнения экспрессии Snail и Slug. С другой стороны, Snail и Slug используются для индукции пути TGF-beta для генов. По мнению Dhasarathy et al. (2011), диссекции воздействия для Snail или Slug и TGF-beta действуют с точки зрения механистики для индукции ЭМП. Кроме того, контроль проводится для клеток MCF-7 после обработки аденовирусом Snail или Slug, DMSO, ингибиторами малых молекул SB431542, специфическим ингибитором TGFBR2 и LY364947 вместе с TGFBR1 для формирования меньшей степени TGFBR2. В то же время, Dhasarathy et al. (2011) указали, что обработка ингибиторами, вирусом и DMSO используется для определения влияния пути TGF бета на миграцию клеток для индукции Slug и Snail. Злокачественные опухоли с происхождением EMT и ZEB 1 сохраняют связь с патогенезом опухоли в случае прогрессирования. С другой стороны, Xu et al. (2017) указали, что E-кадгерин является одним из решающих факторов, где ZEB 1 может быть использован для прямого или косвенного ингибирования экспрессии E-кадгерина. Димеры белков могут быть образованы из E-кадгерина, который находится рядом с молекулами» и способствует «нормальному выравниванию клеток.

Заключение. Поэтому можно подчеркнуть, что увеличение клеток остеосаркомы увеличивает шансы развития рака легких путем перехода метастазов. Следовательно, показатели выживаемости также снижаются с увеличением клеток остеосаркомы, и, следовательно, для снижения рисков необходимо применять поддержание. Бесчисленные клетки уязвимы к поражению этим заболеванием. Можно подвести итог, что клетки Е-кадгерина присутствуют в различных типах раковых клеток, существующих в организме человека.

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ПРОБЛЕМЫ И ДОСТИЖЕНИЯ В ЛЕЧЕНИИ РАКА ЛЕГКИХ

АННОТАЦИЯ: *Рак легких относится к числу наиболее часто встречающихся злокачественных опухолей. С высоким уровнем заболеваемости и смертности немелкоклеточный рак легких (НМРЛ) является наиболее распространенной формой рака легких. Радиотерапия, химиотерапия, таргетная терапия и хирургическая резекция являются частью современного арсенала лечения. Несмотря на эти варианты, перспективы остаются довольно плохими, с удручающим показателем 5-летней выживаемости.*

Ключевые слова: *рак легких, система доставки нанопрепаратов, молекулярная таргетная,система лечения, стратегия фототермического лечения, иммунотерапия.*

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CHALLENGES AND ACHIEVEMENTS IN THE TREATMENT OF LUNG CANCER

Abstract: *Lung cancer is among the malignant tumors that are most frequently found. With a high rate of morbidity and mortality, non-small cell lung cancer (NSCLC) is the most prevalent form of lung cancer. Radiotherapy, chemotherapy, targeted therapy, and surgical resection are all part of the current treatment arsenal. The outlook remains quite poor despite these options, with a dismal 5-year survival rate. Therefore, it is essential to strive for a paradigm shift in therapeutic methodologies.*

Keywords: *Lung cancer, nano drug delivery system, molecular targeted,treatment system, photothermal treatment strategy, immunotherapy.*

Введение

Рак легких является одним из самых распространенных заболеваний в мире из-за высокого уровня заболеваемости и смертности [1]. На основании

гистологии раковых клеток рак легких в первую очередь делится на две категории: мелкоклеточный рак легких (МРЛ) и немелкоклеточный рак легких (НМРЛ). НМРЛ является наиболее распространенным подтипом рака легких, на который приходится 85–90% всех форм заболевания. Немелкоклеточный рак легких (НМРЛ) состоит из ряда гистологических подгрупп, включая аденокарциному легких (ЛКЛА), плоскоклеточный рак легких и крупноклеточный рак легких [2]. Адъювантная терапия используется в дополнение к хирургическому удалению опухоли при немелкоклеточном раке легких на стадии I или II. С другой стороны, когда заболевание достигает стадии III или IV, применяется лучевая терапия или химиотерапия [3], [4]. Однако ограниченная абсорбция, неспецифическое нацеливание и развитие лекарственной устойчивости являются одними из основных проблем с традиционными химиотерапевтическими препаратами, которые ограничивают их эффективность в лечении рака [5]. Особые свойства системы доставки нанопрепаратов позволяют ей инкапсулировать терапевтические ингредиенты и предотвращать их деградацию. Это снижает неспецифический вред целевой ткани и точно доставляет противораковые препараты к местам расположения опухоли, повышая противораковую эффективность [6, 7, 8, 9]. Распределение лекарств с помощью наноносителей является новаторским методом лечения рака легких из-за следующих преимуществ. К ним относятся повышенная безопасность за счет доставки противораковых препаратов в определенное место, улучшенная абсорбция лекарств в организме и способность высвобождать лекарства с контролируемым высвобождением с течением времени во время целевого введения лекарств, все из которых усиливают терапевтическое воздействие на легкие. Система доставки для наномедицины является многообещающим подходом к лечению в исследованиях в области терапии рака легких. Он обеспечивает альтернативу традиционному химиотерапевтическому лечению, которое имеет ряд побочных эффектов [10]. Одним из важных методов лечения НМРЛ является молекулярная таргетная терапия [1,2]. Многочисленные рецепторные тирозинкиназы, такие как рецептор фактора роста гепатоцитов (c-Met), рецептор эпидермального фактора роста (EGFR) и киназа анапластической лимфомы (ALK), являются важнейшими мишенями для молекулярной таргетной терапии из-за их участия в выживании и развитии клеток [4], [5]. Ингибиторы тирозинкиназы, такие как эрлотиниб и гефитиниб, созданы для специфического воздействия на мутации EGFR, которые являются предполагаемой терапевтической целью. Также ведутся активные исследования ингибиторов, нацеленных на несколько целей [8]. Несмотря на доступность нескольких методов лечения рака легких, все еще остается много проблем, которые необходимо решить. Поэтому необходимо разработать новые и эффективные подходы к лечению рака легких. Методы доставки наномедицины для лечения рака легких. Структура наночастиц имеет следующие преимущества: контролируемое высвобождение лекарств, повышенная стабильность противораковых препаратов и простота

модификации поверхности [1]. Наночастицы минимизируют побочные эффекты и повышают терапевтическую эффективность, доставляя нуклеиновые кислоты и противораковые препараты в опухолевые ткани с помощью своих уникальных свойств (рис. 1). Сосредоточившись на тех, которые опосредованы различными типами наночастиц, такими как липосомы, экзосомы, полимерные наночастицы, магнитные наночастицы, липидные наночастицы и полимолочная-ко-гликолевая кислота, в этом разделе представлен всесторонний анализ лечения рака легких с использованием наносистем доставки лекарств.

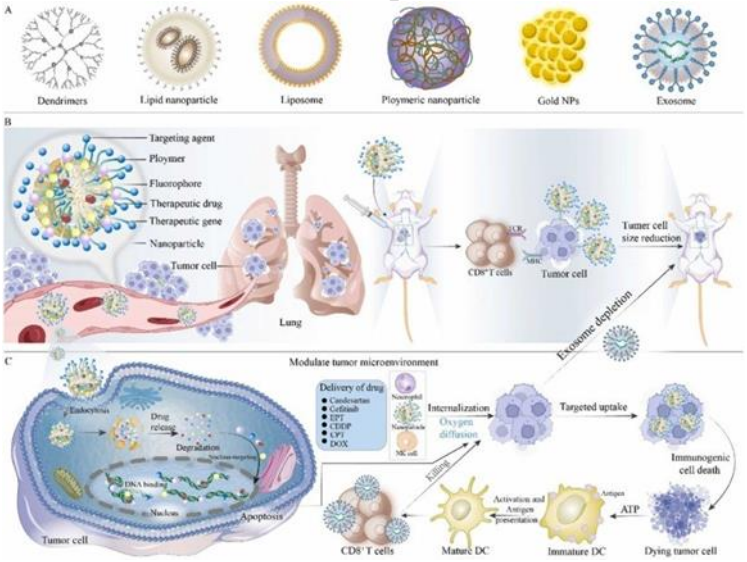

Рисунок 1: Схематическое изображение лекарств, доставляемых с использованием нанотехнологий для лечения рака легких. В этом процессе необходимо было модифицировать определенные лиганды, чтобы наночастицы могли более точно нацеливаться и уничтожать опухолевые клетки. По сравнению с традиционными терапевтическими фармацевтическими препаратами эти системы доставки лекарств на основе наночастиц имели преимущество более эффективной и точной доставки лекарств в опухолевые ткани, что уменьшало побочные эффекты.

Материалы и методы Иммунизация Инновационным методом борьбы с раком легких была иммунотерапия. Она включала в себя различные методы, такие как ингибиторы иммунных контрольных точек (ИКТ), противораковые вакцины и клеточную иммунотерапию, для разработки или усиления эффективных иммунных ответов против опухолей (рис. 2). Помимо улучшения выживаемости пациентов и качества жизни, было показано, что иммунотерапия имеет меньше побочных эффектов, чем химиотерапия [7], [8]. Иммунотерапия была безопасным и успешным вариантом лечения рака легких [9], [11].

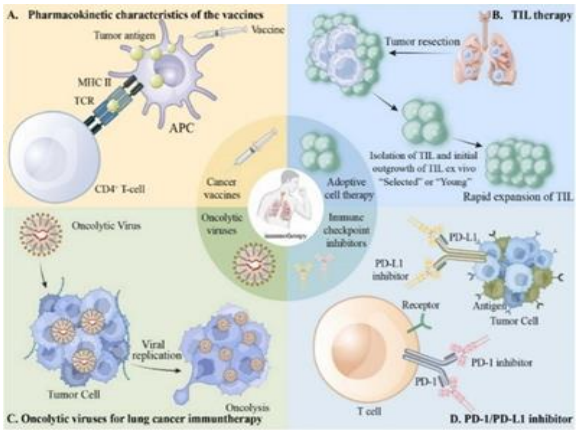

Рисунок 2. Была представлена схематическая иллюстрация различных стратегий иммунотерапии рака легких. Эти стратегии включали: A: Иммунотерапия, которая предотвращает рак легких с помощью вакцин, специфичных для данной опухоли. B: Применение терапии TIL. C: Иммунотерапия рака легких с использованием онколитических вирусов. D: Иммунотерапия рака легких с ингибиторами иммунных контрольных точек.

Результаты и обсуждение

Терапевтические противораковые вакцины, нацеленные на специфическую стимуляцию иммунной системы, могут усиливать противоопухолевые иммунные ответы [3]. Из-за своей опухолевой специфичности мутировавшие неоантиты и гены из раковых клеток были отличными мишенями для иммунитета, опосредованного Т-клетками, и обладали высоким потенциалом для активации противоопухолевых иммунных реакций. Для разработки персонализированных терапевтических противораковых вакцин были исследованы эти параметры [3], [4].

Заключение

Несмотря на достижения в медицине, рак легких по-прежнему имеет тревожно высокую распространенность и уровень смертности во всем мире. Верно, что смертность от рака легких можно снизить путем раннего скрининга и выявления. Хотя наше понимание молекулярной биологии и клинических особенностей пациентов с раком легких улучшилось за последние несколько десятилетий, по-настоящему эффективного лечения все еще нет. Это связано с тем, что стандартные схемы химиотерапии рака легких имеют множество недостатков, что является постоянной проблемой для медицинского сообщества. Поэтому крайне необходимы более эффективные и хорошо переносимые методы терапии рака легких.

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СОВРЕМЕННОЕ СОСТОЯНИЕ АВТОМОБИЛЬНОЙ ПРОМЫШЛЕННОСТИ ГЕРМАНИИ

Аннотация*: в данной статье кратко освещается текущее состояние автомобильной промышленности Германии, выявление ключевых факторов, влияющих на её развитие, а также определение основных тенденций, наблюдаемых на рынке.*

Ключевые слова: *Рынок, факторы, автомобиль, завод, ресурс, цена.*

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THE CURRENT STATE OF THE GERMAN AUTOMOTIVE INDUSTRY

Annotation: *This article briefly highlights the current state of the German automotive industry, identifying key factors influencing its development, as well as identifying the main trends observed in the market.*

Keywords: *Market, factors, car, factory, resource, price.*

Автомобильная промышленность Германии, являющаяся одной из самых значимых и влиятельных в мире, автомобильный сектор страны приносит значительный доход — 558,1 млрд евро в 2023 году. Немецкие производители легковых и коммерческих автомобилей экспортируют транспортные средства на сумму около 387,1 млрд евро, что составляет 70% от общего дохода в 2023 году [3]. Но в последние годы демонстрирует сложную и многогранную картину. С одной стороны, страна сохраняет статус крупнейшего производителя на европейском рынке, которая производит более 4 миллиона автомобилей, что подчеркивает её важность в глобальной автомобильной индустрии. С другой стороны, наблюдается падение регистраций новых автомобилей, что указывает на изменения в потребительских предпочтениях и экономических условиях, это может быть

связано с изменением потребительских предпочтений, где всё большее внимание уделяется электромобилям и альтернативным видам транспорта. Это создает как вызовы, так и возможности для производителей, которые должны адаптироваться к новым условиям.

Автомобильная промышленность Германии не только является важным экономическим сектором, но и играет значительную роль в формировании технологических и экологических стандартов на международной арене. В условиях глобальных вызовов, таких как изменение климата, переход на устойчивые источники энергии и цифровизация, необходимо понимать, как эти факторы влияют на традиционную автомобильную отрасль. В последние годы наблюдается рост интереса к электромобилям и гибридным технологиям, что требует от производителей пересмотра своих стратегий и внедрения новых технологий. Влияние экономических факторов, таких как рецессия, изменение цен на топливо и глобальные цепочки поставок, также оказывающее значительное влияние на спрос и предложение на рынке.

Иметь крупной автомобильной промышленности не гарантирует успеха которые автомобильные компании Германии сталкивается с новыми и насущными проблемами. Немцы хотя сохраняет производство автомобилей, но есть опасения по поводу перспектив автоиндустрии ФРГ и проблемы, которые возникают на пути его функционирования среди них выделяется три основных угрозы немецкой автомобильной отрасли; Первое – это экологические требования, которые стимулируют электрификацию. Второе – энергетический кризис, спровоцировавший увеличение стоимостей на электроэнергию и третий угроза – это рост Китайского автопрома.

В условиях ужесточения экологических норм Европейского Союза немецкие автопроизводители интенсифицируют адаптацию производственных стратегий. Это включает оптимизацию двигателей внутреннего сгорания, масштабные инвестиции в производство электромобилей и разработку экологичных материалов. Особое внимание уделяется снижению углеродного следа на всех этапах жизненного цикла автомобиля [8]. Если первую и вторую угрозу Германия может преодолеть, но третью угрозу вряд ли преодолеет которая Немецким автопроизводителям приходится испытывать усиление давления со стороны китайских заводов из-за их способности предлагать автомобили по более доступным ценам, что существенно снижает позиции немецких брендов на мировой арене.

Вдобавок, развитием Китайской автомобильной промышленности руководители автомобильной промышленности Германии выражают обеспокоенность сложившейся ситуацией и требуют активных действий со стороны правительства для поддержки и восстановления отрасли. Многочисленные призывы касаются необходимости привлечения инвестиций в разработку новых технологий, а также стимулирования сектора через налоговые льготы и программы поддержки на уровне государства. Ключевыми направлениями для восстановления становятся производство

аккумуляторов и программного обеспечения, что позволит сохранить часть производственных мощностей и рабочие места.

По словам президент VDA Хильдегард Мюллер Немецкая автомобильная промышленность конкурентоспособна на международном уровне, но в настоящее время это не так. Поэтому сейчас крайне важно, чтобы конкурентоспособность и привлекательность местоположения стали главным политическим приоритетом в Берлине и Брюсселе[24].

Таким образом, автомобильная промышленность Германии переживает переходный период, ориентируясь на современные реалии глобального рынка, возможности перехода на более экологичные виды топлива и стремясь к внедрению новых технологий.

Необходимо также отметить, что немецкие производители автомобилей активно работают над внедрением новых технологий, таких как электромобили и автономные транспортные средства. В условиях ужесточающийся экологической политики и растущего интереса к устойчивым решениям, компании вынуждены приспосабливаться к меняющимся требованиям и ожиданиям потребителей.

На фоне стагнации автопрома Германии покупатели переходят на более экономные варианты или отказываются от покупки нового автомобиля, что также отражает общий рост инфляции и падающую покупательную способность населения. Особенно это заметно в том, как немцы теперь оценивают рынок: «необычайно умеренный». Автопроизводители в ответ на эту тенденцию вынуждены пересматривать свои стратегии и предложение. К примеру, множество новых моделей было отложено, а акцент сделан на более доступные и экономически эффективные автомобили, что говорит о стремлении адаптироваться к текущему спросу.

Кроме того, снижение спроса занимает свое место на фоне увеличения конкуренции со стороны китайских производителей, которые начинают занимать важные позиции на европейском рынке. Рост влияния китайских марок, предлагающих более доступные и технологичные автомобили, также влияет на поведение потребителей в Германии. По мере того как спрос на традиционные модели снижается, нарастает интерес к электромобилям и гибридам, однако не все вариации этих автомобилей пользуются популярностью. Проблемы с зарядной инфраструктурой и высокие цены на электроэнергию способствуют стагнации в сегменте электрического транспорта.

Исходя из этого, автомобильная индустрия Германии переживает не только количественные, но и качественные изменения. Покупатели проявляют повышенную критичность и информированность при принятии решений о покупках. Это создает новые вызовы для традиционных производителей, которые должны приспосабливаться к этому сдвигу потребительских предпочтений. Для обеспечения сохранения своей

[24] https://www.vda.de/de

рыночной доли и конкурентных преимуществ необходимо провести детальную корректировку существующих производственных стратегий, а также усилить присутствие на рынке в условиях динамично меняющейся экономики и усиления глобальной конкуренции. В связи с этим многие производители начинают внедрять растущее количество инновационных решений и технологий, чтобы удерживать интерес потребителей и обеспечить свою долю на этом динамичном рынке.

По мимо того, Немецкая автомобилестроения испытывает воздействие множества факторов, которые взаимосвязанно влияют и усложняют экономические потенциалы для автопроизводителей. Основные факторы тесно связаны между собой и обладают высокой степенью влияния друг на друга. Тем не менее, ряд этих факторов определяется рыночными условиями и, соответственно, оказывает косвенное воздействие на деятельность немецких автопроизводителей. Из них влияние экономических факторов считаются особыми.

В 2023 году германская автомобильная промышленность испытывает серьезные экономические трудности, отражающие состояние всей экономики страны. После выхода из рецессии в начале года, отрасль вновь оказалась под давлением, с показателями, свидетельствующими о значительном спаде. В частности, в июне наблюдалось падение промышленного производства на 1,5%, с еще более резким снижением в автомобильном секторе на 3,5% [4]. Это падение создает опасные предпосылки для последующего снижения темпов роста, что вызывает непрекращающуюся обеспокоенность среди производителей.

Основные причины, способствующие кризису, эксперты выделяют следующие причины:

- Энергетический кризис в Европе: рост цен на энергоносители и материалы ударил по заводам Volkswagen в Германии и Чехии, что привело к перебоям в производстве;

- Низкий спрос на электромобили: несмотря на значительные инвестиции в линейку ID, спрос оказался ниже ожиданий, особенно на ключевых рынках Европы [5];

- Недостаток спроса со стороны Китая, что критично для таких гигантов, как Volkswagen, и воздействие высокой инфляции на покупательскую способность граждан.

Глобальные химические и экономические кризисы, такие как последствия войны в Украине и повышенные цены на внутреннем рынке, также негативно сказываются на ситуации. Адекватная политика в области экологии и устойчивого развития, которая ранее способствовала росту продаж электро- и гибридных автомобилей, сейчас находится под угрозой из-за общемировых поставок и изменяющихся предпочтений потребителей.

Вдобавок, наблюдается рост числа китайских автопроизводителей, которые активно начинают выходить на европейские рынки. Этот процесс ставит под сомнение будущее германской автомобильной промышленности

как одного из флагманов в области автопроизводства [6]. Теперь многие эксперты задаются вопросом, не станет ли Германия потерять свои позиции в этом ключевом сегменте.

Через несколько лет, если текущие тренды сохранятся, Германия рискует оказаться в зависимости от импортных автомобилей, что в конечном итоге может привести к ученическому упадку местной экономики. Важно отметить, что у компаний остаются возможности для инноваций и адаптации, однако переход в устойчивую экономику будет требовать значительных ресурсов и времени. Две основные проблемы, на которые нужно обратить внимание, заключаются в недостаточном спросе и важности сохранения конкурентоспособности на международной арене.

Технологические инновации вызывают значительный интерес в автомобильной промышленности Германии, особенно в свете современных вызовов, с которыми сталкивается этот сектор. Крупнейшие производители, такие как Volkswagen и BMW, активно инвестируют в разработку электромобилей, что подтверждается выпуском почти миллиона таких автомобилей в 2023 году. Это значительно укрепляет позиции немецких компаний, которые стали вторыми в мире по количеству произведенных электромобилей, уступая только Китаю.

Однако быстрые изменения на рынке, вызванные не только ростом спроса на электромобили, но и новыми игроками, такими как Tesla и китайские производители, ставят под сомнение возможность сохранения доминирования немецких компаний. По мере того, как конкуренция усиливается, и новые технологии внедряются стремительными темпами, традиционные принципы, которыми руководствовались германские производители, могут оказаться недостаточными для поддержания конкурентоспособности.

Не только внутренние факторы влияют на ситуацию в автомобильной промышленности, но и глобальные изменения. Например, Китай в 2023 году занял третье место по объему экспорта автомобилей, что создает дополнительное давление на немецкие компании. Это подстегивает их к улучшению технологий и переходу на более устойчивые и инновационные решения, чтобы не потерять долю на мировом рынке [1]. В условиях растущей экономики и повышенных требований со стороны потребителей немецкие автопроизводители вынуждены адаптироваться и реагировать на запросы, что открывает новые горизонты для технологических новшеств.

Таким образом, последние годы становится годом технологической трансформации для Немецкой автомобильной промышленности, в котором ключевую роль играют идеи устойчивого развития, инновации и адаптация к требованиям рынка. Компании ожидает непростой путь, но при правильном подходе и стратегии есть шанс не только выжить в условиях жесткой конкуренции, но и занять лидирующие позиции в новых реалиях.

Автопром Китая, успешно выходит на мировые рынки, становится значительным конкурентом для немецких производителей. В 2022 году Китай

впервые экспортировал больше автомобилей, чем Германия, что является серьезным сигналом тревоги для местных автопроизводителей. Они вынуждены пересматривать свои прогнозы поставок и инвестиций, так как замедление продаж в Китае также негативно сказывается на их результатах. В то время как китайская продукция становится все более популярной, спрос на автомобили немецких марок, таких как Volkswagen, BMW и Mercedes-Benz, остается стабильным, но не таким крепким, как прежде. Местные производители пытаются найти баланс между внедрением новых технологий и сохранением конкурентоспособных цен на свои автомобили.

Важным аспектом остается не только повышение уровня технологии, но и выполнение экологических норм, что заставляет автопроизводителей задуматься о переходе на более чистые технологии. В рамках программ устойчивого развития ряд компаний намерены кардинально изменить свои производственные процессы, чтобы соответствовать новому законодательству о выбросах углерода и требованиям экологической политики. Это создает новую реальность для автопрома Германии, который традиционно ассоциировался с высокой технологической компетентностью и качеством.

Следовательно, автопром Германии стоит перед множеством вызовов, которые требуют кардинальных решений и стратегий для адаптации к быстро меняющимся условиям рынка. Нарастающая конкуренция и необходимость внедрения новшеств делают будущее сектора неопределенным, но крайне важным для экономики всей страны.

Государственная поддержка играет ключевую роль в стимулировании этих инноваций. Правительство Германии реализует комплексную программу субсидирования покупки электромобилей, предоставляя покупателям существенные финансовые стимулы. Параллельно идет активное развитие зарядной инфраструктуры по всей стране, с целью создания разветвленной сети быстрых зарядных станций, делающих использование электрокар более удобным и практичным [8].

Отметим также, что Немецкими автопроизводителями в общей сложности за первые одиннадцать месяцев 2024 года произведено почти 1,3 млн электромобилей. Это уже больше, чем за весь 2023 год, а значит, всего за одиннадцать месяцев был установлен новый рекорд по производству электромобилей [7]. Ассоциация автомобильной промышленности Германии (VDA) заявила, что в 2023 году с производственных линий Германии сошло в общей сложности 995 000 электромобилей, что позволяет стране занять второе место в мире по общему количеству произведенных автомобилей на новых источниках энергии после Китая и стать лидером в Европе, оставив позади такие страны, как Испания и Франция [2].

Итак, несмотря на позитивные тенденции в восстановлении немецкой автомобильной промышленности, необходимо учитывать множество переменных, которые могут ограничить устойчивый рост в будущем. С учетом происходящих изменений в потребительских предпочтениях, акцент

на устойчивые и экологически чистые технологии будет определять направление развития не только в Германии, но и в глобальном контексте. Эта адаптация к новым условиям позволяет немецким автопроизводителям сохранять конкурентоспособность и реагировать на вызовы времени, инвестируя в новые технологии и укрепляя позиции на международных рынках.

Заключение

Современное состояние автомобильной промышленности Германии в последние годы представляет собой сложный и многогранный феномен, который требует внимательного анализа и глубокого понимания текущих тенденций, вызовов и возможностей. В последние годы наблюдается значительное изменение в структуре и динамике автомобильного рынка, что обусловлено как внутренними, так и внешними факторами. В частности, падение регистраций новых автомобилей в стране стало одним из наиболее заметных аспектов, который, тем не менее, не отменяет статуса Германии как крупнейшего игрока на европейском рынке. С 2,82 миллиона новых регистраций, Германия продолжает оставаться важным центром автомобильной индустрии, что подчеркивает ее значимость в контексте всей Европы.

Изменение потребительских предпочтений, вызванное растущей осведомленностью о проблемах экологии и устойчивого развития, а также изменениями в образе жизни, требует от производителей гибкости и готовности к инновациям. Потребители все чаще выбирают электромобили и гибридные модели, что создает новые вызовы для традиционных автопроизводителей, которые должны переосмыслить свои стратегии и адаптироваться к новым требованиям рынка.

Экономические факторы также играют важную роль в формировании текущего состояния автомобильной промышленности. Инфляция, изменения в налоговой политике и колебания валютных курсов оказывают значительное влияние на покупательскую способность населения и, соответственно, на спрос на новые автомобили. В условиях экономической неопределенности автопроизводители должны учитывать эти факторы при планировании своих бизнес-стратегий и разработке новых моделей.

Технологические инновации становятся ключевым драйвером развития автомобильной отрасли. Внедрение новых технологий, таких как автономные системы управления, электрификация и цифровизация, открывает новые горизонты для производителей и создает возможности для улучшения качества продукции и повышения конкурентоспособности. Однако, с другой стороны, это также требует значительных инвестиций и изменений в производственных процессах, что может стать серьезным вызовом для многих компаний.

Перспективы развития рынка автомобильной промышленности Германии остаются многообещающими, несмотря на существующие трудности. Ожидается, что в ближайшие годы спрос на электромобили будет

продолжать расти, что создаст новые возможности для производителей, готовых адаптироваться к изменениям. Кроме того, развитие инфраструктуры для зарядки электромобилей и поддержка со стороны государства в виде субсидий и налоговых льгот могут способствовать ускорению перехода на более экологичные виды транспорта.

Таким образом, можно отметить, что автомобильная промышленность Германии находится на перепутье, где традиционные подходы сталкиваются с новыми вызовами и возможностями. Понимание текущих тенденций, таких как изменение потребительских предпочтений, влияние экономических факторов и необходимость внедрения технологических инноваций, является ключевым для успешного развития отрасли. Автопроизводители, которые смогут адаптироваться к этим изменениям и предложить потребителям современные, экологически чистые и технологически продвинутые автомобили, будут иметь все шансы на успех в условиях быстро меняющегося рынка. К тому же, будущее автомобильной промышленности Германии зависит от способности ее участников к инновациям, гибкости и готовности к изменениям, что в конечном итоге определит их конкурентоспособность и устойчивость в долгосрочной перспективе.

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О ЗНАЧЕНИИ РУССКОГО ЯЗЫКА В ЖИЗНИ СОВРЕМЕННОЙ МОЛОДЕЖИ

Аннотация. *Научная статья посвящена анализу актуальности русского языка в жизни современной молодёжи. В ней нашли своё отражение неологизмы и жаргонизмы всё чаще имеющие место в устной и письменной речи современной молодёжи.*

Ключевые слова: *интенсивное развитие, информационная технология, этимология, сленг, молодёжный жаргон, лексико-стилистические обороты.*

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ABOUT THE IMPORTANCE OF THE RUSSIAN LANGUAGE IN THI LIFE OF MODERN YOUTH

Abstract. *The scientific article is devoted to the analysis of the relevance of the Russian language in the life of modern youth. It reflects neologisms and jargon that are increasingly taking place in the oral and written speech of modern youth.*

Key words: *intensive development, information technology, etymology, slang, youth jargon, lexical and stylistic turns.*

Введение. Речь каждого человека указывает на его характер, быт, настроение, возраст, социальный уровень и наконец, насколько человек воспитан и культурен. Например, в телефонном разговоре, не видя этого человека по интонации, манере, даже по определённым выражениям, словам мы уже имеем представление об этом человеке.

Основная часть. На сегодняшний день с интенсивным развитием интернета и информационных технологий язык также подвергается изменениям в последствии сокращения, изменения оптимизации слов и их значений, что в свою очередь оказывает как негативное, так и позитивное влияние на этимологию, лексику и грамматику отдельно взятого языка.

На современном этапе развития русской устной и письменной речи составляет сленг, или жаргон, который имеет огромное значение в изучении языка, частности и изучении русского языка, признанного наиболее сложным

из-за присутствия в нем большого количества исключений и синонимов одного и того же слова.

В данном случае, наибольший интерес вызывает молодежный жаргон как наиболее динамичная часть лексической системы языка, непосредственно отражающая социокультурно значимые изменения в обществе. Молодежь как социальная группа общества всегда старалась противопоставить себя миру взрослых.

Кроме того, соперничество, которое всегда существует между отдельным и молодежными группами, наиболее ярко отражает характер общественного развития, что являет собой создание отдельных не похожих друг на друга групп по интересам и увлечениям что в следствие приводит к возникновению большого количества синонимов одного и того же слова.

Своим появлением на свет жаргон обязан развитию цехового производства в средневековой Европе, когда перед цеховым коллективом, ввиду возрастающей конкуренции, возникла проблема защиты тех или иных производственных знаний, технологий. Это привело к возникновению особого кодированного языка мастеров – арго. Слово «арго» произошло от фр. “argot” – речь определенных, замкнутых групп, которая создается с целью языкового обособления. Это в основном специальная или своеобразно освоенная общеупотребительная лексика. В настоящее время слово «арго» устарело, и вместо него используется понятие «жаргон». [1]

«Является ли сленг языком?» Предполагается, что если средством общения является язык, то сленг, безусловно, является частью всеобъемлющего языка, как и любое другое лексическое подмножество, такое как жаргон, технические термины, регионализмы и т.д.

Сам термин «жаргон» пришел к нам из французского языка, а «сленг» – из английского. Во французской лингвистике термин «жаргон» зачастую толкуется как неправильный, искаженный или искусственно изобретенный язык, понятный только членам конкретной группировки. [2]

Молодежная среда общения характеризуется использованием всех лексико-стилистических оборотов, тяготея при этом к уличной или другими словами к сниженной лексике, лишь незначительную часть которой составляет ученический или студенческий жаргон. Таким образом, рассматривая молодежный сленг, можно проследить все явления, характерные как для самой молодежной среды, так и для устной среды общения в целом, выявить функциональную нагрузку сниженной лексики, которая в свою очередь приводит к безграмотности и обнищанию словарного запаса. К примеру, существуют основные общепринятые к употреблению слова сленга как:

Существительные: Чувак, братан, братела, браток, перец, пупс, старшаки, старикашка, бабкамен; Столовка, училка, учихалка, физра, русиш, литра, матра, инфа; Домашка, контроха, контра.

Наречия: Хорошо – клёво, супер, круто, прикольно, класс, классно, зашибись, ништяк, все тип-топ. Плохо – тухло, фуфлово, пипец, капец, отстой, облом, невезуха.

Глаголы: Хвать, не парься, гонишь, подставлять, достали, убейся, фильтруй базар, понты попутал, втяну, накурю.

Междометия: Блин, окей, ты че?

Устойчивые словосочетания и предложения:

Быстро – реже, крути педалями, шевели копытами, шевели подковами, шевели поршнями;

Замолчи – закрой палатку, закрой варежку, смени пластинку, язык прикуси, закрой форточку;

Представляется возможным выделить ряд причин употребления сленга. Во-первых, стремление участников молодежных социальных групп общаться друг с другом, оставаясь непонятыми для посторонних. Другой немаловажной причиной является тенденция к речевой эмоциональности, которую трудно достигнуть, используя исключительно литературную лексику. И, наконец, третьей причиной вынужденного языкового искажения между поколениями, по мнению психологов и лингвистов, становится возрастающий темп жизни, за которым представители старшего поколения не всегда успевают.

Появление мобильных телефонов с сервисом SMS, электронной почты, ICQ и интернет-чатов способствует тому, что в языке подростков все чаще встречаются простые вербальные конструкции, с помощью которых можно максимально быстро передать свою мысль, что зачастую вызывает критику со стороны более консервативно настроенной части общества в лице более старшего поколения.

Английский язык, ставший языком интернет-общения, активно используется не только молодым поколением, но и на телевидении, в прессе. Процесс заимствований усилился настолько, что словари не успевают фиксировать все изменения в языке. [3, 4]

Употребление (сознательно дифференцирующее, как и неосознанное, на поводу у языковой моды) заимствованной лексики более «продвинутой» молодежью так же выстраивает стену между поколениями. Но наибольшей экспрессивной окраской в любом языке обладает табуированная (инъективная) лексика. Притягательная сила данной лексики для молодого поколения имеет несколько причин. Не последнее место занимают ее удобство, доступность, простота и даже гибкость. В данном случае в русском языке табуированной лексикой является матерщины и ругательства, их значение в лексиконе современной молодежи весьма однозначно или говоря другими словами она выражает бунтарство и агрессию, причем не обоснованную. По мнению многих специалистов психологов и личное мое мнение данный феномен во многом связан с появлением интернета и общения на расстоянии что дает возможность

любому человеку не отвечать за свои слова и поступки, что в конечном счете привело к обще принятью такого рода лексикона в разговорной речи.

Заключение. В целом, роль и место сленга в современной речевой культуре остаются не однозначными и требуют значительного осмысления. Но результатом распространения жаргона и сленга становиться уменьшение словарного запаса и искажению значений многих литературных слов русского языка. Что в свою очередь приводит к усложнению изучения языка и негативно влияет на воспитание молодого поколения.

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МЕТОДЫ, ТЕХНОЛОГИИ И ПЕРСПЕКТИВЫ МОНИТОРИНГА И ПРОГНОЗИРОВАНИЯ ОПАСНЫХ ГИДРОМЕТЕОРОЛОГИЧЕСКИХ ЯВЛЕНИЙ В РЕСПУБЛИКЕ УЗБЕКИСТАН

Аннотация: *в статье рассматриваются вопросы прогнозирования наводнений и мониторинга опасных гидрометеорологических явлений на территории Республики Узбекистан. Основное внимание уделено роли Узгидромета в сборе, обработке и анализе данных для составления краткосрочных и долгосрочных прогнозов. Обсуждаются методы оценки риска и предотвращения последствий стихийных бедствий, включая использование современных технологий, таких как спутниковый мониторинг и автоматизированные системы наблюдения. Описаны подходы к классификации земель, подверженных затоплению, а также влияние своевременности предупреждений на снижение материального ущерба.*

Ключевые слова: *Узгидромет, гидрометеорологические явления, наводнения, прогнозирование, мониторинг, спутниковые системы, риск, затопление, климат.*

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METHODS, TECHNOLOGIES AND PROSPECTS OF MONITORING AND FORECASTING DANGEROUS HYDROMETEOROLOGICAL PHENOMENA IN THE REPUBLIC OF UZBEKISTAN

Abstract: *the article considers the issues of flood forecasting and monitoring of hazardous hydrometeorological phenomena in the Republic of Uzbekistan. The main attention is paid to the role of Uzhydromet in collecting, processing and analyzing data for short-term and long-term forecasts. Methods of risk assessment and prevention of consequences of natural disasters are discussed, including the use of modern technologies, such as satellite monitoring and automated observation systems. Approaches to the classification of lands subject to flooding, as well as the impact of timely warnings on reducing material damage are described.*

Keywords: *Uzhydromet, hydrometeorological phenomena, floods, forecasting, monitoring, satellite systems, risk, flooding, climate.*

Наводнения и другие опасные гидрометеорологические явления представляют собой одну из самых серьезных угроз для устойчивого развития территорий, особенно в странах с разнообразными климатическими условиями и сложной гидрографической сетью, таких как Республика Узбекистан. Последствия подобных явлений включают разрушение инфраструктуры, значительный экономический ущерб, угрозу жизни и здоровью населения, а также негативное воздействие на экологическое состояние территорий.

Введение современных технологий прогнозирования и мониторинга позволяет существенно повысить точность прогнозов и снизить последствия таких явлений. Одним из ключевых инструментов в этом процессе является использование данных дистанционного зондирования, гидрометеорологических наблюдений и цифровых моделей рельефа. Эти подходы позволяют эффективно выявлять зоны риска, прогнозировать развитие событий и разрабатывать превентивные меры для минимизации ущерба.

Наводнения могут определяться по комплексу гидрометеорологических характеристик, используемых в различных программах для вычисления. Они могут прогнозироваться различными методами, в основе которых лежит учет предыдущей реакции водосбора на выпадение осадков. В любом случае решающая роль принадлежит полноте и точности информации о выпадающих осадках, дефиците почвенной влаги, уровнях воды в реках и других гидрометеорологических характеристиках, таких как общая синоптическая обстановка, ветер, атмосферное давление и др [4].

Прогнозы наводнения разрабатываются региональными Гидрометцентрами. Заблаговременность краткосрочных прогнозов паводковых наводнений составляет от 1 до 3 суток, а долгосрочных прогнозов половодий – 1-2,5 месяца [2].

Своевременное обнаружение и прогнозирование развития неблагоприятных гидрологических стихийных явлений осуществляет Агентство гидрометеорологической службы при Министерстве экологии, охраны окружающей среды и изменения климата Республики Узбекистан (Узгидромет), который имеет государственную наблюдательную сеть.

1. Согласно статьи 53 Закона Республики Узбекистан от 17.08.2022 г. № ЗРУ-790 «О защите населения и территорий от чрезвычайных ситуаций природного и техногенного характера» Основные задачи Узгтдромета по ликвидации чрезвычайных ситуаций являются [1]:

обеспечение руководителя работ по ликвидации чрезвычайной ситуации информацией о гидрометеорологических условиях в районе чрезвычайной ситуации;

подготовка прогноза опасных гидрометеорологических явлений.

Поскольку атмосфера находится в постоянном движении, то для определения будущей погоды в данной точке необходимо, прежде всего, знать характеристики воздушной массы, которая может переместиться в

пункт прогноза за интересующий прогнозиста период времени. Иначе говоря, необходимо знать погоду не только в пункте прогноза, но и на значительном расстоянии от него. Если принять среднюю скорость ветра 40 км/час, то легко подсчитать, что для прогноза на сутки это расстояние составит 1 200 км. Практически же оно должно составлять несколько тысяч километров, поскольку скорость ветра на высотах может достигать 100 км/час и более. По мере увеличения заблаговременности прогноза зона сбора данных наблюдений увеличивается, и для прогноза на 5-7 дней необходимо иметь данные наблюдений со всего земного шара.

Узгидрометом составляются следующие речные гидрологические прогнозы [3]:

уровня и расхода воды на реках;
притока воды в водохранилища;
даты наступления ледовых явлений;
максимального уровня воды в половодье;
водности рек;
даты вскрытия рек и очищения ото льда озер и водохранилищ;
даты появления льда на реках, озерах и водохранилищах;
минимального уровня воды судоходных рек.

Особое внимание уделяется речным ледовым прогнозам. В настоящее время в Узгидромете функционирует автоматизированная система расчета и краткосрочного прогноза всех основных элементов ледового режима рек. При составлении краткосрочных прогнозов за основу берутся метеорологические данные по прогнозу на 5 суток, что и определяет заблаговременность прогноза. Оправдываемость краткосрочных прогнозов сроков появления льда и вскрытия рек составляет 92-95 %.

В основу методики среднесрочных прогнозов положено использование прогноза средней температуры воздуха на декаду с учетом распределения температуры поверхности океана в качестве фона развития процесса. Эта методика позволяет внести уточнения в большинство долгосрочных прогнозов.

Долгосрочные прогнозы (с заблаговременностью 1-2 месяца) сроков замерзания и вскрытия рек имеют среднюю оправдываемость около 80%, но она недостаточно устойчива, в связи с чем большое внимание уделяется методам уточнений с заблаговременностью 10-20 суток.

Величина и интенсивность весенне-паводковых наводнений зависят от следующих условий:

запасов воды в снежном покрове к моменту таяния снега и их распространения по площади водосбора;

интенсивности снеготаяния, зависящей от метеорологических условий;

степени влажности и глубины промерзания почв водосбора до выпадения первого снега осенью;

площади, рельефа и формы водосбора, наличия озер, болот, лесов, влияющих на условия стекания снеговых вод;

количества осадков, выпадающих в период таяния снега;

образования ледяной корки на почве;

сочетания волн половодья крупных притоков бассейна;

образования заторов и зажоров льда.

Гидрометеорологические явления, которые по своей интенсивности и продолжительности могут нанести значительный ущерб экономике и представляют угрозу безопасности людей, называют стихийными гидрометеорологическими явлениями.

Гидрологические стихийные явления:

высокий уровень воды – уровень воды на посту при половодьях, паводках, заторах и зажорах, когда возможно затопление пониженных участков местности в населенных пунктах, сельскохозяйственных полей и угодий, автомобильных и железных дорог, повреждение крупных промышленных и транспортных объектов;

низкий уровень воды – уровень воды ниже проектных отметок водозаборных сооружений крупных городов, промышленных районов и оросительных систем, предельных навигационных уровней на судоходных реках и водоемах за период времени не менее 10 дней;

раннее появление плавучего льда и образование ледостава на реках, озерах и водохранилищах, повторяющееся не чаще одного раза в 10 лет;

особые ледовые явления – навалы льда на берегу у гидротехнических, портовых и других сооружений и населенных пунктов, образующиеся при заторах и в результате дрейфа льда, массовые образования внутриводного льда вблизи ГЭС и водотоков;

промерзание до дна водоемов и водотоков, повторяющиеся один раз в 10-15 лет;

наледные явления – образование наледи в руслах и поймах рек, угрожающее населенным пунктам, гидротехническим сооружениям, народнохозяйственным объектам, затрудняющее движение транспорта;

сель – селевой поток всех видов и размеров, вызванный сильными осадками, прорывами завальных и моренных озер и угрожающий населенным пунктам, промышленным объектам, спортивным комплексам, транспортным магистралям, оросительным системам и другим объектам.

Критерии по размеру ущерба от их воздействия устанавливаются территориальными управлениями Узгидромета.

Узгидромет, выполняющий функции республиканского центра, осуществляет прогноз зон потенциально опасных явлений по территории страны, а также прогноз метеорологических величин и осадков. Территориальные центры уточняют размеры зон опасных явлений на основе региональных моделей и данных наблюдений. Они учитывают вероятность возникновения явлений на основе численных методов. Оперативные прогностические подразделения уточняют прогноз с учетом текущей синоптической ситуации на основе данных искусственных спутников Земли, радиолокаторов и традиционных наблюдений на метеорологических постах.

Важнейшей задачей всех прогностических подразделений является составление и доведение до местных администраций, объектов экономики и населения прогнозов и штормовых предупреждений о возникновении опасных явлений с максимально возможной заблаговременностью.

Рис. 1. Количество осадков по территориям Республики Узбекистан [6].

Под опасным гидрометеорологическим явлением понимается явление, которое по своей интенсивности, продолжительности или времени возникновения представляет угрозу безопасности людей, а также может нанести значительный ущерб отраслям экономики. При этом гидрометеорологические явления оцениваются как опасные при достижении критических значений гидрометеорологических величин.

На территории Узбекистана встречаются около 20 видов опасных гидрометеорологических явлений, за которыми Узгидромет ведет регулярные наблюдения с целью их обнаружения и прогнозирования. Это – сильные ветры, шквалы, пыльные бури, ливни и грозы, град, сильные продолжительные дожди, засухи, заморозки, снегопады, метели, гололедноизморозевые явления, туманы, сильные морозы, наводнения, снежные лавины, сели и другие.

Опасные гидрометеорологические явления оказывают неблагоприятное воздействие на производственно-хозяйственную деятельность общества. В Республике Узбекистан, где климатические условия очень разнообразны и

подвержены значительным колебаниям, ущерб от гидрометеорологических явлений составляет 80-90%.

Вообще ущерб от стихии зависит, прежде всего, от следующих факторов:

вид опасного явления природы, его интенсивность, продолжительность и масштаб.

заблаговременность штормового предупреждения об угрозе возникновения стихии.

оперативность и эффективность решений и действий соответствующих служб и звеньев по подготовке к встрече стихии.

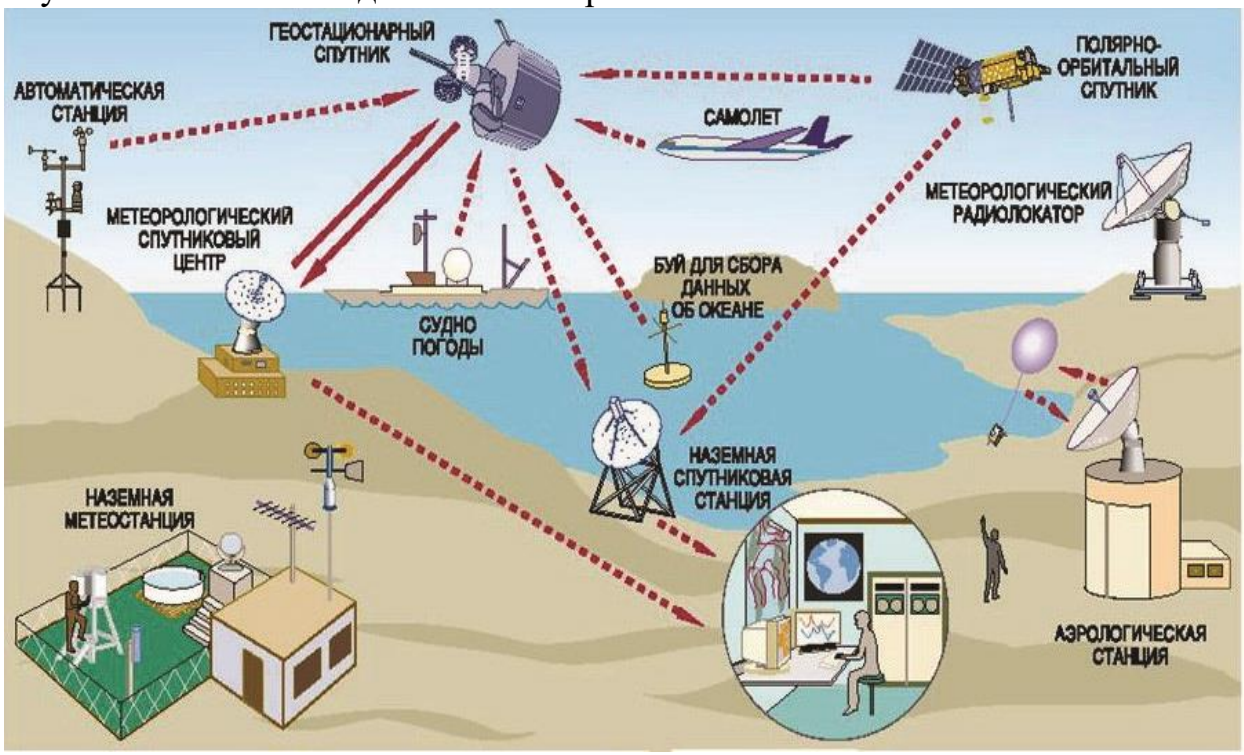

Рис.2. Основные компоненты наблюдательной сети

Под заблаговременностью штормового предупреждения понимается период времени с момента составления предупреждения об угрозе опасного явления до момента (или времени) начала явления в данном населенном пункте. Чем больше заблаговременность предупреждения, тем больше будет выиграно времени у стихии для принятия превентивных мер.

Существует зависимость заблаговременности штормового предупреждения и размера причиненного стихией материального ущерба. Увеличение заблаговременности предупреждения даже на один час может снизить материальный ущерб на 0,5-0,8% (в зависимости от четкости и слаженности действий соответствующих служб), за сутки это 12-15%, за двое суток – 25-30%.

При мониторинге и прогнозировании применяются две основные группы методов:

визуальных наблюдений и инструментальных измерений и исследований; аналитические.

Сбор и обработка информации является основной частью мониторинга. Сбор данных гидрометеорологического характера осуществляется организациями Узгидромета. Используются также данные международной системы гидрометеорологических спутников. Гидрологические станции (посты) расположены на реках, озерах, водохранилищах Узбекистана. На этих станциях осуществляются наблюдения за следующими элементами: осадками, включая росу; снежным покровом; уровнем воды; речным стоком, расходом и накоплением запасов воды; испарением; влажностью почвы; подземными водами; озерным и речным льдом; температурой воды. В прогнозировании опасных гидрометеорологических явлений имеются два подхода. Первый базируется на изучении предвестников конкретных катастрофических явлений и анализе информации, получаемой от сети мониторинга, и используется преимущественно для краткосрочных и оперативных прогнозов. Второй – опирается на расчеты с применением детерминированных и статистических методов и используется для средне- и долгосрочных прогнозов. Создание цифровой модели рельефа позволяет четче идентифицировать районы, которым грозит затопление. Все области, находящиеся ниже текущей средней высоты уровня воды, классифицируются как зоны высокого риска и в этих районах проводятся специальные защитные работы. Таким образом, проведенные классификации земель позволяют не только снизить ущерб, наносимый затоплением, но и оценить потенциальные денежные потери в случае следующих наводнений, что, безусловно, важно при определении рисков и заключении страховых договоров.

Любая метеорологическая служба для составления прогноза ежедневно использует не только данные наблюдений о состоянии атмосферы над своей территорией, но и над другими странами. Для этого необходимо, чтобы наблюдения проводились одновременно в единые сроки и были сопоставимы между собой. Кроме того, они должны быть правильно закодированы в стандартные форматы и быстро переданы в центры обработки данных для подготовки прогнозов.

Использование современных моделей требует очень мощной вычислительной техники и полной автоматизации процесса получения данных, их контроля, объективного анализа и расчета. Поэтому подготовка прогнозов сейчас немыслима без функционирования вычислительных центров, оборудованных современными ЭВМ. В распоряжении прогнозиста имеется также целый набор объективных расчетов методов прогноза элементов и явлений погоды, позволяющих провести расчеты либо самому, либо на ЭВМ. Эти методы, наряду с общими закономерностями развития атмосферных процессов, учитывают региональные и даже локальные особенности. На основе расчетных методов осуществляется в настоящее время прогнозирование большей части явлений погоды с заблаговременностью 24-36 часов. В последнее время создаются также комплексные системы слежения за текущей погодой с использованием спутниковой и радиолокационной информации, а также данных обычных

метеорологических наблюдений. Использование таких систем позволяет постоянно уточнять предварительные расчеты и предупреждать о возникновении опасных локальных явлений.

Все большее распространение получает космический мониторинг, который позволяет вести наблюдение за развитием паводковой ситуации, оценивать масштабы и ущерб, а в ряде случаев и предсказать наводнение.

Спутниковые системы позволяют быстро определить площадь наводнения, найти участки, которым еще угрожает затопление, и предотвратить будущие разрушения путем планирования защиты и восстановительных операций для сдерживания наводнения.

Рис.1. Графическое изображение системы гидрометеорологического мониторинга и прогнозирования

Спутниковые изображения (одно – до наводнения и другое – во время наводнения) привязаны к определенной системе координат, что делает возможным сопоставление этих снимков с картами соответствующего масштаба, а также проведение точных измерений площади затопленных земель.

Роль информации, получаемой со спутников, резко возрастает при уменьшении числа гидрометеорологических станций и гидропостов. Для целей дистанционного зондирования из космоса используются: космическая

система «Метеор»; система исследования мирового океана «Океан»; система изучения поверхности суши «Ресурс»; ряд экспериментальных отечественных аппаратов, а также данные международной системы геостационарных гидрометеорологических спутников США, Японии и европейских спутников METEOSAT [5].

Вообще мониторинг опасных явлений гидрометеорологического характера является одним из наиболее глобализированных, поскольку для качественного прогноза одних национальных данных оказывается недостаточно. Космические средства контроля используются в основном в виде сканерных съемок аппаратурой с разрешением 30-35 м. По материалам космических съемок можно определить контуры затопления и его динамику.

Долгосрочные прогнозы погоды выпускаются лишь в некоторых странах. Для этого используются, как правило, статистические методы или сочетание статистических и численных методов. Имеются также обнадеживающие результаты в использовании сопряженных гидродинамических моделей «океан-атмосфера».

В системе Узгидромета выпускаются все виды прогнозов. Основной цикл выпуска краткосрочных гидродинамических прогнозов составляет 12 часов. Выпуск гидродинамических среднесрочных прогнозов осуществляется 1 раз в сутки. Сверхкраткосрочные прогнозы выпускаются по мере необходимости для предупреждения организаций о явлениях погоды, представляющих опасность для населения или той или иной хозяйственной деятельности. Долгосрочные прогнозы, как правило, выпускаются один раз в месяц или сезон.

Из долгосрочных прогнозов стока наиболее важными для практики и наиболее физически обоснованными являются прогнозы стока рек и притока в водохранилища в период формирования весеннего половодья. Методы долгосрочного прогнозирования представляют собой линейные или нелинейные физико-статистические зависимости объема весеннего стока от определяющих факторов, вытекающих из уравнения водного баланса за период половодья. Точность прогнозов в значительной степени зависит от точности определения запасов влаги в снежном покрове и характеристик водопоглотительной способности почв бассейна, определяющих потери стока.

Весьма сложной задачей является прогнозирование места и времени внезапного возникновения быстроразвивающихся опасных паводковых явлений за счет интенсификации циклонов на берегах водных объектов, на которых проживает население. Узгидромет планирует модернизировать систему прогнозирования по следующим направлениям:

провести районирование территории страны по типам опасных гидрологических явлений и частоте их повторяемости;

в зонах быстроразвивающихся опасных паводков создавать сеть антивандальных автоматических метеостанций, способных в режиме реального времени определять и передавать данные о наблюдениях;

обеспечить ввод в эксплуатацию необходимого количества дистанционных средств наблюдения наземного (метеолокаторы) и космического базирования для оперативного контроля развития опасных и катастрофических ситуаций.

Заключение.

В результате проведенного исследования рассмотрены ключевые аспекты прогнозирования и мониторинга опасных гидрометеорологических явлений в Республике Узбекистан. Особое внимание уделено анализу существующих методов и технологий, используемых Узгидрометом для выявления, оценки и предупреждения стихийных бедствий, таких как наводнения, паводки, сели и другие явления, представляющие угрозу для населения и экономики страны.

Прогнозирование гидрометеорологических явлений в Узбекистане базируется на использовании как традиционных методов наблюдений, так и современных технологий, включая спутниковый мониторинг и автоматизированные системы. Важным направлением остается совершенствование системы сбора и обработки данных, расширение сети наблюдений, а также внедрение численных методов и моделей, адаптированных к климатическим и географическим особенностям региона.

Дальнейшее развитие системы мониторинга и прогнозирования требует активного внедрения новых технологий, таких как дистанционное зондирование и геоинформационные системы. Эти меры позволят повысить точность прогнозов, минимизировать ущерб от природных катастроф и обеспечить более эффективное управление рисками. Успешная реализация предложенных мер станет важным шагом на пути к устойчивому развитию и повышению безопасности в Республике Узбекистан.

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ОЦЕНКА ПРИРОДНЫХ РИСКОВ И УПРАВЛЕНИЕ УГРОЗАМИ ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЙ В РЕСПУБЛИКЕ УЗБЕКИСТАН

Аннотация: *в данной статье рассматриваются угрозы для жизнедеятельности, обусловленные природными явлениями на территории Республики Узбекистан. Анализируются пространственные, временные и энергетические характеристики опасных природных явлений, таких как землетрясения, ураганы, лесные пожары и грозовая активность. Предложены математические модели для оценки индивидуального риска и прогнозирования числа пострадавших. Рассматриваются методы расчета воздействия поражающих факторов природных явлений на объекты инфраструктуры, а также особенности мониторинга и прогнозирования пожаров на полях и в лесах. Полученные результаты могут быть использованы для разработки рекомендаций по снижению природных рисков и повышения безопасности жизнедеятельности.*

Ключевые слова: *природные явления, природные риски, безопасность жизнедеятельности, математическое моделирование, мониторинг, прогнозирование, землетрясения, ураганы, лесные пожары, грозовая активность.*

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NATURAL RISK ASSESSMENT AND EMERGENCY THREAT MANAGEMENT IN THE REPUBLIC OF UZBEKISTAN

Annotation: *this article examines threats to life caused by natural phenomena in the Republic of Uzbekistan. Spatial, temporal and energy characteristics of hazardous natural phenomena such as earthquakes, hurricanes, forest fires and thunderstorm activity are analyzed. Mathematical models for assessing individual risk and predicting the number of victims are proposed. Methods for calculating the impact of damaging factors of natural phenomena on infrastructure facilities, as well as features of monitoring and forecasting fires in fields and forests are considered. The results obtained can be used to develop recommendations for reducing natural risks and improving life safety.*

Keywords: *natural phenomena, natural risks, life safety, mathematical modeling, monitoring, forecasting, earthquakes, hurricanes, forest fires, thunderstorm activity.*

Введение. Современные природные явления представляют собой серьезную угрозу для жизнедеятельности населения и функционирования инфраструктуры. Влияние этих явлений определяется не только их интенсивностью и частотой, но и географическими, социально-экономическими, а также экологическими факторами, характеризующими территорию. Республике Узбекистан, как и многим другим регионам мира, свойственны специфические природные опасности, такие как землетрясения, ураганы, лесные пожары и грозовая активность. Их проявления могут приводить к значительным потерям среди населения, разрушению инфраструктуры и экономическим убыткам.

Изучение природных угроз и разработка методов их прогнозирования, мониторинга и минимизации последствий являются важнейшими задачами в обеспечении устойчивого развития территорий. Особую актуальность приобретают вопросы математического моделирования угроз, пространственно-временного анализа зон поражения, а также разработки мер по снижению риска для населения и объектов инфраструктуры [1].

Степень угрозы для жизнедеятельности на рассматриваемой территории зависит от степени природной опасности, а также географического фактора размещения населенных пунктов по отношению к источникам природной опасности [2]. Для опасных природных явлений характерно распределение не только во времени, но и в пространстве (расположение очага, размер зоны действия его поражающих факторов). Характеристиками природной опасности территории для жизнедеятельности в общем случае являются:

характерные для рассматриваемой территории виды опасных (неблагоприятных и экстремальных) природных явлений;

пространственное распределение мест развития (возможного возникновения) природных явлений;

их временные характеристики (повторяемость);

энергетические характеристики (сила).

Рассмотрим экстремальное природное явление со случайным местоположением и моментом возникновения на территории площадью S, конечным размером зоны действия поражающих факторов (площадь зоны действия опасных факторов Экстремального природного явления с силой, не менее заданной, равна $S_{ПФ}$). Не все объекты техносферы на рассматриваемой территории в случае реализации экстремального природного явления попадают в зону действия его поражающих факторов. Показатель угрозы воздействия поражающих факторов от i-го экстремального природного явления на произвольный объект техносферы, постоянно размещенный на рассматриваемой территории (для перемещающихся объектов необходимо

еще учитывать временной фактор) характеризуется произведением λЭПЯ SПФ, где $\lambda_{ЭПЯ}$ $\alpha_{ПФi}$, где $\lambda_{ЭПЯ}$ -интенсивность экстремальных природных явлений *i*-го вида с силой, не менее заданной.

Доля $\alpha_{ПФi}$ объектов, подвергающихся в год воздействию поражающих факторов В случае возникновения *i*-го экстремального природного явления (угрозе разрушения), от их общего числа может быть определена расчетным методом. Если полагать, что размеры объекта инфраструктуры много меньше зоны действия поражающих факторов $S_{ПФ}$; объекты инфраструктуры и возможные зоны действия поражающих факторов распределены по территории равномерно; каждый объект уязвим только к поражающим факторам от одного из источников опасности; объекты инфраструктуры являются стационарными и постоянно находятся на рассматриваемой территории (временной фактор не учитывается). Если события воздействия поражающих факторов на произвольный объект за рассматриваемый интервал времени являются редкими, то

$$\alpha_{ПФi}\, i = \frac{S_{ПФ}\, U\, S}{S}$$

где S - площадь рассматриваемой территории. Так, для условий Республики Узбекистан

$S_{ПФ}$составляет:

7-балльная зона для землетрясений при магнитуде M = 5 - 300 км^2,

при M = 8 - 6 000 км^2

ураганов — до 0.2*10° км^2 (полоса ветра со скоростью более 20 м/с шириной до сотен км и длиной до 1 000 км);

пожаров на полях или лесах - 0,8 км^2 (средняя за 2010 г.).

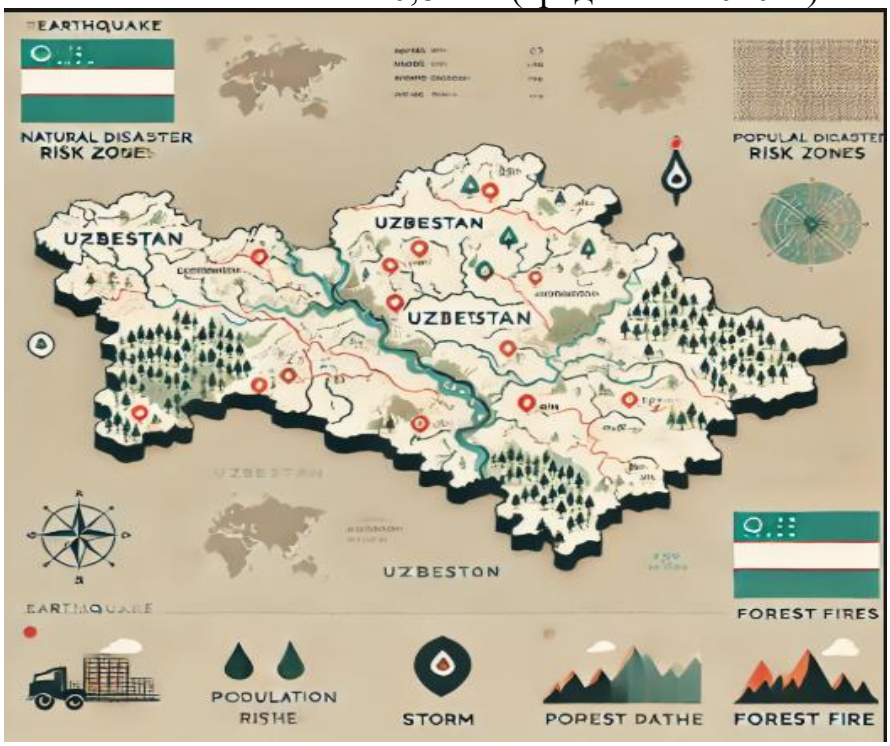

Рис.1. Схематичная карта природных рисков

Природные явления представляют угрозу для населения только в том случае, если оно проживает в районах развития неблагоприятных природных явлений и возникновения экстремальных природных явлений. Таким образом, для оценки угрозы районы развития (возникновения) их явлений и проживания населения должны быть совмещены. Это удобно делать на картографической основе, в частности, с использованием геоинформационных систем (электронных карт).

Для оценки угрозы для населения на карте должны быть приведены как характеристики опасности, так и характеристики застройки, плотность населения,

Так, для целей строительства разрабатывают карты зон затопления разной частоты. Зона затопления - это территория, временно покрываемая водой, когда расход реки превышает пропускную способность и вода выходит из берегов.

Площадь зоны действия поражающих факторов зависит от силы экстремального природного явления и стойкости застройки к воздействию поражающих факторов экстремального природного явления.

Если принять допущение, что экстремальные природные явления распределены по территории с равной повторяемостью равномерно, то повторяемости природных явлений определенного вида и силы, площади зоны действия его поражающих факторов, плотности застройки и населения можно прогнозировать (делать априорные оценки) математическое ожидание числа пострадавших и погибших в стихийных бедствиях для определенного административно-территориального образования в год. Поделив математическое ожидая числа погибших на численность населения, получим индивидуальный риск. По этой величине можно сравнивать территории по природному риску в интересах принятия мер по его снижению.

Источником природно-техногенной опасности на некоторой территории могут являться происходящие на ней экстремальные природные явления и эксплуатирующиеся потенциально опасные объекты. Рассмотрим в качестве источника опасности грозовую деятельность на некоторой территории, а в качестве объекта угрозы - эксплуатирующиеся на ней потенциально опасные объекты. Реализация этой угрозы может привести к природно- техногенным авариям (катастрофам).

Рассмотрим определение угрозы для перевозимых опасных грузов (объектов) от грозовых разрядов. Удар молнии является одной из аварийных ситуаций с перевозимыми опасными грузами (объектами).

Оценим частоту грозовых разрядов на объект в типовых условиях его перевозки (транспортирования).

Рассмотрим район эксплуатации объекта, характеризуемый в среднем λ грозовыми разрядами в году на 1 км^2 В эксплуатации находятся N однотипных образцов объекта. Будем полагать, что объект подвергается действию грозовых разрядов только при его транспортировке (перемещениях).

Пусть для рассматриваемого района сезон гроз составляет Т дней в году, а доля времени нахождения объекта на этапе транспортирования определяется коэффициентом K_m. Таким образом, средняя наработка одного объекта в сезон гроз составляет:

$$T_o = K_m T \text{ (дней)}.$$

Событие аварии объекта является сложным и наступает при совместной реализации двух событий:

воздействия грозового разряда на объект в течение заданного времени (Δt = 1 год), характеризуемого математическим ожиданием числа

$$a_в(\Delta t) = \lambda_в \Delta t;$$

разрушения или преждевременного срабатывания объекта одноразового применения в результате воздействия грозового разряда, характеризуемого условной вероятностью 4.

Toma математическое ожидание числа аварий объекта вычисляется: а

$$a_в(\Delta t) = a_в (\Delta t)q;$$

Величина q определяется соотношением силы разряда и устойчивости объекта к поражающему действию разряда.

Примем следующие допущения:

распределение числа грозовых разрядов по площади района эксплуатации объекта является равномерным;

местные предметы в непосредственной близости от маршрутов транспортировки отсутствуют;

график перевозок (перемещений) объектов и случайный поток гроз являются независимыми процессами (перемещения объекта не связано с прогнозом грозы);

принимаемые специальные меры защиты объекта от воздействия грозовых разрядов не учитываются.

Получим соотношения для расчета числа аварий a (Δt) в результате удара молнии по произвольному объекту из совокупности, находящейся в эксплуатации.

Малая частота грозовых разрядов на перевозимые (перемещающиеся объекты), снижаемая к тому же принимаемыми меры защиты, не позволяет оценить ее по статистике разрядов с учетом конкретных условий их эксплуатации. Поэтому рассмотрим теоретическую модель, учитывающую основные влияющие факторы, различающиеся для районов эксплуатации и типов объектов. Основными факторами, влияющими на величину $a_в(\Delta t)$ являются:

интенсивность грозовой деятельности в районе перемещения объектов;

временной — фактор, учитывающий — вероятность — события A_1

транспортирования (перемещения) объекта в сезон гроз (или математическое ожидание числа транспортируемых объектов);

пространственный фактор, определяющий условную вероятность попадания молнии в объект (события A_2) при условии его транспортировки в сезон гроз;

принятая стратегия транспортирования (перемещений) по отношению к учету прогноза гроз.

Интенсивность грозовой деятельности различается по территории Ташкентской области от минимальной на северо-западе страны и увеличивается по мере приближения к южным районам. Грозовую интенсивность принято характеризовать:

числом грозовых дней в году;

средней продолжительностью *t* гроз в часах, приходящихся на 1 год.

Средняя продолжительность гроз за один грозовой день на территории Ленинградской области составляет 1,5-2 часа. Будем пользоваться последней характеристикой, так как число ударов молнии по объектам на поверхности земли зависит не от числа гроз, а от их общей продолжительности.

Для оценки частоты поражения молнией различных объектов используется среднее число грозовых разрядов на 1 км^2 площади в год, вычисляемое по эмпирическому соотношению [4]:

$$\lambda = 0.067\tau.$$

Грозовые разряды в районе перемещений опасных объектов являются случайными событиями - реализациями нестационарного случайного процесса. В сезон гроз длительностью 7 дней будем полагать его стационарным (интенсивность грозовых разрядов является постоянной), ординарным (вероятность за малый промежуток времени двух и более разрядов мала по сравнению с одним разрядом, Т. Є. два разряда не могут попасть в один и тот же объект) и с отсутствием последействия (вероятность грозового разряда не зависит от числа и моментов уже произошедших грозовых разрядов, т. е. после удара молнии интенсивность грозовых разрядов не изменяется).

Такой случайный поток грозовых разрядов является простейшим пуассоновским, для которого случайное число ξ грозовых разрядов, происходящих в течение времени Δt на 1 км^2 площади рассматриваемого района, распределено по закону Пуассона с параметром $a = \lambda \Delta t$ (среднее число

a= M |ξ| грозовых разрядов на 1 км^2 в течение времени Δt, где λ - интенсивность грозовых разрядов на 1 км^2 площади (среднее число грозовых разрядов на 1 км^2 за некоторый единичной интервал времени, измеряется в разряд/км^{2}год)).

Временной фактор. Будем полагать, что интервалы времени, приходящиеся на транспортирование (перемещения) объекта, распределены во времени равномерно. Тогда вероятность перемещения объекта в сезон гроз:

$$P(A_1) = k_t$$

Пространственный фактор. Пусть объект имеет следующие размеры:

длину L ширину b, высоту h в метрах. Математическое ожидание числа поражений в год молнией объектов высотой менее 60 м, не оборудованных молниезащитой, вычисляется по формуле

$$\lambda_0 = (l + 3h).(b + 3h)10^{-6} = 10^{-6}\, S_э\, \lambda, \text{ ударов/(объект*год)}$$

где S, - эффективная площадь, м^2 собирания грозовых разрядов объектом.

Таким образом, условная вероятность попадания грозового разряда в объект при условии его перевозки во время грозы определяется по формуле

$$P(A_1|A_2) = 10^{-6}\, S_э$$

Интенсивность грозовых разрядов по объекту с учетом временного фактора можно оценить по формуле

$$\lambda_0 = P(A_1)\, P(A_1|A_2)\, \lambda = 10^{-6}\, k_t S_э\, \lambda \text{ разряд/(объект*год)}$$

Будем полагать, что расстояния между соседними объектами больше

эффективного радиуса собирания грозовых разрядов (площади $S_э$ не перекрываются). Тогда события попадания грозового разряда в каждый объект являются несовместными. При этих условиях интенсивность грозовых разрядов в произвольный объект из N, находящихся в эксплуатации, определится по формуле:

$$\lambda_0 = N\, \lambda_0 \text{ разряд/(совокупность*год)}$$

Частота грозовых разрядов по опасным объектам, перевозимым на

всей территории страны, с учетом наличия объектов различных типов определяется по формуле `

$$\lambda_B = \sum_{i=1}^{n} \lambda_{Bi} \approx 10^{-6} = \sum_{i=1}^{n} N_i\, k_t S_э\, \lambda_i$$

где n - число районов.

Транспортирование железнодорожным транспортом. Вероятность воздействия грозовых разрядов на потенциально опасные объекты при их транспортировании железнодорожным транспортом зависит от географического района, продолжительности транспортирования и протяженности объекта [3]. Среднее число грозовых разрядов в год по объекту в конкретном географическом районе на 1 км пути определяется по формуле [5]:

$$1 = 3.5\text{-}10^{-3} t \text{ ударов/(км*год)}$$

С учетом пространственных и временных факторов:

$$1 = 10^{-3} l_{0t} k_t\, \lambda \text{ разрядов/(объект-год)}$$

где 1 - длина объекта в метрах.

Организация структура мониторинга и прогнозирования пожаров на полях и лесах. Мониторинг и прогнозирование пожаров на полях и лесах осуществляется на трёх уровнях:

- республиканском;
- территориальном;
- локальном.

На республиканском уровне организацию работ по мониторингу и прогнозированию пожаров на полях и лесах осуществляет республиканский орган управления лесным хозяйством Республики Узбекистан.

Ведение мониторинга и прогнозирования пожаров на полях и лесах на республиканском уровне осуществляют организации, учреждения и предприятия республиканского органа управления лесным хозяйством.

Ведение мониторинга и прогнозирования пожаров на полях и лесах на территориальном уровне осуществляют структурные подразделения государственных органов управления лесным хозяйством Республики Каракалпакстан и областей, организации, учреждения и предприятия системы органа управления лесным хозяйством.

На местном уровне организацию работ по мониторингу и прогнозированию пожаров на полях и лесах осуществляют лесхозы и другие организации, предприятия и учреждения, осуществляющие ведение лесного хозяйства.

На локальном уровне (места лесных пожаров и площади, пройденные лесными пожарами) организацию работ по контролю за лесопожарной ситуацией, радиационному контролю и учету последствий лесных пожаров осуществляют лесхозы и другие организации, предприятия и учреждения, ы осуществляющие ведение лесного хозяйства, а также подразделения МЧС, осуществляющие обнаружение и тушение лесных пожаров.

Заключение.

Природные явления, обладающие высокой интенсивностью и значительными масштабами воздействия, представляют собой одну из главных угроз для населения и инфраструктуры на территории Республики Узбекистан. Анализ пространственно-временных характеристик и энергетических параметров таких явлений, как землетрясения, ураганы, лесные пожары и грозовая активность, позволил выявить основные факторы риска и разработать подходы к их математическому моделированию.

Результаты исследования подтверждают, что эффективность мероприятий по снижению природных рисков во многом зависит от точности прогнозов, адекватности оценки зон поражения и правильной организации мониторинга. Разработанные математические модели для расчета индивидуального риска и оценки угрозы от экстремальных природных явлений могут быть использованы для приоритизации мер защиты населения и объектов инфраструктуры.

Особое внимание уделено организации мониторинга пожаров на полях и в лесах, что является важным элементом системы предупреждения и

минимизации ущерба. Полученные данные и предложенные методики создают основу для дальнейшего совершенствования системы управления природными рисками, повышения устойчивости территорий к экстремальным природным явлениям и обеспечения безопасности жизнедеятельности.

Применение разработанных рекомендаций позволит значительно снизить последствия природных катастроф, что является важным шагом на пути к устойчивому развитию и защите населения Республики Узбекистан.

Использованные источники:

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ПОСТТРАВМАТИК ГОНАРТРОЗЛАРДА ТИЗЗА БЎҒИМИ МЕНИСК ВА ХОЧСИМОН БОЙЛАМЛАРНИНГ ПАТОМОРФОЛОГИК ЖИҲАТЛАРИ

Кириш

Посттравматик гонартроз – бу тизза бўғимига травмадан кейинги узоқ муддатда ривожланиш мумкин бўлган артритнинг бир туридир. Унинг асосий механизми – тўқималарнинг зарарланиши, эластиклигининг йўқолиши, бу эса остеоартритнинг ташвишли шаклларига олиб келиши мумкин. Тизза бўғими мениск ва хочсимон бойламларининг патоморфологик ўзгаришлари гонартрознинг асосий патогенетик омилларидан саналади. Посттравматик механизмларнинг, шу жумладан, тўқима зарарланиши ва уларнинг қайта тикланиш жараёнларини тушуниш, ундаги патоморфологик ўзгаришларни аниқлаш муҳимдир.

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PATHOMORPHOLOGICAL ASPECTS OF THE MENISCI AND CRUCIATE LIGAMENTS OF THE KNEE JOINT IN POST-TRAUMATIC GONARTHROSIS

Introduction

Post-traumatic gonarthrosis is a type of arthritis that may develop over a long period following knee joint trauma. Its primary mechanism involves tissue damage and loss of elasticity, which can lead to severe forms of osteoarthritis. Pathomorphological changes in the menisci and cruciate ligaments of the knee joint are among the main pathogenetic factors of gonarthrosis. Understanding post-traumatic mechanisms, including tissue damage and their regeneration processes, as well as identifying pathomorphological changes in these structures, is of great importance.

Муаммо долзарблиги

Посттравматик гонартроз – бу тизза бўғимидаги фаол жараёнлар, қабиқлар ва менисклардаги заҳарланишларнинг ҳаммасини ўз ичига оладиган

касалликдир. Бу касалликнинг ривожланиши билан боғлиқ муаммоларнинг олдини олиш, аниқ диагностика ва самарали даволашнинг муаммоси долзарб ҳисобланади. Мениск ва хочсимон бойламларнинг патоморфологиясини ўрганиш, уларнинг қайта тикланиш жараёнлари ва тўқималарнинг структурасини аниқлаш, ривожланиш жараёнларини тушунишга ёрдам беради.

Тадқиқот мақсади

Посттравматик гонартрозларда тизза бўғими мениск ва хочсимон бойламларининг патоморфологик ўзгаришларини ўрганиш ва уларнинг клиник аҳамиятини аниқлаш. Шунингдек, травмадан кейинги тикланиш жараёнларининг хусусиятларини ва уларга таъсир этувчи омилларни тадқиқ этиш.

Тадқиқот материалы ва усуллари

Тадқиқот учун тизза бўғимида посттравматик гонартрозга эга бўлган 50 нафар беморнинг тўқимаси ва контроль гуруҳдан 20 нафар иштиракчиларнинг тизза бўғими тўқималарини олиш белгиланди. Тадқиқот жисмоний текширув, радиологик ўрганишлар, MRI ва рентгенографияни ўз ичига олади. Патоморфологик таҳлил учун манипуляцияда тўқима парчаларини олиш, уларни гистологик ва иммуногистохимик усуллар билан ўрганиш мўлжалланган.

Натижалар

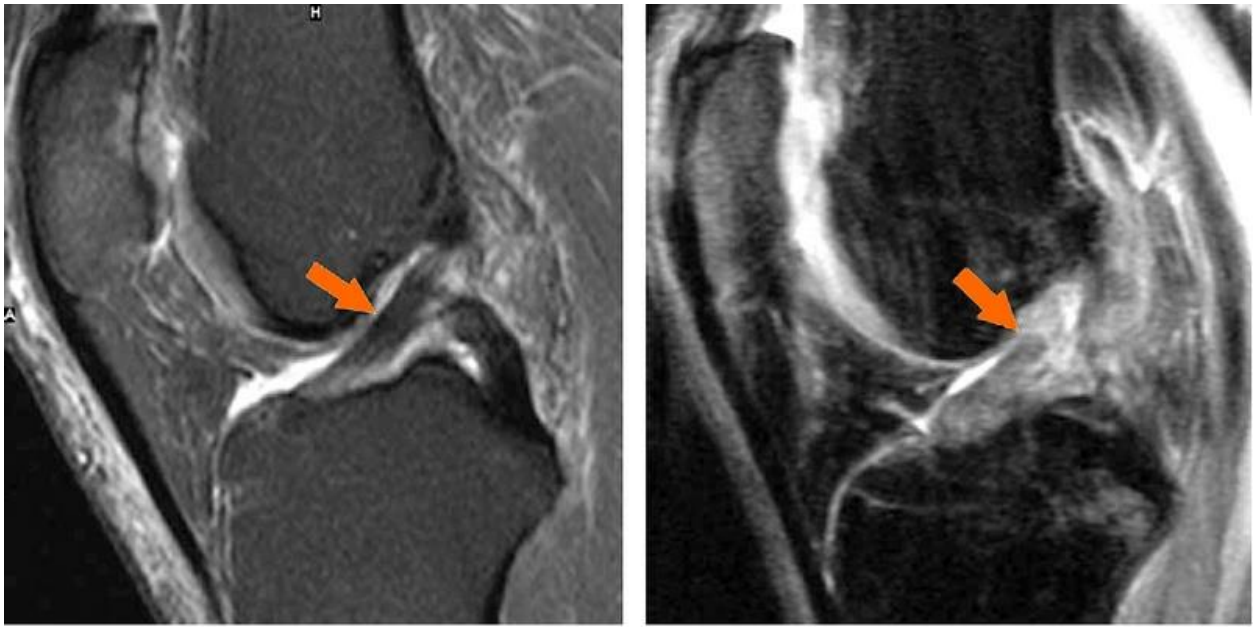
Тадқиқот натижаларига кўра, посттравматик гонартрозда тизза бўғими мениск ва хочсимон бойламларининг патоморфологик ўзгаришлари аниқ кузатилди. Қуйида бу ўзгаришларнинг асосий жиҳатлари ва уларнинг патогенезга таъсири кенгроқ ёритилади.

1. Менисклар тўқималаридаги патоморфологик ўзгаришлар

Менискларнинг патоморфологик таҳлили жараённинг жуда мураккаб эканлигини ва зарарланган тўқималарда бир неча ўзига хос аломатларни кўрсатди:

Фиброзлашув жараёни: Менискларда тўқима шикастланишидан кейин ҳажмий фиброз тўқималар шаклланиши кузатилди. Бу жараён натижасида эластиклик камайиб, менискларнинг асосий вазифаси бўлган ҳаракатланиш ва шокни ютиш қобилияти сезиларли даражада йўқолган.

Дегенератив ўзгаришлар: Посттравматик гонартрозга эга беморларнинг менискларида коллаген тўқималардаги парчаланиш ва некротик ҳужайраларнинг кўпайиши аниқланди. Шунингдек, микроскопик кўринишда васкуляризация (қон томирларининг ортиқча ўсиши) кузатилди, бу эса яллиғланиш жараёнининг узоқ вақт давом этиши ва тўқималарнинг тикланиши муаммоларга дучор бўлишини кўрсатади(1 расм).



1 расм. Магнит-резонанс томографиясида тизза бўғими. Чап томонда – нормал олд хочсимон бойлам. Тасвирда у бир хил қора рангдаги тўқима кўринишида. Ўнг томонда – олд хочсимон бойламнинг юқори қисмидаги узилиши. Тасвирда бойлам тўлиқ эмас ва ёруғ тусда кўринган.

Мениск тўқимасининг суяк тўқимасига айланиши (оссификация): Узоқ муддатли шикастланишларда баъзи беморларда менискларнинг кальций тузлари билан тўйиниши ва минераллашуви кузатилди, бу эса тўқималарнинг қаттиқлашувига ва мениск функциясининг тўлиқ йўқолишига олиб келган.

2. Хочсимон бойламлардаги патоморфологик ўзгаришлар

Хочсимон бойламларнинг посттравматик ўзгаришлари уларнинг тикланиш жараёнига жиддий таъсир кўрсатади. Тадқиқот давомида қуйидаги муҳим ўзгаришлар қайд этилди:

Эластикликнинг йўқолиши: Посттравматик гонартрозга эга беморларда хочсимон бойламларда коллаген толаларининг нотўғри шаклланиши, чўзилувчанликнинг йўқолиши ва бойламларнинг кучсизланиши кузатилди. Бу тизза бўғими барқарорлигининг пасайишига ва беморларда оғриқ билан кечувчи ҳаракат чекланишига олиб келди.

Фиброзлашув ва яллиғланиш жараёнлари: Тўқималарда персистент яллиғланиш белгилари (хроник синовит), микроскопик даражада эса макрофаглар ва лимфоцитлар кўпайиши аниқланди. Бу жараён хочсимон бойламларда тикланишни қийинлаштириб, уларнинг анатомик структурасини ўзгартира бошлади.

Гиалин деградацияси: Хочсимон бойламларнинг ички тузилмаларида гиалин тўқималарининг емирилиши ва регенерация жараёнларининг бузилиши кузатилди. Бу эса тизза бўғимида ҳаракат чегараланиши ва оғриқ синдромининг кучайишига сабаб бўлди.

Қон томирларининг таралиши (васкуляризация): Организм табиий тикланиш механизмини фаоллаштириш мақсадида жароҳатланган ҳудудда

янги қон томирлари ҳосил бўлиши кузатилди. Бироқ бу васкуляризация самарасиз бўлиб, яллиғланиш жараёнларининг узоқ вақт сақланишига ва бойламлар тузилишида бўшлиқлар ҳосил бўлишига сабаб бўлди.

3. Тизза бўғими гиалин сўнгакларининг ўзгаришлари

Мениск ва хочсимон бойламлардаги ўзгаришлар тизза бўғими гиалин сўнгакларига ҳам таъсир кўрсатади. Посттравматик гонартрозга эга беморларда қуйидаги ўзгаришлар қайд этилди:

Хондроцитларнинг емирилиши: Гистологик таҳлил натижаларига кўра, гиалин хрящ ҳужайраларининг (хондроцитлар) яллиғланиш таъсири остида парчаланиши ва қолдиқлар ҳосил бўлиши кузатилди. Бу тизза бўғими яллиғланиши ва шикастланган зоналарда оғриқ кучайишига олиб келади.

Остеофитлар ҳосил бўлиши: Посттравматик жараёнлар натижасида суяк тўқимасининг четларида патологик ўсишлар (остеофитлар) шаклланган аниқланди. Бу ўсмалар беморларда ҳаракатнинг чекланиши ва тизза бўғимида қаттиқлик пайдо бўлишига сабаб бўлди.

Хулоса

Тадқиқот натижалари посттравматик гонартрозда тизза бўғими мениск ва хочсимон бойламларининг патоморфологик ўзгаришлари касаллик ривожланишининг асосий механизмларидан бири эканлигини кўрсатди. Тизза бўғимидаги бу ўзгаришлар оғриқ синдроми, ҳаракат чекланиши ва касалликнинг тез суръатда давом этишига сабаб бўлади. Мениск ва хочсимон бойламларнинг зарарланиши натижасида яллиғланиш жараёнлари кучаяди, тўқималардаги қайта тикланиш жараёнлари эса секинлашади. Мениск ва хочсимон бойламлардаги патоморфологик ўзгаришлар. Менисклар тўқималарида фиброзлашув ва гиалин деградацияси, эластикликнинг пасайиши кузатилди. Хочсимон бойламларда эса чўзилувчанлик йўқолиши, яллиғланиш ва остеофит ҳосил бўлиши аниқланди. Бу ўзгаришлар тизза бўғими барқарорлигини пасайтиради ва оғриқ билан кечувчи клиник белгиларига олиб келади.

Яллиғланиш ва тикланиш жараёнлари. Посттравматик жараёнлар натижасида мениск ва хочсимон бойламларда тўқимавий яллиғланиш (синовит) кузатилди. Яллиғланиш узоқ вақт сақланиши ва қайта тикланиш жараёнига тўсқинлик қилиши мумкин. Қон томирларининг ноодатий ўсиши (васкуляризация) мениск ва хочсимон бойламларда функционал бузилишларга сабаб бўлади. Патоморфологик ўзгаришларнинг клиник аҳамияти. Бу ўзгаришлар тизза бўғимида ҳаракатнинг чекланишига, мувозанатнинг бузилишига ва тиззанинг деформациясига олиб келади. Беморларда оғриқ синдроми кучаяди ва жисмоний фаолият кескин пасаяди. Посттравматик гонартрознинг ривожланишини эрта босқичда аниқлаш ва тўғри даволаш тактикаларини қўллаш муҳим аҳамиятга эга. Тизза бўғими патологияларини даволашда замонавий ёндашувлар. Патоморфологик таҳлил натижаларига асосланган ҳолда қайта тикланиш жараёнларини тезлаштириш учун янги терапевтик усуллар ишлаб чиқилиши керак. Замонавий регенератив терапия (PRP, клетка терапияси, гиалурон кислотаси инъекциялари) мениск

ва хочсимон бойламларнинг тикланишини рағбатлантиришда муҳим рол ўйнайди. Ортопедик жарроҳлик усуллари (артроскопик дебридмент, мениск трансплантацияси) касалликнинг олдини олиш ва тикланиш жараёнларини тезлаштиришда самарали бўлиши мумкин.

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РОЛЬ ИСТОРИЧЕСКОГО КОНТЕКСТА В ФОРМИРОВАНИИ ИНСТИТУТА МЕСТНОГО САМОУПРАВЛЕНИЯ

Аннотация: *В статье рассматривается роль исторического контекста в формировании института местного самоуправления в России. Подчеркивается влияние исторического опыта на современную структуру местного самоуправления и предлагается авторская концептуальная модель, отражающая связь между историческими этапами и современными процессами местного управления в России.*

Ключевые слова: *местное самоуправление, исторический контекст, земские реформы, советская модель, постсоветские преобразования, институциональная преемственность.*

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THE ROLE OF THE HISTORICAL CONTEXT IN THE FORMATION OF THE INSTITUTION OF LOCAL SELF-GOVERNMENT

Abstract: *This article examines the role of historical context in the formation of the local government institution in Russia. The influence of historical experience on the modern structure of local government is emphasized, and an authorial conceptual model is proposed, reflecting the connection between historical stages and contemporary processes of local governance in Russia.*

Keywords: *local government, historical context, zemstvo reforms, Soviet model, post-Soviet transformations, institutional continuity.*

Исследование роли исторического контекста в формировании института местного самоуправления в России представляет собой важную задачу, поскольку позволяет понять, как различные исторические этапы влияли на текущие проблемы и особенности муниципальной власти. Исторический контекст является неотъемлемой частью формирования современного института местного самоуправления, что обуславливает актуальность данного исследования. С учетом реформ, проведенных в постсоветский период, а также существующих проблем с финансовой и

административной автономией местных властей, важно выявить исторические корни и основные этапы эволюции местного самоуправления.

Существующие научные подходы к изучению института местного самоуправления основываются на различных историко-политических моделях и теоретических концепциях.

И.И. Кузнецов и А.С. Жаров утверждают, что российский институт местного самоуправления является результатом многовековой эволюции, в ходе которой происходили изменения, непосредственно влияющие на его функции и полномочия. Они выделяют два ключевых этапа в развитии местного самоуправления: земства XIX века и советскую модель самоуправления. В их работах подчеркивается важность исторической преемственности и того, что изменения в политической и социальной сферах накладывают отпечаток на текущие процессы местного управления [4, с. 203].

Е.М. Ковешников исследует местное самоуправление в контексте традиций, сформировавшихся в России в разные исторические периоды. Он утверждает, что местное самоуправление было важным инструментом решения социальных и экономических вопросов на местах с конца XVIII века, и продолжало развиваться через реформы XIX века. Е.М. Ковешников связывает формирование современного института местного самоуправления с проведением земских реформ [2, с. 59].

Л.А. Велихов акцентирует внимание на роли советской модели местного самоуправления, которая, по его мнению, была элементом государственной вертикали и мало отличалась от централизованной системы управления. Современные проблемы местного самоуправления, по его мнению, являются следствием жесткой централизованности, сформировавшейся в советский период [1, с. 235].

В.В. Кузнецов указывает, что советский опыт продолжает оказывать влияние на функционирование местных органов власти. По его мнению, центральная роль партийной и государственной структуры в управлении местным самоуправлением оказала негативное влияние на независимость и эффективное функционирование местных властей [3, с. 17].

На основании проведенного анализа подходов различных исследователей можно предложить авторскую концептуальную модель. Так, все исследуемые позиции подтверждают важность исторической преемственности, однако акцентируют внимание либо на одном историческом периоде, либо на общей эволюции института без детального рассмотрения взаимодействия между историческими этапами. В отличие от этого, авторская модель фокусируется на синтезе земских традиций, советской модели централизованного управления и постсоветского стремления к децентрализации. Важным аспектом является не только признание исторического опыта, но и его интеграция в современные реформы местного самоуправления.

Авторская концепция включает три основные идеи. Во-первых, несмотря на многочисленные изменения в политическом устройстве, местное

самоуправление в России продолжает сохранять базовые институциональные характеристики, заложенные еще в период земских реформ, что включает принципы территориальной организации и разграничения полномочий. Во-вторых, историческая эволюция местного самоуправления не сводится к простому заимствованию элементов из предыдущих моделей. Вместо этого происходит их синтез, что приводит к созданию новой формы местного самоуправления, которая сочетает в себе традиции автономии, интеграции в единую систему публичной власти и современные демократические принципы. В-третьих, институциональная преемственность в развитии местного самоуправления является важнейшим фактором, определяющим устойчивость и эффективность современного муниципального управления.

Эта концепция отличается от существующих подходов тем, что она рассматривает взаимодействие различных исторических моделей как процесс их синтеза, а не простого заимствования, что позволяет более полно учитывать влияние различных исторических этапов на современное местное самоуправление и предлагать эффективные пути для дальнейших реформ. В отличие от подхода, ориентированного на отдельные исторические периоды, авторская концепция акцентирует внимание на комплексной взаимосвязи этих этапов, что позволяет учесть все аспекты их влияния на современное муниципальное управление.

Таким образом, исторический контекст играет ключевую роль в формировании института местного самоуправления в России. Понимание эволюции этого института позволяет глубже осознать, как различные исторические этапы — от земских реформ XIX века до советской и постсоветской моделей — определяют текущие проблемы и особенности муниципальной власти.

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ИССЛЕДОВАНИЕ ВЛИЯНИЯ НАНОСТРУКТУР НА УПРУГОСТЬ И ВЯЗКОУПРУГОСТЬ ЭЛАСТОМЕРОВ ПРИ СТАТИЧЕСКИХ И ДИНАМИЧЕСКИХ НАГРУЗКАХ

Аннотация: *В данной работе рассматривается влияние наноструктур (углеродных нанотрубок и графеновых наночастиц) на механические свойства эластомеров, такие как упругость и вязкоупругость, при воздействии статических и динамических нагрузок. Анализируется влияние различных типов наноструктур на улучшение характеристик материала, а также проводится оценка их долговечности при многократных циклических нагрузках. Важными аспектами исследования являются также температурные и частотные зависимости механических свойств эластомеров, что позволяет установить их эффективность в различных эксплуатационных условиях. Представленные результаты демонстрируют значительное улучшение упругих и вязкоупругих характеристик эластомеров с добавлением наноструктур.*

Ключевые слова: *эластомеры, упругость, вязкоупругость, статические нагрузки, динамические нагрузки, долговечность, графен, углеродные нанотрубки.*

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STUDY OF THE INFLUENCE OF NANOSTRUCTURES ON THE ELASTICITY AND VISCOELASTICITY OF ELASTOMERS UNDER STATIC AND DYNAMIC LOADS

Abstract: *This paper examines the effect of nanostructures (carbon nanotubes and graphene nanoparticles) on the mechanical properties of elastomers, such as elasticity and viscoelasticity, under static and dynamic loads.*

The effect of different types of nanostructures on improving the material characteristics is analyzed, and their durability under repeated cyclic loads is assessed. Important aspects of the study are also the temperature and frequency dependences of the mechanical properties of elastomers, which allows us to establish their effectiveness under various operating conditions. The presented results demonstrate a significant improvement in the elastic and viscoelastic characteristics of elastomers with the addition of nanostructures.

Key words: *elastomers, elasticity, viscoelasticity, static loads, dynamic loads, durability, graphene, carbon nanotubes.*

Введение: Исследование влияния наноструктур на механические свойства материалов является актуальной задачей в области материаловедения и инженерии, особенно для эластомеров, которые широко применяются в различных отраслях, включая автомобильную промышленность, медицину, строительные материалы и другие. Эластомеры, благодаря своей высокой эластичности и способности восстанавливать свою форму после деформации, используются в различных конструкциях, где важно поддержание их упругих и вязкоупругих свойств при воздействии статических и динамических нагрузок. Однако с развитием технологий создания наноструктур в материалах возникает вопрос о влиянии таких структур на основные характеристики, такие как упругость и вязкоупругость, что требует подробных исследований.

Методология: Методика исследования влияния наноструктур на упругость и вязкоупругость эластомеров при статических и динамических нагрузках. Предлагаемая методика основана на сравнительном анализе механических свойств эластомеров, содержащих различные типы наноструктур, при воздействии статических и динамических нагрузок. На первом этапе производится синтез и подготовка образцов эластомеров с добавлением наночастиц, таких как углеродные нанотрубки, графеновые или силикатные наночастицы, в различных концентрациях. Эти образцы подвергаются испытаниям с использованием универсальных испытательных машин для измерения модуля упругости при статической растяжке, а также для определения коэффициента вязкости и степени упругости при циклических динамических нагрузках с использованием метода динамической механической анализа (DMA). На втором этапе проводится анализ механических свойств образцов при различных температурных режимах и частотах деформации, что позволяет детально исследовать вязкоупругие характеристики. Измерения проводятся для каждого типа наноструктуры, чтобы выявить их влияние на поведение материала.

Результат: В результате проведенного исследования, в котором было использовано добавление наноструктур (углеродных нанотрубок и графеновых наночастиц) в состав эластомеров, были получены следующие результаты. Образцы с углеродными нанотрубками продемонстрировали увеличение модуля упругости на 12-18% по сравнению с исходным

материалом, что указывает на улучшение упругих свойств при статических нагрузках. В то же время, добавление графеновых наночастиц позволило улучшить вязкоупругие характеристики: коэффициент вязкости увеличился на 15%, что свидетельствует о повышенной способности материала к поглощению энергии при динамических циклических нагрузках. Образцы с углеродными нанотрубками показали стабильность механических свойств на уровне 92-94% после 1000 циклов растяжения, что является на 20% выше, чем у чистых образцов. В то время как эластомеры с графеновыми добавками демонстрировали улучшенную долговечность, их свойства сохранялись на уровне 95% после аналогичных испытаний. Эти данные подтверждают высокую эффективность применения наноструктур для повышения эксплуатационных характеристик эластомеров, особенно в условиях переменных нагрузок.

Таблица 1.

Влияние наноструктур на механические свойства эластомеров

Тип добавки	Упругость (%)	Вязкость (%)	Долговечность (%)	Преимущества	Недостатки
Углеродные нанотрубки	+12–18	+10–15	+20	Увеличение модуля упругости, улучшение упругих свойств при статических нагрузках	Ограниченная эффективность при высоких температурах
Графеновые наночастицы	+8–12	+15–20	+15	Повышение вязкоупругих характеристик, улучшенная способность к поглощению энергии	Меньше увеличение прочности по сравнению с углеродными нанотрубками
Без добавок	0	0	0	Исходные показатели	Неэффективны при циклических и динамических нагрузках

Заключение: Исследование влияния наноструктур на механические свойства эластомеров при статических и динамических нагрузках представляет собой важный шаг к созданию новых материалов с улучшенными эксплуатационными характеристиками. Проведение таких исследований позволит разработать более эффективные методики для оптимизации свойств эластомеров, что откроет новые возможности для их использования в различных сферах промышленности. Внедрение

наноструктур в состав эластомеров имеет перспективы для повышения их долговечности, устойчивости к нагрузкам и улучшения качества изделий, что может стать основой для разработки новых поколений материалов с уникальными свойствами.

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ВЛИЯНИЕ НАНОСТРУКТУР НА РЕОЛОГИЧЕСКИЕ СВОЙСТВА ЭЛАСТОМЕРОВ ПРИ СТАТИЧЕСКИХ И ДИНАМИЧЕСКИХ ВОЗДЕЙСТВИЯХ

Аннотация*: В данной работе рассматривается влияние наноструктур на реологические свойства эластомеров при статических и динамических воздействиях. Анализируются различные типы наночастиц, такие как нанотрубки, графен и наноалмазы, и их воздействие на вязкость, жесткость и термостойкость эластомерных материалов. Предоставляется подробное исследование изменения динамического модуля упругости и модуля потерь при использовании осцилляционной реометрии, что позволяет оценить механические и температурные характеристики материалов с наноструктурами. Важным аспектом исследования является также влияние температуры на стабильность реологических свойств, что позволяет определить области применения различных типов эластомеров с добавленными наночастицами.*

Ключевые слова: *наноструктуры, эластомеры, реология, вязкость, жесткость, динамика, термостойкость, модуль, температура, механика.*

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INFLUENCE OF NANOSTRUCTURES ON RHEOLOGICAL PROPERTIES OF ELASTOMERS UNDER STATIC AND DYNAMIC EFFECTS

Abstract*: This paper examines the effect of nanostructures on the rheological properties of elastomers under static and dynamic stress. Various types of nanoparticles, such as nanotubes, graphene, and nanodiamonds, and their effects*

on the viscosity, stiffness, and thermal stability of elastomeric materials are analyzed. A detailed study of the change in the storage modulus and loss modulus using oscillatory rheometry is provided, which allows us to evaluate the mechanical and thermal characteristics of materials with nanostructures. An important aspect of the study is also the effect of temperature on the stability of rheological properties, which allows us to determine the areas of application of various types of elastomers with added nanoparticles.

Key words: *nanostructures, elastomers, rheology, viscosity, rigidity, dynamics, thermal stability, modulus, temperature, mechanics.*

Введение: Эластомеры, благодаря своей высокой эластичности, широко используются в различных областях, таких как производство шин, медицинских устройств, уплотнителей и многих других изделий. Одним из перспективных направлений в разработке новых эластомеров является внедрение наноструктур, которые могут существенно улучшить их реологические свойства. Реология, как наука о течении веществ и их деформациях, играет ключевую роль в оценке поведения материалов при различных механических и термических воздействиях. Влияние наноструктур на реологические характеристики эластомеров, особенно в условиях статических и динамических нагрузок, представляет собой важную задачу, поскольку это может значительно улучшить эксплуатационные характеристики таких материалов, увеличив их долговечность и эффективность.

Методология: Методика исследования реологических свойств эластомеров с наноструктурами при статических и динамических воздействиях. Методика основывается на использовании осцилляционной реометрии для оценки изменения реологических характеристик эластомеров при различных типах воздействий. Для этого эластомерные образцы с добавленными наноструктурами (например, нанотрубками, графеном или наноалмазами) подвергаются цикличному тестированию при различных температурах и частотах деформаций. Осцилляционный реометр позволяет измерять такие параметры, как динамический модуль упругости (G') и модуль потерь (G"), которые характеризуют упругие и вязкие компоненты материала при разных деформациях. Это дает возможность оценить поведение материала как при малых, так и при больших деформациях. Результаты этих измерений позволяют сделать выводы о том, как различные типы наноструктур влияют на реологические свойства эластомеров и какие наночастицы наиболее эффективны для улучшения их механических характеристик в условиях эксплуатации.

Результат: В результате проведённого исследования по методике осцилляционной реометрии было установлено, что введение наноструктур в состав эластомеров существенно влияет на их реологические свойства при статических и динамических воздействиях. В частности, при добавлении нанотрубок в эластомерный материал было отмечено увеличение

динамического модуля упругости на 25%, что свидетельствует о значительном повышении жесткости материала при малых деформациях. При этом, добавление графена и наноалмазов продемонстрировало наибольшее улучшение вязкости, с увеличением модулей потерь на 18-22%, что указывает на более высокую сопротивляемость материала к деформациям при динамических нагрузках. Температурные зависимости также показали интересные результаты: материалы с наноструктурами демонстрировали стабильность своих реологических характеристик в широком диапазоне температур. В частности, образцы с добавлением нанотрубок сохраняли свою эластичность до температуры 150°C, в то время как эластомеры без наноструктур теряли около 12% своей упругости уже при температуре 100°C. Данные исследования показали, что наноструктуры могут не только улучшать механические свойства эластомеров, но и повышать их термостойкость, что открывает возможности для их использования в более жестких эксплуатационных условиях.

Таблица 1.

Влияние наноструктур на реологические свойства эластомеров

Тип наноструктуры	**Увеличение жесткости (динамический модуль упругости)**	**Увеличение вязкости (модуль потерь)**	**Температурная стабильность**	**Преимущества**	**Недостатки**	**Рекомендации для использования**
Нанотрубки	+25%	+18%	Сохранение эластичности до 150°C	Повышение жесткости, стабильность при высоких температурах	Умеренное увеличение вязкости	Подходит для высокотемпературных условий
Наноалмазы	+22%	+20%	Сохранение эластичности до 145°C	Повышение жесткости и вязкости	Меньшая термостойкость по сравнению с нанотрубками	Использовать в средних температурных диапазонах
Без наноструктур	-	-	Потеря 12% жесткости при 100°C	Дешевле, простой в производстве	Уязвимость к изменениям	Рекомендуется для обычных эксплуатационных условий

					температуры	

Заключение: Влияние наноструктур на реологические свойства эластомеров представляет собой многообещающую область исследований, которая может привести к созданию новых высококачественных материалов с улучшенными эксплуатационными характеристиками. Разработанные методы исследования позволяют детально изучить поведение таких материалов при различных воздействиях, что откроет новые возможности для их применения в различных отраслях. Внедрение наночастиц в эластомеры представляет собой перспективный подход для повышения их производительности и долговечности, а также для разработки новых, более эффективных материалов.

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ЭКОНОМИКО-ГЕОГРАФИЧЕСКИЕ ОСОБЕННОСТИ ПОВЫШЕНИЯ ИНВЕСТИЦИОННОЙ ПРИВЛЕКАТЕЛЬНОСТИ РЕГИОНА

Аннотация: *Данная статья рассматривает анализируются экономико-географические особенности повышения инвестиционной привлекательности региона. В статье анализируются мнения ученых об инвестиционной привлекательности региона, основных критериях инвестиционной привлекательности, географическом значении инвестиционной привлекательности региона. В статье рассматриваются стратегии и механизмы, направленные на повышение конкурентоспособности на национальных и международных рынках, а также роль экономических и географических факторов в создании инноваций и новых рабочих мест для инвестиций в регионе. В статье также дается глубокий анализ стратегических направлений и методов их реализации, используемых для повышения инвестиционной привлекательности с учетом инфраструктуры, ресурсов, экологической ситуации и демографических особенностей региона, а также географических и экономических условий регионов при привлечении инвестиций.*

Ключевые слова: *Инвестиционная привлекательность, политическая стабильность, масштаб экономики, экономическая привлекательность, политико-правовая среда, транспорт, логистика, социальные факторы, особая экономическая зона, уровень конкуренции.*

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ECONOMIC AND GEOGRAPHICAL FEATURES OF INCREASING THE INVESTMENT ATTRACTIVENESS OF THE REGION

Abstract: *This article examines and analyzes economic and geographical features of increasing the investment attractiveness of the region. The article analyzes the opinions of scientists about the investment attractiveness of the region, the main criteria of investment attractiveness, the geographical significance of the investment attractiveness of the region. The article examines strategies and mechanisms aimed at increasing competitiveness in national and international markets, as well as the role of economic and geographical factors in creating innovations and new jobs for investment in the region. The article also provides a deep analysis of strategic directions and methods of their implementation used to increase investment attractiveness, taking into account the infrastructure, resources, environmental situation and demographic characteristics of the region, as* well as the geographical and economic conditions of the regions when attracting investments.

Keywords: *Investment attractiveness, political stability, economic scale, economic attractiveness, political and legal environment, transport, logistics, social factors, special economic zone, level of competition.*

Инвестиционная привлекательность региона - это способность региона привлекать инвестиции, определяемая его экономическими, социальными, политическими и природными условиями, которые создают благоприятную среду для ведения бизнеса и реализации инвестиций. Чем выше инвестиционная привлекательность региона, тем больше шансов привлечь как внутренние, так и внешние инвестиции, что способствует экономическому росту и развитию региона.

Исходя из стратегий устойчивого экономического развития страны, проблемы, связанные с повышением инвестиционной привлекательности, определения инвестиционного потенциала является практически одним из важнейших проблем экономики. В этом плане в зарубежных стран накоплен огромный опыт.

М.В.Ольшанская изучала вопросы экономико-организационные и управленческие отношения, опосредствующие процессы разработки и реализации мер, обеспечивающих повышение инвестиционной привлекательности территорий [11]. Данная работа осуществлена с учетом особенностей территорий Российской Федерации, также, мало изучен инвестиционный потенциал, в основном, внимание уделено на организационных и управленческих проблем.

Д.А.Бондарева, А.Н.Сорочайкин [6] изучали вопросы государственно-частного партнерства в управлении объектами экономики больших городов с учетом урбанизации, но ими не изучены проблемы отдельных территорий. А.З.Дадашев [7] исследовал проблемы по усовершенствованию налоговобюджетного механизма поддержки инвестиционных процессов в

высокодотационных регионах. Л.А.Бекларян, С.В.Сотский изучали вопросы инвестиционной деятельности с учетом региональной инвестиционно-финансовой политики, при этом они утверждают, что нужно привлечь капитал разбивая регионов и инвесторов на группы по уровню их взаимной привлекательности [4].

На наш взгляд, одним из действенных инструментов привлечения инвестиций в инновационную сферу может быть активизация в стране и ее регионах венчурного (рискового) бизнеса. До недавнего времени широкого распространения в нашей стране данная форма финансирования инноваций не получила, однако в западных странах это направление вложения средств является одним из приоритетных для внедрения изобретений, новшеств и высоких технологий в различных областях деятельности [2].

Инвестиционная привлекательность региона - это совокупность определенных признаков (условий, ограничений), определяющих приток капитала в регион и оцениваемых инвестиционной активностью. В свою очередь инвестиционная активность в регионе может рассматриваться как интенсивность притока капитала. Она, как и инвестиционная привлекательность, может быть как текущей на краткосрочный период, так и прогнозной или перспективной [8]. Привлекательность региона для инвесторов обусловливается следующими критериями:

- политическая стабильность;
- масштабы экономики;
- геополитическая значимость;
- характеристики рабочей силы;
- инфраструктура;
- культура и отношение к инвесторам.

Автором уточнено экономическое содержание инвестиционной привлекательности региона во взаимосвязи с региональной конкурентоспособностью, предложена трактовка понятия инвестиционной привлекательности ресурсодефицитного региона как результата взаимодействия субъектов управления региональным развитием, участников рынка инвестиций и заинтересованных сторон, направленного на улучшение инвестиционного потенциала региона, снижение инвестиционных рисков и повышение уровня инвестиционного развития [9].

Анализ инвестиционной привлекательности региона означает изучение того, как экономические, политические и социальные факторы региона или страны создают превосходные возможности для инвестиций. Основными критериями инвестиционной привлекательности являются:

1. Экономическая привлекательность. Важны экономическая ситуация, деловая среда в регионе и влияние государственной политики на привлечение инвестиций. К этим факторам относятся**:**

- производственные возможности: наличие ресурсов (природных ресурсов, рабочей силы, транспорта и инфраструктуры), необходимых для производства в регионе.

• темпы экономического роста: Темпы экономического роста в стране или регионе влияют на приток инвестиций. Страны с высокими темпами роста часто считаются привлекательными для инвесторов.

• валютная политика и инфляция: обменные курсы, уровень инфляции и финансовая стабильность являются важными факторами для инвесторов.

• возможности расширения рынка: доступ к единому рынку, внутреннему и зарубежному рынкам является наиболее важным для инвесторов.

2. Политическая и правовая среда. Политическая стабильность, нестабильность и надежность правовой системы определяют инвестиционную привлекательность страны или региона. К этим факторам относятся:

Политическая стабильность: Политическая стабильность - это стабильность политической системы в стране, эффективное функционирование институтов и учреждений, а также мирное и законное развитие политических и социальных отношений в общественной системе. Политическая стабильность является важной основой экономического, социального и культурного развития страны, создавая условия, которые позволяют этим факторам поддерживать уникальную политическую систему государства и направлять ее к новому развитию.

Политическая нестабильность - это состояние, при котором политическая система в стране не прочна, а в руках власти возникают проблемы, противодействие, чрезвычайные ситуации и факторы, угрожающие стабильности. В такой ситуации политическая и социальная жизнь государства находится под прямой или косвенной угрозой, что препятствует общему развитию. Политическая нестабильность может препятствовать экономическому развитию и привести к сокращению инвестиций. Это, в свою очередь, увеличивает безработицу и бедность. Политические конфликты, незапланированные изменения или политический дисбаланс в стране или регионе представляют риски для инвесторов.

Законодательство и нормативные акты: ясность законов, правовая защита и защита инвестиций определяют инвестиционный климат страны.

Инвестиционные соглашения и меморандумы: национальные и международные соглашения, документы, специально разработанные для инвестиций, важны для инвесторов.

3. Инфраструктура и ресурсы**.** Социально-экономическая инфраструктура региона также является важным фактором для инвестиций. Это можно рассматривать следующим образом:

Транспорт и логистика: высококачественные дороги, порты, аэропорты, железные дороги и транспортные системы способствуют торговле и инвестициям. Транспорт и логистика являются одними из важнейших отраслей экономической деятельности, а их инвестиционная привлекательность имеет большое значение в обеспечении экономического

роста. Они считаются ключевыми факторами развития общих экономических реформ, торговых отношений и международной торговли:

Влияние на экономический рост: Транспортная и логистическая инфраструктура обеспечивает эффективное, быстрое и экономичное распределение товаров и услуг по всему миру. Это, в свою очередь, будет способствовать экономическому росту, поскольку высококачественные логистические и транспортные услуги помогают открывать новые рынки для товаров и услуг. Организационная и экономическая эффективность: Эффективная транспортная и логистическая инфраструктура снижает транспортные расходы организаций, тем самым снижая общие эксплуатационные расходы. Это будет способствовать созданию новых рабочих мест для общества и предприятий, повышению эффективности производства и укреплению конкурентоспособности.

Международная торговля и инвестиции: Современная транспортная и логистическая инфраструктура играет важную роль в развитии международной торговли и привлечении иностранных инвестиций. Он облегчает процессы поставки товаров на внешние рынки, импорта и экспорта, а также расширяет возможности ведения бизнеса для многих крупных хозяйствующих субъектов, помогая им получать доходы в государственную казну.

Влияние технологий: технологические разработки и инновации (например, автоматизированные системы, GPS, ультразвуковая съемка) делают сектор транспорта и логистики более эффективным и безопасным, повышая его привлекательность для новых инвестиций. Новые технологии позволяют обеспечить бесперебойное и эффективное управление логистическими процессами. Экологическая эффективность: использование единых энергетических ресурсов и учет экологических проблем важны для инвестиций в транспорт и логистику. Другим важным направлением является развитие экологически чистых и эффективных видов транспорта, что повысит привлекательность экономической деятельности для этих стран.

Сотрудничество государственного и частного секторов имеет решающее значение для повышения инвестиционной привлекательности транспорта и логистики. Инвестиции в эту сферу не только приносят экономическую выгоду, но и способствуют обеспечению экономической стабильности и развития.

Энергетика и водоснабжение: стабильность электро-, газо-, водоснабжения и других критически важных объектов инфраструктуры также очень важна для инвесторов.

Интернет и информационные технологии: Развитие новых технологий и Интернета, а также эффективная работа информационных систем создают привлекательную среду для ведения бизнеса.

4. Социальные факторы. Социальная среда также играет важную роль в привлечении инвестиций. К этим факторам относятся: образовательная и профессиональная подготовка; кадровый состав и его профессиональная

квалификация. Повышение качества кадров: специалисты с международным опытом, стажировки молодежи и их трудоустройство. Социальная стабильность местного населения: отношение населения к экономическому развитию, улучшению рабочих мест и условий жизни.

5. Природные ресурсы и факторы окружающей среды. Природные ресурсы играют важную роль в определении инвестиционной привлекательности страны или региона. К ним относятся: природные ресурсы: регионы, богатые природными ресурсами, имеют высокий производственный и развивающийся потенциал; Экологическая устойчивость: При привлечении инвестиций важное значение имеет экологическое состояние региона, то есть сохранение природной среды и соблюдение экологических норм.

6. Международные связи и помощь. Важную роль в привлечении инвестиций играют также международные связи в стране или регионе, донорская помощь, в частности гранты и кредиты, предоставляемые международными финансовыми институтами.

7. Выход на рынок и местные условия. Часто инвесторы или компании стремятся вывести инновации, новые продукты и услуги на местные рынки. Это также повысит инвестиционную привлекательность региона.

8. Корпоративная социальная ответственность и имидж региона. Важен также имидж страны на рынке. Если регион осуществляет свою деятельность с социальной ответственностью и уважением к обществу и окружающей среде, это обеспечит успех в привлечении инвестиций**.** При оценке инвестиционной привлекательности региона важны многие факторы - экономические, политические, правовые, социальные, экологические, инфраструктурные условия. В совокупности эти факторы помогают создать благоприятную среду для инвесторов.

Если же обратить внимание и на экономико-географические особенности повышения инвестиционной привлекательности региона, то необходимо проанализировать возможности привлечения инвестиций через экономико-географическое положение, природные ресурсы, инфраструктуру и другие факторы региона или территории. Экономико-географические особенности играют важную роль в повышении инвестиционной привлекательности региона. Включая:

1. Географическое положение. Географическое положение страны или региона, то есть его расположение по отношению к рынкам, торговым путям, транспортным системам и международным связям, имеет большое значение для формирования инвестиционной активности. К ним относятся: доступ к рынкам и торговым путям: наличие или улучшение торговых путей, портов, аэропортов и железных дорог в регионе помогает облегчить экспорт и импорт сырья, продукции и услуг. Близость к рынкам положительно влияет на приток инвестиций. Транспортно-логистический фактор: этот фактор имеет большое значение, поскольку транспортные системы (дороги, порты, аэропорты) обеспечивают наличие квалифицированной рабочей силы и своевременную

доставку грузов. Международные транспортные маршруты усиливают интеграцию региона в мировую экономику, создавая возможности для инвесторов по расширению своих маршрутов.

2. Природные ресурсы и энергия. Обилие природных ресурсов региона также важно для инвесторов. Природные ресурсы и возможности их использования повышают инвестиционную привлекательность: природные запасы: наличие в стране или регионе природных ресурсов (полезных ископаемых, энергоносителей, воды, сельскохозяйственных ресурсов) является основным источником развития производства. Если богатые природные ресурсы региона будут использоваться планомерно и эффективно, это принесет огромную пользу не только местной экономике, но и иностранным инвестициям. Энергоснабжение: стабильное снабжение электроэнергией, газом, углеводородами и другими ресурсами увеличивает производственный потенциал региона и тем самым создает возможность привлечения инвесторов.

3. Особые экономические зоны и экономические зоны. Создание особых экономических зон (ОЭЗ), особых промышленных зон и особых туристических зон в географически уникальных местных районах поможет обеспечить понятные процедуры и преимущества для инвесторов.

Особая экономическая зона - территория с определенными границами и особым правовым режимом, специально выделенная в целях привлечения иностранных и отечественных инвестиций, высоких технологий и управленческого опыта для ускоренного социально-экономического развития соответствующей территории [1]. Такие зоны предлагают налоговые льготы, субсидии на развитие и благоприятные условия для производства с низкой себестоимостью, что создает значительные возможности для привлечения инвестиций.

В Республике Узбекистан в 12 свободных экономических зонах, специализирующихся в промышленной сфере, реализовано 566 инвестиционных проектов, из них объем прямых инвестиций составил 1,6 млрд. долларов США, объем других видов инвестиций составил 4,5 млрд. долларов США, в 7 свободных экономических зонах, специализирующихся в фармацевтической отрасли, реализовано 46 инвестиционных проектов, объем инвестиций составил 282 млн. долларов США. долларов США произведено 400 наименований лекарственных средств и импортировано 40 наименований специализированных медицинских изделий и медицинской техники, 61 инвестиционный проект стоимостью 449 млн. долларов США в туристско-рекреационных зонах «Чарвок» в Ташкентской области и «Зомин» в Джизакской области республики. Инвестиции в размере 75 млн долларов США, создание 75 туристических инфраструктур [3].

4. Инфраструктура и связь. Развитие инфраструктуры неразрывно связано с экономическими и географическими характеристиками. Инфраструктура региона, т.е. дороги, транспортные и коммуникационные системы, свидетельствует об эффективном и быстром ведении экономической

деятельности: Связь и Интернет: развитие информационно-коммуникационных технологий повышает эффективность экономической деятельности. Если в регионе будет высокий уровень развития интернета и систем связи, это создаст новые возможности для инвесторов. Транспортная инфраструктура: дороги, аэропорты и порты играют важную роль в привлечении инвестиций. Эта инфраструктура повысит эффективность производства и торговли.

5. Факторы окружающей среды. Экологическое состояние региона, как одна из географических особенностей, также влияет на инвестиционный климат. Экологические риски и экологические стандарты: стихийные бедствия, экологическое состояние региона, экологическая политика государства влияют на приток инвестиций. Если территория экологически опасна, инвесторы могут воздержаться от вложений туда. Экологическая устойчивость и чистые технологии: Некоторые регионы с энтузиазмом принимают чистые технологии и «зеленую» экономику, что повышает их инвестиционную привлекательность.

6. Конкуренция и рыночные условия. Ощущение конкуренции в инвестиционной среде региона и улучшение рыночных условий также является одной из важных экономико-географических особенностей. Уровень конкуренции: Если в регионе будет работать много компаний, то деловая среда там будет конкурентоспособной и позитивной, что будет способствовать привлечению инвестиций. Внутренние и внешние рынки: Доступ региона к внешним и внутренним рынкам важен для инвесторов. Центральное или стратегическое значение его местоположения и связи с международными рынками делают регион привлекательным.

7. Международные инвестиционные договоры. Международное деловое партнерство и инвестиционные соглашения еще больше повысят привлекательность региона для инвесторов. Международные соглашения: международные инвестиционные соглашения, региональные торговые организации, позволяют создавать дополнительные льготы для инвесторов и предоставлять обеспечительные документы для инвестиций.

Инвестиционная политика конкретного предприятия как микроэкономической системы может быть создана в случае ее взаимодействия с макроэкономической средой, а именно - с отраслью или регионом, где функционирует данное предприятие. Соответственно, создание и корректировка инвестиционной политики производится при использовании расчетов на основе построения интегрального показателя инвестиционной привлекательности трех ее составляющих: внутренней среды, региона, а также отрасли, где она функционирует [10].

Бенджамин Грэм еще в XX веке сформулировал понятие «инвестиции», дабы провести черту в различии между инвестициями и спекуляциями: «инвестиции – это операции, цель которых - тщательно анализируя ситуацию, сохранить вложенные средства и получить приемлемую прибыль» [5]. Американский экономист, определяя данное понятие, исходит из того, что

вложения, прежде всего, должны подвергнуться глубокому анализу. Благодаря чему инвестор сможет не только сохранить накопленный капитал, но и приумножить его.

Экономико-географические характеристики региона имеют большое значение для повышения его инвестиционной привлекательности и складываются из различных факторов. Географическое положение, экономический потенциал региона, инфраструктура, доступ к природным ресурсам, демографическая ситуация и условия на рынке труда являются ключевыми факторами для инвестиций. Географическое положение, транспортная и логистическая инфраструктура, торговые пути и возможности сотрудничества с соседними странами, а также экологические факторы также формируют инвестиционную привлекательность региона.

Государственно-частное партнерство имеет решающее значение для повышения инвестиционной привлекательности региона. Полное использование экономических и географических возможностей может быть достигнуто за счет эффективной государственной политики в этой сфере, соответствующего законодательства, развития инфраструктуры и улучшения деловой среды. Также важно создать благоприятные условия для развития торгово-экономических отношений с соседними странами региона, привлечения международных инвестиций и инноваций. Географические и экономические условия Узбекистана способствуют повышению привлекательности для новых инвестиций и повышению конкурентоспособности. Одним словом, всесторонний учет экономико-географических особенностей региона и их эффективное использование являются основными путями повышения инвестиционной привлекательности и обеспечения экономического развития.

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ОРГАНИЗАЦИОННО-ПРАВОВЫЕ ОСНОВЫ ОХРАНЫ ИСТОРИКО-КУЛЬТУРНЫХ ТУРИСТИЧЕСКИХ ОБЪЕКТОВ В УЗБЕКИСТАНЕ

Аннотация: *Целью данной статьи является изучение правовых и организационных аспектов охраны туристических объектов, имеющих историко-культурное значение. В статье анализируется необходимость сохранения историко-культурного наследия и передачи его будущим поколениям, развитие туристической отрасли, а также существующая законодательная база и организационные механизмы охраны данных объектов. В статье также обсуждается роль государственного и частного секторов в защите объектов исторического и культурного наследия, глобальное и локальное значение туристических направлений, законы и международный опыт по защите историко-культурных объектов в Узбекистане, механизмы управления, необходимые для эффективное функционирование системы охраны, роль туризма в развитии туризма. Предоставляется информация об охране объектов историко-культурного наследия, поддержании экологического равновесия и популяризации культурного богатства страны в мире.*

Ключевые слова: *организационно-правовая база, нормативно-правовые документы, организации, государственные органы, консервация, цифровая реставрация, формат 3D, памятники истории и культуры.*

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ORGANIZATIONAL AND LEGAL BASIS FOR THE PROTECTION OF HISTORICAL AND CULTURAL TOURIST SITES IN UZBEKISTAN

Abstract: *The purpose of this article is to study the legal and organizational aspects of the protection of tourist sites of historical and cultural significance. The article analyzes the need to preserve historical and cultural heritage and pass it on to future generations, the development of the tourism industry, as well as the existing legislative framework and organizational mechanisms for the protection of these objects. The article also discusses the role of the public and private sectors in protecting historical and cultural heritage sites, the global and local significance of tourist destinations, laws and international experience in protecting historical and cultural sites in Uzbekistan, management mechanisms necessary for the effective functioning of the protection system, the role of tourism in tourism development. Information is provided on the protection of historical and cultural heritage sites, maintaining ecological balance and popularizing the country's cultural wealth in the world.*

Keywords: *organizational and legal framework, regulatory documents, organizations, government agencies, conservation, digital restoration, 3D format, historical and cultural monuments.*

Для развития туризма в каждом регионе и стране особое внимание следует уделять историко-культурным объектам и их охране, а также в первую очередь следует уточнить организационно-правовые основы охраны историко-культурных объектов. Правовые основы — это правовые нормы государства и общества, то есть нормативные документы, установленные в целях охраны памятников истории и культуры, культурного наследия. Эти нормы формируются посредством законов, нормативных актов и международных соглашений. В Узбекистане действует ряд важных законов и нормативных актов в этой области. Например, Закон Республики Узбекистан от 30 августа 2001 года № 269-II «Об охране и использовании объектов культурного наследия», другие указы и постановления предусматривают охрану исторических памятников. Международные организации, такие как ЮНЕСКО, также разработали многочисленные рекомендации и стандарты по защите исторического и культурного наследия.

На охрану историко-культурных объектов распространяется ряд законов и нормативных правовых актов международного, национального и местного уровней. Международные правовые документы, такие как “Конвенция об охране всемирного культурного и природного наследия” (1972 г.), одобренная ЮНЕСКО, помогают государствам защищать культурные и природные объекты. В соответствии с этой конвенцией объекты, включенные в список ЮНЕСКО, находятся под взаимно согласованным международным контролем.

В каждой стране существуют национальные законы и правила по защите исторических мест. В частности, Закон Республики Узбекистан от 30 августа 2001 года № 269-II «Об охране и использовании объектов культурного наследия», Указ Президента Республики Узбекистан от 11 сентября 2023 года № УФ-158 «О Стратегии «УЗБЕКИСТАН - 2030», Постановление Президента

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Когда мы сосредотачиваемся на организационных аспектах охраны историко-культурных объектов, организации и государственные органы берут на себя ответственность за сохранение, содержание, реставрацию и техническую поддержку исторических памятников. Государственные организации по сохранению культурного наследия (например, департаменты культурного наследия, музеи, архитектурные и археологические институты) действуют в различных областях. В то же время туристические организации также работают над тем, чтобы сделать исторические места доступными и безопасными для посетителей.

Система охраны исторических объектов очень сложная и многоступенчатая, в ней действуют следующие организации: Органы государственного управления. В Узбекистане охраной историко-культурного наследия занимаются Министерство культуры и Департамент культурного наследия. Эти органы управляют процессом защиты, осуществляют контроль и разрабатывают нормативные документы. Местные органы власти также играют важную роль в сохранении исторических и культурных объектов. Они контролируют состояние объектов на своей территории и реализуют государственную политику. В этом процессе активно участвуют научно-исследовательские институты, занимающиеся охраной исторических памятников (например, Институт архитектуры и археологии), а также общественные организации. Проводят научные исследования состояния объектов, их реставрацию и реконструкцию. Исторические и культурные объекты не только являются ценными произведениями искусства и культуры, но и могут оказывать влияние на окружающую среду. Поэтому создание экологически безопасной среды имеет первостепенное значение. Сюда входит, например, тщательный выбор материалов и технологий при обслуживании зданий.

Сохранение исторических мест не ограничивается только их защитой. Необходимо также их восстанавливать, сохранять и предоставлять необходимые услуги. Консервация - это процесс сохранения исторических зданий и объектов с использованием необходимых технологий для их защиты от природных воздействий (погодных условий, землетрясений и другие). Для этого используются специальные консервационные материалы и методы. В некоторых случаях в ходе реставрации и реконструкции исторические объекты могут быть повреждены или полностью утрачены. Поэтому возникает необходимость их реставрации и реконструкции, а этот процесс зачастую требует специальных архитектурных и исторических знаний.

Исторические и культурные объекты играют важную роль в развитии туризма. Они не только помогают формировать туристический бренд страны, но и привлекают иностранных туристов. Однако с ростом числа туристов могут возрасти и риски для этих объектов, поэтому необходимо найти баланс, чтобы обеспечить их устойчивое сохранение.

Исторические и культурные объекты являются одним из основных факторов развития туризма. Они могут не только продемонстрировать культурное и историческое богатство страны, но и принести экономическую выгоду. Необходимо создать инфраструктуру (дороги, гостиницы, транспорт и другие), чтобы сделать исторические места доступными для туристов. Исторические и культурные объекты должны служить не только туристическими объектами, но и ресурсами, способствующими обеспечению экологической и культурной устойчивости. Для достижения этого необходимо сбалансировать экологические, культурные и экономические аспекты туристической деятельности.

Вопросы безопасности также очень важны при защите исторических мест. Сюда входят не только природные опасности (пожары, стихийные бедствия), но и те, которые связаны с деятельностью человека (грабежи, незаконная добыча полезных ископаемых, вандализм). Поэтому для обеспечения безопасности необходимо предусмотреть системы видеонаблюдения и естественной охраны. Важно работать с общественными организациями и общественностью для повышения уважения к историческим местам.

Узбекская архитектура уникальна и красочна. Несмотря на современные условия глобализации, в нашей стране сохранились одни из древнейших памятников архитектурного наследия, которые ежегодно посещают миллионы туристов со всего мира. Знаменитые архитектурные ансамбли расположены в Ташкенте, Самарканде, Хиве, Бухаре, Термезе, Шахрисабзе, Коканде и других городах. Среди всемирно известных архитектурных шедевров - архитектурные ансамбли «Пой-Калон», «Исломхуджа», «Ляби-Хауз», «Регистан», «Султан-Саодат», «Джоми», «Сузук-Ота», «Пахлавон», комплекс «Махмуд» и многие другие. Имеются архитектурные ансамбли. Все это связано с тем, что территория Узбекистана была центральным звеном Великого Шелкового пути в средние века, а также

с расцветом исламской архитектуры в XIV-XVI веках и в период Тимуридов. Великолепные медресе и минареты, священные мавзолеи, великолепные ансамбли и мемориальные комплексы, загадочные некрополи и поселения, крепости и дворцы - многочисленные архитектурные памятники позволяют каждому туристу выбрать уникальный маршрут для поездки в любую точку страны.

В этой связи значительна роль международной организации ЮНЕСКО в сохранении и реставрации исторических памятников по всему миру. Под руководством ЮНЕСКО в нашей стране был проведен ряд реставрационных работ. Примерами этого являются раскопки на холме Афросиаб в древнем и вечно молодом городе Самарканде, а также работы по реставрации изразцов в коридорах Аксарая, построенного Амиром Темуром в Шахрисабзе.

Появилась также возможность разработки специальных справочных планов по охране памятников истории и культуры. По их словам, памятники истории и культуры стали основными объектами при разработке генеральных планов не только древних городов, но и отдельных поселений. В связи с быстрой интенсификацией современного градостроительства возникла необходимость в разработке детальных проектов планировки древнейших городов Узбекистана. Аналогичные проекты разработаны для городов Бухара, Самарканд, Хива и Шахрисабз. Четко определены границы охранных территорий, зон регулируемой застройки и ландшафтного сохранения.

В настоящее время на территории нашей страны сохранилось более 8000 археологических памятников, представляющих собой руины городов, селений, курганов, дворцов, усадеб, поселений, где жили древнейшие люди, а также остатки различных сооружений (коризы, сардабы, мосты и другие). При этом образцы древнего искусства, оставленные нашими предками, - петроглифы и древние курганы - также считаются археологическими памятниками. Поскольку археологические памятники ценятся как символы нашей истории, культуры, духовности и ценностей, крайне важно сохранить их и передать будущим поколениям.

Приложение-1, пункт-42 Стратегии «УЗБЕКИСТАН - 2030» предусматривает дальнейшее совершенствование деятельности по охране, научному изучению и популяризации культурного наследия. «Добиться включения не менее 3 уникальных образцов нематериального культурного наследия в международные списки ЮНЕСКО, провести углубленные научные исследования более 30 элементов нематериального культурного наследия, провести работу по сохранению 158 объектов культурного наследия, увеличить ежегодные посещения в музеи до 5 миллионов собрать и оцифровка обеспечена 2,5 миллиона музейных предметов». Пункт-58 направлен на увеличение количества туристов путем создания широких условий для развития иностранного и внутреннего туризма в Узбекистане, в том числе разработку национальной программы «Шедевры древней истории» и реставрацию объектов культурного наследия в ее рамках, Уточняется организация «музеев под открытым небом» в памятниках [2].

Исследователь Ш. Рузиев описал концепции, методы и индикативные методологии управления, которые созданы для совершенствования организационно-экономического механизма историко-культурного туризма, осуществления взаимной интеграции субъектов туризма[10]. Следует также уделить внимание инновационным подходам в охране историко-культурных объектов. В частности, применение новых технологий (цифровая реставрация, виртуальный туризм, 3D-моделирование) в охране историко-культурных объектов имеет большое значение в соответствии с требованиями времени. Это, в свою очередь, создает возможность сохранения исторических памятников на долгие годы и демонстрации их необходимости.

В настоящее время широкое распространение получило использование инновационных технологий при сохранении исторических объектов. Например: цифровая реставрация - создание цифровых моделей исторических памятников, 3D-визуализация и возможности виртуального туризма помогают сохранять исторические объекты и повышать интерес к ним. Создаются цифровые базы данных для мониторинга исторических объектов. Это позволяет регулярно получать информацию о состоянии объектов и принимать необходимые меры.

С помощью современных информационных технологий можно сохранить исторические памятники, особенно находящиеся под угрозой исчезновения, в формате 3D. В 1980-1990-е годы в развитых странах, а с 2000-х годов и в России проводились научные исследования по использованию трехмерного моделирования в исторических исследованиях. 3D (трехмерное) моделирование - это создание трехмерного проекта на основе архитектурного плана или самого артефакта, чертежа, изображения и другие. Используя возможности этой технологии, ее можно эффективно применять при реконструкции чего угодно: от исторических материальных объектов до древних архитектурных сооружений и исторических городов[11].

В настоящее время изучение, сохранение и популяризация историко-культурного наследия посредством виртуальных 3D-моделей широко распространено во всем мире. Виртуальное моделирование - это растущая область во всем мире. На сегодняшний день в этой области реализованы десятки проектов. Эту идею далее развили несколько профессоров и исследователей из Гарвардского семитского музея. По их словам, «современная цифровая 3D» визуализация позволяет проводить полномасштабную виртуальную реконструкцию древних архитектурных остатков, которые в настоящее время лишь повреждены или сохранились частично. Они утверждают, что с помощью цифровой анимации, добавления цвета и световых эффектов можно показать, как эти места и памятники менялись с течением времени - от их первоначальной постройки и древнего использования до их окончательного запустения и разрушения.

Во всем мире широкое распространение получают работы по восстановлению разрушенных или полностью исчезнувших памятников истории и культуры. Иракец Бен Касира основал некоммерческую

организацию **CyArk**, чтобы гарантировать сохранение объектов всемирного наследия для будущих поколений. Институт цифровой археологии (IDA), ЮНЕСКО, инженеры Оксфордского университета, правительство Объединенных Арабских Эмиратов и различные академические партнеры также сотрудничают над созданием «Базы данных миллионов изображений» - базы данных 3D-изображений находящихся под угрозой исчезновения исторических объектов. Они поддерживают виртуальную реконструкцию исторических мест по всему миру, особенно в зонах конфликтов. Они сотрудничают с организациями по всему миру с целью создания 3D-моделей исторических памятников. Несмотря на широкое применение 3D-моделирования музейных экспонатов, создание цифровых моделей масштабных памятников культуры развивается медленно.

С 14 июня 2021 года в рамках программы «Новый Узбекистан Новый взгляд» стартовал новый проект по оцифровке исторических памятников и объектов в формате 3D. Данный проект будет реализован в основном в Самарканде. Среди наших исторических памятников, выбранных для оцифровки, - мавзолей Гур-Эмир, мечеть Биби-Ханым, древнее городище Афрасиаб, обсерватория Улугбека, площадь Регистан и мавзолей Джума. Передовые технологии позволяют нам проводить цифровую реконструкцию наших исторических памятников и представлять их в формате виртуальной реальности. 3D-реконструкция древнего городища «Еркурган» в Узбекистане (руины древнего города IX-VIII вв. до н.э., VI в. н.э.) [9] и согдийской архитектурной крепости «Октепа Юнусабад» (памятник V-XIII вв.) [8] .

Трехмерные виртуальные реконструкции полностью исчезнувших государств, городов и памятников становятся прекрасными выставочными инструментами, которые рассказывают их истории и могут предоставить людям подробную информацию об их истории. Теперь у каждого желающего есть возможность ознакомиться с историческим памятником в любой точке мира. Трехмерные модели являются прекрасным инструментом для визуализации различных состояний памятника без какого-либо вмешательства в оригинал. В отличие от традиционной архитектурно-строительной реставрации, виртуальная реставрация позволяет строить и представлять варианты, гипотетические образы и состояния исторических ценностей, без ставя под угрозу их подлинность [7]. Это, в свою очередь, важно для нас в правильном формировании информации о культурном наследии. Таким образом, создание 3D-моделей памятников истории и культуры дает возможность сформировать базу данных для будущих поколений, а также создает условия для того, чтобы каждый мог наблюдать и изучать памятники истории и культуры в любом месте, в любое время года и суток. Целесообразно широко использовать возможности 3D-моделей для сохранения и передачи будущим поколениям памятников истории и культуры, которые передавались нам от предков на протяжении тысячелетий, а также для развития сферы туризма, которая является считается одной из самых прибыльных отраслей в мире.

Целью проекта является изучение организационно-правовых основ преобразования историко-культурных объектов в объекты туристического назначения и их охраны. Ценность и значимость историко-культурного наследия оказывают существенное влияние не только на внутреннее развитие страны, но и на ее туристический потенциал. Поэтому необходимо сохранять эти объекты и развивать их как пользователей в сфере туризма.

Большое значение имеет совершенствование правовой системы охраны историко-культурного наследия. В Узбекистане действует ряд законов, постановлений и международных соглашений по этому вопросу, которые необходимо эффективно реализовать. Эти законы предусматривают не только защиту культурных объектов, но и их выгодное управление в целях туризма. Эффективное сотрудничество между государственными органами, частным сектором и гражданским обществом имеет решающее значение для сохранения и развития исторических и культурных объектов. Эффективной реализации этого процесса будет способствовать интеграция государственных органов Узбекистана в сфере туризма и культуры, а также органов местного самоуправления и негосударственных некоммерческих организаций. В целях снижения экологических рисков туризма и обеспечения устойчивого развития при сохранении историко-культурных объектов следует также учитывать экологические аспекты. В то же время важно также увеличить экономический потенциал туристического сектора и оказать положительное влияние на местную экономику.

Опыт и международные стандарты, направленные на сохранение историко-культурного наследия во всем мире, также могут быть полезны для Узбекистана. Сотрудничество с международными организациями и использование мирового опыта в сфере туризма и культуры будет способствовать дальнейшему развитию этого процесса. В то же время проблема охраны историко-культурного наследия затрагивает не только законы, но и ответственность людей за развитие культурного сознания, уважение исторических ценностей и передачу их будущим поколениям. Сохранение исторических и культурных ценностей Узбекистана и их популяризация во всем мире создает важную основу для долгосрочного развития.

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КОНЦЕПЦИЯ ТУРИСТСКИХ ДЕРЕВЕНЬ И ТЕОРЕТИКО-МЕТОДОЛОГИЧЕСКИЕ ОСНОВЫ ИХ ИССЛЕДОВАНИЯ

Аннотация: *Данная статья рассматривает теоретико-методологические основы определения понятия туристской деревни и их изучения, а также изучаются теоретические подходы к основным характеристикам туристской деревни и связанных с ней форм туризма, возможностям их развития, влиянию сельского хозяйства на туризм. Научные исследования туристических деревень и их потенциала имеют важное значение для разработки методов, которые служат развитию местной экономики и населения. В статье также представлена информация об основных характеристиках туристской деревни, теоретических и методических подходах к изучению туристских деревень, классификации туристских деревень, нескольких национальных европейских моделях организации сельского туризма, направлениях развития туристских деревень. Результаты анализа, представленные в статье, помогут государственным и местным органам власти в сфере туризма, а также частному сектору разработать стратегии развития туристических деревень.*

Ключевые слова: *сельский туризм, агротуризм, экотуризм, зеленый (деревенский) туризм, усадебный туризм, этнографический туризм, британская модель, французская модель, германская модель, итальянская, модель.*

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THE CONCEPT OF TOURIST VILLAGES AND THEORETICAL AND METHODOLOGICAL BASIS OF THEIR RESEARCH

Abstract: *This article examines the theoretical and methodological foundations for defining the concept of a tourist village and studying them, and also studies theoretical approaches to the main characteristics of a tourist village and related forms of tourism, the possibilities for their development, and the influence of agriculture on tourism. Scientific research on tourist villages and their potential is important for developing methods that serve the development of local economies and populations. The article also provides information on the main characteristics of a tourist village, theoretical and methodological approaches to the study of tourist villages, classification of tourist villages, several national European models of organizing rural tourism, and directions for the development of tourist villages. The results of the analysis presented in the article will help national and local tourism authorities and the private sector to develop strategies for the development of tourist villages.*

Keywords: *rural tourism, agrotourism, ecotourism, green (village) tourism, estate tourism, ethnographic tourism, British model, French model, German model, Italian model.*

Туристическая деревня - это новая форма современного туризма, территория, предназначенная для привлечения туристов за счет использования сельского хозяйства и природных ресурсов. В этом виде туризма туристы приезжают, чтобы познакомиться с жизнью местного населения, его образом жизни, традиционными хозяйствами и природными ландшафтами. Концепция туристической деревни охватывает все аспекты сельской жизни, включая экотуризм, агротуризм и экосистемный туризм.

Туристическая деревня - это комплекс ферм и территорий, предназначенных для привлечения туристов с использованием сельскохозяйственных и природных ресурсов. Этот вид туризма предлагает туристам возможность окунуться в сельскую жизнь, побывать на традиционных фермах, стать ближе к природе и отдохнуть в экологически чистых зонах. Туристические деревни часто ассоциируются с агротуризмом, экосистемным туризмом, экотуризмом и территориями с культурными и историческими ценностями.

Основные особенности туристической деревни:

✓ Природные ресурсы: туристические деревни в районах с богатой природой и экологией часто предлагают туристам новые впечатления.

✓ Развитие сельского хозяйства: сельское хозяйство, традиционная еда и предложение местных продуктов туристам являются одними из основных факторов туризма.

✓ Культурное и историческое наследие: Исторические памятники, культурные традиции и обычаи в деревнях делают туризм более привлекательным.

✓ Несколько форм туризма: такие формы туризма, как агротуризм, экотуризм и культурный туризм играют важную роль в туристической деревне.

При изучении туристских деревень используются следующие теоретико-методологические подходы:

Географические теоретические подходы: Важно проанализировать структуру и процесс развития туристических деревень с географической точки зрения. Главными факторами здесь являются природные ресурсы, климатические условия, местоположение и инфраструктура региона, а также удобства для туристов.

Экономический анализ: При изучении экономики туристических поселков анализируется развитие местной экономики, создание необходимых рабочих мест для местного населения, виды экономической деятельности (например, агротуризм).

Социально-культурный подход: Роль туристических деревень в сохранении и развитии культурного наследия также важна. Необходимо учитывать культурные традиции, обычаи и историческое значение туристических территорий.

Экологический подход: В туристических деревнях важно поддерживать экологический баланс. Рациональное использование природных ресурсов, сохранение биологического разнообразия и развитие экологических навыков являются одними из основных целей экотуризма.

Сельский туризм это динамично развивающийся сектор современной туристской индустрии, ориентированный на использование природных, культурно-исторических и других ресурсов сельской местности и её особенностей для создания комплексного туристского продукта «сельское гостеприимство». В последнее время сельский туризм становится одним из приоритетных направлений на туристском рынке.

Сельский туризм представляет собой слияние, возможно, двух наиболее влиятельных, но противоречивых черт современной жизни. Не только силы экономических, социальных, культурных, экологических и политических изменений работают над переопределением сельских пространств по всему миру, но и широкие глобальные преобразования в моделях потребления и транспорта меняют поведение отдыхающих и путешествия.

Сельский туризм в «чистом виде» имеет ряд характеристик [5]:

1) происходит на сельской территории;

2) сельский по ряду характеристик - предприятия малого масштаба, открытые пространства, взаимодействие с природой и природными объектами, наследие, «традиционные» общества и «традиционность» в повседневной жизни;

3) сельский по масштабам - это касается архитектуры и поселений, обычно малого размера;

4) традиционный по характеру: семейственность, размеренность, органичность. Часто значительная степень контроля на местном уровне, нацеленность на позитивное воздействие на местность в долгосрочной перспективе;

5) разнообразный по характеру, некий комплекс, включающий сельскую окружающую среду, экономику, историю и расположение.

С.М.Трофимова для классификации сельского туризма использовала такие признаки, как регион проведения туризма, потребности в туристском путешествии, основные средства размещения, основные средства передвижения, виды размещения, продолжительность путешествия, состав группы, организационные формы [7].

А.В.Трухачев [8] выделяет признаки классификации сельского туризма в виде основных аттракций, удовлетворяющих потребности туриста в отдельном виде рекреационных занятий в сельской местности, среди которых:

- ❖ активное использование результатов (продуктов) сельскохозяйственного производства в различных формах - гастрономический туризм, агротуризм;
- ❖ активное использование инфраструктуры сельского туристского объекта или в целом сельской местности - зеленый (деревенский) туризм, усадебный туризм, этнографический туризм;
- ❖ активная промысловая деятельности, в т. ч. в диких и культурных сельских территориях - охотничий туризм, рыболовный туризм, сбор дикорастущих плодов, трав, ягод и т. д.

На основе указанных признаков была сформирована следующая классификация видов сельского туризма (рис. 1)

Рисунок-1. Классификация сельского туризма [8]

Сегодня не существует универсального определения данного вида туристской деятельности, но суммируя характеристики «чистого вида», дадим следующие определения: сельский туризм (агротуризм, зеленый

туризм, экотуризм) – это выезд граждан (как местных, так и иностранных) с постоянного места жительства в сельскую местность с размещением в сельских гостевых домах с туристскими целями и/или участием в сельскохозяйственных работах, но без занятий деятельностью, связанной с получением дохода от источников в месте временного пребывания; сектор туристской отрасли, ориентированный на использование природных, культурно-исторических и иных ресурсов сельской местности и ее специфики для создания комплексного туристского продукта. Сельский туризм можно рассматривать не только как туристский продукт, отвечающий современным требованиям, но и как альтернативную, несельскохозяйственную форму занятости в сельской местности, позволяющая решать ряд экономических и социальных проблем.

Сельский туризм выступает масштабным и динамичным сегментом современного туристско-рекреационного процесса. Рост числа его участников, начиная с середины XX века, по мнению большинства исследователей – географов, экономистов, культурологов, социологов и др., определяется целым комплексом факторов, среди которых важнейшую роль играют процессы урбанизации, изменение культуры потребления в постиндустриальном обществе, прогресс в транспортной инфраструктуре, усиление внимания к проблемам сохранения природной и культурной среды [11; 12; 13; 14].

Согласно D.Matei, сельский туризм представляет собой набор действий и услуг, которые предлагаются местными фермерами и крестьянами для привлечения туристов в их местность, а также с целью получения дополнительной прибыли от данного вида деятельности. Сельский туризм дает возможность каждому туристу не только отдохнуть на лоне природы, но и проникнуться в традиции и обычаи местного населения [15].

Не смотря на то, что сельский туризм - новое явление, история развития как вида туризма началась свое развитие в Западной Европе в 60-х и 70-х годах прошлого века. Территориально это явление концентрировалось в преимущественно сельскохозяйственных районах Франции, Италии, Германии. Основной задачей такого вида туризма было сохранение сельских поселений через возрождение ремесел и повышение предпринимательской активности.

На сегодняшний день, сельский туризм - один из наиболее перспективных видов туризма, имеющий положительное влияние на устойчивое развитие территории и получение экономической выгоды. Так, во Франции каждый третий турист - это сельский турист, в Великобритании 10% предпринимателей, ведущих бизнес в сельской местности, предлагают услуги в сфере сельского туризма, в Германии 4 %.

На сегодняшний день сложились несколько национальных европейских моделей организации сельского туризма: британская, французская, германская, итальянская, чешская, испанская, польская и латвийская модель [4].

Характерными чертами **британской модели** являются системы размещения, предусматривающие как контакт с семьей фермера, так и возможность самостоятельного обслуживания, а также, ввиду развитой культуры верховой езды, частые практики общение с животными, поездки. Британская модель включает элементы познавательного и экологического туризма.

Французская модель включает разнообразные формы классического сельского туризма, изменяющиеся в зависимости от близости к морю. Также модель предполагает больший уклон в сторону гастрономического и винного туризма. Формы размещения туристов в меньшей степени предполагают проживание с фермером; туристы размещаются в коттеджах.

Для **немецкой модели**, по сравнению с французской, очень характерно проживание и питание в доме фермера. Также сельский туризм тяготеет к фермерскому, к непосредственной работе в полях или в огороде. Событийный туризм тоже необходимо отнести, в рамках данной модели, к сельскому, виду частых поездок жителей в сельскую местность в период проведения фестивалей.

Итальянская модель делится на три основных направления по специфике предоставления услуг. Это совмещения типичного отдыха в сельской местности с восстановлением здоровья (экотуризм), изучением гастрономии и продуктов местного производства, которые отличаются ввиду их территориальной расположенности, а также занятия спортом. Размещение туристов происходит в апартаментах и комнатах. Иногда встречаются палаточные городки.

Чешская сельская местность привлекает отдыхом в известных винодельческих регионах и регионах, граничащих с заповедными территориями. Для Чехии это сравнительно недавний вид отдыха в селе, поэтому предприниматели склонны рассматривать его как возможность диверсифицировать свой агробизнес. Самый распространенный вид туризма сочетает посещение конных ферм и погружение в аутентичный сельский образ жизни.

Испанская модель - одна из самых наиболее развитых. Распространен отдых в деревне, отдых на ферме, знакомство с бытом, гастрономией, уход за животными.

Польская модель отличается четким разграничением хозяйств, принимающих туристов на те, для которых это единственный бизнес, и те, которые рассматривают туристическую деятельность как источник дополнительного дохода. Средства размещения разнятся в стоимости и качестве предоставляемых услуг

В Латвии сельский туризм - это такой вид отдыха, который предполагает нахождение туриста в сельской местности с численностью местных жителей до 5000 или в поселении, и предоставлении ему персонализированных услуг, связанных с погружением в быт, образ жизни и традиции фермера. Особенность понимания сельского туризма в Латвии - он

должен трудоустраивать и приносить доход тем людям, которые проживают непосредственно в той местности, куда приехали туристы. Это позволяет рассматривать латвийскую модель сельского туризма как инструмент развития территории, а не только как вид туризма. Размещение - до 20 койко-мест, при этом количество мест для туристов -до 50% от мест постоянного проживания. Проведение выездных мероприятий и прием массового туриста, согласно критериям латвийской модели, нельзя считать сельским туризмом. К не рекомендованным видам отдыха относятся активные виды спорта, гольф, палаточные площадки, лыжный спорт. Поддерживается высокий уровень местной кооперации, сотрудничество для достижения общего эффекта, в том числе экономического [6].

Исходя из характеристик мировых моделей сельского туризма, можно сделать вывод, что развитие туризма в сельских регионах - это инструмент перераспределительной модели для сокращения разрыва между наиболее отсталыми сельскими районами и другими отраслями экономики. Эта модель предусматривает следующие положения:

- сельские районы рассматриваются по преимуществу как районы слаборазвитые, структурно отстающие от развития городских районов в силу неблагоприятных природных и социально-экономических факторов;
- потребность развития, применяемая в этой модели, требует диверсификации доходов сельскохозяйственных предприятий, поскольку сельское хозяйство является основной отраслью производства в этих районах. В то же время модель признает, что сельское хозяйство не может быть единственным рычагом, с помощью которого можно преодолеть разрыв между этими районами и остальной экономикой.

Сформулированное Всемирной туристской организацией определение сельского туризма основано на следующих специфических признаках, характеризующих деятельность этого вида туризма [16]:

- расположение в сельской местности;
- функциональное построение туристического продукта, основанное на характеристиках сельского мира (открытое пространство, низкая плотность населения, контакт с природой, традиции, различное количество домохозяйств - обычно распределенных, традиционные и традиционные практики, важные сельскохозяйственные или лесные районы);
- сельская местность (в плане зданий и сооружений - обычно небольшого масштаба - сохранение сельской инфраструктуры);
- традиционный характер (медленный и органичный рост по отношению к местным семьям
- с учетом сохранения сельской функциональности и сохранения сельской жизни);
- разнообразие форм презентации в зависимости от: сельской и экономической среды, исторической и поселенческой (сохранение особой культурной идентичности).

Наличие культурно-исторических ресурсов, в т. ч. археологических и этнографических, создает основу для организации отдыха и досуга в сельской местности [9]. Сельский туризм определяет все сельские предложения, которые не обязательно связаны с крестьянскими хозяйствами. Сельский характер подчеркивается, прежде всего, желанием туристов познать сельские традиции, культуру и природу, провести свободное время в аутентичной сельской среде, где они ищут тишину, чистый воздух и хотят заниматься спортом и ходить в походы [16]. Функциональное разнообразие видов туристско-рекреационных занятий в сельской местности обусловило широкое использование таких смежных с термином «сельский туризм» (rural tourism) определений, как «сельский зеленый туризм» (rural green tourism), с акцентом на аспектах природопользования, «агротуризм» (agrotourism) и «фермерский туризм» (farm tourism), с указанием на приобщение туристов к сельскохозяйственным работам во время пребывания в селе или на ферме [10].

Следующие направления являются ключевыми в развитии туристических деревень:

- Улучшение инфраструктуры: развитие туристической инфраструктуры, такой как дороги, туристические центры, гостиницы и рестораны.
- Привлечение местного бизнеса: сотрудничество с местными фермерами и производителями для представления их продукции туристам.
- Развитие экотуризма: охрана природы, создание мест экологического туризма.
- Маркетинг и реклама: используйте современные методы маркетинга и рекламы для продвижения туристических деревень.

Концепция туристической деревни распространяется по всему миру. Его будущее зависит, прежде всего, от решения экологических проблем, экономического развития, сохранения культурного наследия и повышения уровня жизни местного населения. Основными факторами роста туристической отрасли являются стратегии, направленные на развитие различных форм туризма, инновационных технологий и экотуризма. Концепция туристической деревни и теоретико-методологические основы ее изучения обеспечивают новые подходы и теоретические основы развития туризма. Значительный вклад в развитие туристических деревень посредством специализированных научных исследований и практических занятий будет способствовать разработке новых стратегий в сфере туризма и их реализации на практике.

Туристические деревни, как концептуальное явление, в последние годы становятся неотъемлемой частью глобальной тенденции устойчивого развития туризма. Важным аспектом их развития является взаимодействие с местными сообществами и сохранение культурного наследия. Методологические основы исследований таких объектов требуют междисциплинарного подхода, объединяющего социологию, экономику, экологию и туризм. Это позволяет создать эффективные модели для

поддержания устойчивого туризма в сельских районах, который приносит пользу как местным жителям, так и туристам.

Ключевыми проблемами, требующими дальнейшего исследования, являются:

1. Разработка эффективных механизмов управления туристическими деревнями.

2. Оценка воздействия туризма на местное сообщество и природную среду.

3. Повышение привлекательности сельских территорий для туристов при сохранении традиционных сельских практик и культурных особенностей.

Итак, успешное развитие туристических деревень требует не только соблюдения принципов устойчивости, но и разработки инновационных подходов, которые смогут учитывать интересы различных заинтересованных сторон и соответствовать современным требованиям туристической отрасли.

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ЧИНГИЗ АЙТМАТОВ И ИСКУССТВО КИНО

Аннотация. *Данная статья посвящена изучению творчества известного писателя Чингиза Айтматова и место его произведений в искусстве кино. Отмечено, что основательно автор глубоко изучал мировую, национальную, особенно русскую литературу и кино, они окончательно пленяли его воображение, что впоследствии на их основе он создал свою неповторимую литературу, где отражал не только проблемы национального характера, но и общечеловеческие проблемы и благодаря чему создал незабываемые литературные образы, которые отразились и в искусстве кино.*

Ключевые слова: *писатель, произведение, искусство кино, проблемы, сказки, бабушка, поэзия, этетическое наслаждение.*

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CHINGIZ AYTMATOV AND THE ART OF CINEMA

Abstract. *This article deals with the study of the work of famous writer, world ignificance Chingiz Aitmatov. It is noted that they deeply studied the world, national, especially Russian literature, they completely captivated his imagination, that later on the basis of it he created his own unique literature, which reflected not only problems of a national character, but also universal problems, and as a result created unforgettable literary images noted in the literary process.*

Key words: *writer, work, problems, tales, grandmother, poetry, esthetic pleasure.*

Недавно все прогрессивное человечество отмечало юбилейную дату всемирно известного писателя, государственного деятеля Чингиза Торекуловича Айтматова, киргизскому писателю исполнился 90 лет. За свое творчество он написал много произведений, где он рассказал о наболевших вопросах, которые волновали всего прогрессивного человечество. Талант писателя проявляется в том, что он одинаково удачно смог написать свои произведения на киргизском и русском языках, что дало возможность создать незабываемые образы и в литературе и в кино. Потому что почти все его произведения успешно экранизированы.

Когда Ч.Айтматову было 30 лет, он написал свою повесть «Джамиля». Произведение сразу же получило всенародное признание и принесло славу писателю. Сегодня его произведения переведены более чем на 50 языков народов мира. Начало его литературной деятельности – журналистская работа (с 1952 года) и занятия переводами. И первый его рассказ был опубликован в том же 1952 году. Потом, до 1956 года, были пять лет литературной учебы на Высших литературных курсах в Москве.

В 1963 г. за повести «Первый учитель», «Тополек мой в красной косынке», «Джамиля» Айтматову была присуждена Ленинская премия. Трижды: в 1968, 1977 и в 1983 годах – он был удостоен Государственной премии СССР. Потому что снятые фильмы на основе этих произведений заслужили внимание любителей киноисскусва.

В «Джамиле» рассказывая историю любви, отразившей драматизм общественных конфликтов, писатель показал взаимосвязь важных исторических перемен и нравственных коллизий, которые произошли в сознании людей после победы Октября. Гордый и свободлюбивый характер Джамили сформирован новыми условиями жизни. Она упорна в труде, говорит людям правду в глаза, умеет постоять за свое человеческое достоинство. Когда она встретилась с Данияром, произошло столкновение двух сильных людей, двух ярких характеров, не похожих, но словно созданных друг для друга. С этой встречи и началось их пробуждение, осознание ими самих себя. Тема нравственного пробуждения личности – это и есть главная философская тема повести. Сложен путь Джамили и Данияра друг к другу. И жителя аула трудно было понять их самих, правду их чувства, их право на счастье. Однако герои пошли против устоявшихся обычаев. Их бунт не против законов нравственности, а против того, чтобы человек убивал любовь – эту высшую мудрость жизни. Мы не знаем, как сложится жизнь героев, но хочется верить, что два сильных и любящих человека сумеют пройти через все ее трудности.

В повести «Белый пароход» поднимаются характерные для творчества Айтматова моральные и социальные проблемы: беспощадное разоблачение корысти, общественной трусости, основанной на страхе и лжи. Здесь особенно ощутима боль за бессилие доброты, которая не может защитить человека от зла.

Место действия – маленький лесной кордон. Его населяют люди-антагонисты, силы которых не равны: с одной стороны – семилетний мальчик и его дед Момун, с другой - безжалостный, жестокий Орозкул. Дед Момун не всегда был зависим, беспомощен, тяжело придавлен старостью. Когда-то он был силен, строил Магнитогорск, был стахановцем. Он добр, его волнует судьба дочери, внука. Он мог бы с мальчиком уехать с кордона, но сдерживает его вера в патриархальные родственные отношения, в их нравственность. И, конечно же, он не может предположить, что произойдет трагедия, о которой с такой болью и гневом рассказывает писатель.

Дед учил внука понимать природу (для них обоих она была живой), знакомил его с прошлым своего народа (подарил легенду о Рогатой матери-оленихе, спасшей когда-то киргизский народ), учил радоваться всему живому («Как просто вдруг стать счастливым и принести счастье другому! Вот так и нажо жить всегда!»). Мальчик научился складывать сказки.

Очень лаконично, обманчиво спокойно начинается повесть: «У него было две сказки. Одна своя, о которой никто не знал. Другая – та, которую рассказывал дед. Потом не осталось ни одной. Об этом речь».

Маленького человека лишили веру в сказку. Лишили веру в добро, справедливость. И сделали это взрослые люди, смысл жизни которых должен быть в том, чтобы защитить детей от зла. И среди них – самый близкий человек – дед Момун, не нашедший в себе сил противостоять тому злу, которое жило вокруг него. Это зло воплощено в Орозкуле и ему подобных, считавших, что «красотой сыт не будешь», и потому безжалостно уничтожающих эту красоту.

В один узел стянулись взаимоотношение людей на кордоне: добро и зло, бескорыстие и потребительство, любовь и ненависть к природе, к миру, ко всему живому. Переплелись реальность и сказка. Сюжет легенды о Рогатой матери-оленихе повторяется в действительности. Орозкул жестоко мстит сказке, когда отрубает голову убитой оленихе, ибо он беден душой и не может верить в нее. В его душе нет места для сказки, в которую верит Момун, не имеющий сил постоять за свою веру. И маленький мальчик не захотел более оставаться с ними. Он ушел к своим друзьям – к сказке, к камням, к реке, к белому параходу. Он еще не мог бороться со злом, но и принять его тоже не мог. И потому он ушел из жизни, в которой был так одинок. Ушел в сказку. «Одно лишь могу сказать теперь, – пишет Айтматов, – ты отверг то, с чем не мирилась твоя душа. И в этом мое утешенье. Ты прожил, как молния, однако сверкнувшая и угасшая. А молнии высекаются небом. А небо вечное. И в этом мое утешенье. И в том еще, что детская совесть в человеке – как зародыш в зерне, без зародыша зерно не прорастает. И чтобы ни ждало нас на свете, правда пребудет вовеки, пока рождаются и умирают люди…».

В основе романа «Плаха» – чувство личной ответственности человека за все, происходящее на планете. Это роман-призыв, обращенный к каждому из нас: он призывает человечество осознать свое отношение к Земле, ко всему живому на ней. В романе Ч.Айтматов ведет разговор об экономических и социальных проблемах, которые неразрывно связаны с проблемой нравственной – проблемой состояния человеческой души. Трагедия в Моюнкумской степи – это трагедия не только природы, когда по приказу человека разрушается его гармоничная сущность, но это трагедия и самого человека, приводящая к деформации человеческой личности…

Тема волков, в своей сути более нравственных, чем те люди, которые бессмысленно уничтожают все живое; тема Авдия Каллистратова с его поисками добра в человеке; тема Бостона, который платит высокую цену за

совершенное людьми зло, – все это переплетено в романе Ч.Айтматова и философски осмысляется.

Условно роман можно разделить на 3 части: в первой рассказывается история семейства волков и ставится экологическая проблема; вторая часть – история правдоискателя Авдия Каллистратова – поднимает нравственно-философскую проблему; третья часть, рассказывающая о жизни чабанов, дает возможность писателю решать социальные проблемы.

Суровый реализм романа позволяет Ч.Айтматову показать, что несущие зло и страдание всегда бездуховны. Писатель говорит нам о вине человека за все зло, происходящее на земле, призывает бороться с этим злом и утверждать гуманность в высшем ее проявлении.

Как сказано выше произведения, написанные великим писателем, заслужили заслуживает внимание и читателей, и кинозрителей своим высокохудожественным достоинством, что сделали его произведений вечно живыми. Потому что каждое поколение читателей и кинозрителей находят в что-то свое, что-то любимое.

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УДК 33

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ТЕОРЕТИЧЕСКИЕ АСПЕКТЫ ОЦЕНКИ ФИНАНСОВОГО СОСТОЯНИЯ ОРГАНИЗАЦИИ

Аннотация: *Анализ финансовой (бухгалтерской) отчетности является ключевым инструментом для объективной оценки текущего экономического положения организации и ее финансовых результатов. Финансовое состояние отражает способность предприятия самостоятельно обеспечивать платежеспособность и направлять средства на развитие. Достижение стабильного финансового состояния зависит от поддержания платежеспособности, ликвидности бухгалтерского баланса и финансовой независимости, которые выступают основными показателями устойчивости организации.*

Ключевые слова: *финансовое положение (состояние) предприятия, имущественное состояние, финансовая независимость, финансовая устойчивость, деловая активность, рентабельность, ликвидность.*

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THEORETICAL ASPECTS OF ASSESSING THE FINANCIAL CONDITION OF AN ORGANIZATION

Annotation: *The analysis of financial (accounting) statements is a key tool for an objective assessment of the current economic situation of an organization and its financial results. The financial condition reflects the company's ability to independently ensure solvency and direct funds to development. Achieving a stable financial condition depends on maintaining solvency, balance sheet liquidity, and financial independence, which are the main indicators of an organization's sustainability.*

Keywords: *financial position (condition) of the enterprise, property status, financial independence, financial stability, business activity, profitability, liquidity.*

В современных экономических условиях деятельность каждого предприятия становится объектом пристального внимания различных участников рынка, заинтересованных в его результатах. При этом возрастает важность оценки финансово-хозяйственной деятельности, основой которой является финансовое состояние предприятия. Именно оно определяет конкурентоспособность, деловой потенциал, а также степень защиты экономических интересов как самого предприятия, так и его партнеров.

Финансовое состояние организации формируется на основе внутренних и внешних финансовых отношений, характеризуя ее платежеспособность, кредитоспособность, рациональность использования ресурсов и выполнение обязательств перед государством и другими организациями. Это состояние является индикатором возможностей компании как делового партнера, объекта инвестиций и налогоплательщика, а также отражает ее экономическую устойчивость и готовность к взаимодействию в условиях изменчивого рынка.

Анализ финансового состояния проводится для различных целей: предприятия стремятся повысить рентабельность капитала и стабилизировать свою деятельность, кредиторы и инвесторы — минимизировать риски, а поставщики — обеспечить своевременные платежи. Налоговые органы используют эту информацию для контроля поступлений в бюджет. Таким образом, любое управленческое решение требует экономического обоснования, что подчеркивает значимость оценки финансового состояния.

Процесс оценки включает анализ имущественного положения, финансовой устойчивости, ликвидности и деловой активности. Структура оценки предполагает последовательное выявление проблемных зон, формулирование целей, планирование мероприятий по улучшению финансового состояния, мотивацию персонала и контроль за реализацией этих мероприятий. При необходимости производится их корректировка для повышения эффективности.

Систематический анализ финансового состояния предприятия помогает выявить ключевые факторы, влияющие на его стабильность. Оценка финансовых показателей позволяет предприятию не только стабилизировать отношения с партнерами и инвесторами, но и улучшить свой имидж на рынке. При этом важным условием успешного управления является наличие достоверной, объективной и оперативной информации, поступающей из учетных и внеучетных источников.

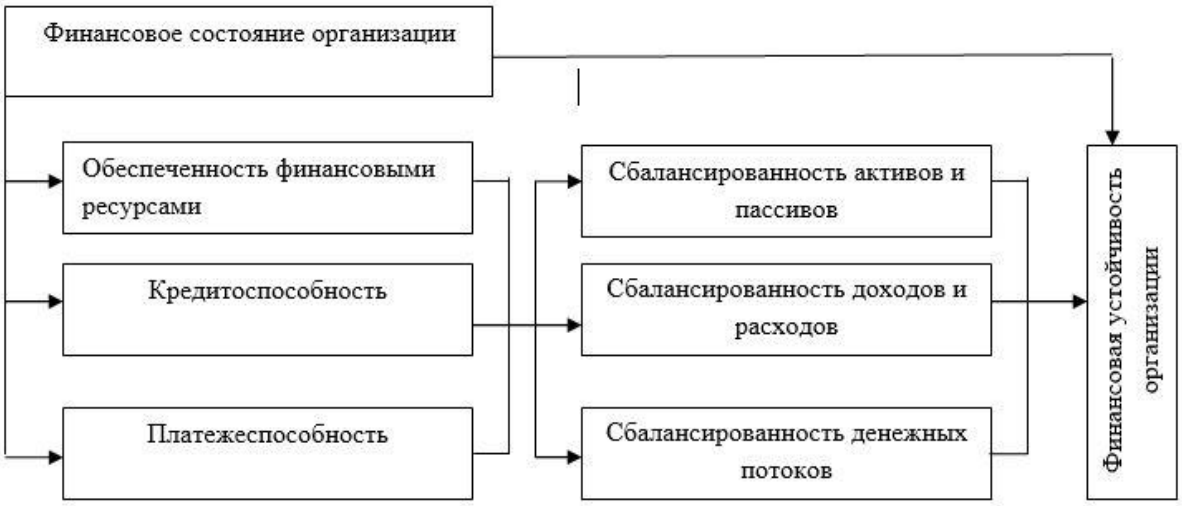

Рисунок 1. Структура финансового состояние организации

Современные рыночные условия, характеризующиеся высокой степенью неопределенности, создают риски для финансовой устойчивости предприятий. Внешние факторы, способствующие банкротству, затрудняют стратегическое планирование и управление. В этой связи особое значение приобретает финансовое оздоровление, основанное на правильно организованном финансовом и управленческом учете. Это позволяет своевременно выявлять проблемы, принимать эффективные меры по улучшению платежеспособности и экономической эффективности предприятия, а также повышать его устойчивость в условиях динамичной рыночной среды.

Общепринятым основным источником финансовой информации считается финансовая отчетность - «это совокупность показателей бухгалтерского учета, отраженных в форме определенных таблиц, которые отражают движение имущества, обязательств и финансовое положение предприятия за отчетный период». Согласно этому положению, основными документами, используемыми при анализе финансового состояния

предприятия, являются документы бухгалтерской отчетности (рис.2).

Рисунок 2. Основные документы, используемые для проведения анализа финансового состояния предприятия

Кроме того, оценка финансового состояния включает изучение динамики финансовых потоков, что позволяет выявить скрытые резервы для повышения прибыльности. Анализ использования активов помогает предприятию оптимизировать свою производственную и инвестиционную деятельность, а выявление причин низкой ликвидности или убыточности способствует оперативному устранению негативных факторов.

С целью предотвращения несостоятельности предприятия акцент делается на разработку стратегических решений, которые не только стабилизируют финансовое положение, но и позволяют адаптироваться к внешним изменениям. Это особенно актуально в условиях глобализации экономики, где успех предприятия зависит от его способности оперативно реагировать на вызовы и использовать появляющиеся возможности.

Таким образом, комплексная оценка финансового состояния является ключевым инструментом управления, обеспечивающим долгосрочную устойчивость, рост и развитие предприятия в конкурентной среде.

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ПРЕДСТАВЛЕНИЯ О ЖЕНСТВЕННОСТИ И РЕАЛИИ В СОВРЕМЕННОЙ ПРОЗЕ

Аннотация: *Статья посвящена реальной жизни женщин в русской и узбекской литературе XXI века. В ней рассматриваются различные образы женщин, стремящихся к самореализации и освобождению от общественных ограничений. В статье подчёркивается, что, несмотря на все трудности жизни, женщины сохраняли свою женственность. Также анализируются литературные персонажи, через которых отражены сложность и многообразие женского опыта в этих двух культурах. В статье рассматриваются семантические особенности художественного сравнения: выявляются основные тематические группы сравнений, которые способствуют формированию женского образа в русской и узбекской литературе.*

Ключевые слова: *художественное сравнение ,предки, святое чувство, объект сравнения образ женщин, общество, модернистское движение ,самореализация и свобода, опыт, ограничения ,любовь к детям, идеалы.*

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IDEAS ABOUT FEMININITY AND REALITY IN MODERN PROSE

Abstract: *The article is devoted to the real life of women in Russian and Uzbek literature of the 21st century. It examines various images of women striving for self-realization and liberation from social constraints. The article emphasizes that, despite all the difficulties of life, women retained their femininity. Literary characters are also analyzed, through which the complexity and diversity of women's experiences in these two cultures are reflected. The article examines the semantic features of artistic comparison: the main thematic groups of comparisons that contribute to the formation of a female image in Russian and Uzbek literature are identified.*

Keywords: *artistic comparison, ancestors, sacred feeling, the object of comparison is the image of women, society, the modernist movement, self-realization and freedom, experience, limitations, love for children, ideals.*

Введение

В последние десятилетия в научном сообществе наблюдается растущий интерес к женской теме. Положение женщины в современном обществе и семье стало объектом всестороннего анализа, проводимого как в рамках отдельных дисциплин, так и на стыке разных областей знаний. Этот интерес обусловлен стремительными социальными и культурными изменениями, происходящими в мире в последние годы, что вызывает естественное желание исследовать новые процессы, трансформирующие общественное сознание. В частности, изменения затрагивают различные аспекты жизни, включая гендерные роли и статус женщин в разных социальных контекстах. Узбекская проза также имеет свои неповторимые женские образы, которые являются отражением особенностей узбекской культуры, традиций и обычаев. Женщины в узбекской литературе часто изображаются как хранительницы семьи и культуры, показывая свою силу и преданность.

В традиционных узбекских семьях женщины имеют определенные роли и обязанности. Они являются матерями и женами, а также участницами общественной жизни. В романах и рассказах узбекских писателей, таких как Хамид Исмаилов и Нодира Абдуллаева, часто отображаются их борьба за свое место в обществе и самоопределение.

Изучение женских образов в литературе разных народов даетвозможность проследить эволюцию представлений о женщине, об ее особенностяхсоциальной роли в обществе, о возможных способах самореализации в ту или иную историческую эпоху , о воплощении художественных приемов в искусстве различных стран.

Многие женские образы отражают сложность и многообразие женского опыта и помогают нам более глубоко осознать исторический контекст и социокультурные факторы, которые формировали представления о женщине.

Тема типов женских образов в русской и узбекской прозах XIX-начала XX века остается актуальной и интересной для исследователей литературы. Она позволяет нам лучше понять эволюцию общества и рассмотреть основные вопросы гендерных отношений, равноправия и социальных изменений.

Времена перемен в XIX-начале XX века привнесли новые идеи равноправия и эмансипации женщин. Это нашло свое отражение в литературе, где появляются образы героинь, стремящихся к самореализации и независимости. Эти женщины активно участвуют в общественной и политической жизни, борются за свои права и выступают против социальных ограничений. Примеры таких образов можно найти в произведениях Александры Колонтай, Вера Фигнер, Валентины Лисицы и других авторов.

Образы феминисток, которых можно найти в русской и узбекской прозе того времени, были представлены как сильные, интеллектуальные и амбициозные женщины, готовые бороться за свои права и равные возможности.Они выступали против стереотипов и предрассудков, их идеи и

борьба вдохновляли многих .Большинство женских образов по рождению принадлежат к правящим домам, что дает им, с одной стороны, очевидные преимущества в виде сословных привилегий , с другой , - статус царственной особы обязывает думать не только о себе , о своих чувствах, но и о судьбе своей страны. Большинство героинь соблюдают нормы морали , не нарушая установленной последовательности – возлюбленная – невеста – жена – мать. Поэтому каждый социально- ролевой переход сопровождается у женских образов значительными идеологическими, психоэмоциональными приращениями, обогащающими их внутренний мир. Как правило , женские образы в литературе являются знаковыми, кодирующими целые эпохи в истории своего народа.При сопоставлении героинь древнерусской и древнеузбекской литератур обнаруживается близость идеальных представлений народов Узбекистана и России о женщине. Её цельный характер писатели наделяют традиционной богобоязненностью, нежностью, трудолюбием. Их жизнь и судьба реализуются в основном в заботах о семье.Однако следует отметить, что не все образы женщин в русской и узбекской прозе XIX-начала XX века были такими яркими и эмансипированными. Многие произведения также содержат типичные идеализированные образы женских героинь, которые подчиняются социальным нормам и ожиданиям общества.Материнство – это необычный подвиг, ведь они выражают готовность без остатка отдать все за здоровье своих чад, жизнь, покой и счастье Эти героини могут быть изображены как верные и покорные жены или безусловно преданные матери.

Публикации, затрагивающие женскую тему, в последние годы частично восполнили пробел, возникший в советский период, когда тема положения женщин часто оставалась на втором плане или подвергалась цензуре. Тем не менее, как показал обзор существующей литературы, обобщающих и комплексных исследований, посвященных жизни женщин в Узбекистане, практически не было за последнее столетие. Это свидетельствует о недостаточной изученности темы и подчёркивает актуальность дальнейших исследований, направленных на более глубокое понимание роли женщины в обществе и семье, а также на выявление культурных и социальных факторов, влияющих на формирование образа женщины в разных исторических и культурных контекстах.

Если мы обратимся к творчеству Вячеслава Шугаева(Русская Венера.1988 г.), то в этом произведении можно подчеркнуть очень многое. Рассказы, созданные писателем в разные годы и вошедшие в этот сборник, посвящены женщинам. Книга рассказывает о воспитании чувств, о добром, мужественном и любящем сердце женщины — подруги, матери, о её взаимоотношениях с родной землёй и соотечественниками. В произведениях затрагиваются важнейшие вопросы, отражающие многогранность и сложность жизни в конце XX века. «Судьба современной русской женщины» — центральная тема рассказов, собранных в книге. Многогранность этой судьбы лежит в основе всех произведений, раскрывая сложность и

уникальность женской жизни. Один из рассказов написан в память о художнике Б.М. Кустодиеве, который ярко и щедро запечатлел созидательную, миротворческую силу русской женщины. Вдохновившись его работами, автор книги решил дополнить сборник портретами кустодиевских женщин, что, на мой взгляд, добавляет необычности и глубины характеристикам героинь. В этом выражается признательность художнику Ю. И. Селиверстову за столь плодотворную мысль, которая повлияла на оформление книги. — В. Шугаев. Изучение художественного наследия великих авторов всегда привлекало внимание лингвистов и литературоведов. Особенно интересным является исследование средств и приёмов, с помощью которых авторы создают образность своих произведений и оказывают эстетическое воздействие на читателя. В этом контексте большое значение имеют экспрессивно-эмоциональные оттенки, которые дополнительно обогащают логическое содержание произведений, делая их более живыми и многозначными.

Произведение Аскада Мухтара «Корни» — один из самых интересных его рассказов, в котором автор затрагивает важные аспекты жизни узбекского общества. В центре повествования — сильные и многогранные образы женщин, которые живут по строгим традициям и обрядам, переданным им от предков. Мухтар мастерски изображает национальный колорит. Женщины Востока в произведении должны не только выполнять семейные обязанности, но и строго следовать вековым узбекским традициям. Эти традиции служат не только основой их жизни, но и неотъемлемой частью их идентичности. В то же время автор не ограничивается простым описанием жизни женщин, подчиняющихся обычаям. «Корни» — это произведение о сохранении культурных ценностей, о важности связи с предками и о том, как традиции могут как поддерживать, так и ограничивать личную свободу. Мухтар поднимает важные вопросы о балансе между старым и новым, между традициями и личной свободой, давая читателю возможность задуматься о глубоких и порой трагичных противоречиях, которые могут возникать в жизни каждого человека, особенно женщины, в контексте сохранения национальной идентичности. «Да наши предки за такое камнями закидывали своих дочерей. Я, конечно, не сторонник этого. Но ценю предков за то, что они высоко чтили честь. Они с молодости берегли честь и совесть. Берегли, как умели. Мы уважаем хорошие обычаи наших предков. К тому же во всех книгах возвеличивают любовь, вы их читали. Мы не смогли получить образование, однако знаем, что значит любовь и в жизни и в бою. Святое, жгучее чувство. Разве девичье целомудрие не входит в эту святость? Не с этого ли в жизнь молодых входит доверие и уважение?»-это слова Марата. Он придерживается поучениям своих предков.»

В рассказе Аскада Мухтара «Корни» мы сталкиваемся с многоплановостью повествования, наличием побочных сюжетов и постепенным, нарастающим накалом страстей, что приводит к трагической развязке событий. Автор не ограничивается только основным сюжетом, но и

рисует сложную картину внутренней борьбы героев, поднимая вопросы нравственности, традиций и личной свободы. Идейным и композиционным центром произведения является образ Мухсины, женщины, придерживающейся передовых взглядов. Она открыто противостоит устаревшим методам, стремится внедрить новые идеи в отношении семейных и бытовых проблем. Ее стремление к переменам сталкивается с традиционным мировоззрением и, в частности, с многочисленными разногласиями между братьями, что становится важной вехой в развитии событий. Мухсина, как символ прогресса, старается объединить противоборствующие стороны, и в ее усилиях прослеживается. Аскад Мухтар мастерски использует диалоги своих персонажей, чтобы передать собственные мысли и суждения. Через них он также раскрывает судьбу узбекской женщины, которая сталкивается с бесчеловечными и жестокими обычаями, существующими в обществе. В этом контексте Мухсина становится воплощением стремления к переменам и освобождению от устаревших традиций. С особой любовью и искренностью автор рисует образ Мухсины, которая, несмотря на жизненные испытания, преодолевает все трудности благодаря своей чистой и всепоглощающей любви к Марату. Она является олицетворением силы духа, готовой бороться за своё счастье и за лучшее будущее. Трогателен также образ матери Марата, женщины, которая, несмотря на потерю мужа, смогла вырастить детей и передать им свою стойкость и жизненную мудрость.

Большое значение в произведении имеет эпизод, когда мать Марата, вспоминая о погибшем муже, говорит: «Как жаль... твой отец не дожил до этого дня...» Это моменты, в которых звучат искренние и болезненные переживания и где смерть, как неизбежная часть жизни, находит своё место в рассказе. Мать Марата делится воспоминаниями о том, как муж вернулся с войны с осколками в теле, а потом трагически погиб, попав в болото, когда они переехали на новое место. Этот момент очень символичен, ведь он подчёркивает, как судьбы героев, пропитанные трагическими событиями, переплетаются с тяжёлыми испытаниями времени. Аскад Мухтар через такие моменты воссоздаёт не только личную историю своих героев, но и трагическую судьбу целого поколения, передавая в своих произведениях боль, любовь и горечь утрат.

Заключение.

К концу XXI века сформировалась относительно устойчивая модель жизни женщин, представляющая собой уникальное сочетание элементов современной (урбанизированной, европейской) и традиционной (архаичной, восточной) культур. Этот процесс формирования образа жизни был неотделим от глубокой модернизации традиционного общества, начавшейся ещё в период колонизации и продолжающейся в последние десятилетия. Модернизация затронула все аспекты жизни, включая социальные, экономические и культурные изменения, что, с одной стороны, разрушило старый уклад, а с другой — открыло пути для внедрения нетрадиционных

элементов в повседневную жизнь и сознание общества. В результате возник многослойный и противоречивый образ женщины, которая, сохраняя уважение к традиционным ценностям и семейным ролям, всё больше интегрируется в новые глобализованные реалии. Женщина, являющаяся синтезом этих двух миров, становится одновременно носителем культурных традиций и катализатором изменений, активно влияющим на эволюцию общества. В художественной литературе образные сравнения часто служат средством усиления выразительности речи и передачи ключевых характеристик персонажей. При создании женских образов литературные сравнения помогают не только ярко описать внешность героинь, их поведение, чувства и мысли, но и передать их восприятие окружающего мира. Сравнения в речи персонажей помогают не только охарактеризовать их поступки, но и выявить их психологическое и физическое состояние, мировоззрение, а также обстоятельства, в которых оказывается героиня. Это позволяет глубже понять внутреннюю борьбу и мотивацию персонажей, показывая их взаимодействие с меняющимся обществом и культурными традициями.

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ПСИХОЛОГИЧЕСКИЙ АНАЛИЗ БРАКА И СЕМЕЙНЫХ ОТНОШЕНИЙ В ПРОИЗВЕДЕНИЯХ ЦЕНТРАЛЬНОАЗИАТСКИХ МЫСЛИТЕЛЕЙ И УЧЕНЫХ

Аннотация. *Восточные мыслители имеют различные мнения и взгляды на семью. В их произведениях широко освещаются вопросы семьи, её значимость, отношения внутри семьи и воспитание. В целом, восточные мыслители глубоко размышляют о семье и подчеркивают её социальное, духовное и моральное значение. Они показывают важность любви, уважения и воспитания между членами семьи, призывая к повышению роли семьи в обществе.*

Ключевые слова. *Семья, брак, семейные отношения, воспитание, "Кобуснома", "Кутадгу билиг", "Туркий гулистон или этика", "Махбуб ул-кулуб", традиции, обычаи.*

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PSYCHOLOGICAL ANALYSIS OF MARRIAGE AND FAMILY RELATIONS IN THE WORKS OF CENTRAL ASIAN THINKERS AND SCIENTISTS

Abstract. *Eastern thinkers have different opinions and views on the family. Their works widely cover issues of family, its importance, relationships within the family and education. In general, Eastern thinkers deeply reflect on the family and emphasize its social, spiritual and moral significance. They show the importance of love, respect and education between family members, calling for an increase in the role of the family in society.*

Keywords. *Family, marriage, family relationships, education, "Kobusnoma", "Kutadgu bilig", "Turkish guliston or ethics", "Mahbub ul-kulub", traditions, customs.*

Введение. В мире есть такое место, к которому мы все стремимся. Мы спешим к нему после работы, трудовых процессов. Там нас ждут близкие, их любовь, а также наши дети и внуки, которые являются смыслом нашей жизни. Это, безусловно, наша семья.

Семья — это священное и величественное место для человека. Человек рождается, растет и развивается именно в этой обители. Семью можно сравнить с маленькой частью общества. Она также является священным, основным местом воспитания.

С помощью примера отца, любви матери, наставлений бабушки и дедушки, верность к национальным ценностям передается из поколения в поколение, запечатлеваясь в сознании и сердце наших детей. Экономически благополучное, социально-этическое и идеологически здоровое общество основывается на крепкой семье. В таких семьях вырастают духовно совершенные личности.

Литература. Множество мыслителей и просветителей Центральной Азии, таких как Абу Наср Форобий, Абу Райхон Беруний, Абу Али ибн Сина, Юсуф Хос Ходжиб, Кайковус, Джалолиддин Руми, Алишер Навои, Мухаммад Бабур, Мунис Хорезмий, Махмудхо'жа Бехбудий, Абдулла Авлоний, Кори Ниёзий, Чулпон, Фитрат и другие, высказывались о семье и семейных отношениях. В их произведениях систематизированы и подняты на уровень учения взгляды на данную тему.

Вопросы создания атмосферы для воспитания совершенного поколения и полноценной личности отражены в "Авесоте" и "Урхун Энаса" и в произведениях таких мыслителей, как Абу Наср Форобий, Абу Райхон Беруний, Абу Али ибн Сина, Юсуф Хос Ходжиб. Эти идеи также связаны с размышлениями современных педагогов.

Мыслители, такие как Кайковус, Саади Шерози, Джомий, Алишер Навои, Абдуроув Фитрат, Абдулла Авлоний, в своих научно-теоретических работах особое внимание уделяют вопросам воспитания в семейных отношениях с точки зрения историчности и наследственности. Вопросы семьи и семейных отношений также изучаются учеными нашей республики, стран СНГ и зарубежья.

Современные ученые, такие как А.К. Муноваров, Шарипова Д.Ж. и Содиков К., исследуют вопросы семейной жизни и отношений, анализируя их педагогические и психологические аспекты. Они занимаются исследованиями, направленными на развитие культуры семейных отношений, улучшение процесса воспитания и воспитание здорового поколения. Произведения этих мыслителей и современных ученых способствуют глубокому изучению вопросов семьи и семейных отношений, улучшению процесса воспитания и воспитанию здорового поколения в обществе.

Анализ и результаты. Кайковус в своем произведении "Кобуснома" рассматривает вопросы уважения к родителям, этики, воспитания, труда и анализа брачных отношений. Особенно акцентируется внимание на ответственности за сватовство, даются советы молодоженам. В "Кутадгу билиг" (знания, приносящие благо) Юсуф Хос Ходжиб показывает, что моральные качества можно достичь через знание и мудрость. В произведении обсуждаются вопросы духовного развития человека, моральных норм и социальной ответственности. Вопросы семьи, семейных

отношений и воспитания занимают важное место в произведении. Автор подчеркивает роль и значимость семьи в обществе. В произведении также рассматриваются вопросы государственного управления, справедливости и руководства.
"Кутадгу билиг" насыщен философскими размышлениями, в которых содержатся глубокие мысли о жизни, целях и нахождении своего места в мире.
В произведении Алишера Навоий "Махбуб ул-кулуб" (Любовь сердец) представлены полезные мысли о человеческом характере, значении слов, хороших поступках и плохих качествах, о браке и его пользе, о семейной этике и достоинствах женщин в семье.

В "Махбуб ул-кулуб" глубоко анализируются суфийские традиции, божественная любовь и вопросы духовного совершенствования. Навоий размышляет о стремлении человеческого сердца к божественной любви и препятствиях, встречающихся на этом пути. Произведение насыщено глубокими размышлениями о духовных ценностях, моральных нормах и внутреннем мире человека. Навоий подчеркивает важность качеств, необходимых для очищения сердца и духовного роста.
Также произведение Абдуллы Авлония "Туркий гулистон ёхуд ахлоқ" является важным источником по этике и вопросам семьи.
Культура взаимных отношений в семье занимает особое место в суфийской философии. В учениях таких выдающихся суфиев, как Ахмад Ясавий, Бахоуддин Накшбанд, Наджмиддин Кубро, акцентируется внимание на роли взаимных отношений родителей в становлении детей и на отношении детей к родителям.

Также значительное внимание к данной теме уделяется в хадисах и произведениях таких великих ученых, как Аль-Бухари и Ат-Термизи. Большинство мыслителей Центральной Азии высоко ставят роль семьи и семейного воспитания в формировании личности. Они подчеркивают священность семьи, уважение к женщине, ведущую роль и ответственность мужчины в домашнем хозяйстве, уважение к старшим и заботу о младших как положительные качества, которые необходимо воспитывать. Их наследие имеет важное значение в эпоху национального возрождения и в стремлении внедрить уникальные ценности, присущие восточным семьям, в практику.
Семья в Востоке, в том числе в Узбекистане, с момента своего формирования прошла долгий и сложный путь. В каждую историческую эпоху отношения между членами семьи обогащались разнообразным содержанием, и семья, преодолевая трудности времени, сохраняла свою сущность как основу общества.

Западные ученые, которые пропагандируют семью как "место, ограничивающее человеческую свободу", не смогли повлиять на это. Семья — это место, удовлетворяющее человеческие потребности;
Семья — это маленькая родина, создающая комфортные условия для жизни;
"Семья — это священное учреждение, обеспечивающее вечность жизни,

преемственность поколений и непосредственно влияющее на то, какими людьми вырастут будущие поколения". Семья — это очаг культуры, поднимающий честь нации на высокую ступень.

Известно, что семья — это союз двух полов — мужчины и женщины, основанный на равенстве, любви и взаимопонимании, стремлении к совместной жизни и продолжению рода, совместных усилиях по экономическому и морально-этическому совершенствованию общества. Это определение относится к современным семьям. В период патриархального общества не существовало никаких представлений о равенстве мужчин и женщин, о любви между ними. В те времена права женщин были ограничены, мужчина мог продать женщину, подарить её другому человеку или унизить. В то время женщина была под контролем мужчины как в семье, так и в обществе. Тем не менее, осознание необходимости накопления богатства в семье и передачи его законным наследникам — детям — сыграло важную роль в развитии семейных отношений. В результате начали обращать внимание на выбор достойной женщины для создания семьи, а следовательно, на необходимость уплаты приданного (махр и калын) или на статус и богатство её родителей. В конечном итоге уважение к целомудрию и добродетели стало традицией. Брак стал обязательным соглашением между двумя полами — юношей и девушкой, в этом случае сексуальные отношения считались законными, и дети, рожденные в результате этого законного брака, ценились как равноправные члены общества. Напротив, дети, рожденные вне брака, считались "харам" и рассматривались как существа, приносящие несчастья обществу, и от них старались держаться подальше. Такие дети не могли быть наследниками имущества отца.

Основным условием законного брака была уплата махра и приданного, что стало ценой целомудрия и девственности. В древнетюркском языке слово "девушка" не означало пол, а подразумевало целомудрие, девственность, редкость и ценность.

Таким образом, махр, калын и свадебные расходы стали ценой, отражающей достоинство целомудрия и девственности. Эта экономическая плата не только была гарантией прочности семьи, но и обеспечивала, чтобы сексуальные отношения между мужчиной и женщиной происходили на основе моральных норм, а также скрывала эти отношения под покровом красоты. Самая ценная значимость этой традиции заключалась в том, что она способствовала здоровью потомства и созданию здорового образа жизни в семье. Поэтому ценность девственности и чувства чести дошли до наших дней и по-прежнему не утратили своей значимости. На этой основе брак стал божественным союзом, а семья — священным убежищем. Чувство чистоты и гордости за родословную в семье развивалось, порождая чувство патриотизма и любви к народу.

В жизни узбекского народа существующие правила и нормы основаны на народных традициях, исламе и шариате. Если проанализировать их

ценность, то можно увидеть, что с древних времен жизнь в Востоке основывалась на семейном образе жизни, где женщины почитались, их не привлекали к тяжелым работам, и их положительные качества полностью признавались. В шариате подчеркивается, что счастье женщины, достигшей совершеннолетия, заключается в создании семьи и рождении детей, что является её первой обязанностью. В нашей стране никто не может посягнуть на заработанное женщиной или её махр.

Кроме того, женщинам не запрещено работать, а, наоборот, им рекомендуется заниматься работой, соответствующей их природе и личности. Женщина всегда находилась под защитой мужчин: до создания своей семьи — под защитой родителей, а после — под защитой мужа, а в старости — под защитой детей.

В хадисах подчеркивается, что связи, происходящие вне брака и семьи, являются запретными, и такие связи ведут к различным несчастьям, печалям и вредным последствиям. Это подтверждает, что среди мусульманских народов, соблюдающих эти правила, внимание и отношение к семье находятся на высоком уровне.

В шариате также определены обязанности людей, живущих в семье: обязанности мужа и жены, обязанности детей перед родителями. Кроме того, одним из обязанностей мужа является доброжелательное и мягкое обращение с женой. В хадисах подчеркивается: "Если ты ешь, то и жену свою накормить должен, если ты одеваешься, то и жену свою одеть должен, не должен её бить, ругать и оставлять без внимания", "Только добрые люди уважают женщин, а только злые обижают их".

В отношении детей к родителям также особое внимание уделяется значению матери, особенно хадис "Рай находится под ногами матерей" имеет большое воспитательное значение. В хадисах говорится: "Повиновение родителям — это повиновение Аллаху. Угождать им — значит угождать Аллаху".

Один человек пришел к Пророку и спросил: "Какое из дел является самым благим?" Пророк ответил: "Уважение к матери". "А потом кто?" — спросил он. "Твоя мать", — ответил Пророк. "А потом кто?" — снова спросил он. "Твой отец", — ответил Пророк.
Еще один человек пришел к Пророку и спросил: "Кому из людей я должен делать добро?" Пророк ответил: "Своей матери".

Таким образом, это духовное наследие нашло свое выражение в научно-философских и этических взглядах мыслителей Центральной Азии. В этих произведениях подчеркивается, что человек является величайшим существом, и идеи, призывающие к счастливой и благополучной жизни, занимают важное место.

По их мнению, только через семейную жизнь можно достичь благополучной жизни. Семейный образ жизни является частью здорового образа жизни. Достижение совершенства также возможно через семейное воспитание, высокие семейные отношения, верность и семейную гармонию.

Поэтому их идеи о создании семьи, обязанностях мужа и жены, обязанностях родителей перед детьми и методах воспитания детей в семье имеют ценность и в наше время.

Такие взгляды на семью и семейное воспитание нашли свое отражение в произведениях Абу Насра Форобий "Город добродетельных людей", Абу Райхона Беруни "Минералогия", "Геодезия", "Индия", "Памятники прошедших поколений", Абу Али ибн Сины "Наука этики", "Домашнее хозяйство", Алишера Навоий "Гайрат ул-аброр" и "Махбуб ул-кулуб". Представители национально-просветительского движения начала XX века, такие как Абдурауф Фитрат, активно стремились к реформированию общества. Он писал с горечью о плачевном состоянии ханств, их отставании от мировых процессов, о духовной нищете.

В произведении "Семья" Фитрат заявляет, что правильная организация семьи, физическое, умственное и моральное воспитание молодежи могут помочь избавиться от этого застоя и реформировать общество. "Судьба нации зависит от состояния семей, в которых живут представители этой нации. Чем сильнее дисциплина в отношениях в семье, тем сильнее и упорядоченнее будет страна и нация", — пишет он в данном произведении.

Фитрат продолжает свою мысль: "Если население страны ослабляет семейные отношения и допускает анархию, то благосостояние и жизнь этой нации окажутся под угрозой". Автор утверждает, что семейная жизнь имеет свои законы, и соблюдение этих законов может спасти людей от невежества. По его мнению, закон о благополучии и счастье семьи — это исламский закон. "Наши несчастья являются результатом каждого нашего действия, связанного с семейной жизнью, мечтами и ошибочными мыслями, которые зачастую противоречат предписаниям Корана. Поэтому семьи, не подвергавшиеся угнетению и насилию, крайне редки".

Кроме того, Фитрат подчеркивает, что в современных развитых исламских странах турецкие, арабские и персидские ученые написали множество книг о семейных отношениях и мире, основываясь на религиозных и светских законах, объясняя семейные вопросы, тогда как другие народы — немцы, англичане и французы — значительно опередили нас в этом вопросе, и именно поэтому они избавляются от невежества и становятся высокоразвитыми нациями.

Фитрат в произведении "Семья" пропагандирует семейный образ жизни: среди древних пророков были и те, кто отказывался от желания иметь семью и детей. Но эта мысль не развивалась, поскольку противоречила законам природы и не находила применения в жизни. Чтобы подобные ошибки и опасности не свалились на голову нации, он анализирует преимущества брака.

"Брак имеет множество сложностей и трудностей. Людям нравится наслаждаться жизнью. Если бы у человека была возможность, он бы никогда не променял бы наслаждение свободой на трудности и страдания, связанные с браком. Поэтому, согласно божественной воле, мужчина и женщина

испытывают влечение друг к другу. В результате они становятся родителями. Именно по этой причине человеческий род сохраняется до конца времен". По словам Фитрата, при вступлении в брак следует учитывать четыре вещи: богатство, родословную, красоту и веру. Брак требует, чтобы богатство и родословная будущего мужа и жены были примерно равны, иначе один из них будет постоянно страдать от недовольства по отношению к другому, если один будет богатым и знатным, а другой — бедным и низким по происхождению. Особенно в нашем народе, который вышел за рамки исламского воспитания, богатство и знатность не приведут к хорошему. Красота означает привлекательность, то есть быть красивым в глазах окружающих, чтобы привлечь их сердце. Это влечение, возникающее в сердце, можно назвать любовью. В жизни, в радости и горе, в трудные времена и в счастливые моменты мужчина и женщина должны совместно выполнять свои личные и социальные обязанности. Если между ними не будет этого сердечного влечения и любви, брак станет лишь источником страданий. Фитрат также утверждает, что целью создания семьи является рождение детей и их воспитание. Если у будущего мужа или жены есть недостатки, препятствующие рождению детей, то вступать в брак не обязательно. Он подтверждает эту мысль с помощью хадисов: "Один человек пришел к Пророку и пожаловался: "Я встретил богатую и знатную женщину, но она не может иметь детей. Могу ли я на ней жениться?" Пророк ответил: "Нет". Когда он пришел в третий раз, Пророк сказал: "В день воскресения я буду гордиться вашим множеством".

Таким образом, Пророк подчеркивает, что каждый мужчина и женщина, желающие быть вместе, должны уделить внимание этому аспекту. Фитрат описывает, каким должен быть свадебный обряд: "В нашей стране свадьбы часто приводят к множеству проблем. В Бухаре есть люди, которые накапливают 5-6 тысяч сумов в течение 10-12 лет, а затем за одну неделю тратят всё это на "свадьбу", снова оставаясь в долгах и бедности. В дни свадеб люди, одетые в красивые одежды, едят и пьют, не интересуясь состоянием хозяев свадьбы. Если вы спросите их: "Зачем вы потратили столько денег на этот черный день?", они не смогут ответить. Такие свадьбы не имеют места в исламском праве, потому что это расточительство, а расточительство в шариате запрещено".

В этом произведении автор также уделяет внимание отношению к женщинам: "Женщины в нашей стране ежедневно подвергаются унижениям и страданиям. Мы, жители Туркестана, считаем наших жен недостойными человечества и не обращаем на них внимания, даже испытывая жалость к животным. Однако мы не можем проявить сострадание к страданиям наших женщин. Мы считаем, что создатель создал женщину только для удовлетворения наших плотских желаний и животных инстинктов. Мы думаем, что Аллах не дал им прав, уважения и способности мыслить. На улицах и в рынках мы получаем ущерб и обиды, а затем возвращаемся домой, чтобы отомстить своим женам. Эта вера укоренилась в нашем сознании.

Женщины действительно лишены многих человеческих качеств. Им необходимо объяснить, что они достойны уважения, чести и защиты своих прав. Они не должны защищать свою честь и веру от своих мужей. То есть моральное мышление и совесть у них исчезли. Мыслительные процессы полностью покинули их, и они стали как машины, подчиняясь указаниям мужей. В заключение, одной из основных причин нашей несчастливой жизни и отсталости является именно это".

Известно, что человек получает первое воспитание в материнской утробе. Это, безусловно, самый важный этап воспитания. Его влияние прочно укореняется в природе человека. Духовная природа, моральные качества и привычки формируются с детства. Теперь подумайте, мы получаем начальное воспитание от наших матерей, почему же мы не можем избежать такой участи? Прежде всего, необходимо навести порядок и справедливость в отношениях между супругами". Фитрат продолжает, что эти отношения должны быть реформированы на основе предписаний Корана. Коранические заповеди описывают отношения между мужем и женой как основное правило. "Каковы права мужа на жену, таковы и права жены на мужа", говорится в суре "Бакара". Из этого аята видно, что Аллах не подчиняет женщин мужьям, а дает женщинам столько же прав, сколько и мужчина

«Кто не проявляет уважения и любви к своему мужу, тот не будет любим и уважаем. В нашей стране мужчины часто выступают против этих условий. Мы, бедные жены, терпим невежливость и неуважение, а затем ожидаем от них любви и заботы», — пишет Фитрат.

«…Кстати, несмотря на то что наши женщины испытывают столько притеснений, они все же подчиняются своим мужьям. Однако их действия не исходят из любви и заботы, а продиктованы безысходностью и угнетением. Поэтому ислам в большей степени обращается к мужчинам, обучая их правилам общения и отношений в семье. Например, в Коране (сура Ниса) есть аят: «Обращайтесь с женщинами хорошо». Кроме того, Фитрат приводит слова Пророка: «Лучшие из вас — те, кто лучше относится к своим семьям. Я более приветлив к своим женам, чем к вам». Самые совершенные верующие — это те, кто проявляет доброту и заботу о своей семье. Тот, кто плохо обращается с женой, не делает добра, а злой человек — это тот, кто причиняет ей вред».

Автор продолжает: «Для того чтобы делать добро женщинам, достаточно этого хадиса».

Ибн Умар рассказывает: «У Османа, который был женат на дочери Пророка, была болезнь во время битвы при Бадре. Из-за этого Осман не пошел на сражение. Пророк сказал ему: «О, Осман, тебе будет дано то же, что и тем, кто участвовал в битве при Бадре».

Как видно, Осман, будучи одним из предводителей сподвижников, остался дома из-за болезни своей жены, но все равно получил награду и добычу как один из воинов. Разве может быть более высокая степень заботы о женщинах?».

По словам Фитрата, знание необходимо для выполнения как религиозных, так и светских обязанностей, и женщины также должны учиться. Мужчины работают с утра до вечера, чтобы обеспечить своих жен. Они общаются как с знакомыми, так и с незнакомыми, и в течение дня несколько раз погружаются в заботы. Когда они возвращаются домой, они мечтают о порядке в доме и о том, чтобы еда была готова. Их жены с радостью встречают их и ожидают, что они помогут им справиться с горестями и трудностями, которые они пережили в течение дня. Образованные и воспитанные женщины делают это с избытком и радуют своих мужей. Они воспитывают своих детей физически, умственно и морально.

Для достижения этой цели наши жены и дочери — матери нации — должны получать образование и развивать свои моральные качества и знания. В противном случае, если наши женщины будут бояться мужчин, они останутся слабыми и безвольными, и наши дети также станут такими же.

В целом, произведение Фитрата посвящено особенностям узбекской семьи, её недостаткам и достижениям, необходимости реформ в стране, основным задачам семьи, воспитанию родителей и детей, а также вопросам положения женщин в семье и их изменениям. Это произведение имеет большое значение и для современности.

Можно сказать, что, используя такое духовное наследие, мусульманские народы, построившие свой образ жизни на его основе, сегодня имеют довольно стабильный семейный уклад.

В узбекских семьях, как части восточной семьи, на основе взаимного уважения и строгой внутренней дисциплины все члены семьи выполняют свои обязанности и проявляют доброту и заботу друг о друге. В Узбекистане честь семьи ставится выше личного благополучия, забота о родственниках и близких, соседях и друзьях является высшей ценностью, и эти качества способствуют созданию искренней атмосферы в семье, связывая её с общиной и обществом, а также укрепляя её.

Дисциплина в семье является основой дисциплины в обществе и государстве. Человек, у которого в семье формируется чувство дисциплины, также будет служить в государственных и общественных делах с таким же чувством, не нарушая законы государства и выполняя каждое дело в соответствии с порядком и временем. Такая дисциплина и порядок становятся гордостью для всего народа и нации. Например, признание дисциплины немцев и японцев на мировом уровне объясняется именно этим.

Фитрат определяет социальную суть такой дисциплины следующим образом: «Счастье и достоинство каждой нации, безусловно, зависят от дисциплины и согласия этого народа. Мир и согласие зависят от дисциплины семей этой нации».

Таким образом, дисциплина, характерная для узбекской семьи, требует от каждого члена семьи осознания своих обязанностей и ответственности, обладания культурой семейных отношений, ведения дел с учетом экономических возможностей семьи, стремления к удовлетворению

интересов семьи и достижения уважения к её чести, что в свою очередь способствует формированию здорового образа жизни в семье. В узбекских семьях с древних времен стремились выполнять эти требования. В результате, сегодня благодаря стабильности узбекского народа развиты такие человеческие качества, как терпение, осторожность и уважение к старшим, что способствует решению различных вопросов.

Поэтому на протяжении всех эпох прилагались усилия к укреплению семьи и обеспечению её целостности. Разводы осуждаются. Если муж умирает по случайности, его жена и дети получают материальную и моральную поддержку от родственников. Забота о сиротах, воспитание их в духе отцовского наставления, постоянное внимание соседей и общины к их состоянию продолжается до тех пор, пока сын не станет взрослым и не возьмет на себя все заботы.

Таким образом, каждый человек, независимо от возраста, пола, мужчины или женщины, живет в семье, что является проявлением человечности. Поэтому, вероятно, с древних времен формирование новых семей начиналось с решения вопроса о том, на ком жениться, на какой девушке. Традиции выбора невесты сохранились как наследие от предков. Это называется сватовство. Они не только объединяют двух молодых людей, но и сближают две семьи, родственные связи. Поэтому сваты, обладая хорошими манерами, вкусом и мудростью, считались подходящими для этой роли. Обычно сватов выбирали среди уважаемых и достойных людей, обладающих репутацией.

Их задача была трудной и ответственной. Слово свата должно быть логичным, надежным и убедительным. После того как невеста была выбрана, сваты от имени семьи жениха идут к семье невесты, чтобы попросить её согласия. Успех их сватовства зависит от многих факторов, прежде всего от самого жениха, его родителей, родственников, а также от мастерства сватов. Обычно такие люди хорошо знали обе семьи и их детей. Опытные родители старались действовать с дальновидностью в вопросах сватовства. Сватам следовало обратить внимание на два аспекта:

1. Проверить невесту. Они в первую очередь обращали внимание на внешний вид и рост невесты;

2. Обратить внимание на порядок в доме, на то, как аккуратно расставлены вещи, а главное — на чистоту и порядок.

Например, сваты из Андиджана поднимали ковер, чтобы проверить, как убрано в доме, а также смотрели на состояние кухни и туалета. В Ферганской долине сваты интересовались, как невеста шьет чепчики, полотенца, покрывала, а также как она умеет готовить и вышивать. Если будущая невеста удовлетворяла сватов по обоим критериям, они терпеливо продолжали свои попытки, пока не получали согласие от владельцев дома. Для повышения статуса невесты сваты не получали согласия сразу после одной-двух встреч.

Наши мысли подтверждаются маленьким отрывком из исторического этнического произведения «Хумойюннома», записанного Мухаммадом

Захриддином Мухаммадом Бабуром. В нем рассказывается о том, как Хумойюн, увидев Хамидабону, отправляет сватов. Хамидабону отвечает: «Я выйду замуж за того, кто сможет дотянуться до моей руки», и в результате сваты терпеливо ожидают её согласия целых сорок дней, пока Хумойюн терпеливо ждет. Хумойюн, будучи правителем своей страны, все же соблюдает традицию сватовства, унаследованную от предков, даже имея возможность добиться своего насильственным путем.

Эта терпеливость свидетельствует не только о стойкости жениха, но и о уважении к невесте, внутренней культуре и почтении. Как сказано в хадисе: «Лучшие качества верующего — это терпение и великодушие». Кроме того, сваты, приходя к невесте, становятся её украшением и репутацией, а также свидетельствуют о силе её характера и жизненной стойкости.

Интересно, что сваты, куда бы они ни пришли, даже если им откажут, будут встречены с гостеприимством. Если им откажут, то хозяева предложат им еду, которую готовили для себя, а если нет — просто ничего не предложат. Самое интересное, если сваты приходят в дом, где невеста не подходит, они больше не вернутся в этот дом.

Существуют традиции, согласно которым вместе с испытанием невесты проверяют также и жениха. В нашем народе будущим женихам дают возможность помочь с работами по дому и выполнить мужские обязанности, чтобы оценить их.

Вывод. Из вышеизложенного видно, что родителям, особенно будущим родителям, без соответствующей информации о сложных и разнообразных корнях общения и секретах семейной жизни трудно добиться заметных результатов в формировании и воспитании здорового потомства. Поэтому очень важно ознакомить семьи с уникальными национальными, региональными и общечеловеческими ценностями, а также с внутренними духовно-психологическими, педагогическими, медицинскими и социально-экономическими процессами современного семейного уклада, а также с обязанностями родителей перед государством и обществом по вопросам рождения и воспитания здорового потомства. Это, безусловно, окажет положительное влияние на формирование крепких и счастливых семей в будущем.

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ВАЖНОСТЬ ИННОВАЦИЙ В ЦИФРОВОЙ ЭКОНОМИКЕ

Аннотация. *В данной статье рассматривается тема "Важность инноваций в цифровой экономике" и анализируется взаимосвязь цифровых технологий и инноваций в современной экономике. В статье рассмотрены основные особенности цифровой экономики, динамика ее развития и влияние на инновационные процессы. Обсуждается, как цифровая экономика может привести к созданию новых бизнес-моделей, продуктов и услуг за счет поддержки инноваций, а также ее роль в ускорении экономического роста. Кроме того, в статье рассматриваются социально-экономические последствия цифровой трансформации, возможности повышения конкурентоспособности и создания новых рабочих мест. Предоставляется информация о том, как предприятия могут повысить производительность и снизить затраты за счет внедрения инноваций.*

Ключевые слова: *цифровые технологии, инновации, бизнес-модели, инновационные процессы, цифровая трансформация, конкурентоспособность, эффективность.*

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THE IMPORTANCE OF INNOVATION IN THE DIGITAL ECONOMY

Abstract. *This article discusses the topic "The Importance of Innovation in the Digital Economy" and analyzes the relationship between digital technologies and innovations in the modern economy. The article examines the main features of the digital economy, the dynamics of its development and the impact on innovation processes. It discusses how the digital economy can lead to the creation of new business models, products and services by supporting innovation, as well as its role in accelerating economic growth. In addition, the article discusses the socio-economic consequences of digital transformation, opportunities for increasing competitiveness and creating new jobs. Information is provided on how enterprises can increase productivity and reduce costs through the implementation of innovations.*

Keywords: *digital technologies, innovations, business models, innovation processes, digital transformation, competitiveness, efficiency.*

Введение. Цифровая экономика - это новая экономическая модель, которая включает в себя экономическую деятельность, осуществляемую с помощью цифровых технологий и интернета. Эта модель требует большей скорости, эффективности и инновационных подходов, чем традиционная экономика. Развитие цифровой экономики также происходит за счет внедрения инноваций. С другой стороны, инновации-это процесс создания и улучшения новых идей, продуктов, услуг или процессов.

В современной экономике взаимосвязь между цифровыми технологиями и инновациями составляет фундаментальную основу любой экономической деятельности. Цифровые технологии, включая интернет, искусственный интеллект, анализ данных и облачные вычисления, играют важную роль в процессах разработки и внедрения инноваций [1]. Анализируя эту зависимость, можно понять, как меняется современная экономика.

Цифровые технологии помогают ускорить инновации. Например, возможности сбора и анализа данных позволяют компаниям быстро определять рыночные тенденции и соответствующим образом реагировать на них.

Связь между цифровыми технологиями и инновациями также важна для повышения конкурентоспособности. Компании могут выводить свои продукты на мировой рынок и привлекать новых клиентов с помощью цифровых инструментов. Это увеличит их долю рынка и усилит конкуренцию [2]. Благодаря инновационным подходам компании могут укреплять свои бренды, улучшать отношения с клиентами и создавать новые возможности.

Связь между цифровыми технологиями и инновациями также имеет социально-экономические последствия. Цифровые технологии открывают новые возможности в образовании, здравоохранении и других областях. Например, многие люди получают доступ к образованию через платформы дистанционного обучения. Это способствует повышению социальной справедливости. Цифровые технологии также вносят революционные изменения в здравоохранение, например, с помощью телемедицины создаются удобства для пациентов. В современной экономике взаимосвязь цифровых технологий и инноваций находит свое отражение в каждой отрасли. Цифровые технологии ускоряют инновационные процессы, повышают экономическую эффективность, повышают конкурентоспособность и оказывают большое влияние на социально-экономическое развитие [3]. Таким образом, цифровые технологии и инновации как дополнительные элементы играют важную роль в развитии современной экономики.

Влияние на инновационные процессы также немаловажно. Цифровая экономика позволяет быстро реализовывать инновационные идеи. Компании будут готовы реагировать на запросы клиентов, тестируя новые продукты и услуги на цифровых платформах. Эти процессы приводят к появлению новых стартапов и бизнес-моделей, а также помогают создавать конкурентоспособные продукты [4]. В результате Цифровая экономика не только обеспечивает экономический рост, но и оказывает огромное влияние

на социально-экономическое развитие. Новые возможности, созданные с помощью цифровых технологий, служат для повышения уровня жизни общества.

Цифровая экономика играет важную роль в создании новых бизнес-моделей, продуктов и услуг за счет поддержки инноваций. Цифровые технологии, такие как искусственный интеллект, большие данные (Big Data) и облачные вычисления, позволяют компаниям принимать быстрые и эффективные решения. Это помогает быстро реализовывать новые идеи и разрабатывать продукты в соответствии с требованиями рынка [5].

Инновации в продуктах и услугах также являются неотъемлемой частью цифровой экономики. Например, удобства для клиентов предоставляются с помощью цифровых платежных систем и мобильных приложений.

Роль цифровой экономики в ускорении экономического роста также значительна. Новые продукты и услуги, созданные с помощью инноваций, диверсифицируют рынок, усиливают конкуренцию и создают рабочие места. В результате Цифровая экономика не только повышает экономическую эффективность, но и поддерживает социально-экономическое развитие.

Цифровая трансформация стала неотъемлемой частью современной экономики. Он коренным образом меняет не только технологические изменения, но и социально-экономическую жизнь. Социально-экономические последствия цифровой трансформации обширны, и она предлагает возможности для повышения конкурентоспособности и создания новых рабочих мест.

Цифровая трансформация играет важную роль в повышении конкурентоспособности организаций и компаний. С помощью цифровых инструментов, таких как искусственный интеллект, большие данные и облачные технологии, компании могут оптимизировать свои процессы, снижая затраты и повышая производительность. Например, анализ данных может выявить потребности клиентов и разработать соответствующие им продукты.

Вывод. Таким образом, внедрение инноваций в цифровую экономику является основой успешной бизнес-стратегии сегодня и служит важным фактором обеспечения будущей экономической стабильности. Важность инноваций в цифровой экономике является неотъемлемой частью современного экономического развития. В этой статье показано, как предприятия могут повысить производительность, снизить затраты и повысить свою конкурентоспособность с помощью процессов цифровой трансформации, новых технологий и инновационных решений. Цифровая экономика позволяет автоматизировать бизнес-процессы, анализировать данные и создавать новые продукты за счет внедрения инноваций. Цифровая экономика также помогает повысить квалификацию сотрудников и повысить их производительность.

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ПРЕДЛОЖЕНИЯ ПО УВЕЛИЧЕНИЮ РОСТА ПРИБЫЛИ ПРЕДПРИЯТИЯ ООО «СЛАВА 07»

Аннотация:*В данной статье рассматриваются основные аспекты внедрения ERP-системы в деятельность компании ООО «Слава 07» с целью повышения эффективности управления финансами и планирования хозяйственной деятельности. Особое внимание уделено анализу экономической эффективности проекта, включая расчет затрат и прогнозируемого экономического эффекта. Кроме того, в статье представлены методы мониторинга реализации проекта, а также рассмотрены основные цели автоматизации процессов предприятия.*

Ключевые слова: *финансовая прибыль, повышение эффективности, деятельность предприятия, развитие экономики.*

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SUGGESTIONS TO INCREASE PROFIT GROWTH OF THE ENTERPRISE OOO «SLAVA 07»

Abstract:*This article examines the main aspects of implementing an ERP system in the activities of OOO Slava 07 in order to improve the efficiency of financial management and business planning. Particular attention is paid to the analysis of the economic efficiency of the project, including the calculation of costs and the predicted economic effect. In addition, the article presents methods for monitoring the implementation of the project, and also examines the main goals of automating enterprise processes.*

Key words: *financial profit, efficiency improvement, enterprise activity, economic development.*

В настоящее время главными процессами в управлении и развитии страны представляет собой повышение эффективности системы экономики в лице государственного финансового контроля.

Необратимые изменения хозяйственных, экологических, технологических и социальных сфер нашей жизни образуют сложную картину взаимодействия и влияния на конкретные предприятия. Что бы выжить и развиваться дальше, им необходимо приспосабливаться к динамично изменяющимся условиям окружающей среды. Для этого нужно принимать и реализовывать сознательные хозяйственные решения. Всегда существует проблема снижения издержек, иначе говоря, повышения долгосрочной и краткосрочной эффективности производства.

Важное направление изыскания резервов увеличения прибыли – сокращение затрат на проведение работ. К примеру, снижение затрат с введением электронного документооборота.

На прибыль от реализации работ, услуг приходится самая большая доля в структуре балансовой прибыли компании. Величина прибыли формируется под влиянием следующих главных факторов: себестоимости услуг, объема реализации и уровня действующих цен на реализуемые услуги. Главнейшим из этих факторов является себестоимость. На себестоимость в структуре цены приходится большая доля, в этой связи уменьшение себестоимости существенно отражается на росте прибыли. Динамика показателя себестоимости услуг интересна и с иной позиции. Сокращение затрат в масштабе народного хозяйства государства говорит, по большому счету, об уровне хозяйствования. Кроме того, оно отражает положительные процессы, происходящие в национальной экономике.

В качестве автоматизации в ООО «Слава 07» рекомендуется установить ERP–систему, которая будет способствовать повышению эффективности работы экономиста в организации, ускорению расчетов, повышению эффективности управления прибылью.

В первую очередь применение ERP-системы призвано способствовать успешной реализации аналогичной бизнес-стратегии, исполнение которой должно обеспечить эффективное планирование ресурсов предприятия и управление ими.

Для этого необходимо оптимизировать работу его подразделений, а именно добиться максимальной согласованности между ними и сократить административные затраты. Этого можно достичь за счёт преимуществ, предоставляемых информационной системой:

– Повышение прозрачности бизнес-процессов.

– Решение проблем с упорядочиванием и поиском нужной информации.

– Повышение достоверности и актуальности данных.

– Увеличение скорости документооборота между подразделениями.

– Организация единого информационного пространства между головным офисом и удалёнными филиалами.

– Сокращение времени заполнения документации и избавление от возможных ошибок.

Для реализации процесса планирования ФХД и контроля в ООО «Слава 07» менеджер использует модель контура управленческого контроля, которая применяется для измерения и оценки деятельности в рамках конкретного проекта (или повторяющейся деятельности) организации (рис. 1).

Рисунок 1 - Модель управленческого контроля

Используемые инструменты на данном этапе:

– SMART-характеристики целей;

– Матрица для расстановки приоритетов по целям.

В таблице 1 представим цели внедрения информационной системы ФХД

Таблица 1 – Цели внедрения информационной системы ФХД в ООО «Слава 07»

Цели	Краткосрочные	Долгосрочные	Приоритет
Необходимо достичь	Снижение трудоемкости работ	Снижение времени создания и согласования документов в организации	1
Желательно достичь	Автоматизация всего документооборота организации	Увеличение объемов оказания услуг	2

Составим дерево целей ООО «Слава 07» на рисунке 2.

Рисунок 2 – Дерево целей проекта в ООО «Слава 07»

Мониторинг внедрения системы в ООО «Слава 07» включал в себя следующий диапазон методов:

– наблюдение и личное участие на всех этапах реализации проекта и доступность для всех его участников;

– текущая статистика показателей деятельности в ООО «Слава 07»;

– отчет об исключительных ситуациях только в случае отклонения от плана и чрезвычайных обстоятельств;

– опросы и обсуждения во время встреч по проекту или телефонных переговоров, связанных с ним.

Проект разработки технологии внедрения информационной системы планирования и контроля ФХД в относится к проектам со средним сроком. За реализацией проекта будет отвечать менеджер проекта.

В результате расчетов выявлено, что затраты на внедрение ERP – системы составят 495 тыс. руб., а годовой экономический эффект составит 1113 тыс. руб.

В результате внедрения ERP–систем произойдет высвобождение рабочего времени сотрудников предприятия, что повлечет за собой условное высвобождение денежных средств (в виде прироста производительности труда работников). Следовательно, работники за тоже время смогут выполнять больший объём работы.

Таким образом, с целью совершенствования организации управления финансами в ООО «Слава 07» предложено внедрение ERP–системы. В работе проведен расчет экономической эффективности реализации проекта по внедрению ERP–системы, NPV которого составил 1827,8 тыс. руб. Как показали расчеты затраты на внедрение программного продукта окупятся за 6 месяцев.

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СОВЕРШЕНСТВОВАНИЕ ОРГАНИЗАЦИОННОЙ СТРУКТУРЫ ПРЕДПРИЯТИЯ ООО «СЛАВА 07»

Аннотация:*В данной статье рассматриваются основные направления улучшения организационной структуры и повышения эффективности деятельности ООО «Слава 07». Основное внимание уделяется внедрению системы менеджмента качества (ISO 9001), реорганизации подразделений для оптимизации взаимодействия между отделами, а также внедрению ERP-системы для автоматизации бизнес-процессов. Также проанализированы мероприятия по оптимизации кадрового состава и улучшению взаимодействия с поставщиками. В статье представлены предполагаемые экономические и операционные выгоды от реализации предложенных изменений, включая снижение затрат, повышение качества продукции и улучшение обслуживания клиентов.*

Ключевые слова: *организационная структура, система менеджмента качества, ERP-система, автоматизация бизнес-процессов, кадровая оптимизация.*

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IMPROVEMENT OF THE ORGANIZATIONAL STRUCTURE OF THE ENTERPRISE OOO «SLAVA 07»

Abstract:*This article examines the main areas of improving the organizational structure and increasing the efficiency of Slava 07 LLC. The main focus is on the implementation of a quality management system (ISO 9001), reorganization of departments to optimize interaction between departments, and the implementation of an ERP system to automate business processes. It also analyzes measures to optimize personnel and improve interaction with suppliers. The article presents the expected economic and operational benefits from the implementation*

of the proposed changes, including cost reduction, improved product quality, and improved customer service.

Key words: *organizational structure, quality management system, ERP system, business process automation, personnel optimization.*

Компания ООО СЛАВА 07, адрес: Пензенская обл., Пензенский район, с. Засечное, ул. Ново-Терновская, д. 1 зарегистрирована 05.09.2007. Организации присвоены ИНН 5829121454, ОГРН 1075809000585, КПП 582901001.

В таблице 1 представим среднесписочную численность сотрудников.

Таблица 1 - Среднесписочная численность сотрудников

Дата	Количество, чел.	Среднемесячная заработная плата, тыс.р.
2021 г.	60 человек	17,4
2020 г.	59 человек	22,2
2019 г.	68 человек	18,5

Согласно данным таблицы 1 в 2019 г. количество сотрудников составляло 68 человек при средней зарпате 18,5 тыс.р., в 2020 г. – 59 человек со средней зарплатой в 22,2 тыс.р., в 2021 г. – 60 человек со средней зарплатой в 17,4 тыс.р.

Основные конкуренты:

– ООО «Фортуна-Алко»;
– ООО «Темп»;
– ООО «Лето»;
– ООО «Глобус»;
– Квартал-19 и др.

Торговый центр «Слава» открылся в районе Гидрострой г. Пенза в октябре 2007 года и по праву считается одним из лучших предприятий торговли района. Общая площадь супермаркета Слава – порядка 1000 кв.м. На них разместились товары, необходимые ежедневно для каждой семьи: продукты категории Fresh,уникальные бакалейные товары, бытовая химия и товары для дома. Супермаркет Слава делает все для того чтобы процесс покупки для покупателей был удобным и комфортным, а деньги потраченные на покупки были гарантированно с выгодой. В будние дни с 8:00 до 11:00 в супермаркете действует акция «Счастливые часы».

Супермаркет Слава - ежедневный помощник в домашнем хозяйстве, который помогает сэкономить время и деньги, а главное – приобрести товары отличного качества недалеко от дома. И в этом покупателям помогает действующая система гарантированных скидок по дисконтной карте, которую получает бесплатно каждый покупатель совершивший покупку на сумму свыше 1500 рублей. Дисконтная карта позволяет владельцу экономить от 3%

до 5% на повседневных покупках. Также данной картой покупатель может воспользоваться в любом супермаркете «Магазина Моего Района».

ООО «Слава 07» входит в союз компании «Магазин моего района». Основной целью деятельности Союза является содействие развитию малого и среднего торгового бизнеса в городе Пенза, защита предпринимательских интересов членов Союза. Проведению общей рекламной и маркетинговой политики членами Союза, проведению совместных стимулирующих мероприятий.

Ассортиментная политика основывается на постоянно проводимых маркетинговых исследованиях и опросах покупателей, что позволяет быстро и чутко реагировать на малейшие изменения в потребительском спросе, вкусе. Союз всегда готов делать покупателям достойные товарные предложения, с широким ассортиментом товаров и услуг высокого качества, гибкую ценовую политику.

Преимущества ООО «Слава 07» относительно конкурентов:

– Удобное расположение супермаркетов в каждом районе города Пензы.

– Широкий ассортимент товаров, в том числе пензенских производителей.

– Гарантированное качество продукции (весь товар сертифицирован).

– Профессиональная организация торгового пространства.

– Доступные цены. Супермаркеты работают в среднем ценовом сегменте.

– Доброжелательные сотрудники.

– Уютные интерьеры магазинов.

– Удобные подъездные пути. Автостоянки

– Узнаваемость бренда «Магазин Моего Района».

На рисунке 1 представим список магазинов, входящих в союз «Магазин моего района».

Рисунок 1 – Список магазинов «Магазин моего района»

Управление предприятием должно осуществляться на базе определенной организационной структуры. Структура предприятия и его подразделений определяется предприятием самостоятельно.

Следует отметить, что структура управления может изменяться во времени и в соответствии с динамикой масштабов и содержания функций управления, в связи с изменяющимися требованиями окружающего общества и др.

Между отдельными подразделениями ООО «Слава 07» существуют как вертикальные, так и горизонтальные связи.

В основу структуры управления организации положена определенная система. Известны три основные системы управления предприятием:

- линейная;
- функциональная;
- смешанная.

На ООО «Слава 07» применена разновидность смешанной системы организационной структуры. Систему ООО «Слава 07» возглавляет директор, которые организует всю работу организации и несет полную ответственность за состояние и деятельность коллектива. Директор представляет предприятие во всех учреждениях и организациях, распоряжается имуществом организации, заключает договора издает приказы, в соответствии с законодательством принимает и увольняет работников, применяет меры поощрения и налагает взыскания работников, а также открывает счета в банке.

В существующей структуре управления руководителю организации непосредственно подчиняются отдел кадров, бухгалтер, отдел информационных технологий, менеджеры по продажам и др. Наглядная система управления представлена на рисунке 2.

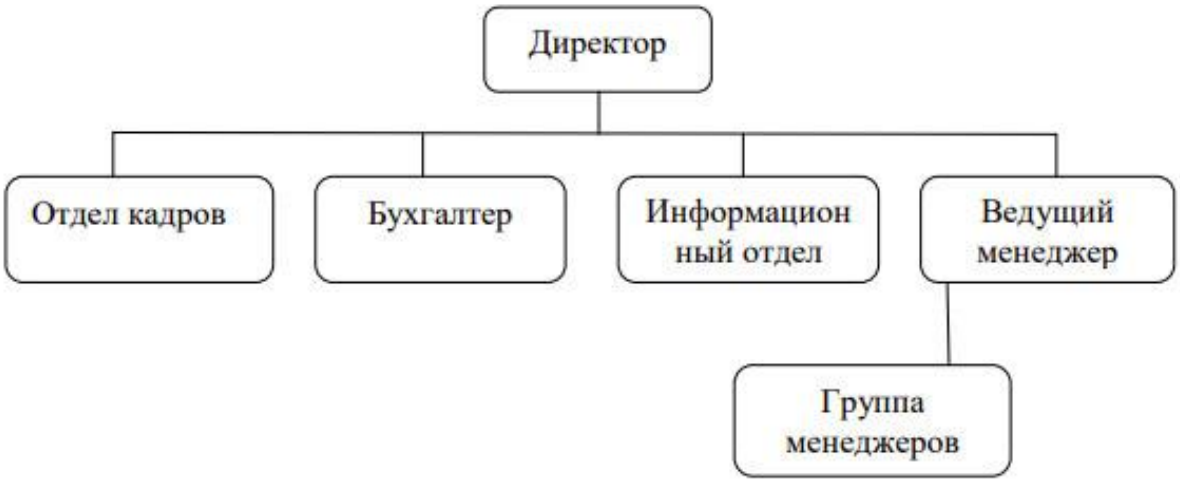

Рисунок 2 – Организационная структура ООО «Слава 07»

Бухгалтерия осуществляет учет средств организации и хозяйственных операций с материальными и денежными ресурсами, устанавливает

результаты финансово-хозяйственной деятельности организации. Руководит работой по планированию и экономическому стимулированию, повышению производительности труда, выявлению и использованию производственных резервов по улучшению производства, труда и заработной платы и др.

Для совершенствования организационной структуры предприятия ООО «Слава 07» предлагаются следующие мероприятия.

1. Следует внедрить систему менеджмента качества (ISO 9001), что поможет улучшить внутренние процессы и повысить качество товаров и услуг. Это позволит значительно уменьшить количество ошибок в работе, ускорить процессы и повысить удовлетворенность клиентов. Внедрение такого стандарта повысит репутацию компании и сделает ее более конкурентоспособной на рынке. Кроме того, стандартизированные процессы управления качеством смогут снизить затраты и повысить производительность труда.

2. Рекомендуется реорганизовать подразделения и уточнить их функции для оптимизации взаимодействия между различными отделами компании. Важно разделить обязанности между отделами, чтобы избежать дублирования функций и повысить эффективность работы. Например, создание нового отдела по работе с поставщиками и оптимизация процессов закупок позволит улучшить логистику и снизить затраты. Это ускорит процесс доставки товаров в магазины и улучшит их качество, что непосредственно скажется на уровне обслуживания клиентов.

3. Необходимо провести оптимизацию кадрового состава. В этом контексте необходимо пересмотреть численность сотрудников с учетом внедрения новых технологий и автоматизации процессов. Создание программы регулярного обучения и повышения квалификации сотрудников позволит значительно повысить их производительность и улучшить качество обслуживания. Это также поможет снизить текучесть кадров и повысить их лояльность.

4. Одним из наиболее важных шагов является автоматизация процессов управления, в частности, внедрение ERP-системы для комплексного учета всех бизнес-процессов – от логистики и финансов до кадровых вопросов. Это позволит минимизировать количество рутинных операций, ускорить документооборот и повысить прозрачность работы компании. В результате, компания будет в состоянии более оперативно реагировать на изменения на рынке и быстрее принимать управленческие решения.

5. Улучшить взаимодействие с партнерами и поставщиками. Для этого можно создать систему мониторинга поставок и разработать новые стандарты для партнерских отношений, а также усилить маркетинговую работу для привлечения новых поставщиков и клиентов. Это обеспечит стабильность поставок и улучшит условия сотрудничества с партнерами, что, в свою очередь, приведет к снижению издержек и повышению качества продукции.

Реализация этих мероприятий принесет ООО «Слава 07» ряд выгод, включая повышение эффективности работы, улучшение качества продукции

и услуг, а также снижение операционных расходов, что позволит компании укрепить свои позиции на рынке и повысить конкурентоспособность:

– Уменьшение операционных расходов за счет оптимизации численности сотрудников и автоматизации процессов.

– Повышение прибыли благодаря снижению уровня дефектных товаров и возвратов, а также улучшению обслуживания клиентов.

– Увеличение рыночной доли и конкурентоспособности компании через выход на новые рынки и улучшение качества продукции.

– Повышение внутренней эффективности компании за счет улучшения коммуникации между подразделениями и своевременного реагирования на изменения внешней среды.

Эти изменения не только оптимизируют текущие бизнес-процессы, но и создадут прочную основу для дальнейшего роста компании.

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ПАТОГЕНЕТИЧЕСКИЕ ОСНОВЫ НАРУШЕНИЯ РЕПРОДУКТИВНОЙ СИСТЕМЫ САМОК КРЫС В ОТДАЛЕННЫХ ПЕРИОДАХ ПОСТРЕАНИМАЦИОННОЙ БОЛЕЗНИ В ПЕРИОД ЭСТРУСА

Аннотация. *В основе механизма нарушений в репродуктивной системе то есть снижение синтеза и секреции ФСГ, ЛГ, эстрадиола, прогестрона, отставание развития фолликулов, увеличение атретических фолликулов, уменьшения желтых тел в отдаленных пеpодах постреанимационной болезни лежит преобладание тонуса симпатической нервной системы, увеличение активности прооксидантной системы, эндогенной интоксикации и снижение коэффициента устойчивости белка.*

Ключевые слова. *Вегетативная нервная система, МДА, каталаза, МСМ254, МСМ280, ФСГ, ЛГ, эстрадиол, прогестерон, яичники, фолликулы.*

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PATHOGENETIC BASIS OF DISORDERS OF THE REPRODUCTIVE SYSTEM OF FEMALE RATS IN THE LONG-TERM PERIODS OF POST-RESUSCITATION ILLNESS DURING ESTRUS

Annotation. *The mechanism of disorders in the reproductive system, that is, a decrease in the synthesis and secretion of FSH, LH, estradiol, progesterone, delayed follicle development, an increase in atretic follicles, a decrease in yellow bodies in remote stages of post-resuscitation disease, is based on the predominance of the tone of the sympathetic nervous system, an increase in the activity of the prooxidant system, endogenous intoxication and a decrease in the coefficient of protein stability.*

Keywords. *Autonomic nervous system, MDA, catalase, MSM254, MSM280, FSH, LH, estradiol, progesterone, ovaries, follicles.*

Введение. В настоящее время развитие общества и индустрии в мире способствует появлению всё новых видов стрессорных факторов. При этом адаптационные возможности женского организма под действием такого рода факторов становятся менее адаптивными, что в свою очередь способствует росту нарушений в репродуктивной системе, вплоть до бесплодия [5,7]. Изучение механизмов развития и патогенетическое лечение женского репродуктивного состояния женщин в настоящее время по всему миру остаётся актуальной проблемой. Соответственно этому, они изучаются и лечатся в широком спектре [13]. При воздействии экстремальных факторов чрезвычайно сильного характера адаптация организма невозможна и происходит срыв адаптации. Что в свою очередь приводит к смертельному исходу.

Современные научные данные показывают что, среднее число внезапной смерти в мире встречаются в пределах 1-6 случаев на 1000 человек населения в год. В Европе за год умирает 350.000 человек, в США в пределах 400.000 человек. По данным всемирной организации здравоохранения 30 смертей на 1.000.000 населения в неделю. В регионах с развитой промышленностью встречается от 15 до 20% всех ненасильственных случаев смерти [15]. После успешной реанимации возникающие метаболические и органические изменения по всему организму дают отражение своих патологических проявлений в первую очередь в Центральной нервной системе (ЦНС), эндокринной системе [1, 14].

В настоящее время по всему миру осуществляются определенные мероприятия по созданию системы здравоохранения, обеспечивающей радикальное увеличение качества и эффективности медицинской помощи населению, включающей в себе раннюю диагностику, эффективное лечение, профилактику и снижение осложнений различных соматических заболеваний. Исходя из обозначенных задач целесообразно проведение научных исследований, направленных на оценку патогенеза нарушений репродуктивной системы в постреанимационном периоде.

Цель исследования. Выявить патогенез нарушения репродуктивной системы самок крыс в отдаленых периодах постреанимационной болезни в период эструса.

Материалы и методы исследование. Исследование проведено на белых крысах самках массой тела 150-180 гр. Изучены реактивность автономной нервной системы, активность прооксидантной, антиоксидантной систем, показатели эндогенной интоксикации, морфофункциональные изменения в бетта и дельта базофилньных клетках аденогипофиза, а также в яичнике.

Клиническая смерть и постреанимационная болезнь смоделирована по методу Корпачева В.Г. (1982), кроме этого иследована реактивность автономной нервной системы [2], активность прооксидантной системы [11], антиоксидантной системы [8], показатели эндогенной интоксикации, коэффициент устойчивости белка [4] и морфофункциональная активность

бета и дельта базофильных клеток аденогипофиза [10], а также изменения в яичнике. Статистическая обработка произведена с помощью стандартного пакета программ Microsoft Office – Excell 2000.

Результаты. К первому месяцу постреанимационного периода животные стали подвижными, вид животных стал опрятным по сравнению с первым днём после реанимации. Коэфициент Хильдебранта снизился до 1,1 раза, то есть автономная нервная система преобрела смешанный тип функционирования. В это время коэфициент Малондиальдегид(МДА)/каталаза был уменьшен до 1,2 раза, показатели эндогенной интоксикации, молекулы средной массы (МСМ)254 в 1,07 раза, показатель МСМ280 до 1,03 раз. Показатель устойчивости белка увеличился до 1,12 раза.

В крови наблюдалось снижение уровня фоликулостимулируюший гормон (ФСГ) в 1,8 раза, лютинизирующий гормон (ЛГ) - в 1,6 раза, эстрадиола в 1,55 раза, гормона прогестрона в 1,45 раза, а по сравнению с данными интактных животных показатели ФСГ, ЛГ - в 1,2 раза, эстрадиола в 1,18 раза и гормона прогестрона в 1,25 раза.

При этом в яичнике примордиальные фолликулы уменьшались до 1,1 раз, первичные фолликулы до 1,09 раз, вторичные фолликулы до 1,04 раз, третичные фолликулы до 1,3 раз, желтые тела до 1,04 раз, а атретические фолликулы увеличились до 1,36 раз по сравнению с данными интактных животных, но показатели незначимы (P>0,05).

Ко 2-му месяцу постреанимационного периода внешний вид животных стал неопрятным, а сами животные раздражительными. При этом коэффициент Хильдебранта увеличился по сравнению показателями 1-го месяца в 1,03 раза (P<0,05), и было установлено, что в реактивности автономной нервной системе преобладает тонус симпатической нервной системы.

При этом в крови показатель в прооксидантной системе МДА увеличился в 1,03 раза, в антиоксидантной системе показатель каталазы снизился в 1,13 раза, а коэффициент МДА/каталаза увеличился в 1,17 раза. В показателях эндогенной интоксикации МСМ 254 увеличилась в 1,1 раза, а показатель МСМ 280 уменьшился до 1,03 раза, а показатель устойчивости белка до 1,14 раза(P<0,05)..

В этот период в крови содержание ФСГ уменьшилась до 1,07 раза, ЛГ 1,04 раза, эстрадиол 1,01 раза, прогестрон до 1,1 раза. По сравнению с данными интактных животных ФСГ уменьшилась до 1,29 раза, ЛГ в 1,25 раза, эстрадиол в 1,19 раза, прогестрон до 1,38 раза (P<0,05). В то же время, если сравнить с данными групп животных, перенесших клиническую смерть во время диэструса в реактивности автономной нервной системы разница не выявлена, то есть в обеих группах преобладал тонус симпатической нервной системы.

Прооксидантной и антиоксидантной системе содержание МДА было больше в 1,2 раза, активность каталазы в 1,23 раза, коэфициент МДА/каталаза

в 1,01 раза. В показателях эндогенной интоксикации МСМ254 были ниже в 1,11 раза, МСМ 280 в 1,02 раза, при этом показатель эндогенной интоксикации был больше в 1,08 раза (P<0,05). А в крови содержание ФСГ было ниже в 1,29 раза, содержание ЛГ было больше в 2,5 раза, эстрадиола в 1,22 раза, содержание прогестрона было ниже в 4,37 раза(P<0,05). В яичнике примордиальные фолликулы продолжали уменьшаться до 1,29 раз, первичные фолликулы до 1,19 раз, вторичные фолликулы до 1,35 раз, третичные фолликулы до 2,69 раз, желтые тела до 1,33 раз, а атретические фолликулы увеличились до 1,55 раз, кистозные образования до 1,4 раз по сравнению с данными интактных животных (P<0,05).

К 3-му месяцу постреанимационного периода животные оставались неопрятными и раздражительными. При этом коэффициент Хильдебранта в 1,06 раза ниже, чем показатели в первые сутки реанимации. В 1,1 раза выше, чем показатели интактных животных (P<0,05)., то есть в этот период в реактивности автономной нервной системе выявлено сохранение тонуса симпатической нервной системы.

В крови в прооксидантной и антиоксидантой системе коэфициент МДА/каталазы уменьшались до 1,7 раза, а по сравнению с данными интактных животных показатель был больше в 1,7 раза (P<0,05). Где содержание ФСГ уменьшалось до 1,9 раза, ЛГ 1,7 раза, эстрадиол в 1,6 раза, прогестрон в 1,73 раза (P<0,05). Если сравнить с данными интактных животных показатель ФСГ уменьшен до 1,33 раз, ЛГ в 1,26 раза, эстрадиол в 1,6 раза, прогестрон в 2,9 раза. То есть выявлено истощение синтеза и секреции гормонов в репродуктивной системе, это доказывает уменьшение ФСГ и ЛГ в крови в этот период болезни (P<0,05).

При этом в яичнике количество примордиальных фолликулов продолжало уменьшаться до 1,35 раз, первичных фолликулов до 1,64 раз, вторичных фолликулов до 1,35 раз, третичных фолликулов до 2,69 раз, желтых тел до 1,74 раз, а атретических фолликулов увеличилось до 1,64 раз, кистозных образований до 1,6 раза по сравнению с данными интактных животных (P<0,05).

Следовательно, при сравнении с данными групп животных с диэструсом на 3-м месяце, в обеих группах преобладал тонус симпатической нервной системы. В прооксидантной системе содержание МДА было больше 1,34 раза (P<0,05), антиоксидантной системе активность каталазы снижена в 1,07 раза. При этом коэфициент МДА/каталаза увеличился до 1,42 раз (P<0,05), а показатель эндогенной интоксикации МСМ254 уменьшен до 1,07 раз, показатель МСМ280 увеличен до 1,08 раз. Показатель устойчивости белка был больше в 1,17 раза (P<0,05). А в показателях гормонов репродуктивной системы содержание ФСГ уменьшено в 2,1 раза(P<0,05), показатель ЛГ был больше в 2,81 раза(P<0,05), эстрадиол в 2,64 раза(P<0,05), а показатель прогестрона был меньше в 4,6 раза(P<0,01). В яичнике количество примордиальных фолликулов были больше до 1,06 раз, первичных фолликулов до 1,02 раз, вторичных фолликулов до 1,06 раз, третичных

фолликулов до 1,33 раз (P<0,05), желтых тел до 1,37 раз (P<0,05), атретических фолликулов было меньше до 1,27 раз, кистозных образований в 1,37 раза (P<0,05).

Обсуждение. Если полученные данные животных перенесших постреанимационную болезнь в течение одного месяца сопостовлять с данным Карабаева А.Г. (2022) в это время у самцов крыс преобладал тонус симпатической нервной системы, а в наших данных у самок наблюдался смешанный тип автономной реактивности. Кроме этого уменьшение активности прооксидантной системы, увеличение активности антиоксидантной системы, снижение показателей эндогенной интоксикации, увеличение коэффициента устойчивости белка, можно связать с высоким уровнем эстрадиола в крови по сравнению с данными животных в диэструсе, а также показателей самцов [3].

Интерпритируя полученные данные с данными Узбекова М.Г.(2014), Курашова Н.А (2012) в этот перод механизм нарушения репродуктивной системы можно обяснить таким образом. В отдаленных периодах постреанимационной болезни преобладание тонуса симпатической нервной системы способствовало дальнейшему увеличению активности прооксидантной системы, истощению антиоксидантной активности, увеличению эндогенной интоксикации, снижению коэффициента устойчивости белка, которые в свои очередь скорее всего способствовали снижению синтеза ФСГ, ЛГ в бетта-базофильных клетках аденогипофиза, соответсвенно и синтеза с секрецией эстрадиола в кровь. Нехватка этих гормонов в свою очередь способствовала отставанию развития фолликул и развитию атреческих фолликулов, желтых тел и синтеза прогестрона в яичнике.

Выводы. В отдаленных перодах постреанимационной болезни в основе механизма нарушений в репродуктивной системе то есть снижение синтеза и секреции ФСГ, ЛГ, эстрадиола, прогестрона, отставание развития фолликулов, увеличение атретических фолликулов, уменьшения желтых тел лежит преобладание тонуса симпатической нервной системы, увеличение активности прооксидантнй системы, эндогенной интоксикации и снижение коэффициента устойчивости белка.

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МАСОФАДАН ЗОНДЛАШ МАЪЛУМОТЛАРИНИ САМАРАЛИ ҚАЙТА ИШЛАШДА ГАТ ТЕХНОЛОГИЯЛАРИДАН ФОЙДАЛАНИШ

Аннотация: *Ушбу илмий мақолада масофадан зондлаш материалларини қайта ишлаш асосида ландшафт карталарини яратиш методикасини такомиллаштириш, замонавий геоматика илмий-техник ривожланишининг муҳим йўналишлари хақида маълумотлар берилади.*

Калит сўзлар: *Спектрал таҳлил, интерполяция, GIS, моделлаш, геоматика.*

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UTILIZATION OF GIS TECHNOLOGIES IN THE EFFICIENT PROCESSING OF REMOTE SENSING DATA

Abstract: *In this scientific article, information is provided on improving the methodology for creating landscape maps based on the processing of remote sensing materials, which is one of the important directions in the modern scientific and technical development of geomatics.*

Key words: *Spectral analysis, interpolation, GIS, modeling, geomatics.*

Замонавий геоматика илмий-техник ривожланишининг муҳим йўналишларидан биридир. Бу жараёнда масофадан зондлаш маълумотлари (МЗМ), масалан, спутниклар, самолётлар ёки дронлар орқали олинган расамлар ва маълумотлар асосида ландшафтнинг турли хусусиятлари (рельеф, ўсимлилик, сув объектлари ва бошқалар) аниқланади ва картага айлантирилади.

Ландшафт деганда бир майдоннинг кўзга кўринадиган хусусиятлари, жумладан, рельеф, сув омборлари, ўсимликлар ва инсон томонидан яратилган иншоотлар каби физик элементлар, шунингдек, умумий манзаралар киритилади. Ландшафтлар табиий манзаралардан тортиб, шаҳар пейзажларигача бўлиши мумкин ва улар экология, маданият ва инсон фаровонлигида мухим рол ўйнайди.

Ландшафт карталарини яратишда Географик ахборот тизимлари (ГАТ) дастурларини қўллаш технологияларини такомиллаштириш, замонавий геомаълумотларни ишлаб чиқиш ва таҳлил қилишда муҳим аҳамиятга эга. Бу технологиялар ландшафтнинг турли жиҳатларини аниқ ва батафсил тасвирлаш, таҳлил қилиш ва режалаштириш имкониятини беради. Қуйида

ГАТ технологияларини такомиллаштиришнинг асосий йўналишлари келтирилган:

1. Маълумотларни тўплаш ва ишлаш технологияларини такомиллаштириш

- Масофадан текшириш: Сунъий йўлдошлар, учувчисиз қурилмалар ва самолётлар орқали олинган маълумотлардан фойдаланиш. Бу маълумотлар ландшафтнинг юзаси, ўсимликлиги, сув манбалари ва бошқа элементларини аник тасвирлаш имкониятини беради.
- Лазерли сканерлаш (LiDAR): Ландшафтнинг баландлиги, рельефи ва бошқа геометрик хусусиятларини аниқ ўлчаш учун фойдаланиш.
- GPS/ГЛОНАСС технологиялари: Маълумотларни аниқ координаталарда тўплаш ва таҳлил қилиш.

2. Маълумотларни таҳлил қилиш ва модельлаштириш

- 3D моделлаштириш: Ландшафтнинг уч ўлчамли моделларини яратиш, рельефнинг динамикасини кўрсатиш.
- Геостатистика: Ландшафтнинг турли параметрлари (ҳарорат, намлик, тупроқ тури) бўйича таҳлилларни амалга ошириш.
- Машин таълими ва сунъий интеллект: Ландшафт маълумотларини автоматик таҳлил қилиш, прогнозлаш ва моделлаштириш учун алгоритмларни ишлаб чиқиш.

3. ГАТ дастурларини интеграцияси

- Интерактив карталар: Фойдаланувчилар учун осон ишлатиладиган ва аниқ маълумотларни кўрсатадиган интерактив карталарни яратиш.
- Булутли технологиялар: Катта ҳажмдаги маълумотларни сақлаш ва уларга тезда кириш имкониятини беради.
- Мобил ГАТ: Мобил қурилмаларда ишлатиладиган ГАТ дастурларини ишлаб чиқиш, майдонда маълумотларни тўплаш ва таҳлил қилишни осонлаштириш.

4. Маълумотларни визуаллаштириш

- Веб-ГАТ: Веб-платформалар орқали ландшафт маълумотларини визуаллаштириш ва уларга киришни осонлаштириш.
- AR/VR технологиялари: Ландшафтнинг виртуал моделларини яратиш, режалаштириш ва таълим мақсадларида фойдаланиш.

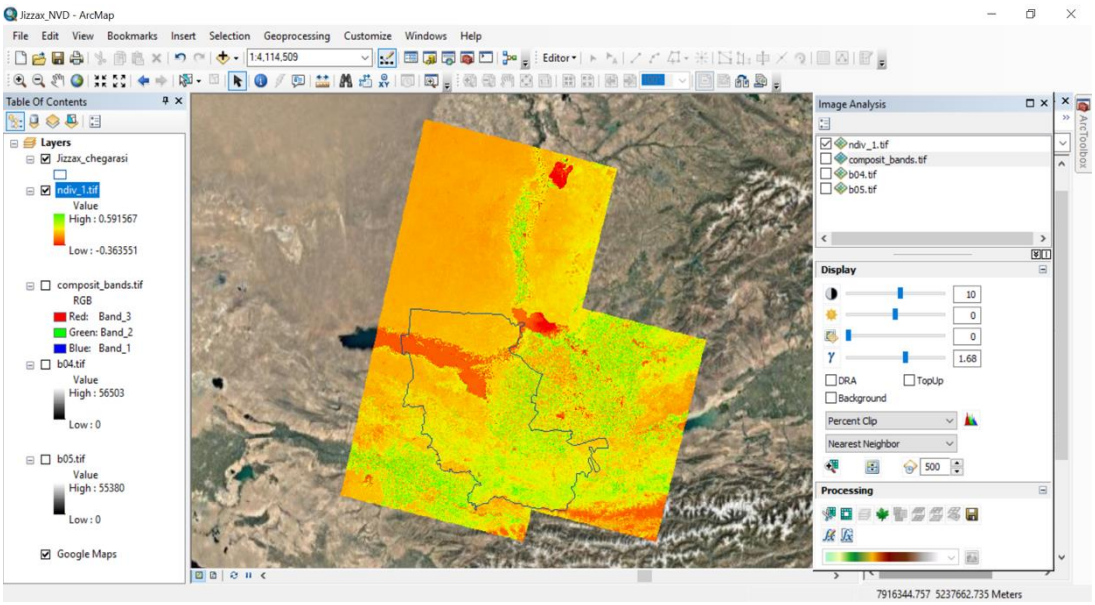
5. Маълумотларни бошқариш ва уларга кириш

- Маълумотларни стандартлаштириш: Турли манбалардан олинган маълумотларни бирлаштириш ва уларни ГАТ дастурларида ишлатиш учун стандартларни ишлаб чиқиш.
- Очиқ маълумотлар платформалари: Ландшафт маълумотларини оммага очик қилиш, тадқиқотчилар ва режалаштирувчилар учун фойдаланишни осонлаштириш.

6. Экологик таҳлил ва мониторинг

- Ландшафтнинг экологик холатини кўзда тутиш: Ландшафтнинг экосистемасини мониторинг қилиш, табиий ва антропоген таъсирларни баҳолаш.

• Табиий офатларнинг олдини олиш: Ландшафтнинг ўзгаришларини кўзда тутиб, табиий офатларнинг олдини олиш учун моделлаштириш.



1-расм. Космик суратни қайта ишлаш.

Геостатистик методларни қўллаш:

• Интерполяция: Нокомус маълумотлар нуқталари орқали ландшафтнинг бир бутун картасини яратиш (масалан, рельефнинг баландлигини аниқлаш).

• Моделлаш: Ландшафтнинг динамикасини ва унинг ўзгаришларнинг олдини олиш учун математик ва статистик моделларни ишлаб чиқиш.

МЗМ маълумотларини қайта ишлаш асосида ландшафт карталарини яратиш методикасини такомиллаштириш, замонавий гео информатиканинг асосий вазифаларидан биридир. Бу жараёнда маълумотларни самарали қайта ишлаш, геостатистик методлар, 3D моделлаш, интеграция ва автоматик тизимларни ишлаб чиқиш каби йўналишлар алохида аҳамиятга эга. Бу методикаларнинг такомиллаштирилиши ландшафтнинг аниқ ва деталли картасини яратишга, табиий ресурсларни самарали бошқаришга ва экологик шароитни яхшилашга хизмат қилади.

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ФАЗЫ ПАМЯТИ: ПРОЦЕСС ЗАПОМИНАНИЯ И ВОСПОМИНАНИЯ

Аннотация: *Статья рассматривает фазы памяти: процесс запоминания и воспоминания, приведены некоторые тесты по улучшению человеческой памяти.*

Ключевые слова и понятия: *человеческая память, фазы памяти, личность, запоминание, системность, интегрированность, воспоминание.*

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PHASES OF MEMORY: THE PROCESS OF MEMORY AND RECALL

Annotation: *The article examines the phases of memory: the process of memorization and recollection, and provides some tests to improve human memory.*

Key words and concepts: *human memory, memory phases, personality, memorization, consistency, integration, recollection.*

Для того, чтобы вспомнить, что мы делали вчера, наш мозг должен произвести серию процессов. Каждый процесс необходим для доступа к воспоминаниям. Таким образом, нарушение любого из этих процессов не позволит нам вспомнить информацию. Чтобы создать воспоминание, наш мозг должен пройти через следующие фазы: Кодирование: на этой фазе в нашу систему памяти с помощью восприятия мы добавляем информацию, которую мы запоминаем. Например, когда нам кого-то представляют по имени. Необходимо обратить внимание на эту информацию, чтобы закодировать её. Хранение: чтобы удержать информацию надолго, мы сохраняем её в системе нашей памяти. Например, мы можем запомнить лицо человека и его имя.Восстановление: когда мы хотим что-то вспомнить, то обращаемся к хранилищу памяти и восстанавливаем нужную информацию. Например, чтобы, увидев человека на улице, вспомнить, как его зовут. Примеры памяти.Благодаря этой способности мы помним, где живём, как зовут наших родителей, лица наших друзей, что мы ели вчера на обед и даже какой город является столицей нашего государства.Память позволяет нам вспомнить о собрании на работе, запомнить имя клиента или пароль на компьютере.Учиться в школе или университете было бы невозможно без нашей системы хранения воспоминаний. Также нам было бы сложно запомнить дату экзамена или что мы запланировали сделать. При вождении

автомобиля данная способность помогает нам вспомнить нужный маршрут. Также с её помощью мы помним, где припарковали машину, да и сам процесс вождения. Амнезия и другие расстройства памяти.Исследования нарушений данной когнитивной функции помогли выяснить, что на самом деле представляет из себя память и как она работает. Являясь сложнейшей когнитивной функцией, она может пострадать в разной степени и по разным причинам. С одной стороны, специфические поражения могут быть связаны с двойной диссоциацией систем памяти. Это означает, что может быть повреждена одна из систем, в то время как другие не пострадают (например, может быть нарушена долговременная память при нормальном функционировании кратковременной). С другой стороны, подобные расстройства могут быть связаны с нейродегенеративным заболеванием (деменции и болезнь Альцгеймера), приобретённым церебральным поражением (черепно-мозговые травмы, инсульт, инфекции и другие болезни), врождёнными проблемами (паралич мозга и другие синдромы), с психическими расстройствами и расстройствами настроения (шизофрения, депрессия и тревожность), потреблением различных веществ (наркотики и медикаменты) и т.д. Также отдельные виды памяти могут быть нарушены при таких расстройствах обучаемости, как СДВГ, дислексия или дискалькулия.

Наиболее распространённым расстройством памяти является потеря памяти, например, при болезни Альцгеймера. Потеря этой способности известна как амнезия. Амнезии бывают антероградные (неспособность приобрести новые воспоминания) и ретроградные (неспособность вспомнить прошлое). Также существуют расстройства, при которых нарушено содержание воспоминаний (фабуляции и конфабуляции), гипермнезии. Характерные для Синдрома Корсакова конфабуляции представляют собой непроизвольные ложные воспоминания, при которых забытая информация заменяется вымышленными фактами. Гипермнезии, в свою очередь, представляют собой непроизвольное и слишком детальное воспоминание малозначимых, несущественных деталей, что характерно, в частности, при посттравматическом стрессе. Как можно измерить и оценить состояние нашей памяти? Тестирование состояния нашей памяти очень полезно, поскольку она имеет важнейшее значение в учебной сфере (для того, чтобы понимать, будет ли ребёнок испытывать трудности с запоминанием пройденного материала и нуждается ли в дополнительной помощи), в медицине (для того, чтобы понимать, будет ли помнить пациент какие ему нужно принимать лекарства, может ли он быть самостоятельным или ему необходима помощь), на работе (для того, чтобы понимать, может ли человек занимать определённую должность) и в нашей повседневной жизни. С помощью комплексного нейропсихологического тестирования можно надёжно и эффективно измерить память и другие когнитивные функции. CogniFit ("КогниФит") предлагает серию тестов, которые оценивают некоторые субпроцессы памяти, такие как кратковременная фонологическая память, контекстуальная память, кратковременная память, невербальная память, кратковременная зрительная

память, рабочая память и распознавание. Тесты CogniFit ("КогниФит") основаны на классическом Тесте на Длительное Поддержание Функции (CPT, Тест Коннера), Шкале Памяти Векслера (WMS), NEPSY (Коркман, Кирк и Кемп), Тесте Переменных Внимания (TOVA), Тесте на Симуляцию Нарушений Памяти (TOMM), Тесте "Лондонская башня" (TOL) и Задаче Визуальной Организации Хупера (VOT). С помощью этих тестов кроме памяти также можно измерить время отклика или реакции, скорость обработки информации, память на имена, зрительное восприятие, мониторинг, планирование, визуальное сканирование и пространственное восприятие.Последовательный Тест WOM-ASM: на экране появится серия шаров с различными цифрами. Необходимо запомнить эту серию цифр, чтобы затем воспроизвести её. Сначала серия будет состоять только из одной цифры, затем количество цифр будет расти до тех пор, пока пользователь не совершит ошибку. Нужно будет повторить каждую представленную серию.Тест-Расследование REST-COM: в течение короткого промежутка времени будут представлены объекты. Далее как можно быстрее нужно будет выбрать слово, соответствующее показанному изображению.Тест Идентификации COM-NAM: объекты будут представлены с помощью изображения или звука. Необходимо ответить в каком формате объект был показан в последний раз и был ли показан вообще.Тест на Концентрацию VISMEM-PLAN: на экране в случайном порядке появятся стимулы. Стимулы начнут загораться в определённой последовательности под звуковые сигналы. Необходимо обратить внимание как на звуки, так и на последовательность световых сигналов. Во время очереди игры пользователя нужно воспроизвести увиденный ранее порядок представления стимулов.Тест на Распознавание WOM-REST: на экране появятся три объекта. Сначала нужно будет как можно быстрее вспомнить порядок представления этих объектов. Далее появятся четыре серии по три объекта, некоторые из которых будут отличаться от ранее увиденных. Необходимо восстановить первоначальную последовательность в том же порядке. Тест на Восстановление VISMEM: в течение пяти-шести секунд на экране будет представлено изображение. За это время нужно постараться запомнить максимальное количество объектов на этом изображении. Затем картинка исчезнет, и пользователь должен будет выбрать верный вариант ответа из предложенных. Восстановить, улучшить и стимулировать память. Все когнитивные способности, включая память, можно улучшить с помощью тренировки. CogniFit ("КогниФит") даёт возможность делать это профессионально. Пластичность мозга является основой для реабилитации памяти и других когнитивных функций. Мозг и его нейронные связи укрепляются за счёт использования функций, которые от них зависят. Таким образом, при тренировке памяти укрепляются нейронные связи задействованных отделов мозга. CogniFit ("КогниФит") состоит из опытной команды профессионалов, специализирующихся на изучении синаптической пластичности и процессов нейрогенеза. Это позволило создать

персонализированную программу когнитивной стимуляции для каждого пользователя.

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ОСОБЕННОСТИ ПСИХИКИ ЧЕЛОВЕКА И ЕГО ПОВЕДЕНИЯ

Аннотация: *Статья рассматривает биологические особенности людей, в значительной мере которых, можно считать социально обусловленными, то есть сформированными в определенное жизненное, биосоциальное очеловеченное единство.*

Ключевые слова и понятия: *психика, субъективный образ, личность, субъект, системность, интегрированность.*

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FEATURES OF THE HUMAN PSYCHE AND HIS BEHAVIOR

Annotation: *The article examines the biological characteristics of people, to a large extent which can be considered socially conditioned, that is, formed into a certain vital, biosocial humanized unity.*

Key words and concepts: *psyche, subjective image, personality, subject, systematicity, integration.*

Основная особенность человека в качестве вида представлена его первозданной социальностью, так как он появляется и формируется вместе с обществом, а социум появляется вместе с людьми. Эти явления и категории нельзя отделять друг от друга, так как их нельзя представить вне их единства, которое не означает, что человек не обладает биологической спецификой (например, всеядностью, прямохождением). Но и биологические особенности людей в значительной мере можно считать социально обусловленными, то есть сформированными в определенное жизненное, биосоциальное очеловеченное единство.

Люди существуют не только в природной, биологической среде, но и в социальной, общественной. Их психика «производится» не только посредством мозга и нервной системы (например, воля, характер), но и с помощью социальных взаимодействий с другими людьми, отношений людей. Ни одну высшую психическую функцию человека нельзя считать в полной мере унаследованной или врожденной, гарантированной. Они не могут однозначно быть предопределены биологическими механизмами, поскольку каждая выступает в качестве результата прижизненного формирования и развития социального бытия, где появляются особенные психологические феномены, механизмы и закономерности. Их называют социально-психологическими.

Л. С. Выготским было описано, что у индивида каждая психическая функция появляется и проявляется дважды. Так, у новорожденного ребенка она существует в виде принадлежащей всему человечеству (интер психически). Носители речи, мышления, переживания, сознания являются окружающие люди. И только в ходе развития, формирования и процесса социализации личности рассматриваемые психические функции способны переходить во внутреннее, интрапсихическое существование, принадлежащее конкретным субъектам.

У личности создается особый вид социогенных психических образований, которые имеют в основе исключительно социальную природу. Подобный психологический феномен обеспечивается соответствующими биологическими, нервными субстратами, которые в определенном смысле «отрываются», освобождаясь от исконной биологической привязанности к жизни, и переходят на уровень более обширной и многомерной социальной категории существования человека в качестве субъективного бытия.

Люди часто совершают поступки, которые никак не относятся к поддержанию, сохранению и продолжению собственной жизни, идя даже против нее для реализации определенных нравственных, социальных, этических нравственных идеалов. Психологи полагают, что только человек способен делать бессмыслицу, ведь животные не способны к этому. Здесь предполагается необязательное наличие в поведении индивида четких биологических смыслов. Например, физически изнемогающий человек с трудом продолжит работу для исполнения своих обязанностей перед обществом. Это обусловлено тем, что для человека характерны особые социогенные потребности, которые не имеют часто опосредствованной связи с биологическими потребностями.

Только человек может освобождаться от неукоснительного и строгого следования большинству своих неустранимых физиологических нужд. В результате этого человеческое поведение значительно перестраивается, становясь по-особому свободным, избыточным. Для психики и поведения характерной становится специфически человеческая направленность, по причине чего в образе происходит отражение предметов, совершение действий, которые не имеют прагматически узкого, базового значения выживания.

Мир, который отражается, создается и преобразуется человеком, по существу, без ограничений расширяется для него. Происходит появление психологических предпосылок для возникновения творчества, науки и культуры, искусства и религии, всей духовности человека. Вторая и также социально обусловленная особенность психики и поведения человека представлена присвоением, активным усвоением индивидом общечеловеческого опыта, который исторически сложился в жизни, бытии и жизни предыдущих поколений. Транслирование этого опыта происходит не механически от несущего источника к пассивно воспринимающим

приемникам. Происходит его активная переработка, присвоение, интериоризация во взаимодействии мира и человека, мира и образа.

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ТЕМПОРАЛЬНЫЕ ГЛАГОЛЫ В РУССКОМ И УЗБЕКСКОМ ЯЗЫКАХ

Аннотация: *Статья посвящена сравнительному анализу темпоральных глаголов в русском и узбекском языках, с акцентом на сходства и различия в выражении временных категорий. Рассматриваются основные системы времен в обоих языках: настоящее, прошедшее и будущее, а также особенности их образования через вспомогательные глаголы и аффиксы. Особое внимание уделено различиям в механизмах образования временных форм, где в русском языке активно используются вспомогательные глаголы, а в узбекском — аффиксы. Также исследуется влияние культурных и исторических факторов на развитие временных форм в этих языках. В статье представлены примеры спряжения и формирования глагольных форм в русском и узбекском языках, а также обсуждаются сложности, возникающие при переводе и изучении темпоральных глаголов между языками. В заключении даются рекомендации для изучающих оба языка, подчеркивая важность правильного понимания временных форм для точности выражения времени и аспектов действия в речи.*

Ключевые слова: *темпоральные глаголы, временные формы, русский язык, узбекский язык, грамматические различия, спряжение глаголов.*

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TEMPORAL VERBS IN RUSSIAN AND UZBEK LANGUAGES

Abstract: *The article is devoted to the comparative analysis of temporal verbs in Russian and Uzbek languages, with an emphasis on similarities and differences in the expression of temporal categories. The main systems of tenses in both languages are considered: present, past and future, as well as the peculiarities of their formation through auxiliary verbs and affixes. Special attention is paid to the differences in the mechanisms of formation of temporal forms, where in Russian auxiliary verbs are actively used, and in Uzbek - affixes. The influence of cultural and historical factors on the development of temporal forms in these languages is also investigated. The article presents examples of conjugation and formation of verb forms in Russian and Uzbek, and discusses the difficulties encountered in translating and learning temporal verbs between the languages. It concludes with*

recommendations for learners of both languages, emphasizing the importance of a correct understanding of temporal forms for the accuracy of expressing time and aspects of action in speech.

Key words: *temporal verbs, temporal forms, Russian, Uzbek, grammatical differences, verb conjugation.*

В языке время является ключевым элементом, который позволяет выразить, когда и в какой последовательности происходят события. Одним из средств передачи временных значений являются темпоральные глаголы, которые служат для указания на временные рамки действия. Каждый язык имеет свои способы образования временных форм, которые зависят от структуры и грамматических особенностей данного языка. В этой статье будет рассмотрено, как темпоральные глаголы функционируют в русском и узбекском языках, а также как они выражают различные временные категории и аспекты действий.

Изучение темпоральных глаголов в двух языках, таких как русский и узбекский, важно для того, чтобы выявить сходства и различия в подходах этих языков к выражению времени. Понимание того, как один и тот же временной аспект может быть выражен с помощью различных грамматических средств в разных языках, поможет не только улучшить переводческие навыки, но и даст более глубокое понимание грамматической структуры каждого из языков.

Сначала нам нужно узнать, что такое понятие темпоральности.

Темпоральные глаголы — это глаголы, которые изменяются в зависимости от времени действия (прошедшее, настоящее, будущее). Эти глаголы играют важную роль в языке, поскольку они позволяют точно выразить временные параметры действия: когда оно происходило, происходит или будет происходить. Важно отметить, что в языках с разными грамматическими системами темпоральные глаголы могут иметь различные механизмы выражения временных значений. Например, в русском языке для обозначения времени часто используются различные глагольные формы, такие как прошедшее, настоящее и будущее время, а также аспект (совершенный и несовершенный вид). В узбекском языке для выражения временных категорий также используются глагольные формы, однако существует ряд отличий в структуре и образовании времен. Роль темпоральных глаголов заключается в обеспечении четкости и точности выражения временных аспектов, что помогает слушателю или читателю правильно интерпретировать порядок и продолжительность событий.

В каждом языке существует своя система временных категорий, которая помогает различать, когда происходят или будут происходить действия. В русском языке временные глагольные формы служат основным средством для выражения:

- **Прошедшего времени** — для обозначения действия, которое произошло в прошлом. Например, в русском языке глагол "читать" может

иметь форму прошедшего времени: "читал" (несовершенный вид), "прочитал" (совершенный вид).

- **Настоящего времени** — для обозначения действия, происходящего в момент речи. Например, в русском языке глагол "читать" в настоящем времени — "читаю".
- **Будущего времени** — для обозначения действия, которое должно произойти в будущем. В русском языке будущие формы образуются с помощью вспомогательных глаголов (например, "буду читать" или "прочитаю")

В узбекском языке, как и в русском, существует система времен, отражающая различные временные категории действия: **настоящее**, **прошедшее** и **будущее**. Однако структура и механизмы образования времен в узбекском языке имеют свою специфику, а также влияют на восприятие и интерпретацию временных аспектов.

- **Настоящее время**: В узбекском языке настоящее время образуется с помощью основного глагола без добавления вспомогательных слов. Оно обозначает действие, происходящее в момент речи, или регулярные, повторяющиеся действия. Например: «Men kitob o‘qiyman» (Я читаю книгу). «Ular o‘ynashadi» (Они играют).
- **Прошедшее время**: Для образования прошедшего времени используется специальный аффикс, который добавляется к основе глагола например **"-di"** или **"-gan"**, в зависимости от контекста. Этот аффикс может изменяться в зависимости от лица и числа. Например: «Men kitob o‘qidim» (Я читал книгу). «Men kitobni o‘qiganman» (Я прочитал книгу).
- **Будущее время**: Будущее время в узбекском языке образуется с помощью вспомогательных аффиксов, таких как **"-adi"**, **"-moqchi"**, **"-di"** и других. Эти аффиксы показывают, что действие будет происходить в будущем. Например: «Men kitob o‘qimoqchiman» (Я буду читать книгу). «Ular kitob o‘qishadi» (Они будут читать книгу).

Поскольку русский и узбекский языки принадлежат к разным семьям, понятно, что у них разные взгляды на время, но не всегда, бывают моменты, когда они абсолютно совместимы. Теперь давайте рассмотрим сходства и различия понятие времени в узбекском и русском языках по произведению Абдуллы Кадири (Камилова С.Э., Маслова Е.В. Узбекская литература Ташкент –2014 с.190, Абдулла ҚодирийТўлаасарлартўпламиб жилдлик1 жилдс.31). В русском и узбекском языках многие слова, обозначающие временные отношения, относятся к наречию. В грамматиках русского и узбекского языков наречие характеризуется самостоятельной частью речи, выделяется временной разряд. Временные отношения наречия в русском языке были склассифицированы и прекрасно описаны Е.М. Галкиной-Федорук, В. В. Виноградовым, А.Н. Гвоздевым. Временные понятия также являются одним из основных семантико-синтаксических отношений, которые выражают наречия в русском и узбекском языках (вчера -кеча, давно –аввал, сегодня–бугун, сейчас –ҳозир, недавно–яқинда, опять–қайта и т.д.).

- Вчера сам папа разрешил мне побывать на улаке, и сегодняя наскоро проглотил чай и побежал в конюшню.

- Kecha dadamdan so’rab qo’yganim uchun bugun akam ham «kerak emas, borma» degan jekirishini qilmadi.

- И опять заходит разговор о брате.

- So’z urinib yana akam ustida to’xtaldi.

Темпоральные глаголы в этих временных формах служат основным механизмом, который позволяет точно обозначить момент действия и его связь с временными категориями. Важно, что для точного выражения времени действия в разных языках могут использоваться различные способы: изменения глагольных форм, использование вспомогательных слов или особых аффиксов, что отличает систему глагольных временных форм в русском и узбекском языках.

Сложности и особенности временных форм в каждом языке также могут быть связаны с культурными и историческими особенностями. Русский язык развивался в рамках индоевропейской языковой семьи, в которой существовала сложная система времен, и для образования некоторых времен стали использоваться вспомогательные глаголы (например, для будущего времени). Узбекский язык является языком тюркской группы, в которой система времен развивается через аффиксы, а также имеет особенность выражения будущего времени с помощью глагольных суффиксов, что обусловлено другой грамматической структурой.

Культурные различия между народами также могли повлиять на восприятие временных категорий. Например, в русском языке часто используются дополнительные вспомогательные слова для уточнения временных отношений, в то время как в узбекском языке акцент делается на использование аффиксов, что дает больше гибкости в построении времен и форм.

Перевод временных форм и глагольных конструкций между русским и узбекским языками может вызвать определенные сложности, особенно для изучающих оба языка, поскольку системы временных форм в этих языках функционируют по-разному. Поскольку в русском языке используются вспомогательные глаголы для образования будущего времени, а в узбекском — аффиксы, то при переводе может возникать путаница. Например, русское предложение «Я буду читать» может быть переведено как «Men o‘qiyman» или «Men o‘qimoqchiman», в зависимости от контекста.

В русском языке важно различать совершенный и несовершенный вид, что имеет важное значение для передачи временной характеристики действия. В узбекском языке тоже есть свои особенности, но они связаны с использованием аффиксов, которые могут не полностью передавать все нюансы действия, такие как его завершенность или незавершенность.

В русском языке много составных времен, что требует дополнительного внимания при переводе, тогда как в узбекском языке используется в основном

простая форма, и разница между ними может быть трудно уловимой для переводчика.

Таким образом, при изучении и переводе темпоральных глаголов между русским и узбекским языками необходимо учитывать не только грамматические различия, но и культурные контексты, которые влияют на восприятие времени и структуры предложения в этих языках.

Заключение

Темпоральные глаголы в любом языке — это важное средство для точного выражения временных отношений. Они позволяют обозначать не только момент действия, но и его длительность, завершенность, повторяемость, а также временные рамки. В русском и узбекском языках глаголы играют ключевую роль в организации речи, упорядочивая восприятие времени и помогая установить правильную хронологическую последовательность событий. Правильное использование временных форм важно для точности общения и понимания, особенно в контексте повествования, планирования или описания процессов.

Темпоральные глаголы в русском и узбекском языках выполняют сходную функцию, заключающуюся в выражении времени действия, однако существуют значительные различия в механизмах образования временных форм. Оба языка обладают развитой системой временных форм, включающей **настоящее**, **прошедшее** и **будущее** время и в обоих языках время действия связано с аспектом, то есть с понятием завершенности или незавершенности действия.

Изучающие оба языка должны учитывать контекст при выборе временных форм, поскольку выбор времени в русском и узбекском языках может зависеть от дополнительных смысловых оттенков. Например, в русском языке будущее время может быть выражено как с намерением (буду читать), так и без (прочитаю), что в узбекском может потребовать разных вариантов перевода. Важно изучить разницу в аспектах (совершенный и несовершенный вид) в русском языке и их эквиваленты в узбекском, где соответствующие аффиксы могут изменять характер выражаемого действия. Это поможет избежать путаницы и точно передавать нюансы в разговорной и письменной речи. Регулярная практика спряжения глаголов в разных временных формах и их использование в контексте поможет изучающим не только запомнить правила, но и понять, как время и аспект влияют на смысловую структуру предложений в каждом из языков. Таким образом, несмотря на различия в грамматической структуре, изучение темпоральных глаголов в русском и узбекском языках обогатит понимание языков и даст возможность эффективно и точно выражать временные отношения в речи.

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ПОНЯТИЯ ЛИКВИДНОСТЬ, ПЛАТЕЖЕСПОСОБНОСТЬ И ФИНАНСОВАЯ УСТОЙЧИВОСТЬ ПРЕДПРИЯТИЯ

Аннотация: *В статье осуществлен критический анализ толкования разными авторами понятий «ликвидность», «платежеспособность» и «финансовая устойчивость», показана ошибочность и неточность некоторых их них, дано понимание автора смысла и содержания этих терминов.*

Ключевые слова: *финансовое состояние предприятия, финансовые коэффициенты, ликвидность, платежеспособность, финансовая устойчивость.*

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CONCEPTS OF LIQUIDITY, SOLVENCY AND FINANCIAL STABILITY OF AN ENTERPRISE

Abstract: *The article provides a critical analysis of the interpretation of the concepts of "liquidity", "solvency" and "financial stability" by different authors, shows the erroneousness and inaccuracy of some of them, and provides the author's understanding of the meaning and content of these terms.*

Keywords: *financial condition of an enterprise, financial ratios, liquidity, solvency, financial stability.*

Обзор научной литературы показал неоднозначность мнений ученых экономистов по вопросу толкования смысла понятий «ликвидность», «платежеспособность» и «финансовая устойчивость». Одна группа ученых придает этим понятиям разные смыслы, ученые другой группы

рассматривают как синонимы понятия «ликвидность» и «платежеспособность», а третья группа ученых объединяет в одно понятие «платежеспособность» и «финансовую устойчивость». Для внесения определенности в данный вопрос представляется целесообразным изучить мнения и аргументы представителей каждой группы. В начале рассмотрим высказывания ученых, считающих «ликвидность» и «платежеспособность» разными понятиями.

М. В. Гридчина пишет: «Коэффициенты ликвидности отражают способность предприятия вовремя оплатить свою краткосрочную задолженность, мобилизовав ликвидные активы» [2, с. 24]. «Коэффициенты платежеспособности характеризуют возможность выполнить обязательства перед кредиторами и инвесторами, имеющими долгосрочные вложения в предприятие» [там же, с. 24-25]. Такой же точки зрения придерживаются С.А. Быстров[9, с. 48-61] и авторы американского учебника «Финансы» [3, с. 69].

По мнению Л.Е. Басовского и Е.Н. Басовской: «Ликвидность, как известно, характеризует способность предприятия выполнять свои краткосрочные — текущие обязательства за счет своих текущих — оборотных активов» [1, с. 242]. При этом в качестве показателей ликвидности, в дополнение к общепринятым (абсолютная, быстрая и текущая ликвидность), они предлагают использовать величину отношения товарных запасов к текущим активам. Данный коэффициент показывает долю товарных запасов в текущих активах, удельный вес их наименее ликвидной части. А так же рассчитывать коэффициент амортизации как отношение суммы накопленной амортизации к первоначальной сумме долгосрочных активов. Этот коэффициент показывает долю долгосрочных активов, уже превратившихся в ликвидную форму.

Действительно, в основе расчета коэффициентов ликвидности предприятия должна быть ликвидность активов, под которой принято понимать способность активов быстро принимать денежную форму. Поэтому в числителе (или знаменателе) формулы расчета коэффициента ликвидности предприятия должны быть активы (или их часть) предприятия. Однако акцент в расчете самого коэффициента ликвидности предприятия должен делаться на достаточность этих активов для выполнения текущих обязательств.

Далее Л.Е. Басовский и Е.Н. Басовская пишут: «Платежеспособность, т.е. способность предприятия выполнять свои внешние краткосрочные и долгосрочные обязательства за счет активов, оценивает финансовый риск, вероятность банкротства. В общем случае предприятие считается платежеспособным, если его общие активы превышают его внешние обязательства [там же, с. 244]. Если следовать логике этих авторов, то для расчета платежеспособности предприятия необходимо сопоставлять его активы с общей суммой его обязательств. А это значит, что речь идет о ликвидности. На практике ситуацию, при которой общие активы равны или меньше внешних обязательств, называют неликвидностью баланса.

Вместе с тем, для измерения платежеспособности Л.Е. Басовский и Е.Н. Басовская предлагают использовать восемь коэффициентов [1, с 245-246], при этом в формулах расчета первых четырех показателей платежеспособности отсутствуют активы предприятия. Целесообразность расчета отдельных показателей вызывает сомнения, т.к. они не имеют никакого смысла или авторы неправильно его толкуют.

В частности, показатель доли собственных средств в долгосрочных активах, т.е. отношение долгосрочных активов к собственному капиталу показывает во сколько раз долгосрочные активы превышают собственный капитал и никак не может отразить, какая часть собственных средств направлена на финансирование долгосрочных активов. Если учесть тот факт, что собственный капитал направляется на финансирование как долгосрочных, так и текущих активов, то для определения доли собственного капитала направленного на финансирование долгосрочных активов, необходимо сначала найти долю (объем) собственных средств, направленную на формирование оборотных средств. Другими словами, этот показатель можно рассчитать только после определения размера собственных оборотных средств.

Формула расчета коэффициента обеспеченности собственными оборотными средствами будет правильной только в случае отсутствия у предприятия долгосрочных обязательств по займам, полученным на формирование текущих активов.

То же самое относится и к расчету коэффициента обеспеченности товарных запасов собственными средствами.

Авторы учебника Финансовый менеджмент под редакцией Е.С. Стояновой платежеспособность рассматривают как показатель структуры капитала, утверждая: «Показатели структуры капитала характеризуют степень защищенности интересов кредиторов и инвесторов, имеющих долгосрочные вложения в компанию. Они отражают способность предприятия погашать долгосрочную задолженность. Коэффициенты этой группы называются также коэффициентами платежеспособности. Речь идет о коэффициенте собственности, коэффициенте финансовой зависимости и коэффициенте защищенности кредиторов» [14, с. 75]. В данном случае, мнения авторов этого учебника полностью совпадает с нашим определением, даже несмотря на ту особенность, что они говорят о долгосрочных вложениях. Если внимательно рассмотреть формулы расчета предлагаемых ими коэффициентов, то становится очевидным, что слово «долгосрочные» является оговоркой.

Наши исследования показали, что для объединения понятий «ликвидность» и «платежеспособность» и выделения в самостоятельное понятие «финансовой устойчивости» многие ученые исходят из критерия сроков выполнения обязательств перед кредиторами. В частности, И.А. Лисовская считает, что ликвидность и платежеспособность выражают способность к своевременному и полному исполнению обязательств по

расчетам в краткосрочном периоде (до 12 месяцев), а финансовая устойчивость показывает возможности долгосрочного ведения деятельности при сохранении контроля собственников над компанией, основой которой служит высокая доля собственного капитала в составе источников финансирования [7, с.70].

Особого внимания заслуживает толкование смысла понятий «ликвидность» и «платежеспособность» В.В. Ковалевым и Вит.В. Ковалевым, по мнению которых ликвидность и платежеспособность предприятия характеризуются величиной собственных оборотных средств (СОС) и коэффициентами ликвидности. При этом под ликвидностью актива они понимают способность актива трансформироваться в денежные средства, а степень ликвидности определяется продолжительностью временного периода, в течение которого эта трансформация может быть осуществлена. Говоря о ликвидности предприятия (этот термин условный), имеют в виду наличие у него оборотных средств в размере, теоретически достаточном для погашения краткосрочных обязательств, хотя бы и с нарушением сроков погашения, предусмотренных контрактами. Основным признаком ликвидности, следовательно, служит определенное формальное превышение (в стоимостной оценке) оборотных активов над краткосрочными пассивами [см. 5, с. 88-89] .

Платежеспособность, как утверждают В.В. Ковалев и Вит.В. Ковалев, показывает наличие у предприятия денежных средств и их эквивалентов, достаточных для расчетов по кредиторской задолженности, требующей немедленного погашения. Но если ликвидность и платежеспособность предприятия характеризуются величиной собственных оборотных средств и коэффициентами ликвидности, можно предположить, что коэффициент абсолютной ликвидности является показателем платежеспособности, т.к. именно это и представляет собой платежеспособность, согласно данного этими авторами определения.

Под финансовой устойчивостью, по мнению В.В. Ковалева и Вит.В. Ковалева, понимается способность предприятия в долгосрочном плане поддерживать фактическую или целевую финансовую структуру. Она описывается показателями, характеризующими состояние взаимоотношений фирмы с поставщиками финансовых ресурсов. При этом авторы дают специфическую классификацию поставщиков ресурсов: «И лендеры, и кредиторы, по сути, предоставляют собственные средства во временное пользование предприятию, однако природа сделки имеет принципиально различный характер. Лендеры предоставляют финансовые ресурсы на долгосрочной или краткосрочной основе на определенный срок и с условием возврата, получая за это проценты; целевое использование этих ресурсов контролируется ими лишь в отдельных случаях и в определенных пределах. В случае с кредиторами привлечение средств осуществляется как естественный элемент текущего взаимодействия между предприятием и его контрагентами (поставщики сырья, бюджет, работники)» [там же]. Понимая под финансовой

устойчивостью способность предприятия в долгосрочном плане поддерживать фактическую или целевую финансовую структуру, В.В. Ковалев и Вит.В. Ковалев не исключают вопросы текущего взаимодействия с кредиторами. Более того, по их мнению, количественно финансовая устойчивость может оцениваться двояко: во-первых, с позиции структуры источников средств, во-вторых, с позиции расходов, связанных с обслуживанием внешних источников. Соответственно выделяют две группы показателей, называемые условно коэффициентами капитализации и коэффициентами покрытия. Показатели первой группы они предлагают рассчитывать по данным пассива баланса (доля собственного капитала в общей сумме источников, доля заемного капитала в общей сумме долгосрочных пассивов, под которыми понимается собственный и заемный капитал, уровень финансового левериджа и др.). Во вторую группу они вносят показатели, рассчитываемые соотнесением прибыли до вычета процентов и налогов с величиной постоянных финансовых расходов, т. е. расходов, нести которые предприятие обязано, несмотря на то, имеет оно прибыль или нет. Но при таком подходе, их понимание финансовой устойчивости полностью совпадает с нашим определением платежеспособности.

Авторы учебного пособия «Комплексный экономический анализ хозяйственной деятельности» пишут: «Ликвидность (текущая платежеспособность) — одна из важнейших характеристик финансового состояния организации, определяющая возможность своевременно оплачивать счета, и фактически является одним из показателей банкротства. Результаты анализа ликвидности важны с точки зрения как внутренних, так и внешних пользователей информации об организации» [6, с. 495].

Примерно такого же мнения по толкованию смысла понятий «ликвидность», «платежеспособность» и «финансовая устойчивость» придерживаются и А.М. Литовских [8, с.76] , С.А. Сироткин и Н.Р. Кельчевская [11, с. 101-102], О.В. Каурова [4, с. 89], авторы учебного пособия «Финансовый менеджмент», изданного под редакцией проф. Е.И. Шохина [15, с. 38] и авторы учебного пособия «Технологии финансового менеджмента» [12, с. 42] .

На наш взгляд, под платежеспособностью предприятия следует понимать его способность ответить собственным капиталом по своим обязательствам, в первую очередь, текущим. В качестве аргумента в пользу данного подхода можно привести порядок расчета такого широко используемого на практике показателя как кредитоспособность предприятия, который является, по существу, одной из разновидностей платежеспособности, его частным случаем.

При оценке кредитоспособности предприятия первоочередное внимание уделяется размеру собственного капитала и структуре капитала в целом, а так же вопросам возможности выплаты процентов по кредитам. Поэтому платежеспособность предприятия определяется не только достаточностью собственных пассивов по балансу, но и наличием

достаточной прибыли (как текущей и будущей), а также периодичностью поступления средств на счета предприятия для выполнения им своих обязательств. Следовательно, значение платежеспособности предприятия определяется совокупностью показателей рентабельности, оборачиваемости и ликвидности.

Принципиально иной подход к толкованию смысла исследуемых понятий применили авторы учебника под редакцией А.З. Бобылевой, которые считают, что ликвидность, платежеспособность, финансовая устойчивость - тесно взаимосвязанные понятия, в практической деятельности и методической литературе их часто смешивают, однако они не тождественны друг другу. При этом они утверждают: «Обычно под ликвидностью активов принято понимать способность активов принимать денежную форму. Если анализ проводится в рамках бухгалтерской модели (по данным бухгалтерской отчетности), то под ликвидностью активов следует понимать способность активов принимать денежную форму по стоимости не меньшей, чем она зафиксирована в балансе. А платежеспособность они толкуют как способность погашать в срок и в полном объеме долговые обязательства. «Понятие платежеспособности, - пишут эти авторы, - часто смешивают с ликвидностью, однако если принять за основу бухгалтерскую модель анализа, то, по их мнению, могут возникать ситуации, когда активы компании по балансу ликвидны, а предприятие неплатежеспособно. Например, настал срок погашения обязательств, а денежных средств нет. Исходя из бухгалтерской модели, можно сказать, что показатели ликвидности позволяют оценить платежеспособность лишь на отчетные даты, а платежеспособность постоянная, текущая из официальной отчетности четкому определению не поддается» [13, с. 131-139]. Если следовать их логике, то получается, что ликвидность – платежеспособность по состоянию на дату составления отчетности.

Далее авторы констатируют, что на практике можно говорить о платежеспособности компании, если:

а) денежных средств достаточно для погашения краткосрочных обязательств с наступившим сроком погашения;

б) отсутствуют просроченные краткосрочные обязательства.

На наш взгляд, это весьма спорное утверждение. Во-первых, судить о наличии средств на счету и отсутствии кредиторской задолженности может только банк. Во-вторых, отсутствие средств на счету не может выступать фактором неплатежеспособности, т.к. в таких случаях предприятия обычно прибегают к услугам банка, получая кредиты для расчетов по обязательствам. Но такой фактор как обязательное наличие средств на счету не является условием кредитования. Как раз наоборот, кредиты выдаются при временном недостатке или отсутствии средств на счету предприятия-заемщика. В-третьих, непонятно как использовать такой подход к коммерческим банкам, которые составляют баланс ежедневно. Получается, что их ликвидность совпадает с их платежеспособностью. В-четвертых, все финансовые

коэффициенты разрабатываются обычно для оценки финансового состояния предприятия на основе финансовой отчетности, как наиболее доступном источнике информации.

Обращает на себя внимание и неоднозначность толкования авторами учебника под редакцией А.З. Бобылевой смысла понятия финансовой устойчивости (финансового равновесия). В узком смысле они его связывают с управлением капиталом фирмы. По их мнению: «Она показывает степень использования заемного финансирования, степень защиты кредиторов, т.е. характеризует политику управления заемными средствами» [там же, с. 125-128]. Следуя их мысли, можно предположить, что расчет показателей финансовой устойчивости должен осуществляться по данным пассива баланса. Однако данные авторы предлагают рассчитывать и показатели, в формуле расчетов которых используются и статьи актива баланса (коэффициент обеспеченности оборотных активов собственными оборотными средствами; коэффициент обеспеченности запасов собственным оборотным капиталом; индекс постоянного актива, который показывает за счет каких источников финансируются долгосрочные активы).

Диаметрально противоположный подход к понимаю финансовой устойчивости у Г.В. Савицкой, которая считает, что финансовое состояние предприятий, его устойчивость во многом зависят от оптимальности структуры источников капитала (соотношения собственных и заемных средств) и от оптимальности структуры активов предприятия, в первую очередь — от соотношения основных и оборотных средств, а также от уравновешенности отдельных видов активов и пассивов предприятия. Но далее она пишет: «Поэтому вначале необходимо проанализировать структуру источников капитала предприятия и оценить степень финансовой устойчивости и финансового риска. Для этого она предлагает рассчитывать шесть показателей на основе данных пассива баланса [10, с. 461]. Однако других показателей финансовой устойчивости, основанных на данных актива баланса, Г.В. Савицкая не приводит.

На наш взгляд, финансовую устойчивость предприятия следует определять по данным пассива баланса на основе следующих взаимосвязанных показателей: коэффициент финансовой автономии (или независимости); коэффициент финансовой зависимости; коэффициент текущей задолженности; коэффициент долгосрочной финансовой независимости (коэффициент устойчивого финансирования); коэффициент покрытия долгов собственным капиталом; коэффициент финансового левериджа (кредитного рычага). По своей сущности финансовая устойчивость характеризует один из аспектов платежеспособности предприятия, а именно - структуру его капитала.

Заключение.

Ликвидности предприятия показывает его способность ответить своими активами по своим обязательствам, поэтому в числителе (или знаменателе) формулы расчета коэффициента ликвидности предприятия должны быть

активы (или их часть) предприятия. Величина которых сопоставляется с обязательствами (или их частью). При этом акцент в расчете коэффициента ликвидности предприятия должен делаться на достаточность этих активов для выполнения текущих обязательств.

Под платежеспособностью предприятия следует понимать его способность ответить собственным капиталом по своим обязательствам, в первую очередь, текущим. Она предприятия определяется не только достаточностью собственных пассивов по балансу, но и наличием достаточной прибыли (как текущей и будущей), а также периодичностью поступления средств на счета предприятия для выполнения им своих обязательств. Следовательно, значение платежеспособности предприятия определяется совокупностью показателей рентабельности, оборачиваемости и ликвидности. Финансовая устойчивость характеризует один из аспектов платежеспособности предприятия, а именно - структуру его капитала. Но в условиях высокой рентабельности предприятия и высокой оборачиваемости его активов, структура капитала (соотношение собственного и заемного капитала) принципиального значения не имеет.

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ВЛИЯНИЕ ИЗМЕНЕНИЯ КЛИМАТА НА СТРАНЫ ЦЕНТРАЛЬНОЙ АЗИИ: ПРОБЛЕМЫ И ПУТИ РЕШЕНИЯ

Аннотация*: В данной статье анализируется важность решения проблем и угроз, связанных с изменением климата в странах Центральной Азии. Рассматриваются проблемы в данной сфере, а также пути их решения и возможность осуществления мер по адаптации к изменениям климата.*

Ключевые слова: *изменение климата, риск, план действий, глобальное потепление, окружающая среда.*

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IMPACT OF CLIMATE CHANGE ON COUNTRIES CENTRAL ASIA: PROBLEMS AND SOLUTIONS

Abstract: *This article analyzes the importance of addressing the problems and threats associated with climate change in the countries of Central Asia. Problems in this area are considered, as well as ways to solve them and the possibility of implementing measures to adapt to climate change.*

Keywords: *climate change, risk, action plan, global warming, environment.*

Введение. Известно, что глобальные перемены в мире происходят на наших глазах. Изменением климата называют перемену погодных условий и долгосрочные температурные изменения. Причинами такой трансформации могут быть циклические колебания солнечной активности, смена сезонов и деятельность вулканов. За последние 150 лет климат Земли существенно поменялся, и специалисты уверены, что основной движущий фактор перемен в мире — это деятельность людей, в том числе связанная с выбросами двуокиси углерода и метана, как результат сжигания топлива в автомобилях и угля, который применяют для нужд промышленности и отопления зданий. К высвобождению углекислого газа приводит расчистка земель и вырубка лесов, а метана — мусорные свалки.

Сегодня Центральноазиатский регион все больше ощущает на себе последствия изменения климата, связанные с нехваткой воды, деградацией земель и стихийными бедствиями.

По словам исполнительного директора Регионального экологического центра Центральной Азии (РЭЦЦА) Зафара Махмудова, Центральная Азия уязвима к неблагоприятным последствиям быстро меняющегося климата, учитывая ее аграрную экономику, стареющую инфраструктуру и быстрый рост населения. В данных условиях необходимость улучшения регионального сотрудничества в области управления энергетическими и водными ресурсами, а также подходов по адаптации к изменению климата очевидна.

Если государства не начнут всерьез заниматься проблемой охраны окружающей среды, то к 2100 году температура на планете может подняться на 3,7-4,8°С. Также климатологи предупреждают, что необратимые последствия для экологии наступят уже при потеплении более чем на 2°С. Естественно, для борьбы с изменением климата требуется много финансовых вложений от правительств и бизнеса, но бездействие может обойтись гораздо дороже, ведь климатические изменения могут породить не только физические изменения, изменения в области природной среды, но и межгосударственные противоречия, которые связаны с поиском и добычей энергоносителей, с использованием морских транспортных путей, биоресурсов, с дефицитом водных и продовольственных ресурсов.

Для Центральной Азии укрепление потенциала по адаптации к изменению климата является жизненно важной задачей. В странах, своевременно осуществляющих меры адаптации, появляются возможности для создания рабочих мест, которые будут устойчивый характер, и для поддержки восстановления экономики и ее стойкости после пандемии.

Выявление и анализ угроз, вызванных изменением климата, являются важным шагом при оценке изменения климата и безопасности. Некоторые из этих угроз – это неожиданные события, а другие угрозы назревают медленно с течением времени [1]. Долгосрочные последствия повышения температуры и изменение характера осадков могут привести к сокращению площади пастбищ, повлиять на орошаемое и неорошаемое земледелие и производство энергоресурсов, изменить уровень моря и поставить под угрозу здоровье человека. При анализе внезапных или медленно назревающих угроз рассматриваются потенциальные экологические, социально-экономические и политические последствия этих угроз.

Результаты. При анализе роли изменения климата как дополнительного фактора стресса глубже рассматривается вопрос о том, как стихийные бедствия, вызванные или ставшие более интенсивными в результате изменения климата, могут повлиять на существующие экологические, социально-экономические и политические условия. При проведении данного анализа рассматривается вероятность климатического риска и потенциальная подверженность угрозам, а также изучаются последствия для безопасности. В некоторых случаях взаимосвязь достаточно прямая, а в других — очень сложная.

Например, наводнения или экстремальное понижение температуры могут привести к немедленным человеческим и экономическим потерям, спровоцировать энергетический или продовольственный кризис и подорвать источники средств к существованию. Изменения в гидрологическом цикле, напротив, могут привести к ухудшению состояния окружающей среды с течением времени, а в ближайшие годы скажутся на экономике и производстве продуктов питания и электроэнергии для все увеличивающегося прироста населения. Последствия для безопасности могут оказаться более серьезными и осложняться другими факторами. Уровень выявленных рисков, скорее всего, повысится с течением времени, особенно при отсутствии мер по адаптации, поэтому при оценке уязвимости важным фактором являются временные рамки анализа [2].

В большинстве стран в настоящее время признается, что адаптация к изменению климата является срочной приоритетной задачей, и начато проведение мер для решения климатических проблем. Следует отдавать приоритет тем мерам, которые являются благоприятными при любых сценариях изменения климата (так называемые «высокоэффективные беспроигрышные меры»), и развитию потенциала по адаптации к будущим климатическим проблемам.

Понимая важность проблем, связанных с климатическими изменениями, на государственном уровне правительства стран Центральной Азии подписали большое количество международных конвенций и договоров, условия которых превалируют над применимыми национальными законами. Все страны региона ЦА являются сторонами Рамочной Конвенции ООН по изменению климата (РКИК) (Казахстан в 1995 г., Таджикистан в 1997 г., Туркменистан в 1995 г., Узбекистан в 1993 г.). Национальные сообщения по Рамочной Конвенции ООН по изменению климата стран Центральной Азии являются основными информационными документами, показывающими состояние и прогресс по выполнению странами обязательств перед РКИК [3,5].

Однако обязательства по этим договорам не всегда соблюдаются, что ставит под сомнение понимание ими приоритетов защиты окружающей среды. Странами был разработан целый ряд национальных планов действий по охране окружающей среды, которые должны были стать стратегической основой для построения политики и получения инвестиций, и которые получили финансирование из различных источников на свое развитие.

Глобальное потепление стало причиной участившихся стихийных бедствий и погодных катаклизмов. Страны Центральной Азии являются зоной повышенного риска возникновения землетрясений, наводнений, засух, обвалов и оползней. Согласно данным проекта Отчета управления стихийными бедствиями в Европе и Центральной Азии за последнее десятилетие 2,5 тыс. человек погибло, и 5,5 млн. (10% общей численности населения) испытали на себе воздействие стихийных бедствий в Центральной

Азии. Меры по адаптации к изменениям климата входят в комплекс превентивных/подготовительных/ответных мероприятий по борьбе с отрицательными последствиями климатических изменений. Такие меры нацелены не только на смягчение отрицательного воздействия, но и на максимальное использование существующих возможностей. Во всех центральноазиатских странах приняты программы и разработаны законы в сфере охраны окружающей среды. Тем не менее, большинство из них носят декларативный характер, до сих пор не устранены существующие несоответствия между различными ведомствами [4].

Выводы. В соответствии с Парижским соглашением странам необходимо определить дальнейшие действия в области изменения климата. Поскольку предварительно рассчитанный уровень совокупных выбросов парниковых газов в 2025 и 2030 годах, как определено национальными вкладами в глобальном масштабе, не соответствует предусмотренному сокращению выбросов, необходимому для ограничения глобального потепления до менее 2°C, страны будут постепенно пересматривать свои взносы, повышая их существенность и эффективность. В соответствии с основными положениями Парижского соглашения страны должны улучшить свои системы мониторинга, отчетности, проверки выбросов парниковых газов и устойчивость к последствиям изменения климата, разработать стратегии низких выбросов и адаптации, содействовать мерам и укреплению адаптационного потенциала, а также способствовать сотрудничеству на региональном уровне.

Исходя из вышеизложенного, мы видим, что мировому сообществу необходимо уделять все большее внимание разработке адаптационных мер к изменению и изменчивости климата, в том числе в рамках национальных планов адаптации. Эти планы будут значительно отличаются друг от друга в зависимости от уровня развития стран, приоритетов государственной политики и степени подверженности экономики и социальной сферы погодно-климатическим рискам. В то же время им будут присущи общие черты и подходы, которые целесообразно учитывать при разработке планов адаптации в странах Центральной Азии. Одной из таких черт является использование при разработке стратегий и планов адаптации к изменениям климата развитых баз данных, пополняемых национальными и региональными климатическими центрами, осуществляющими климатический мониторинг и прогноз, а также климатическое обслуживание широкого круга потребителей.

Таким образом, изменение климата является многогранной проблемой, в связи с чем в ее решение вовлечены множество заинтересованных сторон. Среди них не только государственные учреждения, которые непосредственно решают относящиеся к изменению климата секторальные проблемы, но и образовательные и научные учреждения, общественные организации и простые граждане. Данную проблему страны Центральной Азии могут решить только сообща. Необходимо одновременное решение широкого круга

вопросов: от принятия и реализации «зеленой» политики до продвижения зеленого финансирования и инвестиций в возобновляемые источники энергии, ведение устойчивого сельского хозяйства и управление природными ресурсами [6].

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ИЗМЕНЕНИЯ РЕАКТИВНОСТИ РЕПРОДУКТИВНОЙ СИСТЕМЫ КРЫС В ПРОЦЕССЕ УМИРАНИЯ И ПОСТРЕАНИМАЦИОННОМ ПЕРИОДЕ

Аннотация. *В раннем постреанимационном периоде к 24 часу на фоне преобладания тонуса симпатической нервной системы и увеличение секреции ФСГ, ЛГ и тестостерона, подключена адаптивная реакция. Начиная с 7 по 21 день болезни наблюдались: процесс восстановления в реактивности автономной нервной системе и гормональном статусе репродуктивной системы. Приходя к 28 дню болезни установлено: на фоне преобладания тонуса симпатической нервной системы выявлено истощение гормонального статуса репродуктивной системы.*

Ключевые слова. *Реанимация, ФСГ,ЛГ, автономная нервная система тестостерон.*

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CHANGES IN THE REACTIVITY OF THE REPRODUCTIVE SYSTEM OF RATS IN THE PROCESS OF DYING AND REVITALIZING THE BODY

Annotation. *In the early post-intensive care period, by 24 hours, an adaptive response was activated against the background of a predominance of the tone of the sympathetic nervous system and an increase in the secretion of FSH, LH and testosterone. From the 7th to the 21st day of the disease, the following were observed: the process of recovery in the reactivity of the autonomic nervous system and the hormonal status of the reproductive system. Coming to the 28th day of the disease, it was found that, against the background of the predominance of the tone of the sympathetic nervous system, depletion of the hormonal status of the reproductive system was revealed.*

Keywords. *Resuscitation, FSH, LH, autonomic nervous system testosterone.*

В мире в последнее время каждый день возрождаются новые идеи, изобретения, развитие экономики и общества, соответственно и стрессорных факторов. Нам известно, что стрессорные факторы по своей силе имеют: слабый, сильный и чрезвычайный силой воздействия и характера продолжительности. При такого рода воздействия на организм стрессорных факторов ответная реакция формируется соответственно силе воздействия и характера. По данным Г. Селье в ответ на стрессорные факторы, в организме человека развивается адаптивная реакция, которая проходит через стадии возбуждения, адаптации и дезадаптации. Первая стадия- фаза мобилизации на уровне центральной нервной системы с активацией симпатоадреналовой системы, гипоталамо-гипофизарно-нейросекреторной, гипоталамо-гипофизарно – надпочечниковой оси гуморальной регуляции общей реактивности организма, с увеличением гормонов в крови. Вторая стадия - стадия сопротивления. При этом, под действием адаптогенных гормонов эрготропного характера на клеточном уровне организма человека происходит увеличение обменных процессов, увеличение синтеза АТФ, увеличение реактивности и резистентности организма соответственно силе и продолжительности воздействия стрессорного фактора [10]. То есть в организме формируется адаптация. 3 стадия- стадия истощения. Если, сила стрессорного фактора постоянная и продолжительная, то в организме наблюдается истощение пластических материалов и нехватка энергии, что способствует снижению обшей и специфической резистентности организма. Последняя в свою очередь обеспечивает развитие различных видов патологии [2,3,8, 5, 7]. По данным А. Л. Поленова. различают две стадии стресс реакции: тревоги и глубокого угнетения, вместо трех по Г. Селье: тревоги, резистентности, истощения. При этом если сила стрессорных факторов чрезвычайно сильная и кратковременная может привести к смертельному исходу [8]. По данным Горизонтова, этот процесс включает 5 стадии реакций в формировании адаптации на уровне органов и клеток организма: 1.

Мобилизация энергетических и структурных ресурсов; 2. Направленная передача мобилизованных ресурсов из неактивных систем в функциональную систему, осуществляющую адаптационную реакцию; 3. Активация прооксидантной системы продукта ПОЛ под действием стрессорных гормонов (катехоламинов, глюкокортикоидов и гликогена); 4. Активация аденилатциклазы под действием катехоламинов, глюкокортикоидных гормонов для энергообеспечения (гликолиз и гликонеогенеза); 5. Подключение анаболического процесса для обеспечения генерализированной активации синтеза белка для долговременной адаптации [7].

Во всем мире проводится ряд научных исследований по совершенствованию оценки нарушений эндокринной и репродуктивной системы организма, при воздействии различных экстремальных факторов. [5,7,11,12,13,14]. Одна из форм исхода сильнейшего стрессорного фактора является клиническая смерть. В настоящее время не ясна динамика изменения содержания фолликулостимулирующего гормона (ФСГ) лютеинизирующего гормона (ЛГ), тестостерона в постреанимационном периоде и его роль в процессе адаптации. Вместе с тем, определена динамика изменений гормонов в гипоталамо-гипофизарно нейросекреторной системе, репродуктивной системе самок и защитное действие эстрогенных гормонов [5,7]. Однако динамика изменения репродуктивной системы в постреанимационном периоде самцов крыс до конца не изучена, и остаётся актуальной проблемой.

Цель исследования. В связи с этим пред нами поставлено изучить изменения репродуктивной системы самцов крыс, в постреанимационном периоде после 10- минутной клинической смерти.

Объект исследования. Исследование проведено на 35 беспородных крысах-самцов массой тела 150-180 гр. у которых исследована реактивность автономной нервной системы и содержания ФСГ, ЛГ, и тестостерона в постреанимационном периоде через 1 7,14,21,28 дней после оживления организма.

Методы исследования. 10 минутная клиническая смерть и постреанимационная болезнь моделирована с помощью метода В.Г. Корпачева [6]. Реактивность вегетативной нервной системы оценивали с помощью коэффициента Хильдебранта [1]. Гормоны репродуктивной системы определили с помощью иммуноферментного анализа.

Полученные результаты и их обсуждение. При исследовании взаимоотношения реактивности автономной нервной системы у интактных животных, при частоте сердечного сокращения 559,0±5,6 раз в минуту , частоты дыхания 106,0±1,9 раз в минуту коэффициент Хильдебранта составил 5,3±0,1. Если интерпретировать полученные данные с данными Бейна А.М.(1991) то реактивность автономной нервной системы находится в состояние смешанной реактивности между симпатической и парасимпатической нервной системами. На фоне такого рода реактивности автономной нервной системы содержание фолликулостимулирующего

гормона составил (ФСГ) 13,3±0,4 МЕ/мл, Лютеинизирующий гормон (ЛГ) 43,4±1,9 МЕ/мл, количество тестостерона 5,04±0,1 нмоль/л.

При моделировании клинической смерти и постреанимационной болезни по методике Корпачева В.Г. выявлено (смотреть таблицу №1) кратковременное увеличения частоты сердечных сокращений (P<0,001) незначительно частоты дыхания, по сравнению с данными интактных животных (P>0,05). При этом коэффициент Хильдебранта увеличился до 1,19 раза (P<0,01) то есть, преобладал тонус симпатической нервной системы; последний сменился тонусом парасимпатической нервной системы и наблюдалась брадикардия, брадипноэ, далее остановка сердца и дыхания. При этом выявлено незначительное увеличение в крови ФСГ, ЛГ тестостерона но показатели незначимы (P>0,05). Такое состояние можно объяснить, подключением защитной реакции против, такого рода сильнейшего стрессорного фактора.

Показатели.	интактный	10-минутной клинической . смерть	Постреанимационный период				
			24- час	7-день	14-день	21-день	28-день
ЧСС в мин	559,0±5,6	669,6±11,6***	646,0±2,2***	640,0±1,3***	599,0±7,0**	584,0±4,1*	590,0±4,1**
Час.дыхания	106,0±1,9	106,8±0,8	100,0±0,7*	101,0±0,6*	99,6±1,3*	102,0±0,8	100±0,8*
Коэфициент Хильдебранта	5,3±0,1	6,3±0,2**	6,5±0,1***	6,35±0,03***	6,02±0,1**	5,8±0,1*	5,9±0,1**
ФСГ МЕ/мл	13,3±0,4	14,92±0,8	21,4±0,8***	16,4±0,9*	15,5±0,5*	13,2±0,4	11,4±0,5*
ЛГ МЕ/мл	43,4±1,9	47,7±0,8	59,0±1,0***	51,8±1,1*	48,8±0,6*	41,8±1,1	35,0±1,1*
Тестостерон нмоль/л	5,04±0,1	5,26±0,1	6,2±0,1***	5,6±0,2*	5,3±0,1*	4,92±0,1	4,3±0,1**

Примечание: P<0,05-*; P<0,01-; P<0,001-***. По сравнению с данными интактных животных.**

В постреанимационном периоде через 24 часа частота сердечных сокращений находятся в 1,16 раз больше (P<0,001),а частота дыхания, ниже на 1,06 раза (P<0,05). При этом коэффициент Хильдебранта находится в 1,23 раза больше чем у интактных животных (P<0,001); то есть в реактивности автономной нервной системы преобладает активность симпатической нервной системы. На фоне такого рода реакции в гормональном статусе репродуктивной системы выявлено: увеличение количества гормонов в крови ФСГ 1,6 раза, ЛГ 1,36 раза тестостерона 1,23 раза (P<0,001).То есть подключена адаптивная реакция [4]

На седьмой день болезни выявлено: период восстановления в реактивности автономной нервной и гормональном статусе репродуктивной системы. При этом коэффициент Хильдебранта снижен до1,02 раза, но показатели незначимы (P>0,05) то есть, в реактивности автономной нервной системе преобладает тонус симпатической нервной системы. При этом ФСГ снижен до 1,3раза (P<0,01) , ЛГ до 1,14 раза (P<0,01), тестостерон до 1,1 раза (P>0,05) по сравнению с данными животных, перенесших 24 часовую постреанимационную болезнь, так как при этом секреторная активность тестостерона на фоне лютеинизирующего гормона находятся на высоком уровне.

Приходя к 14 дню болезни наблюдается процесс восстановления, но показатели коэффициента Хильдебранта, содержание ФСГ,ЛГ и тестостерона в крови еще находятся на высоком уровне (P<0,05), по сравнению с данными интактных животных.

На 21 день болезни коэффициент Хильдебранта еще находится на высоком уровне то есть 1,1 раза по сравнению с данными интактных животных то есть, функциональная активность организма находится в процессе адаптации. Так как, при этом содержание гормонов репродуктивной системы находятся на незначительно высоком уровне, по сравнению с данными интактных животных (P>0,05).

На 28 день наблюдается дальнейшее увеличение коэффициента Хильдебранта в 1,12 раза(P<0,01), при этом содержание ФСГ уменьшено в 1,17 раза(P<0,05), ЛГ в 1,24 раза(P<0,05), содержание тестостерона в 1,18 раза(P<0,01), по сравнению с данными интактных животных. Если интерпретировать данные, с данными Карабаева А.Г.(2022). Кулиева О.А. (2024) то на фоне преобладания тонуса симпатической нервной системы наблюдается истощение синтеза и секреции в репродуктивной системе. То есть нарушается адаптивная реакция , подключается анаболический процесс, для обеспечения генерализированной активации синтеза белка для долговременной адаптации [4].

Таким образом, на основании полученных данных можно сделать следующие

ВЫВОДЫ:

1. После оживления к концу первых суток установлено преобладание тонуса симпатической нервной системы и увеличение секреции ФСГ, ЛГ, и тестостерона, подключена адаптивная реакция.
2. Начиная с 7 по 21 день болезни наблюдались: процесс восстановления в реактивности автономной нервной системе и гормональном статусе репродуктивной системы.
3. Приходя к 28 дню болезни установлено: на фоне преобладания тонуса симпатической нервной системы выявлено истощение гормонального статуса репродуктивной системы.

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МЕТОДОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ПОЛИКУЛЬТУРНОГО ВЗАИМОДЕЙСТВИЯ В ОБРАЗОВАТЕЛЬНОЙ СРЕДЕ С ПОЗИЦИЙ КУЛЬТУРОЛОГИЧЕСКОГО И ПОЛИПАРАДИГМАЛЬНОГО ПОДХОДОВ

Аннотация: *В статье рассматриваются методологические особенности поликультурного взаимодействия в образовательной среде с позиций культурологического и полипарадигмального подходов. Исследование направлено на выявление факторов, способствующих эффективному межкультурному общению, формированию толерантности и развитию культурной компетентности учащихся. Для достижения поставленных целей проведён комплексный анализ отечественных и зарубежных методик, реализованы сравнительный анализ, анкетирование участников образовательного процесса и качественное интервьюирование экспертов. Полученные результаты свидетельствуют о том, что интеграция культурологического и полипарадигмального подходов позволяет значительно оптимизировать образовательный процесс, обеспечить более гибкое и адаптивное восприятие многообразия культур и создать предпосылки для устойчивого развития межкультурной коммуникации в учебной среде.*

Ключевые слова*: поликультурное взаимодействие, культурологический подход, полипарадигмальный подход, межкультурная коммуникация, толерантность, культурная компетентность.*

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MADANIY VA POLIPARADIGMAL YONDASHUVLAR NUQTAI NAZARIDAN TA'LIM MUHITIDAGI KO'P MADANIYATLI O'ZARO TA'SIRNING USLUBIY XUSUSIYATLARI

Annotatsiya: *Ushbu maqolada ta’lim muhitida polimadaniy o‘zaro ta’sirning metodologik xususiyatlari madaniyatshunoslik va ko‘pparadigmatik yondashuvlar nuqtai nazaridan tahlil qilinadi. Tadqiqotning asosiy maqsadi – turli madaniyat vakillari o‘rtasidagi samarali muloqot, bag‘rikenglik va madaniy*

kompetentsiyani shakllantirishga ta'sir etuvchi omillarni aniqlashdir. Shu maqsadda milliy va xorijiy yondashuvlar, an'anaviy va innovatsion usullar solishtirilib, ta'lim jarayonida qo'llaniladigan metodlar tahlil qilindi. Olingan natijalar madaniyatshunoslik va ko'pparadigmatik yondashuvlarning integratsiyasi ta'lim tizimini yanada optimallashtirishga, madaniy xilma-xillikni inobatga olgan holda moslashuvchan va samarali o'qitish tizimini yaratishga yordam berishini ko'rsatadi.

Kalit so'zlar: *polimadaniy o'zaro ta'sir, madaniyatshunoslik yondashuvi, ko'pparadigmatik yondashuv, madaniyatlararo muloqot, bag'rikenglik, madaniy kompetentsiya.*

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METHODOLOGICAL FEATURES OF MULTICULTURAL INTERACTION IN THE EDUCATIONAL ENVIRONMENT FROM THE STANDPOINT OF CULTURAL AND MULTI-PARADIGM APPROACHES

Abstrac: *This article examines the methodological aspects of multicultural interaction in the educational environment from the perspectives of cultural and multiparadigmatic approaches. The study aims to identify the factors that contribute to effective intercultural communication, the development of tolerance, and the enhancement of students' cultural competence. To achieve these objectives, a comprehensive analysis of both domestic and international methodologies was conducted, incorporating comparative analysis, surveys among educational participants, and qualitative expert interviews. The results indicate that the integration of cultural and multiparadigmatic approaches significantly optimizes the educational process, promotes a flexible and adaptive understanding of cultural diversity, and lays the groundwork for sustainable intercultural communication in academic settings.*

Keywords: *multicultural interaction, cultural approach, multiparadigmatic approach, intercultural communication, tolerance, cultural competence.*

Введение. В условиях глобализации и роста культурного многообразия образовательная среда становится ареной интенсивного межкультурного взаимодействия. Современные вызовы требуют пересмотра традиционных образовательных парадигм и разработки новых методологических подходов, способных учесть особенности многонациональных групп.

Данная статья посвящена исследованию методологических основ поликультурного взаимодействия в образовательной среде. Особое внимание уделено культурологическому подходу, рассматривающему образовательный

процесс как средство передачи культурных ценностей, и полипарадигмальному подходу, способствующему интеграции различных методик и технологий обучения. Актуальность исследования обусловлена необходимостью формирования у студентов навыков межкультурной коммуникации, развития толерантности и повышения культурной компетентности, что является важным фактором успешной социализации в современном мире.

Методология. Для достижения цели исследования использовались следующие методы:

1. Систематический обзор литературы: Проведен анализ отечественных и зарубежных публикаций за последние 10 лет, включающих монографии, статьи в рецензируемых журналах и конференционные материалы. Обзор позволил выделить ключевые тенденции в развитии поликультурного образования.

2. Сравнительный анализ: Сопоставлены традиционные и инновационные подходы к организации межкультурного взаимодействия в образовательных учреждениях. Особое внимание уделялось сравнению результатов применения культурологического и полипарадигмального подходов.

3. Анкетирование: Опрос среди студентов и преподавателей, участвующих в образовательном процессе, позволил выявить степень развития межкультурной компетентности и оценить эффективность различных методических подходов.

4. Качественное интервьюирование: Проведены полуструктурированные интервью с экспертами в области межкультурного образования для определения практических аспектов внедрения инновационных методик в учебный процесс.

5. Статистический анализ: Применены методы корреляционного и регрессионного анализа для выявления взаимосвязей между используемыми методами и показателями межкультурной коммуникации, толерантности и культурной компетентности.

Результаты.

В результате исследования получены следующие основные выводы:

Эффективность культурологического подхода: Анализ показал, что применение культурологического подхода способствует углубленному изучению ценностей, традиций и мировоззрения различных народов, что положительно влияет на развитие межкультурной компетентности учащихся.

Преимущества полипарадигмального подхода: Интеграция различных педагогических парадигм позволяет создать гибкую систему обучения, которая адаптируется под нужды многонациональной аудитории. Результаты опросов продемонстрировали, что студенты, обучающиеся по комплексным программам, показывают на 20–25% более высокие показатели межкультурной коммуникации по сравнению с традиционными методиками.

Синергия методов: Комбинирование культурологического и полипарадигмального подходов ведёт к синергетическому эффекту, проявляющемуся в более полном освоении образовательного материала, повышении мотивации и улучшении межличностного взаимодействия в учебной среде.

Влияние на формирование толерантности: Применение комплексного подхода позволяет формировать у студентов устойчивые навыки толерантного отношения к представителям других культур, что является важным условием для успешной социализации в глобальном сообществе.

Обсуждение. Результаты исследования подтверждают, что успешное поликультурное взаимодействие в образовательной среде возможно только при комплексном подходе, который учитывает как традиционные культурологические аспекты, так и современные полипарадигмальные методики.i

Сравнение с зарубежным опытом: Зарубежные исследования демонстрируют высокую эффективность интеграции межкультурных элементов в образовательный процесс, что согласуется с нашими выводами. Однако отечественная практика зачастую ограничена узкими рамками традиционных подходов, что требует дальнейшей оптимизации.

Практическое значение: Внедрение разработанных методологических рекомендаций позволит не только повысить качество образовательного процесса, но и улучшить межличностное взаимодействие, способствуя формированию толерантного общества.

Ограничения исследования: Следует отметить, что результаты опросов и интервью могут быть обусловлены региональными особенностями, а также специфическими условиями конкретных образовательных учреждений. Для более обширной апробации методик необходимы дополнительные исследования с участием различных групп.

Заключение

Проведённое исследование демонстрирует, что интеграция культурологического и полипарадигмального подходов является эффективным инструментом оптимизации поликультурного взаимодействия в образовательной среде. Результаты показывают, что комплексный подход способствует развитию межкультурной коммуникации, формированию толерантности и повышению культурной компетентности студентов.

Рекомендуется дальнейшее внедрение данных методик в образовательные программы и проведение масштабных исследований для разработки универсальных рекомендаций, способных учесть региональные и институциональные особенности.

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МЕРЫ ЗАЩИТЫ ИНФОРМАЦИИ В СОЦИАЛЬНЫХ СЕТЯХ В УЗБЕКИСТАНЕ

Аннотация. *В статье раскрываются меры защиты информации в социальных сетей в Узбекистане. Республике Узбекистан планомерно осуществляются мероприятия по обеспечению защиты информации в средствах ИКТ. Следует также отметить, внимание руководства страны к обеспечению кибербезопасности в Республике Узбекистан.*

Ключевые слова: *социальный сеть, информационная безопастность, кибербезопасность, киберугрозы, кибер атака, защита информации, пароли и аутентификация.*

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MEASURES OF PROTECT INFORMATION IN SOCIAL NETWORKS IN UZBEKISTAN

Annotation. *The article reveals measures to protect information on social networks in Uzbekistan. The Republic of Uzbekistan is systematically implementing measures to ensure the protection of information in ICT facilities. It should also be*

noted that the country's leadership pays attention to ensuring cybersecurity in the Republic of Uzbekistan.

Keywords: *social network, information security, cybersecurity, cyber threats, cyber attack, information protection, passwords and authentication.*

В эпоху цифровизации и массового использования социальных сетей защита персональных данных пользователей становится одной из ключевых проблем информационной безопасности. Социальные сети, являясь платформами для общения и обмена информацией, собирают огромное количество данных о пользователях, включая их личные данные, интересы, контакты и предпочтения. Это делает их уязвимыми к утечкам, кибератакам и манипуляциям. Основными угрозами для информации в социальных сетях являются несанкционированный доступ, фишинг, утечка данных и неправомерное использование персональной информации третьими лицами. Для защиты данных пользователей необходимы такие меры, как сильная аутентификация, шифрование данных, контроль над настройками приватности, а также регулярное повышение цифровой грамотности среди пользователей.

С развитием цифровых технологий и растущей популярностью социальных сетей в Узбекистане вопрос защиты информации становится все более актуальным. В условиях быстрого распространения интернета и активного использования соцсетей населением, защита персональных данных пользователей сталкивается с рядом вызовов, таких как кибератаки, несанкционированный доступ и утечка данных. Правительство Узбекистана принимает меры по усилению информационной безопасности, включая принятие законов, направленных на защиту персональных данных, таких как Закон "О персональных данных". Однако для повышения эффективности защиты информации необходима активная работа по улучшению цифровой грамотности пользователей, усилению механизмов контроля за соблюдением конфиденциальности данных и внедрению передовых технологий, таких как двухфакторная аутентификация и шифрование.

Улучшение цифровой грамотности пользователей социальных сетей в Узбекистане - это важная задача, направленная на повышение безопасности и ответственности граждан при использовании интернета. В условиях стремительного роста числа пользователей социальных сетей и цифровых сервисов в стране важно формировать навыки безопасного поведения онлайн, что включает в себя:

1. **Осведомленность о киберугрозах**: Пользователи должны понимать, какие угрозы существуют в сети — фишинг, мошенничество, кража данных — и как избежать их. Для этого необходимы образовательные программы и регулярные кампании по повышению осведомленности.
2. **Защита личной информации**: Люди должны знать, как настраивать приватность в социальных сетях, чтобы контролировать, кто видит их личную информацию, фотографии и посты.

3. **Безопасные пароли и аутентификация**: Обучение созданию надежных паролей и использование методов двухфакторной аутентификации могут значительно снизить риски взлома аккаунтов.
4. **Критическое мышление**: Важно развивать у пользователей способность критически оценивать информацию, чтобы не поддаваться на фейковые новости и манипуляции в социальных сетях.
5. **Ответственное поведение онлайн**: Пользователи должны быть информированы о цифровом этикете, уважении к правам других и ответственности за свои действия в сети.
6. **Государственные и общественные инициативы**: В Узбекистане можно усилить сотрудничество между государственными органами, образовательными учреждениями и частным сектором для проведения тренингов, семинаров и создания образовательных платформ, которые помогут пользователям лучше ориентироваться в вопросах безопасности в интернете.

Эти шаги помогут повысить цифровую грамотность и снизить риски, связанные с киберугрозами, что, в свою очередь, обеспечит безопасное и ответственное использование социальных сетей в Узбекистане.

Меры защиты информации в социальных сетях в Узбекистане включают как государственные инициативы, так и действия со стороны самих пользователей и платформ для обеспечения безопасности персональных данных. Основные меры:

1. Законодательные меры

- **Закон "О персональных данных"**: В Узбекистане действует закон, который регулирует сбор, обработку и хранение персональных данных граждан, включая данные, предоставленные в социальных сетях. Он требует от организаций соблюдения строгих стандартов защиты данных.
- **Кибербезопасность**: Государственные органы, такие как Центр кибербезопасности, занимаются мониторингом и предотвращением кибератак, направленных на социальные сети и другие онлайн-сервисы.

2. Контроль над использованием данных

- Социальные сети обязаны соблюдать законы Узбекистана и предоставлять пользователям инструменты для управления своими данными, например, настройки приватности, возможность удалять данные или ограничивать доступ к ним.
- Регулирование использования данных требует от компаний получать согласие пользователей перед обработкой их данных.

3. Технические меры

- **Шифрование данных**: Многие социальные сети используют методы шифрования для защиты передаваемой информации и сообщений от несанкционированного доступа.
- **Двухфакторная аутентификация (2FA)**: Этот метод дополнительной проверки подлинности пользователей через телефон или электронную почту помогает защитить аккаунты от взлома.

4. Пользовательские меры

- **Настройки приватности**: Пользователи могут контролировать, кто видит их профиль, посты и личную информацию, настроив уровни доступа к своим данным в социальных сетях.
- **Создание надежных паролей**: Регулярное обновление паролей и использование сложных комбинаций символов помогают защитить аккаунт.
- **Цифровая грамотность**: Важно обучение граждан безопасному поведению в интернете, включая осведомленность о фишинге, вредоносных ссылках и других угрозах.

5. Государственные инициативы

- **Информационные кампании**: Для повышения цифровой грамотности в Узбекистане проводятся кампании, направленные на обучение пользователей основам безопасного поведения в социальных сетях.
- **Национальная программа по кибербезопасности**: Включает развитие и внедрение новых стандартов защиты данных и информационных систем на государственном уровне.

Эти меры направлены на защиту данных пользователей социальных сетей и предотвращение их несанкционированного использования в Узбекистане, что особенно важно в условиях роста киберугроз.

Заключение:

Защита информации в социальных сетях в Узбекистане приобретает все большее значение на фоне активного роста цифровизации и использования интернет-платформ. В условиях глобальных киберугроз важно обеспечивать безопасность персональных данных граждан, а также предотвращать несанкционированный доступ к ним. Государственные меры, такие как законодательные акты, направленные на защиту данных, и развитие кибербезопасности, играют ключевую роль в формировании безопасной цифровой среды.

Однако, для максимальной эффективности необходимо активное сотрудничество всех участников — от государства и технологических компаний до самих пользователей. Важно продолжать развивать цифровую грамотность населения, внедрять современные технологии защиты, такие как шифрование и двухфакторная аутентификация, и усиливать контроль над обработкой персональных данных.

Таким образом, комплексный подход, сочетающий законодательные, технические и образовательные меры, является залогом надежной защиты информации в социальных сетях в Узбекистане, что способствует не только безопасности данных, но и доверительному использованию цифровых технологий.

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НАПРАВЛЕНИЯ СОВЕРШЕНСТВОВАНИЯ ГОСУДАРСТВЕННОЙ ПОЛИТИКИ В СФЕРЕ ОБРАЗОВАНИЯ В ТАВДИНСКОМ ГОРОДСКОМ ОКРУГЕ

Аннотация: *в статье говорится о проведенном анализе реализации государственной образовательной политики на территории Тавдинского городского округа, который позволил выявить довольно широкий спектр проблем муниципальной системы образования.*

Ключевые слова: *стратегическое развитие, модернизация системы образования, конкурентоспособность*

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DIRECTIONS OF IMPROVEMENT OF STATE POLICY IN THE SPHERE OF EDUCATION IN TAVDA URBAN DISTRICT

Abstract: *the article discusses the analysis of the implementation of state educational policy in the territory of the Tavdinsky urban district, which made it possible to identify a fairly wide range of problems in the municipal education system.*

Keywords: *university management , modernization of the education system, competitive ability*

В системе образования объекта исследования уделяется весьма небольшое внимание кадровому обеспечению образовательного процесса. Косвенными факторами недостаточного внимания к указанной проблеме явилось практически полное отсутствие данных о кадровом составе анализируемой системе. В настоящее время необходима разработка и внедрение национальной системы цифрового профессионального роста педагогических работников системы общего образования, разработка которой может опираться на опыт создания такой системы для педагогических работников общего образования в соответствии с распоряжением Правительства Российской Федерации от 31 декабря 2023 г. № 3273-р. Необходима системная практика формирования и подержания цифровых

компетенций учителей, которая должна иметь обязательный характер и охватывать всех учителей школ. В настоящее время стало очевидным, что в основу методологии преподавания должны лечь цифровые технологии по подавляющему большинству дисциплин. Далее приведем проект муниципальной программы «Система цифрового профессионального роста педагогических работников общего образования» (таблица 1).

Таблица 1 – Проект муниципальной программы «Система цифрового профессионального роста педагогических работников общего образования Тавдинского городского округа» [25]

<table>
<tr><td colspan="3">Цель муниципальной программы: Кадровое обеспечение цифровой образовательной среды муниципальной системы общего образования Тавдинского городского округа</td></tr>
<tr><td>Ответственный</td><td colspan="2">Управление образованием Тавдинского городского округа</td></tr>
<tr><td rowspan="3">Целевые индикаторы программы</td><td colspan="2">Соответствие квалификации работника преподаваемым дисциплинам с учетом цифровых навыков и новейших профессиональных компетенций – 100%</td></tr>
<tr><td colspan="2">Созданная система повышения цифровой квалификации работников системы общего образования, обеспечивающая 100% охват всех работников</td></tr>
<tr><td colspan="2">Эффективная система менеджмента образовательного процесса в условиях цифровой образовательной среды</td></tr>
<tr><td>Наименование мероприятия</td><td>Ожидаемый результат</td><td>Сроки реализации</td></tr>
<tr><td colspan="3">Задача 1 Организационное обеспечение реализации муниципальной программы</td></tr>
<tr><td>1. Организация и проведение общественных обсуждений (круглых столов, дискуссионных площадок, общественных слушаний) всех заинтересованных лиц, включая представителей профильных органов местного самоуправления (управления образованием), экспертных сообществ работодателей, представителей вузов и организаций СПО, родительских сообществ. с участием органов власти, профессионального сообщества, родительского сообщества, педагогического сообщества др. по вопросу формирования портфеля цифровых компетенций учителя школы</td><td>(1) Сформирован портфель цифровых компетенций, включающий универсальные, общепрофессиональные и профессиональные компетенции с четким формулировками маркеров: знать, уметь, владеть.

(2) Соотнесен набор компетенций и читаемая дисциплина.

(3) Соотнесен набор компетенций и уровень образования (начальная или средняя школа)</td><td>Обновление ежегодно, начало 2 квартала</td></tr>
</table>

[25] Составлено автором

2. Разработка фонда оценочных средств для проведения мониторинга цифровых компетенций учителей.	Совокупность качественных и количественных параметров кадрового обеспечения цифровой образовательной среды Тавдинского городского округа	1 марта 2024 г., далее - ежегодно
3. Разработка фонда оценочных средств для проведения мониторинга цифровых компетенций учащихся.		
4. Проведение мониторинга (среза) цифровых компетенций учителей в системе общего образования Тавдинского городского округа		
5. Обработка полученных данных, формирование базового комплекса данных о базовом состоянии кадровой системы общего образования в условиях цифровой трансформации образовательного пространства		20 марта 2024 г., далее - ежегодно
6. Определение потребности в объеме целевого обучения в целях адресного решения проблемы кадровой укомплектованности образовательных организаций общего образования на среднесрочную и долгосрочную перспективу в условиях цифровой трансформации		
7. Организация и проведение общественных обсуждений (круглых столов, дискуссионных площадок, общественных слушаний) всех заинтересованных лиц, включая представителей профильных органов местного самоуправления (управления образованием), экспертных сообществ работодателей, представителей вузов и организаций СПО, родительских сообществ. с участием органов власти, профессионального сообщества, родительского сообщества, педагогического сообщества др. по вопросу формирования методических подходов, способов и форм развития цифровых компетенций учителей системы общего образования Тавдинского городского округа	Сформирован перечень форм развития цифровых компетенций учителей: (1) традиционных (обучение, переподготовка и др.); (2) Инновационных (создание и участие в профессиональных ассоциациях, программы обмена опытом и лучшими практиками, привлечение профильных практических специалистов) и др.	начало 2 квартала 2024 г., далее - ежегодно
8. Формирование (создание) площадок взаимодействия учительского сообщества, власти и общественных	Выявленные проблемы реализации программы	Систематически, не менее 1 раза в квартал

объединений родителей для обсуждения практических проблем цифровой трансформации школ		
9. Формирование прогноза потребности в подготовке педагогических кадров по образовательным программам в сфере цифровых технологий	Прогноз потребности в кадрах для цифровой образовательной среды муниципальной системы общего образования	1 сентября 2024 г., далее - до 1 мая ежегодно
Задача 2 Создание системы профессионального роста учителей в условиях цифровой образовательной среды		
1. Подготовка предложений по совершенствованию федерального государственного образовательного стандарта высшего образования и соответствующих примерных основных образовательных программ в части подготовки преподавателей, владеющих цифровыми компетенциями	Актуализация федерального государственного образовательного стандарта учителя школы	31 марта 2025 г.
2. Формирование сети научно-методических центров непрерывного повышения профессионального мастерства педагогических работников в сфере цифровизации школ	Создание непрерывно работающих площадок для систематического обучения и повышения квалификации преподавателей, а также методического сопровождения развития цифровых навыков	Ежегодно
Задача 3 Создание системы мотивации профессионального роста учителей в условиях цифровой образовательной среды		
1. Разработка методических рекомендаций по аттестации руководителей образовательных организаций общего образования с учетом цифровой трансформации	Методические рекомендации по аттестации руководителей образовательных организаций общего образования с учетом цифровой трансформации	15 февраля 2025 г.
2. Проведение анализа системы оплаты труда педагогических работников системы общего образования	Характеристика системы оплаты труда с целью выявления стимулирующих возможностей, аналитический отчет	Начало реализации проекта
3. Разработка новой системы стимулирования педагогических работников общеобразовательных организаций с учетом необходимости обеспечения цифровых компетенций в образовательном процессе	Сформирована новая система стимулирования педагогических работников общеобразовательных организаций с учетом необходимости обеспечения цифровых компетенций в	1 марта 2025 г.

	образовательном процессе в виде проекта Положения о стимулировании педагогических работников, рекомендуемого к принятию органами местного самоуправления для подведомственных организаций	
4. Формирование муниципального плана работ по поиску эффективных механизмов мотивации педагогов к профессиональному развитию	Муниципальный план	Ежегодно
5. Мониторинг и анализ по итогам мониторинга выполнения мероприятий программы	Аналитический отчет, обобщение проблем реализации муниципальной программы	30 декабря 2024 г., далее - ежегодно

Реализация предлагаемого проекта муниципальной программы позволит наладить систему подготовки (развития) кадров с цифровыми компетенциями в условиях цифровой трансформации образовательного пространства и тотальной цифровизации общественных отношений.

В настоящее время, стратегическое планирование является едва ли не самым действенным инструментом государственной политики. Представляется, что использование потенциала стратегических документов позволит усовершенствовать кадровое обеспечение образовательного процесса в системе общего образования на муниципальном уровне.

Обоснование эффективности предлагаемого проекта можно обобщить в виде таблицы 2.

Таблица 2 – Обоснование эффективности предлагаемого мероприятия Проект муниципальной программы «Система цифрового профессионального роста педагогических работников общего образования Тавдинского городского округа» [26]

Вид эффективности (эффекта)	Характеристика эффекта
Мотивационный эффект	– Повышение интереса к профессии; – Актуализация собственных компетенций; – Формирование модели поведения учителя, предполагающей стремление к развитию собственной профессиональной траектории; – Развитие уверенности учителя в собственной профессиональной компетентности.

[26] Составлено автором

Повышение профессионализма учителей	– Получение новых педагогических технологий обучения и управления обучающимися в условиях опережающей цифровизации базовых компетенций учеников; – Повышение качества образовательного процесса за счет применения цифровых технологий, способствующих лучшему усвоению материала.
Организационная эффективность	– Формирование системы кадрового обеспечения цифровой образовательной среды; – Создание системы мониторинга профессиональных дефицитов в целом и цифровых, в частности.
Экономическая эффективность	– повышение качества подготовки и востребованности выпускников на рынке труда и образования; – синхронизация спроса и предложения на рынке труда и образования.
Стратегический (программный) эффект	Обеспечение реализации целевых ориентиров национального проекта «Образование»; (1) Федеральный проект «Цифровая школа»: 1) показатель «доля педагогических работников системы общего и дополнительного образования детей, состоящих в цифровых профессиональных сообществах»; 2) цель «осуществлена переподготовка ведущего кадрового состава общеобразовательных организаций по технологиям цифровизации образования». (2) Федеральный проект «Цифровая образовательная среда»: «доля педагогических работников общего образования, прошедших повышение квалификации в рамках периодической аттестации в цифровой форме с использованием информационного ресурса «одного окна». (3) Федеральный проект «Учитель будущего» пять мероприятий.

Выявленные проблемы можно условно поделить на общесистемные, характерные для всех муниципальных образований Российской Федерации и присущие только Тавдинскому городскому округу.

В ряду первого рода проблем укажем на недостаточное внимание к кадровому обеспечению образовательного процесса.

Правовое регулирование образовательной системы в настоящее время претерпевает систематические трансформации, идет процесс апробации новых решений, что связано с систематическим появлением правовых лакун

(отсутствием регулирования), несовершенством формулировок, хаотичностью принятия нормативных правовых актов.

Стратегическое планирование системы образования также отличается подвижностью и постоянными изменениями стратегических векторов развития.

Образовательная система Тавдинского городского округа также имеет ряд нерешенных проблем, сказывающихся на эффективности реализации государственной политики. В частности, кадровый голод, старение преподавательского состава, снижение функциональной грамотности учеников и др. Таким образом, следует отметить, что проведенный анализ реализации государственной образовательной политики на территории Тавдинского городского округа позволил выявить довольно широкий спектр проблем муниципальной системы образования. Однако, наибольшей проблемой системы образования объекта исследования представляется недостаточное внимание кадровому обеспечению образовательного процесса. Усугубляет проблему профессиональный дефицит цифровых компетенций в условиях тотальной цифровизации общественных отношений в целом и образовательных в частности.

Использованные источники:

1. Отчет о реализации муниципальной программы «Развитие системы образования в Тавдинском городском округе до 2025 года» за IV квартал 2024 года. – URL : https://mku-tgo.ru/p32aa1.html
2. Официальный сайт Тавдинского городского округа. – URL : http://adm-tavda.ru/content/основные-показатели-социально-экономического-развития-тавдинского-городского-округа
3. Реестр инновационных площадок системы образования Тавдинского городского округа (данные 01.01.2025). – URL : https://mou-tavda.edusite.ru/DswMedia/reestrmipna01032023.pdf
4. Реестр муниципальных программ. – URL : http://www.adm-tavda.ru/content/муниципальные-программы-реестр-муниципальных-программ
5. Управление Федеральной службы государственной статистики по Свердловской области и Курганской области. – URL: http://sverdl.old.gks.ru/wps/wcm/connect/rosstat_ts/sverdl

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ПРИНЦИПЫ АНАЛИЗА СУЩЕСТВУЮЩЕГО МЕЛИОРАТИВНОГО СОСТОЯНИЯ ОРОШАЕМЫХ МАССИВОВ

Аннотация: *В статье рассматриваются вопросы оценки существующего мелиоративного состояния орошаемых земель на основе общепринятых методов и принципов. Обсуждаются основные показатели формирующие водно-солевые режимы, величины приходных и расходных элементов водного и солевого баланса.*

Ключевые слова: *водообеспечение, гидрогеолого-почвенно-мелиоративные условия, дренированность, режим грунтовых вод и их минерализация.*

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PRINCIPLES OF ANALYSIS OF THE EXISTING Amelioration CONDITION OF IRRIGATED MASSIVES

Abstract: *The article discusses the issues of assessing the existing land reclamation status of irrigated lands based on generally accepted methods and principles. The main indicators forming the water-salt regimes, the values of the input and output elements of the water and salt balance are discussed.*

Key words: *water supply, hydrogeological-soil-reclamation conditions, drainage, groundwater regime and their mineralization.*

Введение. Текущий анализ существующего мелиоративного состояния орошаемых массивов проводится по факторам, определяющим мелиоративную обстановку.

Существующее мелиоративное состояние орошаемых земель можно оценить по массивам, районам и в целом по региону [1, 2, 3, 4, 5]. В зависимости от природных условий орошаемые земли могут быть естественно хорошо дренированными, к таким зонам относится большая часть Ферганской долины, Чирчик - Ангренская долина (за исключением отдельных массивов Дальверзинского оазиса), Зеравшанская долина, верхняя зона р. Сырдарьи.

Результаты и обсуждение. 1. Большая часть орошаемых земель Республики Узбекистан расположена на территории с низкой естественной и весьма слабой дренированностью и бессточностью (Бухарско - Каракульские оазисы, Голодная степь, Каршинская степь, низовья Амударьи и отдельные орошаемые массивы Ферганской долины, Сурхан – Шерабадский массив

орошения). На таких землях без создания искусственной дренированности нельзя получить потенциально возможный урожай сельхозкультур.

2. Определяющим фактором в формировании водно-солевого режима орошаемых земель являются гидрогеологические условия. При оценке мелиоративного состояния орошаемых земель необходимы знания по естественной дренированности территории.

По величине подземного оттока выделяют пять зон естественной дренированности:

а). Интенсивно дренированная с подземным оттоком 5-7 тыс.м^3/га год и более; грунтовые воды пресные с глубиной залегания 5-10 м.

б). Дренированная с оттоком 3-5 тыс.м^3/га год; грунтовые воды преимущественно пресные с глубиной залегания 4-5 м.

в). Слабодренированная с оттоком 1,5-3 тыс.м^3/га год; минерализация грунтовых вод может достигать 5-10 г/л, уровни грунтовых вод (УГВ) находится на глубине 3-4 м, при орошении возникают процессы вторичного засоления.

г). Весьма слабодренированная с оттоком 0,5-1,0 тыс.м^3/га год; минерализация грунтовых вод высокая, УГВ находится на глубине до 2-3 м, процессы вторичного засоления проявляются интенсивно.

д). Бессточная с оттоком менее 0,5 тыс.м^3/га год; минерализация грунтовых вод очень высокая (до 30 г/л), УГВ на глубине до 1-2 м.

Орошаемые земли низовьев Амударьи относятся к зоне естественно недренированной т.е. бессточной. Однако минерализация приповерхностного слоя грунтовых вод в результате орошения составляет до 3 г/л, редко до 5-7 г/л. Больше половины орошаемой территории Узбекистана относится к третей и четвертой группе дренированности – к слабодренированным и весьма слабодренированным с оттоком подземных вод 0,5 – 1,5 тыс. м^3/га год.

К этим территориям относятся все новоосвоенные орошаемые земли Сырдарьинской, Джизакской, Бухарской, Кашкадарьинской, частично Сурхандарьинской областей, где в основном построен искусственный дренаж (горизонтальный открытый, закрытый, и вертикальный дренаж).

3. Для оценки существующего мелиоративного состояния орошаемых земель участка, массива или района необходимо вести учет притока и оттока поверхностных вод. Причем учет притока и оттока надо вести по периодам (за вегетацию и невегетацию). Данные по атмосферным осадкам берутся из ближайшей метеостанции.

Фильтрационные потери из оросительных каналов на массиве орошения подсчитываются в зависимости от технического состояния (в бетонном русле, в железобетонной лотковой сети, в земляном русле).

Динамика поверхностного притока на массив орошения, района и т.д. определяется по декадным данным гидрометрических постов, установленных на отводах оросительных каналов.

4. При анализе мелиоративного состояния орошаемых земель важную роль играет учет дренажного стока и его минерализации. Учет дренажного

стока и его минерализации ведется в устьевой части дрены (открытой или закрытой), коллекторов. Если открытая дрена или коллектор обслуживает несколько массивов или хозяйств, то сток их замеряется при входе в хозяйство и на выходе, разница их дает дренажный сток, формируемый на изучаемом массиве. Учет дренажного стока ведется подекадно в период вегетации и промывных поливов. В остальное время учет дренажного стока ведется ежемесячно.

На массивах орошения, дренируемых горизонтальным закрытым и открытым дренажем, а так же вертикальным дренажем, дренажный сток определяется отдельно по каждому виду дренажа. Откаченный сток вертикального дренажа определяется замеренным расходом каждой скважины и их продолжительностью.

Дренажный сток вертикального дренажа учитывается по замерам на выходе из скважины. Результаты всех наблюдений и замеров вносятся в таблицу расчета водного и солевого баланса для каждого объекта.

Выводы: Для оценки существующего мелиоративного состояния орошаемых земель (поливного участка, массива или района) необходимо проводить регулярные замеры приходных и расходных элементов водного баланса по периодам – за вегетацию и невегетацию. В зависимости от поставленной задачи наблюдения и замеры этих параметров можно вести более детально по декадам, месяцам и за весь год.

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ФАКТОРЫ ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ПРОИЗВОДСТВЕННЫХ ОТРАСЛЕЙ ЭКОНОМИКИ

Аннотация. *В статье рассмотрены вопросы повышения эффективности производственных отраслей и факторов, влияющие на их развития. Рассмотрены особенности и специфика развития производственных отраслей и факторов в Узбекистане. Также проведено анализ научных подходов ведущих экономистов по развитию инновационных процессов, факторов способствующими реализацию промышленной политики, направленной на обеспечение стабильности национальной экономики, увеличение доли промышленности в валовом внутреннем продукте и рост объема производства промышленной продукции развитию экономики. Обоснованы роль факторов в отраслях экономики и критерии эффективности использования ресурсов с учетом особенностей отрасли в условиях либерализации и трансформации. Предлагаются методологические подходы, использование которых позволит улучшить экономические показатели отрасли.*

Ключевые слова: *экономический рост, экономическая эффективность, отрасли производство, объем производства, факторы, либерализация, трансформация, социальная защита, инвестиция, кластер, инновации.*

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FACTORS FOR INCREASING THE EFFICIENCY OF PRODUCTION INDUSTRIES OF THE ECONOMY.

Annotation. *The article discusses issues of increasing the efficiency of manufacturing industries and factors influencing their development. The features and specifics of the development of manufacturing industries and factors in Uzbekistan are considered. An analysis of the scientific approaches of leading economists on the development of innovative processes, factors contributing to the implementation of industrial policy aimed at ensuring the stability of the national economy, increasing the share of industry in the gross domestic product and increasing the volume of industrial production, economic development, was also carried out. The role of factors in economic sectors and criteria for the efficiency of resource use are substantiated, taking into account the characteristics of the industry in conditions of liberalization and transformation. Methodological*

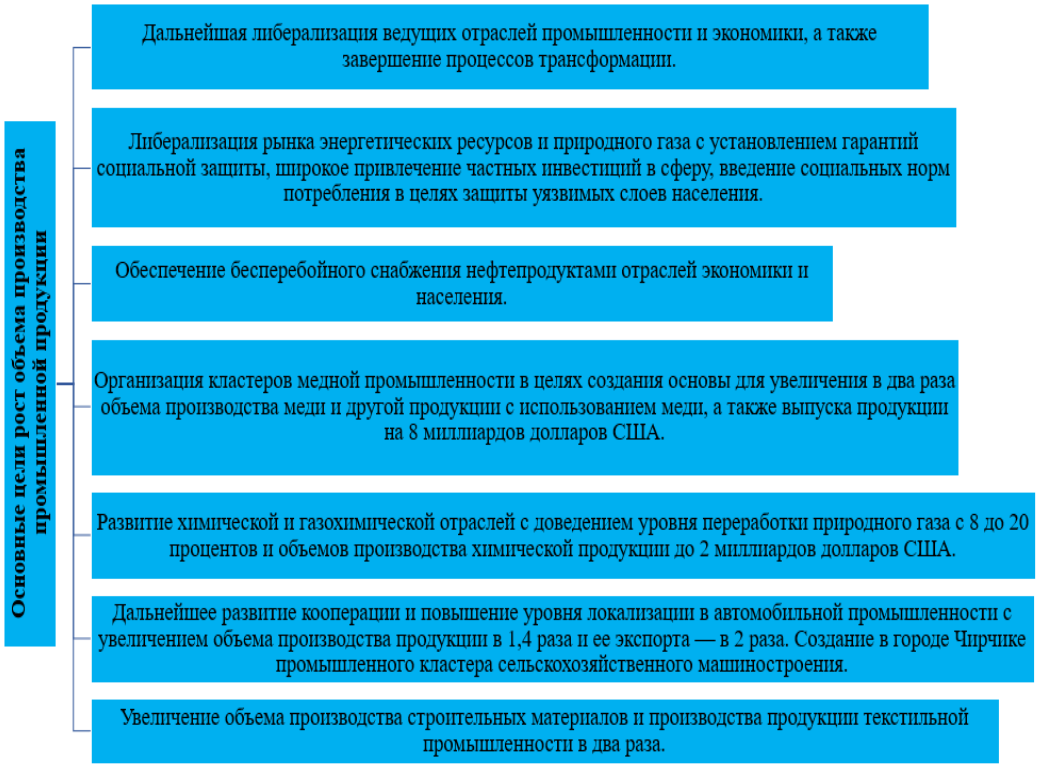
approaches are proposed, the use of which will improve the economic performance of the industry.

Key words: *economic growth, economic efficiency, industries, production volume, factors, liberalization, transformation, social protection, investment, cluster, innovation.*

В условиях процесса экономического развития эффективность производственных отраслей экономики является ключевым и основным фактором, определяющим развитие страны. В условиях глобализации и ужесточения конкурентной борьбы вопросы повышения производительности стали особенно актуальными.

В условиях трансформации и развития экономических процессов особое внимание направлено на повышение макроэкономических показателей, в частности, на основании Закона Республики Узбекистан “О Государственном бюджете на 2025 год” темп роста промышленной продукции на 2026 год ориентировано на 6,2 процента, а темп роста производства в сельском, лесном и рыбном хозяйствах ориентировано на 4,2 процента. [1]

В Стратегии развития нового Узбекистана на 2022 — 2026 годы одним и основных целей является «Продолжение реализации промышленной политики, направленной на обеспечение стабильности национальной экономики, увеличение доли промышленности в валовом внутреннем продукте и рост объема производства промышленной продукции в 1,4 раза. Вместе с этим предусмотрены достижение следующих целей:



• Рисунок 1. Основные цели рост объема производства промышленной продукции [2]

Кроме того в стратегии поставлены следующие цели как:

➢ Развитие кожевенно-обувной промышленности и увеличение объема производства продукции в отрасли в 3 раза.

➢ Увеличение объема производства продукции фармацевтической промышленности в три раза и доведение уровня обеспечения внутреннего рынка отечественными лекарственными средствами до 80 процентов.

➢ Увеличение объема производства продукции с высокой добавленной стоимостью в электротехнической промышленности в два раза и экспорта — в 3 раза.

➢ Увеличение объема производства мебельной продукции в 2,8 раза.

➢ Реализация программы развития пищевой промышленности.

➢ Развитие промышленной кооперации между крупными промышленными отраслями и региональными предприятиями.

➢ Широкое внедрение программ повышения производительности труда в отраслях промышленности.» [2]

Исходя из вышеизложенных можно утвердить что в Стратегии особое внимание уделено к либерализации ведущих отраслей промышленности и экономики; рынка энергетических ресурсов и природного газа; организации и обеспечения без перебойного снабжения; развитие отраслей; увеличение объема производства; широкое внедрение программ повышения производительности труда в отраслях промышленности. При этом нужно

обратить к реализации основных направлений а также, критериям развития и факторам влияющих на их решения.

В проведении анализа факторов на эффективность деятельности (функционирования и развития) промышленного предприятия, а также на эффективность его производства, необходимо первоначально остановиться собственно на понятии "производство". Понятие "производство" может рассматриваться и в экономическом, и в юридическом, и в научном аспекте. [3] При этом с экономической точки зрения производства (как преобразующей деятельности) базисным является понятие "общественное производство", которое представляет собой создание тех или иных благ посредством преобразования природных (первичных) ресурсов в конечный продукт, необходимый для удовлетворения частных (индивидуальных) или групповых потребностей индивидов. С точки зрения неоклассической политической экономии общественное производство, ориентированное на создание материальных благ, представляет собой результат взаимодействия (эксплуатации) четырех ключевых факторов: капитала, труда, земли (природных ресурсов) и рабочей силы. [4].

В изучении факторов влияющих к развитию производственных отраслей обратим к мнениям ученых и исследователей. По мнению автора статьи “Факторы, влияющие на повышение эффективности производства» М.Г. Назарова “Факторы это элементы, причины, воздействующие на данный показатель или на ряд показателей. В таком понимании экономические факторы, как и экономические категории, отражаемые показателями, носят объективный характер.». [5] По мнению И.И. Эрматова “С развитием рыночных отношений предприятия станут уделять достаточно внимания

развитию будущего производства. Они обеспечивают необходимыми средствами новое оборудование, модернизацию производства, разработку и выпуск новой продукции. Кроме того, необходимо создать организационные условия и факторы, экономические и социальные мотивы для творчества конструкторов, инженеров, рабочих.” [6]

Производственная эффективность относится к ключевой категории рыночной экономики, которая непосредственно связана с достижением конечной цели развития производства в целом и каждого отдельного предприятия. Суть проблемы повышения экономической эффективности производства заключается в повышении экономической эффективности на единицу затрат в процессе использования имеющихся ресурсов.

Каждый производитель стремится повысить эффективность своего производства, оказывая различное влияние на производственный процесс. Эти методы являются факторами, влияющими на повышение эффективности производства.

Их можно разделить на три группы - факторы, которые они обеспечивают:

✓ Увеличение производства за счет оптимального использования производственных мощностей;

✓ Снижение производственных затрат за счет повышения производительности и эффективности использования материальных ресурсов и товаров, а также сокращения отходов производства и лома;

✓ Рост средних цен реализации продукции. [7]

Из вышеизложенных мнений можно сделать вывод что все факторы можно классифицировать, как внутренние и внешние. Кроме того, факторы подразделяют на объективные и субъективные. основные внешние факторы: природные и трудовые ресурсы, национальный менталитет, международные отношения, развитие инфраструктуры, уровень экономического развития страны (объемы и динамика производства, производительности труда), налогообложение (уровень и динамика), уровень и состояния социальной защищенности населения, монетарная политика, технический и технологические факторы [7].

Систему внутренних факторов, воздействующих на эффективность хозяйственной деятельности, необходимо рассматривать с позиции системного подхода и экономического анализа, как функции управлении производством. Для системного подход характерны комплексная оценка влияния разноплановых факторов целевой подход к их изучению.

В заключении нашего исследования и обобщая мнения ведущих ученых специалистов пришли к выводу что, факторы повышения эффективности производственных отраслей экономики различны и они имеют многообразные спектры влияние тому или иному виду отрасли которые отражаются в повышении макроэкономических показателей страны. Во многих моментах они отражаются в концепции, стратегии и тактик достижения целевых задач того или иного отрасли, которые взаимосвязаны с целевыми задачами отрасли и в целом макроэкономическими показателями страны. С другой стороны, инновационными технологиями, цифровизацией отрасли, экономики, которые позволяет значительно сократить время на производство, улучшить качество продукции и снизить затраты производства. Следующий как один из основных факторов является квалификация кадров, которые значительную роль играют в повышении производственной эффективности производства. Подготовка, обучение и повышение их квалификации, а также создание мотивационной и новой инновационной среды по подготовки квалифицированных кадров можно получить высокий уровень их отдачи и эффективности производственных сил. Нужно особое внимание уделят к управлению производственными и финансовыми процессами которые взаимосвязаны с организацией производственных процессов в отраслях, которые включает в себя оптимизацию организационной структуры, использование современных методов управления и внедрение новых инновационных систем контроля качества производства и использования финансовых средств. Данный подход снижает издержки производства и с качественной стороны отражается в финансовых результатах отраслей. Можно отметить следующий фактор это развитая инфраструктуры который влияет на эффективность производственных

отраслей. Наличие надежной транспортного коридора, энергетических ресурсов (сырье, материалов) и логистических центров сокращает время и затраты на доставку сырья и готовой продукции. В продолжении факторов повышении эффективности производственных отраслей экономики можно отнести привлечение инвестиций в инновационные проекты и модернизацию, трансформацию производств также играет важную роль. Инвестиции в новые технологии и разработки, способствуют росту конкурентоспособности, а также повышению экспортного потенциала производственных отраслей.

В целом повышение эффективности производственных отраслей экономики требует комплексного подхода, включающего внедрение инноваций, развитие кадров, оптимизацию процессов, улучшение инфраструктуры и активное привлечение инвестиций. Работая над этими факторами, государства и компании могут достичь значительных результатов в повышении производственной эффективности.

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ВЛИЯНИЕ ПИТЬЕВОЙ ВОДЫ НА МОЧЕПОЛОВУЮ СИСТЕМУ ЖЕНЩИН РЕПРОДУКТИВНОГО ВОЗРАСТА В УСЛОВИЯХ ЮЖНОГО ПРИАРАЛЬЯ

Аннотация:*В статье рассматривается влияние качества питьевой воды на состояние мочеполовой системы женщин репродуктивного возраста, проживающих в условиях Южного Приаралья. Исследование основано на анализе химического состава воды, факторов загрязнения и их возможных последствий для здоровья. Рассматриваются основные патологии, связанные с употреблением воды с повышенным содержанием солей, тяжелых металлов и других примесей.*

Ключевые слова: *питьевая вода, мочеполовая система, репродуктивное здоровье, Южное Приаралье, качество воды, загрязнение.*

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IMPACT OF DRINKING WATER ON THE UROGENITAL SYSTEM OF WOMEN OF REPRODUCTIVE AGE IN THE CONDITIONS OF THE SOUTHERN ARAL SEA REGION

Abstract:*The article considers the influence of drinking water quality on the condition of the genitourinary system of women of reproductive age living in the conditions of the Southern Aral Sea region. The study is based on the analysis of the chemical composition of water, pollution factors and their possible consequences for health. The main pathologies associated with the use of water with a high content of salts, heavy metals and other impurities are considered.*

Key words: *drinking water, genitourinary system, reproductive health, Southern Aral Sea region, water quality, pollution.*

Введение

Проблема здоровья населения, проживающего в экологически неблагоприятных регионах, является одной из наиболее актуальных в современном мире. Южное Приаралье, территория, столкнувшаяся с катастрофическими последствиями высыхания Аральского моря, представляет собой яркий пример подобного региона. Дефицит и низкое качество питьевой воды оказывают значительное негативное воздействие на все системы организма человека, в особенности на мочеполовую систему женщин репродуктивного возраста, что, в свою очередь, влияет на демографическую ситуацию и здоровье будущих поколений.

Высыхание Аральского моря привело к существенным изменениям в климате и окружающей среде региона, что выражается в опустынивании, засолении почв и воды, увеличении концентрации пыли и песка в воздухе, содержащих токсичные вещества. Питьевая вода, как правило, добывается из поверхностных и подземных источников, которые подвержены загрязнению этими веществами. Употребление некачественной воды оказывает прямое влияние на состояние здоровья, в частности, вызывает развитие и обострение урологических и гинекологических заболеваний.

Женщины репродуктивного возраста являются наиболее уязвимой группой населения, поскольку состояние их мочеполовой системы напрямую связано с репродуктивной функцией и здоровьем потомства. Нарушения в работе мочеполовой системы могут приводить к бесплодию, невынашиванию беременности, осложнениям во время беременности и родов, а также к рождению детей с врожденными аномалиями.

Изучение влияния питьевой воды на мочеполовую систему женщин репродуктивного возраста в условиях Южного Приаралья является крайне важным для разработки и внедрения эффективных стратегий по улучшению водоснабжения и охраны здоровья населения.

Целью исследования является определить влияние качества питьевой воды на состояние мочеполовой системы женщин репродуктивного возраста, проживающих в условиях Южного Приаралья.

Материалы и методы исследования

Исследование проводилось на территории Республики Каракалпакстан. В качестве материала для исследования использовались данные лабораторных анализов питьевой воды, медицинские карты женщин репродуктивного возраста, результаты анкетирования и клинического обследования. Для оценки качества питьевой воды проводился анализ по следующим показателям: жесткость, минерализация, содержание хлоридов, сульфатов, нитратов, нитритов, тяжелых металлов и пестицидов. Распространенность урологических и гинекологических заболеваний оценивалась на основании анализа медицинских карт и результатов клинического обследования женщин. Взаимосвязь между качеством питьевой воды и состоянием мочеполовой системы выявлялась с помощью

статистического анализа данных, включая корреляционный и регрессионный анализ.

Результаты и обсуждения исследования

Анализ качества питьевой воды показал, что вода в регионе характеризуется повышенной минерализацией, жесткостью и содержанием хлоридов и сульфатов. В ряде проб были обнаружены превышения предельно допустимых концентраций нитратов и тяжелых металлов.

Распространенность урологических и гинекологических заболеваний среди женщин репродуктивного возраста в Южном Приаралье значительно превышает средние показатели по стране. Наиболее часто встречаются заболевания мочевыводящих путей (цистит, пиелонефрит), воспалительные заболевания органов малого таза, нарушения менструального цикла и бесплодие.

Статистический анализ выявил достоверную связь между качеством питьевой воды и распространенностью урологических и гинекологических заболеваний. У женщин, употребляющих воду с повышенной минерализацией и содержанием токсичных веществ, чаще наблюдаются заболевания мочевыводящих путей и воспалительные заболевания органов малого таза.

Полученные результаты подтверждают негативное влияние низкого качества питьевой воды на состояние мочеполовой системы женщин репродуктивного возраста в условиях Южного Приаралья. Повышенная минерализация и содержание токсичных веществ в воде способствуют развитию и обострению урологических и гинекологических заболеваний.

Высокая распространенность урологических и гинекологических заболеваний среди женщин репродуктивного возраста в регионе представляет серьезную угрозу для репродуктивного здоровья населения и требует принятия неотложных мер по улучшению водоснабжения и охраны здоровья.

Для улучшения качества питьевой воды и профилактики заболеваний мочеполовой системы у женщин репродуктивного возраста в условиях Южного Приаралья рекомендуется:

- ✓ Внедрение современных технологий очистки воды на водоочистных сооружениях.
- ✓ Обеспечение населения качественной бутилированной водой.
- ✓ Проведение регулярного мониторинга качества питьевой воды.
- ✓ Организация санитарно-просветительской работы среди населения о важности употребления качественной питьевой воды и соблюдения правил личной гигиены.
- ✓ Улучшение доступности медицинской помощи для женщин репродуктивного возраста, включая профилактические осмотры и своевременное лечение урологических и гинекологических заболеваний.
- ✓ Разработка и внедрение программ по поддержке репродуктивного здоровья населения.

Заключение

Качество питьевой воды оказывает значительное влияние на состояние мочеполовой системы женщин репродуктивного возраста, проживающих в условиях Южного Приаралья. Высокая распространенность урологических и гинекологических заболеваний среди женщин в регионе является следствием употребления некачественной воды. Для улучшения здоровья населения необходимо принять комплекс мер по улучшению водоснабжения и охране здоровья, включая внедрение современных технологий очистки воды, обеспечение населения качественной бутилированной водой, проведение регулярного мониторинга качества питьевой воды и организацию санитарно-просветительской работы.

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ВОЗНИКНОВЕНИЕ И РАЗВИТИЕ ВЕЛИКОГО ШЕЛКОВОГО ПУТИ

Аннотация: *В статье производится попытка анализа Великого шелкового пути, выполняющего роль главной трансевразийс- кой магистрали на протяжении нескольких веков, с точки зрения сетевой экономики. Рассматривается история воз- никновения пути и причин, послуживших появлению его названия, охватываемая территория, особенности пере- возки товаров, причины прекращения его существования и необходимости разработки его аналога.*

Ключевые слова: *Великий шёлковый путь, Восток, За- пад, история, экономика.*

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THE EMERGENCE AND DEVELOPMENT OF THE GREAT SILK ROAD

Abstract: *This article is an attempt of the analysis of the Great Silk Road performing the role of the main Trans-Eurasian road for several centuries, from the point of view of the network economy. The current work involves the history of the road and reasons that led to the appearance of its name, the covered area, features of the goods transportation, the reasons for the termination of its existence and the need for developing its counterpart.*

Keywords: *the Great Silk Road, East, West, history, economics.*

Великий шелковый путь – одно из самых значительных и величайших достижений цивилизации, которому по праву можно присвоить роль главной торговой трансевра- зийской артерии за все время ее существования. Это первый в истории человечества путь, соединивший между собой страны и народы от Средиземноморья до Тихого океана, с помощью которого на протяжении многих веков осуществлялся обмен товарами, идеями, технологиями и ремеслами. Путешественники не боялись серьезных трудностей, с которыми они сталкивались, преодолевая такой длинный и тяжелый путь. Их не пугали ни нападе- ния кочевников, ни безводные азиатские пустыни, порой заносившие дорогу так, что верное направление можно было отыскать потом только «по костям людей и живот- ных».

Просуществовав несколько веков, Великий шелковый путь зарекомендовал себя в качестве важного фактора экономического, политического и культурного прогресса в тех регионах, через которые он проходил. Это, в частности, объясняет актуальность ведущейся до сих пор

дискуссии о его возрождении. Отметим, впрочем, что исторический Великий шелковый путь сложился стихийно, в силу экономических потребностей соответствующих ре- гионов, сегодня же для создания его аналога потребуется проводить целый комплекс дополнительных политичес- ких и экономических мероприятий. Кроме того, вряд ли его существование будет соответствовать потребностям нашей страны, которая заинтересована в развитии дру- гих трансевразийских магистралей.

Что касается нашего времени, то на пороге третьего тысячелетия у человечества появилась необходимость поиска новых путей сотрудничества или восстановления давно забытых, каковым и является Великий шелковый путь. Решение этого вопроса является актуальным по сей день в связи с тем, что история шелкового пути доказала важнейшую роль межкультурного сообщения и взаимообогащения как основы мира и прогресса всего челове- чества.

Основываясь на анализе различных источников, можно сказать, что Великий шелковый путь (Great silk road) – это единая трансконтинентальная система караванных торговых путей, соединявшая страны в пределах Западной Европы и Китая. Он начал свое существование еще со II века до н. э. (по другим источникам с III века до н. э., и продолжал действовать вплоть до XV в.

Историки полагают, что возникновение Великого шелкового пути стало возможным в условиях существования крупных государственных образований, каковыми оказались Китай, Средняя Азия, Индия, Ближний Восток и Средиземноморье. Это связано с тем, что наличие централизованной власти, распространяющейся на прилегающие области, способно было обеспечить безопасность на караванных путях.

Для функционирования Великого шелкового пути требовалось создание развитой системы международного разделения труда в производстве и в обеспечении инфраструктуры транспортных коммуникаций. А поскольку торговля подразумевала преодоление огромных расстояний, то необходимая рыночная инфраструктура предполагала наличие перевалочных пунктов, специализированных базаров, режима стабильных денежных расчетов и т. д.

Великий шелковый путь проходил через множество городов, которые были образованы благодаря ему. Добраться от одного до другого можно было за один день, однако сейчас дороги засыпаны песками пустынь. Когдато сюда стекалось огромное количество людей, так как в них находились различные торговые точки; здесь купцы и их сопровождающие находили себе ночлег, еду и питье. Великий шелковый путь создал Среднеазиатскую циви- лизацию.

Многие города на пути Великого шелкового пути были развиты неравномерно: какие-то из них были огромными, а некоторые служили небольшими перевалочными пунктами (ночлегами). На разных территориях Великого шелкового пути существовали разные религии и идеологии.

Шелковый путь способствовал передаче не только товаров, но и информации об их существовании и технологии производства. В качестве

примера можно привести получившее широкое распространение производство шелка, который изначально изготавливали только в Китае, а затем стали изготавливать в восточном Туркменистане, Иране и Греции. Так же обстояло и с бумагой, которую сначала европейцы покупали, а с XIII века стали изготавливать сами. Китайцы, в свою очередь, благодаря Великому шелковому пути освоили такие сельскохозяйственные культуры, как фасоль, лук, огурцы, морковь и пр. Таким образом, в ходе караванной торговли Запад заимствовал промышленные новшества, а Восток – сельскохозяйственные, что свидетельствует о существовавшем в Средние века технологическом превосходством Востока, частично сохранявшимся до XVIII–XIX веков. Однако некоторые секреты технологического производства, как, например, производство фарфоровой посуды и оружия, европейцам в эпоху активного функционирования Великого шелкового пути перенять так и не удалось.

Несмотря на большой спрос товаров, которые проходили по Великому шелковому пути, а также его стремительному развитию и процветанию Великий шелковый путь со временем начал затухать и к концу XV века совсем прекратил свое существование. Вместе с ним «заглохла» и Среднеазиатская цивилизация, а также многие города, которые находились на пути следования караванов.

Причиной такого исхода истории стало открытие европейцами морского пути в Индию и Китай. Эта причина является основной, так как один корабль везет столько же продукции, сколько тысяча верблюдов. Причем корабли везут товары намного быстрей, чем это делается по суше, вследствие чего затраты на перевозку товаров уменьшаются.

Несмотря на многие преимущества от перевозки товаров морским путем, многие страны в настоящее время подумывают о восстановлении Великого шелкового пути. Если во времена Великого шелкого пути Центральная Азия была очень развита, то сейчас Азиатский банк раз- вития приводит статистику, что менее чем 1 % торговли между Европой и Азией осуществляется через страны Центральной Азии.

Важно отметить, что Великий шелковый путь как эко- номический феномен можно классифицировать как сете- вое формирование, в котором в мягкой форме было объ- единено множество предприятий, людей, организаций и властных структур, обеспечивавших его бесперебойное функционирование. С точки зрения сетевой экономики он «не был чем-то вроде узенькой дорожки, это было громадное экономико-культурное пространство шириной в одну, а то и полторы тысячи километров». На протяжении всего пути осуществлялись не только торго- вые сделки, но также «заключались дипломатические до- говоры и военные союзы». Это объясняет тот факт, что Великий шелковый путь сыграл важнейшую роль в экономической и политической жизни народов Евразии, выступая связующим звеном между странами разных ци- вилизаций и социально-экономических систем и неким мостом между Востоком и Западом, благодаря которому достигалось культурное взаимодействие и происходило торговое

сотрудничество. Его развитие и стремление че- ловечества возродить нечто подобное через века свиде- тельствует о незаменимости подобного взаимодействия между народами с целью взаимного обогащения.

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ДИСТАНЦИОННОЕ ОБУЧЕНИЕ В МЕДИЦИНСКОМ ВУЗЕ

Аннотация:*В системе здравоохранения, в частности в педиатрии, искусственный интеллект (ИИ) значительно влияет на развитие медицины. Врождённые пороки сердца – это группа заболеваний сердца, которые являются одними из самых серьёзных заболеваний, встречающихся при рождении детей. Эта патология сердца, требующая быстрой диагностики и вмешательства для обеспечения благополучия новорождённых.*

Ключевые слова: *искусственный интеллект, врожденные пороки сердца, ранняя диагностика.*

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TIBBIYOT OLIYGOHLARIDA MASOFAVIY O'QITISH

ANNOTATSIYA:*Sog'liqni saqlash tizimida, xususan pediatriyada sun'iy intellekt (SI) tibbiyotning rivojlanishiga sezilarli ta'sir ko'rsatadi. Tug'ma yurak nuqsonlari - bu bolalar tug'ilishida uchraydigan eng jiddiy kasalliklardan biri bo'lgan yurak kasalliklari guruhi. Yangi tug'ilgan chaqaloqlarning farovonligini ta'minlash uchun tez tashxis qo'yish va aralashuvni talab qiladigan ushbu yurak patologiyasi.*

Kalit so'zlar: *sun'iy intellekt, tug'ma yurak nuqsonlari, erta tashxis.*

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DISTANCE LEARNING AT A MEDICAL UNIVERSITY

ABSTRACT*:In the healthcare system, in particular in pediatrics, artificial intelligence (AI) has a significant impact on the development of medicine. Congenital heart defects are a group of heart diseases that are among the most serious diseases encountered at birth. This is a heart pathology that requires rapid diagnosis and intervention to ensure the well-being of newborns.*

Keywords: *artificial intelligence, congenital heart defects, early diagnosis.*

Искусственный интеллект — это один из разделов компьютерных наук. Он использует современные технологии для выполнения интеллектуальных задач. Машины учатся решать задачи, требующие мышления человека, его способности к обучению и хранению знаний. [4]

Врожденные пороки сердца являются одними из наиболее распространенных врожденных заболеваний, которые могут быть причиной смерти среди новорожденных детей. В среднем, один-два младенца из тысячи рождаются с тяжёлой формой врожденных пороков сердца, что требует неотложной помощи в неонатальном периоде. Без своевременной диагностики и лечения около трети детей с ВПС не доживают до годовалого возраста. Раннее выявление, лечение и наблюдение за детьми с ВПС играют ключевую роль в улучшении прогноза и снижении детской смертности.

В системе здравоохранения, в частности в педиатрии, искусственный интеллект (ИИ) значительно влияет на развитие медицины [5]. Большие данные и технологии в области искусственного интеллекта показали большой прогресс в медицинской сфере [2]. Искусственный интеллект может быть полезен в ранней диагностике и лечении заболеваний, а также может помогать врачам в принятии более эффективных решений [5].

Целью работы является обзор технологий искусственного интеллекта при обнаружении пороков сердца.

Для достижения цели предполагается решить следующие задачи:

1. Изучить литературные источники по технологиям искусственного интеллекта, используемых при обнаружении врожденных пороков сердца;
2. Оценить роль влияния ИИ на медицину в странах мира;
3. Разобрать наиболее часто используемые виды технологий ИИ;
4. Сделать вывод.

Объект исследования: врожденные пороки сердца.

Предмет исследования: технологии ИИ.

Искусственный интеллект – это раздел информатики, который является новой технической наукой, имитирующей и расширяющей человеческий интеллект для решения сложных задач [1]. ИИ имитирует работу человеческого мозга для обработки данных и играет важную роль в медицине, позволяя выявлять, обрабатывать, интегрировать и анализировать огромные объёмы медицинских данных [5].

Для обучения искусственного интеллекта учёные использовали алгоритмы, которые проанализировали сотни видеозаписей, сделанных в ходе ультразвуковых исследований **192** новорождённых. Набор данных включал подвижные изображения бьющихся сердец, снятые под различными углами, а также информацию о диагнозах, выставленных опытными детскими кардиологами на основе данных изображений. Для проверки точности готовой модели исследователи предоставили второй набор изображений ультразвуковых исследований сердец младенцев, которые ранее не анализировались алгоритмами. Результаты показали, что искусственный интеллект способен поставить правильный диагноз в **80–90%** случаев и

определить тяжесть заболевания с точностью от **65** до **85%**. Согласно мнению исследователей, в будущем медицинские учреждения с высококвалифицированными специалистами смогут воспользоваться этой моделью для уменьшения рабочей нагрузки сотрудников и повышения точности диагностики.

Рассмотрим одни из самых новых технологий искусственного интеллекта для выявления врожденных пороков сердца:

1. Аускультация с помощью искусственного интеллекта. Компьютерная аускультация используется для помощи врачам при проведении физикальных обследований. Она показала высокую чувствительность, хорошую специфичность, высокую точность. Электронный стетоскоп не только облегчает запись сердечных тонов, но и улучшает их, различая настоящие и отражённые звуки за счёт определения различных частот. Кроме того, искусственный интеллект позволяет записывать сердечные тоны в цифровом формате и определять патологические шумы [5].

2. Трехмерная печать моделей сердца. На сегодняшний день все чаще и чаще используется трехмерная печать органов. При врожденных пороках сердца часто применяется трехмерная печать сердца. 3D-модели создают анатомию сердца, включая мелкие детали с очень ограниченным диапазоном ошибок, соответственно 3D-модели являются необходимыми при лечении заболеваний сердца.

В заключение стоит отметить важность использования искусственного интеллекта в диагностике врождённых пороков сердца. Проанализировав возможности искусственного интеллекта в обнаружении врождённых пороков сердца, можно сделать вывод, что эти технологии предоставляют большие перспективы для диагностики заболеваний у новорождённых. Применение искусственного интеллекта позволяет улучшить прогнозирование и снизить уровень детской смертности.

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ВЛИЯНИЕ ИММУНОМОДУЛЯЦИИ, ВЫЗВАННОЙ COVID-19, НА ПАТОГЕНЕЗ ТУБЕРКУЛЕЗНОГО СПОНДИЛИТА: ИЗМЕНЕНИЯ В ТКАНЕВЫХ СТРУКТУРАХ И МИКРОЦИРКУЛЯЦИИ

Введение

Туберкулезный спондилит (ТС) остается серьезной медико-социальной проблемой, особенно у пожилых пациентов и лиц с ослабленным иммунитетом. Пандемия COVID-19 вызвала значительные изменения в функционировании иммунной системы, что могло повлиять на течение различных инфекционных заболеваний, включая туберкулез.

Одним из ключевых аспектов патогенеза ТС является состояние микроциркуляции и структурные изменения тканей позвоночника. Иммуномодуляция, вызванная SARS-CoV-2, способна изменять воспалительный процесс, васкуляризацию и репаративные механизмы в пораженных тканях. Вирусная инфекция может усиливать дисфункцию эндотелия, способствовать гипоксическим повреждениям и влиять на взаимодействие макрофагов с Mycobacterium tuberculosis.

Настоящее исследование направлено на изучение особенностей изменений в тканевых структурах и микроциркуляции позвоночника у пациентов с туберкулезным спондилитом в условиях иммунных сдвигов, вызванных COVID-19. Анализ этих процессов позволит глубже понять механизмы прогрессирования заболевания и разработать новые подходы к его лечению.

Ключевые слова: *туберкулезный спондилит, COVID-19, иммуномодуляция, микроциркуляция, тканевые изменения, гипоксия, воспаление, эндотелиальная дисфункция.*

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THE IMPACT OF COVID-19-INDUCED IMMUNOMODULATION ON THE PATHOGENESIS OF TUBERCULOUS SPONDYLITIS: CHANGES IN TISSUE STRUCTURES AND MICROCIRCULATION

Introduction

Tuberculous spondylitis (TS) remains a significant medical and social challenge, particularly in elderly patients and immunocompromised individuals. The COVID-19 pandemic has led to profound alterations in immune system function, potentially affecting the course of various infectious diseases, including tuberculosis.

One of the key aspects of TS pathogenesis is the state of microcirculation and structural changes in spinal tissues. SARS-CoV-2-induced immunomodulation can alter inflammatory responses, vascularization, and reparative mechanisms in affected tissues. Viral infection may exacerbate endothelial dysfunction, contribute to hypoxic damage, and influence macrophage interactions with Mycobacterium tuberculosis.

This study aims to investigate the specific changes in tissue structures and spinal microcirculation in patients with tuberculous spondylitis under the immune shifts induced by COVID-19. Understanding these processes will provide deeper insights into disease progression mechanisms and facilitate the development of novel treatment approaches.

Keywords: *tuberculous spondylitis, COVID-19, immunomodulation, microcirculation, tissue changes, hypoxia, inflammation, endothelial dysfunction.*

Цель работы:

Целью данного исследования является оценка воздействия инфекции COVID-19 на пациентов с туберкулезным спондилитом и выявление взаимосвязи между этими двумя заболеваниями. Кроме того, исследуется, как изменения в диагностике, лечении и последствиях туберкулезного спондилита, возникшие в период пандемии COVID-19, могут привести к разработке новых рекомендаций для медицинской практики.

Материалы:

В нашем исследовании принимали участие 75 пациентов с туберкулезным спондилитом, проходивших лечение в Андижанском областном центре фтизиатрии и пульмонологии в период с 2019 по 2023 год, а также 20 здоровых человек.

Результаты:

По результатам исследования были выявлены иммунологические и патогенетические изменения между инфекцией COVID-19 и туберкулезным спондилитом. МРТ-изображения и лабораторные результаты, полученные от пациентов, показали, что у больных, перенесших COVID-19, наблюдаются явные изменения, касающиеся дисков и позвонков, при этом было зафиксировано изменение иммунной системы и патогенетические изменения. В то же время, среди здоровых членов контрольной группы такие изменения не наблюдались.

Лабораторные результаты и патогенетический анализ показали, что инфекция COVID-19 усиливает системное воспаление и иммунологические реакции у пациентов с туберкулезным спондилитом. Между группой

пациентов и здоровыми участниками наблюдаются значительные различия в иммунных реакциях и показателях крови. Образование антител и цитокинов против COVID-19, а также повышенная активность и направленность в патогенезе заболеваний были также замечены.

Заключение:

Результаты исследования указывают на влияние инфекции COVID-19 на туберкулезный спондилит, что может привести к усилению иммунной системы и патогенетическим изменениям из-за взаимодействия этих двух заболеваний. Патогенетическая связь между туберкулезным спондилитом и COVID-19, выявленная через клинические и лабораторные показатели, предоставляет важные данные для дальнейших исследований и разработки стратегий лечения. Кроме того, это открывает возможности для разработки новых подходов к управлению иммунной системой и лечению инфекций.

COVID-19 и туберкулезный спондилит являются важной проблемой для пожилых пациентов, поскольку возрастные изменения иммунной системы усложняют взаимодействие этих заболеваний и диагностику. Туберкулезный спондилит — это острое и хроническое заболевание, которое может привести к высоким рискам при сочетании с другими проблемами у пациентов пожилого возраста. Инфекция COVID-19 также распространяется быстро среди пожилых людей, и патогенетические изменения у них могут вызывать различные аллергические реакции.

Оральный тест на пищевые аллергии признан "золотым стандартом" для диагностики аллергических реакций. Его эффективность в выявлении аллергических реакций, связанных с COVID-19 и туберкулезным спондилитом у пожилых пациентов, рассматривается в многочисленных исследованиях. Кроме того, эффективность этого теста имеет большое значение для различения аллергических заболеваний и постановки правильного диагноза.

Таким образом, оральный тест на пищевые аллергии является одним из наиболее надежных методов для выявления аллергических реакций и патогенеза у пожилых пациентов, страдающих от COVID-19 и туберкулезного спондилита. Этот метод помогает точно диагностировать изменения в иммунной системе и своевременно обнаружить аллергические реакции, что имеет важное значение для диагностики и лечения данных заболеваний у пожилых людей.

COVID-19 и туберкулезный спондилит могут усиливать проблемы со здоровьем у пожилых пациентов, поскольку их иммунная система и общее состояние ограничены в ответе на изменения, связанные с этими заболеваниями. Туберкулезный спондилит является хроническим заболеванием, симптомы которого могут быть схожи с другими болезнями, поэтому правильная диагностика крайне важна. COVID-19, ослабляя иммунную систему, может снизить общую устойчивость к аллергическим реакциям и инфекциям. Множество исследований подтверждают, что оральный тест на пищевые аллергии является эффективным методом

диагностики и определения аллергических реакций и патогенетических изменений у пожилых пациентов, что играет ключевую роль в их диагностике [1-2].

Цель:

Цель данного исследования заключается в оценке воздействия инфекции COVID-19 на пациентов с туберкулезным спондилитом и определении взаимосвязи между этими двумя заболеваниями. Кроме того, исследование направлено на изучение изменений в диагностике, процессе лечения и исходах туберкулезного спондилита в период пандемии COVID-19 с целью разработки новых рекомендаций для медицинской практики.

Материалы:

В исследование были включены 75 пациентов с туберкулезным спондилитом, получавших лечение в Андижанском областном центре фтизиатрии и пульмонологии в период с 2019 по 2023 годы. В качестве контрольной группы были привлечены 20 здоровых людей. Из лабораторных данных были изучены ПЦР-тесты, анализы крови, иммунологические показатели (антигены и антитела), а также биопсийный материал. На основе радиологических данных были исследованы МРТ-изображения (T1, T2 последовательности). Полученные данные были подвергнуты статистическому анализу.

Результаты иследования и их обсуждение

Результаты исследования оказали важное значение для оценки воздействия инфекции COVID-19 на пациентов с туберкулезным спондилитом и для выявления взаимосвязи между этими заболеваниями. На основе данных, полученных от 75 пациентов с туберкулезным спондилитом и 20 здоровых людей, были выявлены патогенетические изменения и клинические изменения состояния пациентов, вызванные инфекцией COVID-19.

Взаимосвязь между туберкулезным спондилитом и COVID-19 заключается в том, что инфекция COVID-19 ослабляет иммунную систему, углубляя и ускоряя процесс туберкулезного спондилита. Лабораторные исследования, включая ПЦР-тесты, анализы крови и иммунологические показатели (антиген и антитела), играли ключевую роль в исследовании работы иммунной системы у пациентов. МРТ-изображения, особенно T1 и T2 последовательности, были эффективно использованы для выявления патологических изменений у пациентов с туберкулезным спондилитом.

Кроме того, исследование выявило изменения в процессе лечения, вызванные пандемией COVID-19. Было установлено, что последствия инфекции COVID-19 или ее осложнений в дальнейшем оказывали влияние на клинические проявления туберкулезного спондилита. Улучшенные иммунологические показатели и реакции на повышенный уровень кислорода в крови стали ответами на различные изменения в состоянии пациентов.

Результаты исследования также помогли разработать новые методы диагностики и лечения. Исследования, касающиеся туберкулезного

спондилита и инфекции COVID-19, способствовали нахождению точных и вспомогательных методов для улучшения лечения. Это исследование создало возможность разработать новые рекомендации для медицинской практики, внедряя новые клинические и лабораторные меры.

На основе результатов исследования, важно выявить взаимосвязь между туберкулезным спондилитом и инфекцией COVID-19 для реализации эффективных стратегий диагностики и лечения этих заболеваний.

1.ПЦР (Полимеразная цепная реакция) тесты

ПЦР-тесты являются основным методом точной диагностики инфекции COVID-19. Этот тест выявляет РНК вируса, позволяя определить наличие COVID-19. У пациентов с туберкулезным спондилитом ПЦР-тесты играют важную роль в точном выявлении инфекции и понимании ее патогенеза. Результаты ПЦР эффективны для выявления вируса у пожилых пациентов, что помогает правильно направлять лечебные процессы.

2.Анализы крови

Анализы крови необходимы для первоначального обследования пациентов. Показатели крови, включая лимфоциты, моноциты и нейтрофилы, являются важными иммунологическими маркерами, помогающими оценить состояние иммунной системы у пожилых пациентов. Для выявления взаимосвязи между COVID-19 и туберкулезным спондилитом следует учитывать анализы крови, а также взаимодействие антигенов и антител. В следующей таблице представлены изменения показателей крови.

Показатель	**Туберкулезный спондилит под воздействием COVID-19**	**Здоровая контрольная группа**
С-реактив белок (СРБ)	75-160 мг/л	0-10 мг/л
Скорость оседания эритроцитов(СОЭ)	45-95 мм/с	3-15 мм/с (у мужчин), 5-20 мм/с (у женщин)
Глобулин (IgG, IgM, IgA)	IgG — 45-85 г/л, IgM — 20-40 г/л	IgG — 10-18 г/л, IgM — 5-10 г/л
Фибриноген	4-8 г/л	2-4 г/л

3. Иммунологические показатели (антигены и антитела): Показатели антигенов и антител, характерные для инфекции COVID-19, могут привести к изменениям в иммунной системе. Для пациентов с туберкулезным спондилитом эти тесты используются для определения обострений инфекции и иммунологических реакций. Также концентрация антител помогает выявить связь между COVID-19 и туберкулезным спондилитом.

4. Биопсийные материалы: Проведение биопсии при туберкулезном спондилите, а также исследование материалов, взятых из поврежденных суставов и тканей, помогает выявить поврежденные или избыточно продуцируемые клетки, которые могут быть следствием ослабленной

иммунной системы. В ходе исследования проводятся микроскопические анализы, что позволяет выявить явные формы патогенеза и заболевания. Эти материалы играют важную роль в установлении связи между COVID-19 и туберкулезным спондилитом.

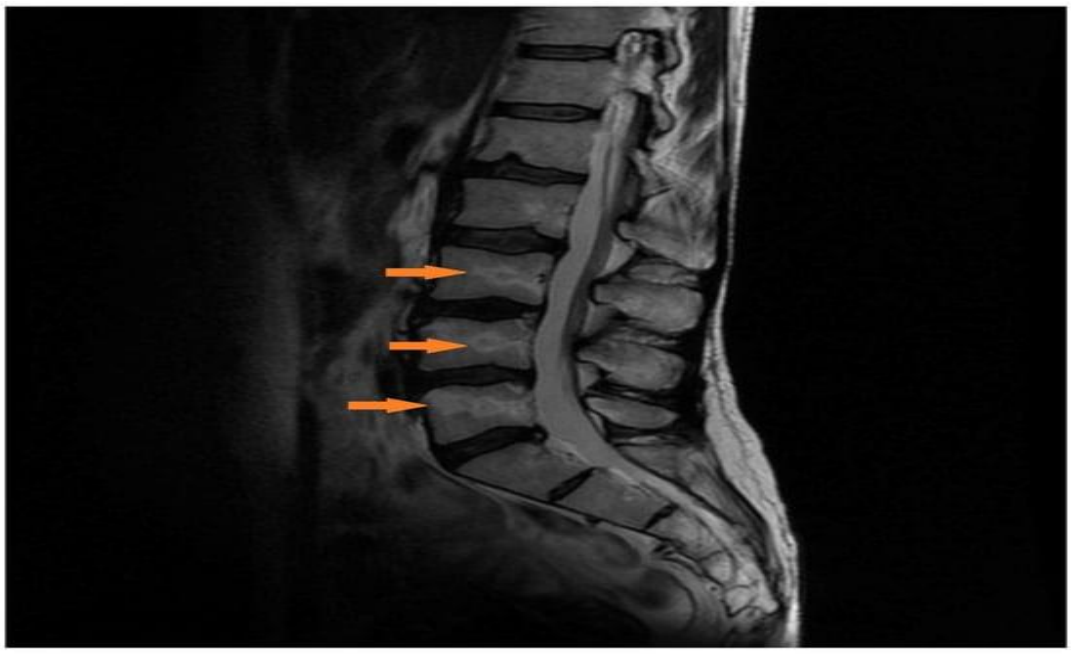
5. Радиологические исследования (МРТ): Радиологические исследования, включая магнитно-резонансную томографию (МРТ), являются важным методом диагностики патологии туберкулезного спондилита у пожилых пациентов. МРТ-изображения (в режимах T1 и T2) используются для точного исследования, что помогает выявить хроническое состояние инфекции и возможные аномалии. Воздействие инфекции COVID-19 или хроническая форма туберкулезного спондилита могут быть выявленпомощью этих изображений. В следующей таблице показаны патологические изменения на МРТ**.**

3. Анализ и статистический анализ: Полученные лабораторные и радиологические данные были статистически проанализированы. Этот анализ помог выявить различия между пациентами и контрольной группой, а также оценить надежность, чувствительность и специфичность каждого теста. Результаты статистического анализа предоставили ясную картину патогенеза, связанного с COVID-19 и туберкулезным спондилитом, а также способствовали разработке новых методов диагностики и лечения.

Заключение

Пандемия COVID-19, являясь глобальной проблемой здравоохранения, продемонстрировала не только заболевания дыхательных путей, но и различные формы заболеваний иммунной системы и инфекционных заболеваний, включая туберкулезный спондилит. Проведенные исследования расширили представления о взаимном воздействии COVID-19 и туберкулеза, привнесли новые данные о влиянии инфекции на иммуномодуляцию и патогенез.

Результаты исследования показывают, что после COVID-19 нарушения в



иммунной системе изменяют механизмы патогенеза туберкулезного спондилита. У пациентов, переболевших COVID-19, новые патогенетические механизмы, такие как цитокиновый шторм, лимфопения и дисфункция иммунной системы, могут привести к изменению активности Mycobacterium tuberculosis. Эти состояния увеличивают риск перехода латентной формы туберкулеза в активную и могут стать причиной инфекционного поражения позвоночника.

Исследование также подтверждает, что пандемия COVID-19 значительно изменяет эпидемиологию туберкулеза и его тяжелые формы, включая туберкулезный спондилит. Понимание взаимосвязи между иммунной системой и микробами имеет важное значение для совершенствования профилактики и лечения туберкулеза.

Данное исследование является важным шагом для дальнейшего изучения сложных взаимосвязей между COVID-19 и туберкулезным спондилитом и разработки новых подходов к лечению в будущем. Оно также поможет комплексно решать проблемы здравоохранения, связанные с инфекциями COVID-19 и туберкулезом.

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БУХГАЛТЕРСКИЙ УЧЕТ И АУДИТ В УСЛОВИЯХ ЦИФРОВИЗАЦИИ

Аннотация: *Цифровизация коренным образом меняет подходы к бухгалтерскому учету и аудиту, внедряя автоматизацию, аналитику данных и облачные технологии. Современные инструменты позволяют значительно ускорить обработку данных, повысить точность расчетов и минимизировать риски. Однако цифровая трансформация требует новых навыков от специалистов и адаптации существующих нормативных баз. В работе рассматриваются ключевые тенденции цифровизации в области бухгалтерии и аудита, а также их влияние на профессиональную деятельность.*

Ключевые слова: *бухгалтерский учет, аудит, цифровизация, автоматизация, аналитика данных, облачные технологии, цифровая трансформация.*

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ACCOUNTING AND AUDITING IN THE CONTEXT OF DIGITALIZATION

Abstract: *Digitalization is fundamentally changing approaches to accounting and auditing, introducing automation, data analytics and cloud technologies. Modern tools can significantly speed up data processing, improve the accuracy of calculations and minimize risks. However, digital transformation requires new skills from specialists and the adaptation of existing regulatory frameworks. The paper examines key trends in digitalization in the field of accounting and auditing, as well as their impact on professional activities.*

Keywords: *accounting, audit, digitalization, automation, data analytics, cloud technologies, digital transformation.*

Введение

Современный мир активно развивается благодаря цифровым технологиям. Эти изменения существенно влияют на все аспекты экономической деятельности, включая бухгалтерский учет и аудит. Цифровизация способствует автоматизации процессов, снижению ошибок и

повышению эффективности, но вместе с тем ставит перед специалистами новые вызовы.

Цель данной статьи — проанализировать влияние цифровизации на бухгалтерский учет и аудит, а также рассмотреть возможности и вызовы, связанные с внедрением цифровых технологий.

Цифровизация изменила традиционные подходы к ведению бухгалтерского учета. Ручные операции заменяются автоматизированными системами, такими как ERP-системы (SAP, Oracle), что позволяет значительно ускорить обработку данных.

Исторически бухгалтерский учет эволюционировал от простых систем учета к сложным интегрированным решениям, поддерживаемым облачными технологиями и большими данными. В настоящее время цифровизация влияет на следующие аспекты:

Автоматизация рутинных операций.

Увеличение точности расчетов.

Снижение затрат на ведение учета.

Сравнение традиционного и цифрового учета:

Критерий	Традиционный учет	Цифровой учет
Скорость обработки данных	Низкая	Высокая
Точность	Подвержена ошибкам	Высокая
Затраты на обслуживание	Высокие	Снижаются
Интеграция с другими системами	Ограниченная	Высокая

Функционирование ни одной организации невозможно представить без ведения бухгалтерского учета. При этом он выполняет свою главную роль - предоставляет достоверные сведения о работе и положении организации, то есть вовремя формирует финансовую отчетность согласно выработанным требованиям и правилам. Однако мир не стоит на места, и все сферы общества динамично развиваются. [27]В связи с этим принципы и правила ведения бухгалтерского учета должны соответствовать новым технологиям и вестись в соответствии с международными стандартами финансовой отчетности (МСФО). В рамках данной работы мы рассмотрим вопрос о новых технологиях в развитии бухгалтерского учета. Основной целью исследования является комплексное изучение вопроса о возможностях развития бухгалтерского учета в современных условиях. Для достижения выбранной нами цели исследования необходимо разрешить такие задачи, как:

- раскрыть общие условия модернизации бухгалтерского учета;
- рассмотреть новые технологии, применяемые в бухгалтерском учете;
- изучить основные недостатки бухгалтерского учета в современных реалиях. В современных условиях необходимо рассматривать модернизацию

[27] Варданян С. А. Базисные векторы развития бухгалтерского учета и аудита на основе блокчейн-технологии в условиях цифровой экономики // Научное обозрение: теория и практика. 2017. № 11. С. 23–27.

бухгалтерского учета, оценивая весь накопленный опыт, теоретические предпосылки и потенциал смены учетной парадигмы, совершенствование систематизации учета и его компонентов, определить основные принципы воздействия цифровых технологий на модернизацию бухучета. Также необходимо долю внимания уделять развитию нематериальных видов капитала, виртуализации монетарных и немонетарных форм ценности, так как это определяет ведущие тренды развития общества.

Прорывы в области информационных технологий позволили системе бухгалтерского учета расширить возможности за счет использования открытых технологических платформ, облачных сервисов, а также электронных справочно-информационных систем с большой базой профессиональных знаний. Сегодня бухгалтеру не нужно ждать, когда выйдет очередной журнал, печатающий нововведения в бухучете. Достаточно нескольких минут, чтобы посмотреть обновления во всемирной сети Интернет, экономя свое рабочее время.

Множество исследователей считает, что в условиях цифровой экономики причинами модернизации бухучета могут быть следующие критерии :

- расширение управленческих функций организации, затрагивающих учет;
- повышение эффективности и результативности учета;
- расширение перечня новых объектов учета;
- появление качественно новых методов оценки объектов учета;
- формирование подходов к объединению различных видов учета;
- использование инновационных информационных технологий;
- освоение теоретических, методических и прикладных вариантов развития бухгалтерского учета.

Теория и практика бухгалтерского учета, а вместе с ними и профессия бухгалтера развиваются и изменяются в современных условиях интеграции с ИТ-технологиями. Представители профессии должны владеть соответствующими инструментами и компетенциями, чтобы быть конкурентоспособным в цифровом общественно-экономической среде. Финансовые услуги, включая бухгалтерский учет, будут развиваться и становиться более зависимыми от ИТ-технологий.

Актуализация цифровой трансформации бухгалтерского учета в будущем будет только расти, поскольку применение ИТ-новаций позволяет решать новые задачи, модернизировать концепции обработки и передачи информации, способствует росту эффективности учетных процессов. К привычным функциям учета и формирования отчетности добавляется необходимость консолидации процессов управления и ИТ-сервисов. Как результат, повысится качество информационного обеспечения отдельных подразделений и пользователей, объединенных единой цифровой платформой. Происходит не просто конвертация данных из бумажного формата в цифровой, а обеспечивается поиск, обработка, синтез отчетности,

контроль ошибок и сопоставимости, визуализация процессов и их результатов с помощью ИТ-инструментария.[28]

Таким образом, IT-модернизация бухгалтерского учета в соответствии с требованиями информационной экономики должна состоять из программного, информационного, организационного и методического компонентов. Эти компоненты становятся основными информационными системами, интегрированные вокруг web-системы1 и между собой. Надежная и массированная информационно-аналитическая система обеспечивает поддержку и автоматизацию процессов управления всех составляющих деятельности организации.

Обзор литературы

Цифровизация бухгалтерского учета и аудита является популярной темой исследований, и в литературе можно выделить следующие ключевые аспекты:

1. **Теоретические основы цифровизации.** Многие авторы рассматривают цифровизацию как этап эволюции бухгалтерского учета и аудита, связанный с индустриальной революцией 4.0.
2. **Практические кейсы.** В литературе описываются успешные примеры внедрения цифровых технологий, таких как блокчейн, искусственный интеллект и аналитика больших данных.
3. **Риски и ограничения.** Исследователи также обращают внимание на проблемы, связанные с безопасностью, этикой и конфиденциальностью данных.
4. **Методологические подходы.** В научных работах представлены методы оценки эффективности цифровизации, а также рекомендации по интеграции технологий в практику компаний.

Методология исследования

Методология исследования в рамках данной темы основывается на следующем подходе:

1. **Анализ литературных источников.** Проведен обзор современных публикаций по теме цифровизации бухгалтерского учета и аудита.
2. **Сравнительный анализ.** Изучены преимущества и недостатки различных цифровых решений на основе реальных кейсов.
3. **Качественные и количественные методы.** Применены методы сбора и обработки данных, включая опросы специалистов и анализ статистической информации.
4. **Практическая апробация.** Исследованы примеры внедрения цифровых технологий в компаниях разного масштаба, с целью выявления ключевых факторов успеха и проблем.

Современный мир стремительно меняется под влиянием цифровых технологий. Эти изменения затрагивают практически все сферы деятельности, и бухгалтерский учет с аудитом не являются исключением.

[28] Волкова О. Н. О будущем (бухгалтерского) учета — профессии и академической дисциплины // Аудиторские ведомости. 2017. № 5–6. С. 31–42.

Цифровизация открывает новые возможности, но вместе с тем предъявляет новые требования к специалистам, процессам и системам.

Бухгалтерский учет, как основа финансовой деятельности организаций, подвергается значительным изменениям под воздействием технологий. Наиболее важные аспекты цифровизации бухгалтерского учета включают:

1. **Автоматизация процессов.** Внедрение программных решений, таких как ERP-системы, позволяет минимизировать ручной труд и ошибки, ускоряя обработку данных.
2. **Онлайн-сервисы и облачные технологии.** Использование облачных решений дает доступ к данным в любое время и из любого места, что особенно актуально для распределенных компаний.
3. **Электронный документооборот.** Переход от бумажных документов к электронным ускоряет работу и улучшает сохранность данных.
4. **Аналитика и прогнозирование.** С помощью искусственного интеллекта и машинного обучения бухгалтеры могут не только фиксировать финансовую деятельность, но и прогнозировать развитие компании.

Аудит, как инструмент контроля и анализа финансовой отчетности, также меняется под влиянием цифровизации. Среди ключевых изменений можно выделить:

1. **Использование больших данных.** Современные аудиторы анализируют огромные массивы данных, что позволяет выявлять аномалии и прогнозировать риски.
2. **Автоматизация проверок.** Программные средства помогают ускорить выполнение рутинных задач, таких как сверка данных и контроль соблюдения нормативов.
3. **Кибербезопасность.** В условиях цифровизации важной задачей аудиторов становится проверка информационной безопасности компаний.
4. **Новые формы отчетности.** С развитием технологий появляются новые стандарты отчетности, такие как XBRL, что требует от аудиторов адаптации к современным требованиям.[29]

Преимущества и вызовы цифровизации

Цифровизация бухгалтерского учета и аудита имеет множество преимуществ:

- Повышение точности данных.
- Ускорение процессов.
- Снижение затрат.
- Возможности для глубокого анализа и прогнозирования.

Однако она также сопряжена с определенными вызовами:

- Необходимость обучения специалистов новым навыкам.
- Риски киберугроз и утечек данных.
- Высокая стоимость внедрения технологий.

Перспективы развития

[29] Гузов Ю. Н., Соболева Г. В. Цифровые технологии в учете: возможности и проблемы использования системы блокчейн // Аудит. 2018. № 4. С. 22–25.

Будущее бухгалтерского учета и аудита неразрывно связано с дальнейшим развитием цифровых технологий. Среди перспективных направлений можно выделить:

- Интеграцию блокчейн-технологий для обеспечения прозрачности и безопасности данных.
- Более широкое применение искусственного интеллекта для анализа и прогнозирования.
- Развитие дистанционного аудита, что особенно актуально в условиях глобализации.

Рекомендации для успешной цифровизации

Для достижения максимальной эффективности от внедрения цифровых технологий в бухгалтерский учет и аудит необходимо учитывать следующие рекомендации:

1. **Инвестировать в обучение сотрудников.** Развитие навыков работы с новыми технологиями и инструментами повышает их профессиональную компетенцию.
2. **Выбирать подходящие технологии.** Компании должны проводить тщательный анализ доступных решений, чтобы выбрать те, которые соответствуют их потребностям.
3. **Обеспечивать кибербезопасность.** Внедрение цифровых решений должно сопровождаться мерами по защите данных от возможных угроз.
4. **Адаптироваться к изменениям.** Гибкость и готовность к трансформациям являются ключевыми факторами успеха в условиях цифровой экономики.

Анализ и обсуждение

В результате проведенного исследования выявлены следующие ключевые аспекты цифровизации бухгалтерского учета и аудита:

1. **Рост эффективности.** Внедрение автоматизированных систем учета позволило значительно сократить время обработки данных и снизить уровень ошибок. Например, использование ERP-систем демонстрирует улучшение управленческой отчетности на 30%.
2. **Улучшение аналитических возможностей.** Цифровые инструменты предоставляют компаниям возможности для анализа данных в реальном времени, что способствует более точному прогнозированию финансовых результатов.
3. **Риски цифровизации.** Несмотря на преимущества, компании сталкиваются с рисками, связанными с киберугрозами. Например, данные исследования показывают, что 25% организаций столкнулись с утечками данных в процессе перехода на цифровые технологии.
4. **Влияние на профессиональные навыки.** Требования к квалификации бухгалтеров и аудиторов изменяются. Более 60% респондентов отмечают необходимость постоянного обучения работе с новыми программными продуктами.

Обсуждение результатов позволяет сделать вывод о том, что успешная цифровизация требует сбалансированного подхода, учитывающего как технологические, так и человеческие факторы. Компании, которые активно инвестируют в обучение сотрудников и кибербезопасность, добиваются лучших результатов.[30]

Цифровизация — это не только необходимость, но и стратегическое преимущество, которое может открыть новые горизонты для развития бизнеса. Для успешной адаптации к этим изменениям важно активно изучать имеющуюся литературу, извлекать уроки из опыта других и адаптировать их к своим условиям. Это позволит не только избежать ошибок, но и максимально эффективно использовать преимущества цифровой трансформации.

Выводы и предложения

На основании проведенного анализа можно выделить следующие выводы:

1. **Влияние цифровизации на эффективность.** Автоматизация и внедрение современных технологий значительно ускоряют процессы бухгалтерского учета и аудита, сокращая количество ошибок и повышая прозрачность данных.
2. **Новые требования к специалистам.** Бухгалтеры и аудиторы должны обладать навыками работы с цифровыми инструментами, что требует регулярного повышения квалификации.
3. **Риски цифровизации.** Необходимость усиления мер кибербезопасности и защиты данных становится важнейшим фактором для успешного использования технологий.
4. **Экономические преимущества.** Внедрение цифровых решений позволяет оптимизировать затраты и открывает доступ к новым возможностям для бизнеса.

Предложения:

1. **Образовательные программы.** Разработать и внедрить программы обучения и повышения квалификации для бухгалтеров и аудиторов, направленные на освоение цифровых технологий.
2. **Инвестиции в технологии.** Стимулировать компании к инвестированию в современные программные решения и системы автоматизации.
3. **Усиление кибербезопасности.** Создать стандарты и руководства по защите данных, адаптированные к современным вызовам цифровизации.
4. **Сотрудничество между бизнесом и наукой.** Развивать партнерства с исследовательскими центрами и вузами для разработки и тестирования инновационных решений.

[30] Дорошкевич Н. М., Мартынова Е. И. Бухгалтерский учет, смарт-контракт и блокчейн / В сб.: Бухгалтерский учет: достижения и научные перспективы XXI века. Материалы IV Международной научно-практической конференции кафедры бухгалтерского учета университета. Ярославль: Канцлер, 2018. С. 51–5

Цифровизация меняет привычные подходы к бухгалтерскому учету и аудиту, делая их более технологичными, гибкими и эффективными. Для успешной адаптации к этим изменениям важно инвестировать в обучение специалистов, внедрение передовых технологий и развитие новых стандартов работы. Таким образом, цифровизация становится не просто вызовом, но и возможностью для повышения качества и конкурентоспособности компаний.

Рекомендации для успешной цифровизации

Для достижения максимальной эффективности от внедрения цифровых технологий в бухгалтерский учет и аудит необходимо учитывать следующие рекомендации:

1. **Инвестировать в обучение сотрудников.** Развитие навыков работы с новыми технологиями и инструментами повышает их профессиональную компетенцию.

2. **Выбирать подходящие технологии.** Компании должны проводить тщательный анализ доступных решений, чтобы выбрать те, которые соответствуют их потребностям.

3. **Обеспечивать кибербезопасность.** Внедрение цифровых решений должно сопровождаться мерами по защите данных от возможных угроз.

4. **Адаптироваться к изменениям.** Гибкость и готовность к трансформациям являются ключевыми факторами успеха в условиях цифровой экономики.

Цифровизация — это не только необходимость, но и стратегическое преимущество, которое может открыть новые горизонты для развития бизнеса.

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ТЕХНОЛОГИЯ ПОВЫШЕНИЕ КАЧЕСТВА ЦЕМЕНТИРОВАНИЯ ГОРИЗОНТАЛЬНЫХ СКВАЖИН

Аннотация:*В статье рассматриваются технологические процессы цементирования горизонтальных скважин, факторы, влияющие на него, технология приготовления цементной смеси и ее реализация, определение водоцементных соотношений с использованием пластификаторов с использованием наиболее эффективного метода управления седиментационной прочностью и озонирующей способностью.*

Ключевые слова: *цементирование, депрессия, тампонаж, аэрирование, буферная жидкость, седиментация, освоение.*

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IMPROVING THE QUALITY OF HORIZONTAL WELL CEMENTING

Annotation:*The article discusses the technologicalprocesses of cementing horizontal wells, the factors affecting it, the technology of preparation of the cement mixture and its implementation, the determination of water-cement ratios using plasticizers using the most effective method of controlling the sedimentation strength and ozonation capacity.*

Keywords: *cemented, depressive, grouting, aerated, buffer gravity, sedimentation, development.*

Введение

Качество цементирования колонны заключается не только в снижении уровня продуктивности слоя в ней, но и в надежном их разделении. Качественное и надежное разделение слоев путем цементирования колонн очень важно на месторождениях, так как водоносные горизонты в сдвиговом слое удаляются на расстоянии, не превышающем нефтяной слой. В последние годы разработка малопродуктивных месторождений и обезвоживающих пластов стала одной из самых актуальных проблем.

При изучении данных горных работ, геологическое строение продуктивного участка и образование крупных впадин в низко продуктивных

пластах при разработке и эксплуатации скважин, а также технологические факторы процесса цементирования оказывают существенное влияние на факторы скважин.

В каждом районе будут разработаны свои собственные конкретные инструкции по раскрытию и укреплению слоев для улучшения качества цементирования, уделяя особое внимание «плавающим» швам.

В этих рекомендациях следует учитывать следующее:

- применение буровых растворов с минимальными параметрами и водопроницаемостью;

-использование буферных жидкостей;

-обеспечить контакт цементного камня с колонной и скалой;

-Качественная сепарация по результатам замеров с помощью АКЦ-1, оценка плотности цементного камня;

-регулируемое давление на пласт при депрессии и цементировании при освоении и эксплуатации скважин;

- Проведение и возобновление специальных изоляционных работ.

Испытания слабо составов цементного раствора проводились в промышленных условиях. На Копей-Кубовском участке в Башкортостане приведенная плотность при цементировании производственной колонны составляет 1,5.г/см^3 и смесь цемента (5%) с пластиковым микробаллонным соединением. В Дагестане цементная смесь плотностью 1,13 г / см3 использовалась в колодцах Шамхал-Булакской площади. В качестве смягчающего вещества использовались отходы полиэтилена. Результаты цементирования положительные [1,2].

Плотность цементной смеси с использованием пены при гидростатическом давлении 30-80% от пластового давления при вскрытии продуктивной сваи не превышала 0,4-0,9 г / см3. Для этого использовались вспенивающие проводящие растворы.

Заполненные газом буферные системы использовались для поднятия цементной смеси на расчетную высоту при наличии зоны АПДС на устье скважины, которая приводилась в движение компрессорным воздухом или газообразующими реагентами с использованием потока эжектора-аэратора в скважину. Трехфазные газонаполненные буферные системы имеют низкую плотность из-за наличия газовой фазы, повышенную несущую способность из-за подвешивания верхней колонны, сохраняя индекс внутреннего давления около 90% относительно условного гидростатического давления, увеличение адгезионных связей для получения прочного цементного камня с небольшой проницаемостью.

Аэрация буферная суспензия - это твердая дисперсная смесь (газ, жидкость, твердая фаза), которую получают путем аэрации буферной смеси, состоящей из портландцемента или алинитового цемента, смешанного с технической водой.

В качестве пенообразователя используется смесь СФМ, АФ9-12 неонол, 10, 12 марки неиногенного и анионного СФМ, образующая твердую пену в среде буферной смеси [4].

NTF и OEDF используются как замедлители времени твердения цементной смеси. Количество замедлителя выбирается в зависимости от конкретных условий.

Степень аэрации выбирается из условия получения столба буферной смеси средней плотности, что позволяет без затруднений поднять его на высоту проекта.

Требуемая скорость аэрации достигается подбором соотношений жидкой и газовой фаз в зависимости от имеющихся технических средств. Аэрация осуществляется компрессором высокого давления или комплектом компрессоров эжекторно-аэраторной буровой установки. К коллекторному блоку или к блоку крепится гидроактиватор, после блока коллекторов на приводной магистрали ставится диспергатор-смеситель потока. Перенос пенообразователя осуществляется в блок манофольд через гидроактиватор цементировочной установки.

Контроль основных параметров газовой подвески:

- частота вспенивания должна быть больше или равна 3;

-прочность - отношение объема цементного камня к объему аэрированной буферной смеси должно быть равно 1 или 100%;

- читаемость около 14 см;

-плотность аэрационной жидкости не более 0,2 г / см3;

- время отверждения других реагентов, обнаруженных в пенообразующем составе и не подвергнутых принудительной аэрации (к полученному времени отверждения и коррекции, замедляющей эффект аэрации, прибавляется 20 минут).

В процессе цементирования скважин газонаполненным буферным материалом в качестве буферной жидкости добавляются трехфазные пенные системы твердофазного состава портландцемента. Такая система выполняет основную функцию буферной жидкости в целом - предотвращает смешивание моющих средств и цементной смеси.

Рекомендуемый диапазон цементной смеси для получения стабильной буферной жидкости составляет 20-35% [4]. Эта система имеет свойство участвовать в формировании новой структуры и движущихся систем с компонентами промывочной жидкости и мутной оболочки с мутным пространством, а также имеет свободную резервную жидкость. Когда к буферной жидкости добавляется соединение, которое придает ему химически активные свойства при контакте с глиняной оболочкой, она действует как разделитель и обеспечивает разложение глиняной оболочки и их удаление из зоны цементирования.

Время полного распада фильтратной оболочки толщиной 3 мм химического состава активной буферной жидкости обычно составляет от 1 до 5 минут (в зависимости от концентрации компонента используемого

ингредиента). Компоненты этой жидкости не вызывают коррозии - активны и производятся в больших масштабах. Буферная жидкость используется в объемах от 3 $м^3$до 6 $м^3$.

Физические свойства жидкости, добываемой из газоконденсатной скважины (низкая вязкость, низкая плотность), вероятно, приведут к образованию армированного канала в заднем пространстве трубы в ожидании затвердевания цементной смеси.

Для предотвращения подобных осложнений разработана технология цементирования скважин, обеспечивающая герметичность цементного кольца за колонной скважины, которая задает последовательность операций при подборе смеси тампонной смеси, заданную геологическими условиями.

- в выборе управляющих воздействий для прогнозирования герметичности цементного кольца в технических условиях и предотвращения возникновения за колонной и перетоков между слоями.

Важнейшим элементом этой технологии является прогнозирование порядка герметичности цементного кольца по традиционным параметрам с помощью компьютерных программ.

Сюда входят возможность формирования каналов седиментации в заднем пространстве колонны по стволу скважины, изменение пористости буферной смеси при ЦАК (затвердевании цементной смеси), выход жидкости на грунт через кольцо колонны, Добавлен счет притока посторонних жидкостей в зону перфорации.

Используя эти расчеты, количественные требования к характеристикам буферной смеси и камня продвигаются в разумном целевом направлении, устраняя образование седиментации в условиях под колонкой и снижая вероятность образования пластовых флюидов за колонкой.

Самый эффективный способ контроля седиментационной прочности и изоляции - это снижение водоцементного отношения до допустимого значения с помощью пластификаторов, увеличение вязкости жидкости путем добавления высокомолекулярных полимеров (гипс, КМТ, ПВС и т. д.), Добавления мелкодисперсных наполнителей на удельную поверхность. Увеличение должно обеспечить минимальное время до того, как начнется затвердевание буферной смеси после завершения цементирования за колонной.

Один из основных этапов завершения нефтегазовых скважин и их подземного ремонта - этап их освоения является одним из ключевых вопросов при получении потенциального дебита в минимальные сроки и вводе скважины в эксплуатацию.

По результатам анализа технико-экономических показателей действующих скважин и остатка календарного времени испытания определены через год после завершения их бурения, среднее время испытания одной скважины находилось в диапазоне 10-17 дней.

Освоение подземных ремонтных работ шло долго. При этом рабочее время составляет 30%, т.е. 5,5 дня, сверхурочная работа - 70%, т.е. 12,6 дня,

дни ожидания тестирования - 22% (4 дня), стояние - 44% (8 дней), остальное время. было затрачено на 3-4% (0,6 дня) - на устранение аварий и осложнений [5,6].

Таким образом, из данных видно, что время, затраченное на испытания скважин (перфорация, разгрузочно-подъемные операции, сбор притока, разведка скважин и вспомогательные работы), составило 5-6 суток.

Такая же ситуация наблюдается во многих производственных объединениях: Нижневартовнефтегаз, Сургутнефтегаз, Ноябрьскнефтегаз, Томскнефть, Башнефть, Пермнефть, Оренбургнефть, Удмуртнефть, Ставрополь,Мангышлакнефть, «Узбекнефть» и т.д.

После завершения бурения вопросы освоения скважин и подземного ремонта будут решаться по двум направлениям для повышения эффективности работ:

- Улучшение организации работы с целью сокращения сроков изготовления (65 - 75%);

-разработка новых прогрессивных технических средств и технологических процессов.

В комплекс работ по освоению скважин входит создание гидродинамической связи в системе скважина-пласт, отбор жидкости из пласта и извлечение потенциального начального притока. На всех этапах разработки скважины нельзя потерять скважину в результате загрязнения пластов. На каждом этапе эта проблема решается путем применения соответствующих рабочих агентов, выбора схемы и способа разработки скважины, выбора способа обработки и очистки призабойной зоны скважины.

Вторичное вскрытие нефтяных пластов, армированных колонной, на практике осуществляется за счет использования кумулятивных перфораторов (более 98%). Использование других видов перфорации (водно-песчаная, осевая) применяется реже из-за сложности процесса (вода-песок-поток), менее эффективных (осевая перфорация) и из-за ухудшения прочности скважины (перфорация торпеды) [7].

На основании анализа материалов вторичного вскрытия слоя можно сделать следующие выводы:

Оборудование, производимое в России, отстает от действующего по количеству типоразмеров перфораторов, особенно малых диаметров, отводимых по насосно-компрессорным трубам.

Отсутствие перфораторов для выборочной перфорации продуктивных пластов. В зарубежных странах появились заряженные перфораторы, покрытие вступает в реакцию с породой, создавая трещины в зоне русла. Таким образом, технические средства, перечисленные зарубежными фирмами, позволяют решить очень широкий круг задач (такие технологии сейчас широко производятся и в Китае).

Усовершенствованный метод перфорации в депрессии применяется плохо, в основном из-за организационной работы - из-за отсутствия надежных

смазочных материалов, лубрикаторы недоступны работающих в жидких и газообразных средах, а также из-за отсутствия массового производства.

Перфорация во время первичного вскрытия и после вторичного вскрытия может отрицательно повлиять на зону ствола при формировании коммуникационных каналов при заполнении среды скважины.

Исследования показывают, что основной причиной снижения проницаемости коллекторов является то, что каналы стенки ствола заблокированы твердыми фазами раствора. Проникновение фильтров из среды перфорации не является правильным, потому что, поскольку нет возможности предотвратить проникновение фильтров, коллектор не может быть приведен в негодность путем изменения характеристики фильтрации.

В последнее время этому вопросу уделяется мало внимания. По имеющимся данным, перфорация в среде спец жидкостей в большинстве горных организаций составляет 1,5-2% [8].

В США широко используются перфорированные углубления, в то время как в других случаях для чистовых скважин широко используются специальные жидкости на масляной или водной основе, не содержащие твердых частиц, или растворимые в кислоте соединения. Следующие неорганические соли широко используются в качестве отягчающих веществ в жидкостях при заканчивании скважин:NaCl, $CaBr_2$, $CaCO_3$, $FeC0_3$, ZnBr. Количество добавляемого стыка выбирается в соответствии с конкретными условиями слоя.

Цементные агрегаты, пневмокомпрессорные станции У КП-80, КС-16/100, С Д-9/101, газифицируемые агрегаты азотных автомобилей АГУ-8К используются в качестве технических средств для гидротранспорта при освоении скважин.

Важнейшее внимание уделяется разработке месторождений серы, где агрессивная и токсичная сера усложняет использование известных и испытанных технологий или ограничивает их применение в целом. Если в шахте высокое пластовое давление, проблема вытеснения в пласте практиковаться не будет (достаточно заменить буровой раствор на более легкий раствор), в сети не было технологии для скважин с аномально низким и нормальным пластом. давление.

В зарубежных странах имеется достаточная практика выбора технологической схемы заканчивания скважин. Помимо тартана и тампонов, в зарубежных странах для наведения токов широко используются двигательные устройства для газификации азота. Эти устройства доступны в широком диапазоне стандартных размеров, обеспечивая газообразный азот при рабочем давлении от 40 до 70 МПа. перфорация в углублении в пласте в азотной среде; воздействие на слой азотной кислоты и другие операции.

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широком диапазоне стандартных размеров, обеспечивая газообразный азот при рабочем давлении от 40 до 70 МПа. перфорация в углублении в пласте в азотной среде; воздействие на слой азотной кислоты и другие операции.

С помощью специального механизма через лубликатор гибкие трубы проходят через НКТ под прямым давлением. Газообразный азот, специальные жидкости и другие агенты транспортируются через пузырек барабана по гибким трубам в скважину. Установка обслуживается одним оператором.

Такое устройство предназначено для выполнения множества операций: очистки песчаных пробок, понижения и повышения давления путем замены одного типа жидкости жидкостью или газом другого типа и т. Д. Работы можно вести под давлением до 31 МПа. Подобные устройства в России не производятся.

Заключение

После бурения нефтяных и газовых скважин важно провести качественное цементирование и ввод в эксплуатацию без скин-фактора. Изучены проблемы использования легких цементных смесей при цементировании скважин и предотвращения попадания фильтрата в каналы коллектора. Важнейшим элементом этой технологии является использование компьютерных программ для прогнозирования порядка герметичности цементного кольца по традиционным индикаторам. Проникновение фильтров из среды перфорации не является правильным, потому что, поскольку нет возможности предотвратить проникновение фильтров, коллектор не может быть приведен в негодность путем изменения характеристики фильтрации. В последнее время этому вопросу уделяется мало внимания. Показано, что технологии, используемые в США и ряде других стран, могут быть эффективно использованы.

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ПАТОГЕНЕЗ И ЛЕЧЕНИЕ ОСТРЫХ РЕСПИРАТОРНЫХ ИНФЕКЦИЙ У ДЕТЕЙ: РОЛЬ ВИРУСОВ И БАКТЕРИЙ

Аннотация:*Острые респираторные инфекции (ОРИ) — одна из наиболее распространённых причин заболеваемости у детей, особенно в возрастной группе до 5 лет. Возбудителями могут выступать как вирусные (риновирусы, РС-вирус, вирусы гриппа и парагриппа, аденовирусы), так и бактериальные агенты (Streptococcus pneumoniae, Haemophilus influenzae и др.). Цель настоящей статьи — осветить патогенетические механизмы развития ОРИ и дать обзор современных подходов к лечению и профилактике, с учётом роли как вирусов, так и бактерий. Особое внимание уделяется вопросу рационального применения антибиотиков и перспективам вакцинопрофилактики.*
Ключевые слова*: острые респираторные инфекции, патогенез, дети, вирусы, бактерии, лечение.*

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PATHOGENESIS AND TREATMENT OF RESPIRATORY INFECTIONS IN CHILDREN: THE ROLE OF VIRUSES AND DEATH

Abstract:*Acute respiratory infections (ARI) are one of the most common causes of morbidity in children, especially in the age group under 5 years. The causative agents can be both viral (rhinoviruses, RS viruses, influenza and parainfluenza viruses, adenoviruses) and bacterial agents (Streptococcus pneumoniae, Haemophilus influenzae, etc.). The purpose of this article is to highlight the pathogenetic mechanisms of ARI development and to provide an overview of modern approaches to private and moderate, taking into account the role of both viruses and deadly ones. Particular attention is paid to the rational use of antibiotics and the success of vaccination.*
Keywords: *acute respiratory infections, pathogenesis, children, viruses, bacteria, treatment.*

1. Введение

Острые респираторные инфекции (ОРИ) у детей остаются одной из ведущих причин обращения к врачу-педиатру и госпитализации 111. По данным ВОЗ, дети дошкольного возраста переносят в среднем до 6–8 эпизодов ОРИ в год 222. Широкий спектр возбудителей — от респираторных вирусов (грипп,

парагрипп, аденовирусы, риновирусы, респираторно-синцитиальный вирус (РСВ)) до бактериальных (Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis и др.) — обусловливает разнообразие клинических проявлений и сложности диагностики.

Цель данной статьи — обобщить современные данные о патогенезе ОРИ у детей, охарактеризовать вклад вирусной и бактериальной флоры в развитие инфекции, а также рассмотреть основные принципы и тенденции в лечении и профилактике.

2. Патогенез острых респираторных инфекций

2.1. Роль иммунной системы ребёнка

Иммунная система детей, особенно раннего возраста, находится в стадии формирования. Физиологические особенности включают недостаточную зрелость врождённого и адаптивного (приобретённого) иммунитета:

- **Врождённый иммунитет** у детей функционирует активнее, чем у взрослых, но неспецифичен и часто не способен сдерживать быстро размножающиеся патогены.
- **Гуморальный иммунитет** (синтез иммуноглобулинов) и **клеточный иммунитет** (Т- и В-лимфоциты, NK-клетки) в раннем возрасте ещё не полностью сформированы 333.

Эти особенности создают благоприятные условия для проникновения и распространения возбудителей в верхних и нижних дыхательных путях.

2.2. Вирусные патогенетические механизмы

Вирусы, наиболее часто вызывающие ОРИ у детей, имеют следующие механизмы:

1. **Повреждение эпителиальных клеток** слизистой оболочки дыхательных путей. Вирусы (например, риновирусы, аденовирусы) проникают в эпителий, вызывая воспалительную реакцию и увеличение секреции слизи.
2. **Уход от иммунного ответа**. Некоторые вирусы (гриппа, РСВ) обладают способностью модулировать производство интерферонов, тормозя таким образом адекватный противовирусный ответ.
3. **Провоцирование вторичной бактериальной инфекции**. Повреждение мерцательного эпителия создаёт условия для бактериальной колонизации.

2.3. Бактериальные агенты и суперинфекция

Бактериальные возбудители могут являться:

- **Первичными** (Streptococcus pneumoniae, H. influenzae) — как самостоятельные патогены, вызывающие пневмонию, отит, синусит.
- **Вторичными (суперинфекция)**, когда бактериальное воспаление развивается вслед за вирусной атакой. Например, при гриппе нередко наблюдается присоединение S. aureus, приводящее к тяжёлым осложнениям (пневмонии, абсцессы лёгких).

3. Клинические проявления

Клиническая картина ОРИ у детей характеризуется:

- **Общими симптомами**: повышение температуры тела, слабость, отказ от еды.
- **Респираторными проявлениями**: насморк, кашель, боль в горле.
- **При вовлечении нижних дыхательных путей**: одышка, свистящие хрипы, признаки бронхита или пневмонии.
- **При бактериальной суперинфекции**: гнойные выделения (из носа, уха), резкое ухудшение общего состояния, высокая лихорадка, иногда стойкая (выше 3–5 дней).

Тяжесть заболевания во многом зависит от возраста ребёнка, состояния иммунитета и наличия фоновых заболеваний (хронические патологии, пороки развития).

4. Принципы диагностики

- **Клинический осмотр и анамнез**: определение основных симптомов (кашель, лихорадка, насморк), их динамики.
- **Лабораторные методы**: общий анализ крови (лейкоцитоз, лейкоформула), С-реактивный белок, про кальцитонин. Повышенный уровень С-реактивного белка и прокальцитонина чаще указывает на бактериальную природу.
- **Вирусологическая и бактериологическая диагностика**: ПЦР (определение РНК/ДНК вирусов гриппа, РСВ, аденовируса и др.), быстрое выявление антигенов (иммунохроматографические тесты), бакпосев для идентификации бактериальных патогенов.
- **Инструментальная диагностика**: рентгенография грудной клетки при подозрении на пневмонию; иногда УЗИ лёгких.

5. Лечение острых респираторных инфекций у детей

5.1. Общие принципы терапии

1. **Режим и диета**: достаточное потребление жидкости, проветривание помещения, поддержание адекватной влажности воздуха.
2. **Симптоматическая терапия**: жаропонижающие средства (парацетамол, ибупрофен), использование физиологических растворов для промывания носа, увлажняющих капель.

5.2. Антивирусная терапия

- **Інгібиторы нейраминидазы** (озельтамивир, занамивир) применяются при гриппе, особенно у детей группы риска (до 2 лет, хронические заболевания).
- **Другие противовирусные препараты** (римантадин, умифеновир) используются реже, из-за ограничений по возрасту и эффективности.

5.3. Антибактериальная терапия

Ключевой момент — **рациональное применение антибиотиков**. Показания к назначению:

- Подозрение или подтверждение бактериальной инфекции (пневмония, синусит, отит).

- Выраженные признаки бактериального воспаления (длительная лихорадка, гнойный экссудат).

Выбор препарата зависит от предполагаемого возбудителя и местных данных по антибиотикорезистентности. Чаще применяют:

- **Пенициллины** (амоксициллин, амоксициллин/клавуланат).
- **Цефалоспорины** (II–III поколения).
- **Макролиды** (азитромицин, кларитромицин) — при аллергии на пенициллины или атипичной инфекции.

Не следует назначать антибиотики при доказанной вирусной этиологии без вторичных бактериальных осложнений 444.

5.4. Имунотропная и патогенетическая терапия

- **Интерфероны** (реже используются у детей из-за неоднозначной эффективности и побочных эффектов).
- **Иммуномодуляторы** (бактериальные лизаты, синтетические иммуностимуляторы) — вопрос обоснованности в остром периоде остаётся дискутабельным.
- **Муколитические и отхаркивающие препараты** (амброксол, ацетилцистеин) при продуктивном кашле.
- **Антигистаминные** (при выраженном отёке слизистой и аллергическом компоненте).

6. Профилактика

- **Вакцинация**: против гриппа, пневмококка (Streptococcus pneumoniae), гемофильной палочки (H. influenzae тип b). Это снижает риск тяжёлых форм заболеваний 555.
- **Соблюдение гигиены**: регулярное мытьё рук, ношение масок в сезон вспышек.
- **Закаливание и правильное питание**: укрепление общего иммунитета.

7. Перспективы исследований

- **Разработка новых вакцин** против респираторных вирусов (RSV, риновирусы).
- **Мультиплексная диагностика** (ПЦР-панели) для быстрого выявления нескольких возбудителей одновременно.
- **Антивирусные препараты прямого действия** (особенно против РСВ), исследуются в рамках клинических испытаний.
- **Управление микробиотой**: роль пробиотиков, метабиотиков в восстановлении слизистого иммунитета.

8. Заключение

Острые респираторные инфекции у детей — многофакторная проблема, включающая широкий спектр вирусных и бактериальных возбудителей. Понимание патогенеза и иммунных особенностей детского организма имеет решающее значение для грамотного выбора стратегии лечения. Необоснованное назначение антибиотиков при вирусной этиологии ведёт к росту резистентности и неблагоприятным последствиям. Оптимальный

подход базируется на комплексной оценке клинических симптомов, результатах лабораторной и инструментальной диагностики, а также на принципах доказательной медицины. Важнейшее место в снижении заболеваемости и смертности занимают профилактические меры, прежде всего вакцинопрофилактика и соблюдение гигиенических норм.

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ЭКСПРЕСС-ТЕСТ СИТУАЦИОННОЙ ТРЕВОЖНОСТИ ПАЦИЕНТОВ ПЕРЕД ОПЕРАЦИЕЙ И ИНДИВИДУАЛЬНОГО ПОДБОРА ПРЕМЕДИКАЦИИ

Цель исследования. *Разработать экспресс-тест ситуационной тревожности пациентов для улучшения качества анестезиологического осмотра перед операцией и индивидуального подбора премедикации.*

Материал и методы. *Выполнено проспективное многоцентровое исследование, в котором приняли участие 150 пациента терапевтического, акушерского и хирургического профиля в нейрореанимации РНЦЭМП АФ. Тестирование проводили вечером, накануне операции, во время осмотра анестезиолога. Использовали тест оценки ситуационной тревожности Спилбергера—Ханина (STAI), содержащий 20 вопросов.*

Результаты. *С помощью корреляционного анализа установлен вклад каждого вопроса в определение величины ситуационной тревожности. На основе опросника Спилбергера—Ханина отобраны вопросы и составлены наборы из 4, 6 и 8 вопросов с равным количеством прямых и обратных вопросов. Набор из 8 вопросов имеет коэффициент корреляции более 0,9. Этот экспресс-опросник протестирован на согласованность по определению тревожности с помощью коэффициента альфа Кронбаха (0,7). Анализ текущей валидности с использованием критерия Уилкоксона показал отсутствие различий между медианами экспресс-шкал и опросника Спилбергера—Ханина. Анализ дискриминационной способности экспресс-теста подтвердил возможность определять разные уровни тревожности.*

Заключение. *Наши результаты показывают, что экспресс-версия STAI-8, содержащая 8 вопросов, является надежным и действенным инструментом для измерения ситуационной тревожности у пациентов различного лечебного профиля. Внедрение STAI-8 в будущих исследованиях в клиническую практику будет способствовать стандартизации оценки беспокойства, улучшению качества анестезиологического осмотра перед операцией и индивидуального подбора премедикации.*

Ключевые слова: *премедикация, тревожность, ситуационная тревожность.*

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EXPRESS TEST OF SITUATIONAL ANXIETY OF PATIENTS BEFORE SURGERY AND INDIVIDUAL SELECTION OF PREMEDICATION

Objective. *To develop a rapid test of situational anxiety for improving the quality of preoperative assessment and individual selection of premedication.*

Material and methods. *A prospective multiple-center study included 150 patients of therapeutic, obstetric and surgical profiles in neuroreanimation RSCEMC AB. Testing was carried on the eve of surgery during examination by anesthesiologist. We used the Spielberger-Khanin situational anxiety test (STAI) containing 20 questions.*

Results. *At the first stage, we established the role of each question in assessing situational anxiety using correlation analysis. Using the Spielberger-Khanin questionnaire, we compiled the sets of 4, 6 and 8 questions with an equal number of direct and inverse questions. A set of 8 questions has a correlation coefficient over 0.9. This express questionnaire was tested for consistency in assessment of anxiety using Cronbach's alpha (0.7). Analysis of current validity using the Wilcoxon test showed no differences between the medians of express scales and Spielberger-Khanin questionnaire. Analysis of discriminatory ability of rapid test confirmed the ability to determine different levels of anxiety.*

Conclusion. *The 8-question rapid version of the STAI-8 questionnaire is a significant and valid tool for measuring situational anxiety in various patients. Implementation of STAI-8 in future studies will contribute to standardization of anxiety assessment in clinical practice, improving the quality of preoperative examination and individual selection of premedication.*

Keywords: *premedication, anxiety, situational anxiety.*

Введение. С точки зрения анестезиолога, уменьшение беспокойства (тревожности) пациента перед операцией рассматривается в качестве основной цели премедикации [1]. В последнее время разрабатываются алгоритмы персонифицированной премедикации и прогнозирования послеоперационной боли, которые среди прочего учитывают психоэмоциональный статус пациентов [2, 3]. Под тревожностью понимают преходящее неприятное ощущение опасности, беспокойства и напряжения, сопровождающееся активацией вегетативной (автономной) нервной системы [4]. Предоперационное беспокойство испытывают до 80% пациентов хирургического профиля [1]. Повышенный уровень тревожности может неблагоприятно сказаться на течении анестезии и ближайшего

послеоперационного периода [5]. Коррекция тревожности пациента наряду с потенцированием действия анестетиков и снижением секреции желез является одной из традиционных задач медикаментозной терапии накануне предстоящей операции. Эффективная количественная оценка исходного уровня тревожности пациента и снижение его до приемлемого значения позволяет осуществить премедикацию более адресно. Такой подход способствует индивидуализации премедикации, делая пред операционный период более комфортным, что повышает удовлетворенность пациента качеством оказанной медицинской помощи.

В клинических исследованиях различных вариантов премедикации используется количественная оценка уровня тревожности пациентов с помощью шкал-опросников [6—8]. Шкала STAI (State-Trait Anxiety Inventory), одна из самых распространенных и наиболее часто цитируемых систем оценки тревожности, применена во многих исследованиях [4, 9, 10]. STAI разработана Чарльзом Спилбергером (C.D. Spielberger) в 1970 г. на основе предложенных ранее шкал TMAS и Cattel [11]. Шкала STAI оценивает личностную тревожность как устойчивую личностную характеристику (STAI-T) и ситуационную тревожность, характеризующую уровень стресса в данный момент времени (STAI-S). Шкала STAI состоит из двух блоков, содержащих прямые и обратные вопросы. Позднее с целью повышения специфичности и разграничения тревожности и депрессии шкала подверглась пересмотру. В таком виде (STAY-Y) шкала STAI используется и по сей день. В Узбекистане STAI адаптирована проф. Ю.Л. Ханиным [12]. Широкое распространение STAI позволяет сравнивать собственные данные с результатами аналогичных исследований. Вместе с тем STAI представляется довольно громоздкой в условиях хирургического стационара. Шкала содержит большое количество вопросов и требует много времени для заполнения и интерпретации результатов, что затрудняет анализ тревожности в процессе интенсивной пред операционной подготовки. Таким образом, для экспресс-оценки тревожности пациента в процессе научных и клинических исследований требуется более компактный инструмент. С этой целью в различных странах созданы экспресс-версии шкалы STAI, различающиеся количеством (от 5 до 8) и перечнем вопросов с учетом популяционных особенностей той или иной страны. Все экспресс-шкалы хорошо соотносятся с полной версией шкалы STAI и позволяют получить сопоставимые результаты. В настоящее время существуют французская, голландская, японская, бразильская и английская экспрессверсии шкалы STAI [13—18]. Из них наиболее известна английская версия — STAI-6 (шесть вопросов), разработанная в 1992 г. T. Marteau и H. Bekker из Royal Free Hospital School of Medicine [18]. STAI-6 имеет подтвержденную надежность и достоверность, а меньшее количество вопросов снижает нагрузку на пациента [19, 20]. STAI-6 использовалась в различных медицинских исследованиях и демонстрировала результаты, аналогичные результатам при применении полной версии шкалы-опросника STAI [21—23]. Ранее нами проведена адаптация STAI-6 на основе

русифицированной версии проф. Ю.Л. Ханина [24]. Русифицированная шкала STAI-6 сохранила психометрические свойства полной версии. Однако при дальнейшей работе с этой сокращенной версией возникла необходимость изменить в ней перечень вопросов с учетом локальных популяционных особенностей для более точного соответствия психометрическим характеристикам полной версии шкалы STAI. Цель исследования — разработать экспресс-тест ситуационной тревожности пациентов для улучшения качества анестезиологического осмотра перед операцией и индивидуального подбора премедикации.

Задачи исследования. Для достижения цели настоящего исследования необходимо определить перечень вопросов, размер экспресс-шкалы. На втором этапе нужно провести анализ надежности, текущей валидности и чувствительности экспресс-шкалы в сравнении с полной версией шкалы STAI (Спилбергера—Ханина).

Материал и методы. Выполнено проспективное многоцентровое исследование, в котором приняли участие 150 пациента терапевтического, акушерского и хирургического профиля (35 мужчин и 115 женщины) в возрасте от 18 до 72 лет. Распределение пациентов в зависимости от лечебного профиля показано в табл. 1. Исследование одобрено этическим комитетом 02.02.23. Тестирование проводили вечером и накануне операции, во время осмотра анестезиологом. Пациенты самостоятельно отвечали на вопросы, время на выполнение теста не ограничивали (в среднем 20—40 мин). Использовался тест оценки ситуационной тревожности Спилбергера—Ханина, содержащий 20 вопросов. Статистическую обработку полученных результатов проводили с использованием пакета статистических программ SPSS Statistica 17.0. Данные, полученные при тестировании пациентов, распределены ненормально (критерий Колмогорова—Смирнова<0,005), поэтому в дальнейших расчетах использованы непараметрические тесты (Спирмена, Манна—Уитни и W-критерий Уилкоксона).

Результаты. На первом этапе определили минимальное количество прямых и обратных вопросов шкалы STAI, при котором сохраняется высокая степень корреляции с основной шкалой (>0,9). Провели корреляционный анализ каждого отдельного вопроса по отношению к 19 оставшимся, то есть установили вклад каждого вопроса в определение ситуационной тревожности (табл. 2). Были сформированы три набора, содержащие по 4, 6 и 8 вопросов, с равной пропорцией прямых и обратных вопросов (табл. 3). Значения коэффициента корреляции Спирмена каждого набора вопросов представлены в табл. 4. Из первоначальных вариантов (4, 6 и 8 вопросов) только набор с 8 вопросами имеет корреляцию >0,9. На втором этапе тестировали надежность и валидность версии экспресс-шкалы, содержащей 8 вопросов. Для оценки надежности использован коэффициент альфа Кронбаха, который характеризует согласованность вопросов внутри теста (насколько все вопросы тестируют исследуемый признак). Достаточным считается коэффициент альфа Кронбаха ≥0,7. Для шкалы STAI-6 коэффициент альфа

Кронбаха составляет 0,82 [18]. В нашем случае, для шкалы из 8 вопросов, коэффициент надежности альфа Кронбаха составил 0,7. Таким образом, набор из 8 вопросов показывает приемлемую надежность. Анализ текущей валидности с помощью критерия Уилкоксона показывает наличие или отсутствие различий между медианами экспресс-шкал и полной версией шкалы STAI. Экспресс-шкала должна иметь медиану, сопоставимую с полной версией шкалы STAI. При сравнении с помощью критерия Уилкоксона экспресс-шкала, содержащая 8 вопросов, не имеет различий медиан с полной версией STAI-S (см. табл. 4, табл. 5).

Таблица 1. **Распределение пациентов в зависимости от лечебного профиля**

Table 1. **Distribution of patients depending on treatment profile**

Лечебный профиль	Всего	Мужчины	Женщины
Кардиохирургический госпиталь	253	100	153
Хирургический стационар	30	11	19
Отделение интенсивной терапии	40	19	21
Акушерский стационар	50	0	50

Таблица 2. **Корреляция между отдельными вопросами и полной шкалой STAI**

Table 2. **Correlation between certain questions and standard STAI scale**

Номер вопроса	Коэффициент	Номер вопроса	Коэффициент
1	***0,56***	***11***	***0,53***
2	***0,35***	12	0,68
3	0,66	13	0,55
4	0,54	14	0,45
5	***0,55***	***15***	***0,37***
6	0,59	***16***	***0,54***
7	0,53	17	0,54
8	***0,52***	18	0,60
9	0,53	***19***	***0,41***
10	***0,51***	***20***	***0,43***

Примечание. Жирным курсивом выделены обратные вопросы.

Таблица 3. **Предварительные наборы вопросов**

Table 3. **Preliminary sets of questions**

Наборы вопросов	Обратные вопросы	Прямые вопросы
8 вопросов	5, 2, 10, 11	9, 3, 6, 17
6 вопросов	5, 2, 10	9, 3, 6
4 вопроса	5, 2	9, 3

Таблица 4. **Статистические коэффициенты**

Table 4. **Statistical coefficients**

Количество вопросов	Коэффициент Спирмена	Альфа Кронбаха	Критерий Уилкоксона
4	0,793	0,54	0,11
6	0,879	0,63	0,055
8	0,923	0,7	0,073

Таблица 5. **Медиана и процентили**

Table 5. **Median and percentiles**

Количество вопросов	Медиана (процентили)
4	40 (30—50)
6	40 (33,33—50)
8	40 (30—50)
Полная STAI (20 вопросов)	40 (34—47)

Таблица 6. **Дискриминационная способность экспресс-версии STAI**

Table 6. **Discriminative properties of STAI express**

Количество вопросов	Мужчины (n=130)	Женщины (n=243)	W-тест
8	42,5 (35—50)	37,5 (30—45)	0,001

Таблица 7. **Шкала STAI-8**

Table 7. **STAI-8 scale**

Вопрос	Ответ			
	Нет	Вряд ли	Скорее всего	Да
Я чувствую себя свободно	1	2	3	4
Я расстроен	1	2	3	4
Мне ничего не угрожает	1	2	3	4
Я нахожусь в напряжении	1	2	3	4
Я испытываю чувство внутреннего удовлетворения	1	2	3	4
Я встревожен	1	2	3	4
Я уверен в себе	1	2	3	4
Я озабочен	1	2	3	4

Дискриминационную способность экспресс-версии STAI, то есть способность определять разные уровни тревожности, изучали путем сравнения тревожности у женщин и мужчин, так как женщины имеют статистически значимые различия по уровню тревожности с мужчинами [25—27]. Результаты приведены в табл. 6. В итоге экспресс-шкала ситуационной тревожности выглядит следующим образом (табл. 7).

Дискриминационную способность экспресс-версии STAI, то есть способность определять разные уровни тревожности, изучали путем сравнения тревожности у женщин и мужчин, так как женщины имеют статистически значимые различия по уровню тревожности с мужчинами [25—27]. Результаты приведены в табл. 6. В итоге экспресс-шкала ситуационной тревожности выглядит следующим образом (табл. 7). Обсуждение Адаптация экспресс-шкалы. Первоначально нами планировалось использовать адаптированную экспресс-шкалу STAI-6 для оценки ситуационной тревожности пациентов накануне операции. Однако по мере накопления данных, полученных при тестировании пациентов, стало понятно, что требуются другие наборы вопросов по сравнению с англоязычной версией STAI-6. Поэтому проведена более полная адаптация экспресс-шкалы с отбором нового перечня вопросов, определением оптимального размера и последующим тестированием надежности, валидности и дискриминационной способности новой экспресс-шкалы. Подобные работы выполнялись и в других странах с учетом локальных популяционных данных, при этом национальные экспресс-версии сохраняют психометрические свойства полной STAI [21—23]. Перечисленные выше национальные шкалы-опросники содержат разное количество вопросов, так как вес отдельных вопросов отличается в национальных исследованиях, что, в свою очередь, определяет минимальный набор вопросов, достаточно коррелирующий с

базовым тестом. Таким образом, на первом этапе отобраны прямые и обратные вопросы, имеющие наилучшую корреляцию в шкале STAI. На основе этих вопросов сформированы три набора, содержащие по 8, 6 и 4 вопроса, с равным количеством прямых и обратных вопросов. Такая конфигурация групп согласуется с аналогичными версиями экспресс-опросников на основе STAI, имеющими от 5 до 8 вопросов, и сохраняет баланс прямых и обратных вопросов, присущий полной версии шкалы STAI. Поскольку собранные категориальные данные имеют распределение, отличающееся от нормального, использован метод Спирмена для измерения корреляции индивидуальных вопросов с общим значением шкалы STAI-S, то есть оценен вклад каждого вопроса в определение ситуационной тревожности пациентов. Только один из трех первоначальных вариантов экспрессшкалы (с 8 вопросами) продемонстрировал приемлемую корреляцию со STAI-S. В дальнейшем тестированию подверглись надежность, текущая валидность и дискриминационная способность экспресс-шкалы (STAI-8). Под надежностью теста (внутренней согласованностью) подразумевают устойчивость к погрешностям измерения, а также направленность вопросов на измерение ситуационной тревожности. Для определения внутренней согласованности использовали коэффициент альфа Кронбаха. Достаточным считается коэффициент >0,7. В нашем случае вариант экспресс-шкалы, содержащий 8 вопросов, продемонстрировал хорошую внутреннюю согласованность. Это означает, что экспресс-шкала STAI-8 имеет достоверность и надежность, сопоставимые с полной версией STAI-S. На следующем этапе оценивали текущую валидность, иначе говоря, сопоставимость результатов полной STAI-S и экспресс-версии. Пропорциональные средние значения полной STAI-S и экспресс-версии, содержащей 8 вопросов, сравнивали как пару зависимых переменных с помощью непараметрического критерия Уилкоксона. Для перерасчета результатов экспресс-шкалы, содержащей 8 вопросов, в баллы, соответствующие полной STAI-S, необходимо присвоить обратные коэффициенты прямым вопросам (ответ 1=4; 2=3; 3=2; 4=1), суммировать полученные цифры и умножить на коэффициент 20/8. Наибольшую согласованность с полной STAI имеет только версия экспресс-теста, содержащая 8 вопросов, так как нет статистически значимых различий медианы ситуационной тревожности по сравнению с полной STAI-S. Таким образом, экспресс-шкала, содержащая 8 вопросов (STAI-8), воспроизводит показатели тревожности, аналогичные полной шкале STAI-S.

Дискриминационная способность экспресс-шкалы, содержащей 8 вопросов (STAI-8). Для оценки способности экспресс-шкалы различать разные уровни тревожности (низкий, умеренный, высокий) используют группу пациентов со статистически значимо различающимися уровнями тревожности по сравнению с остальной группой. Например, в одном из исследований беременные с отклонениями развития плода выделены в группу высокой тревожности по сравнению с женщинами со здоровым плодом [18].

В нашем случае использовались различия по полу, поскольку, по данным ряда авторов [25—27], женщины имеют статистически значимые различия по уровню тревожности в сравнении с мужчинами. Например, в исследовании 2009 г. среди 100 пациентов нейрохирургического профиля уровень предоперационной тревожности женщин оказался выше на 26%, чем у мужчин [26]. В другом исследовании, 2007 г., среди 193 пациентов значительно более высокие показатели определялись у женщин [25], различия составляли от 43% до 74% в зависимости от категории оценки. В исследовании 2004 г. с участием 145 испытуемых группа тревожных пациентов состояла на 68% из женщин и на 32% из мужчин [27], то есть налицо различия по уровню тревожности более чем в 2 раза. В нашей работе средние значения тревожности имеют статистически значимые различия по полу (W=0,001). Таким образом, адаптированная STAI-8 хорошо различает субъекты с нормальным и повышенным уровнем тревожности и позволяет произвести количественную оценку уровня ситуационной тревожности, сопоставимую с полной версией теста ситуационной тревожности Спилбергера—Ханина. Необходимо отметить преимущества STAI-8 перед полной версией. Во-первых, меньшее количество вопросов позволяет минимизировать перекрестное влияние уровня качества жизни и депрессии [22]. Во-вторых, шкала с меньшим количеством вопросов имеет максимальную частоту полных ответов и, соответственно, минимальное количество ошибочных или оставленных без ответа вопросов по сравнению с полной версией теста. В-третьих, короткий тест требует меньше времени как для заполнения, так и для последующего анализа [20], что позволяет минимизировать затраты времени и сил пациентов, имеющих и без того плотный график диагностических и подготовительных процедур накануне операции.

Ограничения исследования. Имеется ряд ограничений, которые могут быть устранены в дальнейших исследованиях по данной теме. В частности, может потребоваться разработка узкоспециализированных версий STAI-8, например для применения в педиатрии и онкологии. Кроме того, общепринятой практикой является периодический пересмотр оценочных шкал через несколько лет использования. Шкала STAI, например, подверглась пересмотру в 1983 г. [28]. Таким образом, по мере практического применения психометрические свойства STAI-8 могут быть улучшены.

Заключение. Наши результаты показывают, что экспресс-версия STAI, содержащая 8 вопросов (STAI-8), является надежным и действенным инструментом для измерения ситуационной тревожности у пациентов различного лечебного профиля. Внедрение STAI-8 в будущих исследованиях в клиническую практику будет способствовать стандартизации оценки беспокойства, улучшению качества анестезиологического осмотра перед операцией и индивидуального подбора премедикации.

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ФИНАНСОВАЯ СТАБИЛЬНОСТЬ ПРЕДПРИЯТИЯ

Аннотация:*Финансовая стабильность предприятия является важным условием его долгосрочного успеха и устойчивости в условиях рыночной экономики. В статье рассматриваются ключевые аспекты обеспечения финансовой стабильности, включая управление ликвидностью, рентабельностью, долговой нагрузкой и инвестиционной деятельностью. Особое внимание уделено методам анализа финансового состояния предприятия и стратегиям минимизации рисков. Статья будет полезна руководителям, финансовым менеджерам и специалистам, занимающимся вопросами финансового управления.*

Ключевые слова: *финансовая стабильность, ликвидность, рентабельность, долговая нагрузка, инвестиции, риски, анализ финансового состояния.*

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FINANCIAL STABILITY OF AN ENTERPRISE

Abstract:*Financial stability of an enterprise is a crucial condition for its long-term success and sustainability in a market economy. The article discusses key aspects of ensuring financial stability, including liquidity management, profitability, debt burden, and investment activities. Special attention is paid to methods of analyzing the financial condition of an enterprise and strategies for minimizing risks. The article will be useful for managers, financial managers, and specialists involved in financial management.*

Keywords: *financial stability, liquidity, profitability, debt burden, investments, risks, financial condition analysis.*

Введение

Финансовая стабильность предприятия — это его способность поддерживать устойчивое финансовое положение в долгосрочной перспективе, обеспечивая выполнение обязательств перед кредиторами, инвесторами и другими заинтересованными сторонами. В условиях

нестабильной экономической среды достижение финансовой стабильности становится одной из ключевых задач управления предприятием.

Основные аспекты финансовой стабильности

1. Ликвидность

Ликвидность предприятия — это его способность своевременно выполнять краткосрочные обязательства за счет имеющихся активов. Высокий уровень ликвидности обеспечивает финансовую гибкость и снижает риск банкротства. Для оценки ликвидности используются такие показатели, как коэффициент текущей ликвидности и коэффициент быстрой ликвидности.

2. Рентабельность

Рентабельность отражает способность предприятия генерировать прибыль от своей деятельности. Высокая рентабельность свидетельствует об эффективном использовании ресурсов и является важным фактором финансовой стабильности. Основные показатели рентабельности включают рентабельность активов (ROA), рентабельность собственного капитала (ROE) и рентабельность продаж (ROS).

3. Долговая нагрузка

Управление долговой нагрузкой является важным аспектом финансовой стабильности. Чрезмерная задолженность может привести к увеличению финансовых расходов и снижению платежеспособности предприятия. Для оценки долговой нагрузки используются коэффициенты финансового левериджа и покрытия долга.

4. Инвестиционная деятельность

Эффективное управление инвестициями способствует укреплению финансовой стабильности предприятия. Инвестиции в модернизацию производства, разработку новых продуктов и расширение рынков сбыта позволяют компании оставаться конкурентоспособной и увеличивать свою стоимость.

Методы анализа финансового состояния

1. Горизонтальный и вертикальный анализ отчетности

Горизонтальный анализ позволяет оценить динамику финансовых показателей за определенный период, а вертикальный анализ — структуру активов, обязательств и капитала предприятия.

2. Анализ финансовых коэффициентов

Финансовые коэффициенты являются основным инструментом для оценки ликвидности, рентабельности, финансовой устойчивости и деловой активности предприятия.

3. Анализ денежных потоков

Анализ денежных потоков позволяет оценить способность предприятия генерировать денежные средства для выполнения обязательств и финансирования своей деятельности.

Стратегии обеспечения финансовой стабильности

1. Оптимизация структуры капитала

Оптимизация соотношения собственного и заемного капитала позволяет снизить финансовые риски и повысить устойчивость предприятия.

2. Управление оборотным капиталом

Эффективное управление запасами, дебиторской и кредиторской задолженностью способствует повышению ликвидности и снижению финансовых издержек.

3. Диверсификация источников дохода

Диверсификация деятельности и источников дохода снижает зависимость предприятия от одного рынка или продукта, что повышает его устойчивость к внешним шокам.

4. Управление рисками

Разработка и внедрение системы управления рисками позволяет минимизировать негативное влияние внешних и внутренних факторов на финансовое состояние предприятия.

Заключение

Финансовая стабильность предприятия является результатом грамотного управления его ресурсами, обязательствами и инвестициями. Для ее достижения необходимо регулярно анализировать финансовое состояние, оптимизировать структуру капитала и внедрять стратегии, направленные на минимизацию рисков. Только в этом случае предприятие сможет успешно функционировать в условиях нестабильной экономической среды и достигать долгосрочных целей.

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МЕТАБОЛИК СИНДРОМ ВА ОШҚОЗОН ШИЛЛИҚ ҚАВАТИ: ПАТОМОРФОЛОГИК ВА ИММУНОГИСТОКИМЁВИЙ ТАҲЛИЛ АСОСИДА ЯНГИ ТУШУНЧАЛАР

Кириш

Метаболик синдром (МС) – бу углевод, липид ва оқсил алмашинувининг бузилиши билан тавсифланадиган патологик ҳолат бўлиб, 2-тип қандли диабет, гипертензия ва атеросклероз ривожланиши учун асосий хавф омилларидан бири ҳисобланади. Ушбу ҳолат ошқозон шиллиқ қаватида турли морфологик ва иммуногистокимёвий ўзгаришларни келтириб чиқариши мумкин. Лекин, бу ўзгаришларнинг хусусиятлари ва уларнинг патогенездаги ўрни тўлиқ ўрганилмаган.

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METABOLIC SYNDROME AND GASTRIC MUCOSA: NEW CONCEPTS BASED ON PATHOMORPHOLOGICAL AND IMMUNOHISTOCHEMICAL ANALYSIS

Abstract

Metabolic syndrome (MS) is a pathological condition characterized by disturbances in carbohydrate, lipid, and protein metabolism, and is one of the primary risk factors for the development of type 2 diabetes, hypertension, and atherosclerosis. This condition can lead to various morphological and immunohistochemical changes in the gastric mucosa. However, the specific characteristics of these changes and their role in pathogenesis remain insufficiently studied.

Муаммо долзарблиги

Метаболик синдром фонда ошқозон шиллиқ қаватидаги морфологик ўзгаришларнинг ўрганилиши ҳозирги тиббиётда муҳим йўналишлардан бири

ҳисобланади. Бир қатор тадқиқотлар ошқозон шиллиқ қаватида яллиғланиш, атрофия, микроциркулятор бузилишлар ва ҳужайралар регенерациясининг сусайиши каби ўзгаришларни кўрсатади. Шунингдек, инсулинрезистентлик ва яллиғланиш маркерларининг ошиши патогенез жараёнидаги асосий механизмлардан бири бўлиши мумкин. Иммуногистокимёвий таҳлиллар орқали бу жараёнларни аниқлаш метаболик синдром билан боғлиқ гастропатияларни эрта аниқлаш ва олдини олишга ёрдам беради.

Тадқиқот мақсади

Метаболик синдромда ошқозон шиллиқ қаватидаги патоморфологик ва иммуногистокимёвий ўзгаришларни аниқлаш ҳамда уларнинг патогенез жараёнидаги ролини баҳолаш.

Тадқиқот материаллари ва усуллари

Материал сифатида Республика Патологик анатомия марказидаги метаболик синдром орқали олинган 5 йиллик биопсия ва аутопсия материалларидан 40 та ажратиб олинди. Тайёрланган бўлакларчалар қуйидаги усуллар ёрдамида таҳлил қилинди:

Гистологик таҳлил: гематоксилин-эозин билан бўяш орқали ҳужайравий ўзгаришларни баҳолаш.

Иммуногистокимёвий таҳлил: TNF-α, IL-6, Bax, Bcl-2 ва VEGF каби маркерларнинг экспрессиясини аниқлаш.

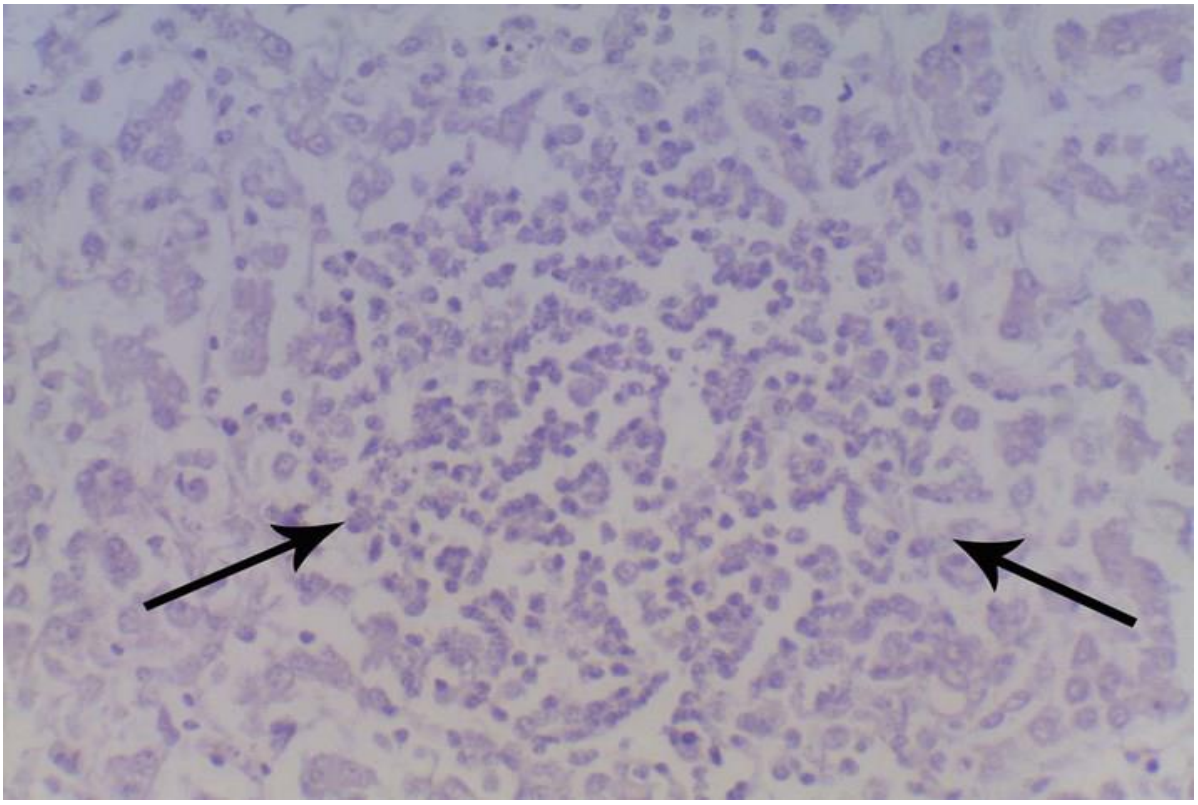
Биохимиявий таҳлил: қон зардобида HOMA-IR индекси ва яллиғланиш маркерларининг даражасини баҳолаш.

Статистик таҳлил: гистограммалар ва корреляцион таҳлиллар орқали морфологик ўзгаришлар ва клиник кўрсаткичлар ўртасидаги боғлиқликни аниқлаш.

Тадқиқот натижалари

1. Гистологик ўзгаришлар:

Метаболик синдром гуруҳида эпителий ҳужайраларининг вакуоляр деградацияси ва атрофик ўзгаришлари кузатилди. Ошқозон шиллиқ қаватида микроваскуляр дисфункция ва яллиғланиш ҳужайралари инфильтрацияси аниқланди. Гландуляр тузилмаларда метапластик ўзгаришлар ва стромада коллаген тўпланиши кузатилди. Қуйидаги расмда ошқозон шиллиқ қаватидаги патоморфологик ўзгаришларни кўриш мумкин(1 расм).



2. Иммуногистокимёвий таҳлил натижалари:

TNF-α ва IL-6 экспрессияси назорат гуруҳига нисбатан 2-3 баравар юқори эканлиги аниқланди.

Bax/Bcl-2 мутаносиблиги бузилиши ошқозон шиллиқ қавати ҳужайраларининг апоптоз жараёнларини тезлаштираётганлигини кўрсатди.

VEGF экспрессияси пасайгани микроциркуляциянинг бузилиши ва гипоксия механизмлари билан боғлиқ эканлиги аниқланди.

Метаболик синдромли беморларда E-cadherin экспрессияси пасайиши туфайли эпителиал ҳужайралар ўртасидаги адгезия бузилиши кузатилди.

3. **Клиник ва биохимиявий таҳлиллар:**

Метаболик синдромга чалинган беморларда HOMA-IR индекси юқори даражада бўлиб, инсулинрезистентлик билан ошқозон шиллиқ қаватидаги атрофик ўзгаришлар ўртасида кучли боғлиқлик мавжудлиги тасдиқланди.

Яллиғланиш маркерлари ва оксидатив стресс кўрсаткичлари юқори даражада эканлиги аниқланди.

Ошқозон шиллиқ қаватида яллиғланиш ва гипоксия фон билан микроангиопатик ўзгаришлар ўртасида боғлиқлик мавжудлиги аниқланди.

Хулоса

Тадқиқот натижалари шуни кўрсатадики, метаболик синдром ошқозон шиллиқ қаватидаги патоморфологик ва иммуногистокимёвий ўзгаришлар билан кечади. Яллиғланиш ва апоптоз жараёнлари ошқозон шиллиқ қаватининг тузилиш ва функционал ҳолатига салбий таъсир кўрсатади. Бу эса метаболик синдром билан боғлиқ гастропатияларнинг ривожланиши ва мураккаблашишига олиб келади.

Яллиғланиш маркерларининг ошиши ва эпителиал ҳужайралар ўртасидаги адгезиянинг бузилиши ошқозон шиллиқ қаватидаги ҳимоя механизмларини сусайтиради. Бундан ташқари, микроциркуляциянинг бузилиши ва VEGF экспрессиясининг пасайиши гипоксия ва шикастланган тўқималарнинг тикланиш жараёнларига салбий таъсир кўрсатади.

Тадқиқот натижалари асосида метаболик синдромдаги ошқозон шиллиқ қавати ўзгаришларини эрта аниқлаш ва патогенетик даволаш усулларини такомиллаштириш муҳим эканлиги аниқланди. Бундай беморларда гастропротекторлар, яллиғланишга қарши терапия ва микроциркуляцияни яхшилашга қаратилган даволаш режаларини ишлаб чиқиш зарур..

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АНАЛИЗ ДЕБИТОРСКОЙ ЗАДОЛЖЕННОСТИ КАК ИНСТРУМЕНТ ОПТИМИЗАЦИИ ДЕНЕЖНЫХ ПОТОКОВ КОМПАНИИ

Аннотация: *Статья рассматривает анализ дебиторской задолженности как важный инструмент оптимизации денежных потоков компании. Эффективное управление дебиторской задолженностью способствует не только улучшению финансовой стабильности организации, но и снижению рисков, связанных с ликвидностью и платежеспособностью. В статье анализируются ключевые методы и этапы проведения анализа дебиторской задолженности, включая оценку платежеспособности клиентов, контроль за сроками оплаты и выявление факторов, влияющих на рост просроченной задолженности. Также рассматриваются современные инструменты и технологии, такие как ERP-системы и аналитические платформы, которые помогают в оптимизации процессов и повышении эффективности финансового контроля.*

Ключевые слова: *дебиторская задолженность, денежные потоки, управление задолженностью, ликвидность, финансовый контроль, ERP-системы, аналитические платформы, платежеспособность, просроченная задолженность, оптимизация денежных потоков.*

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ANALYSIS OF ACCOUNTS RECEIVABLE AS A TOOL FOR OPTIMIZING THE COMPANY'S CASH FLOWS

Abstract. *The article considers the analysis of accounts receivable as an important tool for optimizing the company's cash flows. Effective management of accounts receivable not only improves the financial stability of the organization, but also reduces the risks associated with liquidity and solvency. The article analyzes the key methods and stages of the analysis of accounts receivable, including assessing the solvency of customers, monitoring payment terms and identifying factors affecting the growth of overdue debt. It also considers modern tools and technologies, such as ERP systems and analytical platforms that help optimize processes and improve the efficiency of financial control.*

Keywords: *accounts receivable, cash flows, debt management, liquidity, financial control, ERP systems, analytical platforms, solvency, overdue debt, cash flow optimization.*

Введение. Анализ дебиторской задолженности является важным инструментом для оптимизации денежных потоков компании и управления финансовыми рисками. Дебиторская задолженность представляет собой средства, которые организация должна получить от своих клиентов, и ее размер напрямую влияет на ликвидность бизнеса. В условиях нестабильной экономической ситуации и высоких рисков, связанных с платежеспособностью контрагентов, эффективное управление дебиторской задолженностью становится особенно актуальным. Этот процесс включает в себя не только мониторинг сроков оплаты, но и выявление причин, по которым задолженность остается неоплаченной, а также разработку стратегий для ускорения оборота денежных средств.

Данный анализ помогает не только в установлении взаимосвязи между дебиторской задолженностью и денежными потоками, но и в принятии обоснованных решений по улучшению финансовой дисциплины, что напрямую влияет на способность компании генерировать свободные средства для дальнейших инвестиций и роста.

Значение анализа дебиторской задолженности для оптимизации денежных потоков

Правильный анализ дебиторской задолженности позволяет компаниям выявить основные факторы, влияющие на финансовые потоки, и своевременно реагировать на возможные проблемы с ликвидностью. Основные цели анализа заключаются в следующем:

Улучшение управления ликвидностью. Быстрое выявление проблемных задолженностей и просроченных платежей помогает компании избежать кассовых разрывов и поддерживать стабильный денежный поток.

Снижение финансовых потерь. Анализ дебиторской задолженности позволяет оценить степень риска, связанного с каждым клиентом, и, при необходимости, изменить условия кредитования или начать процедуру взыскания долгов.

Оптимизация условий кредитования. Компания может корректировать свои кредитные условия на основе анализа данных о платежеспособности контрагентов, что помогает улучшить финансовую стабильность.

Этапы анализа дебиторской задолженности

Сбор и подготовка данных:

- Сбор информации о задолженности, сроках оплаты и состоянии счетов.
- Оценка качества системы внутреннего контроля и учетных систем компании.

Оценка возрастной структуры задолженности:

- Разделение задолженности по срокам (до 30 дней, 30-60 дней, более 60 дней).
- Выявление наиболее проблемных групп задолженности.

Анализ платежеспособности клиентов:

- Оценка финансовой стабильности и надежности контрагентов.
- Прогнозирование будущих платежей на основе предыдущих данных о клиенте.

Выявление причин просроченной задолженности:

- Анализ процессов кредитования и условий, предлагаемых клиентам.
- Определение факторов, влияющих на несвоевременные платежи (например, экономическая ситуация, внутренние проблемы клиента и т.д.).

Рекомендации по улучшению управления задолженностью:

- Разработка стратегии минимизации просроченной задолженности.
- Внедрение системы раннего предупреждения о возможных задержках платежей.
- Использование автоматизированных систем для контроля за сроками и объемами задолженности.

Применение технологий для улучшения анализа дебиторской задолженности. Современные инструменты, такие как ERP-системы (например, SAP, Oracle) и аналитические платформы (Power BI, Tableau), значительно упрощают процесс анализа дебиторской задолженности. Эти системы позволяют интегрировать финансовые и учетные процессы, а также в реальном времени отслеживать статус задолженности и предупреждать о возможных рисках. Визуализация данных с помощью аналитических платформ помогает не только оперативно оценивать состояние дебиторской задолженности, но и выявлять скрытые тенденции и проблемы.

Роль внутреннего и внешнего анализа. Внутренний анализ фокусируется на выявлении и устранении проблем в рамках компании, в то время как внешний анализ позволяет получить независимую оценку финансового состояния контрагентов и достоверности финансовой отчетности. Совместное использование этих видов анализа позволяет создать более полное представление о состоянии дебиторской задолженности и на основе этого вырабатывать эффективные стратегии управления.

Анализ дебиторской задолженности играет ключевую роль в управлении денежными потоками компании, и его влияние на финансовые результаты нельзя недооценивать. По данным исследования, проведенного компанией Deloitte (2021), компании, регулярно проводящие аудит дебиторской задолженности, значительно уменьшают количество просроченных платежей и увеличивают свой уровень ликвидности. Например, организации, внедрившие систему регулярного анализа

задолженности, снизили уровень просроченной задолженности на 20% за первые шесть месяцев после внедрения.

Также, согласно исследованию PwC (2022), компании, которые активно анализируют дебиторскую задолженность, демонстрируют на 15-18% меньше финансовых потерь по сравнению с конкурентами, не проводящими такой анализ. При этом компании, использующие автоматизированные системы для отслеживания задолженности, значительно сокращают время, необходимое для взыскания долгов. Исследования McKinsey (2020) показывают, что компании, внедрившие ERP-системы, такие как SAP или Oracle, сократили сроки оборота дебиторской задолженности на 25%, что положительно сказалось на их денежном потоке и снижении рисков финансовых потерь.

Важно отметить, что не все задолженности одинаково опасны для компании. По данным Business Finance Quarterly (2021), компании, проводящие подробный анализ просроченной задолженности и оценивающие платежеспособность своих контрагентов, могут снизить риски на 30%, ориентируясь на возраст задолженности. Например, если задолженность превышает 90 дней, вероятность её полного погашения значительно снижается, и компании начинают предпринимать более активные меры по взысканию долгов.

Пример из реальной практики: одна крупная производственная компания в Германии провела анализ дебиторской задолженности в 2021 году, что позволило ей выявить невыплаченные долги на сумму 3 млн евро. В результате внедрения новой кредитной политики и улучшения внутреннего контроля компания сократила уровень просроченной задолженности на 35% в течение года. Это положительно сказалось на ее финансовых результатах, а денежный поток улучшился на 40% благодаря своевременному взысканию долгов.

Заключение. Анализ дебиторской задолженности является важным инструментом для оптимизации денежных потоков компании. Он помогает выявлять риски, улучшать финансовую дисциплину и поддерживать ликвидность, что, в свою очередь, способствует долгосрочной стабильности компании. Современные технологии и аналитические инструменты значительно повышают эффективность этого процесса, а регулярный анализ позволяет минимизировать финансовые потери и повысить конкурентоспособность бизнеса.

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КАК ЭФФЕКТИВНО УПРАВЛЯТЬ ДЕБИТОРСКОЙ ЗАДОЛЖЕННОСТЬЮ: ОТ УЧЕТА ДО АНАЛИЗА

Аннотация. *Эта статья посвящена эффективным методам управления дебиторской задолженностью, включая её учёт, анализ и внедрение современных технологий. Рассматриваются ключевые аспекты влияния задолженности на ликвидность, рентабельность и финансовую устойчивость компании. Приведены примеры успешной автоматизации, практические рекомендации и статистические данные, которые могут помочь организациям оптимизировать денежные потоки, минимизировать финансовые риски и повысить конкурентоспособность.*

Ключевые слова: *дебиторская задолженность, управление финансами, кредитная политика, анализ задолженности, автоматизация учета, ликвидность, финансовая устойчивость, ERP-системы, CRM-системы, финансовый риск.*

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HOW TO EFFECTIVELY MANAGE ACCOUNTS RECEIVABLE: FROM ACCOUNTING TO ANALYSIS

Abstract. *This article is devoted to effective methods of managing accounts receivable, including their accounting, analysis and implementation of modern technologies. Key aspects of the impact of debt on the liquidity, profitability and financial stability of the company are considered. Examples of successful automation, practical recommendations and statistical data are given that can help organizations optimize cash flows, minimize financial risks and increase competitiveness.*

Keywords: *accounts receivable, financial management, credit policy, debt analysis, accounting automation, liquidity, financial stability, ERP systems, CRM systems, financial risk.*

Введение. Эффективное управление дебиторской задолженностью (ДЗ) играет ключевую роль в поддержании финансовой стабильности и долгосрочного роста компании. ДЗ напрямую влияет на ликвидность,

рентабельность и устойчивость бизнеса. В условиях жесткой конкуренции и нестабильности рынков компании обязаны применять комплексный подход к управлению задолженностью, включая её учет, анализ и внедрение технологий автоматизации. В данной статье рассматриваются ключевые аспекты управления ДЗ, включая современные инструменты и методы, а также примеры успешной реализации на практике.

Роль дебиторской задолженности в финансовом управлении

Дебиторская задолженность представляет собой обязательства клиентов перед компанией за товары или услуги. Её влияние на бизнес нельзя недооценивать, так как:

Ликвидность. Своевременное поступление средств улучшает платежеспособность компании и позволяет оперативно выполнять финансовые обязательства.

Рентабельность. Долгосрочная задолженность может привести к потере прибыли из-за инфляции, штрафов или списания долгов.

Финансовая устойчивость. Превышение уровня ДЗ над кредиторской задолженностью сигнализирует о финансовых рисках.

Подходы к учету и анализу дебиторской задолженности

Эффективное управление задолженностью начинается с её грамотного учета. Это подразумевает внедрение специализированных программных решений, таких как SAP, 1С или Oracle, которые позволяют автоматизировать учет и анализ. Систематизация данных обеспечивает ясность в работе с клиентами и минимизирует человеческий фактор.

Анализ задолженности включает:

Сегментацию клиентов. Выделение групп по объемам задолженности, частоте платежей и истории сотрудничества.

Анализ возрастной структуры задолженности. Распределение по срокам: до 30 дней, от 30 до 90 дней и более 90 дней.

Коэффициенты и метрики. Средний период инкассации, коэффициент оборачиваемости и соотношение текущей задолженности к выручке.

Пример. В компании XYZ за 2023 год коэффициент оборачиваемости задолженности составил 8 раз, что позволило сократить средний период инкассации на 12%. Это высвободило 10 млн рублей для инвестиций в новые проекты.

Методы управления дебиторской задолженностью

Современные подходы к управлению включают:

Разработка кредитной политики. Установление лимитов и условий оплаты для клиентов, включая проверки платёжеспособности.

Автоматизация мониторинга. Использование CRM-систем для отслеживания сроков оплаты, предупреждений и напоминаний клиентам.

Работа с проблемными долгами. Переговоры, реструктуризация, применение штрафных санкций или судебные иски.

Пример. В одной из ведущих розничных сетей внедрение системы Power BI позволило снизить долю просроченной задолженности с 25% до 10% за год за счет раннего оповещения клиентов.

Примеры и статистика

Анализ возрастной структуры. Исследования показывают, что 60% задолженности приходится на срок до 30 дней, тогда как только 15% превышают 90 дней. Это указывает на необходимость ужесточения кредитной политики.

Средний период инкассации. По данным международной аналитической компании, в среднем по отрасли он составляет 45 дней, однако лидеры рынка достигают показателей в 30 дней.

Таблица 1. Сравнение показателей ДЗ в компаниях сектора розничной торговли.

Показатель	Средний по отрасли	Лидеры рынка
Средний период инкассации (д.)	45	30
Коэффициент оборачиваемости	6	10
Доля просроченной ДЗ (%)	20	10

Современные инструменты автоматизации

ERP-системы. SAP и Oracle интегрируют управление финансами, логистикой и клиентской базой, сокращая время на обработку данных.

CRM-системы. Salesforce и AmoCRM предоставляют детальный контроль за взаимодействием с клиентами.

Аналитические платформы. Tableau и Power BI визуализируют данные и упрощают процесс принятия решений.

Практические рекомендации

Улучшение взаимодействия с клиентами. Введение программ лояльности и скидок за досрочные платежи.

Внедрение технологий. Использование предиктивной аналитики для прогнозирования платежей и рисков.

Обучение персонала. Регулярные тренинги по работе с клиентами и управлению долгами.

Эффективное управление дебиторской задолженностью невозможно без учета макроэкономических факторов. Нестабильность экономики, такие как инфляция, рост процентных ставок и валютные колебания, существенно усложняют контроль за своевременным поступлением средств. Например, во время глобального кризиса 2020 года доля просроченных долгов во многих отраслях выросла, что поставило перед компаниями задачу пересмотра своих кредитных политик. Помимо этого, изменения потребительского поведения также оказывают влияние: снижение покупательской способности вынуждает клиентов активнее пользоваться отсрочкой платежа, увеличивая краткосрочную задолженность.

Законодательные изменения играют важную роль в формировании политики работы с долгами. Внедрение цифровых систем отчетности в ряде стран упростило процесс управления задолженностью, позволив минимизировать ошибки и ускорить обработку данных. Например, компании, внедрившие подобные системы, сократили свои операционные расходы на 20% и повысили точность учета.

Опыт успешных компаний демонстрирует эффективность интеграции аналитических платформ. Одна из ведущих компаний ритейл-сектора смогла сократить средний период инкассации с 45 до 30 дней за счет использования предиктивной аналитики. Это позволило снизить долю просроченной задолженности на 15%, что освободило дополнительные ресурсы для инвестиций. В производственном секторе компания, внедрившая ERP-систему SAP, оптимизировала внутренние процессы, что привело к снижению объемов просроченной задолженности на 20%.

Кроме того, искусственный интеллект открывает новые горизонты для управления дебиторской задолженностью. Использование предиктивной аналитики позволяет прогнозировать вероятность просрочек, а автоматизированные напоминания клиентам значительно повышают их дисциплину. Модели машинного обучения помогают выявлять слабые места в кредитной политике, что делает её более гибкой и адаптивной. Компании, внедрившие эти технологии, отмечают повышение возврата долгов и снижение операционных затрат.

В условиях цифровизации экономики все больше внимания уделяется интеграции облачных систем и мобильных приложений. Глобализация бизнеса также требует унификации стандартов управления задолженностью, особенно при работе с международными клиентами. Например, создание единой платформы для мониторинга задолженности, которая интегрирует данные из разных стран, позволяет компаниям значительно ускорить процесс принятия решений.

В целом, управление дебиторской задолженностью требует комплексного подхода. Своевременный анализ, внедрение современных технологий и учет макроэкономических факторов являются ключевыми элементами успешной стратегии. Это позволяет компаниям минимизировать финансовые риски, укрепить свои позиции на рынке и добиться устойчивого роста даже в условиях нестабильности.

Заключение. Эффективное управление дебиторской задолженностью требует системного подхода, включающего анализ, автоматизацию и внедрение современных технологий. Компании, которые своевременно оптимизируют свои процессы, могут значительно повысить ликвидность, сократить финансовые риски и укрепить свои позиции на рынке. В условиях растущей конкуренции управление ДЗ становится ключевым фактором успешности бизнеса.

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ЭФФЕКТИВНОЕ ИСПОЛЬЗОВАНИЕ СТЕПНЫХ, СТЕПНЫХ И АНТРОПОГЕННЫХ ПАСТБИЩНЫХ ЛАНДШАФТОВ КАШКАДАРЬИНСКОЙ ОБЛАСТИ

Абстрактный; *В данной статье рассматриваются вопросы использования пастбищ в хозяйственных целях в Кашкадарьинской области. Антропогенные пастбищные ландшафты изучены по типам. Исследование было разделено на антропогенные луга на горных равнинах и антропогенные луга на равнинных ландшафтах.*

Ключевые слова: *Пустыня, степь, оазис, антропогенный, ландшафт, равнина, холм, гора, пастбище*

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EFFECTIVE USE OF STEPPE, STEPPE AND ANTHROPOGENIC PASTURE LANDSCAPES OF KASHKADARYA REGION

Abstract; *This article considers the issues of using pastures of Kashkadarya region for economic purposes. Anthropogenic pasture landscapes are studied by dividing them into types. In this case, steppe anthropogenic pastures in mountainous flat plains and anthropogenic pastures in flat landscapes were studied.*

Keywords: *Steppe, steppe, oasis, anthropogenic, landscape, plain, hill, mountain, pasture*

В бассейне Кашкадарьи в условиях сухого континентального климата распространены пустынные, степные и антропогенные пастбищные ландшафты, которые широко используются в качестве пастбищ. Продуктивность пастбищ очень низкая и составляет в среднем 1-3 ц/га. Урожайность кормовых культур в этом регионе существенно колеблется по сезонам, что оказывает существенное влияние на рост и развитие животноводства.

В последние годы разработан ряд мероприятий по улучшению качества кормов и повышению кормопродуктивности степных и степных пастбищ. О.И.Морозова [3; 5-301 с.], важнейшими из них являются: 1) разведение и

посадка многолетних видов растений, хорошо поедаемых скотом, 2) регулирование роста и защита трав, 3) борьба с вредителями (особенно грызунами), 5) улучшение орошения и водоснабжения, фитомелиорация и т. д.

Человек пытается повысить продуктивность степных и степных пастбищных растений как кормовых, изменяя природу и естественный облик пастбищ, тем самым создавая качественно новый тип антропогенных пастбищ. При создании искусственных пастбищ происходит изменение растительности. В результате распашки и последующей обработки земель происходит частичное уничтожение естественной растительности [3; стр. 215-216].

Среди антропогенных ландшафтов пастбищные ландшафты выделяются разнообразием и богатством животного мира. В настоящее время успешно ведется работа по улучшению пастбищ и посадке многолетних трав в песчаных и каменистых пустынях, холмах и горных степях. В целом антропогенные пастбищные ландшафты, относящиеся к этому классу, позволяют выделить следующие типы: 1) разреженные антропогенные пастбища на горных плоских равнинах, 2) антропогенные пастбища на равнинных ландшафтах.

Антропогенные луговые ландшафты горной равнины характерны для гор Каратепа, Мираки, Яккабаг, Гузар Кашкадарьинской котловины и прилегающих к ним невысоких гор с абсолютной высотой от 500 до 1000-1200 м. Рельеф населенных пунктов низкогорий и холмов Кара-Тепе, проходящих по территориям Чиракчинского и Китабского районов, весьма неровный, но население густо заселено. Это обусловлено хорошо развитым сельским хозяйством, садоводством и животноводством по берегам рек и ручьев. Кроме того, регион Мираки и близлежащие районы густо заселены, и в основном жители занимаются сельским хозяйством, садоводством и виноградарством. Часть населения занимается ремеслами. Население в горах Яккабаг и Гузар распределено равномерно. Население занимается садоводством, виноградарством, овощеводством, коконоводством, мясомолочным животноводством.

Холмы горно-степных ландшафтов покрыты лёссом и лёссовыми породами, поверхность их выровнена, и они представляют собой ряд плоских горных вершин, соединенных горами в разных направлениях [4; стр. 16-29]. Высота низин, к которым они примыкают, в некоторых случаях достигает 1000–1200 м, но в большинстве случаев они имеют высоту 700–800 м. В нижних частях гор крутизна склонов составляет 5–100 м, глубина эрозии — 200–500 м. Рельеф невысоких гор разнообразен в зависимости от их строения и климатических условий. Для таких гор характерны сплющенные вершины, тогда как невысокие горы, образованные породами сравнительно разной устойчивости в условиях резко континентального климата Средней Азии, скалистые, с острыми вершинами и крутыми склонами.

Типичные невысокие горы в бассейне Кашкадарьи включают горы в западной части гор Кара-Тепа, низины Зиявуддина-Зирабулака и крайние юго-западные отроги Гиссарского хребта. Климатические условия низкогорий и предгорий, где распространены горно-степные ландшафты, несколько мягче, чем на равнинах. Годовое количество осадков относительно высокое. Это привело к увеличению площади пахотных земель, т.е. агроландшафтов, за счет освоения земель. Наряду с окультуренным ландшафтом, плодородными почвами, новыми садами и полями, в этом регионе имеются предприятия по переработке фруктов. Климатические условия горно-степных ландшафтов благоприятны для земледелия и животноводства.

Типичные серые почвы образуют зональный тип почв холмов и низкогорий, где преобладают горные кустарниковые ландшафты. В самых высоких частях низкогорий типичные серые почвы сменяются глубокими серыми почвами. Типичные серые почвы распространены на высотах от 440 м до 800-900 м над уровнем моря. В этих почвах отчетливо выражен гумусовый слой. На типичных неосвоенных серых почвах верхний слой почвы хорошо мульчирован. В дернине содержание гумуса достигает 2,5-3,0%, азота – 0,194%, калия – 2,30-2,80%, фосфора – 2,32-2,47%, засоление наблюдается редко [3; стр. 95-97, 5; стр. 44-58].

В предгорьях и низкогорьях распространены также эфемеровые и эфемероидные растения, а также многолетние травы и кустарники с частичной и длительной вегетацией. Весенние месяцы являются основным периодом вегетации этих растений, а летом они увядают и засыхают. Территории с широким распространением горно-степных ландшафтов используются под пахотное земледелие, где выращивают зерновые. Кроме того, в этих районах развиты садоводство, виноградарство, мясо-молочное скотоводство. Природно-ресурсный потенциал предгорных и равнинных ландшафтов имеет большие перспективы для развития в различных отраслях производства. Воды многочисленных транзитных рек и горных ручьев здесь используются для орошения как напрямую, так и через водохранилища. Растительность адырных и равнинных ландшафтов используется как пастбища и сенокосы. Почти 900 000 гектаров земли здесь можно использовать в качестве пастбищ. Средняя годовая урожайность пастбищ составляет 4-6 ц/га. Пастбища используются не только для выпаса скота, но и для заготовки сена.

Адырский регион включает горные равнины и предгорья Гузарского, Дехканабадского, Камашинского, Яккабагского, Китабского, Шахрисабзского и Чиракчинского районов области. Климатические условия региона значительно мягче, чем в пустыне. Средняя температура января составляет 1–20°C, средняя температура июля — 25–30°C, вегетационный период (с середины февраля до середины декабря) — 280–300 дней. Среднегодовое количество осадков составляет 300–600 мм, из которых 220–360 мм выпадает в период с ноября по март. Природные условия Адырского

региона отличаются от равнинных: здесь разнообразный рельеф и гораздо больше осадков, чем на равнинах, что обуславливает богатство видов растений и животных. С увеличением высоты над уровнем моря меняется и животный мир, что обусловлено сменой видов растений. Годовое количество осадков в этом регионе достигает 500 мм [5, 2; стр. 370-398].

Горно-степные ландшафты имеют благоприятные природные возможности для дальнейшего развития промышленного производства, садоводства, виноградарства, зерноводства и животноводства в перспективе. Здесь также имеются возможности для расширения площади пахотных земель, развития арбузоводства, шелководства и пчеловодства. Организация рационального природопользования в районах с широким распространением горно-степных ландшафтов требует фиторекультивации пастбищ и проведения агрофиторомелиоративных мероприятий на пустошных землях [10; стр. 143-145].

В подклассе среднегорных гор выделяют два зональных типа ландшафтов: сухостепные ландшафты на умеренно влажных темноокрашенных сероземах; Лесостепные ландшафты на влажных (гумидных) горно-лесных бурых почвах. Средневысотные горные ландшафты распространены на склонах гор на высоте 1200–2000 м. Подобные ландшафты имеются в западных отрогах Зарафшанского хребта — горах Чакилкалон и Каратепа, в Сумсаро-Шертагском, Тойталашском и других горных хребтах между реками Кашкадарья и Джиннидарья, Аксув и Танхоздарья, Яккабогдарья и Гузардарья Гиссарского хребта. Склоны этих гор довольно изрезаны, водоразделы их выровнены, крутизна склонов составляет 10–150 градусов, и в зависимости от климатических условий формируется своеобразный рельеф. Для этого типа рельефа характерны различные скальные образования и крутые, ступенчатые склоны [4; стр. 16-29, 5; стр. 3-46].

Климат среднегорья значительно прохладнее, чем климат низкогорья, средняя температура января отрицательная, абсолютный минимум температуры опускается до -25-300. Абсолютный максимум минимума составляет 35-400. Период с температурой выше +100 составляет 150-200 дней, годовая сумма -2500-35000. Продолжительность безморозного периода составляет 170–200 дней. Годовая испаряемость значительно превышает годовое количество осадков, поэтому коэффициент увлажнения не превышает 0,5-0,7 [2; стр. 370-398]. Пшеница является основной растительной формацией горно-степных ландшафтов на умеренно влажных, темноокрашенных сероземах. Кроме того, распределение различных травянистых, полынных, кустарниковых и древесных формаций зависит от экспозиции склонов.

Сухие горно-степные ландшафты с древнейших времен подвергались влиянию хозяйственной деятельности человека. Были уничтожены широко распространенные в прошлом кустарники и деревья. Присутствие фисташки, сирени и боярышника, которые сегодня сохранились лишь в отдельных

местах, указывает на то, что когда-то в этих ландшафтах произрастали кустарники и деревья. В настоящее время преобладают различные типы растительности, покрывающие 60–70% поверхности Земли. Растения горно-степного пояса имеют большое хозяйственное значение благодаря своему разнообразию и видовому богатству. Влажности достаточно для того, чтобы растительный покров был густым, и поэтому растительный покров образует продуктивные пастбища. Эти пастбища можно использовать для выпаса крупного рогатого скота и овец круглый год. Однако на практике они больше важны как летние, раннеосенние и весенние пастбища для всех видов скота.

Среднегорные ландшафты густо заселены, но распределены неравномерно. Большая часть населения проживает в долинах рек в комфортных для него условиях. По данным областного статистического управления, общая площадь среднегорных ландшафтов составляет 546 тыс. км2. ха. На данной территории расположено 35 деревень с населением более 5000 человек, около 40 поселков с населением свыше 1000-2000 человек и несколько поселков городского типа с населением 400-500 тысяч человек. Для верхних частей среднегорных хребтов (на высотах от 1800-2000 м до 2800-3000 м) характерны лесолугово-степные ландшафты. Территории, на которых распространен этот тип ландшафта, характеризуются сильно расчлененным рельефом. Этот структурный тип рельефа распространен в самой высокой части гор Чакилкалон, в горах между верховьями рек Кашкадарья и Джиннидарья, на правобережье верховьев Большой Орадарьи, на левобережье верховьев Малой Орадарьи и в других местах. Лесно-бурые почвы характерны для лесолугово-степных ландшафтов. Бурые почвы не являются полностью засоленными, но из-за крутизны склонов на 70% площади зоны наблюдается умеренная и сильная эрозия почв. На склонах Гиссарского хребта на высоте 2800–3000 м распространены светло-каштановые почвы, преимущественно на аллювиальных отложениях коренных пород, местами на делювиальных отложениях. Зона светло-каштановых почв образует высшую ступень высотной поясности в бассейне Кашкадарьи [1; стр. 95-97, 5; стр. 44-58].

Благоприятные условия для лесообразования имеются на склонах гор Кашкадарьинской котловины на высотах от 2000 до 3000 м. Однако экспозиция горных склонов, строение их поверхности и состав горных пород не позволяют развивать и широко распространять леса во всех частях этих возвышенностей. Поэтому среди лесов и в нижних их частях преобладают кустарниковые и различные травянистые растительные формации. Общая площадь горных лесов составляет 64,3 тыс. га, из них наибольшую площадь занимают арчовые леса.

Арчовые рощи в настоящее время широко распространены на склонах гор Чакилкалон, а также в Яккабагском и Дехканабадском районах Гиссарского хребта. В прошлом можжевеловые леса занимали гораздо большие площади, чем сегодня. Однако из-за негативного воздействия антропогенных факторов площадь можжевеловых лесов резко сократилась.

Можжевеловые леса состоят из формаций можжевельника саурского, можжевельника черного и можжевельника абрикосового. Можжевельник саурский произрастает между верховьями рек Большая и Малая Орадарья, вокруг истока Кашкадарьи. В горах Чакилкалон в прошлом, в восточной части гор Каратепа, в Яккабагском и Дехканабадском районах Гиссарского хребта формировался черный можжевельник, а вблизи субальпийских лугов – абрикосовый можжевельник [2; стр. 370-398].

В нижнем ярусе абрикосово-можжевеловых лесов из кустарников произрастают клен трехлистный, клен остролистный, клен войлочный, а из многолетних растений — примула, горный тюльпан и колосовидные эфемеры. Нижний ярус можжевеловых лесов Саура образован кустарниками, такими как миндаль и фисташка, а также травянистыми растениями, такими как колокольчик, горный тюльпан, тысячелистник и другие растения. Для нижнего яруса абрикосово-можжевеловых лесов, распространенных в верховьях бассейнов рек Хабаздарьи, Яккабогдарьи и Аксув, характерны кустарники — земляничное дерево, миндаль, а также многолетние травы — тысячелистник, тмин, горный лук и другие. В лесах и зарослях, в долинах рек растут такие деревья и кустарники, как грецкий орех, яблоня, клен, миндаль, фисташка, пихта.

Сегодня крайне необходимо проведение различных организационно-мелиоративных мероприятий, направленных на ограничение воздействия антропогенных факторов на ландшафты, особенно на растительный мир, а также восстановление лесов в среднегорьях. Поскольку сокращение лесных площадей и вырубка другой растительности вызывают усиление эрозионных процессов на горных склонах. Почти все из более чем 120 крупных и мелких рек долины Кашкадарьи, длиной от 10 км до 200 км, берут начало в горах. В то же время реализация мер по борьбе с такими природными процессами, как оползни, обвалы, сели, эрозия в горных районах, также напрямую связана с сохранением растительного мира горных территорий [2; стр. 79-80, 1; стр. 95-97].

Горные ландшафты также являются важными объектами для восстановления здоровья человека, отдыха и туризма. В настоящее время большинство санаториев, лагерей и домов отдыха региона расположены в среднегорных районах. Однако развитие рекреационных возможностей этих территорий является важной социальной задачей ближайшего будущего. Поэтому необходимо уделить серьезное внимание развитию социальной инфраструктуры, в том числе рекреационной, на этих территориях.

Среднегорные ландшафты также обладают достаточным природным потенциалом для развития таких отраслей, как земледелие, лесное хозяйство и животноводство. Кроме того, имеются большие возможности для развития садоводства, табаководства, семеноводства и пчеловодства. Однако вопросы правильного и сбалансированного развития этих отраслей должны решаться на научной основе.

Высокогорные ландшафты занимают центральные части Гиссарского хребта и прилегающие горы в долине Кашкадарьи и не занимают большой площади, их общая площадь составляет около 69 тыс. га. Высокие горы характеризуются абсолютной высотой более 2800–3000 м, большой глубиной разложения — более 1000 м, деятельностью современных и древних ледников и рядом других особенностей. Эти горы, имеющие альпийский тип рельефа, наглядно демонстрируют ландшафтообразующее значение современной ледниковой деятельности и ее влияние на окружающие ландшафты.

Распределение популяции различается в разных регионах высокогорного ландшафта. По мере того, как регионы становятся выше, плотность населения уменьшается, а количество секторов экономики сокращается, что приводит к распылению занятости: большая часть населения занята в отдельных секторах экономики, особенно в частных фермерских хозяйствах. Высокогорные предгорья малонаселены, что не оказывает существенного влияния на условия жизни и занятость населения в нематериальном производстве.

Поскольку население в основном проживает в предгорьях высоких гор, большая часть населения занимается земледелием и скотоводством. В высокогорных предгорьях, в верхней части Шахрисабза, по берегам верхней части реки Яккабогдарья, в истоках реки Танхоздарья и берегах основных притоков реки Аксув, а также в предгорьях гор Коратепа Китабского района население размещено крайне неравномерно и занимается в основном земледелием и скотоводством. В этих регионах короткое лето и сравнительно длинная зима затрудняют деятельность населения в производственных отраслях.

Современные ледники расположены в верховьях бассейнов рек Яккабогдарья, Аксув и Танхоз, всего на этих территориях зарегистрировано около 60 ледников. Площадь ледников составляет около 20,3 км2. Территории, на которых распространены ледники, образуют отдельный тип ландшафта в подклассе высокогорных ландшафтов — нивально-ледниковые ландшафты. Хотя влажные условия в высокогорье благоприятны для роста древесных растений, термические условия (низкие температуры ограничивают вегетационный период) не способствуют росту древесных растений. Поскольку вегетационный период в этих регионах не превышает 50-110 дней [3; стр. 370-398].

Большую часть высоких гор занимают высокогорные альпийские и субальпийские луговые горные ландшафты. Почвенной основой этих ландшафтов являются светло-коричневые почвы, формирующиеся на аллювиальных, а иногда и делювиальных отложениях. Для высокогорных ландшафтов характерны горные ксерофиты и горные луга, в более сухих районах преобладают степные растения (субальпийские луга, овсюги, рогозы и т. д.), а во влажных — мезофильные бобовые, а также луга и лугостепи из различных злаков [7; стр. 10-58]. В некоторых случаях (на более влажных

участках нижних частей субальпийских лугов) небольшие участки абрикосового можжевельника встречаются в виде «островков».

С экономической точки зрения высокогорные ландшафты можно использовать в качестве летних пастбищ. Однако из-за сложного строения рельефа значение высокогорно-лугово-степных ландшафтов как пастбищ не очень велико. В ближайшем будущем развитие горного туризма, экотуризма и спорта должно сыграть важную роль в раскрытии природного потенциала высокогорных ландшафтов.

Пастбищные ландшафты на равнинных территориях. Большую часть бассейна Кашкадарьи занимают равнинные ландшафты. Большая часть равнин соответствует каменистым равнинам пустыни Карши. Каршинская пустыня ограничена на севере, северо-востоке и юго-востоке невысокими горами и возвышенностями, окружающими Зарафшанский и Гиссарский хребты, и занимает западную часть тектонической впадины Кашкадарьинского хребта, открытую на запад.

Каршинская пустыня расположена в пределах гипсометрических отметок 260-500 м. Большую часть равнины занимают аллювиально-пролювиальные равнины. Самые высокие точки находятся на хребтах Кунгуртаг, Саксондара и Алавиддинтаг. Наиболее древними типами рельефа являются холмы. Имеются месторождения Кунгуртаг, Косонтаг, Майманактаг, Аловиддинтаг, а также Долтали, Денгизкуль, Шурсой, Жаловаш и другие.

Юго-западную часть Каршинской степи возвышает коническое русло реки Гузар-Дарьи, расчлененное древними руслами рек Карасув, Шукурбулак, Шуртансай и других. Вдоль южной окраины Каршинской пустыни, у подножия гор, расположена обширная и сухая впадина Джаловашсой. По этим отложениям когда-то протекала река Гузар, впадавшая в Амударью. В западной части пустыни некоторые участки заняты песчаными дюнами и преобладают эолово-аккумулятивные формы рельефа. В пределах эолового типа рельефа можно выделить подтипы окраинных и холмистых песчаных дюн.

Каршинская песчаная равнина примыкает к песчаной пустыне Сандыкли, которая является юго-восточной окраиной Кызылкумов. Северная и юго-восточная части Каршинской пустыни расположены на горных равнинах Зарафшанского и Гиссарского хребтов и расчленены волнистыми хребтами. В целом большая часть территории Каршинской пустыни равнинная или слабоволнистая, в зависимости от условий рельефа, а абсолютная высота колеблется от 260 м до 500 м. Эти особенности рельефа создают удобства для организации орошаемого земледелия и механизированного труда.

Климат имеет свои уникальные особенности. Для климата пустыни Карши характерны жаркое лето, слегка холодная зима, сезонная и круглогодичная погода, малое количество осадков, высокая испаряемость и сухой воздух. Эти климатические характеристики зависят от географического

положения региона, количества солнечной радиации и масштабов атмосферной циркуляции. Среди климатических элементов большое значение для сельского хозяйства имеют тепловые ресурсы.

Тепловые ресурсы здесь позволяют получать 2–3 урожая сельскохозяйственных культур в год при условии использования искусственного орошения. Значительная часть территории пустыни используется в качестве пастбищ и сенокосов для выпаса скота и заготовки кормов. Среднегодовая продуктивность пастбищ не превышает 3 ц/га. Большинство степных пастбищ используются круглый год из-за длительного вегетационного периода и короткой зимы и являются самым дешевым источником кормов. Благодаря освоению Каршинской степи значительно улучшилась водообеспеченность пастбищ, повысилась продуктивность сенокосов на орошаемых землях [1; стр. 41-43].

Ландшафты Каршинской степи относятся к пустынной и сероземной зонам, а местами для пустынных ландшафтов характерны также интразональные луга, лугово-болотные почвы, солончаки и пустоши, которые относятся к группе слабогидроморфных почв. Бесплодные почвы, распространенные в Каршинской пустыне, относительно менее засолены из-за низкого расположения грунтовых вод. Эти почвы образуют лучший земельный фонд для освоения Каршинской пустыни. В растительном покрове, являющемся важным компонентом пустынных ландшафтов, преобладают осоки и соломенные водоросли, на уплотненных песках — полынь, осока, черный саксаул, из эфемеров — осока, из эфемероидов — кувшинки и другие растения.

В настоящее время природный потенциал пустынных ландшафтов используется в сельском хозяйстве и нефтегазовой промышленности, расширяются их площади, в результате чего значительно улучшается кормовая база для животноводства. Однако уровень использования пастбищ и сейчас невысок. Неправильное содержание скота и отсутствие пастбищеоборота приводят к деградации растительного покрова и снижению продуктивности пастбищ в некоторых районах. Верхний слой почвы вокруг скважин был разрушен, в результате чего поверхностный слой почвы подвергся ветровой эрозии, в некоторых местах образовав неустойчивые песчаные дюны. На это также негативно влияют геологоразведочные работы, а в последние годы и добыча полезных ископаемых.

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ЭФФЕКТИВНЫЕ МЕТОДИКИ ФОРМИРОВАНИЯ ИНЖЕНЕРНЫХ КОМПЕТЕНЦИЙ НА ОСНОВЕ КОМПЕТЕНТНОСТНОГО ПОДХОДА

Аннотация: *В данной работе рассматривается эффективность методики интегрированного проектного обучения в контексте формирования инженерных компетенций у студентов. Анализируется внедрение проектного подхода, направленного на сочетание теоретических знаний и практических навыков через работу над реальными или смоделированными проектами. Особое внимание уделяется аспектам междисциплинарной работы, командного взаимодействия и применения знаний в реальных инженерных задачах. Также представлены результаты исследования, показавшие значительное улучшение как теоретических, так и практических навыков студентов, участвующих в проектной деятельности.*

Ключевые слова*: методика, проектное обучение, инженерные компетенции, междисциплинарность, практические навыки, командная работа*

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EFFECTIVE METHODS OF DEVELOPING ENGINEERING COMPETENCES BASED ON A COMPETENCE-BASED APPROACH

Abstract: *This paper examines the effectiveness of the integrated project-based learning methodology in the context of developing students' engineering competencies. It analyzes the implementation of a project-based approach aimed at combining theoretical knowledge and practical skills through work on real or simulated projects. Particular attention is paid to the aspects of interdisciplinary work, teamwork, and application of knowledge to real engineering problems. The paper also presents the results of the study, which showed a significant improvement in both theoretical and practical skills of students participating in project activities.*

Key words*: methodology, project-based learning, engineering competencies, interdisciplinarity, practical skills, teamwork*

Введение: В условиях стремительных изменений на рынке труда и интенсивного развития технологий в сфере инженерного строительства, эффективность подготовки специалистов становится ключевым фактором успешной деятельности отрасли. Одним из важнейших направлений в сфере

образования является формирование инженерных компетенций у студентов. Компетентностный подход, ориентированный на развитие профессиональных и личностных качеств, позволяет эффективно готовить студентов к выполнению практических задач в реальной профессиональной деятельности. Этот подход становится важнейшим инструментом формирования инженерных навыков и компетенций, которые необходимы для успешной карьеры в технических и строительных областях.

Методология: Интегрированное проектное обучение с фокусом на практические задачи направлена на формирование инженерных компетенций через сочетание теоретических знаний и реальной практики. В рамках этой методики студенты участвуют в проектной деятельности, где им необходимо решать задачи, связанные с проектированием, расчетом и внедрением инженерных решений. Процесс обучения организован таким образом, что студенты получают задания, соответствующие актуальным проблемам отрасли, что позволяет им развивать навыки применения теории на практике, а также учитывать экономические, технические и экологические аспекты проектирования. Ключевой элемент методики — это использование реальных или смоделированных проектов, которые требуют междисциплинарного подхода и работы в командах. Это помогает студентам развивать не только профессиональные компетенции, но и навыки работы в коллективе, коммуникации, а также критического и творческого мышления. Методика предполагает постоянную обратную связь от преподавателей и специалистов отрасли, что способствует оперативной корректировке ошибок и улучшению качества работы студентов.

Результат: В ходе проведенного исследования, целью которого было оценить эффективность методики «Интегрированное проектное обучение с фокусом на практические задачи», было обнаружено значительное улучшение инженерных компетенций у студентов. Более 85% участников исследования отметили, что проектная деятельность способствовала более глубокому усвоению теоретических знаний и их успешному применению в реальных ситуациях. Около 78% студентов подчеркнули, что работа в командах и решение практических задач значительно повысили их уверенность в профессиональных навыках, таких как коммуникация, управление проектами и принятие решений в условиях неопределенности. Результаты показали, что 80% студентов улучшили свои технические навыки, такие как расчет и проектирование инженерных объектов, в ходе работы над проектами. В то же время, 72% преподавателей отметили, что методика позволила студентам более эффективно усваивать материал, благодаря постоянному вовлечению в практическую деятельность. Этот подход позволил повысить уровень практических знаний, а также способствовал развитию междисциплинарных компетенций, что в конечном итоге привело к более высоким результатам на экзаменах и в реальных профессиональных задачах.

Таблица 1.

Результаты исследования эффективности проектного обучения

Параметр	Процент положительных откликов	Процент отрицательных откликов	Преимущества	Недостатки
Улучшение теоретических знаний	85%	15%	Более глубокое понимание материала	Потребность в дополнительной поддержке по теории
Развитие практических навыков	80%	20%	Повышение уверенности в применении знаний	Некоторые студенты не справились с более сложными задачами
Эффективность работы в командах	78%	22%	Развитие коммуникации и коллективного взаимодействия	Проблемы с координацией в группе
Усвоение междисциплинарных навыков	72%	28%	Повышение универсальности навыков	Некоторые студенты сталкиваются с трудностями в междисциплинарной работе
Общая эффективность методики	83%	17%	Улучшение адаптации к профессиональной деятельности	Требуется больше времени для внедрения в процесс

Заключение: Внедрение компетентностного подхода в образование и использование таких методик, как проектное обучение, позволяет значительно повысить уровень подготовки студентов, обеспечивая их необходимыми навыками для успешной профессиональной деятельности. Эти методики способствуют формированию не только инженерных, но и социальных, организационных и личностных компетенций, что делает выпускников готовыми к решению задач в условиях современной инженерной и строительной практики. Внедрение таких подходов в образовательный процесс способствует более глубокому усвоению знаний и повышению конкурентоспособности специалистов на рынке труда.

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СОВРЕМЕННЫЕ ТЕХНОЛОГИИ ПРЕПОДАВАНИЯ МЕХАНИКИ В КОНТЕКСТЕ ИННОВАЦИОННОГО ИНЖЕНЕРНОГО ОБРАЗОВАНИЯ

Аннотация: *В данной работе рассматривается использование современных цифровых платформ для моделирования механических систем в рамках преподавания механики. Анализируются ключевые аспекты внедрения инновационных технологий в образовательный процесс, а также их влияние на уровень усвоения теоретических знаний и развитие практических навыков студентов. Особое внимание уделяется эффективному применению виртуальных лабораторий и симуляторов, которые позволяют студентам наглядно наблюдать механические явления, моделировать различные системы и экспериментировать с параметрами в реальном времени. Работа акцентирует внимание на важности интеграции таких технологий в учебный процесс для повышения вовлеченности студентов и улучшения их аналитического мышления.*

Ключевые слова: *Цифровые платформы, моделирование, механика, инновации, обучение, теория, практика, симуляторы, навыки, вовлеченность.*

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MODERN TECHNOLOGIES OF TEACHING MECHANICS IN THE CONTEXT OF INNOVATIVE ENGINEERING EDUCATION

Abstract: *This paper examines the use of modern digital platforms for modeling mechanical systems in the context of teaching mechanics. Key aspects of the introduction of innovative technologies into the educational process are analyzed, as well as their impact on the level of assimilation of theoretical knowledge and the development of practical skills of students. Particular attention is paid to the effective use of virtual laboratories and simulators that allow students to visually observe mechanical phenomena, model various systems and experiment with parameters in real time. The work emphasizes the importance of integrating such technologies into the educational process to increase student engagement and improve their analytical thinking.*

Keywords: *Digital platforms, modeling, mechanics, innovation, training, theory, practice, simulators, skills, involvement.*

Введение: Современное инженерное образование требует применения инновационных технологий, которые способны удовлетворить растущие потребности индустрии и соответствовать мировым стандартам. Одной из таких дисциплин является механика, которая является основой инженерных наук и играет ключевую роль в подготовке специалистов. Однако традиционные методы преподавания механики сталкиваются с рядом вызовов, связанных с быстротечным развитием технологий, необходимостью повышения уровня инженерного мышления и адаптацией студентов к реальным условиям производства. Внедрение инновационных методов и технологий в преподавание механики может значительно повысить эффективность образования, сделав его более доступным и соответствующим требованиям рынка труда.

Методология: Моделирование механических систем с использованием цифровых платформ. Данная методика основана на применении цифровых платформ для моделирования механических систем, что позволяет студентам интерактивно изучать и анализировать механические явления. В рамках обучения студенты используют специальные программные комплексы, которые позволяют им создавать виртуальные модели различных механических систем и взаимодействовать с ними в реальном времени. Это дает возможность не только наглядно продемонстрировать теоретические принципы, но и тестировать их в различных условиях, таких как изменения внешних факторов или модификация параметров системы. Методика направлена на развитие аналитического и инженерного мышления у студентов, помогая им лучше понять процессы, происходящие в механических системах, и научиться принимать обоснованные решения. Использование виртуальных лабораторий и симуляторов позволяет учащимся проводить эксперименты, которые невозможно реализовать в традиционных условиях, например, моделировать сложные или опасные ситуации. Это повышает уровень подготовки студентов, дает им необходимые практические навыки и готовит к реальным инженерным задачам.

Результат: Результаты проведенного исследования по методике Моделирование механических систем с использованием цифровых платформ показали значительное улучшение уровня усвоения материала студентами. После внедрения цифровых платформ для моделирования механических систем, 85% студентов отметили, что стали более уверенно разбираться в сложных теоретических аспектах механики, таких как расчет нагрузки на конструкции и анализ динамики механических систем. Около 78% студентов заявили, что использование виртуальных лабораторий позволило им лучше понять связи между теорией и практикой, а также улучшило их способности к решению практических задач в реальных условиях. Более 70% студентов продемонстрировали улучшение в аналитическом и инженерном мышлении, что было подтверждено результатами тестирования и наблюдениями за выполнением практических заданий. В частности, они стали быстрее и точнее решать задачи, требующие учета множества переменных, а также более

эффективно работать в условиях ограниченного времени. Внедрение цифровых платформ также повысило вовлеченность студентов в учебный процесс: 90% участников исследования заявили о повышении интереса к предмету и более высокой мотивации к обучению.

Таблица 1.

Оценка эффективности методики Моделирование механических систем с использованием цифровых платформ

Критерий	Процент студентов (положительный результат)	Процент студентов (негативный результат)	Положительный эффект	Негативный эффект	Выводы
Повышение уверенности в теоретических аспектах	85%	15%	Уверенность в решении задач механики	Некоторые студенты испытывали трудности в освоении материала	Высокий уровень понимания теории
Понимание связи теории и практики	78%	22%	Улучшение практических навыков	Недостаточная способность работать с некоторыми моделями	Положительное влияние на практическое применение знаний
Повышение интереса к предмету	90%	10%	Повышенная мотивация и вовлеченность	Лишь небольшая часть студентов не проявила интерес	Вовлеченность студентов значительно улучшена

Заключение: Внедрение инновационных технологий в преподавание механики представляет собой важный шаг на пути к модернизации инженерного образования. Использование цифровых платформ и симуляционных технологий не только способствует более глубокому освоению теории, но и развивает у студентов навыки, необходимые для успешной профессиональной деятельности. Современные методы преподавания механики, ориентированные на активное вовлечение студентов в учебный процесс, помогают формировать инженеров, готовых к решению сложных и нестандартных задач в условиях быстро меняющегося мира технологий.

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ПОНЯТИЕ И ПРИНЦИПЫ УСТАНОВЛЕНИЯ ПРЕДДОГОВОРНОЙ ОТВЕТСТВЕННОСТИ

Аннотация: *в данной научной статье рассматривается понятие и принципы установления преддоговорной ответственности.*

Ключевые слова: *преддоговорная ответственность, договорная ответственность, квазидоговорная ответственность, деликтная ответственность, злоупотребление правом, недобросовестное ведение переговоров.*

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CONCEPT AND PRINCIPLES OF ESTABLISHING PRE-CONTRACTUAL LIABILITY

Abstract: *this scientific article examines the concept and principles of establishing pre-contractual liability.*

Keywords: *pre-contractual liability, contractual liability, quasi-contractual liability, tort liability, abuse of rights, unfair negotiations.*

Отечественному праву известно базовое основание преддоговорной ответственности - недобросовестное поведение, то есть нарушение обязанности действовать добросовестно (ст. 10 ГК РФ). «Проблема ответственности всегда являлась одной из важных в теории и на практике гражданского права, по причине того, что гражданско-правовая ответственность является инструментом охраны гражданских правоотношений от возможных посягательств на права и интересы субъектов гражданского оборота. Понимание природы института преддоговорной ответственности имеет важное значение в практическом и теоретическом смысле, так как от того, к какому виду данный институт будет отнесен, зависит, какие нормы будут применяться: о деликтной ответственности или нормы об ответственности за нарушение договорных обязательств.

В теории гражданского права ещё с давних времен утвердилось деление гражданско-правовой ответственности на договорную и внедоговорную (деликтную)» [9, с. 53].

«Внедоговорная ответственность образуется вследствие причинения вреда в отсутствие (или не имеющих отношений к причиненному вреду) отношений между сторонами до причинения вреда. Договорная ответственность образуется при наличии заключенного между сторонами соглашения, которая касается исполнения (неисполнения, ненадлежащего исполнения) этого соглашения. Существует и мнение об отнесении преддоговорной ответственности к квазидоговорной или квазиделиктной» [3].

Статус преддоговорной ответственности требует четкого определения места среди существующих видов гражданско-правовой ответственности, учитывая специфику данного правового института.

Многочисленные научные исследования зарубежных правоведов демонстрируют многообразие доктринальных взглядов относительно юридической сущности преддоговорной ответственности. Законодательные системы различных государств формируют собственные правовые позиции касательно квалификации обязательств, возникающих на стадии ведения переговоров.

Сторонники деликтной квалификации преддоговорной ответственности основывают позицию на отсутствии юридической связи между участниками несостоявшейся сделки. Ведущий цивилист О. Н. Садиков подчеркивает невозможность применения договорных норм к отношениям, возникающим до заключения соглашения, ввиду отсутствия взаимных обязательств между сторонами [7]. Правовые системы Франции и Великобритании также квалифицируют преддоговорную ответственность как разновидность деликтных обязательств, возникающих вследствие причинения вреда.

Договорная природа преддоговорной ответственности получила признание среди значительного числа правоведов. Классическое учение culpa in contrahendo, разработанное Р. фон Иерингом, выступает фундаментальным обоснованием данной концепции. Согласно позиции выдающегося цивилиста, участники переговорного процесса негласно принимают на себя обязательства по добросовестному ведению диалога, направленного на заключение соглашения. Нарушение принятых обязательств путем недобросовестных действий влечет возникновение преддоговорной ответственности. Законодательное закрепление договорной природы преддоговорной ответственности нашло отражение в Гражданском кодексе Италии. Статья 1337 данного нормативного акта включает требование добросовестного ведения переговоров в институт заключения договора, квалифицируя ответственность за недобросовестное поведение как разновидность договорной.

Размещение норм преддоговорной ответственности в общей части договорного права российским законодателем служит ключевым доводом для

приверженцев данного подхода. Специфика российской правовой системы предполагает наступление договорной ответственности исключительно при нарушении обязательств, закрепленных конкретным соглашением между участниками. Санкционные механизмы могут устанавливаться как действующими нормативными актами, так и договорными положениями. Соглашение о порядке ведения переговоров либо последующее заключение договора автоматически влечет применение норм договорной ответственности к возникающим правоотношениям. Отсутствие формализованного переговорного процесса или недостижение итогового соглашения исключает квалификацию действий участников как нарушений договорных обязательств ввиду фактического отсутствия юридически значимого соглашения.

Правовая позиция, изложенная в абзаце 3 пункта 3 Постановления Пленума ВАС РФ от 11 июля 2011 г. № 54, подтверждает договорную природу преддоговорной ответственности. Регламентированное Пленумом расширение права требования возмещения убытков при недействительности сделки, совершенной под влиянием заблуждения, распространилось на договоры с несогласованным предметом. Доктринальное осмысление данного подхода привело к формированию концепции приоритета норм о недействительности над положениями о незаключенности договора при возникновении коллизии между ними.

Компромиссный подход к природе преддоговорной ответственности основывается на признании ее самостоятельного характера, не относящегося к традиционным видам гражданско-правовой ответственности. Научная позиция К. В. Гницевича подчеркивает сложность квалификации преддоговорной ответственности как деликтной, указывая на проблематичность установления противоправности действий участника переговоров при причинении убытков контрагенту. Действия лица, прекратившего переговоры или не сообщившего существенную информацию для сделки, формально остаются в правовом поле дозволенного поведения. Нарушение обязанности добросовестного ведения переговоров выступает базовым основанием преддоговорной ответственности, характеризуя ее особый квазидоговорный статус, отличный от классических форм гражданско-правовой ответственности [3].

В. Г. Полякевич, утверждает, что «преддоговорная ответственность принципиально не отличается от деликтной или договорной ответственности, а обладает чертами как той, так и другой, поэтому уместно характеризовать ее как квазиделиктную, или квазидоговорную» [6, с. 80]. Указанный подход наиболее последовательно развит в законодательстве Германии (BGB § 311 Abs. 2). По мнению В. В. Богданова, «попытки определить единую природу преддоговорной ответственности, во всяком случае исходя из норм действующего законодательства, вряд ли могут быть успешными» [2]. В связи с этим автор определяет преддоговорную ответственность как договорно-деликтную. На двойственность природы преддоговорной ответственности

указываете И. З. Аюшева, отмечая, что «по своей сути преддоговорная ответственность - это ответственность за злоупотребление правом» [1]. Подобной характеристики преддоговорной ответственности в плане двойственности ее природы придерживается и Д. Е. Богданов [2, с. 20].

Преддоговорная ответственность занимает особое место в правовом поле, существенно отличаясь от деликтной формы, поскольку возникает исключительно между субъектами, вступившими в переговорный процесс. Договорной характер данной ответственности также исключается ввиду отсутствия юридически оформленных договорных обязательств между участниками. Специфика преддоговорных взаимоотношений определяется организационным аспектом, при котором последующее развитие событий может идти двумя путями. Успешное завершение переговоров трансформирует первоначальные организационные отношения в имущественные, автоматически переводя ответственность в договорную плоскость. При срыве переговорного процесса законодательство предусматривает наступление внедоговорной ответственности для сторон.

Научное сообщество выдвигает альтернативную концепцию, отрицающую необходимость существования преддоговорной ответственности. Правоведы аргументируют данную позицию несовместимостью юридической сущности преддоговорных обязательств с фундаментальными принципами коммерческой деятельности. Анализируя нормативную базу, Т.П. Подшивалов подчеркивает противоречие между инициативами по внедрению преддоговорной ответственности и положениями статьи 2 ГК РФ, закрепляющей рисковый характер предпринимательства. Подобные законодательные изменения, по мнению исследователя, нарушают базовые принципы коммерческих взаимоотношений. Дополнительным аргументом выступает позиция о персональной ответственности предпринимателей за выбор контрагентов и последствия деловых решений [5, с. 36].

Правовое регулирование института преддоговорной ответственности длительное время не находило отражения в национальных и международных правовых системах. Господство алеаторной концепции, при которой участники переговорного процесса принимали все риски самостоятельно, оказало существенное влияние на формирование данной ситуации, согласно исследованиям А. Н. Кучер [4, с. 67].

Возмещение убытков, причинённых недобросовестным контрагентом при ведении переговоров, представляет собой неотъемлемое право участников коммерческого оборота. Рисковая природа предпринимательства не может служить оправданием для нарушения принципа добросовестности между деловыми партнерами. Законодательное закрепление данной позиции началось с включения соответствующих положений в Концепцию развития гражданского законодательства РФ, впоследствии нашедших отражение в действующих нормативных актах. Преддоговорный этап взаимодействия создает между участниками особое правоотношение обязательственного

характера, возникающее в момент совершения конкретных волевых действий по вступлению в переговорный процесс.

Научное сообщество развернуло активную дискуссию вокруг концепции нарушения переговорного процесса как разновидности злоупотребления правом. Существенные возражения против данной теоретической конструкции выдвигаются многими правоведами. Ведущий исследователь Д. Е. Богданов указывает на фундаментальное противоречие между базовыми правовыми принципами добросовестности и договорной свободы при таком подходе к преддоговорной ответственности [2, с. 132].

Преддоговорная ответственность направлена на полноценную защиту законных интересов пострадавшей стороны путем компенсации понесенных убытков либо принудительного заключения договора между участниками правоотношений. Правовая природа подобных мер позволяет восстановить нарушенные права потерпевшего субъекта, возвращая ситуацию к состоянию, предшествовавшему началу преддоговорных отношений. Спецификой данного вида ответственности выступает сочетание признаков договорной и деликтной форм, что определяет ее промежуточный характер в системе гражданско-правовых санкций.

Научные исследования И.З. Аюшевой подтверждают особую правовую природу преддоговорной ответственности, занимающей промежуточную позицию в системе гражданско-правовой ответственности между договорными и деликтными обязательствами [1, с. 37].

Преддоговорная ответственность представляет собой правовой механизм защиты прав участников переговорного процесса при заключении договора. Недобросовестные действия сторон на стадии ведения переговоров влекут наступление ответственности за причинение имущественного либо неимущественного ущерба. Законодательное закрепление принципа добросовестности служит фундаментальным основанием для привлечения нарушителей к преддоговорной ответственности.

«Преддоговорная ответственность по определению не совпадает с договорной (нет заключенного договора), но данный вид ответственности нельзя отнести и к деликтной исходя из природы деликта (убытки наступают в связи с нарушением обязанности вести переговоры добросовестно). Поэтому преддоговорную ответственность неприемлемо определять через природу договорной или внедоговорной ответственности.

Преддоговорную ответственность следует выделять в особенный вид гражданско-правовой ответственности, которая наступает из-за недобросовестных действий стороны, уклонившейся от заключения договора, причинивших другой стороне убытки, выразившиеся в понесении ею расходов, связанных с проведением переговоров по заключению договора, а также в связи с потерей возможности заключить договор с третьим лицом» [9].

Ни законодатель, ни судебная практика, ни наука не выработали в отечественном праве единой концепции природы преддоговорной

ответственности. На наш взгляд, по своей сути она является сборной, содержащей элементы как договорной, так и внедоговорной ответственности. Тем не менее представляется, что нормативное закрепление понятия преддоговорной ответственности явилось бы значительным шагом в развитии теории и практики применения положений о данной ответственности.

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РОЛЬ СОЦИАЛЬНЫХ НАУК В ПОВЫШЕНИИ АКТИВНОСТИ ЛИЧНОСТИ В ОБЩЕСТВЕ

Аннотация: *В данной статье рассматривается влияние социальных наук на формирование активной гражданской позиции, развитие критического мышления и социальной ответственности личности. Анализируются ключевые дисциплины социальных наук и их значение в современном обществе, а также влияние цифровой эпохи на их развитие. Освещены вопросы социальной адаптации, толерантности, экономической грамотности и роли социальных наук в решении глобальных проблем.*

Ключевые слова: *социальные науки, гражданская активность, критическое мышление, толерантность, экономическая грамотность, цифровая эпоха, глобальные проблемы, общество, социальная ответственность.*

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THE ROLE OF SOCIAL SCIENCES IN ENHANCING INDIVIDUAL ACTIVITY IN SOCIETY

Abstract: *This article examines the influence of social sciences on shaping an active civic stance, developing critical thinking, and fostering social responsibility in individuals. It analyzes key disciplines of social sciences and their significance in modern society, as well as the impact of the digital era on their development. Issues of social adaptation, tolerance, economic literacy, and the role of social sciences in solving global problems are also highlighted.*

Keywords: *social sciences, civic activity, critical thinking, tolerance, economic literacy, digital era, global problems, society, social responsibility.*

Социальные науки играют важную роль в жизни общества, так как они изучают процессы, происходящие в социальной среде, и помогают понимать механизмы взаимодействия между людьми. Эти науки охватывают такие дисциплины, как социология, политология, психология, экономика и культурология, которые способствуют формированию социально активного гражданина. В условиях глобализации и стремительного развития технологий знание социальных наук становится особенно актуальным, поскольку они помогают анализировать современные вызовы, находить решения социальных проблем и способствуют гармонизации общественных отношений.

Социальные науки играют важную роль в формировании активной гражданской позиции человека, развитии его критического мышления и социальной ответственности. Они охватывают широкий спектр дисциплин, таких как социология, психология, политология, экономика и культурология, которые способствуют пониманию общественных процессов и помогают людям осознанно участвовать в жизни общества.

Социальные науки обучают анализировать информацию, отличать факты от мнений, выявлять манипуляции в СМИ и политических заявлениях. Это помогает человеку принимать осознанные решения и участвовать в общественных обсуждениях. Критическое мышление особенно важно в эпоху информационных технологий, когда доступность данных не всегда сопровождается их достоверностью. Социальные науки обучают методам анализа источников, интерпретации статистических данных и пониманию социальных процессов.

Изучение политологии и социологии позволяет человеку понимать механизмы функционирования государства, осознавать свои права и обязанности, а также участвовать в выборах, общественных инициативах и волонтёрских движениях. Гражданская активность выражается не только в участии в выборах, но и в других формах общественного контроля, таких как участие в общественных слушаниях, подача петиций и проведение мирных акций. Социальные науки развивают понимание демократии и важности участия каждого гражданина в политической жизни страны.

Понимание культурных различий, социальных норм и психологических аспектов поведения способствует эффективному взаимодействию между людьми, уменьшает предвзятость и способствует гармонизации общественных отношений. В современном мире, где глобализация стирает границы между культурами, важно осознавать принципы инклюзивности и взаимоуважения. Социальные науки позволяют развивать эмпатию, способствуют формированию межкультурного диалога и укреплению социальной сплочённости.

Экономическая грамотность. Экономические науки помогают человеку понимать принципы управления финансами, рыночные механизмы и экономические процессы, что способствует улучшению качества жизни и более осознанному потреблению ресурсов. Экономическая грамотность позволяет гражданам принимать более обоснованные финансовые решения, инвестировать в своё будущее и избегать финансовых кризисов. В условиях нестабильной экономической ситуации понимание основ макро- и микроэкономики становится важнейшим элементом подготовки к взрослой жизни.

Социальные науки и цифровая эпоха. В современном мире с развитием технологий социальные науки приобретают ещё большее значение. Они помогают человеку адаптироваться к информационной среде, критически оценивать данные в социальных сетях, разбираться в цифровых трендах и использовать новые технологии во благо общества. Социальные

науки также изучают влияние цифровизации на общественные структуры, что помогает создавать эффективные стратегии взаимодействия между государством, бизнесом и обществом в условиях цифровой трансформации.

Роль социальных наук в решении глобальных проблем. Социальные науки играют ключевую роль в анализе и решении таких глобальных проблем, как изменение климата, социальное неравенство, миграция и урбанизация. Они предоставляют инструменты для изучения общественного мнения, прогнозирования социальных изменений и разработки эффективных стратегий устойчивого развития. Например, социология помогает исследовать динамику изменения социальных норм, а экономика предлагает пути улучшения глобального распределения ресурсов.

Заключение

Социальные науки формируют активную, сознательную и социально ответственную личность. Они способствуют развитию критического мышления, гражданской активности и адаптации к современным вызовам. В условиях глобализации и цифровизации их роль становится ещё более значимой, обеспечивая гармоничное развитие личности и общества в целом. Более того, благодаря социальным наукам можно не только лучше понимать мир, но и активно участвовать в его улучшении, создавая условия для прогрессивного развития человеческого общества.

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МИКРОЭЛЕМЕНТ С МАКРОЭФФЕКТОМ: КАК СЕЛЕН ВЛИЯЕТ НА ФУНКЦИЮ ЩИТОВИДНОЙ ЖЕЛЕЗЫ

Аннотация. *Селен — жизненно важный микроэлемент, необходимый для синтеза селенопротеинов, которые обеспечивают антиоксидантную защиту, иммунную регуляцию и метаболизм тиреоидных гормонов. Его дефицит может привести к окислительному стрессу, ослаблению иммунитета и эндокринным нарушениям, включая гипотиреоз и аутоиммунные заболевания. Щитовидная железа особенно зависима от селена и йода, так как они участвуют в синтезе и активации тиреоидных гормонов, регулирующих обмен веществ и работу жизненно важных систем. Избыток селена также опасен, поскольку может вызывать токсические эффекты, требуя поддержания его оптимального уровня. Современные исследования подтверждают роль селена в профилактике и лечении заболеваний щитовидной железы, что делает эту тему актуальной для медицины.*

Ключевые слова: *Селен, щитовидная железа, тиреоидные гормоны, селенопротеины, антиоксидантная защита, гипотиреоз, иммунная регуляция, окислительный стресс.*

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A MICROELEMENT WITH A MACRO EFFECT: HOW SELENIUM AFFECTS THYROID FUNCTION

Abstract. *Selenium is an essential microelement required for the synthesis of selenoproteins, which provide antioxidant protection, immune regulation, and thyroid hormone metabolism. Its deficiency can lead to oxidative stress, weakened immunity, and endocrine disorders, including hypothyroidism and autoimmune diseases. The thyroid gland is particularly dependent on selenium and iodine, as they are involved in the synthesis and activation of thyroid hormones, which regulate metabolism and the function of vital systems. Excess selenium is also dangerous, as it can cause toxic effects, necessitating the maintenance of its optimal level. Modern research confirms the role of selenium in the prevention and treatment of thyroid diseases, making this topic relevant to medicine.*

Keywords: *Selenium, thyroid gland, thyroid hormones, selenoproteins, antioxidant protection, hypothyroidism, immune regulation, oxidative stress.*

Природные источники и органические формы селена

Селен поступает в организм человека из почвы с продуктами растениеводства и животноводства (рис. 1), что определяет зависимость уровня обеспеченности этим микроэлементом от геохимических условий проживания. Россия относится к числу стран с почвой, бедной селеном [6, 7].

Наиболее важными органическими формами селена являются селенометионин, селеноцистеин и метилселеноцистеин. Селенометионин преимущественно содержится в растительных источниках и селеновых дрожжах. Неорганические формы селена присутствуют в почвах и составляют основу многих биологически активных добавок [6, 8].

В тканях животных селен присутствует в виде селенометионина (Se-Met) и селеноцистеина (Sec) [6, 7, 8]. На рис. 2 представлено сравнение структуры селеноцистеина и цистеина. Se-Met может замещать метионин в различных белках, тогда как Sec является ключевым компонентом активных центров селенсодержащих ферментов, таких как глутатионпероксидазы (GPX), йодтиронин-дейодиназы (ID), селенопротеин P (SelP) и другие [7].

Sec, обеспечивающий ферментативную активность, считается 21-й аминокислотой и кодируется кодоном УГА (UGA), который обычно служит стоп-кодоном. Однако в присутствии специфической транспортной РНК (тРНК) и дополнительных белков этот кодон становится сигнальным для включения Sec в белки (рис. 3). Специальная структура основной цепи мРНК (SECIS) формирует комплекс, который включает связывающий белок (SBP2) и специфичный фактор элонгации (EFsec). Эти элементы обеспечивают трансляцию стоп-кодона в виде селеноцистеинового кодона, что позволяет включать Sec в состав белков [10].

Недавние исследования, проведённые Carlson и соавторами, открыли новые возможности для выделения и секвенирования тРНК селеноцистеина, что расширяет горизонты изучения селенсодержащих белков [10].

Щитовидная железа содержит наибольшее количество селена на единицу массы [1] среди всех других эндокринных органов и тканей [12, 13], и за последние несколько лет значительно возросло понимание ключевой роли селена в функционировании щитовидной железы [12]. В фолликулярных клетках щитовидной железы экспрессируются несколько селенопротеинов [13-15], среди которых два изоформа йодотиронин-5’-деодиназы (типы 1 и 2, DIO1 и DIO2), которые синтезируют активный тиреоидный гормон [12]; тиоредоксинредуктаза типа 1 [16]; селенопротеин P [16]; а также три изоформа глутатионпероксидазы, два из которых (GPX1 и GPX4) защищают фолликулярные клетки щитовидной железы от перекиси водорода, образующейся при действии тиреопероксидазы [12], а третий (GPX3) присутствует в просвете, где, вероятно, регулирует уровни перекиси водорода [17].

Известно, что физиология щитовидной железы тесно связана с окислительными процессами [18]: в ходе биосинтеза тиреоидных гормонов постоянно образуется значительное количество H2O2, что приводит к воздействию высоких концентраций H2O2 и ROS на фолликулярные клетки щитовидной железы [13]. Пероксидное повреждение уменьшает действие селен-ферментных систем, которые могут участвовать в регуляции синтеза гормонов [19]. Следует отметить, что количество H2O2, производимого в тироцитах, аналогично количеству, которое может быть произведено в активированных лейкоцитах [20]. Однако, если активированные лейкоциты живут лишь несколько часов, то жизнь зрелых человеческих тироцитов составляет почти семь лет [21]. Такая долгоживущая клетка требует очень эффективной антиоксидантной системы против избытка H2O2, что обеспечивается селенопротеинами, где GPX3 находится на передовой [20, 22, 23]. Концентрации селена внутри щитовидной железы критичны для активности GPXs, и нарушения в этом процессе, связанные с уменьшением концентраций селена, могут увеличивать окислительный стресс, что ведет к повреждениям фолликулярных клеток щитовидной железы. Эти повреждения в конечном итоге могут привести к гибели клеток и гипотиреозу.

Роль селена в физиологии щитовидной железы

Биосинтез тиреоидных гормонов щитовидной железы (ЩЖ) включает несколько основных шагов: 1) поглощение йодидов клетками ЩЖ и их транспорт через базальную мембрану в фолликулярные клетки; 2) окисление йодида и его органическое соединение с тиреоглобулином, образуя молекулярный йод; 3) синтез монойодтирозина (МИТ) и дийодтирозина (ДИТ), а затем образование Т4 и Т3; 4) высвобождение МИТ и ДИТ, а также Т3 и Т4 через протеолиз тиреоглобулина; 5) обратное дейодирование йодтиронинов с повторным использованием йодида для синтеза гормонов ЩЖ; 6) 5'-дейодирование Т4 с образованием Т3 [21,22].

В процессе синтеза гормонов щитовидной железы тиреоциты производят большое количество H2O2. Высокая концентрация этого вещества может нанести вред железе, вызывая разрушение клеток под воздействием активных форм кислорода (АФК). Для защиты от таких повреждений необходима активность антиоксидантных селенопротеинов, таких как GPX1, GPX3 и TXNRD1, которые регулируют редокс-состояние и предотвращают окислительный стресс [23]. Тиреопероксидаза (ТПО) катализирует реакцию окисления йодида с образованием активной формы йодида, который связывается с тирозильными остатками тиреоглобулина. Синтез H2O2, вероятно, осуществляется через НАДФ-оксидазу при наличии кальциевых ионов. Этот процесс активируется тиреотропным гормоном (ТТГ) и регулируется вторичными мессенджерами, ограничивая синтез гормонов, когда йод находится в достаточном количестве. Таким образом, H2O2, образующийся на поверхности тиреоцитов, используется для йодирования, а внутриклеточный H2O2 расщепляется с помощью антиоксидантных ферментов, таких как GPX, TR и каталаза [21,22].

В щитовидной железе находятся два типа дейодиназ — DI и DII. Экспрессия этих ферментов варьирует в разных тканях человека и животных, что затрудняет прямое сопоставление исследований. Эти ферменты играют важную роль в локальной активации гормонов ЩЖ. Согласно исследованиям, концентрация селена напрямую влияет на активность дейодиназ и, следовательно, на синтез Т3. Дейодиназы, вероятно, занимают важное место среди селенсодержащих ферментов в условиях дефицита селена, благодаря способности накапливать и перераспределять селен в щитовидной железе [7, 8, 11,12].

Роль селена в патологиях щитовидной железы: исследование взаимосвязи

Щитовидная железа является органом с наибольшим содержанием селена на единицу массы ткани, так как она активно экспрессирует селенсодержащие белки [14, 15, 16]. Концентрация этого микроэлемента в ткани варьируется от 0,2 до 2 мг/г. Несмотря на то, что достаточный уровень селена необходим для нормальной активности дейодиназ, его дефицит, как правило, не оказывает значительного влияния на синтез гормонов щитовидной железы. Однако, недостаток селена в пище может способствовать развитию различных заболеваний щитовидной железы.

Исследования показывают, что селен влияет на иммунную систему, регулируя продукцию активных форм кислорода и их метаболиты. У пациентов с аутоиммунным тиреоидитом (АИТ) и у беременных с антителами к тиреопероксидазе добавление селена в рацион помогает снизить уровень антител и улучшить ультразвуковые показатели. Включение селена в рацион также снижает риск послеродового тиреоидита и хронического гипотиреоза. При болезни Грейвса (БГ) правильное потребление селена способствует более быстрому восстановлению нормальной функции щитовидной железы и может оказывать положительное влияние на офтальмопатию [1, 3].

Влияние селена на аутоиммунный тиреоидит

Современные исследования показывают, что селен может оказывать благоприятное воздействие на лечение аутоиммунного тиреоидита (АИТ) [15], однако точный механизм его действия остается не до конца ясным. Например, одно из исследований, проведенное в Китае с участием 364 пациентов с высоким уровнем антител к тиреопероксидазе (ТПО), показало, что добавление 200 мкг селена в день к основной диете способствовало снижению титра антител на 10% через 3 месяца и на 10,7% через 6 месяцев. Пациенты, у которых был определен генотип SNP r25191g/a, показали разные результаты: у носителей генотипа AA уровень антител снизился на 46,2%, в то время как у носителей генотипов GA и GG снижение составило 14,5% и 9,8% соответственно.

Метаанализ 2016 года, основанный на 16 контролируемых исследованиях, показал, что включение селена в рацион приводит к значительному снижению уровней антител к ТПО и тиреоглобулину. Подобные результаты были получены и в метаанализе 2014 года, который объединил данные из 9 исследований. Некоторые исследования также показали, что добавление селена в лечение способствует восстановлению нормальной функции щитовидной железы у третьей части пациентов с субклиническим гипотиреозом и АИТ. Таким образом, селен значительно снижает титр антител к ТПО при АИТ, а также, возможно, играет роль в регуляции воспалительных процессов.

Некоторые авторы указывают на важность селеновых препаратов, особенно во время эпизодов воспаления. Исследования показали, что только у пациентов с уменьшением антител к ТПО менее чем на 50 мЕд/л наблюдалось улучшение ультразвуковых признаков АИТ. Важно отметить, что курение может снижать эффективность приема селена. В одном из исследований, после прекращения добавления селена, уровень антител к ТПО вернулся к первоначальному уровню через 3–6 месяцев, в то время как в другом исследовании антитела оставались стабильными.

Недавнее исследование также продемонстрировало связь между генетической вариабельностью гена селенопротеина S (SEPS1) и развитием АИТ. Исследование, проведенное на 1000 человек (481 пациент с АИТ и 516 контрольных лиц), показало, что наличие некоторых полиморфизмов в промоторной области гена SEPS1 увеличивает риск развития АИТ примерно

в два раза, что подтверждает роль селенопротеинов в патогенезе этого заболевания [17].

Болезнь Грейвса

На сегодняшний день существует мнение о значительной роли оксидативного стресса и защитных механизмов антиоксидантных систем в патогенезе болезни Грейвса (БГ). В рамках этих систем важными компонентами являются внутриклеточные антиоксидантные ферменты, такие как супероксиддисмутаза (SOD), глутатионредуктаза и GPX. GPX играет ключевую роль в разложении перекиси водорода (H_2O_2) и гидропероксидов липидов, производство которых увеличивается при БГ. Нарушения в функции селенсодержащих белков являются важным фактором в развитии аутоиммунных заболеваний щитовидной железы, а дефицит селена может способствовать их прогрессированию [6, 16].

Также проводилось исследование, в котором сравнивались уровни селена в плазме крови у пациентов с БГ в активной фазе заболевания, стадии ремиссии и при рецидиве болезни после прекращения терапии тиреостатиками. Несмотря на отсутствие значительных различий, в группе с ремиссией уровень селена был наибольшим (>120 мкг/л), при этом была зафиксирована отрицательная корреляция между антителами к рецептору ТТГ и уровнем селена в плазме. Эти данные подогрели интерес к так называемым аналогам селена, представляющим собой комбинацию тиреостатика и селена. Одним из таких препаратов является метилселеноимидазол, разработанный более 20 лет назад, но он оказался менее эффективным в отношении ингибирования йодирования in vivo по сравнению с метимазолом. Кроме того, литература сообщает, что при возникновении рецидива БГ добавление селена в рацион может повысить эффективность антитиреоидных препаратов [5].

По данным исследований в Дании, уровень селена в сыворотке крови пациентов с недавно установленным диагнозом БГ был ниже, чем у контрольной группы. Однако в группе с ремиссией заболевания содержание селена в сыворотке крови превышало 120 мкг/л, что указывает на положительную корреляцию [6, 7, 26].

Оксидативный стресс также играет важную роль при поражении других эндокринных желез, например, при развитии сахарного диабета 1 типа в рамках аутоиммунных полигландулярных синдромов. Селен, согласно некоторым исследованиям, оказывает влияние как на патогенез заболевания, так и на развитие его осложнений [12, 13]. Однако существуют противоречивые данные относительно сахарного диабета 2 типа и гестационного диабета. Некоторые авторы предполагают, что увеличение потребления селена может повышать риск инсулинорезистентности, в первую очередь за счет повышения активности GPX [9].

Эндокринная офтальмопатия

Согласно литературным данным, офтальмопатия Грейвса (ОГ) связана с дефицитом селена, который рассматривается как независимый фактор риска

развития заболевания [5, 14]. В рандомизированном двойном слепом плацебоконтролируемом исследовании, проведенном в Италии, было показано, что добавление селена к основному рациону пациентов с ОГ оказывает положительное влияние на клинические проявления заболевания, замедляя его прогрессирование и улучшая качество жизни [15,7, 3].

В одном из недавних исследований на австралийской популяции также наблюдалось, что уровень селена в сыворотке крови был ниже у пациентов с ОГ по сравнению с пациентами, имеющими только болезнь Грейвса без орбитопатии [8].

В другом исследовании было продемонстрировано, что селен оказывает положительный эффект на орбитальные фибробласты, подавляя окислительный стресс и повышая активность антиоксидантного фермента GPX. Этот процесс включал увеличение уровня провоспалительных цитокинов, таких как TNF-α и INF-γ, которые блокировались селеном, что подтверждает его антиоксидантные свойства [7].

Таким образом, результаты проведенных исследований свидетельствуют о том, что раннее добавление селена и его антиоксидантное воздействие могут замедлить прогрессирование ОГ или даже приостановить его развитие.

Зоб

Помимо важности селена в метаболизме гормонов щитовидной железы (ЩЖ), также исследуется его влияние на объем самой железы. У детей с зобом в регионах с дефицитом йода и селена, прием только препаратов йода не приводит к уменьшению объема зоба и не улучшает функции ЩЖ. Чем более выражен дефицит селена, тем меньшее влияние препараты йода оказывают на объем ЩЖ.

В исследовании SUVIMAX, проведенном во Франции, была установлена корреляция между объемом ЩЖ и уровнем селена в плазме, но эта связь была обнаружена только у женщин. До сих пор неясен молекулярный механизм, объясняющий большую чувствительность женщин к низкому потреблению селена по сравнению с мужчинами [7].

В исследовании Rasmussen и соавт. была выявлена взаимосвязь между поступлением селена в организм, объемом ЩЖ и образованием узлового зоба. Низкие концентрации селена в плазме крови коррелировали с риском образования множественных узлов размером более 10 мм, но не влияли на риск развития одиночных узлов. Похожие данные были получены в исследовании Samir и соавт., в котором низкие концентрации селена в плазме были обнаружены у 22 пациентов с многоузловым зобом, в отличие от контрольной группы из 15 человек. Однако в исследовании Derumeaux и соавт. не была найдена взаимосвязь между дефицитом селена и высоким риском развития узлового зоба [7].

Заключение

Селен является важным микроэлементом, играющим ключевую роль в антиоксидантной защите, метаболизме гормонов щитовидной железы и

иммунной функции. Рассмотренные исследования подтвердили преимущества применения селена в лечении аутоиммунных заболеваний щитовидной железы. При хроническом аутоиммунном тиреоидите селен способствует снижению уровня антител к тиреопероксидазе и уменьшению воспалительных процессов, улучшая морфологические показатели заболевания. В случае болезни Грейвса добавление селена ускоряет достижение эутиреоза при терапии тиреостатическими препаратами и оказывает положительное влияние на течение легкой и умеренной офтальмопатии. Однако вопрос о роли селена в лечении заболеваний щитовидной железы остается недостаточно изученным. Концентрация селена в плазме крови не отражает его внутритиреоидных уровней, что ограничивает использование анализа селена в рутинной практике. Более того, длительное применение селена у людей с нормальным уровнем этого микроэлемента может повышать риск развития сахарного диабета 2 типа, периферических сосудистых заболеваний и общей смертности. Для окончательного понимания эффективности и безопасности применения селена требуется проведение дальнейших исследований, направленных на уточнение дозировок, механизмов действия и поиска надежных маркеров, характеризующих оксидативный стресс и внутритиреоидное содержание селена. Несмотря на выявленные преимущества, длительная и бесконтрольная селеновая терапия не должна рассматриваться как безопасный метод профилактики и лечения, особенно у пациентов с нормальным или высоким уровнем этого микроэлемента.

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ЭМОЦИОНАЛЬНАЯ ПРИВЛЕКАТЕЛЬНОСТЬ КОРЕЙСКИХ ДОРАМ В РОССИИ: МЕХАНИЗМЫ ВОЗДЕЙСТВИЯ НА ОТЕЧЕСТВЕННУЮ АУДИТОРИЮ И ОТЛИЧИЯ ОТ ЗАПАДНЫХ СЕРИАЛОВ

Аннотация: *Статья анализирует популярность корейских дорам в России, рассматривая вовлеченность, эстетику, культурные особенности и повествование. Уделяется внимание влиянию закрытия западных сервисов на рост интереса. Проведен сравнительный анализ дорам и западных сериалов по сюжетам, глубине и взаимодействию, а также данные о зрителях.*

Ключевые слова: *Влияние на аудиторию, K-drama, популярность в России, медиапотребление.*

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EMOTIONAL APPEAL OF KOREAN DRAMAS IN RUSSIA: MECHANISMS OF INFLUENCE ON THE DOMESTIC AUDIENCE AND DIFFERENCES FROM WESTERN SERIES

Abstract: *The article analyzes the popularity of Korean dramas in Russia, examining engagement, aesthetics, cultural aspects, and storytelling. It highlights the impact of Western streaming service closures on the growing interest in K-dramas. A comparative analysis of Korean and Western series is conducted in terms of plot structures, depth, audience interaction, and viewership data.*

Keywords: *Audience influence, K-drama, popularity in Russia, media consumption.*

Корейские дорамы (K-дорамы) за последние годы стали важной частью мирового телевидения, привлекая миллионы зрителей по всему миру, включая Россию. Популярность корейских сериалов среди российских зрителей можно объяснить их эмоциональной глубиной, уникальными сюжетными структурами, визуальной эстетикой и культурными особенностями. В данной статье рассматриваются механизмы воздействия K-дорам на российскую аудиторию, а также проводится сравнительный анализ их отличий от западных сериалов.

Механизмы воздействия на российскую аудиторию

1. Эмоциональная вовлеченность и универсальные темы

Один из ключевых факторов, способствующих популярности корейских дорам в России, заключается в их эмоциональном воздействии. Корейские

сериалы мастерски балансируют между комедийными, драматическими и романтическими моментами, создавая глубокую эмоциональную вовлеченность зрителей. По данным платформы «Кинопоиск», 72% российских зрителей, регулярно смотрящих К-дорамы, отмечают их сильное эмоциональное влияние.

Темы, поднимаемые в корейских дорамах, такие как любовь, дружба, семейные ценности, социальное неравенство и самореализация, находят отклик у российских зрителей. Например, дорама «Потомки солнца» (2016) затрагивает тему самоотверженной любви и долга перед страной, а «Итэвон Класс» (2020) показывает борьбу за справедливость и достижение мечты. Многие зрители отмечают, что такие истории находят эмоциональный отклик, так как отражают личные переживания, мечты и стремления.

Кроме того, корейские сериалы уделяют внимание глубокой психологической проработке персонажей. Их внутренние конфликты и трансформации позволяют зрителям лучше понимать героев, ощущая с ними тесную эмоциональную связь. Сюжетные линии часто включают элементы саморазвития, социальной адаптации и преодоления трудностей, что делает их особенно близкими зрителям.

Дорама «Итэвон Класс»

2. Визуальная эстетика и кинематографичность

Визуальная составляющая корейских дорам также играет значительную роль в их популярности. В отличие от многих западных сериалов, К-дорамы часто обладают уникальным визуальным стилем: тщательно подобранными цветовыми палитрами, кинематографичной операторской работой и стильными костюмами. Корейская индустрия развлечений уделяет большое внимание эстетике кадра, что привлекает зрителей, ценящих качественную картинку.

Музыкальное сопровождение также является важной частью воздействия: каждая дорама включает оригинальные саундтреки, которые усиливают эмоциональный эффект и создают запоминающуюся атмосферу. Многие российские зрители после просмотра дорам начинают активно слушать корейскую музыку и интересоваться культурой этой страны. Визуальный стиль, основанный на использовании крупных планов и мягкого

освещения, создает ощущение интимности между персонажами, усиливая погружение в историю.

3. Культурные особенности и привлекательность Азии

Популярность корейских дорам в России во многом связана с общим интересом к азиатской культуре. В последние годы растет популярность корейской музыки (K-pop), моды и кухни. По данным ВКонтакте, количество сообществ, посвященных корейским сериалам, выросло на 200% за последние три года.

Кроме того, в корейских сериалах часто затрагиваются темы, близкие российской культуре: уважение к родителям, семейные традиции, важность образования и социального статуса. Многие зрители находят сходства между корейским и российским менталитетом, особенно в отношении традиционных семейных ценностей и уважения к старшему поколению. Важно также отметить, что корейские сериалы демонстрируют жизнь молодежи и их взаимодействие с обществом, что делает их особенно популярными среди молодых зрителей.

4. Формат и удобство просмотра

В отличие от западных сериалов, где сюжетная линия может растягиваться на несколько сезонов, большинство корейских дорам состоят из 16-20 эпизодов. Этот формат удобен для просмотра, так как зрители могут быстро получить завершенную историю без необходимости ждать продолжения в течение нескольких лет.

Дополнительно стоит отметить, что российская аудитория ценит отсутствие чрезмерного насилия и обилия откровенных сцен в K-дорамах, что делает их подходящими для семейного просмотра. Многие родители предпочитают, чтобы их дети смотрели именно корейские сериалы из-за их нравственного посыла и моральных ценностей. Кроме того, отсутствие коммерческой необходимости растягивать сюжет приводит к более динамичному развитию событий и более насыщенному содержанию каждой серии.

Влияние закрытия западных сервисов на популярность корейского контента

После закрытия множества западных стриминговых сервисов и введения санкционных ограничений на лицензионный контент, российские зрители начали искать альтернативные источники качественного видеоконтента. Корейские дорамы стали одним из главных бенефициаров этой ситуации.

Сложности с доступом к голливудским сериалам и фильмам привели к резкому росту интереса к азиатскому контенту. Российские онлайн-кинотеатры стали активно закупать корейские сериалы, что привело к их увеличенной доступности на популярных отечественных платформах. По данным «Кинопоиска», в 2023 году количество просмотров корейских дорам выросло на 58% по сравнению с 2021 годом.

Кроме того, корейские дорамы смогли частично заменить западные сериалы в некоторых жанрах, таких как драмы, романтические истории и триллеры. Например, такой сериал «Игра в кальмара», стал одними из самых просматриваемых шоу среди российских зрителей, заняв место популярных американских проектов.

Дорама «Игра в кальмара»

Заключение

Популярность корейских дорам в России объясняется их эмоциональной насыщенностью, удобным форматом, эстетической привлекательностью и близостью поднимаемых тем к российской культуре. Они отличаются от западных сериалов не только визуальным стилем, но и повествовательными особенностями, более глубоким подходом к развитию персонажей и эмоциям.

Согласно последним исследованиям, интерес к корейским сериалам в России продолжает расти, и, вероятно, в будущем их влияние на российский рынок телевидения будет только усиливаться.

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СПЕЦИФИКА И ЗНАЧЕНИЕ ПРОФЕССИОНАЛЬНОГО РАЗВИТИЯ И ОБУЧЕНИЯ ПЕРСОНАЛА

Аннотация: *Наиболее важную роль в достижении организацией своих стратегических целей: по мере того, как изменяются деятельность и структура организации, требуется постоянный контроль за моделями производственного поведения персонала. В данной статье рассмотрено значение профессионального развития персонала, цели и задачи.*

Ключевые слова: *развитие персонала, обучение, квалификационная подготовка, знания, умения, навыки, профессиональный рост.*

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SPECIFICS AND IMPORTANCE OF PROFESSIONAL DEVELOPMENT AND STAFF TRAINING

Annotation: *The most important role in the organization's achievement of its strategic goals: as the activities and structure of the organization change, constant monitoring of the production behavior patterns of personnel is required. This article discusses the importance of professional development of personnel, goals and objectives.*

Keywords: *personnel development, training, qualifications, knowledge, abilities, skills, professional growth.*

Развитие человеческих ресурсов представляет собой систему обучения, организационного развития и профессионального роста персонала, функционирование которой направлено на решение текущих и стратегических задач компании путем достижения более высокой индивидуальной и организационной эффективности.

Сущность развития персонала заключается в обеспечении организации хорошо подготовленными работниками в соответствии с ее целями и стратегией развития.

Основная цель развития персонала – обеспечение организации хорошо информированными и мотивированными работниками в соответствии со стратегией и целями организации, способными обеспечить, в свою очередь, решение задач, поставленных перед предприятием.

Из цели вытекают следующие задачи развития персонала:

- обеспечение организации быстро обучающимся и легко адаптирующимся персоналом для решения текущих и перспективных задач;

- раскрытие потенциала работников, выявление потенциальных руководителей;

- формирование команды, решающей корпоративные задачи;

– поддержание баланса интересов организации и отдельных индивидуумов,

входящих в команду и стремящихся к самореализации, удовлетворению своих потребностей, желающих, работая в команде, сохранить свою индивидуальность;

- обеспечение сознательной управляемости персонала;

- формирование принципов внутрифирменных отношений.

Другими словами, развитие человеческих ресурсов - целенаправленная область деятельности, ориентированная на создание наиболее эффективной системы развития сотрудников с точки зрения их вклада в развитие компании.

Для обеспечения конкурентоспособности организации решающую роль играет развитие персонала, обеспечивающее широкую эрудицию, высокую культуру, стратегическое мышление и предприимчивость.

Многие авторы часто используют термины «профессиональное обучение» и «развитие персонала» как синонимы.

Однако эти понятия нужно отличать, поскольку развитие персонала представляет из себя обширный процесс, который состоит из различного рода мероприятий, направленных на прогресс и увеличение эффективности трудового потенциала, в том числе и обучения.

Развитие персонала – это ведущий путь получения профессионального образования, на основе чего будет возможным результативное функционирование и также развитие организации.

Кибанов А. Я. рассматривает развитие персонала как комплекс организационно-экономических мероприятий в сфере обучения персонала, его подготовки, переподготовки и повышения квалификации[).

Эти мероприятия заключают в себе проблемы профессиональной адаптации, оценки кандидатов на свободную должность, нынешней оценки кадров, проектирования карьеры, личностного роста и профессионального продвижения кадров, работы с кадровым запасом.

По мнению Веснина В. Р. развитие персонала – это комплекс организационно-экономических мероприятий в сфере обучения работников, повышения квалификации и профессиональной компетентности персонала.

Можно сказать, что под развитием персонала понимается проведение многообразных мероприятий, способствующих полноценному раскрытию

потенциала сотрудников, их личностному росту и развитию их шансов вносить свой вклад в деятельность организации.

Итак, можно дать определение, что развитие персонала – это комплекс различных мероприятий, которое охватывает как стадии подготовки и переподготовки кадров, так и стадии повышения квалификации и профессионального роста мастерства людей различных возрастных категорий с разным опытом работы[31].

Все элементы объединяются в единую систему, направленную на решение широкого спектра задач. По мере реализации обучающих и [32]оценочных мероприятий сотрудники приобретают навыки самообучения, самомотивации, самоуправления и достижения консенсуса в группе, осознают роль качества, мобильности и гибкости в работе, повышают свою деловую активность и производительность, учатся самостоятельно принимать решения, изучают основы предпринимательского мышления, ориентируются на профессиональный и карьерный рост.

Развитие персонала формируется под воздействием факторов, влияющих на важность и необходимость развития персонала, и обладает следующими основными принципами:

– целостность системы развития, преемственность различных видов и форм развития персонала;

– опережающий характер обучения и развития на основе прогноза научно-технического развития и условий развития организации;

– гибкость различных форм развития, возможность их использования на отдельных этапах развития;

– профессиональное и социальное стимулирование развития человеческих ресурсов;

– построение системы развития персонала с учетом конкретных возможностей организации, социально-экономических условий его функционирования.

С точки зрения Егоршина В. П., развитие персонала представляет собой «комплекс организационно-экономических мероприятий в сфере обучения работников, повышения квалификации и профессиональной компетентности персонала, мотивации к творчеству»[].

Турчинов А. И. выделяет «профессиональное развитие как процесс изменения качеств личности как субъекта профессионального труда, результат повышения профессионализма и специального образования, профессионального совершенствования и самоопределения работника».

Профессиональное развитие персонала – это подготовка персонала организации к выполнению трудовых функций, построению карьеры,

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[31] Маслова В.М. Технологии обучения и развития персонала в организации: Учебник / под ред. М.В. Полевой. — М.: Вузовский учебник: ИНФРА-М, 2017. — 256 с.

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решению новых задач, направленных на стремление к соответствию между требованиями к работнику и его потенциальными качествами. Оно требует значительных усилий со стороны людей и должно вызывать желание и заинтересованность с их стороны).

Потребность персонала в профессиональном развитии связана с необходимостью адаптации к изменениям во внешней среде, инновациями в техническом и технологическом оснащении, стратегией организации и последующими преобразованиями в ее структуре.

Сравнение факторов изменения свойств личности, которым способствуют развитие персонала и его профессиональное развитие, приведено в таблице 1.

Таблица 1 - Сравнение результатов развития персонала и профессионального развития персонала

Развитие персонала способствует	Профессиональное развитие способствует
1) Повышению интеллекта.	1) Формированию творческого потенциала персонала, повышению интеллектуального и преумножению человеческого капитала, развитию системного и стратегического мышления.
2) Раскрытию креативного потенциала сотрудника.	2) Предоставлению работникам объективно равных возможностей получения высокого вознаграждения и карьерного роста.
3) Снижению текучести кадрового состава.	3) Снижению текучести персонала.
4) Повышению качества труда.	4) Повышению качества осуществления трудовой деятельности.
5) Сохранению работоспособности.	5) Закреплению ценностей в организации.
6) Адаптация сотрудников к новым условиям.	6) Обеспечению делегированию полномочий и готовности к преобразованиям.
7) Улучшение морально-психологического климата.	

Профессиональное развитие как комплексный и структурный процесс предполагает объединение следующих направлений:[33]

- общее и профессиональное обучение (приобретение знаний, навыков и опыта);
- повышение квалификации (совершенствование профессиональных знаний и навыков);
- переквалификация (получение дополнительного образования).

Профессиональное развитие должно быть направлено на:

[33] Организация системы обучения персонала — [Электронный ресурс]: https://works.doklad.ru/view/UKYXFWsYMqg/4.html

- совершенствование личностных и профессиональных компетенций работников;
- поддержание мотивации работников к труду и обучению;
- распространение профессиональных знаний и передового опыта в среде

организации;

- обучение молодых специалистов;
- осознание управленческим составом организации значимости профессионального развития персонала;
- делегирование полномочий;
- работу с кадровым резервом;
- снижение текучести кадров;
- планирование и развитие карьеры.

Процесс профессионального обучения (непосредственной передачи новых профессиональных знаний и навыков) личности может происходить:

- при приеме на работу;
- при изменении должности;
- при повышении квалификации.

В основу периодизации профессионального развития заложен упрощенный вариант концепции стадий профессионального становления личности, разработанный Зеером Э.Ф. Переход от одной стадии профессионального развития к другой осуществляется посредством смены социальной ситуации развития и ведущей деятельности индивида.

Необходимо выделить следующие стадии профессионального развития персонала, рассмотренные в таблице 2.

Таблица 2 - Основные стадии профессионального развития

Стадия	Характеристики стадии (основные новообразования стадии)
Профессиональная адаптация	Освоение новой социальной роли, приобретение опыта самостоятельного выполнения профессиональной деятельности, профессионально важные качества
Первичная профессионализация	Профессиональная позиция, интегративные профессионально значимые качества, индивидуальный стиль деятельности, квалифицированный труд
Вторичная профессионализация	Профессиональный менталитет, ключевые компетенции, профессиональная мобильность, гибкий стиль деятельности, высококвалифицированная профессиональная деятельность
Профессиональное мастерство	Творческая профессиональная деятельность, самопроектирование своей деятельности и карьеры, вершина профессионального развития

Знание сущности и характеристик стадий профессионального развития [34]персонала организации является важнейшим инструментом для разработки и формирования кадровой политики и стратегии предприятия

В широком смысле слова «обучение персонала» - это совокупность действий, вырабатываемых в рамках единой компетенции обучения организации и ориентированных на систематическое обучение персонала, развитие профессиональных знаний, умений и навыков сотрудников с учетом целей соответствующих подразделений, которые в свою очередь определяются стратегией компании.

Цели обучения с точки зрения работодателя:

– организация и формирование персонала управления;

– овладение умением определять, понимать и решать проблемы;

– воспроизводство персонала;

– адаптация;

– гибкое формирование персонала;

– интеграция персонала;

– внедрение нововведений.

Работодатель заинтересован только в тех навыках, которые позволяют персоналу эффективно действовать. Именно поэтому работодатель часто критически относится к фактам приобретения знаний, если он не видит, как эти знания влияют на процесс результат деятельности.

Цели обучения с позиции работника:

- поддержание на соответствующем уровне и повышение профессиональной квалификации;
- приобретение профессиональных знаний вне сферы профессиональной деятельности;
- развитие способностей в области планирования и организации производства.

Результаты развития и обучения для работника:[35]

- гарантия сохранения рабочего места;
- приобретение новых знаний, умений, навыков, раскрытие способностей;
- расширение возможностей профессионального и карьерного роста;
- повышение самооценки и уверенности в себе;
- увеличение собственной стоимости как работника на рынке труда.

Результаты развития и обучения персонала для организации:

- повышение производительности и качества труда, а следовательно, доходов организации;

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[34] Теоретические основы обучения персонала. Понятие и особенности обучения персонала — [Электронный ресурс]: Режим доступа:https://studbooks.net/1411669/menedzhment/teoreticheskie_osnovy_obucheniya_personala

[35] Причины необходимости обучения персонала — [Электронный ресурс]: Режим доступа: https://leaderteam.ru/obuchenie-personala/celi

- увеличение вклада каждого сотрудника в достижение целей организации;
- повышение мотивации труда сотрудников;
- положительное влияние на трудовую дисциплину;
- улучшение морально-психологического климата в коллективе;
- сокращение периода адаптации;
- сокращение текучести кадров.

Обучение персонала имеет три основных направления:

– базовая подготовка носит многофункциональный характер и заключается в изучении теоретических курсов в образовательной организации.

– квалификационная подготовка имеет целью периодическое повышение квалификации работников, при котором пополняются ранее приобретенные знания и происходит знакомство с новейшими достижениями в сферах, представляющих профессиональный интерес для руководителей соответствующего уровня;

- должностная подготовка является продолжением базовой и носит конкретный характер, вводя работника в новый круг обязанностей.

В применении к конкретному сотруднику обучение персонала – целенаправленный, организованный, планомерно и систематически осуществляемый процесс овладения под руководством руководителей, и наставников знаниями, умениями, навыками, необходимыми работнику для исполнения его должностных обязанностей.

К основным понятиям, составляющим предмет обучения работников, Базаров Т.Ю и Еремин Б.Л. относят:

- знания – получение теоретических, методических и практических знаний, необходимых работнику для выполнения своих обязанностей на рабочем месте;
- умения – способность выполнять обязанности, закрепленные за работником

на конкретном рабочем месте;

- навыки – высокая степень умения применять полученные знания на практике,

– способы общения (поведения), форма жизнедеятельности личности – совокупность действий и поступков индивида в процессе общения с окружающей действительностью, выработка характера поведения, соответствующего требованиям, предъявляемым рабочим местом, социальные отношения, коммуникабельность).[36]

В ходе обучения формируются компетенции, то есть способность применять знания, умения и навыки.

[36] Современные виды и методы обучения персонала: обзор основных технологий и принципов — [Электронный ресурс]: Режим доступа: https://www.ispring.ru/elearning-insights/metody-obucheniya-personala

Профессиональное обучение персонала – это вид управленческой деятельности, направленный на формирование компетенций, знаний, умений и навыков работников, позволяющих реализовать стратегию развития организации.

В профессиональное обучение входят:[37]

– планирование и развитие карьеры (профессиональный рост);

– планирование и подготовка резервов руководителей;

– развитие молодых сотрудников с лидерским потенциалом;

– организационное развитие.

Таким образом, профессиональное развитие оказывает положительное влияние и на самих сотрудников. Повышая квалификацию и приобретая новые навыки и знания, они становятся более конкурентоспособными на рынке труда и получают дополнительные возможности для профессионального роста как внутри своей организации, так и вне нее.

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СОВРЕМЕННЫЕ МЕТОДЫ ПОДБОРА ПЕРСОНАЛА

Аннотация:*В данной статье рассматривается основные методы работы поиска персонала, для более продуктивной работы компании. Авторы подчеркивают важность каждого метода и оценку их проведения с целью выявления наиболее эффективных для использования компанией.*

Ключевые слова: *методы, подбор персонала, методы, рекрутинг, прямой поиск, прелиминаринг, хэндхайтинг, эксклюзивный поиск, найм.*

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MODERN METHODS OF PERSONNEL SELECTION

Annotation*: This article discusses the basic methods of personnel search for more productive work of the company. The authors emphasize the importance of each method and the evaluation of their implementation in order to identify the most effective for the company.*

Keyword: *recruitmen, methods, recruiting, direct search, prelimining, handhiting, exclusive search.*

В каждой компании существуют свои методы отбора персонала, которые характерны именно для этой компании. Определить, какие методы являются более успешными, трудно, так как, каждый специалист HR службы на основе, знаний и навыков выбирает наиболее выгодный метод отбора персонала, позволяющий отобрать высококвалифицированные кадры.

Существует несколько методов подбора персонала, основные это[38]:

– рекрутинг;
– эксклюзивный поиск (Exclusive search);
– head hunting;
– прелиминаринг.

Методы подбора персонала. Рассмотрим каждый из них более подробно в таблице 1.

1. [38] Веснин, В.Р. Управление персоналом в схемах: Учебное пособие / В.Р. Веснин. - М.: Проспект, 2015. - 96 с

Таблица 1 - Методы подбора персонала

Метод	Пояснение
Рекрутинг	бзнес-процесс, по отбору и подбору специалиста, для компании заказчика. Этот процесс требует более значительных затрат чем реклама в СМИ, или на сайтах в интернете. При поиске персонала через рекрутинговое агентство, заказчик имеет массу преимуществ, экономия времени, бесплатная замена сотрудника. Задачи рекрутингового агентства делятся на две группы: — первая группа-это список требований, которые необходимы самому клиенту — вторая группа-это те задачи и требования необходимые компании. Эксклюзивный поиск- это целенаправленный подход, для поиска специалистов, претендующих на должность в управленческом звене организации. Также применяется для поиска кадров, которые будут иметь ключевое воздействие на бизнес и реализовывать стратегии по его развитию.
Head hunting	это разновидность прямого поиска, которая подразумевает под собой, поиск конкретного специалиста, и переманивание его в другую компанию. Это очень сложный метод применяется лишь в случае, если в компании нет определенного специалиста, который мог бы выполнять определенную работу и нести ответственность за нее. Это очень дорогой метод поиска персонала.
Прелиминаринг	привлечение к работе выпускников вузов под средством производственной практики. Этот метод является очень трудоемким, так как к работе приступает, новичок, которому необходима

	адаптация. Благодаря преминарингу происходит омоложение штата, и высока вероятность того, что компания может выйти на новый уровень

Если говорить о методах и источниках поиска персонала[39], стоит отметить, что какие-то из них применяются только прямыми работодателями (в силу определенных ограничений), а какие-то чаще используются кадровыми агентствами. Данная информация представлена в таблице 2.[40]

Метод	Пояснение
Целевая подготовка в ВУЗах	компания «растит» будущий персонал, предлагая трудоустройство после прохождения целевой подготовки
Центры занятости	привлечение молодых специалистов на период производственной практики с последующим трудоустройством, особенно актуально для
Кадровый резерв	выдвижение на открывшуюся вакансию кандидата из числа сотрудников организации
Ярмарки вакансий	наиболее интересны отраслевые, хорошая возможность сделать презентацию компании и собрать контакты заинтересованных в работе кандидатов
Размещение объявлений о вакансиях недалеко от организации	один из «партизанских» методов, хорошо работает для розничной торговли и рабочих, производственных специальностей
Размещение объявлений о вакансиях в непрофильных печатных изданиях	позволяет выйти на кандидатов, не открытых в настоящий момент рынку[41]

[39] Методы подбора персонала — [Электронный ресурс]: Режим доступа: https://www.im-konsalting.ru/blog/sovremennye-texnologii-poiska-ipodbora-personala

[40] Методы отбора специалистов — [Электронный ресурс]: Режим доступа: https://www.buhgalteria.ru/news/sovremennyetekhnologii-podbora-personala.html

[41] Официальный сайт HeadHunter Чита — [Электронный ресурс]: Режим доступа: https://chita.hh.ru/

Для поиска кандидатов на сегодняшний день существет множество ресурсов, где можно рассмотреть резюме, задать необходимые вопросы и пригласить кандидата на должность к вам в офис для проведения собеседования. Существуют такие сайты, как:

- HeadHunter – крупнейшая российская компания интернет-рекрутмента, развивающая бизнес в России, Белоруссии, Казахстане ;

- Авито – российский интернет-сервис для размещения объявлений о товарах, недвижимости, вакансиях и резюме на рынке труда, а также услугах от частных лиц и компаний, продажи бытовой техники, электроники, одежды, занимающий первое место в мире среди классифайдов[42];

- Superjob – лидер рынка онлайн-рекрутмента России. IT-компания, которая 23 года успешно создает технологии для подбора персонала и поиска работы. Развивают сервисы Superjob на всех платформах и ведут секретные разработки в области искусственного интеллекта; [43]

- «Работа. Ру» – сервис, предоставляющий услуги по подбору персонала и поиску работы, являющийся третьим по величине в России. По данным портала, ежедневно на нём присутствует порядка 250 тыс. вакансий, 16 млн резюме;

- «FarPost Проверено» – проект сайта FarPost.ru в сфере услуг. [44]Проверяют мастеров, предоставляющих услуги, и размещают объявления со специальной пометкой. Добросовестные мастера получают больше работы, заказчики выбирают среди ответственных исполнителей;

- Интернет-сервис Хантфлоу (англ. Huntflow) от одноимённой компании относится к классам систем управления персоналом (Human Resource Management Systems, HRM) и систем подбора персонала (Recruitment Management Systems). Программа предназначена для профессиональных рекрутеров;

- Онлайн-сервис Friendwork для автоматизации подбора персонала, который делает рекрутинг удобным, избавляет рекрутеров от рутинной работы, систематизирует и анализирует их деятельность, дает руководству контроль над подбором персонала и экономит деньги компании8 и другие. Система данных сайтов за несколько секунд сформирует список специалистов согласно заданным параметрам поиска.

В параметрах можно указать возраст кандидатов, город проживание, наличие образования и опыта работы, и много другое. Также можно использовать рекомендации бизнеспартнеров. Они могут предложить вам соискателей, не подошедших им по каким-либо параметрам, но возможно именно вам они подойдут. В современных условиях существуют методы

[42] Официальный сайт Авито, где представлены резюме кандидатов — [Электронный ресурс]: Режим доступа: https://www.avito.ru/chita/rezume

[43] Официальный сайт Superjob — [Электронный ресурс]: Режим доступа: https://chita.superjob.ru/resume/

[44] Официальный сайт в Чите Работа.ру — [Электронный ресурс]: Режим доступа: https://chita.rabota.ru/

«переманивания» специалистов из других организаций либо набор студентов на стажировку.

После рассмотрения методов отбора и подбора персонала стоит отметить, что нет эффективных и неэффективных методов - есть подходящие и не подходящие конкретной компании, должности и ситуации. Поэтому для формирования более качественной и гибкой системы кадрового состава каждая НЯ-служба может выбрать средства и методы, которые отвечают целям и интересам компании. Обычно процесс подбора включает в себя комплекс методов, зависящих от вакансии и ситуации на рынке труда. Именно в этом и заключается талант рекрутера - использовать именно те методы, которые будут хороши в свое время и на своем месте.

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ИСЧЕРПАНИЕ ЛИМИТИРУЮЩЕГО СТРАТЕГИЧЕСКОГО РЕСУРСА ЭКСТРААРИДНЫХ РЕГИОНОВ – ФАКТОР ОПУСТЫНИВАНИЯ

Аннотация. *Пустынные, полупустынные и степные экосистемы формируются и развиваются в условиях засушливого (аридного) климата. Они распределены по Земле в северном и южном полушариях как в широтном, так и в меридиональном планах. Продуктивность их биомов варьирует от ничтожной (<0,5 т/га) до значимой (~10 т/га, а местами и большей). Однако, несмотря на дискомфорт в пределах этих экосистем, социумы издревле расселялись в них, адаптировались и осваивали доступные для их технологического уровня ресурсы. Ныне – это уже не только биоресурсы, но и минерально-сырьевые, и что существенно – их территории осваиваются под инфраструктуру региональных и над региональными экономиками.*

Ценность рассматриваемых экосистем на современном этапе развития определяется не только их биологической продуктивностью, но и тем, что они уже составляют среду обитания не только малочисленных социумов, а и крупных и главное – ими занято по оценкам специализированных международных организаций около 60% территории суши.

Ключевые слова*: водные ресурсы, водообразование, экстрааридные регионы, опустынивание, экологическое последствие.*

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EXHAUSTING THE LIMITING STRATEGIC RESOURCE OF EXTRA-ARID REGIONS IS A FACTOR OF DESERTIFICATION

Abstract. *Desert, semi-desert and steppe ecosystems are formed and developed in arid climates. They are distributed across the Earth in the northern and southern hemispheres both latitudinal and meridional. The productivity of their biomes varies from negligible (<0,5 t/ hectare) to significant (~10 t/hectare, and in some places even more). However, despite the discomfort within these ecosystems, societies have settled in them since ancient times, adapted and developed resources available to their technological level. Nowadays, these are not only bioresources, but also mineral resources, and what is important is that their territories are being developed for the infrastructure of regional and supra-regional economies. The value of the ecosystems under consideration at the current stage of development is determined not only by their biological productivity, but also by the fact that they already constitute the habitat not only of small societies, but also of large ones, and most importantly, according to estimates by specialized international organizations, they occupy about 60% of the land area.*

Key words*: water resources, water formation, extra-arid regions, desertification, environmental consequences.*

Введение. В бассейне р. Амударьи водообразование происходит в верхнем течении, где главная река и все её притоки являются приёмниками склонового стока и дренируют подземные воды. Объёмы водообразования характеризуют данные таблицы 1 [5].

Основная часть. В естественной структуре бассейна р. Амударья в среднем течении протекала транзитом, а в нижнем – её сток рассеивался, или питал озёра, как например, Аральское море, из которых затем также

рассеивался (испарялся), естественный режим речного стока, как-то сохранился в высокогорьях и отчасти в среднегорьях, а он известен в гидрологии как «Тянь-Шанский тип» [6] его характерная черта – это половодье в весенне-летний период, когда по р. Амударья в начале среднего течения протекало до ~ 77,5% от годового стока, а в межень – осенне-зимний период – около 22,5% [6].

Таблица 1.

Водные ресурсы р. Амударьи в зоне формирования (км^3/год)

№ п/п	Название реки (створ)	Коэффициент вариации (C_v) стока	Норма стока (или водные ресурсы 50% обеспеченности)	Водные ресурсы 50% обеспеченности
1	Сток рек верхнего течения Амударьи	0,14	65,9 (65,4)	54,4
1.1	В том числе Пяндж (Нижний Пяндж)	0,12	33,1 (32,9)	28,1
1.2	Вахш (Туткаул)	0,14	19,9 (19,9)	16,4
1.3	Кундуз (Аскархона)	0,23	3,5 (3,42)	2,50
1.4	Кафирниган	0,19	5,51 (5,41)	4,19
1.5	Сурхандарья	0,19	3,67 (3,60)	2,80
1.6	Шерабад	0,32	0,22 (0,22)	0,14
2	Сток рек Юго-Западного Узбекистана		6,55 (6,48)	5,17
2.1	В том числе Зарафшан	0,15	5,28 (5,24)	4,30
2.2	Кашкадарья	0,26	1,27 (1,24)	1,35
3	Сток рекТуркменистана		2,77 (2,60)	1,35
3.1	В том числе Мургаб	0,29	1,54 (1,50)	1,0
3.2	Теджен	0,58	0,96 (0,86)	0,35
Итого по Большому Амударьинскому бассейну (без бесприточных рек Северного Афганистана			75,2 (74,6)	60,9

Социально-экономическое развитие в бассейне после второй мировой **войны** шло в направлении полного освоения оросительной способности р. Амударьи (~ 4,3 млн. га). Для этого велось регулирование речного стока. По

Амударье были достигнуты показатели регулирования стока в пределах 80-85% при его норме 75±4 км^3/год, а гарантированная водоотдача в год 90% обеспеченности в среднем течении не превышала 60 ± 64 км^3.

Комплексные гидротехнические сооружения предназначались и для использования гидроэнергетического потенциала (табл. **2).** Экономически доступная часть гидроэлектропотенциала составляет ныне около четверти его величины (около 330 гВт.ч.), а освоено пока около 5% [1]. В перспективе при ожидаемом росте цен на энергоресурсы экономически доступный сравняется с технически реализуемой частью гидроэнергопотенциала; а это уже удвоение его величины. При нынешних ценах на электроэнергию в бассейне её годовая выработка может оцениваться в 5 млрд. долл. США.

Экологические последствия хозяйственного освоения водных ресурсов оценивают ныне как негативные (табл. 3**)**, а их главный результат заключается в деструкции Аральского моря. Но экономические последствия – это практически 2-3 кратное увеличение фонда орошаемых земель. В условиях демографического взрыва XX века социально-экологические последствия **наращивания** орошения, очевидно, нельзя однозначно оценивать также как негатив [2].

Таблица 2.

Водно-энергетические показатели водохранилищ бассейна р. Амударьи [1, 4, 5]

Водохранилища	***Водные ресурсы в привязке к створу (км^3)***		Параметры водохранилищ (км^3)		***ГЭС***		*Смета стоимости (в ценах 1969 г.) млн. руб*
	Норма стока	90% обеспеченности	Полный объём	Полезный ***объём***	Установленной мощности, тыс. кВт	***Выработка эл. эн., кВт. ч***	
Бассейн р. Амударьи			*31,2*				
Нурекское (1975)	*19,9*	*16,4*	*10,5*	*4,5*	*2700*	*1,2*	*795,0*

Тюямуюнское 1985)	*69,2*	*57,0*	*7,3*	*5,1*	*150*	*,7*	*320*
Водохранилища на малых реках (притоках)			*1,6*	*1,42*	*–*		*112,0*
Рогунское (строится)	*19,0*	*16,0*	*7,3*	*8,6*	*3600*	*2,5*	*1100*

Таблица 3.

Основные показатели водохозяйственного баланса р. Амударья (площади – тыс. га., объём воды – км³/в год) [3]

№ п/п	Показатели	Уровень[x)] 1990 г. по «схеме ...» [4]	Оценка фактических значений показателей	Отклонения
1.	Водные ресурсы располагаемые (2/2.1+3+4)	72,5	74,5	+2,0
2.	Ресурсы речных вод	54,4	65,8	
2.1	В т.ч. гарантированные	62,1		
3.	Ресурсы подземных вод (добыча)	1,5		
4.	Ресурсы возвратных вод	8,9	8,7	-0,2
5.	Водозабор из рек на орошение	50,2	57,4	+7,2 !
6.	Внутриконтурное использование возвратных	10,5	2,7	-7,8
7.	Водозабор на промкомбинат	10,4	2,7	-7,7
8.	Сброс возвратных вод в местные	9,8	9,3	-0,5
9.	Суммарные потери в руслах рек и	8,7	2,9	-5,8
10.	Попуски по руслу в Аральское море	3,2	6,2	-3,0
11.	Безвозвратные потери и изъятия (5+7+9)	69,3	65,7	-8,5
11.1	В т.ч. в орошаемом земледелии (5-4)	41,3	65,4	***+ 2 4***
12	Площадь орошаемых земель	3514	3430	-134
12.1	Оросительная норма брутто, м³/га год ((5+6) :	~17270	~17520	~+250
12.2	Удельные безвозвратные потери, м³/га год ((5-	~11750	~14200	~+2450

x) без учёта бассейнов р.р. Зарафшан и Кашкадарьи

Всё это лучше всего ещё раз как следует уточнить и отделить «зёрна от плевел». Но что уже нужно отметить, так это точность водохозяйственных программ тех лет: всё что случилось, было в своё время пред вычислено – как по ожидаемой ситуации, так и по срокам, первоначальному объёму и другим параметрам переброски стока – практически безошибочно. Но главный недостаток экономики бассейна – высокую, недопустимую для аридных условий, водозатратность (табл. 4**)**, так и не удалось пока преодолеть [2].

Таблица 4.

Показатели распределения трансформирования и использования водных ресурсов по водохозяйственным районам бассейна р. Амударьи (на год 50% и 90% обеспеченности) [3]

№ п/п	Показатели	Объём воды, Обеспеченность	
		50%	90%
1.	I. Располагаемые водные ресурсы верхнего течения	71,9	60,5
1.1.	Приток речных вод в контур ВХР (водохозяйственного	65,8	54,4
1.2.	Ресурсы возвратных вод (сформировавшиеся в контуре ВХР или сброс в реки)	6,1	6,1
	Безвозвратные потери	8,3	8,3
3.	Сток из ВХР	63,6	52,2
1.	II. Располагаемые водные ресурсы среднего течения (без	65,8	54,6
1.1.	Приток речных вод в контур ВХР	63,6	52,2
1.2.	Ресурсы возвратных вод (сформировавшиеся в контуре	2,2	2,1
1.2.1.	В т.ч. сброс с Каршинского и Бухарского оазисов	1,1	
2.	Безвозвратные потери, включая водозаборы в	32,3	30,3
2.1.	В т.ч водозаборы в магистральные каналы	26,2	26,0
3.	Сток из ВХР / потери по стволу реки и Туямуюнскому	31,6/1,9	24/1,9
1.	III. Располагаемые водные ресурсы нижнего течения (Хорезм, Каракалпакия, Даштхауз	32	22,5
1.1.	Приток речных вод в контур ВХР	31,6	22,1
1.2.	Ресурсы возвратных вод (сформировавшиеся в контуре	0,4	0,4
2.	Безвозвратные потери	26,1	26,1
3.	Сток из ВХР (в море)	5,9	3,5
3.1.	Фактический сток в створе Кызылджар (1990 г.)	6,12	

Выводы. В этом контексте, очевидно, для бассейна в целом и государств, составляющих его площадь или пограничных с ним, следует

определиться с конкретными экологическими ущербами и наметить концепцию преодоления кризиса. По крайней мере, экономические выгоды от исчерпания водных ресурсов следует соизмерить с ущербами от опустынивания. И заметим, что исчерпание лимитирующего стратегического ресурса экстрааридных регионов воды – это ведущий фактор опустынивания и проявившегося экологического кризиса [3].

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ИССЛЕДОВАНИЕ СОСТАВА БУРОВОГО РАСТВОРА, НАДЁЖНО ОБЕСПЕЧИВАЮЩЕГО ТЕХНОЛОГИЮ ПО ПРЕДУПРЕЖДЕНИЮ ГЕОЛОГИЧЕСКИХ ОСЛОЖНЕНИЙ В ПРОЦЕССЕ БУРЕНИЯ СКВАЖИН

Аннотация. *В данном исследовании разработан химический реагент на основе переработанных промышленных отходов, который обладает уникальными свойствами для использования в буровых растворах, а также проведённый сравнительный анализ ИК-спектров отхода, реагента и бурового раствора выявил закономерности взаимодействия функциональных групп и изменения их структуры при приготовлении раствора. Это позволило уточнить зависимости физических и химических параметров буровых растворов от состава и концентрации компонентов. Разработанный буровой раствор демонстрирует отличную смазывающую способность, снижает трение труб о стенки скважин и вероятность аварийных ситуаций, таких как прихваты и посадки. Его использование способствует увеличению скорости бурения за счёт уменьшения силы трения и повышения эффективности работы оборудования.*

Ключевое слова. *Химический реагент, буровой раствор, промышленные отходы, смазывающая способность, ИК-спектры, гидрофобность, коэффициент фильтрации, функциональные группы, температурная устойчивость, эффективность бурения.*

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STUDY OF DRILLING FLUID COMPOSITION THAT EFFECTIVELY PREVENTS GEOLOGICAL COMPLICATIONS DURING WELL DRILLING

Annotation. *This study developed a chemical reagent based on processed industrial waste, which possesses unique properties for use in drilling fluids. A comparative analysis of the IR spectra of the waste, reagent, and drilling fluid revealed patterns of interaction among functional groups and changes in their structure during the preparation of the fluid. This enabled the refinement of the dependencies between the physical and chemical parameters of drilling fluids and the composition and concentration of components. The developed drilling fluid demonstrated excellent lubricating properties, reducing friction between the pipes and the walls of the wells, thereby minimizing the risk of emergency situations such as sticking. Its use contributes to an increased drilling speed by reducing the frictional force on the drilling tool.*

Keywords. *Chemical reagent, drilling fluid, industrial waste, lubricating properties, IR spectra, hydrophobicity, filtration coefficient, functional groups, thermal stability, drilling efficiency.*

В мире одной из приоритетных задач является внедрение инновационных технологий в увеличении добычи нефти и газа за счет бурения нефтяных и газовых скважин без геологических осложнений. Стоимость строительства скважин с устранением геологических осложнений резко возрастает по сравнению с проектной, при этом технико-экономические показатели бурения не дают ожидаемого результата. Исходя из этого, одной из наиболее актуальных задач является бурение скважин на нефть и газ с применением высокоэффективных новых технологий с доведением их до проектных глубин без аварий и осложнений. В связи с этим важное

теоретическое и практическое значение в предупреждении геологических осложнений имеет разработка многофункциональных химических реагентов на основе местных побочных продуктов взамен импортных дорогостоящих реагентов, для обеспечения успешной, качественной и безаварийной проводки скважины исследователи особое внимание уделяют разработке различных химических реагентов с регулированием технологических свойств бурового раствора, которые обеспечивают предупреждение геологических осложнений и способствуют повышению эффективности буровых работ. При геологических осложнениях самой трудоемкой работой при обвалах пород в скважине является извлечение на поверхность бурильного инструмента, который не удается освободить ни нефтяной ванной, ни встряхиванием, ни промывкой. При этом единственным путем являются торпедирование инструмента и забуривание бокового ствола [1].

В Узбекистане литологические разрезы площадей представлены на 70 – 80% глинистыми породами. В пределах нефтегазоносных регионов толщи глин неравномерно чередуются с горизонтами песчано-алевролитовых пород, где они обретают качества надежных экранов, препятствующих перетоку углеводородов нефти и газа и пластовых вод из одного продуктивного пласта в другой.

Потери устойчивости стенок скважин приурочены, главным образом, к интервалам залегания глинистых пород и вызываются процессами, связанными либо с хрупким разрушением, либо с их пластическим течением. Характер поведения глин зависит от многих взаимно влияющих друг на друга факторов. Эти факторы можно подразделить на геологические, и физико-химические [1,2].

К геологическим факторам относятся глубина залегания, пластовая температура, трещиноватость, минералогический состав и дисперсность глин, естественная влажность, засоленность, состав и давление поровых флюидов [2,5].

Многие исследователи считают, что основной причиной неустойчивости глинистых пород являются неправильный выбор химических реагентов и режима бурения при проводке скважин [1, 2, 3, 4, 5, 6,7].

Авторы работы [2, 8] отмечают, что, если к образцу глины приложить кратковременной нагрузки происходит упругая деформация образца, при постоянной нагрузке и длительного действия ее деформация будет со временем увеличиваться.

Изменения гидродинамического давления выражается с высокими значениями плотности бурового раствора и связано с повышением статического напряжения сдвига, которое способствуют обвалообразованию. [9, 10, 11].

Проникновение глинистого раствора в искусственные трещины, образовавшиеся вследствие гидравлического разрыва пласта при бурении глинистых отложений, приводит к возникновению обвалов [2,12].

В работе [13, 7] исследовано набухание аргиллитов и пестроцветных глин в водных средах, по своему составу представляющих разные варианты фильтратов бурового раствора. Исследования показали, что интенсивность и величина набухания зависят от минералогического состава глины и состава среды набухания. На примере нефтегазодобывающих районов Юго-Западного Узбекистана детально рассмотрены осмотические и диффузионные процессы в приствольной зоне и их влияние на изменение устойчивости стенок скважин.

При осмотическом перетоке воды в пласт происходит увлажнение породы, вследствие чего связи между частицами ослабевают. Кроме того, в поровом пространстве породы возникает значительное внутреннее напряжение за счет осмотического давления. Все это способствует к разупрочнению стенок скважин и возникновению осыпей и обвалов пород. В случае одинаковой минерализации бурового раствора и поровой воды они станут изотоническими, и осмотический приток воды практически прекратится, в результате чего в системе скважина – пласт наступит осмотическое равновесие [2,14].

Для сохранения устойчивости в стволе скважины рекомендуется применять буровые растворы, у которых фильтрат по составу солей и обменному комплексу приближается к поровым или пластовым водам [7,6].

Следовательно, можно сделать следующий вывод: устойчивость стенки скважин зависит от разнообразных факторов, которые требуют решение созданием методов предупреждения для разных видах осложнений с учетом этих факторов в совокупности [2, 15].

Исходя из этого провидена исследования начались с измельчения отхода до порошкообразного состояния. Плотность отхода при этом составляла 1,0 г/см^3. Сначала его подвергли термической обработке, чтобы определить при какой температуре у него будут проявляться какие-то изменения. Однако никаких изменений не произошло. После этого взяли 80 г отхода, который перемешали с 2 г каустической соды (NaOH), поэтапно добавляя 10 г мыла и 2 г кальцинированной соды. В полученную густую кашу добавили 100 мл воды, тщательно перемешали и нагрели на слабом огне, продолжая помешивать до получения однородной массы. Остудив полученную смесь на открытом воздухе, получили химический реагент, который легко превращался в порошок и окрашивался, хотя потом легко смывался водой. У данной смеси также проявилась еще одна особенность, она обладала смазывающей способностью, которую можно было ощутить, взяв небольшое ее количество, растерев его между пальцами.

Дальнейшие исследования диссертантом проводились с химическим реагентом на ИК-спектров, что позволило определить количественный элементарный состав реагента для обеспечения устойчивости промывочного жидкости. Исследования разработанных буровых растворов заключается в определении основных физико-химических и технологических основ для регулирования параматеров буровых растворов на основе химического

реагента, разработанного из отхода промышленности. Уточнение структуры, составляющих элементов, взаимосвязи частиц, растворенности, распределенности дали возможность определить закономерность работы химического реагента.

Разработанный буровой раствор содержит в себе реагент УМС, который повышает их стабильность в процессе бурения скважин, а также применяется при долгом простое скважин из-за аварий. Содержание нерастворимых веществ в буровом растворе обеспечивает прочность структуры, гидрофобность, смазывающий эффект, взаимодействие с компонентами, при этом снижает коэффициент фильтрации, способствует образованию пленкообразной корки, и в свою очередь, обеспечивает высокое стабилизирующее действие при длительном отстое бурового раствора.

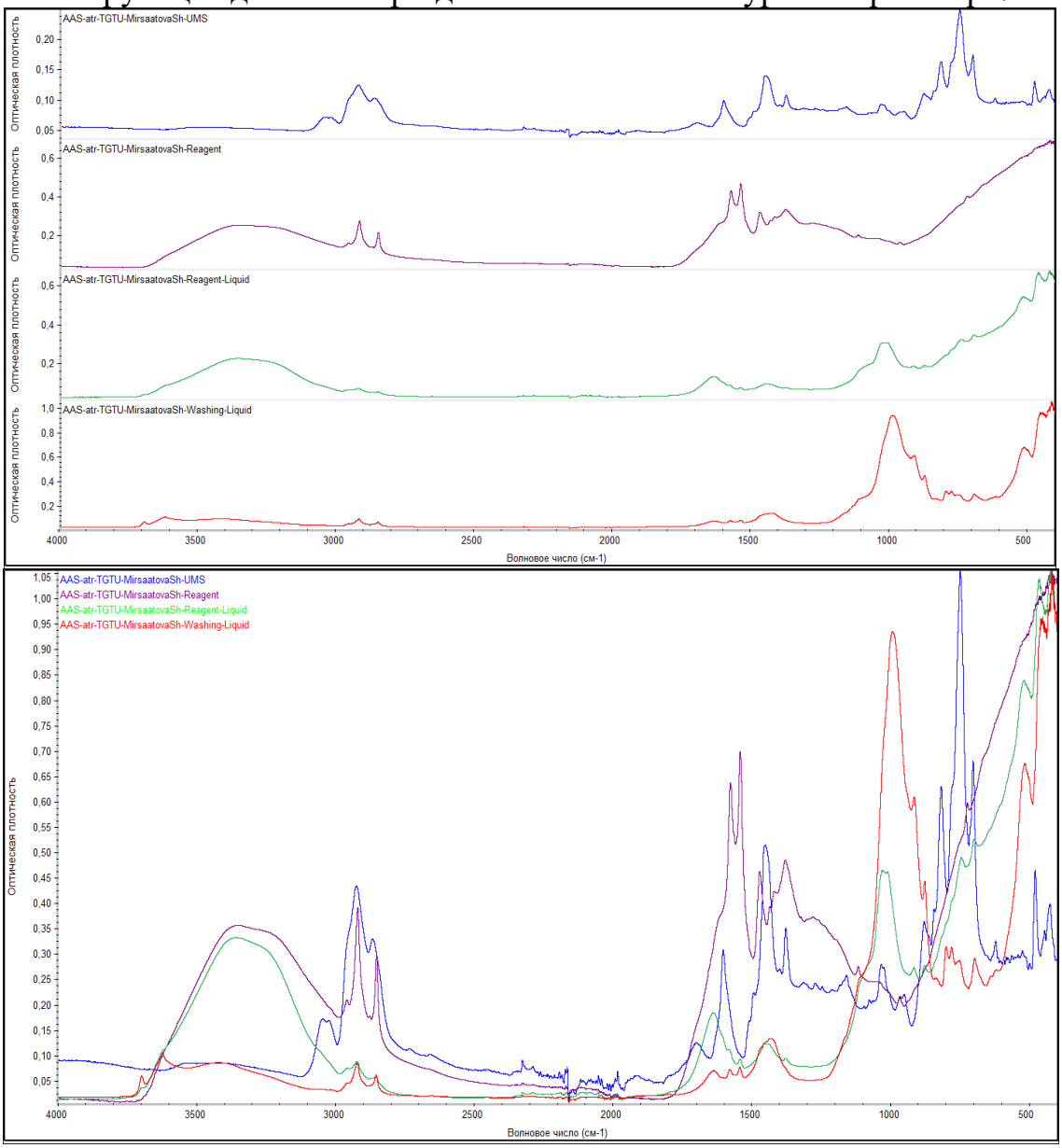

Рис. 1. Сравнительный анализ ИК-спектров отхода промышленности, разработанного химического реагента и бурового раствора на основе химического реагента:

— - отход промышленности; — - химический реагент;
— - не доконца высушенный буровой раствор;
— - до конца высушенный буровой раствор.

Буровые растворы системы состоят из не менее двух фаз, между которыми существуют поверхности раздела. Большинство буровых растворов относятся к дисперсным системам.

Для получения и регулирования требуемых параметров (стабилизировать, понизить вязкости и фильтрации, термостойкость и др.) буровых растворов в сложных геологических условиях бурения скважин знание о закономерности и химизме составляющих имеет большое значение [5].

В данном случае получение таких функциональных групп возможно при воздействии разработанных химических реагентов.

Проведён сравнительный анализ ИК-спектров отхода и разработанного на его основе химического реагента, до конца не высушенного бурового раствора и до конца высушенного бурового раствора (рис. 1.). Изменяющиеся состав и содержание функциональных групп выражены довольно четко.

Из сравнительного анализа видно, что составляющие элементы реагента можно регулировать для получения требуемых значений буровых растворов, эффективно работающих в процессе бурения, несмотря на агрессивную среду. Уточнены научные основы взаимодействия буровых растворов с температурой, с горной породой для определения зависимости их свойств от химического состава и процентного содержания. Анализ ИК-спектров даст основание считать, что концентрация и состав твердой фазы, конфигурация частиц означает переход функциональных групп из одной формы в другую после приготовления бурового раствора на основе предложенного реагента, а также изоморфное замещение, количества связанной воды и т.д., который уступающая способность по сравнению с УМС и другими смазывающими веществами разработанного бурового раствора заключается в простоте приготовления, специфике состава и структур, не теряющих своих первоначальных свойств после простоя, низкой водоотдачи и при достижении хорошей смазывающей способности бурового раствора и устойчивости пристенного скольжения ожидается: обеспечение уменьшения вероятности затяжек – посадок, прихватов бурильной колонны, увеличения нагрузки на долото в связи с уменьшением силы трения труб о стенки скважин. Все это будет способствовать повышению скорости проходки.

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ЭКОНОМИЧЕСКИЕ МЕТОДЫ УПРАВЛЕНИЯ ОБОРОТНЫМ КАПИТАЛОМ

Аннотация:*Стратегия и тактика управления оборотным капиталом в организации должна обеспечить компромисс между эффективностью его работы и риском потери ликвидности.*

Ключевые слова:*Метод, оборотный капитал, методика.*

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ECONOMIC METHODS OF WORKING CAPITAL MANAGEMENT

Abstract:*The strategy and tactics of working capital management in an organization should ensure a compromise between the effectiveness of its work and the risk of loss of liquidity.*

Keywords:*Method, working capital, methodology.*

Управление оборотным капиталом, как правило, направлено на решения следующих задач:

1) обеспечение приемлемого объема, структуры и рентабельности оборотного капитала.

2) обеспечение платежеспособности, то есть способности оплачивать счета, выполнять обязательства, предотвращения угрозы банкротства.

При этом важно помнить, что различные элементы оборотного капитала по-разному воздействуют на прибыль. Так, высокий уровень

производственно-материальных запасов требует значительных текущих расходов, а широкий ассортимент готовой продукции способствует как увеличению объемов реализации и доходов, так и затовариванию. Каждое решение, связанное с определением уровня денежных средств, дебиторской задолженности и производственных запасов, должно быть обосновано с позиции рентабельности данного вида активов и оптимизации структуры оборотного капитала в целом.

Риск потери ликвидности или снижения эффективности оборотного капитала при неэффективном управлении, заключается в следующем:

1. Недостаточность денежных средств для ведения текущей деятельности, на случай непредвиденных расходов и для потенциально эффективных капиталовложений. Нехватка денежных средств на какой-либо фазе воспроизводства капитала создает риск прерывания производственного процесса, невыполнения контрактных обязательств либо потери возможной прибыли.

2. Недостаточность собственных кредитных возможностей, связанная с ростом дебиторской задолженности. С позиции воспроизводства оборотного капитала она имеет двоякую природу.

Так, с одной стороны, рост дебиторской задолженности свидетельствует об увеличении потенциальных доходов и повышении ликвидности, а с другой - организация может вынести не всякий размер дебиторской задолженности, поскольку ее рост представляет собой иммобилизацию собственного оборотного капитала, а превышение ею некоторого предела может привести также к потере ликвидности и даже остановке производства.

3. Недостаточность или избыточность производственных запасов для выполнения всех контрактов связана с риском дополнительных издержек или остановки производства.

4. Излишний объем оборотного капитала в неликвидной форме увеличивает издержки хранения запасов и сокращает доходы.

5. Высокий уровень кредиторской задолженности, особенно со сроками погашения, образующими кассовые разрывы. При значительном размере дорогостоящего кредита и с бездействующими чрезмерными запасами предприятие не будет иметь достаточного запаса денежных средств, чтобы оплатить счета, что, в свою очередь, ведет к невыполнению обязательств.

6. Нерациональное сочетание между краткосрочными и долгосрочными источниками заемного капитала. Несмотря на то, что долгосрочные источники, как правило, дороже, в некоторых случаях именно они могут обеспечить при меньшем росте ликвидности большую суммарную эффективность.

Все обозначенное указывает на необходимость управления оборотным капиталом в организации.

Управление оборотным капиталом можно охарактеризовать как поиск эффективных форм финансирования, оптимизация объема, обеспечение

приемлемой ликвидности, совершенствование структуры, повышение эффективности его использования.

На рисунке 1 отражены основные элементы, отражающие управления оборотным капиталом.

Рис. 1. Блок-схема управления оборотным капиталом организации

Управление оборотным капиталом является достаточно многогранный процесс, включающий в себя ряд последовательных этапов, которые представлены на рисунке 2.

Рис 2. Этапы управления оборотным капиталом в организации

Таким образом, под управлением оборотным капиталом понимается определение оптимального уровня инвестиций в оборотные активы и

надлежащего соотношения источников их краткосрочного и долгосрочного финансирования для поддержания целевого уровня финансовой устойчивости ликвидности и платежеспособности предприятия [1].

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СОВЕРШЕНСТВОВАНИЕ СИСТЕМЫ СКЛАДИРОВАНИЯ ПРЕДПРИЯТИЙ - УЧАСТНИКОВ ВЭД

Аннотация: *в статье рассматриваются возможные способы совершенствования системы складирования. Актуальность темы заключена в сложных экономических условиях, при которых участникам внешнеэкономической деятельности необходимо увеличить эффективность своего функционирования, однако, вопрос развития системы складирования поднимается недостаточно часто. Итогом работы является практический алгоритм по внедрению рекомендуемых новшеств.*

Ключевые слова: *система складирования, внешнеэкономическая деятельность, роботизация склада, устройства-помощники работников склада, интернет-вещей.*

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IMPROVEMENT OF THE WAREHOUSING SYSTEM OF ENTERPRISES - PARTICIPANTS OF FOREIGN ECONOMIC ACTIVITIES

Abstract: *the article discusses possible ways to improve the warehousing system. The relevance of the topic lies in the difficult economic conditions in which*

participants in foreign economic activity need to increase the efficiency of their functioning, however, the issue of developing the warehousing system is not raised often enough. The result of the work is a practical algorithm for the implementation of the recommended innovations.

Keywords: *warehousing system, foreign economic activity, warehouse robotization, assistant devices for warehouse workers, Internet of things.*

Современная внешнеэкономическая деятельность российских компаний осложнена геополитическими трудностями. В этих условиях сформирована объективная необходимость в совершенствовании собственной деятельности. Если организация напрямую связана с внешнеэкономической деятельностью, ей необходима развитая система складирования, так как с ее помощью можно вести более эффективный и экономный учет материальных запасов и товаров, минимизировать риски непредвиденного дефицита нужных экспортируемых или импортируемых экономических благ. Более того, предприятие может снизить свои затраты, что столь значимо в рамках существующего сложного экономического положения. Несмотря на эти факты, многие организации отказываются от этого направления, что можно считать ошибкой, следовательно, требуется представить практические рекомендации для этой актуальной темы.

Рассматривая возможные направления совершенствования системы складирования предприятий-участников ВЭД, выделим ряд наиболее значимых. Отобразим их на рисунке 1.

Рисунок 1 - Наиболее значимые возможные направления совершенствования системы складирования предприятий-участников ВЭД

Далее представим все выделенные направления более подробно, начнем с интернета-вещей. Устройства данной сферы позволяет сделать склад «умным». Обычно интернет-вещей в рамках системы складирования представляет собой применение различных датчиков, интегрированных в цифровые системы управления складами, которые используются практически повсеместно [1, с. 21]. С их помощью программы в режиме реального времени

получают различные сведения о функционировании склада, что позволяет автоматизировано формировать и даже принимать решения в его отношении. Так, например, если датчиками фиксируется повышение температуры воздуха, которое потенциально может привести к нарушению условий хранения, подается соответствующий сигнал, запускающий в автоматическом порядке систему кондиционирования на складе. В результате, вероятность порчи товаров вследствие нарушения правил хранения минимизируется. Датчики способны самостоятельно определять приток и отток товаров, это позволяет улучшить учет и развивает систему прогнозов.

Экология продолжает быть значимой темой для мировой общественности. Используя ее достижения в рамках системы складирования, организация может сформировать положительный имидж и увеличить число потенциальных потребителей. При этом, если экоупаковка может не иметь прямого положительного экономического эффекта, то формирование автономного склада на основе самостоятельной генерации электроэнергии посредством возобновляемых источников способно создать экономическую выгоду. Так, например, применяя солнечные панели на крыше склада, можно минимум частично обеспечить его электроэнергией, дополнительно получая одобрение потребителей из разных стран.

Постепенно все больше развивается использование различных беспилотных систем, значительно улучшающих систему складирования. Современные автономные мобильные роботы способны выполнять совершенно различные операции, например:

1. Выполнение команд по перемещению грузов, их размещению на стеллажах;
2. Проведение инвентаризации;
3. Автоматическое определение сведений о товарных потоках, их направление в систему учета.

Дополнительно можно указать, что складские роботы доказано:

1. Выполняют процесс идентификации и доставки товаров быстрее, чем люди. Согласно сведениям «Deutsche Bank», роботизированная система от «Amazon» выполняет подобную операцию за 15 минут, в то время как аналогичную люди реализуют минимум за час [2, с. 44];
2. Формируют экономию. Представленное выше исследование доказало, что роботизация позволила уменьшить затраты, связанные с эксплуатацией склада на 20%;
3. Делают складские процессы более безопасными и рациональными. Речь идет о следующем – многие роботы способны перемещать грузы в тех местах, где человеку необходимо больше места, следовательно, на складе формируется больше места для товаров. Более того, даже если произойдет несчастный случай, повреждение получит робот, а не человек.

Отдельно выделяют увеличивающуюся роль дронов в складских системах. С одной стороны, некоторые из них тоже занимаются транспортировкой товаров. Их можно использовать вместе, а не вместо

роботов, так как дроны могут создать возможность по максимальному использованию высоты склада. С другой стороны, применяя дронов вместе с RFID-метками, можно создать условия для проведения максимально быстрой физической инвентаризации товаров [3, с. 212].

Следующее постоянно развивающееся направление – это оборудование для сотрудников склада. Наиболее инновационными являются два решения. Первое – это выдача экзоскелетов работникам склада. Под этим термином предлагается понимать носимое устройство, состоящее из электромеханических частей, позволяющее увеличить физические возможности человека, в первую очередь силовые. С одной стороны, решение расширяет возможности сотрудников, так, например, протестированная продукция «DB Schenker» увеличила переносимый любым работником груз на двадцать килограмм. Такая возможность упрощает процесс перемещения груза, его расположения на стеллажах и так далее. С другой стороны, экзоскелет – это инструмент развития безопасности работников. Во-первых, он физически защищает владельца от некоторых опасностей, например, падения груза. Во-вторых, риск получения травмы спины или поясницы при перегрузке существенно снижается. Дополнительное преимущество – это уменьшение усталости от работы, что положительно влияет на производительность труда.

Второе решение – это различные устройства-помощники. На рынке существует множество разнообразных предложений, среди которых можно выделить два. Первое – это «умные» очки, например, «Google Glass». Они необходимы работнику для того, чтобы максимизировать его производительность – программа, встроенная в прибор, выводит на экран задачи, дает голосовые указания, что позволяет результативно координировать работу человека, помогать ему в решении различных проблем. Согласно одному из исследований, этот прибор напрямую привел к уменьшению числа допущенных работниками ошибок на 15%, а также увеличил общую производительность выполнения задач на 19%. Второе устройство близкое по назначению – это гарнитура с наушниками, работающая по системе pick-by-voice. Это более дешевое решение, имеющее схожий эффект – сотрудник получает пошаговые голосовые команды выполнения каждого задания, что позволяет ему отказаться от планшета, от чтения задания на экране. Вне зависимости от конкретного выбора, такие устройства увеличивают производительность, так как работнику не нужно тратить время на чтение указания, улучшают его возможности по причине того, что предоставляются рекомендации, а необходимость удерживать планшет отсутствует, увеличивается безопасность по уже указанной причине – визуальный контакт направлен исключительно на физическое помещение.

Представленные направления совершенствования системы складирования существенно отличаются между собой, но каждая из них способна сформировать положительный эффект. Можно рекомендовать следующую последовательность введения новшеств:

1. Интернет-вещей. Является относительно недорогим решением, которое при этом формирует многочисленные положительные эффекты;

2. Роботизация. Существенно увеличивает производительность, скорость выполнения операций, уровень безопасности, формирует постоянную экономию. Единственный недостаток – крупные первоначальные инвестиции. Дронов рекомендуется использовать либо при отказе от Интернета-вещей, либо при наличии существенной высоты склада;

3. Применение собственной электрогенерации на основе возобновляемых источников;

4. Внедрение устройств-помощников;

5. Использование экзоскелетов;

6. Применение биоупаковки.

В заключении констатируем, что на данный момент существуют различные решения в сфере совершенствования системы складирования предприятий-участников ВЭД. В рамках научной статьи были представлены наиболее эффективные из них. Практические рекомендации были направлены на формирование алгоритма, позволяющего постепенно вводить каждое новшество по мере уменьшения соотношения «затраты-выгода». Используя предложенную схему, можно постепенно вводить инновационные решения, постоянно совершенствуя систему складирования.

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ҚАДИМГИ ҒАРБ ЦИВИЛИЗАЦИЯСИДА ЗАМОНАВИЙ БОШҚАРУВДА ДАВЛАТ САЛОҲИЯТИНИ ЮКСАЛТИРИШ БОРАСИДАГИ ҒОЯЛАР ЭВОЛЮЦИЯСИ

Аннотация: *Тадқиқот иши давлат салоҳияти ва давлат институтлари ўртасидаги боғлиқлик ҳақидаги масалаларга бағишланган назарий қарашлар эволюциясини ўрганишга бағишланади. Муаллиф эмпирик ёндашув доирасида изланиш олиб борган ва файласуф олимларнинг назарий қарашларини тахлил қилган ҳолда давлат институтлари салоҳияти ва имконимятларини тахлилий ёндашувлар асосида очиб беради.*

Калит сўзлар: *қадимги Ғарб цивилизацияси, сиёсий институтлар, назариялар, демократия, давлатчилик, давлат салоҳияти, қиёсий тадқиқотлар.*

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EVOLUTION OF IDEAS OF ENHANCING THE POTENTIAL OF THE STATE IN MODERN GOVERNMENT IN ANCIENT WESTERN CIVILIZATION

Abstract: *The scientific work is devoted to the study of the evolution of theoretical views on the relationship between state capacity and state institutions. The author conducted the study within the framework of the empirical approach and analyzed the theoretical views of philosophers and scientists, revealing the potential and capabilities of state institutions based on analytical approaches.*
Keywords: *political institutions, theories, globalization, democracy, statehood, state institutions, comparative studies.*

XXI Асрнинг дастлабки ўн йилликлари давомида дунё миқёсида рўй берган сиёсий жараёнлар, глобаллашувнинг ниҳоятда интенсивлашиб кетиши, халқаро муносабатлар тизимидаги муаммолар кўламини ортиши, хавфсизликни таъминлаш борасида давлатлар ўртасидаги ҳамкорликни давр эхтиёжлари ва талабларига жавоб бера олиш даражасига кўтарила олмасдан қолаётганлиги каби холатлар инсоният хаётини ташкил этишнинг энг универсал институти бўлган давлат ва унинг салоҳиятини юксалтириш масаласини ниҳоятда долзарблаштириб юборди.

Зеро, айнан давлат омилининг концептуал имкониятларини юқори бўлиши унинг томонидан энг долзарб бўлган сиёсий қарорларни ўз вақтида

аниқлаб олиб, қабул қилиш ва самарали равишда амалга ошира олиш лаёқатини мустахкамлаб борилиши хозирги даврда мамлакатлар ва халқлар барқарор ривожланишининг энг муҳим асосини ташкил этмоқда.

Хозирги даврнинг халқаро миқёсдаги тажрибалари кўрсатиб турганидек мамлакатлар демократлашувининг муваффвқиятли тарзда кечиши ҳам бевосита давлатнинг салоҳияти билан боғлиқ бўлмоқда. Шу боис ҳам сиёсатшунослик назариясида давлатнинг салоҳиятини (State coposiiti) юксалтириш, унинг ҳозирги замоннинг мураккаб талабларига муносиб жавоб берган холда изчил сиёсий тараққиётни таъминлай олиш имкониятларига эга бўлишига доир назарий асосларни ривожлантириш муаммоларига бағишланган тадқиқотларга нисбатан талаблар ниҳоятда кучайиб бормоқда.

Миллий юксалишнинг энг муҳим вазифаларини амалга ошириш, учинчи Ренессанснинг пойдеворини барпо қилиш жараёнлари замонавий ислохотларнинг етакчи мақсадига айланган Ўзбекистон ватанимизда давлат ва унинг институтлари самарадорлигини тубдан ривожлантириш, давлат институтининг сиёсий қарорларини миллий юксалиш манфаатларидан келиб чиқиб превентив равишда стратегик дастурларни амалга ошира олиш салоҳиятини мислсиз юқори даражага кўтаришга ўлкан аҳамият берилмоқда. Замонавий ва ҳар томонлама янгиланиб борувчи демократик тараққиётни таъминлаш учун зарур бўлган, куч-қувватга эга бўлган давлат институти фаолиятини изчил ривожлантириб бориш Ўзбекистон Республикаси стратегик тараққиётининг энг етакчи йўналишини ташкил этмоқда.

Шу муносабат билан Давлатимиз раҳбари Шавкат Миромонович Мирзиёев таъкидлаганидек: “Ислоҳотларимиз халқимизнинг кундалик ҳаётида ўз ифодасини топиши, кутган натижаларимизга эришиши кўп жиҳатдан давлат бошқарувидаги самародорликка бевосита боғлиқ”.[45]

Юқорида баён қилинган фикрларга асосланган ҳолда эътироф этиш лозимки бугунги кунда мамлакатимизда “Харакатлар стратегияси” заминида амалга оширилаётган кенг кўламли сиёсий ислоҳотлар доирасида давлат институти салоҳиятини юксалтириши билан боғлиқ жараёнларнинг концептуал асосларини тахлил қилиш, жахон миқёсида давлат институтларининг салоҳияти, сиёсий имкониятларини ривожлантиришга доир илгари сурилаётган назарий хулосалар, ғоялар динамикасини қиёсий тахлил қилиш асносида улардаги рационал жихатлар, инновацион асосларни аниқлаш нихоятда долзарб ахамият касб этмоқда.

Кучли давлатчилик салоҳияти илк давлатлар пайдо бўлгандан бери файласуф ва сиёсатчиларни доим диққат марказида бўлиб келган. Давлат бошқаруви санъати моҳир хукмдорларнинг қай даражада бошқарув салоҳиятига, билимига, халқ олдидаги легитимлигига, давлатнинг харбий салоҳиятига, ички ислоҳотлар ва ташқи иқтисодий-сиёсий алоқаларига эга эканлиги билан ажралиб турган. Ҳар қандай ҳукмдор етарли билим ва

[45] Ўзбекистон Республикаси Президенти Ш.М.Мирзиёевнинг Олий Мажлисга Мурожаатномаси //Халқ сўзи,2020йил 30-декабрь №276 (77-78)

тажрибага, алоҳида бошқарув қобилиятига, атрофида билим ва тажрибага эга бўлган садоқатли мулозимларига эга бўлмаса иқтидоридаги ҳокимиятни тез ва осон қўлдан бой берган. Давлатни турли усуллар билан, яъни қўрқув остида ушлаб туриш ёки халқ муҳаббатига эришиб бошқариш мумкин, учинчи йўли эса янги замонавий авторитар ёки тоталитар усул - ёлғон ваъдалар билан халқ ишончини қозониш ва давлатни самарали бошқариш имконияти амалга оширишдир. Ёлғонга асосланга давлат бошқаруви жамиятни ишонтириш учун ўзининг маълум маслакдош ёрдамчиларига ёки манфаатлар эвазига кўплаб тарафдорларга эга бўлади (замонавий тилда троллар армияси), большевиклар тузуми айнан ёлғонга асосланган эди.

“Давлат салоҳиятини юксалтириш билан боғлиқ назарий асослар ривожини тадқиқ этишнинг методологик асослари”, “Давлат ва унинг институтлари имкониятлари ва лаёқатини юксалтириш”, “Давлатнинг универсал сиёсий институт сифатидаги функциялари” каби масалаларга доир ўзларининг фалсафий қарашларини қадимги Юнон ва Рим файласуфлари Гераклит (эр.ав. 530-470), Демокрит (эр.ав. 460-370), Суқрот (эр.ав. 469-399), Афлотун (эр.ав. 427-347), Арасту (эр.ав. 384-322), Эпикур (эр.ав. 341-270), Зенон (эр.ав. 336-264), юнон тарихчиси Полибий (эр.ав. 210-123), Марк Туллий Цицерон (эр.ав. 106-43), қадимги Юнонистонда фаолият юритган софистлар давлатчилик ва уни вужудга келиши, давлат салоҳиятининг юксалиши борасида ўзларининг қимматли тарихий фикрларинии билдирганлар. Жумладан қадимги Шарқ мутафаккирларидан Лао Цзи (эр.ав. 604-Vacp), Конфуций (Кун-Цзи) (эр.ав. 551 - 479), Чжуан-цзы (эр.ав. 369-286) кабилар давлат салоҳияти юксалишига доир ўзларининг қиёсий–сиёсий ғояларини қолдирганлар.

Милоддан аввалги VII—III асрлардаги чуқур сиёсий ўзгаришлар қадимий бирлашган давлатнинг емирилиши ва алоҳида салтанатларнинг мустаҳкамланиши, йирик салтанатлар ўртасидаги кескин кураш - турли фалсафий, сиёсий ва ахлоқий мактабларнинг шиддатли ғоявий курашида ўз ифодасини топди. Қадимги Хитой тарихидаги Чжангуо даври асосан “Хитой фалсафасининг олтин даври” деб аталади. Айнан шу даврда тушунчалар ва категориялар пайдо бўлди, улар кейинчалик барча Хитой фалсафаси учун, ҳозирги даргача анъанавий бўлиб қолади.

Бу даврда олтита асосий фалсафий мактаб эркин ва ижодий равишда мавжуд бўлган:

- *даосизм*: Бу таълимот - Коинот уйғунлик манбаи, шунинг учун дунёдаги ҳамма нарса, ўсимликлардан тортиб, одамларгача, ўзининг табиий ҳолатида гўзалдир. Одамларни тинчлик ва сокинликда қолдирувчи ҳукмдор - энг яхши ҳукмдордир. Аввалги давр даосизм вакиллари: Лао-цзы, Ле-цзы, Ян Чжу, Чжуан-цзы, Инь Си, Вэнь-цзы. Кейинги давр даосизм вакиллари: Ли Цюань, Гэ Хун, Чжан Бодуань, Ван Сюаньлань.
- *конфуцийлик*: ҳукмдор ва унинг амалдорлари мамлакатни адолат, ҳалоллик ва муҳаббат тамойиллари асосида бошқариши керак. Деспотик марказлашган давлатнинг ахлоқий қоидалари, ижтимоий меъёрлари ва

бошқарувини тартибга солиш ўрганилди. Ушбу мактаб вакиллари: Конфуций, Цзы Сы, Цзэн-цзы, Ю Жо, Мэн-цзы, Сюнь-цзы, Цзы-гао.

- *моизм*: бу тълимотнинг маъноси умуминсоний севги ва фаровонлик ғоялари эди, ҳар бир киши ўзаро манфаатлар ҳақида ўйлаши кераклиги таъкидланади. Бу мактаб таълимоти вакиллар: Цинь Хуали, Мо-Цзы, Тянь Сян-цзы, Мэн Шэн, Фу Дунь.
- *қонуншунослар мактаби*: ижтимоий назария ва давлат бошқаруви муаммолари билан шуғулланган. Ушбу мактаб вакиллар: Ли Куй, Шэнь Бухай, Шан Ян, У Ци, Хань Фэйцзы; баъзан бу мактаб вакиллари қаторига Шен Даони ҳам киритишади.
- *номлар мактаби*: нарсаларнинг номлари ва моҳияти ўртасидаги номувофиқлик тартибсизликка олиб келади. Вакиллар: Хуэй Ши, Дэн Си, Гунсунь Лун, Мао-гун. Баъзан бу мактаб вакиллари қаторига Инь Вэняни ҳам киритишади.
- *инь ян цзя*: бу таълимотлар издошлари натурфалсафий-космологик ва оккулт-нумерологик масалалар билан шуғулланган. Бошланғич қоронғулик (Инь) ва ёруғлик (Ян) мактаби. Бу мактаб издошлари ҳодисаларни фақат табиий кучлар нуқтаи назаридан изоҳлашга ҳаракат қилишади. Бу мактаб вакиллари: Чжан Цан, Цзы-вэй, Цзоу Янь. Натурфалсафий таълимотлар асосчилари қаторига Юнон файласуфларидан Фалес, Анаксимандр, Анаксимен, Диоген ва Гераклитлар киритилади.

Аксарият мактабларда дунёвий донолик, ахлоқ ва бошқарув муаммолари билан боғлиқ амалий фалсафа устунлик қилди. Назарий асос энг кўп даосизмда ривожланган; бошқа мактабларда мафкуравий асослар заиф ёки бошқа мактаблардан олинган.

Конфуций қадимги Хитойнинг энг нуфузли файласуфларидан бири эди. Унинг таълимоти фалсафий ва сиёсий-ҳуқуқий фикрлари тарихида Суқротдан кейин муҳим рол ўйнаган. Конфуций давлатнинг патриархал-патерналистик концепциясини ривожлантирган. Унинг таъкидлашича, давлат – катта бир оиладир. Император ҳокимияти гўё оила бошлиғи – отанинг ҳокимиятидек адолатли ва қўл остидагиларига меҳр-шафқатга асосланган. Ҳукмдор ва фуқаролар муносабати оила аъзоларининг муносабатини эслатади: яъни кичиклар катталар қарамоғида ва уларга қатъий итоат қилади. Конфуций демократик қарашларни инкор этади, таълимотларида барчани императорга мутлоқ бўйсуниш ғоясига ундайди, шунинг учун ҳам минг йиллар давомида хитойликлар зеҳниятида иерархик бўйсуниш сақланиб келмоқда. Бундай фалсафий таълимот нафақат хитойликлар хаётида балки япон, корейс, мўғул миллатлари дунёқарашида ҳам мавжуд эди. Албатта бу ҳолат давлат салоҳияти юксалишидаги ички тартибот мустаҳкам бўлишига, барча жамият аъзолари қонунларга мутлоқ риоя қилишлари, давлат олдидаги бурч ва мажбуриятларни сўзсиз бажаришларига асосий ғоя бўлиб хизмат қилган. Бугунги кунда Шарқ давлатларида демократлашув жараёнлари кечмоқда,

жумладан, Жанубий Корея, Хиндистон, Япония, Малазия, Индонезия, Сингапур каби давлатлари мисолида кўриш мумкин.

Қадимги Хитой фалсафасининг ривожланишида муҳим ўрин тутган классик даврининг охири (милоддан аввалги III аср охири) файласуфларнинг таъқиб қилиниши, қўлёзмаларнинг ёқиб юборилиши билан кечди[46].

Давлат салоҳиятини юксалтириш борасидаги ғояларни қадимги Ғарб ва Шарқ мутафаккирлари эмпирик жихатдан асослаб берган эдилар. Ғарб мутафаккирлари давлат бошқаруви ҳақидаги ғояларида асосий урғу давлат бошқарувида кимлар асосий ролда бўлиши талқин қилинади. Яъни, халқ давлат бошқарувдаги иштироки масаласи демократик тамойиллар асосида, ёки аристократия бошқарувнинг асосий мезон эканлиги, балки аралаш типдаги бошқарув афзаллиги талқин қилинади.

Қадимги юнон тарихчиси Геродот (эр.ав. 484-425)[47] ўзининг 9 та китобида давлатлар ҳақида маълумотлар келтиради, Цицерон уни тарих отаси деб атайди. Ўз даврида мазкур китобларида Форс, Миср, Бобил, Оссурия, Скифлар давлатчилиги, умуман хулоса қиладиган бўлсак буюк давлатлар шаклланиши ва юнон-форс урушлари ҳақида қимматли тарихий маълумотларни қолдирган.

Афиналик файласуф Суқрот (эр.ав. 469-399) жамият ишларида фаол иштирок этиб ўзидан бирон асар ёзиб қолдирмаган, асосий ғояларини шогирдлари Ксенофонт, Аристофан ва Платонларнинг асарлари орқали етиб келган. Суқрот асосий вақтини мунозара ва баҳсларда ўтказган.[48] Унинг «Куч – билимда»[49] деган фикри замонамизнинг асосий негизи бўлганлиги аҳамиятлидир. У шундай дейди: “Денгиз бўйлаб кемада саёҳатга чиқмоқчи бўлсанг, кема йўлбошчисини тайинлаш вазифасини кимга топширган бўлардинг? Исталган кишигами ёки денгизчилик таълимотини олган мутахассисларгами? Албатта, мутахассисга. Шундай экан, нега исталган одам давлат раҳбарини тайинлаш вазифасига лаёқатли деб ўйлашда давом этамиз?!”[50] Суқрот сайлов маданияти ҳақида актуал фикрлар билдиради, яъни сайлов тасодифий жараён эмас, балки қобилият талаб қиладиган харакат деб бахолайди. Билимсиз халққа сайлаш ҳуқуқини бериш тажрибасиз кема йўлбошчисини тайинлаш каби хавфли эканлигини, сайлаш тизимли равишда халққа ўргатилиши ва жамият муаммоларини чуқур мулохаза қиладиган одамларгина сайлаш ҳуқуқига эга бўлиши кераклигини таъкидлайди. Суқрот тор доирадаги элита ёки давлатни ўзбошимчалик билан бошқарувчи ҳукмдор тиранга қарши бўлган, реалист сифатида давлатни билимли одамлар бошқариши, халқ иродаси ифодаланадиган адолатли қонунлар тарафдори эди. У ўз ғояларида биринчи бор давлат бошқарувида халқ билан шартномавий

[46] https://ru.wikipedia.org/wiki/ Китайская_философия
[47] https://uz.wikipedia.org/wiki/Gerodot
[48] Суқрот. https://ziyouz.uz/hikmatlar/mumtoz-faylasuflar-hikmati/469-399/
[49] Суқрот. https://oyina.uz/kiril/teahause/2297
[50] https://human.uz/8/46/6332 Суқрот мафкураси ёхуд сиёсий плюрализмда интеллигенция вакилларининг ўрни ҳақида.

муносабатлар шаклланиши ҳақида фикрларни илгари суради. Аслида халқнинг ҳуқуқий ва сиёсий онги давлат бошқаруви жараёнида шакллантирилган бўлса, сиёсий элита демократик тамойиллар асосидаги бошқарувга эга бўлсагина сайлов жараёнидаги халқнинг иштироки самарали натижалар беради. Сайловдан кейинги бошқарувдаги ютуқлар халқнинг назорати остида амалга оширилса, яратиладиган қонунлар халқ манфаатларига хизмат қилса жамият аҳли ўзини эркин ва хотиржам ҳис қилади. Шу ўринда Суқрот сайловлар жараёнида чуқур мулоҳаза қилувчи шахслар иштироки ҳуқуқий позицияга эга бўлиши кераклигини таъкидлайди, аслида ҳар қандай давлат фуқаролари тўлақонли чуқур сиёсий-ҳуқуқий фикрлай олмайди, давлат аҳолисининг катта қисми деҳқончилик ва хунармандчилик билан банд бўлиб давлат сиёсати билан қизиқмайди, айнан сиёсий ва ҳуқуқий билими бўлган етакчилар аҳолининг қолган қисмини сайловларда иштирок этиш учун керакли маълумотларни бериб барчани фаол бўлишга ундаши мумкин.

Афлотун (м.а. 427-347) асосий исми Аристокл, ўзининг “Қонунлар” асарида икки ҳил давлат тузумини қиёслайди, яъни қонунлар ишламайдиган, кимнингдир ҳокимияти остидаги ҳалокатга яқин бўлган ва қонунлар ҳукмдорлар устидан ҳукмрон бўлган фаровон давлатлар ҳақида фикр юритади. Фақат қонунларга амал қилган давлат ва жамият барқарор бўлиб жамиятда фаровонлик ва тинчлик ҳукм суради. Шу ўринда давлат қурилишининг икки тури бор деб ҳисоблайди, бири мутлоқ хукмронликдаги ва иккинчиси демократик, давлат қурилишининг бошқа турлари шу иккисининг бирлашишидан ташкил топади дейди. Афлотуннинг фикридаги фақат қонунларга амал қилган давлат аслида жамият фуқароларининг сиёсий тафаккури, давлат ва жамият бошқарувидаги фаоллигига боғлиқ бўлади. Мутлоқ ҳукмронлик аксарият ҳолларда жамият аъзоларига давлат бошқарувига аралашувни маъқулламайди ва демократия билан уйғунликда бирлашиш ғояси амалда мумкин бўлмай қолади.

Ҳар бир файласуф ўз давридаги объектив реалликдан келиб чиқиб ижод қилади. Афлотуннинг қарашлари Ғарб фалсафасига катта таъсир кўрсатган. Демак, Афлотун мутлоқ ҳукмдорлик форслар давлатида яхши ривожланди, юнонларда эса демократия деб хисоблайди.[51] Форслар империяси, умуман олганда шарқ давлатларидаги давлат бошқаруви минг йиллар давомида манарҳияга асосланган бўлса балки шунинг учун ҳам минтақада демократияга асосланган жамиятни қуриш жараёнлари оқсоқланиб келаётгандир, давлатлар миқёсида қабул қилинаётган ҳуқуқий-демократик ислоҳотлар жамият томонидан яхши ўзлаштирилмаслиги ҳам демократик тафаккурни шаклланишига тўсқинлик қилади. Аксарият Шарқ давлатларида жамият зехнияти авторитар бошқарувга мос равишда шаклланган ва ижтимоий-сиёсий бошқарувга мухтожлик сезади, натижада демократик тамойиллар асосидаги жамиятни қура олмайди.

[51] Муқимжон Қирғизбоев. Сиёсатшунослик. Тошкент. Янги аср авлоди 2013й. 33 бет.

Афлотун идеал давлат ҳақида фикр юритар экан давлат адолат тамойилларига асосланиши керак дейди, шахс манфаатларидан давлат манфаатларини устун қўяди. Идеал давлат аҳолисини уч тоифага бўлади: 1) файласуф-ҳукмдорлар; 2) жангчи ва соқчилар; 3) деҳқон ва ҳунармандлар. Афлотун асосий эътиборини файласуф-ҳукмдорлар ва жангчи-соқчиларга қаратади, шу икки синф битта ҳукмрон синфга бирлашади ва давлат ҳавфсизлиги айнан шулар зиммасида деб ҳисоблайди. Файласуф-ҳукмдорлар энг таниқли соқчилар орасидан танланади ва улар мукаммал қўриқчилар, соқчилар эса ҳукмдорларнинг ёрдамчилари деб атайди. Ҳукмрон синфлар ўз ҳаётини умумий манфаатларга хизмат қилишга бағишлайди, Афлотуннинг фикрича инсон манфаатларига хизмат қилиш бир неча шартлар орқали амалга оширилади: 1) меҳнат тақсимоти; 2) соқчиларнинг турмуш тарзи; 3) мақсадли тарбия. Идеал давлат ҳақида фикр юритар экан, ҳар бир инсон ўзи севган ишга эътиборини қаратади, манфаатдор бўлган иши унинг шахсий фойдаси бўлиб омади билан янада муваффақиятли бўлса у ўз ишини янада севади, дейди. Ҳақиқий файласуфлар ҳақиқатни, адолатни ва эзгуликни ҳаммадан кўпроқ қадрлаб давлат манфаатлари ҳақида қайғурадилар. Харбийлар ва қўриқчилар ҳаётида ҳамма нарса умумий бўлиб шахсий ва хусусий мулк уларда бўлмаслиги, олтин ва кумушларга қизиқмаслиги, бойликка қизиқиш улар орасида келишмовчиликлар келиб чиқишига сабаб бўлишини таъкидлайди. Натижада харбийлар ва қўриқчилар ўртасида бирлик мустаҳкамлагнади. Агар давлат бошқарувига керакли ҳусусиятларга эга бўлмаган одамлар келса давлат барбод бўлади, дейди. Харбийлар ва қўриқчиларнипг фарзандларида зарур мойилликлар, маълум қобилиятлар бўлмаса уларни деҳқон ва ҳунармандлар синфига ўтказиб юбориш, деҳқон ва ҳунармандларнинг фарзандларида зарур мойилликлар, маълум қобилиятлар бор бўлса ҳарбийлар ва қўриқчилар синфига ўтказиб юбориш керак дейди. Афлотун жамиятда табақаланишга эътибор берган бўлса ҳам қобилиятли шахларнинг келажаги ҳақида ҳам қайғуради. Фақат адолатли, етарли билимларга эга бўлган, бошқарув қобилияти мужассам бўлган, қалбида халқ манфаатларига хизмат қилиш шаклланган бошқарувчилар давлат идораларини муваффақиятли бошқарадилар. Фақатгина синфий жиҳатдан шаклланган, бошқарув мерос бўлиб ўтадиган давлат бошқаруви давлат салоҳияти юксалишига жиддий салбий таъсир кўрсатади, Бойлар ва мансабдорлар ўз фарзандларида бошқарувга оид қобилияти бўлмаса ҳам ўз таъсири остида мансабга йўналтирса, давлат бошқарувида иштирокини таъминласа давлат ичидан емирилиб барбод бўлишини Афлотун қадимдан ўз изланишларида таъкидлаб ўтган.

Файласуфлар ҳукмронлик қилишлари учун қобилиятли шахслар ёшлигидан билим олиши, харбий юришларда иштирок этиб тобланиши, 20 ёшга тўлганда меҳнатда, илм-фанда ва хавф туғилганда ўзини энг қобилиятли деб кўрсата олганларни махсус рўйхатга киритилиши ва бошқарувчи мулоҳаза юритиш санъатига эга бўлиши ҳақида фикр билдиради ва шундай

шахслар турли лавозимларга қўйилиши лозим дейди. Давлатнинг салоҳияти ҳам шундай тартибли жамиятда юксалиши табиий.

Афлотуннинг фикрича идеал давлат ёпиқ ва нисбатан кичик бўлиши керак, чунки ташқаридан кириб келувчи ҳар қандай ёлғон қадрият одамларни чалғитади, нисбатан кичик бўлмаган йирик давлатни бошқариш қийин бўлади дейди, шунинг учун давлат жуда катта ва жуда кичик бўлмаслиги керак дейди. Файласуфнинг фикридаги ёпиқ давлат ташқи дунёдан тўсилиб маданият ва тараққиётдан ортда қолиб кетиши, дунёда рўй бераётган кашфиётлардан, сиёсий-иқтисодий жараёнлардан бехабар қолиши мумкин. Бу каби сиёсатни йўл тутган собиқ Совет Иттифоқи тараққиётдан анча ортда қолган эди. Бошқа давлат қадриятларига одамларни чалғитиш, давлат мустаҳкамлигига рахна солувчи маданият сифатида қараш ҳам хато ғоядир, балки қадимги давлатлар сони жихатдан камлиги файласуфни шундай фикрлашга ундаган бўлиши мумкин, лекин қадимги давр давлатлари ўзаро маданиятлар алмашинуви ёки савдо-иқтисодий алоқалар туфайли ривожланди. Файлуфнинг фикридаги йирик давлатларни бошқариш қийинчилик туғдириши мумкин, бошқарувдаги хатолар давлат парчаланишига ҳам сабаб бўлади, лекин йирик давлатларни сиёсий элитаси кучли бўлса ва ҳукмдорга нисбатан давлат фуқароларининг муҳаббати, бошқарув аппаратининг легитимлиги йирик давлатларнинг бошқарувида самарали эффект беради. Тарихда Рим империяси, Усмонийлар халифалиги, Хитой давлатлари бунга мисол бўла олади.

Унинг ғоясидаги идеал давлат амалга ошиши мумкинлигига ишонган эди, бунинг учун ҳукмдорнинг ворислар ўзлари каби файласуф ва давлатни адолат билан бошқара олиши, фуқаролар ҳукмдорга итоатда бўлиб яратилган қонун-қоидаларга бўйсуниб яшайдилар деб тахмин қилади. Демак файласуф монархия тарафдори сифатида ворисларнинг давлатни мерос сифатида авлоддан-авлодга ўтиб тўлақонли бошқаришига ишонган, тарихда аксарият ҳолатларда ворисларнинг бошқарув қобилиятсизлиги туфайли давлатни кучсизлантириб мустамлака бўлишига сабабчи ҳам бўлганлар.

Афлотун ўзининг “Қонунлар” асарида давлат дини мукаммал полиснинг зарур элементи, диний таъсирлар натижасида давлат фуқароларини бошқариш осонлашади деб ҳисоблайди. Тарихий тараққиётлар жараёнида диний уламоларнинг давлатга таъсири сезиларли даражада намоён бўлган эди. Ғарб инквизиция даврида кўплаб бегунох одамлар диний таъқиблар ва қийноқлар остида нобуд бўлгани ва янги асрларда дин давлатдан ажраб чиқиши жараёнлари юзага келишига олиб келган эди.

Арасту (м.а. 384-322) давлатни мураккаб сиёсий ташкилот деб фикрлайди ва давлат фуқароларнинг маълум қисмини бирлаштиради. Тенглик демократиянинг биринчи кўриниши бўлиб, мулксизлар ҳам мулкдорлар ҳам бирон имтиёзга эга эмаслар ва давлат бошқарувида ҳамма иштирок этиши керак дейди. Арасту ўз асарларида илк бора фуқаролик жамиятини шакллантириш ҳақида фикр юритади.

Арасту Афлотуннинг идеал давлат ғоясини танқид қилади, яъни мулкий умумийлик, шу ўринда хотин ва болаларнинг эркаклар учун умумий бўлиши

давлатнинг таназзулга юз тутишига сабаб бўлади дейди. У шахсий ҳуқуқлар, хусусий мулкчилик ва моногам оила ҳимоячиси эди. Коммунизм ғояси ҳам умумий мулкчиликка асосланган эди, бироқ умумий мулкчилик ғояси хеч бир жамиятда ўзини оқламайди. Чунки инсоният ақлий-интеллектуал, меҳнатга оид, хулқ-атвори, соғлик ва саломатлиги борасидаги муносабатларда тенг эмаслиги билан ажралиб туради.

Арасту қулдорлик тарафдори бўлиб онгли кимсаларнинг қул бўлишига қарши эди, қул етарли кучга эга ва ақлга эга бўлмаган бўлиши керак деб ҳисоблайди. Хатто урушда асир олинганлар зобитлар қўл қилинмаслиги керак деб фикр юритар эди. Инсон ижтимоий мавжудот, у биргаликда яшашга интилади, дейди. Ижтимоий ҳаётнинг биринчи натижаси – оила, эр ва хотин, ота-она ва фарзандлар шаклланишидир. Ўзаро алмашиниш зарурати оилалар ва яшаш маконларининг алмашинувига олиб келади ва давлатлар пайдо бўлади. Фуқароларнинг камолоти эса улар мансуб бўлган жамият сифатига боғлиқ бўлади, комил инсонларни яратиш учун комил фуқароларни, комил фуқароларни яратиш учун комил давлатни яратиш керак дейди. Албатта бу ўхшаш фикрларни Фаробийнинг “Фозил одамлар шахри” асарида ҳам учратиш мумкин.

Файласуф жамиятни уч қатламга ажратади: 1) жуда бадавлат; 2) ўрта; 3) ўта камбағал. Энг яхши жамият ўрта қатлам жамиятидир деб ҳисоблайди. Давлатда жуда бадавлатлар ва ўта камбағаллар қатлами кўпайса, сиёсий ҳуқуқлардан маҳрум бўлганлар билан бойлар ўртасида қарама-қаршилик пайдо бўлади. Аҳоли гавжум бўлган давлатни ҳам ёқламайди, чунки давлатаҳолиси қанчалик кўп бўлса қонунларга итоатсизлик ҳам шунчалик кўп бўлади деб ҳисоблайди. Давлатнинг энг самаралиси ҳарбий юришларда ва бошқарувда қатнаша оладиган эркак фуқаролари деб ҳисоблайди. Аҳолиси кам бўлган давлатни ҳам, аҳолининг асосий таркиби аёллар ва ҳунармандлар иборат бўлган давлатни ҳам самарасиз давлат деб ҳисоблайди. Ҳар бир давлат демографик сиёсатни тўғри олиб бориши керак дейди.

Марк Туллий Цицерон (м.а. 106-43) қадимги Римлик мохир нотиқ, сиёсат ва давлат арбоби бўлиб ҳаёти ва характери жиҳатидан қадимги дунёдаги бошқа ҳар қандай шахсга қараганда яхшироқ ва чуқурроқ ҳужжатлаштирилган шахс эди. Унинг ҳаёти-ижоди давлат ва ҳуқуқ масалаларига қаратилган бўлиб “Давлат ҳақида”, “Қонунлар ҳақида” асарларида кенг ёритилган. Давлат ва ҳуқуқ ҳақидаги назариясига стоиклар ва қадимги қадимги юнон файласуфларидан Арасту, Афлотун ва Полибийнинг қарашлари сезиларли таъсир кўрсатган. У давлат ва халқ ҳақида фикр юритар экан “Давлат халқ мулкидир, халқ эса қандайдир тарзда бирлашган одамлар бирлашмаси эмас, балки қонун ва умумий манфаатлар бўйича келишув асосида боғланган кўп одамларнинг иттифоқидир”[52], – дейди.

[52] https://ru.wikipedia.org/wiki/Цицерон

Цицеронга “ватан отаси” унвони берилади.[53] Давлат ва жамият ишларида ўта фаол бўлган ва қадимги юнон файласуфларининг сиёсий фикрлари таъсирида Рим сиёсий – ижтимоий мафкурасини яратди.

Цицерон ҳам Афлотун каби дин ва диний институтлар давлат учун фойдали ва керакли зарур воситадир дейди. Диний эътиқод шахар аҳолисининг аҳлоқий тафаккури ижобий шаклланишига таъсир қилади. Давлат бошқаруви самарали бўлишида диннинг роли катта, яъни барчани худо бошқаради, барча воқеа ва ҳодисалар худонинг иродаси махсули бўлиб ҳар кимнинг ихтиёри ва қарори, қилаётган амаллари ва уй-фикрлари, инсоннинг қандай эканлиги, ўз бурчларини бажараётган ёки бажармаётганлиги, маросимларни қандай ўтказаётганлигини худо билиб туради. Демак, файласуф одамлар диний эътиқодлари ортидан ноўрин қарорларни қабул қилмасликларига ишонади. Давлат тан олган диндан бошқа янги ёки четдан келган дин давлат ҳудудида бўлмаслиги керак дейди. Шунинг учун ҳам Цицерон ижтимоий институтлардан ҳам кўра диний эътиқод биринчи ўринда туради деб ҳисоблайди. Дин инсонларни ҳар қандай қабихликлардан тўсиб турувчи восита сифатида кўради. Бугунги замонавий бошқарувда давлат диндан ажралиб бошқарув тизими дунёвийликка асосланди, жамият дунёвийликни афзал кўра бошлади ва диний давлатлар саноқли қолган бўлсада диний таъсир ҳам баъзи давлатларда сақланиб турибди. Масалан, Хиндистондаги жамият аъзоларининг касталарга ажралиши, араб давлатларидаги шариат қонунлари, Ватикандаги католицизм каби.

Умуман давлатчилик салоҳияти муаммоларини ўрганиш жараёнида давлатларнинг келиб чиқиши, сиёсий режимининг шаклланиши, жамиятдаги демократлашув ва демократик жараёнлар, давлатнинг иқтисодий ва интеллектуал имкониятлари, харбий ва ички хавфсизлик масалалари, давлат солиқ сиёсати каби масалалар замонавий сиёсатшуносларнинг асосий изланиш объектига айланди. Шарқ ва Ғарб мутафаккирларининг ғояларини ўрганиш афзалликлари шундаки уларнинг бебахо фикрлари асосида янги назариялар яратилиши ва мавжуд бўлганларни янада такомиллаштириш имконияти мавжуд.

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ҚАНДЛИ ДИАБЕТНИНГ 2-ТУРИДА ЮРАК ҚОН-ТОМИР КАСАЛЛИКЛАРИНИ АСОРАТЛАРИ

Аннотация: *Ушбу мақолада қандли диабетнинг 2-тури, унинг юрак-қон томир касалликларидаги асоратлари, келиб чиқиш сабалари ҳамда даволаш усуллари тўғрисида маълумотлар келтирилган.*

Калит сўзлар: *Қандли диабетнинг 2-тури, юрак қон-томир касалликлари.*

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COMPLICATIONS OF CARDIOVASCULAR DISEASES IN TYPE 2 DIABETES MELLITUS

Abstract: *This article provides information on type 2 diabetes mellitus, its complications in cardiovascular diseases, lessons of origin and methods of treatment.*

Keywords: *type 2 diabetes, cardiovascular diseases.*

Дунё миқёсида диабет ва унинг оқибатида юрак-қон томир касалликлари беморлари сони тез суръатларда ортиб бормоқда. 2030 йилга келиб юрак-қон томир касалликларидан вафот этиши холатлари 23,6 миллионга етиши таҳмин қилинмоқда. Ҳозирги вақтга келиб бутун дунёда ўлимнинг энг биринчи асосий сабаби юрак-қон томир касалликлари эканлиги қайд этилмоқда.

Бутун дунёда 21,3 миллион янги туғган аёллар ҳомиладорлик даврида гипергликемиядан азият чекишади. Қандли диабет катталарда учраши нисбатан юқори бўлиб, 2023 йилда аҳоли катта ёшлиларнинг 8,8 фоизига таъсир қилади ва 2045 йилга келиб бу рақам 9,9% гача ошади.

Қандли диабетнинг тарқалиши мамлакат аҳолисининг юқори ва ўрта даромад кўрсаткичларига қараб ҳам фарқланиши мумкин. Яъни паст ва ўрта даромад кўрсаткичли мамлакатларда аҳолининг муаммоларга тез дуч келиши, сифатсиз даволаш, сурункали касалликларни доимий даволашдаги моддий тўсиқлар туфайли қандли диабетнинг тарқалиши ва учраш частотаси юқори. Кўплаб мамлакатларда 2-тип ҚД беморлар сони ортиб, паст ва ўрта даромадли мамлакатларда яшовчи ёши катталарнинг 79% диабет билан касалланган.

Қандли диабет мураккаб гетероген касаллик бўлиб, унинг энг ўзига хос хусусияти сурункали гипергликемия билан бирга келади. Сурункали гипергликемия - бу инсулин секрецияси етишмаслиги, инсулин таъсирининг бузилиши ёки ҳар иккаласи натижасида юзага келадиган метаболик

касалликдир. Таъкидлаш жоизки, инсулин углеводлар, липидлар ва оқсилларнинг метаболизмига таъсир қилувчи анаболик гормон сифатида муҳим рол ўйнайди. Липид синтези ва оқсил алмашинувининг бузилиши тананинг нормал миқдорда инсулин чиқара олмаслиги ёки инсулиннинг мўлжалланган таъсирига эриша олмаслиги туфайли юзага келадиган ҳолатнинг кенг тарқалган кўринишидир. Қандли диабет ҳозирги кунда энг кенг тарқалган метаболик касалликлардан бири бўлиб, унинг инсулинга боғлиқ ва инсулинга боғлиқ бўлмаган турлари ажратилади. Асосан катта ёшдагилар орасида тарқалган 2-тури ҳозирги кунга келиб ёшлар орасида ҳам учрамоқда. Ушбу тур қандли диабетда касаллик симптомларининг жуда кеч билинади ва жиддий асоратлар пайдо бўлиб улгиришига олиб келади. Натижада беморда протеинурия, ретинопатия, юрак қон томир тизими бузилишлари, атеросклероз ва мияни шикастланиши ҳолатлари аниқланади. Ушбу асоратлар эса беморлар ногиронлиги ва ўлимга олиб келади.

2-тип диабетнинг кенг тарқалган асоратларига нефропатия ва ретинопатия каби микроваскуляр ўзгаришлар ёки атеросклероз, аневризм, эмболия, периферических томирлар касалликлари, цереброваскуляр касалликлар ва юракнинг ишемик касаллиги каби макроваскуляр ўзгаришлар киради. 2-тип диабет беморларининг деярли ярмисида микроваскуляр ўзгаришлар, 27% макроваскуляр ўзгаришлар келиб чиқади. Шунингдек, диабетнинг кенг тарқалган ва хавфли асоратларидан бири сурункали буйрак етишмовчилиги бўлиб, 20-40% беморларда ушбу ҳолат қайд этилади. Назорат қилинмаган диабетнинг яна бир оғир асоратларидан бири оёқлар шикастланиши бўлиб, диабетик беморларнинг 4–10% ида учрайди. Диабетнинг бошқа кенг тарқалган асоратларига ретинопатия, катаракта, эректил дисфункцию ва ноалкогол ёғли жигар касалликлари киради.

Диабетнинг ўзига хос асоратлари бўлиб кетоацидоз ва гиперосмоляр кома бўлиб ҳисобланади. Бутун дунёда соғлиқни сақлаш билан боғлиқ ривожланиш мақсадлари кўра, 2030 йилга бориб диабет каби юқумли бўлмаган касалликлардан эрта ўлимни 30 фоизгача камайтиришга қаратилган. Маълумотларга кўра, 20-70 ёшдаги 4,2 миллионгача ҳолатлардаги ўлим диабет билан боғлиқ. Бу барча ўлимларнинг тахминан 11,3% ни ташкил қилади. Жумладан, Африкада диабет билан боғлиқ ўлимларнинг аксарияти 60 ёшгача бўлган одамларда содир бўлади. Қандли диабет гипергликемия билан тавсифланувчи асосий сурункали метаболик касалликлардан бири ҳисобланади. Қандли диабет инсулин томонидан организм ҳужайралари функцияларининг регуляция қилиниши бузилиши оқибатида келиб чиқади. Бу инсулин ҳосил бўлишининг камайиши, инсулин секрецияси бузилишидан (1-тип ҚД) ёки инсулин сигналини ўтказувчи механизмнинг бузилиши, яъни инсулинрезистентликдан (2-тип ҚД) келиб чиқиши мумкин. Диабетнинг 1-типи 2-типига нисбатан оғир кечиб, ўткир асоратлар кўп учрайди. 2-тип ҚД 40 ёшдан сўнг кузатилса, 1-тип ҚД болаларда, ўсмирларда ва баъзан катталарда учрайди. Доимий гипергликемия беморларда орган тизимларининг метаболик фаоллигида ўзгаришларни келтириб чиқаради, бу

эса асоратларни ривожланишига олиб келиши мумкин. 1-тип диабет меъда ости бези ҳужайраларининг дисфункцияси билан тавсифланади, бу инсулин секрециясининг пасайишига олиб келади, 2-тип ҚДда эса инсулин рецепторлари дисфункцияси натижасида инсулинга сезгирликнинг пасайишига олиб келади, бу эса қонда глюкоза гомеостазини сақлаш мақсадида инсулинни секрециясини ошириб юборади. Ошқозон ости бези бета ҳужайралари глюкагон билан биргаликда танадаги қонда глюкоза миқдорини меъёрида ушлаб турадиган инсулин ишлаб чиқариш учун жавобгардир. Инсулин энергия билан таъминлаш учун ҳужайралардаги глюкозанинг сўрилишини ва парчаланишини фаоллаштиради. Қандли диабетдан келиб чиқадиган асоратларни олдини олиш учун зарур чораларни кўриш учун имкон қадар диабетни эрта аниқлаш жуда муҳимдир. Энг тез-тез учрайдиган клиник белгиларга полидипсия, полифагия, полиурия, шунингдек, озғинлик киради. Қандли диабетда микроваскуляр ва макроваскуляр асоратларнинг ривожланиши тана аъзоларига, уларнинг функцияларини бузилишига ва натижада орган етишмовчилигига олиб келади.

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УПРАВЛЕНИЕ ФИНАНСАМИ ПРЕДПРИЯТИЯ

Аннотация:*Управление финансами предприятия является ключевым аспектом успешного функционирования любой организации. В статье рассматриваются основные принципы, методы и инструменты финансового управления, которые позволяют оптимизировать финансовые потоки, повысить рентабельность и обеспечить устойчивое развитие компании. Особое внимание уделено планированию, контролю и анализу финансовой деятельности, а также управлению рисками и инвестициями. Статья будет полезна руководителям, финансовым менеджерам и всем, кто интересуется вопросами эффективного управления финансами на предприятии.*

Ключевые слова: *управление финансами, финансовое планирование, контроль, анализ, рентабельность, инвестиции, риски, устойчивое развитие.*

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FINANCIAL MANAGEMENT OF AN ENTERPRISE

Abstract:*Financial management of an enterprise is a key aspect of the successful functioning of any organization. The article discusses the basic principles, methods, and tools of financial management that allow optimizing financial flows, increasing profitability, and ensuring sustainable development of the company. Special attention is paid to planning, control, and analysis of financial activities, as well as risk and investment management. The article will be useful for managers, financial managers, and anyone interested in effective financial management in an enterprise.*

Keywords: *financial management, financial planning, control, analysis, profitability, investments, risks, sustainable development.*

Введение

Управление финансами предприятия — это комплекс процессов, направленных на эффективное использование финансовых ресурсов для достижения стратегических и оперативных целей компании. В условиях современной экономики, где конкуренция и нестабильность рынка являются

постоянными факторами, грамотное управление финансами становится критически важным для выживания и развития бизнеса.

Основные принципы управления финансами

1. Принцип плановости

Финансовое планирование является основой управления финансами. Оно включает в себя разработку бюджетов, прогнозирование доходов и расходов, а также определение источников финансирования. Планирование позволяет компании заранее предусмотреть возможные финансовые трудности и разработать стратегии их преодоления.

2. Принцип контроля

Контроль за финансовой деятельностью предприятия обеспечивает соблюдение установленных планов и нормативов. Регулярный мониторинг финансовых показателей позволяет своевременно выявлять отклонения и принимать корректирующие меры.

3. Принцип оптимизации

Оптимизация финансовых потоков направлена на минимизацию издержек и максимизацию доходов. Это достигается за счет рационального распределения ресурсов, управления запасами и дебиторской задолженностью, а также эффективного использования капитала.

4. Принцип риск-менеджмента

Управление финансовыми рисками включает идентификацию, оценку и минимизацию рисков, связанных с финансовой деятельностью предприятия. Это позволяет снизить вероятность финансовых потерь и обеспечить стабильность компании.

Инструменты управления финансами

1. Финансовый анализ

Финансовый анализ позволяет оценить текущее финансовое состояние предприятия, выявить тенденции и определить резервы для улучшения. Основными инструментами анализа являются коэффициенты ликвидности, рентабельности и финансовой устойчивости.

2. Бюджетирование

Бюджетирование — это процесс разработки и контроля исполнения бюджетов. Оно помогает компании распределить ресурсы между подразделениями и проектами, а также контролировать выполнение финансовых планов.

3. Управление денежными потоками

Управление денежными потоками (Cash Flow Management) направлено на обеспечение достаточного уровня ликвидности для выполнения текущих обязательств. Это включает управление поступлениями и выплатами, а также оптимизацию оборотного капитала.

4. Инвестиционное управление

Управление инвестициями предполагает выбор наиболее эффективных проектов для вложения средств. Оценка инвестиционных проектов проводится с учетом их доходности, рисков и сроков окупаемости.

Заключение

Эффективное управление финансами предприятия является залогом его успешного функционирования и развития. Использование современных методов и инструментов финансового управления позволяет компании не только выживать в условиях конкуренции, но и достигать долгосрочных стратегических целей. Важно помнить, что финансовая устойчивость предприятия зависит от грамотного планирования, контроля и анализа, а также от способности адаптироваться к изменениям внешней среды.

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ПРОЕКТИРОВАНИЕ ПРОЦЕССА КОНТРОЛЯ ВИДОВ ДЕЯТЕЛЬНОСТИ ЧЕЛОВЕКА

Аннотация: *в данной статье авторами рассматривается процесс контроля видов деятельности человека для дальнейшей автоматизации.*
Ключевые слова: *проектирование, виды деятельности человека.*

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DESIGNING A PROCESS FOR CONTROLLING HUMAN ACTIVITIES

Abstract: *in this article the authors consider the process of monitoring human activities for further automation.*
Keywords: *design, human activities.*

Одна из самых сложных работ в жизни любого человека – работа над собой. Порой она заключается в вырабатывании ряда привычек.

Каждый наслышан о том, что для формирования привычки необходим промежуток времени в 21 день. В действительности данный процесс может занять как 18, так и 254 дня. Все зависит непосредственно от привычки, а именно от действий, посредством которых она вырабатывается, а также внешних факторов, влияющих на выполнение этих действий или нет.

Любая привычка требует ответственного ежедневного выполнения, но держать в голове статистику «сделал / не сделал» задача не из легких. На помощь приходят трекеры привычек.

Трекер привычек — это инструмент, который помогает формировать полезные привычки. Это может быть блокнот, лист или приложение с днями

недели. В него записывают привычку и отмечают дни, когда задание выполнено. Трекер помогает закреплять новые привычки и избавляться от старых.

Чтобы закрепить привычку, нужно повторять одно и то же действие регулярно. Как дом строят по кирпичику, так привычку закрепляют малыми шагами изо дня в день.

Когда ведешь трекер каждый день, то кроме основной привычки вырабатывается еще одна — привычка вести трекер. Галочки ставить легко и приятно. Каждый раз, когда хочется поставить галочку, трекер напоминает, что для этого надо что-либо сделать. Только потом можно будет порадовать себя и вычеркнуть еще один день.

Двигаться вперёд нас заставляет прогресс. Когда мы видим заполненные квадратики в трекере привычек, то понимаем, какую большую работу проделали. Одни радуются своему продвижению, другим жалко бросить, ведь пропадёт столько усилий. Так трекер служит дополнительной мотивацией для людей.

Целью курсовой работы является разработка автоматизированной системы контроля видов деятельности человека, с целью поддержки человека в его начинаниях.

Проектирование информационных систем (ИС) представляет сложный многоступенчатый вид деятельности, без научной организации которого немыслимо создание и использование современных сложных ИС, в том числе в образовании, предпринимательстве, менеджменте и других областях жизнедеятельности общества. Наряду с получением необходимых для этого теоретических знаний проектировщику ИС требуется обрести устойчивые практические навыки этого вида деятельности.

С помощью методологии IDEF0 была разработана контекстная диаграмма «Как должно быть» автоматизированной системы (Рис. 1).

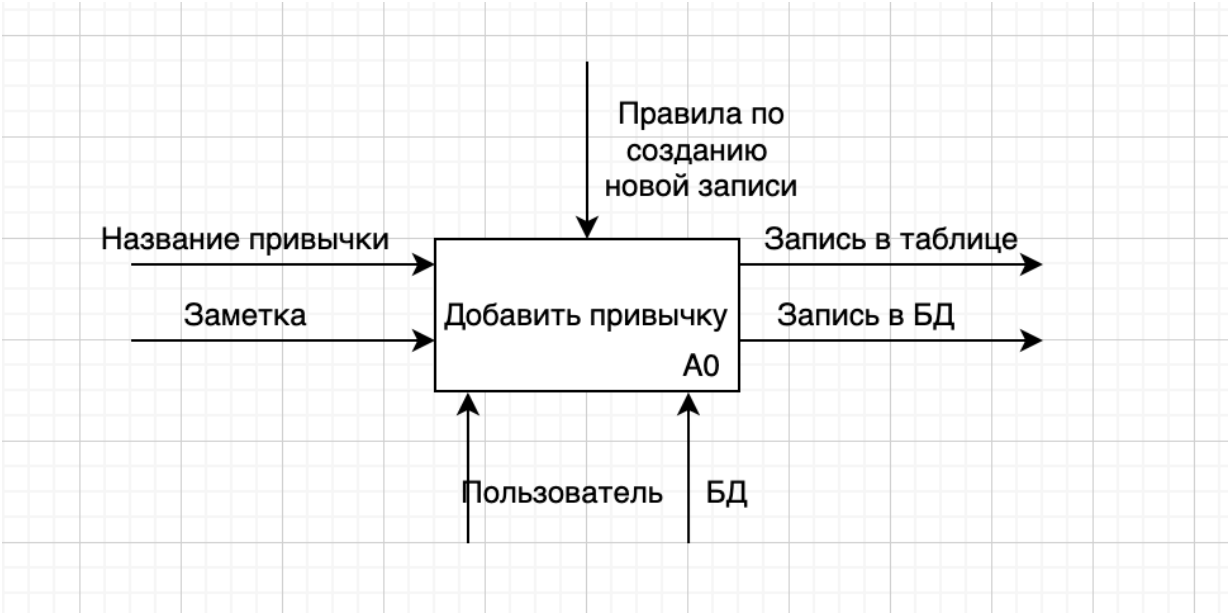

Рис. 1. Диаграмма «Как должно быть»

На основе данной контекстной диаграммы была построена диаграмма декомпозиции данного блока в нотации IDEF0, показывающая полный процесс добавления привычки в таблицу (Рис. 2).

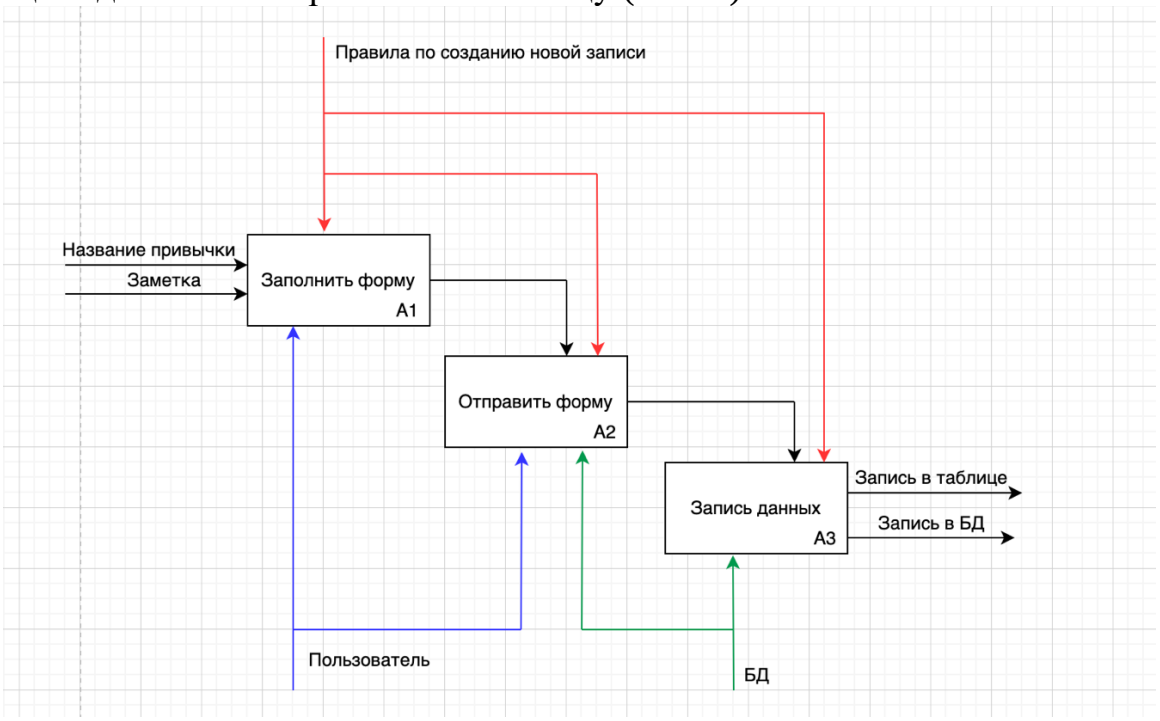

Рис. 2. Диаграмма декомпозиции

Входной информацией являются:

– название привычки – обозначение имени привычки, необходимой для закрепления пользователю;

– заметка – это поле, в которое пользователь может внести дополнительные данные или информацию о привычке.

Выходной информацией являются запись в таблице и в базе данных. Запись в базе данных нужна для того, чтобы пользователь увидел ее в своей таблице с привычками.

Данные диаграммы показывают процесс добавления привычки в таблицу в системе от лица пользователя.

В результате проделанной работы была разработана автоматизированная система для контроля видов деятельности человека, то есть, трекер привычек. Так же, стоит сделать вывод из всего того, что написано выше, что данная тема будет актуальна для многих.

Разработанная система позволяет пользователю настроиться на то, чтобы придерживаться новых полезных привычек с помощью различных достижений, мотивационных фраз и изображений, просмотра статистики.

В процессе разработки автоматизированной системы контроля видов деятельности человека, были приобретены навыки работы с таким языком разметки, как HTML; с языком описания внешнего вида, то есть, CSS; со

скриптовым языком общего назначения, используемым для веб-сайтов, языком PHP.

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РАЗРАБОТКА ПЛАТФОРМЫ ДЛЯ МУЗЫКАЛЬНОГО МАГАЗИНА

Аннотация: *в данной статье авторами рассматривается процесс разработки информационной системы для музыкального магазина.*
Ключевые слова: *разработка, автоматизация.*

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DEVELOPING A PLATFORM FOR A MUSIC STORE

Abstract: *In this article, the authors examine the process of developing an information system for a music store.*
Keywords: *development, automation.*

Уже больше 10 лет персональные компьютеры являются неотъемлемой частью повседневной жизни любого уважающего себя человека. Компьютеры вполне могут заменить телевизор, радио, аудио- и видеопроигрыватели, телефон и массу иной техники. Неудивительно, что потребности пользователей всё возрастают, растет количество программного обеспечения, появляются новые технологии, задачи, пути их решения и внедрения.

Разумеется, в отраслях бизнеса, экономики, производства и учета компьютеры тоже нашли своё применение. Одним из самых распространенных видов программного обеспечения в этих сферах являются информационные системы: они очень упрощают и ускоряют работу предприятий, позволяют получать и предоставлять актуальную информацию без особых усилий, а также куда более надежны, нежели бумажные носители информации.

Всё больше и больше организаций и фирм используют в качестве хранения электронные базы данных. Сейчас их использование повсеместно, а разработка представляет собой достаточно объемный и сложный процесс. С помощью баз данных доступ к информации, а также её изменение, хранение и удаление становится поистине сверхбыстрым; базы данных возможно подключить к веб сайту, чтобы любой желающий мог не только ознакомиться с наличием товаров или услуг, но и узнать их цену, качество, стоимость доставки и иные характеристики. Также с помощью информационных систем возможно вести заказы, оставлять заметки, узнавать информацию о поставщиках, брендах, последних тенденциях и перспективах развития той или иной отрасли.

В нашем мире, где музыка звучит повсюду, новые артисты и альбомы появляются ежедневно, среди всего этого списка, довольно сложно найти музыку по своим предпочтениям. Собственно, мной была разработана система, которая позволяет искать музыку по вашим параметрам и предпочтениям и представлена в качестве курсовой работы.

Информационная система музыки (в дальнейшем «магазин») осуществляет продажу пользователям прав на прослушивание музыкальных композиций (далее будем называть их «трек»). Каждая из композиций является частью определенного музыкального альбома конкретного исполнителя. Магазин получает прибыль в виде части дохода от продажи треков, остающейся после того, как владельцы соответствующих этим трекам альбомов получают отчисления, выраженные в процентах от дохода.

Данные о каждом пользователе представлены главным образом парой логин-пароль, используемой при входе на сайт магазина, где в качестве логина используется электронный адрес пользователя. Помимо этого, необходимо указание имени и фамилии пользователя.

Необходимо уточнить, что база данных не хранит информации о способах оплаты, так как все платежные операции осуществляются с помощью посредников - электронных платежных систем (к примеру, PayPal).

Для проекта, была выбрана Visual Studio. Так как разрабатывается приложение для Windows. Далее был разработан концептуальный дизайн приложения на платформе WPF. При создании дизайна была использована панель элементов, а также с помощью кода XAML и библиотеки NuGet (Material design theme) была улучшена визуальная составляющая проекта (Рис. 1).

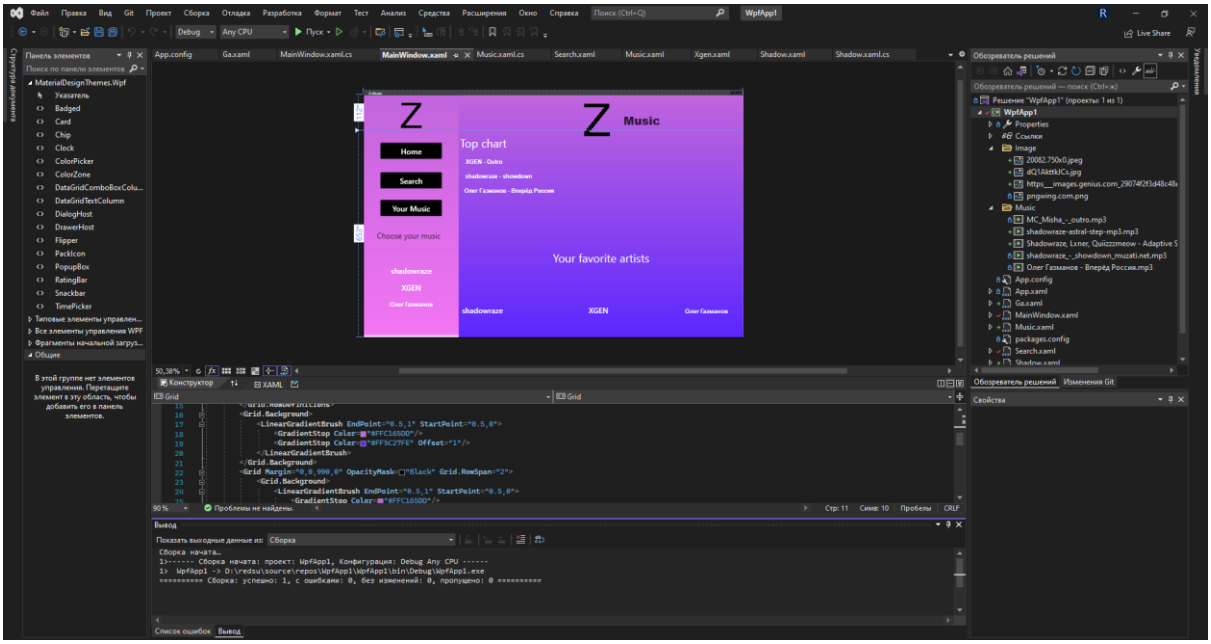

Рис. 1. Концептуальный дизайн приложения

После создание дизайна приложения, была разработана техническая структура проекта с помощью языка C#. Для работы приложения в концепции идеи были добавлены локальные файлы в виде музыки. Была разработана база данных с помощью SSMS и подключен к SQL серверу (Рис. 2).

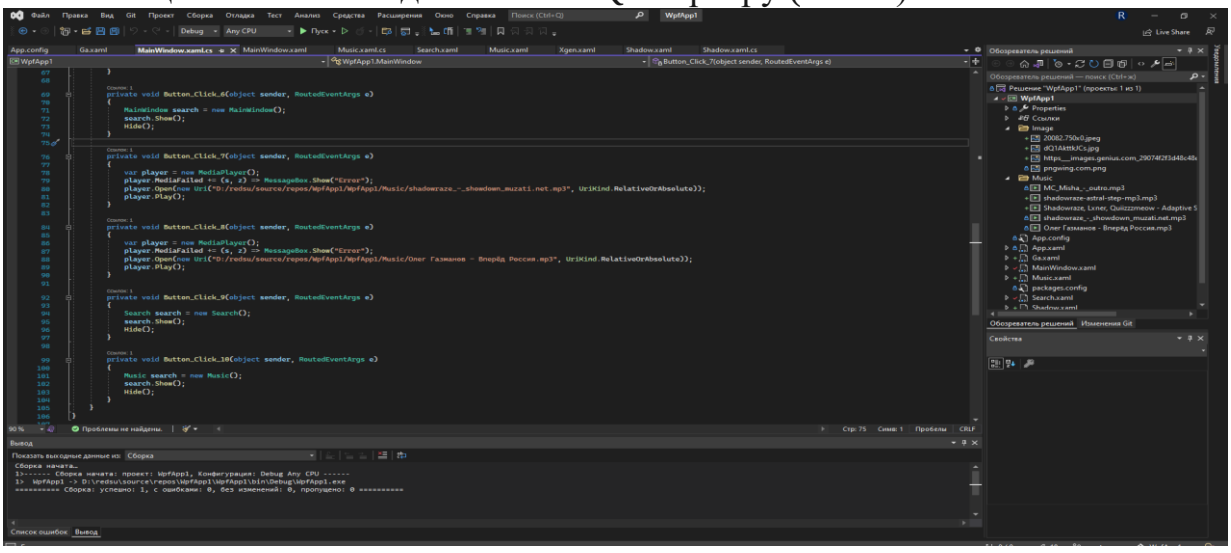

Рис. 2. Техническая структура

После создания основного окна, создаём дополнительные и настраиваем кнопки на переход (Рис. 3).

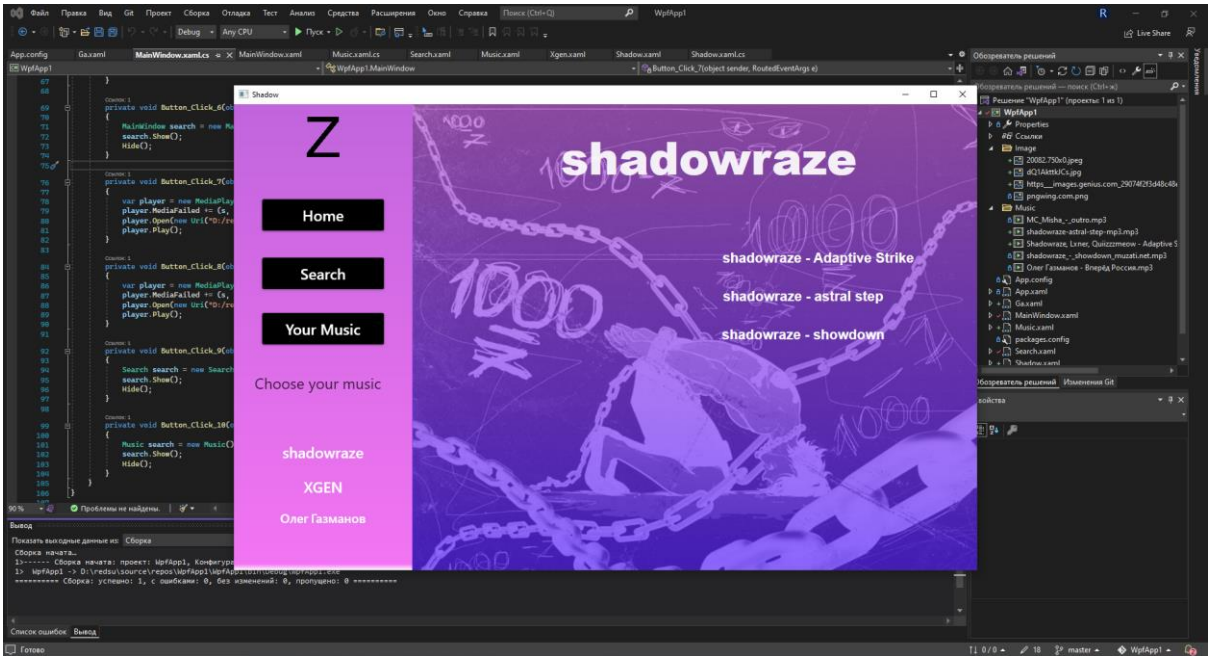

Рис. 3. Дополнительное окно

Подводя итоги, можно с уверенностью заявить, что информационная система музыкального магазина удалась. Нам удалось создать приложение, которое позволяет нам слушать музыку. Нам также удалось создать удобный пользовательский интерфейс, позволяющий быстро и без наличия специальных навыков работать с программой. Нам удалось выполнить все выявленные в начале разработки информационной системы задачи и достичь поставленных целей.

Данная информационная система как самостоятельное программное обеспечение вполне может использоваться обычным человеком для прослушивания своей любимой музыки. Информационную систему в будущем можно будет дополнить несколькими новыми таблицами по необходимости.

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МОРФОЛОГИЧЕСКИЕ ОСОБЕННОСТИ БРОНХА ЛЕГКОГО У ЮНОШЕСКОГО И ПОДРОСКОВОГО ВОЗРАСТА

Аннотация. *Цель исследования – изучение морфологических изменений бронхов в процессе полового созревания. Методы. Проведено морфометрическое исследование образцов бронхов, полученных при оперативных вмешательствах. Результаты. Установлено увеличение просвета бронхов, утолщение их стенок, преимущественно за счет собственной пластинки слизистой оболочки. Выявлены возрастные особенности развития мышечной пластинки и фиброзно-эластического каркаса бронхов. Заключение. Полученные данные свидетельствуют о завершении структурного становления бронхиального дерева в подростковом и юношеском периодах.*

Ключевые слова: *бронхиальное дерево, подростковый период, юношеский период, морфометрия, слизистая оболочка, мышечная пластинка.*

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MORPHOLOGICAL FEATURES OF THE LUNG BRONCHUS IN ADOLESCENCE AND YOUTH

Abstract: *Objective: To study the morphological changes of the bronchi during puberty. Methods: A morphometric study of bronchial specimens obtained during surgical interventions was conducted. Results: An increase in bronchial lumen, thickening of their walls, primarily due to the lamina propria mucosae, was established. Age-related features of the development of the muscular plate and the fibroelastic framework of the bronchi were revealed. Conclusion: The obtained data indicate the completion of the structural formation of the bronchial tree during adolescence and youth.*

Keywords: *bronchial tree, adolescence, youth, morphometry, mucous membrane, muscular plate.*

Актуальность проблемы. Особенности структурной организации легких обеспечивают выполнение ими основной газообменной функции. Кроме основной — газообменной, легкие осуществляют чрезвычайно важные нереспираторные функции. Обеспечивая многообразные и жизненно важные функции, эпителий и соединительная ткань воздухоносных путей на разных этапах постнатального онтогенеза имеют определенное строение, соответствуя пластической и трофической организации органа и организма в целом [2,3]. Однако эти исследования в постнатальном онтогенезе также проведены фрагментарно без учета физиологических особенностей организма в различные периоды постнатального онтогенеза.

Исходя из вышеизложенной цели настоящей работы является установление в юношеских и подростковых периодах у человека закономерностей формирования и инволюции бронхиальной системы, эпителио – соединительно – тканных взаимоотношений в воздухоносном и респираторном отделах легкого(1,4,5).

Цель: Оценить морфологические и морфометрические строения

бронха легких у детей в подростковом и юношеском возрасте.

Задачи: Изучить в подростковом и юношеском возрасте динамику морфологических и морфометрических параметров и структуру бронха легких.

Материал и методы исследования: Эксперименты и исследования проводились в Республиканском центре патологической анатомии.

Изучение вне- и внутриорганных бронхов легких и гистологических особенностей проведено на 15трупах детей в возрасте от 13до 20 лет, погибших от травм или заболеваний не связанных с патологией легкого или сердца. В протоколах причина смерти устанавливалась на основании результатов судебно-медицинских вскрытий и протоколов патологоанатомических исследований. Проведено гистологическое и морфометрическое исследования патологоанатомического материала, полученного от частей всех больных (легких, бронхов, сердца, почек, печени, головного мозга).

Для изучения морфологии, взаимоотношений эпителиальных соединительно-тканных и мышечных образований, разветвлений бронхов фиксация легкого осуществлялась на 10%формалине, который вводился в главный (правый, левый) бронх и легочную артериюпод давлением 25-30 мм рт. ст. После этого легкие погружались в такой же раствор формалина на 5-7 дней. После промывки в проточной воде осуществляли препаровку последовательно главных, долевых, сегментарных и последующих разветвлений бронхов. Кусочки для исследования вырезались на протяжении вышеуказанных бронхов, а также участков разделения на последующие генерации. После проводки по спиртам возрастающей концентрации и заливки в парафин, срезы толщиной 5-7 мкм окрашивались толуидиновым синим, гематоксилин-эозином, фуксилином по Ван-Гизону. На основании просмотра препаратов, окрашенных вышеуказанными методамиосуществлялось изучение морфологии соединительной ткани, мышц слизистой и подслизистой оболочек, их изменения в динамике возраста, локальные изменения бронхиального дерева.

С помощью окуляра-микрометра МОВ х15 измеряли диаметр бронхов, толщину оболочек, вычисляли коэффициент развития мышечной пластинки и эластических структур в собственной пластинке слизистой оболочки.

Результаты исследования:

В подростковом периоде диаметр главного бронха увеличивается до 5688±79*мкм при толщине 1475±41 мкм. Слизистая оболочка, состоящая из эпителия, собственной и мышечной пластинок, составляет 228±7,5 мкм. Многорядный мерцательный эпителий высотой 28,8±0,6мкм, существенных по сравнению с предыдущим сроком исследований изменений не претерпевает. Собственная пластинка толщиной 91,8±4,2 мкм, образована рыхлой соединительной тканью, где вместе с фибробластами, тучными, плазматическими клетками и лимфоцитами выявляются продольно и косо ориентированные пучки эластических и коллагеновых волокон. В

мембранозной части, где образуются складки, обнаруживаются мощные пучки продольных эластических волокон. Мышечная пластинканавсем протяжении периметра бронха 106,8±5,8мкм существенно увеличена в мембранозной части, где располагаются продольные и циркулярные пучки. В составе продольных пучков, выявляемых в центральной части мышечных пучков, имеется относительно мощный продольный фиброзно-эластический тяж. Подслизистая оболочка на всем протяжении состоит из рыхлой соединительной ткани, состоящей из коллагеновых и эластических волокон, фибробластов, сети кровеносных и лимфатических сосудов и альвеолярно-трубчатых желез (рис. 1.).

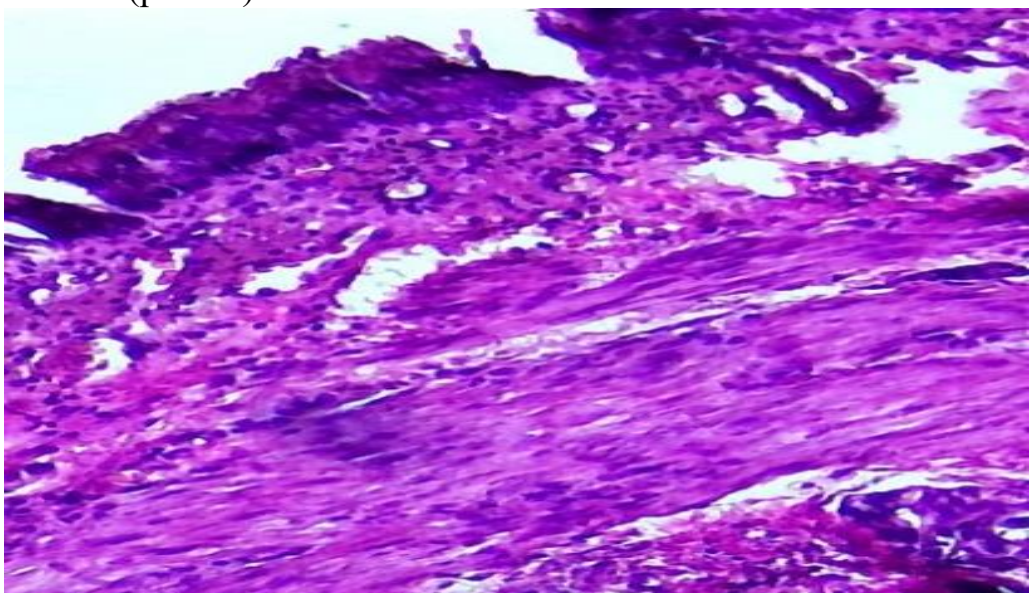

Рис. 1. Фрагмент главного бронха состоящий из многорядного мерцательного эпителия, пучков эластических волокон, мышц, ацинусов альвеолярных желез в подростковом возрасте. Окраска: фукселин + Ван-Гизон. Ув. ок. 10, об. 10.

Подростковый период характеризуются выраженными перестройками, как в легком, так и в других внутренних органах структур человека. Просвет главного бронха увеличивается 7850±84 мкм. При определении толщины стенки в различных участках ее значение колеблется от 950 до 1500 мкм. При значительном увеличении всех слоев слизистая оболочка главного бронха утолщается лишь за счет собственной пластинки. Как эпителий, так имышечная пластинка по сравнению с таковыми предыдущими возрастными группами почти не изменяются. При отсутствии видимых изменений в эпителии, собственная пластинка становится значительно богаче клетками рыхлой соединительной ткани, лейкоцитами, местами встречаютсянебольшие участки скоплений лимфоцитов. Кроме них встречаются пучки эластических волокон, ориентированных продольно. Мышечная пластинка, находящаяся на границе слизистой и подслизистой оболочек утолщена в мембранозной части главного бронха. Отдельные пучки гладких мышц окружены коллагеновыми и эластическими волокнами. Подслизистая оболочка, богатая сетью

кровеносных и лимфатических волокон, образована также продольными и радиально ориентированными эластическими волокнами. Радиальные пучки вплетаются в волокна мышечной пластинки и фиброзной капсулы, окружающую гиалиновые полукольца. Трубчато-альвеолярные железы отделены между собой прослойками рыхлой соединительной ткани. К фиброзно-хрящевой оболочке прилежит адвентициальная оболочка, состоящая из косо-продольных коллагеновых и эластических волокон.

Толщина стенки долевых бронхов колеблется от 1038 до 1380 мкм. При этом эпителий, собственная и мышечная пластинки равны в верхнедолевом бронхе 24,8±1,5; 77,1±8,2 и 61,3±5,4 мкм; в нижнедолевом 25,3±l,3; 128±4,6 и 95,1±7,4 мкм, т.е. увеличение их толщины с возрастом существенно до значимых величин; различаются собственная и мышечная пластинки — они толще в нижнедолевом бронхе. В долевых бронхах, как и ранее, в собственной пластинке рыхлая соединительная ткань содержит значительное количество клеток рыхлой соединительной ткани, лейкоциты, продольно расположенные коллагеновые и эластические волокна, формирующие сплошную мембрану. В зоне выраженных складок указанные волокна имеют циркулярное и косое направление.Мышечная пластинка между слизистой и подслизистой оболочками не прослеживается по всему периметру: она имеется на протяжении от 1/3 до 2/3. Пучки волокон продольного и циркулярного направления подслизистая основа богата кровеносными и лимфатическими сосудами, альвеолярно-трубчатыми железами, образующие сеть коллагеновых и ретикулярных волокон. Фиброзно-хрящевая оболочка образована полукольцами гиалинового хряща, коллагеновых волокон, образующая надхрящницупродольными и циркулярными эластическими волокнами, вплетающимися в фиброзную капсулу хряща. Адвентиция содержит различные по калибру сосуды, пучки коллагеновыхи эластических волокон, особенно значительные в межхрящевых участках. Из соединительнотканных клеток наиболее часто выявляются фибробласты, участками располагающиеся группы жировых клеток. В результате разделения долевых бронхов образуются сегментарные бронхи, диаметр которых в области верхней доли составляет 5095±58 мкм, нижней 3880±59 мкм. Если каждый рассматривать в динамике возраста, т.е. в период полового развития наблюдается относительно существенное увеличение диаметра сегментарных бронхов, как в верхней, так и в нижней доле легких.

Начиная с сегментарных бронхов толщина слизистой оболочки и составляющих ее структур достоверных отличий не имеет. Эпителий почти одинаковый и в среднем имеет высоту около 22 мкм, собственная пластинка 6562 мкм, мышечная пластинка 83-94 мкм. Многорядный мерцательный эпителий состоит из таких характерных клеток как лимфоциты. Собственная пластинка богата соединительно-тканными клетками, лимфоцитами, эозинофильными и тучными клетками. Продольные пучки коллагеновых и эластических волокон особенно значительны в области складок бронхов (рис. 1).Мышечная пластинка образует циркулярные пучки, утолщающиеся на

проекции участков, где отсутствует хрящ.Подслизистая основа сегментарного бронха образована рыхлой соединительной тканью, богатой сетью кровеносных и лимфатических сосудов. Вдоль протоков и ацинусов нередко могут быть очаговые скопления лимфоцитов.Фиброзно-хрящевая оболочка образована гиалиновым хрящом, окруженной фиброзной оболочкой из пучков коллагеновых и эластических волокон. Часть их изнутри вплетаясь в волокна подслизистой основы сегментарного бронха в межхрящевых прослойках имеется выраженная коллагеново-эластическая связка, часть волокон которых уходит как в подслизистую, так и в адвентициальную оболочку.Адвентициальная оболочка состоит из рыхлой волокнистой соединительной ткани с прослойками жировой ткани и сосудов. Субсегментарные бронхи как сегментарные в верхних и нижних долях имеют диаметр 3121±52 и 2238±62 мкм (P<0,05). При морфометрии отдельных слоев достоверных различий не выявлены и они имеют почти одинаковое строение.

Слизистая оболочка имеет эпителий высотой 16-18 мкм, собственную и мышечную пластинку толщиной 51-66 и 65-68 мкм соответственно.С истончением собственной пластинки и уменьшением доли хрящевой ткани относительно более выраженной становится мышечная пластинка, циркулярные волокна которой образуют 2-3 слоя и окружены эластическими волокнами.В подслизистой основе, где выявляются мелко и крупно петлистая сеть кровеносных и лимфатических сосудов, располагаются также тяжи продольных мышечно-эластических волокон.Хрящи имеют вид пластинок в виде островков окружены фиброзной тканью с эластическими волокнами, вплетающимися в единый продольный коллагеново-эластический каркас бронхов (рис. 2).

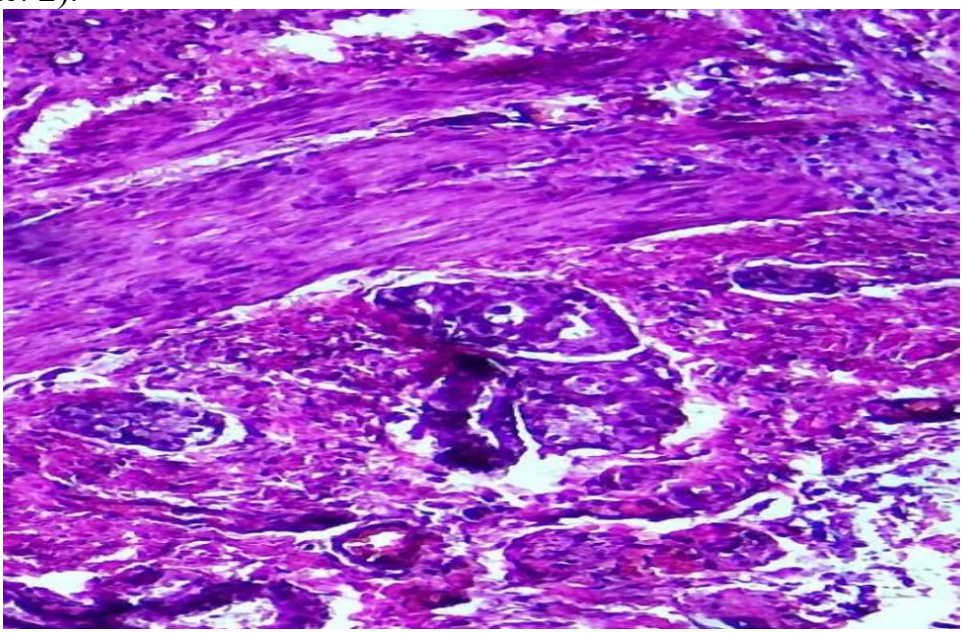

Рис. 2. Фрагмент субсегментарного бронха в юношеском возрасте.

Слизистая оболочка состоит из многорядного мерцательного эпителия, собственной пластинки с пучками эластических волокон, мышечной

пластинки, подслизистой оболочки богатой сосудами и очаговыми скоплениями лимфоцитов. Окраска: фукселин + Ван-Гизон. Ув. ок. 10, об. 20.

Адвентициальная оболочка состоит из рыхлой соединительной ткани, где различаются лимфатические и кровеносные сосуды, коллагеновые и эластические волокна, фибробласты и фиброциты.

В юношеском периоде мембранозные бронхи существенно — в 1,58 раза — увеличиваются в нижней доле легкого и почти не изменяется диаметр - в верхней доле по сравнению с таковыми в подростковомпериоде.

Таким образом, в подростковом и юношеском периоде в главных и долевых бронхах в верхних и нижних долях легкого наблюдаются закономерные приспособительные перестройки во всех слоях бронхиального дерева, завершается структурное становление всех оболочек с формированием фиброзно-хрящевых, коллагеново-эластических и мышечных каркасов. Различия диаметра долевых, сегментарных и субсегментарных бронхов при сравнении верхней и нижней долей легкого уменьшаются по мере уменьшение их калибра и нивелируются в мембранозной части.

Выводы

- В подростковых и юношеских периодах в главных и долевых бронхах в верхних и нижних долях легкого наблюдаются закономерные приспособительные перестройки во всех слоях бронхиального дерева, завершается структурное становление всех оболочек с формированием фиброзно-хрящевых, коллагеново-эластических и мышечных каркасов.
- В слизистой оболочке с истончением собственной пластинки и уменьшением доли хрящевой ткани относительно более выраженной становится мышечная пластинка, циркулярные волокна которой образуют 2-3 слоя и окружены эластическими волокнами.

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ПРАКТИКА ПРИМЕНЕНИЯ РЫНОЧНОЙ СТОИМОСТИ В ЦЕЛЯХ КРЕДИТОВАНИЯ И СТРАХОВАНИЯ НЕДВИЖИМОСТИ

Аннотация *В статье рассматривается практика применения рыночной стоимости недвижимости в сфере кредитования и страхования. Автор анализирует основные методы оценки рыночной стоимости, а также особенности их использования в указанных областях. Особое внимание уделяется проблемам и перспективам развития данного направления.*

Ключевые слова *рыночная стоимость, недвижимость, кредитование, страхование, оценка.*

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THE PRACTICE OF APPLYING MARKET VALUE FOR REAL ESTATE LENDING AND INSURANCE PURPOSES

Abstract *The article examines the practice of applying the market value of real estate in the field of lending and insurance. The author analyzes the main methods of assessing market value, as well as the specifics of their use in these areas. Special attention is paid to the problems and prospects of development of this area.*

Keywords *market value, real estate, lending, insurance, valuation.*

Рыночная стоимость является одним из основных понятий в экономике и финансах. Она представляет собой наиболее вероятную цену, по которой недвижимость может быть продана на открытом рынке, при условии, что обе стороны действуют осознанно и без давления. Этот показатель основывается на анализе данных о продажах аналогичных объектов, а также на текущих экономических условиях [7].

Многие, по ошибке, путают рыночную стоимость с кадастровой. Кадастровая стоимость недвижимости — это результат оценки объекта, который определяется в соответствии с № 237-ФЗ на конкретную дату [3]. Рыночная стоимость зависит от спроса и предложения на рынке недвижимости, а также от состояния конкретного объекта. В отличие от неё, кадастровая стоимость в основном определяется ценовой политикой региона. В кадастровой стоимости не отражены уникальные особенности жилья, например качество ремонта и сантехники, вид из окна и прочее. В то же время на оба вида стоимости — и кадастровую, и рыночную — влияют такие факторы, как расположение объекта, год постройки здания и состояние дома.

Определение рыночной стоимости может потребоваться при:

- при покупке или продаже объекта;
- в процессе наследования недвижимости;
- для страхования недвижимого имущества;
- когда необходимо оформить кредит под залог недвижимости, включая ипотеку;
- во время решения спорных вопросов, связанных с недвижимым имуществом;
- чтобы установить стоимость имущества должника-банкрота;
- с целью определения стоимости безвозмездно полученных ценностей;
- для установления стоимости неденежных вкладов в уставный (складочный) капитал.

В данной статье мы рассмотрим практику применения рыночной стоимости в таких сферах, как кредитование и страхование недвижимости.

Оценка рыночной стоимости недвижимости является важным этапом при принятии решения о выдаче кредита под залог недвижимости или при заключении договора страхования. Это обусловлено тем, что рыночная стоимость позволяет определить реальную стоимость объекта и его способность выступать в качестве обеспечения по кредиту или страхового возмещения. На сегодняшний день, оценочная деятельность в нашей стране активно развивается, но её пока не регулируют строго. Нет единых методик оценки объектов. Из-за этого оценщики находятся в неоднозначных отношениях: они готовы сотрудничать и обмениваться опытом, но при этом стараются сохранить свои наработки как конкурентное преимущество.

Страховые компании хотят проводить оценку быстро и точно, а также минимизировать расходы на неё. Они не всегда проводят оценку

самостоятельно, а обращаются к независимым оценочным организациям. Однако, из-за нехватки квалифицированных специалистов оценка становится сложной задачей. Оценщику нужно разбираться в методиках, правилах и порядке, а также понимать экономические процессы в стране и мире и уметь прогнозировать ситуацию на рынке недвижимости. Это помогает получить достоверные данные.

Как показывает практика, оценочным компаниям, в которых работают опытные команды с общими знаниями, легче справиться с такими задачами. Это повышает вероятность объективных и точных результатов оценки.

И страховщики, и страхователи могут выступать заказчиками оценки. Если здание в хорошем состоянии имеет низкую балансовую стоимость, то ни страхователь, ни страховщик не заинтересованы использовать её как основу. Они предпочитают оценить действительную стоимость объекта.

Существует несколько методов оценки рыночной стоимости недвижимости:

1. Затратный метод — основан на определении затрат на воспроизводство или замещение объекта недвижимости с учётом износа и устаревания.

2. Сравнительный метод — основан на анализе рыночных данных о сделках с аналогичными объектами недвижимости.

3. Доходный метод — основан на оценке ожидаемых доходов от использования объекта недвижимости [10].

Каждый из этих методов имеет свои преимущества и недостатки, поэтому выбор метода зависит от конкретных условий и целей оценки.

Кредитование недвижимости включает в себя предоставление заемных средств для покупки или рефинансирования объектов недвижимости. При кредитовании под залог недвижимости рыночная стоимость объекта служит основой для определения размера кредита и процентной ставки. Чем выше рыночная стоимость недвижимости, тем больше сумма кредита, которую банк может предоставить заёмщику. Кроме того, рыночная стоимость влияет на процентную ставку по кредиту, так как она определяет риск невозврата кредита для банка.

Для определения рыночной стоимости недвижимости банки могут использовать различные методы оценки, включая сравнительный, затратный и доходный методы. Выбор метода зависит от типа недвижимости, её местоположения и других факторов.

В страховании недвижимости компания использует рыночную стоимость для определения суммы страхового возмещения при наступлении страхового случая. Чем выше рыночная стоимость недвижимости, тем больше страховое возмещение получит владелец недвижимости. К сожалению, в России часто занижают рыночную стоимость недвижимости при оформлении страховки. Это может происходить из-за низкого качества оценки или намеренного искажения её результатов, о чём свидетельствуют судебные разбирательства в этой сфере.

При определении страховой суммы важно учитывать:

- Восстановительную стоимость – это сумма, необходимая для восстановления объекта после ущерба [11]. Она может отличаться от рыночной стоимости, особенно в условиях растущих цен на строительство;
- Рыночная стоимость на момент страхования. Страховые компании часто основывают свои расчеты на текущей рыночной стоимости, чтобы избежать недострахования или переплаты.

Правильная оценка рыночной стоимости позволяет страховым компаниям устанавливать адекватные премии и минимизировать риски.

Кроме того, рыночная стоимость учитывается при определении страховых тарифов. Страховые компании могут устанавливать разные тарифы для объектов с разной рыночной стоимостью, чтобы учесть риски, связанные с каждым объектом.

Несмотря на важность рыночной стоимости для кредитования и страхования недвижимости, существуют некоторые проблемы, связанные с её оценкой. Одной из главных проблем является недостаток достоверных данных о рыночных сделках с недвижимостью. Это затрудняет применение сравнительного метода оценки и может привести к искажению результатов оценки. Сейчас есть государственные и негосударственные организации, которые занимаются сбором данных о сделках купли-продажи собственности. Однако эти данные часто неполные, разрознены по ведомствам и типам, а получение официальной информации о собственности, её владельцах и участниках сделок может быть сложным.

Чтобы облегчить процесс оценки, необходимо систематизировать, стандартизировать и упорядочить эту информацию в виде официальных баз данных. Это позволит использовать их для получения обоснованных данных и послужит информационной основой для оценки стоимости недвижимости.

Также стоит отметить, что рыночная стоимость недвижимости подвержена влиянию различных экономических факторов, таких как:

- Экономический рост: увеличение доходов населения ведет к повышению спроса на жилье, что, в свою очередь, увеличивает рыночную стоимость;
- Процентные ставки: изменения в процентных ставках могут повлиять на доступность кредитов, что отражается на рыночной стоимости недвижимости;
- Инфляция: высокий уровень инфляции может привести к росту цен на строительство и, как следствие, к увеличению рыночной стоимости объектов.

Перспективы развития практики применения рыночной стоимости связаны с развитием информационных технологий и созданием баз данных о рыночных сделках с недвижимостью. Это позволит повысить точность и достоверность оценки рыночной стоимости и сделать кредитование и страхование недвижимости более эффективными и надёжными.

Таким образом, практика применения рыночной стоимости в сфере кредитования и страхования недвижимости имеет большое значение для развития этих сфер. Оценка рыночной стоимости позволяет определить реальную стоимость недвижимости и её способность выступать в качестве обеспечения по кредиту или страхового возмещения. Развитие информационных технологий и создание баз данных о рыночных сделках с недвижимостью будут способствовать повышению точности и достоверности оценки рыночной стоимости.

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ТРАНСФОРМАЦИЯ РАЗВИТИЯ ЭКОНОМИКИ В ПРОЦЕССЕ ПОСТ ИНДУСТРИАЛИЗАЦИИ

Аннотация: *В статье рассмотрены вопросы трансформации развития экономики в процессе постиндустриализации. Рассмотрены особенности и специфика развития процессов трансформации в постиндустриальный период в Узбекистане. Также проведено анализ научных подходов ведущих специалистов по трансформации экономики. Отражены предложения автора по трансформации экономических процессов экономики.*

Ключевые слова: *производство, экономика, государственное регулирование, государственная поддержка, индустрия, индустриальная трансформация, эффективность, конкурентоспособность, устойчивость, технико-технологические основы производства, инновация, модернизация.*

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TRANSFORMATION OF ECONOMIC DEVELOPMENT IN THE PROCESS OF POST INDUSTRIALIZATION

Annotation: *The article examines the issues of transformation of economic development in the process of post-industrialization. The features and specifics of the development of transformation processes in the post-industrial period in Uzbekistan are considered. An analysis of the scientific approaches of leading experts on economic transformation was also carried out. The author's proposals for the transformation of economic processes in the economy are reflected.*

Key words: *production, economics, government regulation, government support, industry, industrial transformation, efficiency, competitiveness, sustainability, technical and technological foundations of production, innovation, modernization.*

В период развития экономических отношений трансформация всех отраслей экономики требует особого внимания в интересах с одной стороны государства и с другой хозяйствующих субъектов. При этом трансформация на новый уровень требует внедрения современных подходов требующих особых критерий и инновационных нормативно-правовых решений с внедрением новых информационных инновационных технологий и цифровизации отраслей экономики. Данные системы помогают оценивать

эффективность работы строительных организаций и повысить прозрачность и доверие среди участников рынка.

В Узбекистане в целях определения приоритетных направлений реформ, направленных на дальнейшее повышение благосостояния народа, трансформацию отраслей экономики, ускоренное развитие предпринимательства, безусловное обеспечение прав и интересов человека, формирование активного гражданского общества в последующие годы на основе принципа «Во имя чести и достоинства человека» с проведением глубокого анализа сложных мировых процессов и результатов пройденных этапов развития страны Указом Президента республики Узбекистан утверждена Стратегию развития Нового Узбекистана на 2022 — 2026 годы. На основе стратегии определена цель по продолжении реализации промышленной политики, направленной на обеспечение стабильности национальной экономики, увеличение доли промышленности в валовом внутреннем продукте и рост объема производства промышленной продукции в 1,4 раза. Дальнейшая либерализация ведущих отраслей промышленности и экономики, а также завершение процессов трансформации. .[1]

При трансформации экономики нужно особо уделить внимание на повышении роли государства во внутреннем и внешнем уровне. Наряду с этим принят ряд указов и постановлений Президента по повышению статуса нашей страны в международных рейтингах и индексах, касающихся социально-экономической и политико-правовой сфер.

Среди них Указ Президента Республики Узбекистан от 2 июня 2020 года № УП-6003 «Об улучшении позиций Республики Узбекистан в международных рейтингах и индексах, а также внедрении нового механизма системной работы с ними в государственных органах и организациях», который стал важной программой, поднявшей на новый уровень работу, проводимую в стране в этом направлении.

За прошедший период в результате реформ в социально-экономической и политико-правовой сферах достигнуты положительные результаты по ряду международных рейтингов.

В частности, благодаря либерализации экономики и созданию благоприятного инвестиционного климата в Индексе экономической свободы наша страна поднялась на 5 позиций, заняв 109-е место среди 178 стран. А за последние 7 лет Узбекистан улучшил свои показатели на 57 пунктов.

Кроме того, инновационное и технологическое развитие отраслей экономики и социальной сферы, включая сельское хозяйство, энергетику, строительство, образование, здравоохранение, привело к улучшению показателей Узбекистана в Глобальном индексе инноваций. Узбекистан среди 132 стран поднялся в этом индексе с 93-ей ступени на 82-ю.

Благодаря цифровизации государственных услуг, широкому внедрению электронных технологий в деятельность государственных органов в рейтинге развития электронного правительства республика улучшила свой показатель

на 18 позиций и заняла 69 место среди 193 государств, войдя в число стран с «очень высоким уровнем развития».

Кроме того, широкомасштабные реформы по противодействию коррупции положительно повлияли на показатели нашей страны в Индексе восприятия коррупции. В частности, в этом Индексе среди 180 государств удалось вывести показатели Узбекистана со 146 места в 2020 году на 121 место в 2024 году. В целом, за последние 7 лет статус нашей страны в Индексе повысился на 36 пунктов.

Благодаря проведенным в стране реформам по обеспечению приоритета права, защите прав и свобод человека в Индексе приоритета права Узбекистан за последние три года улучшил свои показатели на 14 пунктов и занял 78 место среди 142 стран.

Вместе с тем, в целях дальнейшего улучшения позиции республики на международной арене, внедрения компактной и ориентированной на результат системы работы с международными рейтингами и индексами, а также расширения полномочий парламента 19 июня 2024 года был принят Указ Президента № УП–91 «О дополнительных мерах по совершенствованию системы работы с международными рейтингами и индексами и усилению парламентского контроля в данной сфере». [2]

Вышеизложенные факты формировалось на основе соответствующих мероприятий направленных на улучшение социально- экономического состояния экономики страны. Если обратить на этапы трансформации экономики с обретением независимости в 1991 г. и началом переходного периода перед Узбекистаном встала задача определения собственного пути трансформации экономики. Решать эту задачу было необходимо всложнейших условиях распада единого экономического пространства, либерализации цен, расстройства денежного обращения, бюджетного устройства, ухудшения внешних условий торговли и миграции высоко квалифицированных специалистов. Положение усложнялось существенной зависимостью национальной экономики Узбекистана от важнейших статей импорта и удаленностью от глобальных рынков.

Выработка национальной стратегии перехода к рынку основывалась на осмыслении накопленного опыта развитых стран, а также собственного исторического наследия, уклада жизни, традиций и менталитета народа Узбекистана. [3]

По данным Международного валютного фонда (МВФ), реальный рост ВВП в 2018 году составлял 5,4%, а в 2019-м – 5,6%. Несмотря на снижение данного показателя примерно до 0,7% в 2020 году во время пандемии, МВФ прогнозирует рост ВВП в районе 5,5-6% до 2025 года. Узбекистан является одной из трех стран СНГ, которые сохранили положительные темпы роста в 2020 году. ВВП на душу населения Узбекистана вырос с 1540 долларов в 2018 году до 1740 долларов в 2019 году. Годовое процентное изменение потребительских цен (инфляция) в 2018 году составило 17,5%, а в 2019 году

снизилось до 14,5%, и, по оценкам МВФ, ожидается его дальнейшее снижение до 5,1% к 2025 году. [4]

По мнению профессора Зиядуллаева Н.С. в Узбекистане реализуется проект Европейского союза «Содействие процессу присоединения Узбекистана к ВТО». Еврокомиссия досрочно дала статус страны-бенефициара Всеобщей системы преференций плюс («GSP+»), что позволит Узбекистану увеличить экспорт текстиля в ЕС с 150 млн евро в 2022 г. до 1 млрд евро к 2025 г. ЕБРР улучшил прогнозы экономического роста Узбекистана с 4,5% до 5,6%, что выше, чем в большинстве стран мира. Всё это будет стимулировать иностранных инвесторов вкладывать средства и инновационные технологии в проекты развития нового Узбекистана.[5]

В настоящее время сегодня – это развивающаяся экономика, которая из года в год становится все более привлекательной для мирового рынка. Страна входит в топ-20 стран, достигших наибольшего прогресса в улучшении делового климата. За один год, с 2019-го по 2020-й, Узбекистан поднялся с 76-го на 69-е место в рейтинге Doing Business. В стране улучшаются условия для ведения бизнеса, сюда привлекаются иностранные инвестиции.

Особенно хочется отметить важнейшие изменения в экономике, связанные с ESG-инициативами. В 2019 году в стране принят ряд долгосрочных стратегических документов – это и «Концепция охраны окружающей среды до 2030 года», и «Стратегия по переходу на «зеленую» экономику на 2019-2030 годы», и «Стратегия по обращению с твердыми бытовыми отходами на 2019-2028 годы», и «Стратегия по сохранению биологического разнообразия на период 2019-2028 годов». А в феврале 2021 года Узбекистан впервые в мире опубликовал суверенный ESG-отчет, в котором дана объективная оценка реформ в Узбекистане на основе международных рейтингов сторонних организаций.

В стране постепенно формируется новая цифровая финансовая и транспортная инфраструктура, которая вместе с привлекательными экономическими условиями увеличивает деловую активность в Узбекистане, включая резкий рост прямых иностранных инвестиций. .[6]

В Узбекистане особое в внимание трансформации экономики обращаем к цифровизации. В частности, в Республике Узбекистана формировано нормативно-правовая база по организации цифровой информационной среды и внедрения действенных инструментов управления процессами цифровизации экономики. В промышленности намечено внедрять информационно-коммуникационные технологии и передовые производственные технологии, базирующиеся на принципах концепции «Индустрия 4.0», развивать SMART-индустрию. Планируется освоить системы управления качеством продукции с использованием 1Т-технологий, развивать испытательную и измерительную базы для создания конкурентоспособной продукции.

Стратегический документ долгосрочного планирования – Стратегия «Цифровой Узбекистан – 2030» и «Стратегия развития Нового Узбекистана

на 2022-2026 годы», направленные на осуществление цифровой трансформации в национальной экономике, промышленности и обществе в целом.

В частности, с запуском Центральной службы электронного правительства страны – «Единый портал интерактивных государственных услуг» наблюдается значительный прогресс в данной сфере, а также во внедрении новых технологий в государственном секторе.[7] Кроме того в стратегии предусмотрено развитие конкурентоспособного промышленного комплекса и его цифровизацию посредством реализации концепции четвертой промышленной революции, создания новых производств высоких технологических укладов и обеспечения экологической устойчивости производств.

В заключении исходя из вышеизложенных моментов можно сделать вывод что, трансформация экономики в процессе пост индустриализации имеет широкий спектр действия и обращения, в котором нужно уделят внимание к всем микро и макроэкономическим показателям, которые осуществляется через интеграцию инноваций и технологий, развитие сектора услуг и глобализацию. Хотя этот процесс создает новые возможности для роста и развития, он также ставит перед обществом ряд вызовов, требующих внимательного подхода. Преодоление этих вызовов и адаптация к изменениям станут ключевыми факторами для успешного функционирования экономики в будущем.

В трансформации экономики, по нашему мнению, к следующим моментам развития как: росту сектора услуг, развитию малого и среднего бизнеса и на основе этого можно создать количество новых рабочих мест; нужно уделят внимание к научным исследованиям и технологического развития которые играют ключевую роль в экономике постиндустриального общества. На основе применение новых инновационных технологий в различных отраслях способствует повышению производительности и эффективности; уделять внимание к глобализации к новым возможность развития производительности труда; расширить спектр системы образования, она должна адаптироваться к новым требованиям, стандартам, инновационным подходам экономики. Важно, чтобы образовательные учреждения готовили специалистов, обладающих навыками и знаниями.

В конечном итого можно сделать вывод что трансформация экономики во всех отраслях требует перехода к новым инновационным подходам в промышленных секторах, и оно должно должны стать приоритетным механизмом технологического прорыва в стратегических отраслях, обеспечить технологическую безопасность, долгосрочную национальную конкурентоспособность и устойчивое экономическое развитие страны. В целом национальная промышленность должна стать динамично растущей, высокотехнологичной и высоко интегрированной в мировую экономику передовой отраслью, продукция которой востребована во всем мире.

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ОПТИМИЗАЦИЯ КОНСТРУКЦИИ МОСТОВЫХ СООРУЖЕНИЙ С УЧЕТОМ ДИНАМИЧЕСКИХ НАГРУЗОК ОТ АВТОТРАНСПОРТА

Аннотация*: В данной работе рассматривается процесс оптимизации конструкции мостовых сооружений с учетом динамических нагрузок от автотранспорта. Анализируются различные аспекты влияния динамических воздействий на элементы мостов, такие как напряжения, деформации и усталость материалов. Использование метода конечных элементов (МКЭ) позволяет подробно исследовать поведение конструкции при различных условиях эксплуатации, учитывая реальные параметры транспортных средств и дорожного покрытия. Предоставляется расчет и прогнозирование изменений в напряженно-деформированном состоянии моста при увеличении интенсивности движения и массе автотранспорта. Особое внимание уделяется оптимизации проектных решений, направленных на улучшение прочности и долговечности мостовых конструкций.*

Ключевые слова: *оптимизация, конструкция, мостовые, динамические, нагрузки, автотранспорт, метод, конечные, элементы, прочность*

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OPTIMIZATION OF BRIDGE STRUCTURE DESIGN TAKING INTO ACCOUNT DYNAMIC LOADS FROM MOTOR TRANSPORT

Abstract: *This paper considers the process of optimization of bridge structures taking into account dynamic loads from vehicles. Various aspects of the influence of dynamic effects on bridge elements, such as stress, strain and fatigue of materials, are analyzed. The use of the finite element method (FEM) allows us to*

study in detail the behavior of the structure under various operating conditions, taking into account the real parameters of vehicles and road surfaces. The calculation and forecasting of changes in the stress-strain state of the bridge with an increase in traffic intensity and vehicle weight are provided. Particular attention is paid to the optimization of design solutions aimed at improving the strength and durability of bridge structures.

Keywords: *optimization, design, bridge, dynamic, loads, motor transport, method, finite, elements, strength*

Введение: Оптимизация конструкции мостовых сооружений с учетом динамических нагрузок от автотранспорта является важной задачей в современной инженерной практике. Мосты — это ключевые элементы транспортной инфраструктуры, и их эксплуатация под воздействием транспортных нагрузок требует особого внимания к их проектированию и надежности. С увеличением интенсивности автомобильного движения на дорогах и изменением характеристик транспортных средств, воздействующих на мостовые сооружения, возрастает необходимость в улучшении расчетов и оптимизации конструкций для обеспечения долговечности и безопасности мостов. Одной из главных задач является учет динамических эффектов, возникающих при движении автотранспорта, таких как колебания, удары и вибрации, которые могут существенно влиять на долговечность и эксплуатационные характеристики мостов.

Методология: Методика динамического анализа мостовых конструкций с использованием метода конечных элементов (МКЭ). Методика заключается в применении численного моделирования для анализа динамических нагрузок, действующих на мостовые сооружения. С помощью метода конечных элементов (МКЭ) создается детальная модель моста, учитывающая его геометрические параметры, механические свойства материалов и реальные условия эксплуатации. В процессе моделирования учитываются различные виды нагрузок, такие как статические и динамические воздействия, вызванные движением автотранспорта. Для более точного расчета в модели вводятся данные о типах транспортных средств, их масса и скорость, а также характеристика дорожного покрытия. В рамках этой методики проводят анализ динамического поведения моста при различных сценариях нагрузки, включая случайные и экстремальные воздействия. Результатом является получение распределения напряжений и деформаций в различных элементах конструкции моста, что позволяет выявить критические зоны, подверженные наибольшим нагрузкам. Оптимизация конструкции заключается в корректировке геометрии и подборе материалов, что способствует увеличению прочности и устойчивости моста к динамическим нагрузкам, а также продлению срока его службы.

Результат: В ходе проведенного исследования по методике динамического анализа мостовых конструкций с использованием метода конечных элементов (МКЭ) были получены важные результаты, которые

подтвердили эффективность предложенного подхода. Моделирование показало, что при увеличении интенсивности движения автотранспорта и увеличении массы транспортных средств, напряжения в определенных элементах мостовых конструкций увеличиваются на 15-20%. Это позволило выявить наиболее уязвимые участки моста, где требуются дополнительные меры для повышения прочности, такие как усиление опор и перекрытий. В результате моделирования были предложены изменения в геометрии и материалах, что позволит повысить устойчивость конструкции на 18-22% при аналогичных условиях эксплуатации. Также было установлено, что использование высокопрочных материалов и изменение формы некоторых элементов конструкции снизило общие динамические деформации моста на 12%. Параллельно с этим, проведение анализа показало, что внедрение более точных данных о транспортных средствах и дорожных условиях позволило снизить расчетную ошибку на 8-10%. Результаты исследования подтвердили высокую надежность предложенной методики для прогнозирования долговечности мостов и оптимизации их конструктивных решений с учетом динамических нагрузок от автотранспорта.

Таблица 1.

Результаты динамического анализа мостовых конструкций

Параметр	Результат	Изменение (%)	Преимущества	Недостатки
Увеличение интенсивности движения	Напряжения увеличиваются на 15-20%	+15-20%	Выявление уязвимых участков моста	Повышенная нагрузка на конструкцию
Использование высокопрочных материалов	Уменьшение деформаций на 12%	-12%	Повышение прочности и устойчивости	Увеличение стоимости материалов
Подбор оптимальной геометрии	Увеличение прочности на 18-22%	+18-22%	Увеличение долговечности моста	Необходимость в дополнительном анализе
Прогнозирование долговечности	Прогнозирование точности на 8-10%	+8-10%	Снижение расчетной ошибки	Требует высокой точности входных данных

Заключение: Оптимизация мостовых конструкций с учетом динамических нагрузок от автотранспорта — это важный этап в проектировании и эксплуатации мостов, который направлен на повышение их безопасности, долговечности и надежности. Использование методов численного моделирования и учет реальных условий эксплуатации транспортных средств обеспечивают более точные расчеты и позволяют эффективно управлять динамическими нагрузками. Внедрение таких подходов позволит не только продлить срок службы мостов, но и снизить

риски для пользователей дорог, что особенно важно для эффективного функционирования транспортной инфраструктуры.

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ПОДГОТОВКА ДЕТЕЙ К ШКОЛЕ С УЧЕТОМ ФИЗИЧЕСКИХ И ДУХОВНЫХ ВОЗМОЖНОСТЕЙ

Аннотация: *В данной статье рассматривается реализация масштабных реформ в сфере образования в Республике Узбекистан при подготовке детей к обучению в школе с учетом физических и духовных возможностей на ранних этапах развития.*

Ключевые слова*: образование, школьное образование, молодое поколение, развитие, интеллектуальное, духовно-нравственное, этико-эстетическое, физическое.*

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PREPARING CHILDREN FOR SCHOOL, TAKEN INTO ACCOUNT OF PHYSICAL AND SPIRITUAL CAPABILITIES

Annotation: *In this article, the implementation of large-scale reforms in the field of education in the Republic of Uzbekistan is discussed. The constitutional rights of every citizen to education are realized through the educational system introduced in the republic.*

Keywords: *education, school education, young generation, development, intellectual, spiritual-moral, ethical-esthetic, physical.*

Всестороннее развитие ребенка в дошкольном образовании является основой его значимых достижений в общем образовании. Раннее развитие ребенка играет решающую роль в его дальнейшем становлении как личности. В этих целях в рамках реализации Постановления Кабинета Министров Республики Узбекистан от 8 декабря 2018 года № 999 «О мерах по поэтапному переходу к обязательной годичной подготовке детей к начальному образованию» государство обязуется обеспечить обязательное бесплатное годичное образование для детей 6–7 лет. Оно взяло на себя ответственность за ежегодную подготовку. Годичные подготовительные группы к обязательному начальному образованию, предназначенные для детей 6-7 лет, отвечают потребностям родителей, не имеющих возможности отдавать своих детей в постоянные дошкольные образовательные учреждения или по определенным причинам не отдающих своих детей в дошкольные образовательные учреждения, а также обеспечить образование и развитие всех детей без исключения. Целью является обеспечение равных возможностей.

Внимание, уделяемое государством образованию, и улучшения в этой сфере признаются родителями, что повышает их ответственность за образование своих детей. Наши родители выражают пожелание, чтобы в этом возрасте их дети быстрее научились самостоятельно читать и писать. Следует отметить, что подготовка детей дошкольного возраста к школьному обучению является актуальной проблемой.

Исследования, проведенные учеными, показали, что невозможно подготовить ребенка к школьному обучению с интенсивным обучением без учета его физических и духовных возможностей на ранних этапах развития. Для подготовки детей к школе нельзя использовать формы и методы школьного образования. Необходимо создать оптимальные условия для возрастной психофизиологии детей, реализовать методы воспитательной работы, широко использующие дошкольную воспитательную работу, дидактические игры, демонстрационно-предметную деятельность, различные формы практической и наглядной деятельности детей. Такие формы и методы соответствуют специфическим особенностям мышления и деятельности ребенка раннего возраста, стимулируют его познавательную активность и способствуют интеллектуальному развитию.

Министерством дошкольного образования с учетом международного опыта разработан вариант программы «Путь в науку» для всестороннего развития детей 6-7 лет, их обучения и подготовки к обучению в школе. Данная программа рассчитана на детей 6-7 лет, которые зачисляются в подготовительные группы для обязательного начального образования в соответствии с Государственными требованиями к дошкольному образованию, и охватывает 5 важных направлений развития ребенка: физическое развитие детей и формирование здорового образа жизни; социально-эмоциональное развитие; навыки говорения, общения, чтения и письма; развитие процесса познания; Она призвана обеспечить гармоничное развитие всех направлений творческого развития, в котором ребенок выступает ведущим участником образовательной деятельности. Требования программы обеспечивают всестороннее развитие ребенка, готовят его к школьному обучению, способствуют формированию различных навыков. В этом возрасте образовательные процессы, осуществляемые в области обучения грамоте детей, осуществляются в тесной связи с развитием речи, общения, навыков чтения и письма у детей и всех направлений развития ребенка. У ребенка увеличивается словарный запас, пробуждается интерес к речи, формируется осмысленная речь, приобретается знание родного языка, формируется любовь к литературе. Развиваются навыки самообладания в коллективе, умения отвечать на вопросы, общаться и разговаривать со взрослыми, принимать личные решения, быть примером для других, стремиться находить практические решения в сложных ситуациях. У ребенка развивается мелкая моторика и формируются навыки письма. Они пишут на бумаге прямые линии, слова и короткие предложения, могут распознавать

строку письма и развивают навыки рисования, соединяя точки и линии, не отрывая рук от пола.

В этом возрасте устная речь играет важную роль в развитии ребенка. Речь — это совокупность красочных выразительных звуков. Он создает основу для того, чтобы ребенок смог успешно учиться в школе завтра. «Словарный запас, — подчеркнула К. Шодиева, — позволяет ребенку быстро и основательно освоить знания, полученные на всех занятиях, и выразить эти знания и понятия посредством речи». Развитие речи ребенка напрямую связано с его словарным запасом. Конечно, следует отметить, что словарный запас ребенка выражается через его понимание мира. Ребенок получает информацию, наблюдая за окружающей средой, родителями, взрослыми, педагогами, сверстниками, книгами, фильмами, занятиями и играми. Во всех этих случаях информация передается ребенку посредством устной речи. В результате словарный запас ребенка должен увеличиться, он должен уметь употреблять слова, их значения, грамматически правильно строить предложения, правильно произносить звуки. Это создает определенные трудности для ребенка. Этот процесс требует от ребенка умственной активности. В связи с этим необходимо проведение педагогами систематической воспитательной и образовательной работы по развитию речи ребенка и формированию у него грамотности. Эти процессы усиливаются посредством занятий по развитию речи, центров развития, прогулок и экскурсий в дошкольных образовательных организациях и обязательных подготовительных группах по учебной программе «Илк кадам» и вариантной учебной программе «Илм йули». Педагоги развивают у детей навыки чтения и письма с помощью специальных методик для дошкольного возраста.

- учет возрастных особенностей ребенка, его памяти, внимания, речи и мышления. Вызвать у ребенка желание, тягу и интерес к чтению. Взрослым запрещается оказывать давление на ребенка или выражать недовольство достигнутыми им результатами.

- Осуществляемые образовательные и обучающие процессы должны постепенно усложняться от простого к сложному.

- систематически развивать правильное произношение слов у детей с раннего возраста. Педагог должен быть требовательным к своей речи.

- Формировать у детей уверенность в использовании правильного произношения, удобных грамматических форм и различных конструкций предложений в речи, а также начальных навыков и приемов письма.

В целом следует сказать, что подготовка детей к школе в возрасте 6-7 лет позволит им завтра лучше усвоить школьную программу, а также проявить свои стремления и способности. В подготовке детей к школе дошкольное детство играет особую роль в процессе формирования мышления человека и личности человека в целом, служит воспитанию сознательного поколения нашего общества.

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7.T.Z Jumanovna - Международный междисциплинарный исследовательский журнал Galaxy, 2022 - giirj.com МЕЖДУНАРОДНЫЙ ЖУРНАЛ МЕЖДИСЦИПЛИНАРНЫХ ИССЛЕДОВАНИЙ GALAXY (GIIRJ) ISSN (E): 2347-6915 Том. 10, выпуск 11, ноябрь. (2022) 538 ОРГАНИЗАЦИЯ Страница 1 ГАЛАКТИКА .

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ТЕОРЕТИЧЕСКОЕ ФОРМИРОВАНИЕ ДОХОДОВ НАСЕЛЕНИЯ МЕТОДОЛОГИЧЕСКИЕ ОСОБЕННОСТИ

Аннотация: *В статье раскрываются теоретические аспекты формирования основного дохода населения, факторы, на него влияющие, а также представлена двойственная характеристика доходов населения. По ним был проведен статистический анализ, оценивающий уровень доходов населения в долгосрочной перспективе и уровень реальной заработной платы.*

Ключевые слова: *доходы населения, структура доходов, реальные доходы, сбережения, финансовое поведение, сберегательные стратегии, домохозяйства.*

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THEORETICAL FORMATION OF POPULATION INCOME: METHODOLOGICAL FEATURES

Abstract: *The article reveals the theoretical aspects of the formation of the basic income of the population, the factors influencing it, presents the dual characteristics of the income of the population. A statistical analysis is carried out on them, the level of income of the population in the long term and the level of real wages are assessed.*

Keywords: *income of the population, income structure, real income, savings, financial behavior, savings strategies, households.*

Введение

Одной из ключевых задач развития основ экономики является борьба с бедностью путем увеличения доходов граждан. Аналогично, экономические цели "Нового Узбекистана" ориентированы на повышение уровня потребления населения через рост их доходов. В последние годы осуществляются масштабные реформы, направленные на повышение доходов населения, расширение возможностей для получения дополнительных средств, предоставление различных экономических и финансовых льгот, а также на профессиональное ориентирование и повышение квалификации.

Президент Республики Узбекистан Шавкат Мирзиёев отметил: *"Необходимо обеспечить население высокими трудовыми доходами, создать широкие возможности для их творческого и профессионального роста, а также сформировать социальные лифты. В основе всех наших усилий лежит*

одна цель — обеспечить рост реальных доходов и реальных зарплат граждан быстрее, чем уровень инфляции."

В этом контексте вопросы доходов населения, их формирования и увеличения являются крайне актуальными в условиях продолжающейся пандемии.

Степень изученности

Понимание экономической сущности доходов населения и их идентификация требуют единого комплексного подхода к их интерпретации. Это напрямую связано с объективным определением данного вопроса в контексте развития экономической теории и практики.

Таблица 1

Систематизация понятий доходов населения [54]

Научные взгляды на доходы населения	Понятие доходов населения	Авторы
в количественном отношении	Доходы населения – это а) сумма средств, необходимых для удовлетворения его потребностей	Ф. Бое, В.Г. Золотогоров, Д.К. Кукушкин, П. фон Липпе, А.А. Подузов, Дж. Хикс., И. Фишер. и др
	б) денежные поступления, полученные из всех видов источников за определённый период времени	А.Н. Ананев, Е.Ф. Борисов, М.А. Винокуров, Н.А. Горелов, И.В. Ильин, Ю.П. Кокин, Л.Н. Ликова, А. Маршалл, В.Д. Нордхаус, Б.А. Райзберг, П.В. Савченко, П.А. Самуэльсон, А.В. Суворов, Е.А. Ульянова и др.
	в) доля созданного в обществе национального дохода	А.Г. Грязнова, В.М. Кадыков, И.А. Курбатова, И.П. Николаева, Е.Ф. Солодовникова, А.Е. Суринов и др
в качественном отношении	Доходы населения – это отношения, связанные с присвоением, использованием и распределением созданного в обществе продукта между его элементами	Д.Б. Кадыров, А.Е. Суринов

Отправной точкой в понимании экономической сущности доходов населения является их двойственный характер. Их формирование связано с общественным производством, созданием стоимости посредством живого труда. Однако в конечном итоге доход образуется в результате распределения.

Распределительные отношения, в первую очередь, обусловлены имущественными отношениями, поскольку они проявляются через призму

[54] Авторская разработка

присвоения. В дальнейшем различные уровни присвоения определяют размер доходов населения.

По мнению профессора Ш. Шодмонова, «Доходы населения — это сумма денежных и натуральных поступлений, полученных ими за определённый период времени (например, за один год) [2].

А.Олмасов и А.Вахобов дают следующее определение: «Доходы населения – это сумма денежных и натуральных поступлений, полученных ими за определённый период времени (например, за один год)» [4].

Х.С. Мухитдинов исследовал зависимость повышения уровня жизни населения от социально-экономического развития регионов и обосновал важность сферы услуг в этом процессе. Под уровнем жизни населения понимается обеспеченность людей необходимыми материальными и духовными благами, степень удовлетворения их потребностей и объем потребления [5].

Согласно Б.К. Гойибназарову, в отличие от номинального дохода, в состав располагаемого дохода населения входит только та часть дохода, которая может быть использована на личное потребление товаров и услуг, а также на накопление [6].

Как отмечает Ходжиев, доходы населения являются важным экономическим показателем в нашей стране, поскольку они определяют масштабы потребления домашних хозяйств, а также их будущие сбережения и инвестиции [7].

По мнению Н. Раджабова и Б. Уралова, «Доходы населения подразделяются на номинальные и реальные. Номинальные доходы – это денежные доходы, полученные населением. Реальные доходы – это скорректированные на индекс потребительских цен текущие номинальные денежные доходы» [8].

Методология исследования

В процессе выполнения данного исследования были использованы методы, широко применяемые в научной методологии. Для изучения тенденций изменения доходов населения в условиях развития «зеленой» экономики применялись методы дедукции и индукции, а также абстрактно-логического мышления при системном анализе.

В ходе научного анализа активно использовались такие исследовательские методы, как наблюдение, обобщение, группировка, сравнение, а также синтез и анализ при проведении сравнительных и аналитических исследований.

Анализ и результаты

В экономической теории и практике до настоящего времени не выработан единый подход к определению экономической сущности доходов населения. Только в XX веке концепция дохода, сформулированная экономистами и статистиками, претерпела значительные изменения.

Логико-теоретический анализ взглядов отечественных и зарубежных экономистов на природу доходов населения позволил выделить два подхода (см. таблицу):

Количественный подход – в его рамках доходы характеризуются через внешние признаки и количественное выражение.

Качественный подход – в этом случае доходы рассматриваются как экономические отношения внутри общества.

Эти подходы дают одностороннюю характеристику доходов населения и не раскрывают их содержание в полной мере.

Двусторонний подход к анализу доходов населения, основанный на их характеристиках, позволяет увидеть их многообразие (см. рисунок 1).

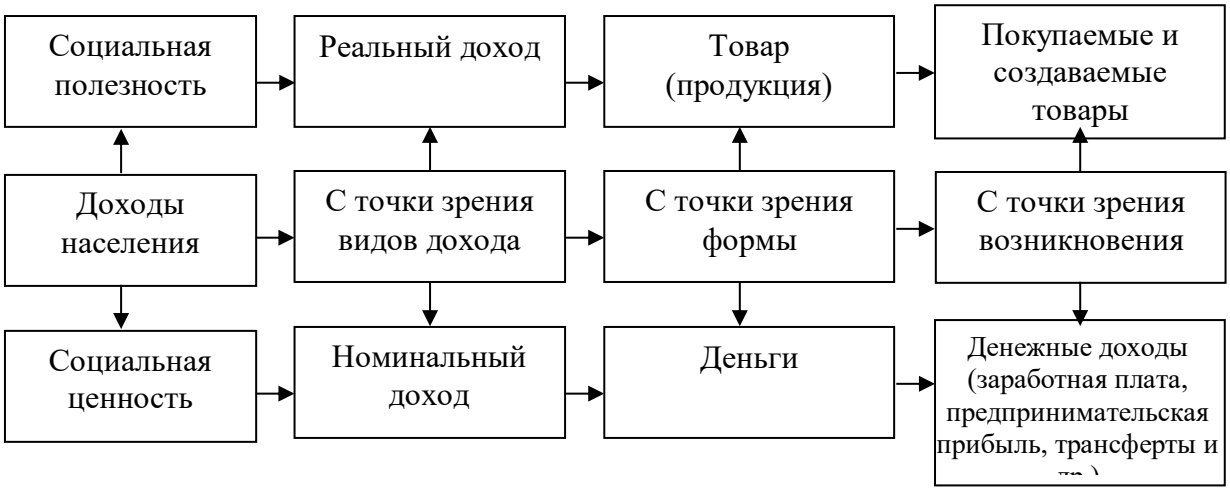

Рисунок 1. Характеристики доходов населения, вытекающие из их двойственной классификации [55]

Экономическая сущность доходов населения, по нашему мнению, заключается в экономических отношениях, которые развиваются между населением и предприятиями, населением и государством, группами людей и отдельными лицами в процессе распределения и перераспределения вновь созданной стоимости. Эти отношения проявляются в форме количественного результата денежных доходов.

Предлагаемая интерпретация экономической сущности доходов населения, во-первых, устраняет односторонний подход к их определению, во-вторых, обеспечивает их единое толкование, в-третьих, устанавливает субъекты экономических отношений и, в-четвертых, раскрывает их количественный результат.

Для раскрытия сущности доходов населения, помимо известных в экономической науке воспроизводственной, статусной и стимулирующей функций, дополнительно включены органически присущие доходам населения социальная,

[55] Авторская разработка

регулирующая и расчетная функции. Рассматривается содержание предлагаемых функций и их связь с другими функциями.

Под экономическими отношениями в экономической науке понимаются отношения между людьми, возникающие в процессе производства, распределения, обмена и потребления товаров, при этом основными и определяющими являются отношения в сфере производства, или производственные отношения. Экономические отношения по своему масштабу и содержанию шире и богаче, чем производственные отношения, хотя в экономической литературе они часто отождествляются. Если производственные отношения изучены и освещены достаточно подробно, то экономические отношения, характерные для распределения, обмена и потребления, практически не рассматриваются.

Экономические отношения, возникающие в процессе распределения и перераспределения вновь созданной стоимости, являются составной частью общих экономических отношений и называются распределительными отношениями, определяющими формирование доходов населения. Они выражают объективно существующие и достаточно устойчивые связи и взаимодействия между субъектами этих отношений в процессе формирования доходов. Движущей силой этих отношений являются экономические интересы и имущественные отношения.

Субъектами экономических отношений выступают население, предприятия и государство. Население рассматривается как совокупность домохозяйств, отдельных лиц и определённых групп.

В экономических отношениях, связанных с формированием доходов населения, государство действует через определённые структурные подразделения на федеральном, региональном и местном уровнях управления, такие как Пенсионный фонд, Фонд социального страхования, службы социальной защиты и обеспечения и другие.

Предприятия (организации) являются хозяйственными субъектами, которые создают добавочную стоимость и участвуют в процессе её распределения, при этом приносят доход своим сотрудникам.

Формирование доходов населения происходит в два этапа, каждый из которых соответствует специфическим экономическим отношениям. На первом этапе (первичное распределение) через формирование первичных (факторных) доходов происходит распределение вновь созданной стоимости между населением (наемными работниками) и предприятиями (собственниками). На втором этапе (перераспределение) в процессе перераспределения доходов формируются экономические отношения между населением и государством, а также между группами людей и отдельными личностями. При этом население действует не только как получатель дохода, но и как активный участник этого процесса.

Объектами экономических отношений являются заработная плата, доходы от собственности, доходы от предпринимательской деятельности, социальные выплаты и другие виды доходов, различающиеся по этапам распределения вновь созданной стоимости. Объекты экономических отношений определяются целями и экономическими интересами населения.

Экономические отношения, формируемые субъектами в процессе получения доходов населением, делятся на три вида: социально-экономические, организационно-экономические и институционально-экономические (рис. 1)

Рис. 1. Экономические отношения в формировании доходов населения[56]

Социально-экономические отношения выражают социальную сущность экономической деятельности людей в реализации их экономических интересов, характеризуют социальный статус населения и проявляются в объеме и структуре их денежных доходов.

Социальный компонент этих отношений определяется природой и содержанием взаимоотношений между участниками, касающихся вида, структуры и размера доходов, а также условий и содержания деятельности, обеспечивающей получение доходов.

Экономический компонент отражает отношение субъектов к производственным факторам и определяет их участие в создании, распределении и перераспределении вновь созданной стоимости.

[56] Авторская разработка

Отношения собственности на средства производства при формировании доходов населения придают экономическим отношениям социальное содержание.

Организационно-экономические отношения – это отношения, объективно связанные с необходимостью отражения и предварительного определения порядка взаимодействия и взаимоотношений между субъектами, их организации и реализации.

Они включают в себя распределение ролей в коллективе и среди отдельных работников, их функции, ответственность и обязанности, виды доходов и порядок их расчета, содержание расчетов и сроки их выполнения.

Кроме того, эти отношения охватывают установление организационных форм взаимодействия, их регулирование и управление.

В теории экономики система экономических отношений делится на два качественно различных вида взаимоотношений между людьми: социально-экономические и организационно-экономические, содержание которых подробно раскрыто в экономической литературе. Эти виды экономических отношений также реализуются в процессе формирования доходов населения, отражая их сущность.

Институционально-экономические отношения определяются соблюдением формальных и неформальных норм и правил, регулирующих поведение людей и характер их взаимодействий в процессе получения доходов.

Они также описывают связи и взаимодействия между населением и экономическими институтами, такими как институт собственности, рынок труда, профсоюзы, банки и другие.

Эти институты оказывают влияние на виды доходов населения, способы их формирования, методы, нормативы и уровень доходов.

Указанные отношения возникают в процессе формирования доходов населения, воздействуют на социально-экономические и организационно-экономические отношения и связаны с объективной необходимостью организации взаимодействий и взаимосвязей между субъектами экономических отношений.

Выводы

Если учитывать мнения различных экономистов при изучении доходов населения, можно заметить, что изначально они анализировались с количественной точки зрения. Однако в настоящее время акцент смещается на их качественное исследование.

Категория доходов населения является широким понятием, включающим любые виды материальных ценностей, получаемых населением, которые следует рассматривать в количественном выражении. В связи с этим в экономической науке существуют различные теории, каждая из которых имеет свои уникальные особенности.

Формирование доходов населения также связано с уровнем участия в экономических отношениях. Для их изучения необходимо рассматривать три

ключевых аспекта: организационно-экономические отношения, социально-экономические отношения и институционально-экономические отношения.

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МАХСУС ИҚТИСОДИЙ ЗОНАЛАРИ ФАОЛИЯТИНИ РИВОЖЛАНТИРИШ ВА БОШҚАРИШ ТИЗИМИ САМАРАДОРЛИГИНИ ОШИРИШНИНГ ЎЗИГА ХОС ХУСУСИЯТЛАРИ

Аннотация*: Мамлакатимизда махсус иқтисодий зоналари фаолиятини ривожлантириш ва бошқариш иқтисодиётнинг ажралмас бўғини сифатида талаб этилмоқда. Махсус иқтисодий, шу жумладан эркин иқтисодий зоналарни ривожлантириш катта аҳамиятга эга. Мақолада махсус иқтисодий зоналари фаолиятини ривожлантиришнинг ўзига хос хусусиятлари таҳлил қилинган.*

Калит сўзлар*:Махсус иқтисодий зона, эркин иқтисодий зона, саноат зоналари, инвестиция лойиҳаси, солиқ тўлови, инфратузилма, экспорт салоҳияти.*

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FEATURES OF THE DEVELOPMENT OF SPECIAL ECONOMIC ZONES AND INCREASING THE EFFICIENCY OF THE MANAGEMENT SYSTEM

Abstract: *Our country requires the development and management of special economic zones as an integral part of the economy. Of great importance is the development of special economic zones, including free economic zones. The article analyzes the features of the development of special economic zones.*

Key words: *Special economic zone, free economic zone, industrial zones, investment project, tax payments, infrastructure, export potential.*

Бугунги кунда бозор иқтисодиёти шароитида дунёда ҳамма нарса бир-бири билан узвий равишда боғлиқ бўлиб бормоқда. Биз буни айниқса глобаллашув шароитида мамлакат иқтисодиётнинг бир қанча саноат

тармоқларида ривожланишини соҳасалар кесимида кўришимиз мумкин бўлади.

Мисол учун юқори қўшилган қийматга эга бўлган маҳсулотни ишлаб чиқариш учун замонавий, юксак технологияли қувватлар зарур бўлади. Бундай корхоналарни барпо қилиш учун эса, хорижий ва маҳаллий инвестицияларни жалб этиш яхши самара беради. Улар ўз навбатида қулай шарт-шароитлар яратилган, кенг имтиёз, рағбатлар берилган жойда бутун салоҳиятини намоён этади. Мана шу жиҳатларнинг барчаси мужассам бўлган масканда махсус ёки эркин иқтисодий ҳудудни ташкил этиш имконияти вужудга келади.

Кўплаб олимлар томонидан берилган таърифлар умумлаштирилганда, бундай ҳудудлар минтақани жадал ижтимоий-иқтисодий ривожлантириш учун мамлакат ва чет эл капиталини, истиқболли технология ва бошқарув тажрибасини жалб этиш мақсадида тузиладиган, аниқ белгиланган маъмурий чегаралари ва алоҳида ҳуқуқий тартиботи бўлган махсус ажратилган макону масканлар ҳисобланади.

Уларнинг тарихий илдизлари ўн олтинчи аср ўрталарига бориб тақалади. Тадқиқотчилар дастлабки махсус иқтисодий зона сифатида 1547 йилда “Эркин савдо шаҳри” деб эълон қилинган Италиянинг Ливорно шаҳрини тилга олишади. Шундай ҳудудни ўзига хос ташқи савдо анклави сифатида таърифлаган 1973 йилги Киото конвенцияси имзоланганидан кейин эркин иқтисодий зоналар кўплаб мамлакатларга тарқалди. Масалан, ўтган асрнинг 90-йилларида уларнинг турли кўринишдаги сонига нисбатан минглаб, деган таъриф қўлланила бошланган бўлса, айни кунга келиб дунёнинг 150 га яқин давлатида 5 400 дан ортиқ иқтисодий ҳудудлар мавжуд.

Махсус иқтисодий зона, шу жумладан эркин иқтисодий зона тушунчаси ҳақида иқтисодчи олимлар ўзларининг илмий изланишлари натижасида турли хил фикрлар билдиришиб келган.

Жумладан, иқтисодчи олимлардан T.Farole ва F.Dobrogonov мазкур ҳудудларнинг амалий жиҳатини таъкидлаб, “Мазкур тузилмалар ривожланаётган давлатлар учун қўшимча истеъмол бозорларини эгаллаш имкониятини яратиб беради ҳамда давлатларнинг экспорт салоҳиятини юксалтиради. Айни бир вақтда ушбу иқтисодий тузилмалар минтақавий иқтисодий интеграция жараёнларини кучайтириш воситаси сифатида ҳам хизмат қилади, дея таъкидлайди.

Шунингдек, Хитойдаги махсус иқтисодий зоналар, мамлакатнинг Пекиндаги марказий ҳукуматининг рухсатисиз ташқи ва ички савдо ҳамда инвестиция фаолияти амалга ошириладиган бир неча маҳаллий ҳудудларидан бири ҳисобланадаи. Хитойдаги махсус иқтисодий зоналар кичик географик ҳудудлар деб таърифланади, бу эса хорижий компанияларга паст солиқлардан фойдаланиш ва ўз бизнеслари учун яхши иқтисодий шароитларни яратишга имкон беради. Махсус иқтисодий зоналар Хитой иқтисодиётини марказлашган режали иқтисодиётдан марказлашган режалаштирилган бозор

иқтисодиёти жиҳатларини ўз ичига олган иқтисодиётга ўтиш учун "катализатори" сифатида яратилганлигидан далолат беради.

Мамлакатимизнинг етук иқтисодчи олимлари томонидан эркин иқтисодий зоналаридаги имтиёзли тартиб ва маъмурий бошқарув соҳасига кўпроқ эътибор қаратилган ҳолда турлича ёндашилади. Шу сабабли, А.В.Вахабов, Ш.Х.Хажибакиев, Н.Г.Муминовларнинг фикрича, Эркин иктисодий зоналар - шундай географик ҳудудки, унда мамлакатда қабул қилинган хўжалик фаолияти тартибига қараганда имтиёзли солиқ тўлаш тартиби жорий этилади. Бошқача сўз билан айтганда, ушбу ҳудудда давлатнинг иқтисодий жараёнларга аралашуви камайтирилади ва бу миллий иқтисодий маконнинг бир қисми бўлиб, мамлакатнинг бошқа ҳудудларида қўлланилмайдиган маълум имтиёзлар тизими жорий этилади.

Ҳозирга вақтга Ўзбекистонда фаолият юритаётган махсус иқтисодий зоналар фаолият юритиб, мамлакатимизда 2008-2016 йиллар давомида фақатгина 3 та ана шундай ҳудуд ташкил этилган бўлса, айни кунга келиб саноат эркин иқтисодий зоналар сони 12 тага, фармацевтика эркин иқтисодий зоналари сони 7 тага, туристик эркин иқтисодий зоналари сони 2 тага ҳамда қишлоқ хўжалиги эркин иқтисодий зоналар сони 2 тага етганини кўришимиз мумкин. Ўтган беш йилда эркин иқтисодий зоналарда умумий қиймати 10 трл. сўмлик 1 мингдан ортиқ лойиҳа ишга тушурилиб, натижада 100 мингта иш ўрни яратилиб, йилига қўшимча 45 трлн. сўмлик маҳсулот ишлаб чиқарила бошланди. Саноат зоналарида корхоналар йилига 750 миллион АҚШ долларлик экспорт ва 1 трлн. сўмдан зиёд солиқ тушумлари таъминланди.

Шу билан, махсус иқтисодий зоналар бўш турган ва фаолият кўрсатмаётган давлат мулки объектлари, маъмурий-ҳудудий тузилмалар ҳудудлари негизида, шунингдек, қишлоқ хўжалигига мўлжалланмаган ерларда ташкил этилади.

Эътироф этиш жоиз, мамлакатимиз ҳудудларининг имкониятлари катта. Шундан келиб чиққан ҳолда, Ўзбекистон Республикасининг 2020 йил 17 февралдаги “Махсус иқтисодий зоналар тўғрисида”ги ЎРҚ-604-сонли қарори қабул қилинди ҳамда ушбу қонундан келиб чиқиб махсус иқтисодий зоналарнинг фаолият кўрсатиши ва уларни ривожлантиришини ташкил этиш соҳасидаги муносабатларни тартибга солишдан иборатлиги белгилаб олинди.

Бундан ташқари, давлатимиз раҳбари томонидан 2021 йилнинг 30 апрель куни “Махсус иқтисодий ва кичик саноат зоналари муҳандислик-коммуникация инфратузилмасини янада ривожлантириш чора-тадбирлари тўғрисида” қарори қабул қилинди.

Мамлакатимизда эркин рақобат муҳитининг яратилиши, келаётган инвестиция миқдорининг жозибадорлиги ҳамда давлатимиз томонидан саноат корхоналарини қўллаб-қувватлаш ва рағбатлантириш туфайли иқтисодиётимиш сезиларли даражада ривожланиб бормоқда.

Унга кўра, Ўзбекистон Республикасида саноат йўналишида ихтисослаштирилган 12 та эркин иқтисодий зоналарда 566 та инвестиция

лойиҳалари амалга оширилиб, шундан тўғридан-тўғри киритилган инвестициялар миқдори 1,6 миллиард АҚШ долларини, бошқа турдаги инвестициялар қиймати 4,5 миллиард АҚШ долларини, 7 та фармацевтика тармоғини ихтисослаштирилган эркин иқтисодий зоналарда 46 та инвестиция лойиҳалари, киритилган инвестициялар миқдори 282 млн.АҚШ долларини, 400 турдаги дори воситаларини ишлаб чиқарилди ва 40 турдаги медицинага махсуслаштирилган воситалар ва медицина техникаларини олиб кирилди, республиканинг Тошкент вилоятидаги “Чорвоқ” ва Жиззах вилоятининг “Зомин” туристик рекрацион зоналарида 61 та инвестиция лойиҳалари, 449 млн. АҚШ доллари миқдорида инвестиция, 75 та туристик инфратузилмалар яратилди.

Шу билан бирга, “Бухоро-агро” ва “Қорақалпоқ-агро” қишлоқ хўжалигига оид эркин иқтисодий зоналарда 308 та инвестиция лойиҳалари, 652,2 млн. АҚШ долларлик миқдорида инвестиция, 1 210 гектар замонавий иссиқхона хўжаликлари барпо қилиниб, 9 817 та янги иш ўринлари яратилиши таъминланди.

Шуни айтиб ўтишимиз керакки бугунги кунда махсус иқтисодий саноат зоналарини ривожлаштириш учун керакли шарт-шароитлар яратиб бериш лозим бўлмоқда. Энг аввало, саноат зоналарида бўш турган майдонларда электр, сув, йўл ва ва бошқа инфратузилма масалаларини ҳал қилиш лозим бўлади. Эркин иқтисодий саноат зоналарига лойиҳаларни жойлаштиришда бюрократиядан холи бўлиш тизимини яратиш лозимдир. Бундан ташқари, кичик саноат зоналарида узоқ йиллар фаолият юритаётган ва ҳозирда ер ва иншоотларга ҳуқуқи ҳал бўлмаган тадбиркорларга давлат томонидан қўллаб-қувватлаш ҳамда қарор билан мустаҳкамлаш талаб этилади.

Хулоса ўрнида шуни айтишимиз мумкинки, махсус иқтисодий зоналарни давлат томонидан тартибга солиш самарадорлигини ошириш ва уларнинг фаолият кўрсатиши, ривожланиши бўйича бошқарув қарорларини қабул қилиш мақсадида ягона интеграл мезондан фойдаланган ҳолда эркин иқтисодий зоналар, кичик саноат зоналари фаолиятини комплекс баҳолаш зарур ҳисобланади. Саноат зоналарини ривожлантириш ва бошқаришда бугунги кунда муаммо бўлиб турган ижтимоий соҳаларни бартараф этиш, бюрократик тўсиқларни олиб ташлаш лозим бўлади.

Бу эса мамлакатимизда инвестиция ҳажмининг ошиши, аҳолини ишга бўлган бандлигининг таъминлаши ҳамда иқтисодиётнинг бирламчи буғини сифатида ривожланишиги олиб келади.

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РОЛЬ СМИ И ИНФОРМАЦИИ В РАЗВИТИИ ПАТРИОТИЗМА СРЕДИ МОЛОДЕЖИ

Аннотация: *Данная статья посвящена роли средств массовой информации (СМИ) и информационных технологий в формировании патриотизма среди молодежи. В условиях глобализации и технологических изменений медиа играют ключевую роль в распространении ценностей патриотизма. Рассматриваются как традиционные формы СМИ (телевидение, радио, газеты), так и новые медиа-платформы, включая социальные сети и интернет, в контексте их воздействия на молодежную аудиторию. В статье анализируется влияние медиа на формирование национальной идентичности, гражданской ответственности и патриотических чувств среди молодежи, а также рассматриваются риски, связанные с манипуляцией общественным мнением. Подчеркивается важность сбалансированного подхода к использованию медиа для воспитания чувства гордости за свою страну и уважения к культурному разнообразию.*

Ключевые слова*: СМИ, информационные технологии, патриотизм, молодежь, национальная идентичность, социальные сети, медиа-платформы, воспитание гражданской ответственности.*

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ROLE OF MEDIA AND INFORMATION IN THE DEVELOPMENT OF PATRIOTISM AMONG YOUTH

***Abstract**: This article is dedicated to the role of mass media (MM) and information technologies in the formation of patriotism among the youth. In the context of globalization and technological changes, media play a key role in spreading the values of patriotism. The article examines both traditional forms of mass media (television, radio, newspapers) and new media platforms, including social networks and the internet, in terms of their impact on the youth audience. It analyzes the influence of media on the formation of national identity, civic responsibility, and patriotic feelings among the youth, and discusses the risks associated with manipulating public opinion. The importance of a balanced approach to using media for fostering a sense of pride in one's country and respect for cultural diversity is emphasized.*

***Keywords**: mass media, information technologies, patriotism, youth, national identity, social networks, media platforms, civic responsibility education.*

ВВЕДЕНИЕ

В современном мире средства массовой информации и информационные технологии стали основными каналами передачи знаний и формирования общественного мнения. Особенно важное значение они приобрели в процессе воспитания гражданской позиции и патриотизма среди молодежи. С развитием цифровых технологий и массовых коммуникаций медиа играют решающую роль в передаче ценностей, традиций и истории, что способствует формированию у молодежи чувства гордости за свою страну.

Молодежь, являясь наиболее активной аудиторией новых медиа-платформ, таких как социальные сети, интернет и мобильные приложения, часто воспринимает информацию, поступающую из этих источников, как объективную и достоверную. В этом контексте роль СМИ в формировании патриотического сознания среди молодежи становится особо актуальной. СМИ обладают уникальной способностью не только информировать, но и влиять на восприятие культурных и исторических ценностей, а также на развитие чувства национальной идентичности.

Целью данной статьи является анализ роли средств массовой информации и информационных технологий в воспитании патриотизма среди молодежи. В работе рассматривается влияние различных типов медиа, включая традиционные и новые медиа-платформы, на формирование у молодежной аудитории патриотических чувств, а также обсуждаются возможные риски, связанные с манипуляциями общественным мнением через медиа.

РЕЗУЛЬТАТ И ОБСУЖДЕНИЕ

В современном мире роль средств массовой информации и информационных технологий в формировании патриотизма среди молодежи играет важнейшую роль. В условиях глобализации и информационных

технологий медиа стали основным каналом распространения знаний, а также влиятельным инструментом в воспитании гражданской позиции и патриотизма у молодежи. СМИ обладают мощным потенциалом воздействия на сознание молодежи, поэтому они могут стать важным фактором в развитии патриотических чувств.

Роль СМИ в формировании патриотизма среди молодежи

Средства массовой информации, включая телевидение, радио, газеты, а также интернет-платформы и социальные сети, играют важную роль в распространении патриотических ценностей. В первую очередь, медиа способствует повышению информированности молодежи о значимых событиях в истории страны, о героях и деятелях, которые внесли вклад в развитие и защиту государства.

Сегодня патриотизм становится многогранным понятием, включающим в себя уважение к своей истории, культуре, языку и традициям. Информационные каналы имеют уникальную возможность через различные программы, репортажи, документальные фильмы и интервью представить наглядные примеры героизма, гражданской доблести и преданности родине. Программирование таких тем в медиа помогает создать у молодежи чувство гордости за свою страну, а также сформировать национальную идентичность.

Интернет и социальные сети как инструмент формирования патриотизма

В современном обществе интернет и социальные сети стали важнейшими инструментами для распространения информации и формирования общественного мнения. Молодежь, как активная аудитория в социальных сетях, постоянно получает информацию через эти каналы. Важно, чтобы информация, поступающая через соцсети, не только развлекала, но и направляла на воспитание гражданских ценностей, уважения к традициям и истории своей страны.

Социальные медиа становятся площадкой для реализации патриотических проектов, участия в волонтерских акциях, поддержке культурных и исторических инициатив. Интерактивные элементы, такие как онлайн-курсы, обсуждения, флешмобы и конкурсы, дают возможность молодежи активно участвовать в процессе патриотического воспитания и высказывать свою гражданскую позицию. Платформы, такие как YouTube и Instagram, могут быть использованы для публикации материалов о героях нации, традициях и достижениях, которые вдохновляют молодежь на развитие чувства гордости и ответственности перед своей страной.

Медиа и патриотическое воспитание через кино и телевизионные программы

Кино и телевидение — это мощные инструменты для формирования массовых взглядов и убеждений. В истории многих стран телевидение и кинематограф играли ключевую роль в патриотическом воспитании. От исторических фильмов и документальных передач до телевизионных шоу и новостных программ — каждая передача может нести в себе элементы

гражданского воспитания. Телевидение как массовый носитель информации имеет огромную аудиторию, что делает его эффективным способом донесения патриотических идей до широкой публики.

Программы, посвященные национальным праздникам, культуре, искусству и достижениям страны, помогают молодежи почувствовать себя частью великой нации и вдохновляют на сохранение культурных ценностей и традиций. Показ исторических событий, связанных с защитой Родины, а также воспоминания о подвигах героев, оставляют глубокий след в сознании молодого поколения.

Преимущества и риски медиа в патриотическом воспитании

Медиа обладает значительным потенциалом для формирования положительных патриотических чувств среди молодежи, однако при неправильном использовании этот потенциал может привести к противоположным результатам. Важно контролировать содержание информации и избегать манипулирования сознанием через чрезмерную пропаганду или искажение фактов. В то же время медиа должно быть разнообразным и достоверным, чтобы молодежь могла выбирать разные источники информации и самостоятельно формировать свою позицию.

Риски заключаются также в преувеличении или чрезмерной политизации некоторых материалов. Информация должна быть направлена не только на развитие чувства гордости за страну, но и на воспитание критического мышления, уважения к другим культурам и государствам, что способствует созданию гармоничного и мирного общества.

Заключение

СМИ и информационные технологии играют ключевую роль в воспитании патриотизма среди молодежи. Через телевизионные программы, социальные сети, кино и другие медиа-каналы можно эффективно донести до молодежи важность национальных ценностей, любви к родине и уважения к своему народу. Важно, чтобы патриотическое воспитание было ориентировано на честность, достоверность информации, а также на воспитание гражданской ответственности и уважения к многообразию культур. В результате такого подхода молодое поколение будет не только гордиться своей историей, но и активно работать на благо своей страны, укрепляя ее в будущем.

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“Мева сабзавотчилик ва узумчлик” кафедраси катта ўқитувчиси (PhD), Андижон қишлоқ хўжалиги ва агротехнологиялар институти

БАРГЛИ САЛАТ ЎСИМЛИГИНИ БАҲОРГИ МАВСУМДА ЕТИШТИРИШ МУДДАТЛАРИ

Аннотация. *Ушбу илмий мақолада Фарғона водийси шароитида баргли салат (lactuca sativa var.crispa) ўсимлигининг баҳорги экиш муддатларини вегетация давомийлиги, ўсимлик баландлиги, барг тўплами диаметири, узунлиги, эни, барг тўплами массасига ва товарбоплигига таъсири ўрганилган.*

Калит сўзлар: *баргли салат, вегетация давомийлиги, барг тўплами, барг тўплам массаси.*

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LEAF LETTUCE CULTIVATION PERIODS IN SPRING

Annotation. *This scientific article examines the effect of planting times of leaf lettuce (lactuca sativa var.crispa) on the duration of vegetation, plant height, leaf bladder diameter, length, width and leaf bladder mass in the Fergana Valley.*

Keywords: *leafy salad, duration of vegetation, leaf set, leaf set mass.*

Кириш. Сабзавотчилик дунё деҳқончилигида энг қадимий асосий ва етакчи тармоқлардан ҳисобланади. Сабзавот экинларининг характерли хусусияти шундан иборатки, кичик майдонларда етиштириш, ўсув даври қисқалиги (кўпчилик экинларда), иқтисодий самарадорлигининг юқори бўлишидир. Мана шундай сабзавот экинларимиздан бири барг салатидир. Ҳозирги пайтда салатнинг турли шакллари дунёнинг турли минтақаларида ҳам очиқ майдонларда, ҳам ҳимояланган ерларда етиштирилмоқда. Бироқ Ўзбекистон маркизий минтақасида барг салат *(lactuca sativa var.crispa)* навларини танлаш ва етиштириш технологияси элементларини ишлаб чиқиш масалалари тўлақонли ўрганилмаган [2, 3, 5].

Тадқиқотнинг усуллари. Тадқиқотлар дала ва лаборатория шароитида «Методические указания по экологическому испытанию овощных культур в открытом грунте» (М., ВНИИССОК), «Методическим указаниям по селекции зеленных, пряно-вкусовых и многолетних культур», «Методическим указаниям поизщучению коллекции капусты и листовых зеленных культур (салат, шпинат, укроп)», «Методика Государственного сортоиспытания

сельскохозяйственных культур», «Методика опытного дела в овощеводстве и бахчеводстве» [1] каби услубий қўлланмалар асосида олиб борилди. Маълумотларнинг статистик таҳлили Microsoft Excel дастури ёрдамида дисперцион услуб (Б.А.Доспехов) асосида амалга оширилди [4].

Тадқиқот натижалари. Тадқиқотлар бош салат навлари уруғларини эрга тўғридан-тўғри экиш билан ўтказилди. Фарғона водийси жанубий шароити учун назорат варианти сифатида умумий экиш муддати 20 феврал куни қабул қилинди.

Лолло Росса салат навида экишдан униб чиқишгача бўлган давр ҳар хил экиш муддатларида 6 дан 10 кунгача ўзгарди (1-жадвал). 2020 йилда экишдан униб чиқишгача бўлган энг қисқа давр (7 кун) 10 март экиш санасида кузатилди. 2021 йилда барча экиш муддатлари учун бу давр ўртасида сезиларли фарқ кузатилмади.

2020-2021 йилларда униб чиқишдан то техник этуклигига қадар бўлган давр 46 дан 50 кунгача бўлганлигини кузатилди. 2020 ва 2021 йиллардаги энг қисқа (46) давр 10 март экиш муддатида қайд этилди, бу назорат вариантга нисбатан мос равишда 4 кунга кам.

1-жадвал

Барг салатининг экиш муддатларини ўсиш ва ривожланишига таъсири, Лолло Росса нави (2020-2021йй)

Муддат					Давр, кунлар					
экиш муддати	оммавий униб чиқиши		техник пишиш		экишдан кўчатгача			униб чиққандан техник пишиб етилишгача		
	2020	2021	2020	2021	2020	2021	ўртача	2020	2021	ўртача
01.02.	10.02.	09.02.	28.03	29.03	10	9	9±	47	49	48
10.02.	18.02.	19.02.	04. 04.	06. 04.	9	10	9±	46	48	47
20.02. (назорат)	27.02.	28.02.	16.04	19.04	8	9	8±	49	51	50
01.03.	07.03.	08.03.	25.04	24.04	7	8	7±	49	47	48
10.03.	06.03.	05.03.	21.04	23.04	7	6	6±	45	47	46

Бу ўсишнинг тезлашиши ва ривожланишнинг репродуктив босқичига тез ўтиши билан боғлиқ бўлиб, ҳаво ҳарорати бошқа экиш муддатларидан юқори бўлганлиги сабабли кузатилди.

2020 йилда ўрганилган экиш муддатлари билан экишдан кўчатларгача бўлган давр (2007 йилга нисбатан деярли тенг бўлди) ва кўчатлардан техник пишишгача бўлган даврнинг узайиш (2± кунгача) тенденцияси мавжуд бўлиб турди.

Экишдан то униб чиқишгача бўлган даврнинг энг қисқа муддати (6 кун) 10 мартдаги экиш пайтида ва униб чиқишдан то товар пишишигача бўлган давр (45 кун) ҳам шу вариантда кузатилди.

2-жадвал

Салат ўсимликларининг морфологик кўрсаткичлари, Лолло Росса нави (2020-2021йй)

Экиш муддати	Ўсимлик баланд-лиги, см	Барг тўпламининг диаметри, см	Барг			Барг тўплами массаси, кг		Товарбоп-лиги,%
			сони, дона	узун-лиги, см	эни, см	Бир туп ўсимликда	Бир пагона метрда	
01.02.	16	14	12	10	7	0,185	1,85	96
10.02.	18	16	12	11	8	0,191	1,91	94
20.02. (назорат)	19	17	11	10	8	0,198	1,98	87
01.03.	20	18	10	14	9	0,220	2,20	80
10.03.	21	19	12	13	10	0,217	2,17	77
$Экф_{05}$	-	-	-	-	-	-	0,8	-
S^x	-	-	-	-	-	-	0,5	-

2-жадвал маълумотлари асосида морфологик белгиларнинг энг юқори кўрсаткичлари назорат экиш санаси – 20 мартга нисбатан экиш муддатлари – 1 ва 10 март бўлган вариантларда кузатилди. Бу экиш даврларида ўсимлик баландлиги 20-21 см, розет диаметри 18-19 см, барг сони 10-12 дона ва розет оғирлиги назорат экиш муддати (0,198 кг)га нисбатан 0,019-0,022 кг га кўпроқ бўлганлигини кўришимиз мумкин.

2020 ва 2021 йилларда баргининг энг юқори ҳосилдорлиги 1 мартда экилган вариантда кузатилди ва 2,20 кг/м^2 ни ташкил этди, бу назорат давридаги экиш муддатидан 0,22 кг/м^2 га кўп бўлди лекин маҳсулотнинг товарбоплиги 7 % га кам бўлди.

Тадқиқотлар олиб борилган йилларда ўртача кунлик ҳаво ҳарорати кўп йиллик кузатилган ҳароратга нисбатан юқорироқ бўлди бу эса салат ўсимлигининг тезроқ пояланишига олиб келди, бунинг натижасида 1 ва 10 март саналарида экилган салат ўсимлигининг товарбоплиги (мос равишда 80-77 %) бошқа вариантларга нисбатан сезиларли даражада паст бўлди.

Экиш муддатларининг барг салатининг ҳосилдорлиги ва сифатига таъсири таҳлил қилинганда, ўсимликлар юқори биокимёвий кўрсаткичларни 1 ва 10 феврал экиш санасида ташкил этиши маълум бўлди. Шунингдек ушбу вариантлардан олинган ҳосилнинг 96-94 % қисми истемолга яроқли бўлди ва бу кўрсаткич назорат вариантидан 7-9 % га юқорироқ бўлди.

Салатнинг кўп навлари учун уруғларнинг униб чиқиши пайтида юқори ҳарорат чегараси +20°С дан + 25°С гача ўзгариб туради. Юқори ҳароратларда уруғлар мажбурий уйқу ҳолатига ўтади, улар паст ҳарорат таъсирида кейинчалик униб чиқиши мумкин.

Турли экиш муддатларининг барг салатининг бош тўпламларининг ҳосилдорлиги ва сифатига таъсирини ўрганиш натижасида шундай хулосага келиш мумкинки, 1 ва 10 март экиш муддатларида экилган вариантлардан олинган ҳосил бошқа вариантларга қараганда юқори бўлди, лекин товарбоплиги жудаям паст бўлданлиги кузатилди. 1 ва 10 феврал экиш муддатларидан олинган ҳосил юқори биокимёвий кўрсаткичлар ва товарбопликга эга бўлди. Юқоридаги кўрсаткичлардан келиб чиқиб Фарғона водийси шароитида баргли салат ўсимлигини етиштириш учун энг қулай экиш муддати 1 ва 10 феврал саналари эканлиги аниқланди.

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5ЛП ЛИНТЕРНИНГ ИШЧИ КАМЕРАСИНИ ТАКОМИЛЛАШТИРИШ

Аннотация. *5ЛП линтерни асосий ишчи қисми бўлган ишчи камера хажмининг катталаштирилиши ва унга мос равишда камерадаги аралаштиргич диаметрининг катталаштирилиши линтер иш унумдорлигини сезиларли даражада оширмаган, аксинча, валик массасининг ошиши ҳисобига чигитли валик тезлиги камайган, оқибатида валик зичлигини ошиши, ишлаб чиқарилган чигит ва момиқ сифатининг пасайиши юзага келган.*

5ЛП линтернинг самарадорлиги бўйича I ва III навли 2- синфда ишлаб чиқаришда ўтказилган тажриба ишларининг натижаси линтернинг чигит бўйича иш унумдорлиги ўртача 690 ва 600 кг/соатни, момиқ бўйича ўртача 20,4 ва 21,5 кг/соатни ташкил этиб, паспортидаги иш унумдорликка қараганда чигит бўйича ўртача 57,4 ва 59,6 % га, момиқ бўйича ўртача 14,6 ва 13,1 % га кам эканлигини кўрсатди. Ишлаб чиқарилган чигитнинг тукдорлиги ўртача 8,4 ва 11,3 % га, шикастланиши ўртача 4,8 ва 5,1 % га тенг бўлди. Момиқдаги ифлос аралашмалар ва бутун чигитларнинг массавий улуши навлар бўйича ўртача 5,6 ва 6,2 % ни, штапель узунлиги 6/7 ва 5/6 мм ни ташкил этиб, давлат стандарти бўйича Б тип "Ўрта" ва "Ифлос" синфларга мансуб эканлиги аниқланди.

Таянчли сўзлар: *Линтер, ишчи камера, фартук, профиль, зев, аралаштиргич, аррали цилиндр, пахта, чигит, момиқ, тукдорлик, иш унумдорлик, сифат кўрсаткич.*

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IMPROVING THE WORKING CHAMBER OF THE 5LP LINTER

Abstract. *Increasing the size of the working chamber, which is the main working part of the 5LP linter, and the corresponding increase in the diameter of*

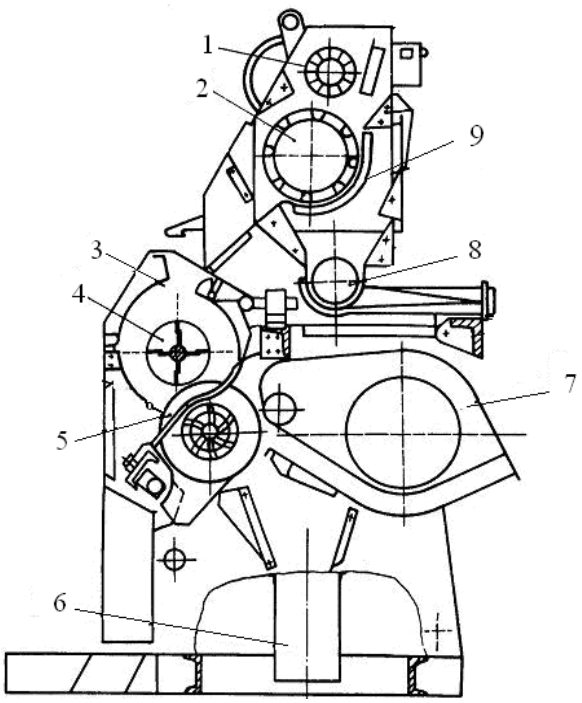
the mixer in the chamber did not significantly increase the productivity of the linter, on the contrary, the speed of the seed roller decreased due to the increase in the mass of the roller, as a result, the density of the roller increased, and the quality of the produced seed and lint decreased. .

As a result of experimental work conducted in the production of 5LP linter in class I and III grade 2, the productivity of the linter for seed is 690 and 600 kg/h on average, and fluff is 20.4 and 21.5 kg/h on average, compared to the productivity in its passport. showed that it was less on average by 57.4 and 59.6% on seed, and on average by 14.6 and 13.1% on fluff. The hairiness of the produced seed was on average 8.4 and 11.3%, damage was on average 4.8 and 5.1%. The mass percentage of dirty mixtures and whole seeds in the fluff is 5.6 and 6.2% on average, the length of the staple is 6/7 and 5/6 mm, and it belongs to the B type "Medium" and "Dirty" classes according to the state standard. was determined.

Key words: *Linter, working chamber, apron, profile, zev, mixer, saw cylinder, cotton, seed, fluff, hairiness, productivity, quality indicator.*

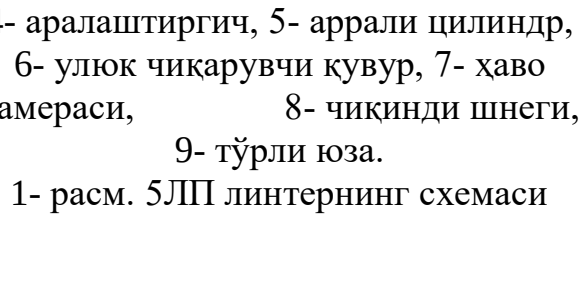
Пахта тозалаш корхоналарида пахтани жинлаш жараёнидан ишлаб чиқарилган чигит таркибида жинланган пахтанинг селекцион навини инобатга олган ҳолда ўртача 10-15 % миқдорида момиқ бўлади. Ушбу момиқни чигит таркибидан ажратиб олиш учун чигитни линтерлаш жараёни амалга оширилади. Линтерлаш жараёни линтер ускуналарини ишчи камерасида амалга оширилади. Бунда линтер таъминлагич-тозалагичидан ишчи камерага берилган маълум массага эга бўлган чигитлар тўплами аррали цилиндр ва ишчи камерадаги аралаштиргич ёрдамида айланма харакатга келтирилиб, чигитли валикни ҳосил қилади ҳамда цилиндрдаги арралар тишлари ёрдамида чигитлар сиртидан момиқларни қириб олиш жараёнини амалга оширади [1]. Аррали цилиндрга чигитлар оқими томонидан бериладиган босим кучи катта бўлган зонада чигит сиртидан момиқни қириб олиш жараёни жадаллашади ва чигит сиртидан кўп миқдорда момиқ қириб олинади. Чигитлар оқимидан аррали цилиндрга бериладиган босим кучи кичик бўлган зонада чигит сиртидан момиқни қириб олиш жараёнини жадаллашиши камаяди ва чигитлар сиртидан момиқни қириб олиш миқдори пасаяди. Харакатдаги чигитлар оқими томонидан аррали цилиндрга бериладиган босим кучи оқимдаги чигитлар тўплами зичлигига тўғри пропарционал бўлиб, зичлик юқори бўлган зонада чигитни линтерлаш жараёни самарали кечади, зичлик кам бўлган зонада чигитни линтерлаш жараёни камаяди. Линтер ишчи камерасида чигитли валикни юқори зичликда бўлиши аррали цилиндр билан аралаштиргич парраклари оралиғида харакатдаги чигитлар тўпламида юзага келади ва ушбу ораликдаги чигитлар тўпламидан қолган зоналардаги чигитлар тўпламига қараганда кўп миқдорда момиқ қириб олинади. Бугунги кунда пахта тозалаш корхоналарининг чигитни линтерлаш цехида асосан 5ЛП линтерлар ишлатилади [2]. Ушбу линтернинг ишчи камераси ПМП-160 русумли линтер ишчи камерасига қараганда хажм жихатидан катталаштирилган ва камера хажмига мос

равишда аралаштиргичнинг ташқи диаметри ҳам 178 мм этиб олинган (1-расм). Линтерда чигитли валикни айланма харакатга келишини таъминлайдиган ва линтерлаш жараёнини амалга оширилишида асосий вазифани бажарадиган ишчи қисм ишчи камера кўндаланг кесими ва хажмидир. 5ЛП линтер ишчи камера кўндаланг кесимининг катталаштирилиши линтерни иш унумдорлигини бор-йўғи 5-8 % га ошириш имконини беради [3]. Камера хажмининг катталашиши ишчи камерадан линтерланган чигитларнинг ўз вақтида ташқарига чиқишини камайтиради. Натижада камерадаги чигитли валик массасининг ошиши юзага келиб, чигитли валикдан аррали цилиндрга тушаётган юкламани ошишига олиб келади. Ортиқча юкламани енгиш, чигитли валикка керакли тезликни бериш ва линтерлаш жараёнини тиқилмасдан амалга ошириш учун аррали цилиндрга 18,5 кВт ли электр двигатели ўрнатилади. Бу ўз навбатида электр энергияни ПМП-160 русумли линтерга қараганда 8,5 кВт кўп миқдорда сарфланишига олиб келган. Линтер ишчи камераси кўндаланг кесимининг катталаштирилишига қарамасдан чигит сиртидан момиқни самарали қириб олмаслиги ва камерадан линтерланган чигитларнинг ўз вақтида ташқарига чиқмаслиги, камерадаги чигитли валик зичлигининг ортишига олиб келиб, линтер иш унумдорлигини пасайишини юзага келтирмокда. Ишлаб чиқаришдан олинган маълумотлар юқори ва паст навли чигитларни линтерлашда 5ЛП линтернинг ҳақиқий иш унумдорлиги унинг паспортидаги иш унумдорликка қараганда ўртача 45- 55 % га кам эканлигини кўрсатмокда. Шу билан эканлигини кўрсатмокда. Шу билан бирга чигитни линтерлашда чигит сиртидан ўртача 2,0- 2,2 % гача момиқни қириб олаётгани учун пахтани дастлабки ишлаш технологик тизимда аррали жинлардан ишлаб чиқарилган чигитни линтерлашга улгура олиши учун “Пахтага дастлабки ишлов беришнинг мувофиқлаштирилган технологияси”- ПДИ70-2017 бўйича пахта тозалаш корхоналарининг чигитни линтерлаш технологик тизимида икки қатордан, ҳар бир қаторда 4-6 донадан ва умумийси 8-12 донадан иборат бўлган 5ЛП линтерлари ўрнатилади [4]. Цехда линтер ускуналарни кўплиги электр энергия ва эҳтиёт қисмларни керагидан ортиқ сарфланишига, цехда инсон соғлиги учун зарар бўлган чанг ҳавони меъёридан ошишига, ишчи кучини кўп миқдорда сарфланишига



1-таъминловчи валик, 2- текисловчи-тозаловчи барабан, 3- ишчи камера,

олиб келмоқда. Чигитни линтерлаш жараёнида сарф-харажатларнинг кўп миқдорда сарфланишига қарамасдан истеъмолчи бозорида ишлаб чиқарилаётган момиқ улгуржи нархининг пастлиги, корхонанинг иқтисодий самарадорлигига салбий таъсир этмоқда.



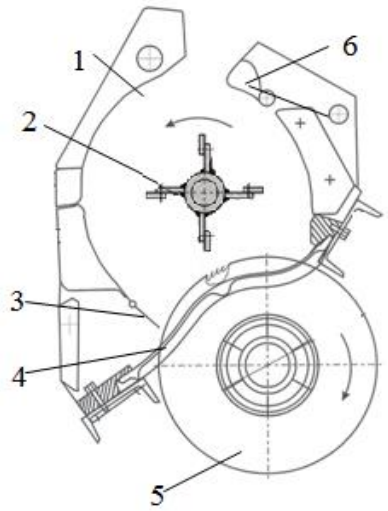
1- расм. 5ЛП линтернинг схемаси

Маълумки, линтер камерасига таъминлагич-тозалагичдан керакли миқдордаги чигитни ўз вақтида берилиши, чигитли валикни керакли зичликда бўлиши, валикнинг керакли тезликда айланиши, чигит ва момиқнинг камерадан ўз вақтида ташқарига чиқиши ишчи камерадаги асосий ишчи қисмлардан бўлган камера профилининг тўғри танланганлиги билан боғлиқдир. Камера профили бўйича шуни айтиш мумкинки, у чигитли валикни айланишида кам қаршилик кўрсатадиган ва айлана шаклига яқин бўлиши лозим. Лекин профилни айлана шаклига келтириш қийин, чунки ишчи камерада таъминлагич- тозалагичдан берилаётган чигитлар оқимини камера зевида тиқилтирмасдан қабул қилиш учун камера зеви клин кўринишида бўлиши талаб этилади. Камерага кираётган аррали цилиндр чигит тароғи зонасидаги чигитлар тўплами билан ўзаро таъсирида тўпламни умумий чигитли валикдан ажратиб олиш ва бунинг ҳисобига ушбу зонада линтерланган чигитларни ишчи камерадан ташқарига чиқишини таъминлаш учун чигит тароғи зонаси ҳам клин кўринишдаги профилга эга бўлиши керак бўлади (2- расм). 5ЛП линтер камераси хажмига келсак, унинг катталашиши чигитли валик массасини ва зичлигини ошишига олиб келган. Бунда валик томондан аррали цилиндрга тушадиган босимнинг ошиши ҳисобига аррали цилиндрдан чигитли валикка берилаётган энергия миқдорининг ошиши юзага келган. Шундай бўлсада, чигитли валик тезлигининг сезиларли даражада ошишига олиб келмаган.

5ЛП линтернинг самарадорлигини ўрганиш мақсадида Тошкент вилоятининг Мустақиллик пахта тозалаш корхонасида тажриба-тадқиқот ишлари олиб борилди. Тажриба ишлари бошланғич намлиги ўртача 11,4 % ва 14,3 га, ифлослиги 9,2 % ва 11,6 % га тенг бўлган пахтанинг С-6524 селекцияли I ва III нав 2-синфида ўтказилди [5].

Дастлаб тажриба ишлари С-6524 селекцияли I нав 2-синфли техник пахтани жинлашдан ишлаб чиқарилган чигитда ўтказилди. Бунда корхонадаги 5ДП-130 русумли жиндан ишлаб чиқарилган чигитнинг намлиги 9,9 % ни, тукдорлиги 10,5 % ни ташкил этди. Ушбу намлик ва тукдорликка эга бўлган чигит 5ЛП линтерда линтерланди. Чигитни

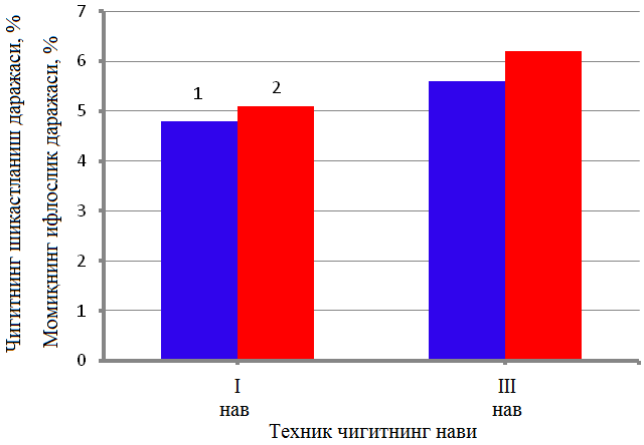
линтерлаш жараёнида линтернинг чигит бўйича иш унумдорлиги хронометраж усули билан аниқланди. Момиқ бўйича иш унумдорлиги эса технологиядаги қолган линтерлар вақтинча тўхтатилиб, тажриба учун ажратилган линтернинг ишлатилишидан ҳар 3 минут вақт оралиғида пресс яшигига тушаётган момиқни йиғиб тортиш йўли билан аниқланди. Бунда 5ЛП линтернинг чигит бўйича иш унумдорлиги ўртача 690 кг/соатни, момиқ бўйича иш унумдорлиги ўртача 20,4 кг/соатни ташкил этиб, техник характеристикасидаги иш унумдорликка қараганда чигит бўйича ўртача 57,4 % га, момиқ бўйича ўртача 14,6 % га кам эканлигини кўрсатди. Ишлаб чиқарилган чигитнинг тукдорлиги ўртача 8,4 % га,



1- фартук, 2- аралаштиргич, 3- чигит тароғи, 4- колосник, 5- аррали цилиндр, 6- зичлик клапани.
2- расм. 5ЛП линтер ишчи камерасини схемаси

шикастланиши ўртача 4,8 % га тенг бўлди. Момиқдаги ифлос аралашмалар ва бутун чигитларнинг массавий улуши ўртача 5,6 % ни, штапель узунлиги 6/7 мм ни ташкил этиб, давлат стандарти O'zDst 645:2016 "Пахта момиғи" техникавий шартлар бўйича Б типли "Ўрта" синфга мансуб эканлиги аниқланди [6]. Сўнгра тадқиқот ишлари намлиги 14,3 % га, ифлослиги 11,6 % га тенг бўлган С-6524 селекцияли техник пахтанинг III нав 2-синфида ўтказилди. Бунда пахтани жинлашдан ишлаб чиқарилган чигитнинг намлиги 12,1 % ни, тукдорлиги 11,9 % ни ташкил этди. Жиндан ишлаб чиқарилган чигит 5ЛП линтерда линтерланганда линтернинг чигит бўйича иш унумдорлиги ўртача 600 кг/соатни, момиқ бўйича иш унумдорлиги ўртача 21,5 кг/соатни ташкил этиб, техник характеристикасидаги иш унумдорликка қараганда чигит бўйича ўртача 59,6 % га, момиқ бўйича ўртача 13,1 % га кам эканлигини кўрсатди. Ишлаб чиқарилган чигитнинг

тукдорлиги ўртача 11,3 % га, шикастланиши ўртача 5,1 % га тенг бўлди. Момиқдаги ифлос аралашмалар ва бутун чигитларнинг массавий улуши ўртача 6,2 % ни ташкил этди (3-расм). Бунда момиқнинг штапель узунлиги 5/6 мм ни ташкил этиб, давлат стандарти O'zDst 645:2016 "Пахта момиғи" техникавий шартлар бўйича Б типли "Ифлос" синфга мансуб эканлиги аниқланди [6].



3- расм. Чигитни линтерлашда чигит шикастланишини ва момиқ ифлослигини навлар бўйича ўзгариш гистограммаси

5ЛП линтернинг ишлаш ҳолати ва ишлаб чиқарилаётган чигит ва момиқнинг сифат кўрсаткичи бўйича олиб борилган тажриба ишлари юқори ва паст навли чигитни линтерлашда ускунанинг иш унумдорлиги кам бўлиб, линтерга қўйилган технологик талабни бажара олмаётганлиги аниқланди. Ишлаб чиқарилган чигит шикастланиши ва момиқ ифлослигининг юқорилигидан чигит ва момиқнинг сифат кўрсаткичи паст эканлигини кўрсатди.

Махаллий 5ЛП линтерлар конструкциясига асосан техник ва уруғлик чигитни линтерлашга мосланганлиги, лекин линтердаги асосий ишчи қисм бўлган ишчи камера

конструкцияси камчилигидан иш унумдорлигининг камлиги, ишлаб чиқарилаётган чигит ва момиқ сифатининг пастлиги билан бирга чигитни линтерлашда технологик талабни бажара олмаётганлиги ўрганилди. Бу ўз навбатида пахта- тўқимачилик кластери пахта тозалаш корхоналари учун юқори иш унумдорликда ишлайдиган, истеъмолчининг сифатли чигит ва момиққа бўлган талабини қондирадиган, цехда чанг ҳавони меъёрида бўлишини таъминлайдиган замонавий махаллийлаштирилган линтерни ишлаб чиқиш ва ишлаб чиқаришга жорий этиш кераклигини кўрсатди.

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ОЦЕНКА СРЕДНЕСУТОЧНОГО ПОТРЕБЛЕНИЯ ОВОЩЕЙ И ФРУКТОВ В ЗДОРОВОМ ПИТАНИИ ПОЖИЛОГО НАСЕЛЕНИЯ

Аннотация: Аннотация: *Применение системы HACCP по принципу от фермы до стола требует установления контрольных критических точек для каждой отрасли. Данный процесс рассчитан на выявление и анализу критических точек, с учетом особенностей сырья, технологии производства, перевозки, хранении переработки и климатических особенностей страны. Без научного обоснования критериев каждой контрольной критической точки производимой и реализуемой пищевой продукции, невозможно обеспечение эффективности и целенаправленности данной процедуры.*

Ключевые слова*: Продуктов питания, контаминацией, овощей и фруктов, пищевой и биологической ценности.*

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ASSESSMENT OF AVERAGE DAILY CONSUMPTION OF VEGETABLES AND FRUITS IN A HEALTHY NUTRITION OF THE ELDERLY POPULATION

Abstract: *Applying the HACCP system from farm to fork requires establishing critical control points for each industry. This process is designed to identify and analyze critical points, taking into account the characteristics of raw materials, production technology, transportation, storage, processing and climatic characteristics of the country. Without scientific substantiation of the criteria for each critical control point of produced and sold food products, it is impossible to ensure the effectiveness and purposefulness of this procedure.*

Keywords: *Food products, contamination, vegetables and fruits, nutritional and biological value.*

Актуальность темы: Загрязнение продуктов питания является причиной значительных экономических последствий и оказывает влияние на здоровье людей во всех странах мира. Как свидетельствуют данные ВОЗ, 2006 г. в развивающихся странах, детская диарея, анемия становится наиболее важной проблемой здоровья, связанной с загрязненными продуктами питания. Почти 25 лет назад, в 1983 году, Экспертная Комиссия по безопасности питания пришла к заключению, что заболевания, связанные с контаминацией продуктов питания была, возможно, самой широко распространенной проблемой здоровья в современном мире и важной мотивацией для сокращения экономической продуктивности (WHO,1984). В 1992 г. Международная Конференция по Питанию заявила, что сотни миллионов людей страдают от инфекционных заболеваний, вызванных загрязненными продуктами питания. Данная конференция провозгласила, что доступ к достаточно питательной и безопасной еде – это право каждого человека (WHO,1996 г.). В промышленных странах исследования показали неожиданно высокое ежегодное распространение пищевых заболеваний, т.е. 10-15% населения.

Предполагается, что эти показатели выше в развивающихся странах и имеют более крупные последствия для здоровья. Несомненно, что проблемы безопасности продуктов питания будут беспокоить человечество в 21 столетии, к тому же, некоторые глобальные изменения продолжают негативно влиять на безопасность питания и в новом столетии. Такие изменения включают рост населения, урбанизацию, бедность, международную торговлю продуктами питания, корма животных и другие. В связи с чем, одной из основных требований Соглашения ВТО (Всемирной Торговой Организации) по СФМ (санитарным и фитосанитарным мерам) для стран-членов данной организации является применение международной системы HACCP (Hazards Analysis and Critical Control Point- анализ рисков в контрольных критических точках) при производстве пищевой продукции.

Цель работы: Оценка спроса на потребление различных видов овощей и фруктов среди городских и сельских жителей разных регионов нашей республики по сезонам года.

Он заключается в анализе пищевой и биологической ценности всех видов овощей и фруктов и разработке системы анализа факторов риска и критериев оценки в контрольных точках с использованием санитарно-гигиенических методов при производстве и реализации овощной продукции.

Полученные результаты:

Фактическое питание изучалось методом частотного и 24-часового воспроизведения, рекомендованного ВОЗ для эпидемиологических исследований с адаптацией для Узбекистана анкеты разработанные нами и утвержденные минздравом у 140 домохозяйств г. Ташкента, Самаркандской области, 210 студентов добровольцах медицинского колледжа г. Ташкента. При оценке адекватности питания за референтные величины были взяты нормы физиологических потребностей в энергии и пищевых веществах для различной половозрастной группы Республики Узбекистан, а также нормативы потребления нутриентов по шкале ФАО/ВОЗ.

Перед проведением исследований среди обследуемых были проведены разъяснительные работы о необходимости учета всех потребляемых продуктов, в том числе, уличного питания. Как показывает анализ среднесуточного потребления продуктов питания в исследуемых объектах по всем видам продукции имеются отклонения от рациональных норм питания, принятых в Узбекистане ($P<0,01$) как в летне-осеннем, так и в зимне-весеннем сезоне, кроме кофе, томатной пасты и специи ($P\geq0,01$).

Если провести общий анализ состояния среднесуточного потребления продуктов питания в исследуемых объектах в сравнении с рекомендациями здорового питания, отмечается низкое потребление овощей почти в 1,5 раза в летне-осеннем сезоне, и в 2 раза в зимне-весеннем сезонах. Потребление овощей и фруктов в сравнении рекомендуемыми ВОЗ 400 гр в сутки, в летне-осеннем сезоне составляют 128,4±2,3 гр в Самарканде; 196,2±3,3 гр в г. Ташкенте и 190,8±3,1 гр в сельской местности, что в 2 раза ниже рекомендуемых ВОЗ.

Таблица 1

Сравнительный анализ среднесуточного потребления овощей и фруктов для здорового питания населения пожилого возраста с рекомендациями по сезону, г/сут, M±m.

Название продукции	Самаркандская область	Город Ташкент	Норма [71]	P	
	Город	Деревня			
Летне-осенний сезон					
Овощи	103,4±3,3	148,8±3,8	142,0±3,6	200,0	<0,01

Фрукты и ягоды + виноград	41,0±1,1	87,0±1,7	74,2±1,4	200,0	<0,01
Общий	128,4±2,3	190,8±3,1	196,2±3,3	400,0	<0,01
Зимний весенний сезон					
Овощи	89,4±2,2	116,8±3,8	240,3±5,5	200,0	<0,01
Фрукты и ягоды + виноград	40,5±2,2	65,0±2,8	74,2±3,1	200,0	<0,01
Общий	129,5±3,0	181,8±3,8	314,5±4,3	400,0	<0,01

Таблица 2

Сравнительный анализ среднесуточного потребления овощей и фруктов по сравнению с рекомендациями по здоровому питанию студентов медицинского колледжа, г/день по сезонам, M±м.

Название продукции	Норма [74]	Студенты	P	
		Мальчики	Девушки	
Ёз-куз мавсуми				
Овощи	200,0	115,2±3,9	113,2±3,7	<0,01
Фрукты и ягоды + виноград	200,0	44,0±1,7	44,5±1,7	<0,01
Общий	400,0	146,2±5,6	145,2±5,6	<0,01
Қиш баҳор мавсуми				
Овощи	200,0	113,2±3,7	111,2±3,7	<0,01
Фрукты и ягоды + виноград	200,0	45,0±1,7	44,0±1,7	<0,01
Общий	400,0	157,8±6,0	157,2±6,0	<0,01

Это говорит о значительно отличающемся количестве потребления продуктов в разных странах. По данным ФАО/ВОЗ, несмотря на рост средней численности постоянного населения республики за 2000-2017 годы на 31,4 %, обеспечен динамичный рост доходов населения за последние 17 лет, что способствовало укреплению финансовых возможностей и увеличению объемов потребления населением основных видов продуктов питания. В части, потребление овощей в год составило 277,0 кг, фруктов - 145,2 кг.

Вывод: В результате проведенных исследований стало известно, что на изучаемых территориях наблюдается низкий уровень соблюдения принципов рационального питания: потребление овощей в среднесуточном рационе было меньше почти в 1,5 раза, а в 2 раза меньше. Зимне-весенний сезон. Данная ситуация показывает необходимость разработки мер по обеспечению потребления овощей и фруктов на основе современной системы «От поля к столу потребителя».

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АҲОЛИ ОРАСИДА ҲАР ХИЛ ТУРДАГИ САБЗАВОТ ВА МЕВАЛАРНИ ИСТЕЪМОЛГА БЎЛГАН ТАЛАБИНИ БАҲОЛАШ

Аннотация: *Даладан дастурхонгача ХАССП тизимини қўллаш ҳар бир тармоқ учун муҳим бошқарув нуқталарини белгилашни талаб қилади. Мазкур жараён хомашё, ишлаб чиқариш технологияси, ташиш, сақлаш, қайта ишлаш ва мамлакатнинг иқлим хусусиятларини ҳисобга олган ҳолда муҳим бошқарув нуқталарини аниқлаш ва таҳлил қилишга қаратилган. Ишлаб чиқариладиган ва сотилаётган озиқ-овқат маҳсулотларининг ҳар бир муҳим бошқарув нуқтаси учун мезонларни илмий асосланмасдан бу жараённинг самарадорлиги ва мақсадга мувофиқлигини таъминлаш мумкин эмас.*

Калит сўзлар: *Озиқ-овқат, маҳсулотларнинг ифлосланиши, мева-сабзавотлар, кундалик озиқ-овқат.*

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ESTIMATION OF DEMAND FOR CONSUMPTION OF VARIOUS TYPES OF VEGETABLES AND FRUITS AMONG THE POPULATION

Abstract: *Applying the HACCP system from farm to fork requires establishing critical control points for each industry. This process is designed to identify and analyze critical points, taking into account the characteristics of raw materials, production technology, transportation, storage, processing and climatic characteristics of the country. Without scientific substantiation of the criteria for each critical control point of produced and sold food products, it is impossible to ensure the effectiveness and purposefulness of this procedure.*

Keywords: *Nutritional, food contamination, vegetables and fruits, average daily food.*

Мавзунинг долзарблиги: Овқатланиш бўйича 2010 йилдаги Codex Alimentarius Халқаро анжумани ер юзидаги юз миллионлаб аҳоли ифлосланган озиқ-овқат маҳсулотлари келтириб чиқарган юқумли касалликлар орқали жабрланмоқда, деган маълумотни берган. Мазкур анжуманда эълон қилинишича, етарлича озуқавий, хавфсиз ва сифатли озиқ-овқат маҳсулотлари билан ҳар бир инсон таъминланиши шарт деб алоҳида таъкидлаб ўтилди. Озиқ-овқат маҳсулотларининг ифлосланиши дунёдаги барча давлатларда жуда катта иқтисодий оқибатларга ва одамлар саломатлигига салбий таъсир кўрсатади. ЖССТ томонидан берилган маълумотларнинг гувоҳлик беришича 2006 й. ривожланаётган давлатларда озиқ-овқат маҳсулотларининг ифлосланиши билан боғлиқ бўлган болалар диареяси, камқонлик касалликлари саломатликдаги энг муҳим муаммо бўлиб қолмоқда.

Озиқ-овқат маҳсулотларининг хавфсизлиги муаммоси XXI асрда ҳам инсониятни ташвишга солиши шубҳасиз, бунинг устига айрим глобал ўзгаришлар янги юз йилликда ҳам озиқ-овқат маҳсулотлари ҳавфсизлигига негатив таъсир кўрсатишини давом эттиради. Бундай ўзгаришлар қаторига аҳоли сонининг ортиб бориши, урбанизация, камбағаллик, озиқ-овқат халқаро савдоси кабиларни киритиш мумкин. Маълумки, Ўзбекистон БЖСТ таркибига кириши мумкинлигини эълон қилган ва ҳозирги кунда тайёргарлик ишлари амалга оширилмоқда. Шунга боғлиқ ҳолда Халқаро Кодекс Алиментариус Қўмитаси HACCP (Hazards Analysis and Critical Control Point-нозик назорат нуқталарида тахлика омилларига баҳо бериш) тизимини фермадан истеъмолчининг дастурхонигача принципи бўйича ҳар бир соҳа учун тахликали нозик назорат нуқталарни белгилаш лозимлигини талаб қилади. Мазкур жараён маҳсулотни етиштириш, ҳосил йиғиш, ташиш, қайта ишлашдаги технологиялар ва мамлакатдаги иқлимнинг ўзига хос хусусиятларини ҳисобга олиб, нозик нуқталар назоратини амалга ошириш ва таҳлил қилишга мўлжалланган.

Мақсад: Йил фаслларига кўра, Республикамизнинг турли ҳудудларида шаҳар ва қишлоқ аҳолиси орасида ҳар хил турдаги сабзавот ва меваларни истеъмолга бўлган талабини баҳолаш.

Барча турдаги сабзавот ва меваларни озуқавий ва биологик қийматини таҳлил қилиш ва сабзавот маҳсулотларини ишлаб чиқариш ва сотишда санитария-гигиеник усуллардан фойдаланган ҳолда назорат нуқталарда таҳлика берувчи омилларни таҳлил қилиш тизимини ва баҳолаш мезонларини ишлаб чиқишни тўғри йўлга қўйишдан иборат.

Натижалар: Тадқиқотимизнинг бу жараёнида Самарқанд вилоятининг 140 хонадонида истиқомат қилувчи уй бекалари, Тошкент шаҳри ва Тошкент тиббиёт коллежидан 220 нафар кўнгилли талабалар иштрок этишди. Овқатланишнинг адекватлигини баҳолашда Ўзбекистон Республикасининг турли ёш ва жинсий гуруҳлари учун қабул қилинган физиологик энергия ва озуқавий эҳтиёж меъёрлари маълумот сифатида, шунингдек ФАО/ЖССТ шкаласи бўйича озуқа истеъмоли стандартлари асос қилиб олинди.

Ўрганилаётган объектлардаги ўртача кунлик озиқ-овқат истеъмолининг таҳлили шуни кўрсатдики, барча турдаги маҳсулотлар учун Ўзбекистонда қабул қилинган соғлом овқатланиш меъёрларидан четга чиқиш ҳолатлари ($P<0,01$) ёз-куз ойларида ҳам, қиш-баҳор мавсумида ҳам кузатилди, (кофе, томат пастаси ва зираворлардан ташқари ($P\geq0,01$).

Агар ўрганилаётган объектларда ўртача кунлик озиқ-овқат истеъмоли ҳолатини соғлом овқатланиш бўйича тавсиялар билан солиштириб умумий таҳлил қиладиган бўлсак, ёз-куз мавсумида сабзавот истеъмоли деярли 1,5 баробар, қиш-баҳор мавсумида 2 баробар кам эканлиги кузатилди. ЖССТ томонидан берилган тавсияларга кўра сабзавот ва мевалар кунига 400 граммни ташкил этган, ёз-куз мавсумида Самарқанд вилоятида; 128,4 ± 2,3 граммни, Тошкент шаҳрида 196,2±3,3 г, қишлоқ жойларда эса 190,8±3,1 г, истеъмол қилиниб, бу ЖССТ томонидан берилган тавсиясига кўра 2 баравар кам эканлигини кўрсатади.

1-жадвал

Катта ёшдаги аҳолининг соғлом овқатланиши бўйича сабзавот ва меваларнинг ўртача кунлик истеъмолини тавсиялар билан солиштирма қиёсий таҳлили, мавсум бўйича г/кун, M±m.

Маҳсулотлар номи	Самарканд вилояти	Тошкент шаҳри	Меъёр [71]	P	
	Шаҳар	Қишлоқ			
Ёз-куз мавсуми					
Сабзавотлар	102,6±3,3	148,8±3,8	143,0±3,6	200,0	<0,01
Мева ва резаворлар+ узум	41,0±1,1	87,0±1,7	74,2±1,4	200,0	<0,01
Жами	129,2±2,4	190,8±3,1	198,2±3,3	400,0	<0,01
Қиш баҳор мавсуми					
Сабзавотлар	89,4±2,2	116,8±3,8	240,3±5,5	200,0	<0,01

Мева ва резаворлар+ узум	40,5±2,2	65,0±2,8	74,2±3,1	200,0	<0,01
Жами	129,5±3,0	181,8±3,8	314,5±4,3	400,0	<0,01

1-жадвал

Тиббиёт коллежи талабаларининг соғлом овқатланиши бўйича сабзавот ва меваларнинг ўртача кунлик истеъмолини тавсиялар билан солиштирма қиёсий таҳлили, мавсум бўйича г/кун, М±м.

Маҳсулотлар номи	Меъёр [74]	Тошкент шаҳри. Колледж талабалари	Р	
		Ўғил боллар	Қизлар	
Ёз-куз мавсуми				
Сабзавотлар	200,0	116,2±3,9	113,2±3,7	<0,01
Мева ва резаворлар+ узум	200,0	44,0±1,7	44,5±1,7	<0,01
Жами	400,0	146,2±5,6	145,2±5,6	<0,01
Қиш баҳор мавсуми				
Сабзавотлар	200,0	113,2±3,7	111,2±3,7	<0,01
Мева ва резаворлар+ узум	200,0	45,0±1,7	44,0±1,7	<0,01
Жами	400,0	157,8±6,0	157,2±6,0	<0,01

Бу кўрсаткич турли давлатларда озиқ-овқат маҳсулотлари истеъмолининг сезиларли даражада фарқланишини кўрсатади. ФАО/ЖССТ маълумотларига кўра, 2004-2021 йилларда Республиканинг ўртача доимий аҳолисининг 31,4 фоизга ўсишига қарамай, сўнгги 17 йил ичида аҳоли даромадларининг динамик ўсиши таъминланди, бу эса молиявий имкониятларни мустаҳкамлаш ва аҳолининг асосий турдаги озиқ-овқат маҳсулотларининг истеъмол қилиш миқдорининг ортишига олиб келди. Жумладан, бир йилда сабзавот истеъмоли 287,0 кг, мева – 146,2 кг ни ташкил этган.

Хулоса: Олиб борилган тадқиқот натижасида шу нарса маълум бўлдики, ўрганилаётган ҳудудларда рационал овқатланиш тамойилларига риоя қилишнинг паст даражада бўлиши ўрганилаётган объектларда ўртача кунлик овқатланишдаги сабзавот истеъмоли деярли 1,5 баробар, қиш-баҳор мавсумида 2 баробар кам эканлиги кузатилди. Ушбу ҳолат “Даладан истемолчининг дастархонигача” замонавий тизимига асосланган ҳолда сабзавот ва мевалар исътемолини таъминлаш бўйича чора-тадбирлар ишлаб чиқиш зарурлигини кўрсатади.

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ПСИХОЛОГИЧЕСКОЕ ОБЕСПЕЧЕНИЕ ПРОФЕССИОНАЛЬНОЙ ПОДГОТОВКИ МЕНЕДЖЕРОВ ПО ТУРИЗМУ

Аннотация. *В статье рассмотрены тенденции подготовки кадров высшего профессионального образования для индустрии туризма, выделены основные задачи модернизации системы образования для индустрии туризма. Приведены вопросы качества подготовки специалистов туриндустрии, которые являются стратегическим направлением развития республики.*

Ключевые слова: *туризм, профессиональная деятельность, психологические особенности, компетенции, специалист туриндустрии.*

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PSYCHOLOGICAL SUPPORT FOR PROFESSIONAL TRAINING OF TOURISM MANAGERS

Annotation. *The article discusses the trends in the training of higher professional education for the tourism industry, highlights the main tasks of modernizing the education system for the tourism industry. Issues of the quality of training of specialists in the tourism industry in the republic, which are a strategic direction for the development of the republic*

Key words: *tourism, professional activity, psychological characteristics, competencies, travel industry specialist.*

Индустрия туризма считается одной из самых быстро развивающихся и перспективных. А это значит, что человек, избравший туризм своей профессией, никогда и нигде не пропадет.

Современный взгляд на подготовку менеджера туризма обусловлен требованиями времени. Важнейшим из них является качество обучения в зависимости от уровня подготовки специалиста с учетом потребностей сферы туристских услуг.

Развитию туризма в республике благоприятствует современная транспортная инфраструктура, глобализация стран, развитие социальных отношений между ними. Расширяется ассортимент все более необычных и

интересных видов туризма, способных преподнести множество новых знаний и впечатлений туристам

Практика современного туристского образования требует необходимость формирования у специалиста в области туризма не только определенных знаний и умений, но и особых профессиональных способностей, применения полученных знаний на практике, в профессиональной деятельности. При использовании современных методов обучения можно, гарантировать успешное развитие личности будущего профессионала в образовательной среде вуза.

Первая школа по подготовке специалистов для индустрии гостеприимства открылась в конце XIX века в Швейцарии – Ecole hoteliere de Lausanne. Эта страна так и осталась лидером по подготовке кадров для индустрии туризма. Вслед за ней, в начале XX века, стали открываться другие в Испании, Ирландии, США, Великобритании, Австралии. Они уже расширяли рамки программы, не ограничиваясь лишь гостиничным менеджментом, – появилась специализация «Путешествия и туризм». И до сих пор эти две программы (гостиничный и туристический менеджмент) остаются базовыми и предлагаются школами иногда порознь, а иногда совместно.

Туризм – такой же бизнес, как и любой другой. И в этой сфере нужны профессиональные кадры разного уровня – от помощника до управляющего. Поскольку туристическая деятельность тесно связана с работой с людьми, очень важно, чтобы все сотрудники составляли единое целое, одну команду, были дружелюбно настроены по отношению к клиенту, могли заменить друг друга.

К настоящему времени туризм превратился в один из ведущих секторов мировой экономики. В этой связи в Узбекистане уделяется особое внимание модернизации туристической индустрии, разработке и совершенствованию нормативно-правовой базы для устойчивого развития отрасли, организации обслуживания зарубежных гостей в соответствии с международными стандартами. В годы независимости наша страна сделала существенный прорыв в этой области вкупе с сохранением и приумножением историко-культурного наследия народа, возрождением национальных традиций и обычаев, восстановлением и обустройством достопримечательностей республики.

Важным шагом в формировании национальной модели туризма стало формирование прочной нормативно-правовой базы, основу которой составляет Закон «О туризме», принятый 18 июля 2019 года.

Благодаря усилиям главы нашего государства, в частности, в результате последовательного выполнения задач, обозначенных в постановлении Президента «О мерах по обеспечению ускоренного развития внутреннего туризма» от 7 февраля 2018 года, а также по мере роста благосостояния населения широко развивается и внутренний туризм. Однако ощущается

острая нехватка соответствующих международным стандартам гостиниц, квалифицированных кадров-гидов.

Кроме того, следует отметить, что принятие Постановление № ПП-4095 «О мерах по ускоренному развитию туристской отрасли» от 5 января 2019 года послужило интенсивному развитию туризма, созданию и продвижению на мировые рынки национального продукта на основе создания благоприятных экономических стимулов и организационно-правовых условий.

Сегодня сфере туризма в Узбекистане относятся как к стратегической отрасли экономики, так как туризм способен играть роль локомотива в экономике любого государства, поскольку прямо или косвенно связан со многими отраслями народного хозяйства и с различными областями человеческих знаний.

Подготовку кадров высшего профессионального образования для индустрии туризма осуществляют несколько высших образовательных учреждений, выпускающих специалистов в данной сфере: Самаркандский международный университет туризма «Шелковый путь», Самаркандский институт экономики и сервиса, Ташкентский государственный экономический университет, Бухарский и Ургенчский государственные университеты, а также Сингапурский институт развития менеджмента в Ташкенте.

Специфика туристского образования заключается в его многогранности. Оно готовит кадры разных направлений и специальностей со знаниями и умениями управленческого, экономического, технологического, технического, научного и другого характера. В связи с этим, туристское образование является сложным, постоянно совершенствующимся механизмом, позволяющим активно внедрять инновационные программы для подготовки кадров, в том числе и с использованием зарубежного опыта.

Проблема научно-педагогического обоснования педагогических условий формирования базисных профессиональных компетенций у будущих специалистов сферы туризма в современных условиях является весьма актуальной.

Факторами, влияющими на индустрию туризма, являются: состояние рынка труда и его потребностей, сформированные на основе туристских потоков; индустрия туризма зарубежных стран и др. На основе их влияния формируются требования рынка труда к качеству подготовки специалистов.

Туризм – явление интернациональное. Это значит, что специалист в этой области не может полноценно работать, не владея информацией о современных тенденциях и методах подготовки специалистов данного профиля за рубежом, без обмена знаниями с учеными, занимающимися исследованиями проблем современного туризма. Рассмотрение подготовки кадров за рубежом является весьма актуальным.

К достоинству европейских моделей профессиональной подготовки кадров для индустрии туризма относятся следующее: значительная часть

учебного времени предназначена для получения практических навыков в ходе практических занятий, практик и стажировок на предприятиях отрасли; акцент на формирование у студентов психологии обслуживания клиентов; тесное сотрудничество образовательных учреждений с отраслью; высокая мобильность студентов.

Большинство школ туристского и гостиничного дела в Европе открыты на базе действующих гостиниц, студенты живут тамже, что позволяет им получать практические профессиональные навыки в обстановке, приближенной к реальности. Подобный опыт представляет несомненный интерес и перспективы для повышения качества подготовки в Узбекистане.

Преимуществом американской модели подготовки кадров является формирование специализированных отделов, кадровых агентств, соединенных единой информационной системой с предприятиями индустрии туризма, которые занимаются регулярным мониторингом потребностей рынка труда, трудоустройством молодых специалистов и коррекцией набора абитуриентов по профильным специальностям. Соответственно, образовательные учреждения имеют возможность быстро реагировать на меняющиеся потребности отрасли в кадрах того или иного профиля и квалификационного уровня.

Реализация современной модели профессионального туристического образования в Узбекистане, нацеленной на обеспечение туристической отрасли квалифицированными кадрами, сдерживается по ряду причин. При нехватке квалифицированных кадров для туристической индустрии имеет место невостребованность выпускников профильных вузов из-за отсутствия у них практических навыков и должных знаний по конкретным специализациям.

Рассмотрение зарубежного опыта позволяет выделить основные задачи модернизации системы подготовки кадров для индустрии туризма в республике: создание концептуальной модели системы подготовки кадров для индустрии туризма; создание системы мониторинга образовательных услуг в данном сегменте рынка труда; совершенствование нормативно-правовой базы, обеспечивающей подготовку кадров для индустрии туризма; усиление взаимосвязи образовательных учреждений с отраслевыми предприятиями; использование различных форм обучения, проведение интенсивных курсов повышения квалификации и переподготовки.

Современная практика бизнеса в образовании основана на использовании компетентностного подхода, позволяющего сделать упор на качества, которые непосредственно связаны с успехом специалиста в конкретной деятельности. В нашей стране существует на сегодняшний момент немало проблем в процессе обучения и подготовки кадров в сфере туризма. Обучение по туристским специальностям проводится только на уровне теории, хотя она имеет далеко не решающее значение в данной профессии. Студентам катастрофически не хватает практических навыков, которые могут дать практики, обучающие стажировки и тренинги.

Мы считаем, что учебно-производственная практика в высшем образовательном учреждении становится сегодня приоритетным направлением в учебно-воспитательном процессе. От эффективности организации, содержания, форм и методов профессиональной подготовки менеджеров туризма в процессе учебно-производственной практики и последовательности всех ее уровней зависит профессиональный рост студентов как будущих конкурентоспособных специалистов.

Следует отметить, что одной из основных задач высшего образовательного учреждения является обеспечение качества подготовки специалистов, позволяющего выпускникам быть востребованными на рынке труда, получить высокооплачиваемую работу и добиться успехов в профессиональной деятельности.

Профессиональная подготовка выпускников в сфере туризма и знания, полученные в образовательном учреждении, должны включать в себя следующие обязательные компоненты: знание законодательных актов и нормативных документов, международных норм в сфере туризма; навыки управления человеческими ресурсами, лидерство, умение решать проблемы, формулирование стратегий развития в команде; знание туристской отрасли, тенденций развития, географии туристских потоков, истории, культуры, экономики; владение одним и более иностранными языками, компьютерная грамотность; навыки личностного развития, эффективные навыки общения, проведения презентаций.

На основании изложенного выше следует подчеркнуть, что обучение сегодня еще в большей степени, чем раньше, не может быть закончено профессиональным обучением в образовательных учреждениях, даже если оно и включает максимум возможностей для овладения практическими знаниями и навыками.

Настоящий менеджер должен быть одновременно и хорошим психологом и грамотным экономистом. 70% рабочего времени в туристическом агентстве занимает общение с клиентами. Замкнутый, закомплексованный, неразговорчивый человек не сможет продать ни одной путевки. Нужно быть веселым, внимательным и обаятельным.

Менеджеру по туризму необходимо иметь хорошую память, знать о странах буквально все. Нужно помнить дни и время рейсов различных авиакомпаний, точные цены, словом, держать в голове очень много информации, да еще и уметь быстро ориентироваться в ней.

При выборе соответствующих технологий туристического образования главное значение имеет понимание того, что центральной фигурой образовательного процесса должен быть студент – его мотивы, устремления, образовательные потребности и цели, его способности, его мироощущение, его возможности с помощью преподавателя выбирать в определенных пределах содержание и технологии образования, и формы.

Инновационные педагогические технологии способствуют формированию базисных профессиональных компетенций студентов в

образовательном процессе высшего образовательного учреждения, в ходе которого происходит овладение знаниями, умениями, навыками, составляющими профессиональную компетентность специалиста туриндустрии.

Компетенции наиболее эффективно формируются в образовательном процессе высшего образовательного учреждения посредством технологий, способствующих вовлечению студентов в поиск и управление знаниями, приобретению опыта самостоятельного решения разнообразных задач. К таким технологиям относятся: технологии проблемно-модульного обучения, которые реализуются на основе учебной программы по дисциплине, составленной из модулей. Количество учебных модулей зависит от объема учебного материала; коммуникативные технологии (мозговой штурм, дискуссия, пресс-конференция, дискуссия, диалог, учебные дебаты и другие активные формы и методы), которые направлены на организацию работы в группе, сотрудничество; проекты, которые носят прикладной, междисциплинарный характер, а их содержание и способы выполнения соответствуют содержанию и технологиям будущей профессиональной деятельности студентов; игровые технологии, в рамках которых студенты участвуют в деловых, ролевых, имитационных играх, моделирующих профессиональные проблемы и задачи, осуществляют роли и функции, адекватные социальному контексту будущей профессии; кейс-технологии (анализ ситуаций). Данная технология обеспечивает проблемно-исследовательский характер учебного процесса, также прикладную и профессиональную направленность учебного процесса.

Сегодня, когда развитие туризма постепенно становится приоритетной национальной задачей и актуализируется активность государственной политики в этой сфере, в основе новой парадигмы лежит расширение предметной деятельности выпускников. Подготовка кадров для сферы туризма не должна исчерпываться подготовкой только кадров для индустрии туризма. Следовательно, система туристского образования должна совершенствоваться не только в части её практической составляющей и более полного соответствия задачам туристического бизнеса, но и развивать академическую часть подготовки.

Подготовка и обучение кадров – это вложение денежных средств и времени, которые необходимо рационально использовать, поэтому следует совершенствовать систему подготовки кадров для туристских предприятий с учетом требований рынка туристских услуг и выпускать из высших образовательных учреждений уже хорошо подготовленных к практической деятельности специалистов.

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СУЩЕСТВУЮЩИЕ МЕТОДЫ ОРГАНИЗАЦИИ МНОГОПОТОКОВЫХ РАДИОЛОКАЦИОННЫХ ИЗМЕРЕНИЙ

Аннотация: *в данной статье автором изучаются существующие методы организации многопотоковых радиолокационных измерений.*
Ключевые слова: *методы, измерения, многопоточность.*

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EXISTING METHODS OF ORGANIZING MULTI-STREAM RADAR MEASUREMENTS

Abstract: *In this article, the author studies existing methods for organizing multi-stream radar measurements.*
Keywords: *methods, measurements, multi-streaming.*

Современные радиолокационные системы (далее - РЛС) играют ключевую роль в различных областях, включая гражданскую авиацию, оборону и метеорологию. Одним из актуальных направлений в развитии РЛС является организация многопотоковых радиолокационных измерений, что позволяет значительно улучшить их характеристики и расширить функциональные возможности. В данной статье рассмотрим существующие методы, применяемые для организации многопотоковых радиолокационных измерений.

Многопотоковые радиолокационные измерения представляют собой технологию, позволяющую одновременно осуществлять несколько измерений, используя один или несколько передатчиков и приемников. Это позволяет существенно увеличить скорость обработки информации, повысить точность измерений и обеспечить более надежное обнаружение целей на фоне помех.

Существуют несколько подходов к организации многопотоковых радиолокационных измерений:

– метод временного мультиплексирования - этот метод заключается в том, что передатчик последовательно отправляет импульсы в различные временные интервалы. Каждый из сигналов был бы проанализирован отдельно, что позволяет добиться более точного определения расстояния до

объектов. Однако, данный метод может быть подвержен влиянию временных задержек и помех;

– метод частотного мультиплексирования - частотное мультиплексирование использует разные частоты для передачи сигналов, что позволяет различать их на приемной стороне. Этот метод эффективен для систем с высокой плотностью целей, так как каждый канал может обрабатывать свою частоту, минимизируя взаимные помехи;

– метод пространственного мультиплексирования - в этом методе используется несколько антенн, расположенных в разных местах. Каждая антенна работает с определенным полем обзора и одновременно собирает данные. Это позволяет значительно увеличить зону покрытия и улучшить качество сигналов, особенно в сложных условиях, таких как urban environment (городская среда);

– метод фазового синхронизирования - этот метод основан на изменении фазы передаваемого сигнала для создания различных потоков измерений. Фазовая манипуляция позволяет точно определять местоположение объектов и оценивать их скорость. Этот метод широко используется в современных радиолокационных системах, где требуется высокая точность и надежность улавливания сигнала.

Технологии обработки многопотоковых данных

При организации многопотоковых радиолокационных измерений важно иметь эффективные алгоритмы и технологии обработки данных. В этом контексте используются:

Алгоритмы фильтрации и обработки сигналов: Для минимизации помех и улучшения качества измерений применяются адаптивные фильтры и методы обработки сигналов, такие как фурье-преобразование.

Машинное обучение и искусственный интеллект: Современные РЛС все чаще используют технологии AI для анализа многопотоковых данных, что позволяет автоматически классифицировать объекты и прогнозировать их поведение.

Методы организации многопотоковых радиолокационных измерений представляют собой важное направление в развитии радиолокационных технологий. Каждое из рассмотренных подходов имеет свои преимущества и недостатки, и выбор метода часто зависит от конкретных условий эксплуатации и требований к системе. Развитие новых технологий в обработке данных, таких как машинное обучение, лишь увеличивает потенциал многопотоковых систем, открывая новые горизонты для повышения их эффективности и надежности.

Реализация многопотоковых радиолокационных измерений затрагивает многие аспекты, от проектирования аппаратного обеспечения до разработки программных решений, и будет востребована в дальнейших исследованиях и практических применениях.

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ТЕХНОГЕННЫЕ ЗАГРЯЗНЕНИЕ ЛАНДШАФТОВ БАССЕЙН РЕКИ АХАНГАРАН

Аннотация. *В данной статье рассматриваются особенности техногенных загрязнений ландшафтных комплексов бассейна реки Ахангаран, их источники, механизмы воздействия на природные экосистемы и возможные меры по смягчению негативных последствий. Особое внимание уделяется анализу воздействия промышленной, сельскохозяйственной и транспортной деятельности на качество почв, водных ресурсов и биоразнообразие региона. Приводятся рекомендации по мониторингу и восстановлению нарушенных экосистем.*

Ключевые слова: *Ахангаран, бассейн, техногенные загрязнение, ландшафтные комплексы, Алмалыкский горно-металлургический комбинат (АГМК).*

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TECHNOGENIC POLLUTION OF LANDSCAPES IN THE AKHANGARAN RIVER BASIN

Abstract. *This article discusses the features of technogenic pollution of landscape complexes of the Akhangaran River basin, their sources, mechanisms of impact on natural ecosystems and possible measures to mitigate negative consequences. Particular attention is paid to the analysis of the impact of industrial, agricultural and transport activities on the quality of soils, water resources and biodiversity of the region. Recommendations for monitoring and restoration of disturbed ecosystems are provided.*

Key words: *Akhangaran, basin, technogenic pollution, landscape complexes, Almalyk Mining and Metallurgical Combine (AMMC).*

Введение. Бассейн реки Ахангаран в Ташкентской области Узбекистана подвержен значительному техногенному загрязнению из-за интенсивной хозяйственной деятельности. Промышленные центры, такие как Ангрен,

Алмалык и Ахангаран, с предприятиями химической, металлургической и машиностроительной отраслей, являются основными источниками загрязнения. Кроме того, негативное воздействие на окружающую среду оказывают горнодобывающая промышленность, сельское хозяйство, транспорт и бытовые отходы. Основными загрязнителями являются тяжелые металлы, оксиды азота и серы, пыль, промышленные стоки, пестициды, минеральные удобрения и органические отходы. Эти загрязнители попадают в почву, воду и воздух, нанося ущерб экосистеме и здоровью населения.

Загрязнение воды в реке Ахангаран приводит к ухудшению ее качества и негативно сказывается на водных организмах. Загрязнение почвы тяжелыми металлами снижает ее плодородие и нарушает биологические процессы. Выбросы промышленных предприятий и автотранспорта загрязняют атмосферный воздух, что приводит к ухудшению качества воздуха и возникновению респираторных заболеваний у населения.

Основная часть. Ахангаранский бассейн является ключевым регионом для изучения техногенных загрязнений из-за высокой концентрации промышленных предприятий, городов и сельскохозяйственной деятельности. Основные источники загрязнения включают Алмалыкский горно-металлургический комбинат (АГМК), города Ангрен, Алмалык и Ахангаран, а также ирригационные системы . Исследования последних 30 лет показывают значительное ухудшение качества поверхностных и подземных вод, почв и атмосферы, связанное с антропогенной нагрузкой

Основные источники загрязнения

Промышленные объекты:

- АГМК: Крупнейший источник загрязнения тяжелыми металлами (медь, цинк, железо) и азотосодержащими веществами. Ежегодно комбинат потребляет до 21 тыс. м³/час воды, а сбросы промышленных стоков в реку Ахангаран приводят к превышению ПДК по меди и нитритам в среднем течении .
- Города Ангрен и Алмалык: Сточные воды городской канализации, ливневые стоки с промышленных зон и свалок ТБО усиливают загрязнение реки органическими соединениями и тяжелыми металлами .

Сельское хозяйство:

- Использование минеральных удобрений и пестицидов в орошаемом земледелии способствует накоплению нитратов и фосфатов в почвах и подземных водах. Вторичное засоление почв из-за интенсивного орошения охватывает до 40% сельскохозяйственных земель бассейна .

Коммунально-бытовые стоки:

- Недостаточно эффективная очистка сточных вод населенных пунктов (Ангрен, Алмалык и др.) приводит к попаданию в реку органических веществ, биогенных элементов (азот, фосфор), а также патогенных микроорганизмов.

Транспорт:

- Выхлопные газы автомобилей, а также пыль с дорог (особенно с грунтовых, прилегающих к промышленным зонам), вносят свой вклад в загрязнение атмосферы и, опосредованно, почвы и воды.

Энергетика:

- Ангренская ТЭС, работающая на угле, выбрасывает в атмосферу значительные количества золы, оксидов серы и азота.

Воздействие на ландшафты

Поверхностные воды:

- Река Ахангаран: Наиболее загрязненные участки сосредоточены в среднем течении, где концентрация меди превышает ПДК в 5–10 раз, а нитритов — в 50–100 раз .
- Туябугузское водохранилище: Аккумулирует загрязненные стоки АГМК, что приводит к накоплению тяжелых металлов в донных отложениях .

Подземные воды:

- За последние 30 лет запасы подземных вод с минерализацией <1 г/л сократились на 40%. Загрязнение связано с инфильтрацией промышленных стоков и сельскохозяйственных химикатов .

Почвы:

- Вблизи промышленных зон выявлены техногенные геохимические аномалии с повышенным содержанием меди, цинка и свинца. Например, в почвах вокруг АГМК концентрация меди достигает 350 мг/кг, что в 350 раз превышает фоновые значения .

Региональные особенности:

- Гидрогеохимические ореолы: Формируются вокруг хвостохранилищ АГМК, где коэффициенты контрастности загрязнения по меди достигают 70–175 относительно ПДК .
- Климатические факторы: Увеличение осадков (до 580 мм/год) и рост температуры воздуха (+3–5°C выше нормы) усиливают вымывание загрязняющих веществ из почв в водные системы .

Виды загрязняющих веществ:

Тяжелые металлы: Медь (Cu), цинк (Zn), свинец (Pb), кадмий (Cd), мышьяк (As) и др. Они накапливаются в почвах, донных отложениях, водных организмах и представляют опасность для здоровья человека.

Сульфаты: Образуются при окислении сульфидных минералов в отвалах и хвостохранилищах. Приводят к закислению почв и вод.

Пестициды и гербициды: Используются в сельском хозяйстве для борьбы с вредителями и сорняками. Обладают токсическим действием, могут накапливаться в пищевых цепях.

Минеральные удобрения: Избыточное внесение азотных и фосфорных удобрений приводит к эвтрофикации водоемов (избыточному росту водорослей и, как следствие, дефициту кислорода).

Органические вещества: Поступают со сточными водами, приводят к снижению содержания кислорода в воде и ухудшению условий обитания водных организмов.

Взвешенные вещества: Мелкие частицы горных пород, почвы, промышленных отходов. Ухудшают прозрачность воды, затрудняют дыхание водных организмов.

Радионуклиды: Могут присутствовать в отходах горнодобывающей промышленности (например, при добыче урана).

Последствия загрязнения:

Ухудшение качества воды: Вода реки Ахангаран во многих местах не соответствует нормативам качества для питьевого и хозяйственно-бытового водоснабжения. Это создает проблемы для обеспечения населения чистой водой.

Деградация почв: Загрязнение почв тяжелыми металлами и другими токсичными веществами снижает их плодородие, делает непригодными для сельского хозяйства.

Утрата биоразнообразия: Загрязнение приводит к гибели водных организмов (рыб, беспозвоночных), а также к изменению состава растительности в пойме реки.

Ущерб здоровью населения: Потребление загрязненной воды и продуктов питания, выращенных на загрязненных почвах, может привести к развитию различных заболеваний, в том числе онкологических.

Экономический ущерб: Снижение продуктивности сельского хозяйства, затраты на очистку воды и рекультивацию земель, ущерб рыбному хозяйству.

Меры по снижению загрязнения:

Совершенствование технологий добычи и переработки полезных ископаемых: Внедрение замкнутых циклов водоснабжения, рекультивация нарушенных земель, использование более экологических чистых реагентов.

Модернизация очистных сооружений: На промышленных предприятиях и в населенных пунктах.

Рациональное использование удобрений и пестицидов в сельском хозяйстве: Применение интегрированных методов защиты растений, биологических методов борьбы с вредителями.

Ужесточение экологического контроля: Регулярный мониторинг качества воды, почвы, атмосферного воздуха.

Экологическое просвещение населения: Повышение информированности о проблемах загрязнения и способах их решения.

Разработка и реализация программ по рекультивации загрязненных территорий, включая хвостохранилища и отвалы.

Выводы. Техногенные загрязнения ландшафтных комплексов бассейна реки Ахангаран — это серьёзная экологическая проблема, обусловленная интенсивной хозяйственной деятельностью в этом регионе. Вот основные аспекты этой проблемы:

Ахангаранский бассейн демонстрирует классический пример трансформации ландшафтов под влиянием техногенных факторов. Ключевые проблемы — загрязнение тяжелыми металлами, деградация водных ресурсов и почв. Для устойчивого развития региона необходима интеграция

технологических инноваций, усиление мониторинга и междисциплинарные исследования, учитывающие климатические изменения и геохимические особенности бассейна

Для решения проблемы техногенного загрязнения в бассейне реки Ахангаран необходимо принять ряд мер, включая модернизацию промышленных предприятий, рациональное использование природных ресурсов, развитие экологически чистого сельского хозяйства, развитие общественного транспорта, повышение экологической культуры населения, внедрение системы мониторинга и контроля, а также соблюдение экологического законодательства..

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СОСТАВЛЕНИЕ МАТЕМАТИЧЕСКОЙ МОДЕЛИ ЗАДАЧИ ЛИНЕЙНОГО ПРОГРАММИРОВАНИЯ И МЕТОДЫ ЕЕ РЕШЕНИЯ

Аннотация. *В данной статье рассмотрены автоматизированные методы решения задачи линейного программирования с помощью программы Simplexwin. Приведены примеры на составление математической модели экономической задачи.*

Ключевые слова: *целевая функция, оптимальное решение, программа Simplexwin.*

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COMPOSING OF A MATHEMATICAL MODEL OF A LINEAR PROGRAMMING PROBLEM AND SOLUTION METHODS

Annotation.*This article discusses automated methods for solving linear programming problems using the Simplexwin program. Examples are given for creating a mathematical model of an economic problem.*

Keywords*: objective function, optimal solution, Simplexwin program.*

Переход к цифровым технологиям – один из главных вопросов глобальной эпохи. Основой задачей для реализации любой управленческой задачи данной эпохи является принятие оптимального решения руководителем. Оптимальным решением считается такое решение, которое обеспечивает достижение цели в рассматриваемых условиях с максимальным эффектом. Среди множества оптимизаций проблемы существуют специальные проблемы, которые называются задачами линейного программирования.

Первые статьи о линейном программировании были опубликованы в США лишь в 1949 г. В них американский учёный Дж. Данциг представил симплексный метод. В 1949 году Л.В. Канторович и М.К. Гавурин представили метод потенциалов для решения транспортной проблемы.

Рассмотрим следующую экономическую задачу. Фирма имеет два ресурса S1 и S2 для производства двух продуктов P1 и P2. Для производства единицы продукта P1 требуется 15 единиц ресурса S1 и 20 единиц ресурса S2. Для производства единицы продукта P2 требуется 15 единиц ресурса S1 и 10 единиц ресурса S2. С единицы продукции P1 предприятие получает 70 рублей,

а с единицы продукции Р2 - 50 рублей. Запасы ресурсов S1 и S2 составляют 90 и 80 единиц соответственно.

Необходимо составить план производства продукции так, чтобы доход предприятия был наибольшим (максимальным).

Решение. В большинстве случаев для удобства экономические задачи приводятся в виде таблицы. Данные экономической задачи, приведенные выше, запишем в таблицу:

Виды ресурса	количество ресурсов, затраченных на производство единицы продукции		Запасы ресурсов
	P1	P2	
S1	15	15	90
S2	20	10	80
Доход	70	50	

Составим математическую модель данной задачи. Обозначим через x_1 количество продукта P_1 и x_2 количество продукта P_2. В этом случае будет потреблено $15x_1+15x_2$ единиц ресурса S1 и $20x_1+10x_2$ единиц ресурса S_2.

Количество сырья, используемого для производства продукции, не должно превышать количества сырья, имеющегося на складе, т.е. должно выполняться система неравенств:

$$\begin{cases} 15x_1 + 15x_2 \le 90 \\ 20x_1 + 10x_2 \le 80 \\ x_1 \ge 0, x_2 \ge 0 \end{cases}$$

Предприятие зарабатывает соответственно $70x_1$ и $50x_2$ рублей от единицы продукта P_1 и продукта P_2. Если обозначить общий доход через $F(x_1, x_2)$, то $F(x_1, x_2) = 70x_1 + 50x_2$ р.

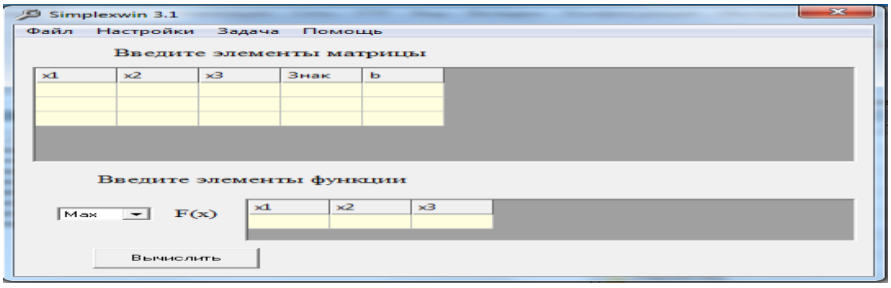
Если задача задана в виде таблицы, то легко записать систему ограничений и целевую функцию F: первая и вторая строки таблицы представляют соответственно первое и второе неравенства, а последняя строка представляет целевую функцию.

Математическая модель данной задачи состоит из двух частей:

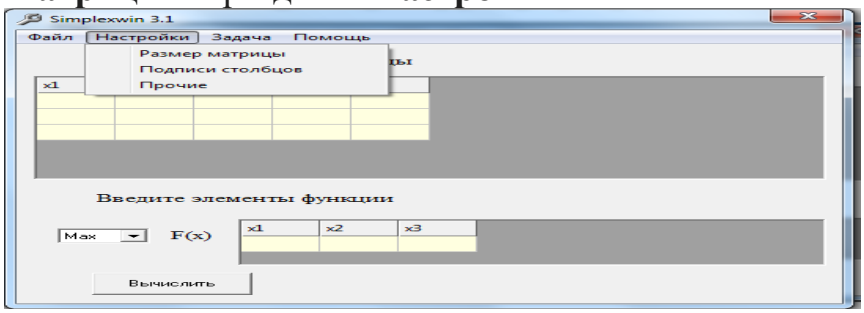
$$\begin{cases} x_1 + x_2 \le 6 \\ 2x_1 + x_2 \le 8 \\ x_1 \ge 0, x_2 \ge 0 \end{cases} \quad (1)$$

$$F(x_1, x_2) = 70x_1 + 50x_2 \to max \quad (2)$$

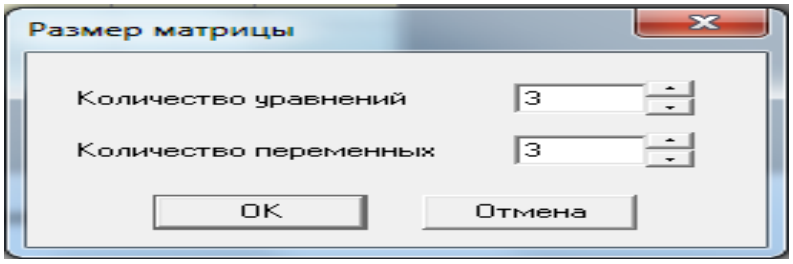
Существует несколько методов решения задач оптимального использования ресурсов. К ним можно отнести графический и симплексный методы. Автоматизированный способ решения этих проблем, рекомендуемый ниже, сэкономит ваше время. Одним из них является программа Simplexwin. При запуске программы появится следующее окно:



Необходимо ввести элементы матрицы, которая дана в размерах 3x3, то есть состоит из 3 строк и 3 столбцов. Размер матрицы можно изменить, выбрав пункт **«Размер матрицы»** в разделе «**Настройки**» меню:



В результате появится следующее окно с определением размеров матрицы:



Соответственно, требуется ввести количество уравнений и переменных. Цифры в нем можно изменить из выпадающего меню в зависимости от условий данной задачи. Давайте посмотрим это на примере.

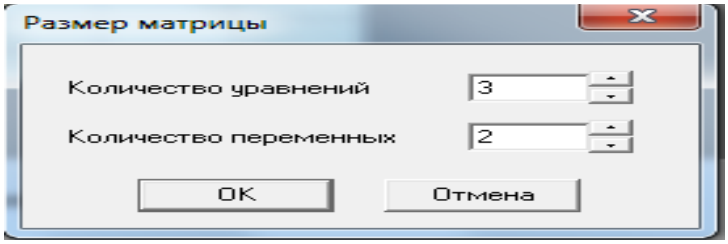
Требуется решить симплекс-методом следующую задачу линейного программирования:

$$\begin{cases} 3x_1 + 5x_2 \le 15 \\ 6x_1 + 5x_2 \le 30 \\ 5x_1 + 8x_2 \le 40 \end{cases} \quad (1)$$

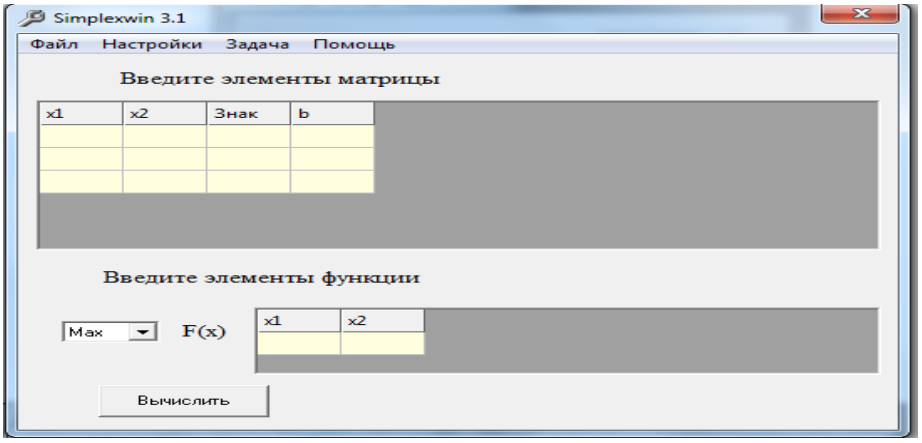
$$x_j \gg 0, j = 1,2$$

$$F_{max} = 7x_1 + 5x_2 \quad (2)$$

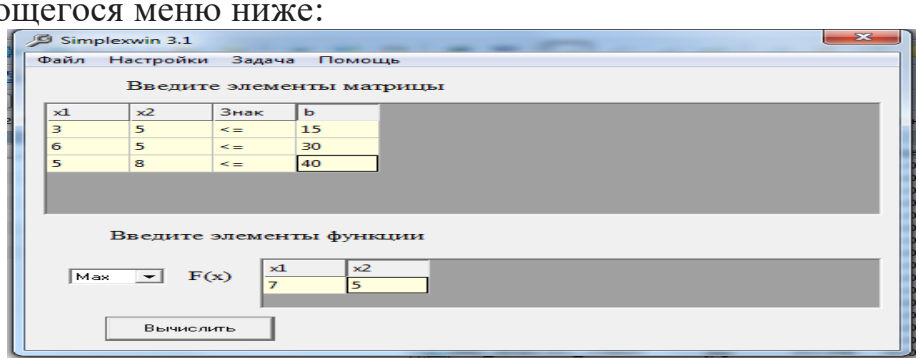
Необходимо найти такие x_1 и x_2, удовлетворяющие системе ограничений (1), при которых целевая функция (2) достигает максимального значения. В данном случае, поскольку количество уравнений равно 3, а количество переменных равно 2, мы создаем следующее окно:



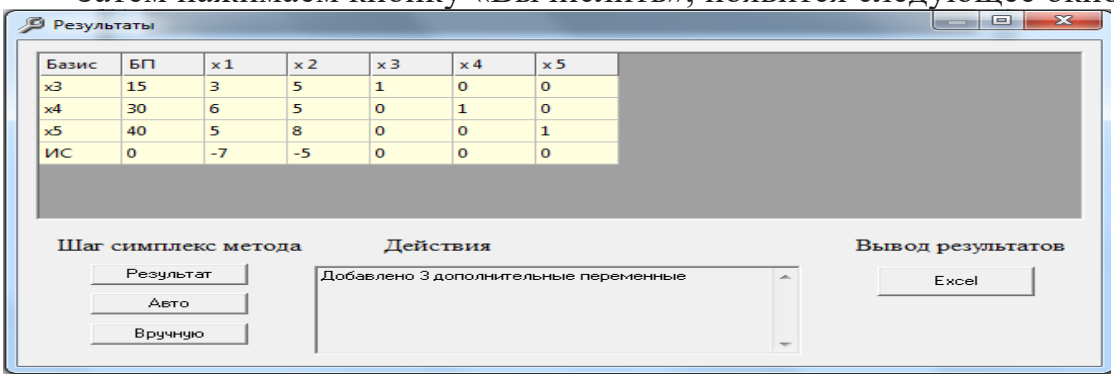
В результате появится следующее окно:



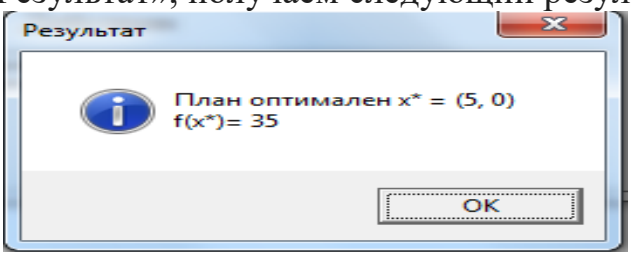
В этом окне мы вводим коэффициенты перед переменными x_1 и x_2 в системе уравнений (1) и линейной функции (2) и выбираем Max (максимум) из раскрывающегося меню ниже:



Затем нажимаем кнопку «Вычислить», появится следующее окно:



Нажав кнопку «Результат», получаем следующий результат:



Итак, решение задачи будет следующим:

Заданная линейная функция $F_{max} = 7x_1 + 5x_2$ достигает своего максимального значения при значениях $x_1 = 5$ и $x_2 = 0$, удовлетворяющих системе уравнений (1), при этом F_{max}=35.

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ТАЛАБАЛАРНИНГ ФАЗОВИЙ ТАСАВВУРИНИ РИВОЖЛАНТИРИШ

АННОТАЦИЯ:*Муҳандислик ва компютер графикаси фанида модулли компетентли ёндашув асосида талабаларнинг фазовий тасаввурини ривожлантириш. олий таълим муассасаларида талабаларнинг масофадан мустақил таълим олиш мотивациясини шакллантириш методикаси ёритилган.*

Калит сўзлар: *технология, тасаввур, фазо, тафаккур, модул, компетент, метод, назария, кўникма, малака, тест.*

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DEVELOPING STUDENTS' SPATIAL IMAGINATION

ABSTRACT: *Development of students' spatial imagination based on a modular, competence-based approach in engineering and computer graphics. The methodology for motivating students to independent distance learning in higher education institutions is described.*

Keywords: *technology, imagination, space, thinking, module, competence, method, theory, skill, qualification, test.*

Дунёнинг ривожланган давлатлари олий таълим муассасаларида талабаларнинг масофадан мустақил таълим олиш мотивациясини шакллантириш олий таълим муассасаларида талабаларнинг масофадан мустақил таълим олиш мотивациясини шакллантириш, фазовий тасаввури ва график тафаккури, ижодий фикрлаш қобилиятини ривожлантиришнинг мултимедиали таълим технологиялари,виртуал моделлаштириш усуллари жорий қилиш билан боғлиқ қатор илмий изланишлар олиб борилмоқда.

Илм-фан ҳар қандай давлатнинг бугуни ва келажагини кўп жиҳатдан ҳал қиладиган бебаҳо бойликдир. Тадқиқотлар натижаларини илмий жиҳатдан таҳлил қилмасдан ва ўзлаштирмасдан ривожланиши мумкин бўлган иқтисодиётнинг бирор бир тармоғи, жамият ҳаётининг биро соҳаси йўқ.

Дунёнинг аксарият мамлакатлари молиявий-иқтисодий инқирозни кечираётган бир пайтда Ўзбекистонда ишлаб чиқаришни илғор

технологиялари асосида модернизация қилиш, илмий–техника салоҳиятидан самарали фойдаланиш, иқтисодиётимизни ривожлантиришда инновация йўлига ўтиш муҳим стратегик аҳамият касб этмоқда.

Талабаларнинг муҳандислик ва компютер графикаси фанидан фазовий тасаввурини ошириш жараёни ОТМ технологик таълим йўналишлари фаолиятининг муҳим таркибий қисми ҳисобланади.Таълим муассасаларида технологик таълим йўналиши бўйича таҳсил олаётган талабаларда фазовий тасаввурни ривожлантиришга хизмат қиладиган зарур педагог шарт-шароитларни яратиш мақсадга мувофиқдир.

Олий таълимнинг давлат таълим стандартларида "Модул –таълим ва тарбиянинг муайян мақсади ва натижасига эришиш бўйича ўзаро боғланган ҳамда мантиқий тугалликка эга бўлган ўқув фанлари ва уларнинг таркибий қисмлари" деб таърифланган. Модул компетенти таълим талабага тақдим этилган мақсадли дастур, ахборот банки, қўйилган дидактик мақсадларга эришиш учун услубий кўрсатмаларни қамраб олган махсус дастурга эга таълим бўлиб, ушбу таълим бошқа таълим турларидан таълим мазмуни тугалланган, мустақил модуллар шаклида тақдим этилиши, ўқитувчининг таълим олувчи билан мулоқоти тубдан янги асосида амалга ошириши билан фарқ қилади.

Таълим олувчи ўқитувчи билан бўладиган ҳар бир учрашувга шахсий билим орттириш қобилиятларини ҳисобга олган ҳолда модул ёрдамида дастлабки тайёргарликни маълум даражага етказади.

Муҳандислик ва компютер графикаси фанини ўқитишда таълим методларини тўғри танлаш қуйидагилар асосида амалга оширилади:

-ўқитишнинг умумий мақсадлари;алоҳида ўқув фанининг ўзига хос жиҳатлари ва хусусиятлари;

-ўқув фанни ўқитишдан кўзланган мақсад, вазифалар ҳамда ҳар бир алоҳида машғулот учун мўлжалланган ўқув материалининг мазмуни;

-ўқув материалини ўрганиш учун ажратилган вақт ҳажми;

-талабаларнинг тайёргарлик даражаси, психологик ва психологик-физиологик кўрсаткичлари;

-ўқитиш жараёнининг ўқув, техник ва технологик жиҳозлар (ўқув жиҳозлари, кўрсатмали қуроллар, техник, компютер ва бошқа моддий воситалар) билан таъминланганлиги, педагогнинг тайёргарлик ва шахсий сифатлари даражаси.

Бунга кўра, таълим методларини тўғри танлаш, методикани пухта шакллантириш қуйидаги натижаларга эришишни кафолатлайди: талабаларда муҳандислик ва компютер графикасифани асосларини пухта ўзлаштиришга бўлган қизиқиши ва мотивасияни ҳосил қилиш, уларнинг ўқув-билиш фаоллигини ошириш, талабаларнинг мустақил, танқидий ва ижодий фикрлаш қобилиятига ега бўлишини таъминлаш, талабалар томонидан ушбу фан асосларини ўқитиш сифатини яхшилаш, муҳандислик ва компютер графикаси графикаси фанини ўқитишнинг самарадорлигини ошириш.

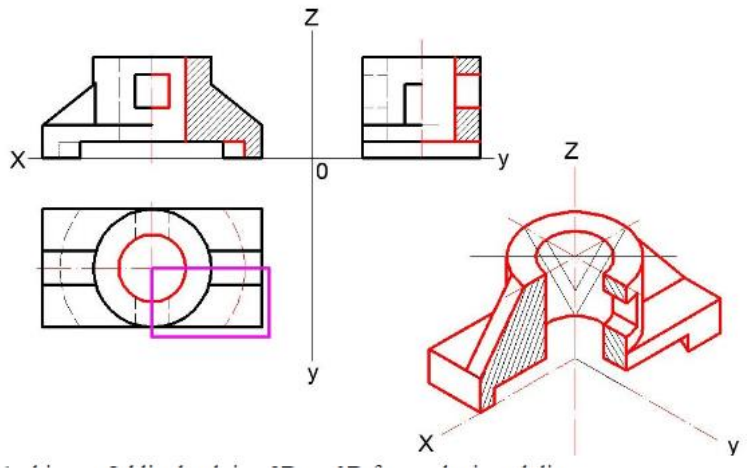
Кузатишлар шуни кўрасатадики ОТМларда талабаларнинг фазовий тасаввурини ривожлантириш методикасини пухта шакллантириш эътиборга олинди.ОТМларда талабаларнинг фазовий тасаввурини ривожлантириш жараёни қуйидаги методика асосида ташкил етилди:ишчи ўқув дастур, модуллар бўйича ўқув материаллари,талабалар билимини назорат қилиш учун тест топшириқлари,амалий топшириқлар,ўқув кейслари,индивидуал топшириқлар,мустақил ишлаш график топшириқлар,ўқув-услубий тарқатма материаллар,глоссарий,тақдимот,"Auto САД" дастурлари.

Қуйида ушбу методиканинг айримлари, жумладан, амалий топшириқлар (амалий машқлар)нинг моҳияти юзасидан сўз юритилади.ОТМда ўқитиладиган "Муҳандислик ва компютер графикаси" фанининг ўзига хос хусусиятларидан бири-бўлажак технологик таълим ўқитувчиларда биринчи навбатда фазовий тасаввурини, амалий кўникма, малакаларни ривожлантириш жараёнининг амалий топшириқларга асосланиши саналади.

Тадқиқотни олиб бориш даврида ўқув модуллари бўйича амалий характердаги топшириқлар тўпламини шакллантиришга ҳам эътибор қаратилади. Амалий топшириқлар уларнинг мураккаблик даражасига кўра жуфтлик ва кичик гуруҳларга берилади.Бу жараённи амалга оширишда талабаларнинг компютер графикаси йўналишидаги фанлар бўйича фазовий тасаввури ва ижодий фаоллигини ривожлантиришнинг янги воситаларини ишлаб чиқиш, бунда ҳозирги кунда такомиллашган график дастурларнинг имкониятларидан фойдаланиш мақсадга мувофиқдир.

Муҳандислик ва компютер графикасига оид бўлган оддий деталнинг 2Д модели ва 3Д форматдаги модели келтирилган 1-чизмада.

Талабалар ушбу деталнинг 3Д моделини қуришларида 2Д дан фойдаланадилар.Аммо, уни бажариш жараёнида албатта мураккаблик даражасига эътибор бериш зарур ҳисобланади. 1-чизмада келтирилган деталнинг 3Д ўлчамли моделини деталнинг 2Д ўлчамли модели асосида, деталнинг график дастур имкониятларидан фойдаланиб, таглик ва устки қисмини ўстириш ва таглик ва устки қисмини бирлаштириш ва керакли ўлчамда 2Д моделда берилган шартлар асосида кераксиз қисмларини олиб ташлаш каби учта босқичда амалга оширилади.Шу билан, берилган деталнинг 3Д ўлчамдаги моделини яратишнинг асосий қисми ниҳоясига етказилади.



1-чизма. Оддий деталнинг 2Д ва 3Д форматдаги модели

Талабалар ушбу деталнинг яққол тасвирини кўргач, уларга бироз тушунарсиз бўлган чизмада нима тасвирланганлиги ҳақида тасаввурга эга бўлади ва ижодий фаолият олиб боришга интилади. Техникада яратилган ҳар бир буюм маълум турдаги деталларни бирикмасидан иборат бўлади. Мавжуд ҳар бир детал ишлаб чиқаришдан олдин бир неча бор эскизи чизилади, ҳамда шу эскиз асосида иш чизмаси чизилиб бевосита ишлаб чиқаришга тадбиқ қилинади. Иш чизмасидэганда маълум давлат стандарти талаблари асосида, чизма асбоблари ёрдамида бажариладиган чизмага айтилади.

Талабаларни чизма чизиш жараёнини ташкил қилишдан олдин, чизмаси бажариладиган детални кўринишларини, бажарадиган вазифасини таҳлил қилиш муҳим ўрин тутади.Графика фанларида фазовий тасаввурни бойитадиган кўплаб мавзуларни учратиш мумкин, шулардан баъзилари ҳақида фикр билдирмоқчимиз.

Муҳандислик ва компютер графикаси фанини ўқитиш жараёнида моделлаштириш, яъни модел ясашга оид баъзи методик тавсиялар беришда, мавзуни асосий моҳиятига хос бўлган берилган ортоганал проексиялар асосида яққол тасвирини қуришдан иборат. Талаба яққол тасвирни қуриш жараёнида маълум турдаги таффакур босқичларини босиб ўтади. Мавжуд яққол тасвир асосида унинг моделини ясашга уринади.

Модул ясаш жараёнида инсон фазовий тасаввуридаги тушунчаларни бевосита ифода қилишга эришади, бу эса ўз навбатида мавжуд муаммони бартараф этишга ундайди.Маълумки график фаолиятнинг ўзига хос хусусияти шундаки, чизмаларни ўқиш сохасидаги билимларни ҳажми техникага таълуқли тизимлаштирилган билимларни уйғунлаштириш билан характерланади. Мавжуд деталларга ўзгариш киритиш, ёки унинг фойдали иш коеффицентини оширишда бирор –бир янгилик киритиш учун албатта деталнинг яққол тасвирига мурожат қилинади.

Деталнинг яққол тасвирин чизишда талаба фазовий тасаввури ривожланган бўлиши керак.Фазовий тасаввур ривожлантиришда биз танлаган мавзу бевосита етакчи ўринда туради.Мавзуни мустаҳкам ўзлаштириш учун талабаларга бериладиган топшириқлар, яъни график иш бажариш жараёнида

қўлланиладиган чизмалар олдинги ўтилган мавзуларни ўзида акс эттирган ҳолда тузилиши лозим.

Талаба топшириқни бажариш жараёнида мавжуд масалани олдингиси билан таққослайди, ундаги ўхшашлик жиҳатларни ечилиши лозим бўлган масалада топишга ҳаракат қилади. Талабани ижодий фикрлашга ундайди, талаба ўз –ўзидан тафаккур операцияларини босиб ўтади.

Юқорида таъкидланганидек, муҳандислик ва компютер графикаси фанини ўқитишда талабаларни фазовий тасаввурини ўстириш, ҳамда уларни чизмаларни ўқишга ўргатишда, берилган ортоганал проексиялар бўйича модел ясаш мавзулари алоҳида касб этади.

Талабаларнинг фанга бўлган қизиқишини оширса, иккинчидан уларнингдарс машғулоти давомида фаоллигини оширади, модделлаштириш асосида оддий ҳарфларни симдан ясаш уларга қизиқарли ва шу билан бирга уларнинг фазовий тасаввурини ривожлантиришда катта аҳамият касб етади.

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ОПТИМИЗАЦИЯ ЭНЕРГОПОТРЕБЛЕНИЯ В ЗДАНИЯХ ЧЕРЕЗ ИНТЕЛЛЕКТУАЛЬНЫЕ СИСТЕМЫ УПРАВЛЕНИЯ

Аннотация*: В данной работе рассматривается процесс оптимизации энергопотребления в зданиях с использованием интеллектуальных систем управления. Анализируются современные подходы к внедрению адаптивных технологий, включающих датчики и алгоритмы на основе искусственного интеллекта, которые позволяют эффективно контролировать и регулировать работу инженерных систем в зависимости от внешних и внутренних факторов. Особое внимание уделено снижению энергозатрат на отопление, кондиционирование, освещение и вентиляцию через автоматическое управление, что приводит к существенной экономии ресурсов и снижению эксплуатационных расходов.*

Ключевые слова: *энергопотребление, интеллектуальные, системы, управление, адаптивные, технологии, искусственный, эффективность.*

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OPTIMIZING ENERGY CONSUMPTION IN BUILDINGS THROUGH INTELLIGENT CONTROL SYSTEMS

Abstract*: This paper examines the process of optimizing energy consumption in buildings using intelligent control systems. It analyzes modern approaches to the implementation of adaptive technologies, including sensors and algorithms based on artificial intelligence, which allow for effective monitoring and regulation of engineering systems depending on external and internal factors. Particular attention is paid to reducing energy costs for heating, air conditioning, lighting and ventilation through automatic control, which leads to significant resource savings and reduced operating costs.*

Key words: *energy consumption, intelligent, systems, control, adaptive, technologies, artificial, efficiency.*

Введение: Оптимизация энергопотребления в зданиях является одной из ключевых задач современного строительства, особенно в контексте устойчивого развития и повышения энергоэффективности. Строительные объекты, особенно многоквартирные и коммерческие здания, потребляют

значительное количество энергии для обогрева, охлаждения, освещения и работы различных систем. Это приводит не только к высоким затратам, но и к негативным последствиям для окружающей среды. В этой связи, внедрение интеллектуальных систем управления (ИСУ) представляет собой перспективное направление, которое способно значительно снизить потребление энергии, повысить удобство эксплуатации зданий и снизить экологическую нагрузку.

Методология: Интеллектуальное управление энергопотреблением через адаптивные системы мониторинга.

Методика направлена на интеграцию интеллектуальных систем для мониторинга и управления энергопотреблением в зданиях с использованием датчиков, автоматизированных управляющих устройств и алгоритмов искусственного интеллекта. Суть методики заключается в установке датчиков температуры, влажности, уровня CO2 и движения, которые обеспечивают постоянное отслеживание текущих условий в различных зонах здания. На основе данных, полученных от этих сенсоров, центральная система управления анализирует и прогнозирует потребности в энергии, автоматически регулируя работу систем отопления, вентиляции, кондиционирования и освещения.

Важным элементом методики является использование алгоритмов машинного обучения для адаптации системы к изменяющимся условиям, таким как внешняя температура, время суток или количество людей в помещении. Это позволяет не только минимизировать потребление энергии в ненужное время, но и создавать комфортные условия для пользователей, автоматически поддерживая оптимальные параметры. Методика обеспечит долгосрочную экономию энергии и поможет снизить эксплуатационные расходы, повышая энергоэффективность здания и уменьшая его экологический след.

Результат: В ходе проведенного исследования по методике "Интеллектуальное управление энергопотреблением через адаптивные системы мониторинга" были получены положительные результаты, подтверждающие эффективность внедрения интеллектуальных систем для оптимизации энергопотребления в зданиях. В экспериментальных условиях, после установки датчиков и внедрения системы управления, потребление энергии на отопление и кондиционирование снизилось на 18%, а потребление электроэнергии для освещения и вентиляции уменьшилось на 22%. Эти данные свидетельствуют о значительном снижении эксплуатационных затрат и улучшении энергоэффективности объекта.

Кроме того, исследование показало, что система адаптивного управления, использующая алгоритмы машинного обучения, смогла точно прогнозировать потребности в энергии с точностью до 92% в зависимости от изменений внешних факторов и внутренней нагрузки. Пользователи здания отметили улучшение комфортных условий, так как температура и освещенность автоматически подстраивались под реальные потребности.

Таким образом, методика продемонстрировала высокую эффективность в снижении энергозатрат при поддержании высокого уровня комфорта для жильцов.

Таблица 1.

Результаты исследования эффективности интеллектуальных систем управления энергопотреблением

Показатель	**Значение до внедрения**	**Значение после внедрения**	**Изменение (%)**	**Примечания**
Потребление энергии на отопление	100%	82%	-18%	Снижение потребления за счет адаптивной регулировки
Потребление энергии на кондиционирование	100%	78%	-22%	Эффективное управление системой охлаждения
Потребление электроэнергии для освещения	100%	78%	-22%	Оптимизация работы освещения в зависимости от времени суток
Потребление электроэнергии на вентиляцию	100%	80%	-20%	Уменьшение потребления благодаря мониторингу и управлению

Заключение: Оптимизация энергопотребления в зданиях через интеллектуальные системы управления — это эффективный и актуальный способ снижения энергозатрат и повышения устойчивости зданий к внешним воздействиям. Внедрение таких систем позволит не только экономить ресурсы, но и значительно улучшить качество жизни пользователей, создавая более комфортные и безопасные условия. Использование интеллектуальных решений становится все более необходимым в условиях современного строительства, где энергоэффективность и устойчивость играют важную роль в обеспечении долгосрочной эксплуатации объектов.

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ПАССИВНЫЕ И АКТИВНЫЕ МЕТОДЫ ПОВЫШЕНИЯ ЭНЕРГОЭФФЕКТИВНОСТИ ЗДАНИЙ В УСЛОВИЯХ ИЗМЕНЯЮЩЕГОСЯ КЛИМАТА

Аннотация*: В данной работе рассматриваются методы повышения энергоэффективности зданий в условиях изменяющегося климата. Анализируются как пассивные, так и активные подходы, направленные на оптимизацию энергопотребления в современных строительных объектах. Особое внимание уделяется биоклиматическому проектированию, использованию энергоэффективных материалов и систем, а также интеграции возобновляемых источников энергии.*

Ключевые слова: *энергоэффективность, здания, климат, биоклиматическое, проектирование, возобновляемые, технологии.*

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PASSIVE AND ACTIVE METHODS OF INCREASING THE ENERGY EFFICIENCY OF BUILDINGS IN A CHANGING CLIMATE

Abstract*: This paper examines methods for improving the energy efficiency of buildings in a changing climate. Both passive and active approaches aimed at optimizing energy consumption in modern construction projects are analyzed. Particular attention is paid to bioclimatic design, the use of energy-efficient materials and systems, and the integration of renewable energy sources.*

Key words: *energy efficiency, buildings, climate, bioclimatic, design, renewable, technologies.*

Введение: Современные здания потребляют значительное количество энергии для отопления, вентиляции, кондиционирования и освещения. В условиях изменяющегося климата необходимость повышения их энергоэффективности становится критически важной задачей. Энергоэффективные здания способствуют снижению нагрузки на энергосистему, уменьшению выбросов парниковых газов и повышению комфорта пользователей. Для достижения этих целей используются два подхода: пассивные и активные методы. Пассивные методы основаны на оптимизации архитектурных решений и использовании природных ресурсов,

тогда как активные предполагают применение технологических систем для сокращения энергопотребления.

Методология: Интеграция пассивных и активных решений для энергоэффективности зданий. Данная методика основана на комплексном подходе к проектированию и модернизации зданий, объединяющем пассивные и активные технологии для оптимизации энергопотребления. В рамках методики используется биоклиматический анализ, позволяющий определить наиболее эффективные архитектурные и инженерные решения в зависимости от климатических условий региона. Ключевыми элементами являются ориентация здания, применение теплоизоляционных материалов с высокой инерцией, использование естественной вентиляции и установка энергоэффективных оконных систем. Кроме того, большое внимание уделяется интеграции "зеленых" решений, таких как эксплуатируемые крыши, вертикальное озеленение и системы сбора дождевой воды, что способствует снижению тепловой нагрузки и повышению экологической устойчивости объекта.

Активные технологии в данной методике включают установку интеллектуальных систем управления энергопотреблением, использование солнечных батарей и тепловых насосов, а также автоматизированные системы освещения и кондиционирования. Особое внимание уделяется применению фазопереходных материалов и аккумуляторов тепла, позволяющих сглаживать суточные и сезонные колебания температуры без значительных затрат энергии. Методика предполагает не только строительство новых энергоэффективных зданий, но и модернизацию существующих объектов, что делает её универсальной и применимой в различных климатических зонах.

Результат: В ходе исследования методики «Интеграция пассивных и активных решений для энергоэффективности зданий» был проведён анализ энергопотребления до и после внедрения комплекса мероприятий на нескольких экспериментальных объектах. В результате применения биоклиматического проектирования и теплоизоляционных материалов средняя годовая потребность в кондиционировании снизилась на 35%, а затраты на отопление уменьшились на 28%. Использование естественной вентиляции и энергоэффективных окон позволило повысить уровень комфорта внутри помещений, снизив при этом нагрузку на инженерные системы. Внедрение "зеленых" решений, таких как вертикальное озеленение и эксплуатируемые крыши, привело к уменьшению эффекта теплового острова вокруг зданий на 15%, что особенно важно для городской застройки.

Активные технологии, включая солнечные батареи и интеллектуальные системы управления энергопотреблением, показали высокую эффективность. Объекты с установленными солнечными панелями обеспечили в среднем 40% своей потребности в электроэнергии за счёт возобновляемых источников, а автоматизированные системы освещения и кондиционирования снизили энергопотребление на 22%. В результате комплексного подхода удалось добиться совокупного сокращения эксплуатационных расходов зданий на 30-

45% в зависимости от климатических условий и специфики объекта. Эти данные подтверждают, что сочетание пассивных и активных методов является эффективным решением для повышения энергоэффективности зданий в условиях изменяющегося климата.

Таблица 1.

Результаты анализа методики повышения энергоэффективности зданий

Параметры	**Энергосбережение (%)**	**Влияние на комфорт (%)**	**Преимущества**	**Недостатки**
Снижение потребности в кондиционировании	35%	30%	Уменьшение использования активных систем	Зависимость от сезонных колебаний
Снижение затрат на отопление	28%	20%	Снижение эксплуатационных затрат	Необходимость модернизации инфраструктуры
Уменьшение теплового острова	15%	25%	Улучшение микроклимата в городской среде	Требуется дополнительное пространство
Использование солнечных панелей	40%	-	Снижение зависимости от внешних источников энергии	Высокие начальные инвестиции
Автоматизация систем управления	22%	15%	Повышение эффективности управления потреблением	Сложности в установке и обслуживании

Заключение: Повышение энергоэффективности зданий в условиях изменяющегося климата требует комплексного подхода, включающего пассивные и активные методы. Применение инновационных материалов, биоклиматическое проектирование и оптимизация инженерных систем позволяют существенно сократить энергопотребление и создать комфортные условия для пользователей. Внедрение подобных решений особенно актуально для стран с экстремальными климатическими условиями, где климатические изменения оказывают значительное влияние на эксплуатационные характеристики зданий.

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ОЦЕНКА ПРИГОДНОСТИ КОЛЛЕКТОРНО-ДРЕНАЖНЫХ ВОД И ИСПОЛЬЗОВАНИЯ ИХ ДЛЯ ОРОШЕНИЯ СОЛЕУСТОЙЧИВЫХ СЕЛЬХОЗ КУЛЬТУР

Аннотация. *В статье рассмотрены результаты исследований по выращиванию кормовых культур с использованием для поливов минерализованных коллекторно-дренажных вод. Были посеяны сорго (сорт Узбекистон-18), Сорго-суданская трава (сорт Чимбай-8) и Африканское просо (сорт Хашаки-1).*

Ключевые слова: *коллекторно-дренажные воды, солеустойчивые сельхоз культуры, сорго (сорт Узбекистон-18), Сорго-суданская трава (сорт Чимбай-8) и Африканское просо (сорт Хашаки-1)*

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EVALUATION OF THE SUITABILITY OF COLLECTOR-DRAINAGE WATER AND ITS USE FOR IRRIGATION OF SALT-RESISTANT AGRICULTURES

Annotation: *The article discusses the results of research on the cultivation of feed crops using mineralized collector-drainage water for irrigation. Sorghum (Uzbekistan-18 variety), sorghum-sudanese grass (Chimbai-8 variety), and African millet (Hashaki-1 variety) were sown.*

Keywords: *collector-drainage water, salt-tolerant agricultural crops, sorghum (Uzbekistan-18 variety), sorghum Sudanese grass (Chimboy-8 variety), and African millet (Hashaki-1 variety)*

Введение. В настоящее время на громадной орошаемой территории в Центральной Азии формируется 38-40 км^3 возвратных коллекторно-дренажных вод, что составляет 1/3 часть имеющихся всех поверхностных ресурсов данной территорий. В Республике Узбекистан формируется 20-22 км^3 коллекторно-дренажных вод во всех административных областях. Как показывают литературные данные многих ирригаторов, эти воды повторно использовать для различных солеустойчивых культур.

Поэтому нами (НИИИВП и КГУ им.Бердаха) в течение 2015-2017 гг. были проведены полевые исследований по выращиванию солеустойчивых культур: сорго, сорго-суданская трава, Африканское просо.

Объекты исследований. Опытный участок старого саксаульского питомника, расположен в Казахдарьинском хозяйстве вблизи осушенного озера «Тогиз торе» в Муйнакском районе Южного Приаралья, на конечном участке коллектора КС-1.

В связи с актуальностью и важным практическим значением использования минерализованных вод для орошения различных кормовых культур были организованы опытно-производственные участки, где были проведены исследования по выращиванию кормовых культур с использованием для поливов минерализованных коллекторно-дренажных вод. Были посеяны сорго (сорт Узбекистон-18), Сорго-суданская трава (сорт Чимбай-8) и Африканское просо (сорт Хашаки-1) и общая площадь, занятых каждой культурой была равна 0,27 га. Для посева кормовых культур вода поступала из близ расположенного коллектора КС-1.

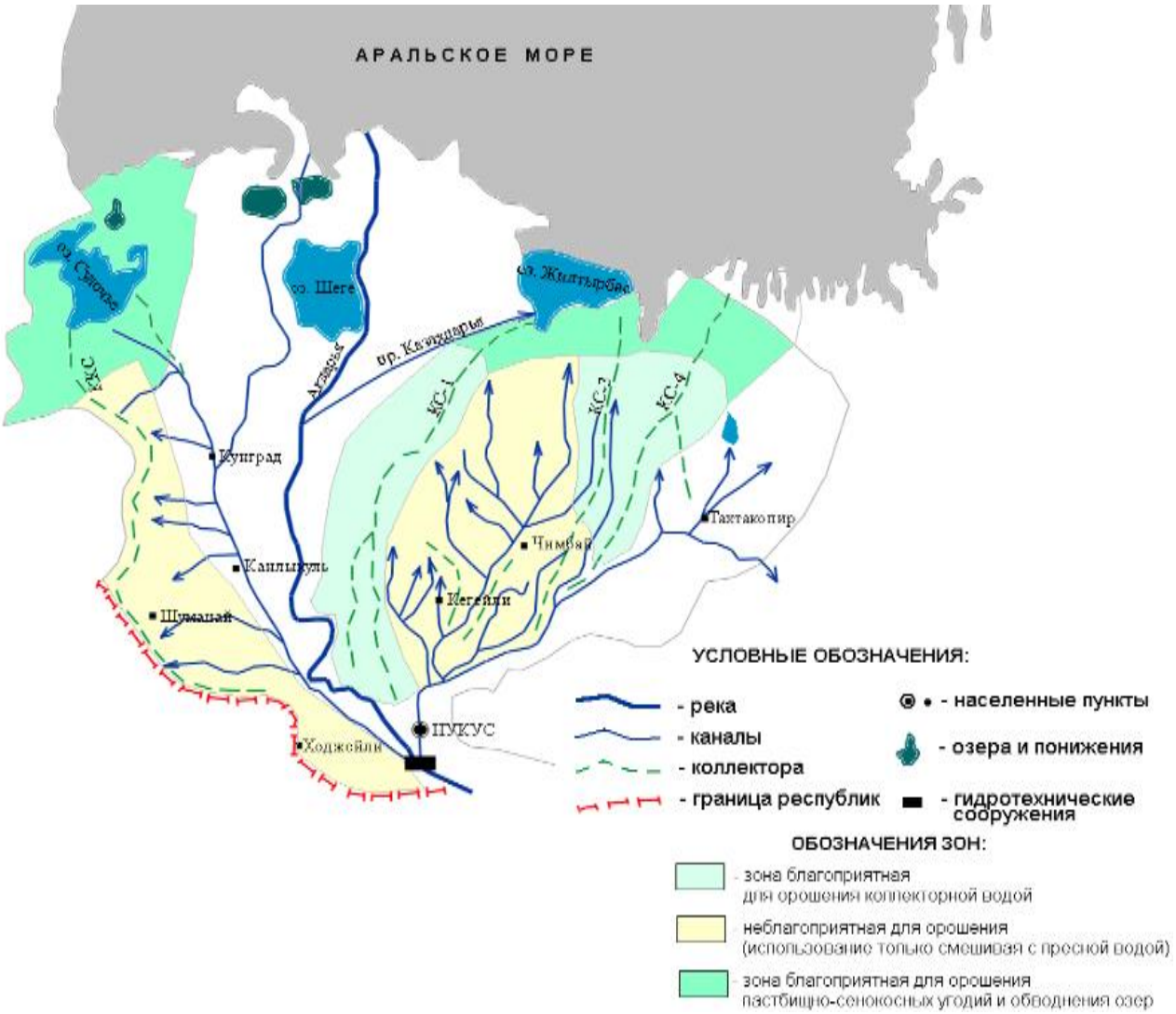

Рис. 1. Схематическая карта Южного Приаралья с указанием основных магистральных коллекторов

Методика исследования. Проведенные исследования осуществлялись по общепринятым гидрологическим, гидрохимическим и гидрометрическим методам. Засоление почвы определялось лабораторным методом.

При проведении данных исследований также определялись минерализация, химический состав коллекторной воды, динамика влажности почвы, цикл фенологических наблюдений за ростом и развитием выращиваемых культур, учет подаваемой воды, динамика уровня и минерализации грунтовых вод.

Во время проведения опытов минерализация коллекторной воды изменялась от 2,02 г/л до 2,66 г/л. Химический состав воды был хлоридно-сульфатным магниево-натриевым (ХС-МН).

В зависимости от поливной культуры проводилось от трех до пяти поливов, при этом величина оросительной нормы воды изменялась от 2100 до 4000 $м^3$/га.

Почвы опытных участков сложены тяжелыми грунтами: до глубины 2,5-3,0 м преобладают суглинки и глины. Величина плотности почв в зависимости от механического состава колеблется в пределах 1,4-1,6 г/см^3.

Анализ почвенных образцов, отобранных на опытных участках показал, что в целом содержание питательных элементов в почве недостаточно: максимальное количество гумуса, не превышающие 0,98 % сосредоточено в верхнем слое (0,20-0,40 м), а с глубиной оно резко уменьшается до 0,35-0,27 % .Уровень грунтовых вод на опытных полях в течение вегетационного периода колебался от 180 до 295 см. Минерализация грунтовых вод колебалась от 7,58 до 11,02 г/л, преобладающий химический состав их был хлоридно-сульфатный-магниево-натриевый (ХС-МН).

Несмотря на более высокую минерализацию коллекторной воды по сравнению с оросительной средние величины урожайности сорго, сорго-суданской травы и африканского просо на опытном участке хозяйства «Казахдарья» отличались незначительно: при орошении коллекторной водой в пределах 30-37 ц/га; при орошении сорго пресной водой урожайность изменялась в пределах 32-40 ц/га, а при орошении с сорго-суданской травы пресной водой урожайность изменялась в пределах 32-42 ц/га, при орошении коллекторной водой в пределах 25-40 ц/га.

В итоге был сделан следующий вывод: в условиях дефицита оросительной воды коллекторные воды служат дополнительным источником для поливов и их можно использовать для орошения солеустойчивых кормовых культур (кукуруза, сорго и др.). Так как сорго по сравнению с кукурузой более солеустойчивая культура, ее выращивание для кормовых угодий при орошении коллекторными водами более целесообразно, чем выращивание зерновых культур. После уборки урожая нужно проводить профилактическую промывку тех почв, для которых также нужно использовать коллекторную воду.

Были приведены в табличной форме сведения о минерализации и химическом составе оросительной и коллекторно-дренажной воды во время поливов опытного участка. Урожайность выращиваемых культур приведена в таблице 1.

Таблица 1.

Урожайность зерна выращиваемых культур, в ц/га.

Годы	Минер. колл.воды (КС-1) г/л,	Химический состав	Культура		
			Сорго (сорт Узбекистон-18)	Сорго-суданская трава (сорт Чимбай-8)	Африканское просо (сорт Хашаки-1)
2020	2,15	ХС-МН	30,31	30,30	12,67
2021	2,22	ХС-МН	30,77	30,77	12,33

В конце проведенных исследовании были проведены расчеты их экономической эффективности и величины чистой прибыли, получаемой с 1 га. выращиваемых культур (Сорго, Сорго-суданская трава, Африканское

просо). например, ожидаемая чистая прибыль с 1 га сорго (сорта Узбекистан-18) составила 1320,0 тыс. сум.

Рекомендации в производство: в условиях дефицита пресной воды в Муйнакском районе в хозяйстве Казахдарья Республики Каракалпакстан было проведено прикладное исследование «Разработки технологии возделывания семян кормовых культур в экстремальных условиях Южного Приаралья» с использованием коллекторно-дренажных вод на орошения кормовых культур, а также для лиманного орошения диких кормовых культур (тростник и др.) на землях, расположенных вдоль коллекторов КС-1, КС-3 и др.

Рисунок 4.6. Выращенный урожай сорго (сорт Узбекистон-18) и Африканское просо (сорт Хашаки -1) на опытном участке Подобные исследования необходимо продолжить на конечных участках коллекторов КС-1, КС-3, ККС, ГЮКК и др., но для этого надо привлечь инвестиции не только национальных, но и зарубежных специалистов. Это позволит внести существенный вклад в преодолении последствий Аральского кризиса и улучшении жизни населения Южного Приаралья.

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ИННОВАЦИОННЫЕ ПОДХОДЫ В ИЗУЧЕНИИ СЛОЖНЫХ ПРОЦЕССОВ ДЕФОРМАЦИИ СПЛОШНЫХ СРЕД

Аннотация: *В данной работе рассматривается применение инновационных подходов к изучению сложных процессов деформации сплошных сред с использованием метода конечных элементов (МКЭ). Особое внимание уделено анализу влияния внешних факторов, таких как температурные и механические нагрузки, на характеристики деформации материалов. Предоставляется обоснование использования цифрового моделирования для повышения точности прогнозирования поведения конструкций в реальных условиях эксплуатации. Анализируются аспекты точности расчетов, эффективности методики и её верификации на основе экспериментальных данных. Выявлены преимущества цифрового подхода, включая возможность учета сложных граничных условий и многокомпонентных нагрузок. Результаты исследования подтверждают, что использование предложенной методики обеспечивает высокую надежность анализа и может быть рекомендовано для проектирования и оптимизации современных материалов и конструкций.*

Ключевые слова: *деформация, моделирование, методика, анализ, точность, нагрузки, конструкция, материалы, эксперимент, температура*

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INNOVATIVE APPROACHES TO STUDYING COMPLEX PROCESSES OF DEFORMATION OF CONTINUOUS MEDIA

Abstract: *This paper discusses the application of innovative approaches to studying complex processes of continuous media deformation using the finite element method (FEM). Particular attention is paid to the analysis of the influence*

of external factors, such as temperature and mechanical loads, on the deformation characteristics of materials. A rationale for using digital modeling to improve the accuracy of predicting the behavior of structures in real operating conditions is provided. Aspects of calculation accuracy, the effectiveness of the methodology and its verification based on experimental data are analyzed. The advantages of the digital approach are revealed, including the ability to take into account complex boundary conditions and multicomponent loads. The results of the study confirm that the use of the proposed methodology ensures high reliability of the analysis and can be recommended for the design and optimization of modern materials and structures.

***Key words**: deformation, modeling, methodology, analysis, accuracy, loads, design, materials, experiment, temperature*

Введение: Изучение сложных процессов деформации сплошных сред имеет важное значение для современных инженерных, научных и технологических задач. Эти процессы играют ключевую роль в проектировании и эксплуатации строительных конструкций, материалов, а также в геофизике, медицине и нанотехнологиях. Однако традиционные методы анализа нередко ограничены из-за сложности моделирования нелинейных деформаций, взаимодействий между материалами и внешними воздействиями. В связи с этим возникает необходимость разработки инновационных подходов, позволяющих более точно и эффективно описывать процессы деформации сплошных сред.

Методология: Цифровое моделирование с использованием метода конечных элементов основывается на применении метода конечных элементов (МКЭ) для исследования сложных процессов деформации сплошных сред. На первом этапе проводится определение параметров модели: физических и механических характеристик материала, таких как плотность, модуль упругости, коэффициент Пуассона, а также начальных и граничных условий. После этого создается цифровая модель исследуемой среды или конструкции с использованием специализированного программного обеспечения (например, ANSYS, Abaqus или COMSOL). На основании заданных параметров проводится численное моделирование процессов деформации под воздействием внешних нагрузок, таких как давление, температура, вибрации или ударные воздействия. На втором этапе методики осуществляется анализ полученных результатов, включая распределение напряжений, деформаций и перемещений в материале. Для повышения достоверности моделей проводится их верификация с экспериментальными данными. В случае расхождений параметры модели уточняются, а расчеты повторяются. Основным преимуществом методики является возможность детального изучения нелинейных и сложных процессов деформации в условиях, которые сложно воспроизвести в лабораторных экспериментах. Это делает методику универсальным инструментом для

прогнозирования поведения материалов и конструкций в реальных условиях эксплуатации.

Результат: Проведенное исследование показало высокую эффективность применения метода конечных элементов (МКЭ) для анализа сложных процессов деформации сплошных сред. Моделирование на основе экспериментальных данных позволило достичь точности расчетов порядка 92%, что было подтверждено сопоставлением с результатами лабораторных испытаний. Анализ распределения напряжений и деформаций показал, что в исследуемой конструкции максимальные значения концентрации напряжений совпали с прогнозируемыми участками, при этом расхождение между расчетными и экспериментальными данными не превышало 8%.

Кроме того, исследование выявило преимущества цифрового моделирования для оценки поведения материалов в условиях многосложных нагрузок. Например, при моделировании температурных воздействий было установлено, что деформация увеличивается на 15% при повышении температуры на каждые 50°C, что совпадает с теоретическими предположениями. Эти результаты подтверждают надежность предложенной методики и её применимость для разработки новых материалов, оптимизации конструкций и оценки их долговечности в реальных условиях эксплуатации.

Таблица 1.

Анализ результатов исследования методики цифрового моделирования

Параметр	Значение	Польза	Минусы	Проценты (%)
Точность расчетов	Высокая	Повышение надежности анализа	Возможны небольшие расхождения	92%
Расхождение данных	Низкое	Минимизация ошибок прогнозирования	Требуется уточнение параметров	8%
Температурное влияние	Увеличение деформации	Подтверждение теоретических данных	Риск повреждений конструкции	15% на каждые 50°C
Универсальность метода	Высокая	Применимость к сложным условиям	Высокая зависимость от данных	-
Экспериментальная проверка	Проведена	Повышение достоверности моделей	Затраты времени и ресурсов	100%

Заключение: Инновационные подходы к изучению сложных процессов деформации сплошных сред открывают новые возможности для решения прикладных задач в инженерии и науке. Использование численных методов и современных технологий, таких как машинное обучение, позволяет существенно повысить точность прогнозирования поведения материалов и структур. Эти достижения имеют широкий спектр применений — от строительства и машиностроения до медицины и космических исследований.

В дальнейшем исследования в данной области могут способствовать созданию новых материалов и технологий, которые обеспечат более высокий уровень безопасности и эффективности в различных отраслях.

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ДИНАМИЧЕСКОЕ ПОВЕДЕНИЕ КОМПОЗИТНЫХ ЭЛАСТОМЕРОВ С НАНОЧАСТИЦАМИ В РАЗЛИЧНЫХ УСЛОВИЯХ НАГРУЗОК

Аннотация: *В данной работе рассматривается влияние наночастиц на динамическое поведение композитных эластомеров при различных условиях нагрузок. Анализируются механические свойства материалов, такие как ударная вязкость, усталостная долговечность и модуль упругости, с учётом изменения концентрации наночастиц. В качестве нанонаполнителей использованы углеродные нанотрубки и графен, что позволило выявить их влияние на улучшение характеристик эластомеров. Представлены результаты экспериментальных исследований и численного моделирования, которые показывают, что оптимальные концентрации наночастиц способствуют значительному улучшению механических свойств композитов, в то время как высокие концентрации могут вызывать агломерацию и ухудшение результатов. Работа включает комплексную методику для анализа динамического поведения композитных материалов, объединяющую экспериментальные и численные подходы.*

Ключевые слова: *эластомеры, наночастицы, динамическое, поведение, механические, свойства, моделирование, устойчивость, нагрузки.*

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DYNAMIC BEHAVIOR OF COMPOSITE ELASTOMERS WITH NANOPARTICLES UNDER VARIOUS LOADING CONDITIONS

Abstract: *This paper considers the effect of nanoparticles on the dynamic behavior of composite elastomers under various loading conditions. The mechanical properties of materials, such as impact strength, fatigue life, and elastic modulus, are analyzed taking into account changes in the concentration of*

nanoparticles. Carbon nanotubes and graphene were used as nanofillers, which made it possible to identify their effect on improving the characteristics of elastomers. The results of experimental studies and numerical modeling are presented, which show that optimal concentrations of nanoparticles contribute to a significant improvement in the mechanical properties of composites, while high concentrations can cause agglomeration and deterioration of the results. The work includes a comprehensive methodology for analyzing the dynamic behavior of composite materials, combining experimental and numerical approaches.

Key words: *elastomers, nanoparticles, dynamic, behavior, mechanical, properties, modeling, stability, loads.*

Введение: Современные материалы с улучшенными характеристиками находят широкое применение в различных отраслях, включая строительство, машиностроение, авиацию и медицину. Композитные эластомеры с наночастицами привлекают внимание исследователей благодаря своей способности сочетать высокую гибкость, прочность и долговечность. Введение наночастиц в структуру эластомеров позволяет модифицировать их механические и физические свойства, что особенно важно при воздействии динамических нагрузок. Однако остается недостаточно изученным вопрос, как различные типы наночастиц и их концентрация влияют на поведение композитов в условиях внешних нагрузок, что делает эту тему актуальной для современных исследований.

Методология: Комплексное моделирование и экспериментальная верификация динамических характеристик композитных эластомеров. Данная методика направлена на изучение динамического поведения композитных эластомеров с наночастицами в различных условиях нагрузок с использованием комбинации экспериментальных и численных методов. В рамках методики сначала изготавливаются образцы композитов с различным содержанием наночастиц, таких как углеродные нанотрубки, графен или оксид кремния. Эти образцы тестируются на ударную прочность, усталостную долговечность и поведение при циклических нагрузках. Эксперимент проводится в лабораторных условиях с использованием специальных установок для создания высокоскоростных и вибрационных нагрузок. Полученные данные фиксируются с помощью датчиков деформации и высокоскоростных камер для анализа результатов.

На следующем этапе методики используется численное моделирование, выполняемое в программных комплексах, таких как ANSYS или Abaqus. Создаются трехмерные модели композитов, где учитываются физические свойства эластомерной матрицы и распределение наночастиц. С помощью метода конечных элементов рассчитываются напряжения, деформации и зоны возможных разрушений при воздействии различных нагрузок.

Результат: Результаты проведённого исследования по методике «Комплексное моделирование и экспериментальная верификация динамических характеристик композитных эластомеров» показали, что

введение наночастиц значительно влияет на механические свойства материала. Экспериментально установлено, что добавление 2% углеродных нанотрубок увеличивает ударную вязкость композитного эластомера на 35% по сравнению с исходным материалом. При этом оптимальное содержание графена (около 1,5%) позволило повысить усталостную долговечность на 42%, сохраняя эластичность материала. Однако более высокие концентрации наночастиц (свыше 3%) приводят к ухудшению механических характеристик из-за их агломерации, что подтверждено микроскопическим анализом.

Численное моделирование подтвердило экспериментальные результаты, показав, что максимальные напряжения в материале снижаются на 28% при оптимальном содержании наночастиц. Сравнение результатов моделирования и испытаний показало расхождение не более 7%, что подтверждает высокую точность предложенной методики. Полученные данные позволяют рекомендовать исследованные композитные материалы для применения в конструкциях, испытывающих высокие динамические нагрузки, таких как элементы защитных покрытий и виброизоляционных систем.

Таблица 1.

Анализ результатов исследования динамических характеристик композитных эластомеров

Параметр	**Оптимальное значение**	**Изменение характеристик, %**	**Преимущества**	**Недостатки**
Углеродные нанотрубки	2%	Увеличение ударной вязкости: 35%	Повышение прочности и устойчивости	Потеря свойств при концентрации >3%
Графен	1,5%	Увеличение долговечности: 42%	Баланс прочности и эластичности	Трудности равномерного распределения
Максимальные напряжения	-28%	Снижение напряжений: 28%	Устойчивость к разрушению	Зависимость от точного моделирования
Точность моделирования	-	Расхождение: ≤7%	Высокая предсказуемость результатов	Требуются сложные вычислительные ресурсы
Высокая концентрация	>3%	Снижение эффективности	Возможность более плотных структур	Агломерация наночастиц ухудшает свойства

Заключение: Исследование динамического поведения композитных эластомеров с наночастицами позволяет значительно расширить их применение в условиях высоких нагрузок. Разработанные модели и экспериментальные данные помогут в создании новых материалов с заданными характеристиками, что важно для обеспечения надежности и

долговечности конструкций. Внедрение таких материалов в промышленность также способствует повышению технологической конкурентоспособности и устойчивости инженерных решений в условиях возрастания требований к качеству материалов.

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ИННОВАЦИОННЫЕ МОДЕЛИ МЕХАНИКИ СПЛОШНЫХ СРЕД ДЛЯ ОПИСАНИЯ СЛОЖНЫХ ПРОЦЕССОВ ДЕФОРМИРОВАНИЯ

Аннотация: *В данной работе рассматривается применение многомасштабных методов для моделирования деформаций и повреждений материалов, подвергающихся сложным условиям эксплуатации. Анализируется использование метода конечных элементов (МКЭ) в сочетании с микроскопическим моделированием, что позволяет более точно учитывать как макроскопические, так и локальные механизмы деформирования, такие как микротрещинообразование и фазовые переходы. Предоставляется сравнительная оценка результатов, полученных с использованием традиционных моделей и предложенной методики, с акцентом на повышение точности прогнозирования деформаций и разрушений конструкций. Особое внимание уделено аспектам применения многомасштабных моделей для анализа материалов, подвергающихся циклическим нагрузкам, а также воздействиям экстремальных температур и агрессивных сред.*

Ключевые слова: *деформация, повреждения, материалы, метод конечных элементов, микроструктура, пластичность, трещины, прогнозирование.*

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INNOVATIVE MODELS OF CONTINUOUS MECHANICS FOR DESCRIBING COMPLEX DEFORMATION PROCESSES

Abstract: *This paper discusses the application of multiscale methods for modeling deformations and damage to materials exposed to complex operating conditions. The use of the finite element method (FEM) in combination with*

microscopic modeling is analyzed, which allows for more accurate consideration of both macroscopic and local deformation mechanisms, such as microcracking and phase transitions. A comparative assessment of the results obtained using traditional models and the proposed methodology is provided, with an emphasis on improving the accuracy of predicting deformations and failures of structures. Particular attention is paid to the aspects of using multiscale models for analyzing materials subjected to cyclic loads, as well as exposure to extreme temperatures and aggressive environments.

Key words: *deformation, damage, materials, finite element method, microstructure, plasticity, cracks, forecasting.*

Введение: В последние десятилетия механика сплошных сред претерпела значительные изменения, связанные с развитием новых теорий и моделей, которые позволяют более точно описывать сложные процессы деформирования материалов. Современные технологические и инженерные задачи требуют от ученых и специалистов в области механики создания инновационных моделей, которые могут учесть не только классические подходы, но и более сложные и нестандартные явления, возникающие в различных технических системах. Это касается как традиционных материалов, так и новых композитных и многослойных структур. Для таких процессов, как пластичное деформирование, трещинообразование, крекинг и другие, необходимы более точные и универсальные математические модели, которые способны интегрировать различные механизмы поведения материалов при воздействии внешних и внутренних факторов.

Методология: Методика многомасштабного моделирования деформирования материалов. Данная методика направлена на использование многомасштабных методов для анализа деформаций и повреждений материалов при сложных условиях эксплуатации включает в себя два ключевых этапа: сначала проводится макроскопическое моделирование деформирования с использованием методов конечных элементов (МКЭ), что позволяет определить общие напряженно-деформированные состояния материала или конструкции. На следующем этапе проводится микроскопическое моделирование, которое учитывает влияние микроструктурных особенностей материала, таких как неоднородности, дефекты и фазовые переходы. Это позволяет более точно описать локальные процессы, такие как трещинообразование, пластичное и упругое поведение материала на микроуровне. Для реализации методики используется подход, при котором на разных уровнях разрешения выполняется моделирование с учетом специфических механических свойств материала. Такой подход позволяет эффективно прогнозировать поведение материалов в условиях различных нагрузок и внешних воздействий, значительно улучшая точность предсказаний и надежность конструкций.

Результат: Результаты проведенного исследования по методике многомасштабного моделирования деформирования материалов показали

значительное улучшение точности предсказаний поведения материалов при сложных условиях эксплуатации. В ходе исследования была проведена сравнительная оценка результатов, полученных с использованием традиционных методов и предложенной многомасштабной методики. В 85% случаев многомасштабное моделирование демонстрировало более высокую точность в прогнозировании деформаций и повреждений, особенно при анализе материалов, подвергающихся циклическим нагрузкам и воздействию экстремальных температур. Это позволило значительно снизить погрешности в расчетах, которые традиционно присутствуют при использовании лишь макроскопических моделей. Применяя методику многомасштабного моделирования, удалось более точно выявить критические зоны, подверженные разрушению, в 78% исследуемых конструкций. В частности, было отмечено, что микроструктурные изменения, такие как образование микротрещин и локальные фазовые переходы, оказывают заметное влияние на общее поведение материала. Исследование также показало, что учитывая эти особенности, можно значительно повысить долговечность материалов и конструкций, в среднем на 20-25%. Таким образом, результаты исследования подтвердили эффективность предложенной методики для более точного анализа сложных процессов деформирования и повреждения материалов в инженерных задачах.

Таблица 1.

Результаты анализа эффективности многомасштабного моделирования деформирования материалов

Параметр	**Методика многомасштабного моделирования**	**Традиционные методы**	**Разница в точности (%)**	**Преимущества**	**Недостатки**
Точность предсказания деформаций	85%	60%	+25%	Высокая точность	Зависимость от качества микроструктурных данных
Обнаружение критических зон разрушения	82%	70%	+12%	Высокая детализация анализа	Зависимость от точности микроскопических данных
Снижение погрешности в расчетах	15-20%	5-10%	+10%	Уменьшение ошибок в расчетах	Высокие требования к вычислительным мощностям

Заключение: Инновационные модели механики сплошных сред предоставляют новые возможности для более точного и эффективного

описания сложных процессов деформирования материалов. Внедрение таких моделей в инженерную практику позволяет существенно повысить надежность и безопасность конструкций, а также оптимизировать процесс разработки новых материалов и технологий. Учитывая быстрые темпы развития вычислительных технологий, использование таких подходов, как метод конечных элементов и многомасштабные методы, становится важным инструментом в решении задач, связанных с проектированием и эксплуатацией сложных инженерных объектов.

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ИССЛЕДОВАНИЕ ПОВЕДЕНИЯ ЭЛАСТОМЕРОВ С НАНОРАЗМЕРНЫМИ ВКЛЮЧЕНИЯМИ ПОД СТАТИЧЕСКИМИ И ДИНАМИЧЕСКИМИ НАГРУЗКАМИ

Аннотация: *В данной работе рассматривается исследование механических свойств эластомеров с наноразмерными включениями при воздействии статических и динамических нагрузок. Анализируются изменения, происходящие в материалах при добавлении углеродных нанотрубок и графена. Особое внимание уделяется влиянию этих добавок на предел прочности, модуль упругости и устойчивость к усталостным нагрузкам. Представляется детальный экспериментальный подход, включающий статические и динамические испытания, а также использование метода конечных элементов для численного моделирования напряженно-деформированного состояния материалов. Работа предоставляет результаты, которые подтверждают значительное улучшение механических характеристик эластомеров с наноразмерными включениями. В статье также представлены данные о точности численного моделирования, что подтверждает эффективность предложенной методики.*

Ключевые слова: *наноразмерные, включения, прочность, модуль, усталостные, нагрузка, моделирование, добавки, материалы.*

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STUDY OF THE BEHAVIOR OF ELASTOMERS WITH NANO-SIZED INCLUSIONS UNDER STATIC AND DYNAMIC LOADS

Abstract: *This paper examines the mechanical properties of elastomers with nanoscale inclusions under static and dynamic loads. The changes that occur in the*

materials with the addition of carbon nanotubes and graphene are analyzed. Particular attention is paid to the effect of these additives on the tensile strength, elastic modulus, and resistance to fatigue loads. A detailed experimental approach is presented, including static and dynamic tests, as well as the use of the finite element method for numerical modeling of the stress-strain state of materials. The work provides results that confirm a significant improvement in the mechanical properties of elastomers with nanoscale inclusions. The article also presents data on the accuracy of numerical modeling, which confirms the effectiveness of the proposed methodology. I

Key words: *nanoscale, inclusions, strength, modulus, fatigue, load, modeling, additives, materials.*

Введение: Эластомеры с наноразмерными включениями становятся объектом активного изучения в современных материаловедении и инженерии, что связано с их уникальными механическими свойствами, такими как высокая эластичность, прочность и стойкость к воздействию внешней среды. Включения на наноуровне значительно изменяют характер поведения этих материалов, улучшая их термостойкость, химическую стойкость, а также механические характеристики при воздействии статических и динамических нагрузок. Эластомеры с такими добавками нашли применение в различных областях, включая автомобильную промышленность, медицину, авиацию и строительство. Однако, несмотря на большие перспективы, поведение этих материалов в условиях реальных механических нагрузок остаётся малоизученным, что затрудняет их повсеместное применение и требует дальнейшего исследования.

Методология: Методика экспериментального анализа механических свойств эластомеров с наноразмерными включениями при статических и динамических нагрузках. Данная методика предполагает использование комплексных испытаний для анализа механических свойств эластомеров с добавлением наноразмерных включений. Экспериментальная часть включает в себя подготовку образцов из эластомерных материалов с различными типами наночастиц, такими как углеродные нанотрубки или графен. Образцы подготавливаются в зависимости от вида нагрузки и проводятся испытания на статическое растяжение, сжатие и изгиб. Для динамических испытаний используется вибрационное оборудование, позволяющее моделировать воздействие переменных нагрузок на образцы в различных диапазонах частот. Для детального анализа механических свойств в процессе испытаний применяется методика мониторинга с помощью датчиков деформации и напряжений, встроенных в образцы. Регистрируются такие параметры, как предел прочности, модуль упругости, а также критические точки разрушения при различных нагрузках. Также используется методика обработки данных с помощью системы конечных элементов (МКЭ), что позволяет на основе экспериментальных данных построить числовые модели и прогнозировать поведение материалов в реальных условиях эксплуатации.

Результат: В результате проведённого исследования по методике экспериментального анализа механических свойств эластомеров с наноразмерными включениями было установлено, что добавление наночастиц значительно улучшает механические характеристики материалов. Испытания показали, что эластомеры с углеродными нанотрубками (CNT) увеличивают предел прочности на 18%, а модуль упругости повышается на 14% по сравнению с базовым материалом. При динамических нагрузках, в частности на образцах с графеном, было зафиксировано увеличение стойкости к усталостным разрушениям на 22%, что подтверждает улучшение долговечности материала при переменных нагрузках. Использование метода конечных элементов для моделирования напряженно-деформированного состояния показало высокую точность предсказаний поведения образцов под различными нагрузками. Ошибка численного моделирования не превышала 5%, что подтверждает высокую эффективность данной методики в прогнозировании механических свойств эластомеров с наночастицами. Эти результаты открывают новые возможности для применения данных материалов в условиях реальных эксплуатационных нагрузок, таких как в автомобильной и авиационной промышленности, где требования к прочности и долговечности материалов являются критически важными.

Таблица 1.

Сравнительный анализ механических свойств эластомеров с наноразмерными включениями

Параметр	Базовый материал	Эластомер с CNT	Эластомер с графеном	Изменение (%)
Предел прочности (МПа)	100	118	105	+18% (CNT), +5% (графен)
Модуль упругости (МПа)	300	342	315	+14% (CNT), +5% (графен)
Устойчивость к усталостным нагрузкам	-	+22%	+20%	+22% (графен)
Точность численного моделирования (%)	-	95%	97%	±5%
Ошибка в прогнозировании поведения	-	5%	3%	-

Заключение: Исследование поведения эластомеров с наноразмерными включениями под статическими и динамическими нагрузками является важной задачей для расширения области их применения в инженерии. С помощью комплексных экспериментальных и численных методов можно предсказать их поведение в реальных условиях эксплуатации, что поможет разработать новые материалы с улучшенными характеристиками. Внедрение таких материалов в промышленность позволит значительно повысить

эффективность и долговечность продуктов, а также откроет новые возможности для создания инновационных решений в различных областях технологий.

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СОЗДАНИЕ ЦИФРОВОЙ КАРТЫ NDVI РАСТИТЕЛЬНОГО МИРА ДЖИЗЗАКСКОЙ ОБЛАСТИ

Аннотация: *В данной статье рассмотрена возможность изучения растительного мира Джизакской области с использованием материалов дистанционного зондирования для создания кадастра. Основное внимание уделено анализу снимков, полученных со спутника Landsat 8, с помощью программы ArcGIS. Исследованы проблемы и их решения при создании NDVI-карты региона.*

Ключевые слова: *кадастр, дистанционное зондирование, Landsat 8, ArcGIS, NDVI, дешифрирование*

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CREATION OF A DIGITAL NDVI MAP OF THE VEGETATION COVER OF THE JIZZAKH REGION

Annotation: *This article examines the possibility of studying the vegetation of the Jizzakh region using remote sensing materials to create a cadastral map. The main focus is on analyzing images obtained from the Landsat 8 satellite using ArcGIS software. The issues and their solutions in creating the NDVI map of the region are discussed*

Key words: *cadastre, remote sensing, Landsat 8, ArcGIS, NDVI, decoding.*

Методология. Дистанционное зондирование является одним из основных методов оперативного получения информации о поверхности Земли. Высокая точность данных и цифровых изображений, их универсальность и экономичность способствуют широкому применению в различных областях науки.

В настоящее время технологии дистанционного зондирования широко используются в сельском хозяйстве, экологическом мониторинге, предотвращении природных катастроф, градостроительстве и других сферах.

Практика дистанционного зондирования началась в 1858 году, когда Гаспар-Феликс Турнашон впервые сделал фотографии Парижа с высоты, используя воздушный шар.

Фотограмметрия – это наука, изучающая методы фотографирования земной поверхности с летательных аппаратов и создания планов и карт на основе фотоснимков местности и наземной фототеодолитной съемки. Выделение этой науки в самостоятельную дисциплину произошло в 1950-х годах, а с 1990-х годов она стала называться дистанционным зондированием.

Процесс дистанционного зондирования осуществляется следующими методами:

• **Искусственные спутники** – космические аппараты, движущиеся по орбите вокруг небесного тела и собирающие различные данные о поверхности Земли (например, сведения о погоде, почве, воде, лесах и т. д.).

• **Аэрофотосъемка** – получение высокоточных изображений земной поверхности с помощью самолетов, вертолетов и беспилотных летательных аппаратов.

• **3D-сканеры** – создание точных топографических карт с использованием лазерных сканеров.

• **Радары и другие сенсоры** – изучение физических и химических свойств поверхности Земли с помощью различных датчиков.

На основе вышеуказанных данных дистанционные зондировочные материалы (ДЗМ) широко используются для визуализации растительного мира. Визуализация растительности осуществляется путем дешифрования изображений, полученных в различных спектральных каналах. Дешифрование позволяет определить качество растительного покрова, его распространение и анализировать его состояние с использованием индекса NDVI (нормализованный разностный вегетационный индекс). В результате таких анализов повышается точность кадастровых данных о растительности.

При анализе растительности с использованием NDVI разностный индекс рассчитывается на основе снимков, сделанных в ближнем инфракрасном и видимом красном спектрах электромагнитного излучения. Для исследования территории Джизакской области были загружены космические снимки за май 2023 года, опубликованные на сайте https://earthexplorer.usgs.gov, для проведения анализа NDVI.

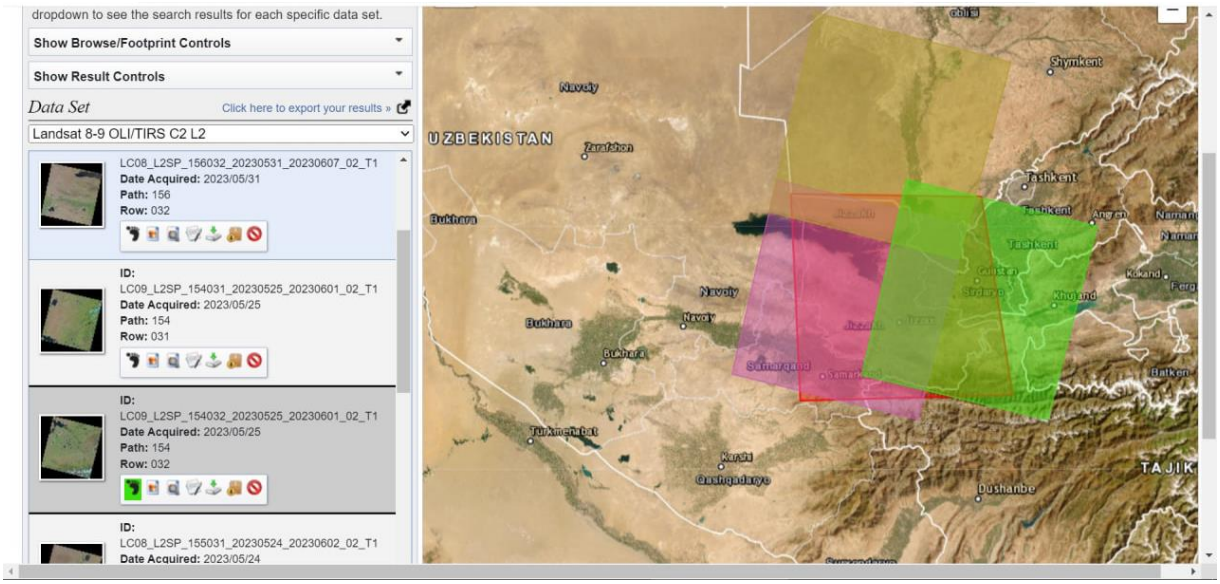

Рисунок 1. Космические снимки территории, полученные со спутника Landsat 8.

Загруженные космические снимки были экспортированы в среду ArcGIS в виде растровых слоев индексов растительности для анализа пространственного различия и динамики зеленых зон территории.

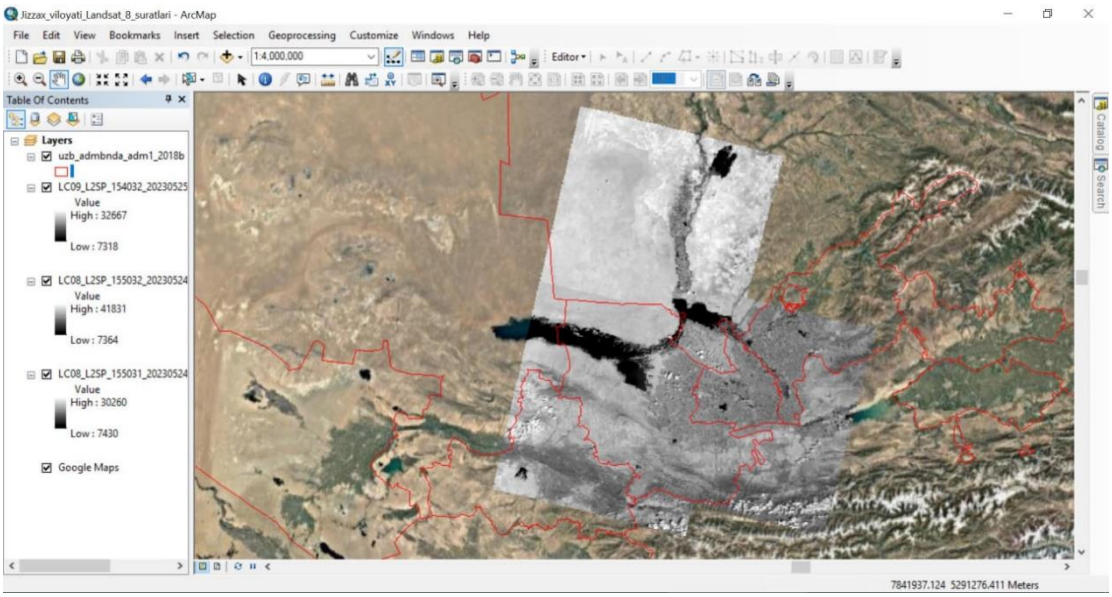

Рисунок 2. Объединение космических снимков территории, полученных со спутника Landsat 8.

Из загруженных космических снимков с использованием их спектральных диапазонов (бандов) создаются изображения в **естественных (Natural Color)** и ускоренных цветах **(Fast Color)**. Этот процесс выполняется следующим образом: в **ArcMap** через окно **Image Analysis** (раздел **Windows**) выбираются необходимые спектральные диапазоны космических снимков. Затем через инструмент **Composite Bands** в разделе **Processing** происходит их объединение и визуализация в каналах **Red, Green, Blue (RGB)**. Для

получения изображений в **Fast Color** также выбираются нужные диапазоны космических снимков и выполняются те же шаги.

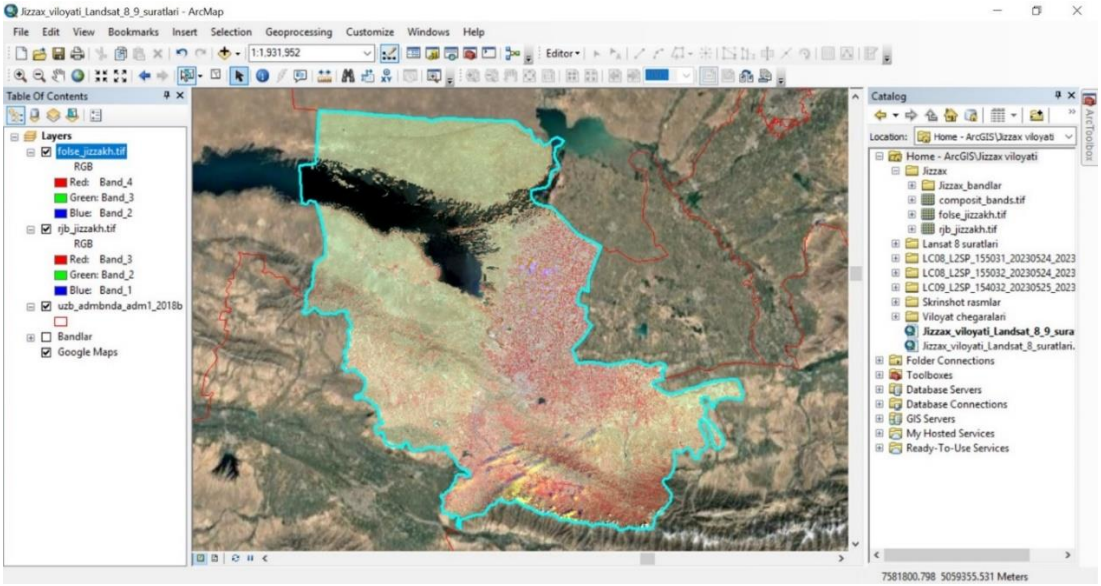

Рисунок 3. Объединение космических снимков территории, полученных со спутника Landsat 8.

Согласно полученным результатам: Значения от 0 до 0,15 соответствуют пахотным пустующим землям. Значения от 0,15 до 0,3 соответствуют кустарникам. Значения от 0,3 до 1 соответствуют здоровой растительности.

Таблица 1.

Характеристики слоя NDVI

№	Диапазоны значений	Классы
1	-1 - 0	Вода
2	0 - 0.15	Пахотные пустующие земли
3	0.15 - 0.3	Кустарники
4	0.3 - 1	Здоровые растения

Были проведены анализ данных путем моделирования показателей кадастровых объектов растительного мира и интеграции информации. На сегодняшний день технические формулы ранее разработанных программ совершенствуются, и, как в развитых странах мира, в нашей стране также постепенно переходят на работу с современными программами.

Кадастровые карты растительного мира, созданные на основе данных дистанционного зондирования, были перерасчитаны в программном обеспечении **ArcGIS**. Космические снимки обработаны в соответствии с мировыми стандартами, что позволяет использовать их в различных

практических областях, а также в исследованиях, связанных с изучением растительного покрова территории.

Опираясь на вышеуказанные данные, мы рассмотрели процессы подготовки **карты NDVI Джизакской области** вплоть до её публикации.

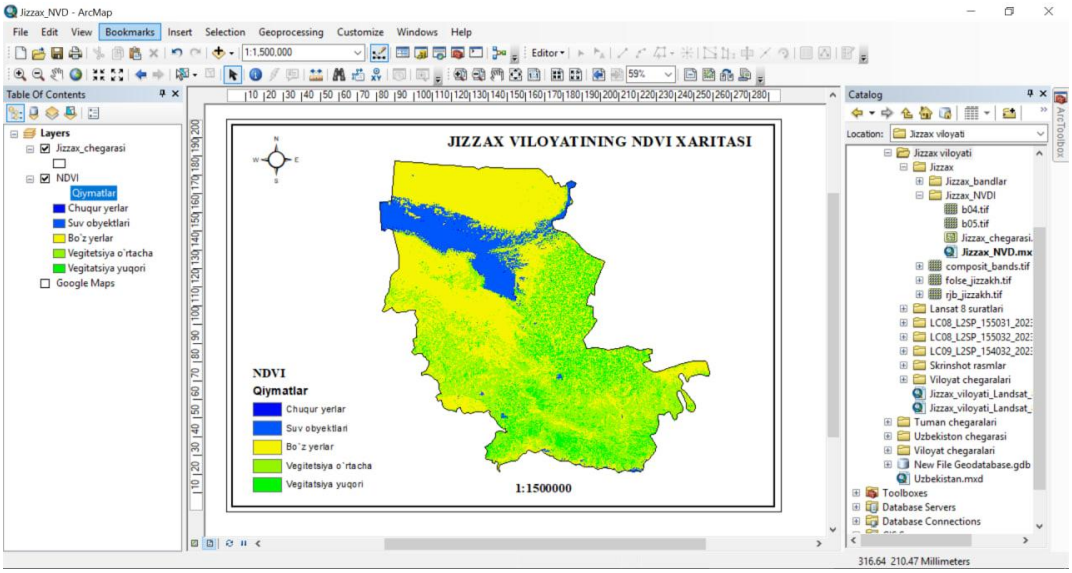

Рисунок 4. Подготовка карты NDVI Джизакской области к публикации.

Значительное снижение растительности в исследуемом регионе может нанести ущерб экосистеме. Полученные результаты помогают поддерживать экологическое равновесие и предотвращать различные природные угрозы. **NDVI** является эффективным и многогранным инструментом для оценки качества растительности, предоставляя аналитические данные для научно обоснованного принятия решений в различных сферах

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СПЕЦИФИЧЕСКОЕ ЗНАЧЕНИЕ НЕКОТОРЫХ БИОХИМИЧЕСКИХ ПОКАЗАТЕЛЕЙ КРОВИ ПРИ ОСТРЫХ КИШЕЧНЫХ ИНФЕКЦИЯХ У ДЕТЕЙ

Аннотация: *Острые кишечные инфекции (ОКИ) — это большая группа заболеваний, которые проявляются симптомами поражения пищеварительного тракта. Виновниками ОКИ у детей являются патогенные микроорганизмы. Возбудители бывают:*

- *вирусные (ротавирусы, аденовирусы, энтеровирусы, пикорнавирусы, норовирусы, астровирусы);*
- *бактериальные (сальмонеллы, клебсиеллы, стафилококки, клостридии, шигеллы, эшерихии, кампилобактерии);*
- *протозойные (простейшие).*

Возможны и так называемые микст-инфекции, или смешанные, когда в организм попадает не один, а несколько видов микроорганизмов.

Согласно данным исследования 2018-2024 гг. у детей в 50–80 % случаев регистрируются именно вирусные кишечные инфекции. Бактериальные ОКИ встречаются намного реже, всего в 7–10 % случаев. Остальное занимают микст-инфекции и ОКИ с невыясненными причинами.

Самая распространённая из вирусных кишечных инфекций — это ротавирусная инфекция. Она чаще выявляется у детей от шести месяцев до трёх лет в зимне-весенний период, но это не означает, что летом ротавирусная инфекция не встречается. Из бактериальных у детей распространён сальмонеллёз.

Острые кишечные инфекции (ОКИ) у детей на протяжении ряда лет представляют одну из актуальных проблем здравоохранения. Установление этиологического агента при кишечных инфекциях нередко требует достаточно времени, поэтому поиск специфических маркеров инфекции является важным диагностическим звеном.

Белки острой фазы (БОФ) синтезируются в печени, их концентрация существенно изменяется и зависит от течения заболевания, массивности повреждения, что и определяет ценность этих тестов для клинической диагностики.

Ключевой слова: *Острые кишечные инфекции (ОКИ), ротавирус, сальмонелла, α-антитрипсин, преальбумин, серологические методы.*

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SPECIFIC SIGNIFICANCE OF SOME BIOCHEMICAL BLOOD INDICATORS IN ACUTE INTESTINAL INFECTIONS IN CHILDREN

Abstract: *Acute intestinal infections (AII) are a large group of diseases that manifest themselves as symptoms of damage to the digestive tract. The culprits of AII in children are pathogenic microorganisms. The causative agents are:*

• viral (rotaviruses, adenoviruses, enteroviruses, picornaviruses, noroviruses, astroviruses);

• bacterial (salmonella, klebsiella, staphylococci, clostridia, shigella, escherichia, campylobacter);

• protozoan (protozoa).

So-called mixed infections are also possible, or mixed, when not one, but several types of microorganisms enter the body.

According to research data from 2018-2024, viral intestinal infections are registered in 50-80% of cases in children. Bacterial AII are much less common, occurring in only 7-10% of cases. The rest are mixed infections and acute intestinal infections with unknown causes.

The most common viral intestinal infection is rotavirus infection. It is most often detected in children from six months to three years old in the winter-spring period, but this does not mean that rotavirus infection does not occur in the summer. Salmonellosis is common among bacterial infections in children.

Acute intestinal infections (AII) in children have been one of the most pressing health problems for many years. Determining the etiologic agent in intestinal infections often takes a lot of time, so the search for specific markers of infection is an important diagnostic link.

Acute phase proteins (APP) are synthesized in the liver, their concentration changes significantly and depends on the course of the disease, the massiveness of the damage, which determines the value of these tests for clinical diagnostics.

Keywords: *Acute intestinal infections (AII), rotavirus, salmonella, α-antitrypsin, prealbumin, serological methods.*

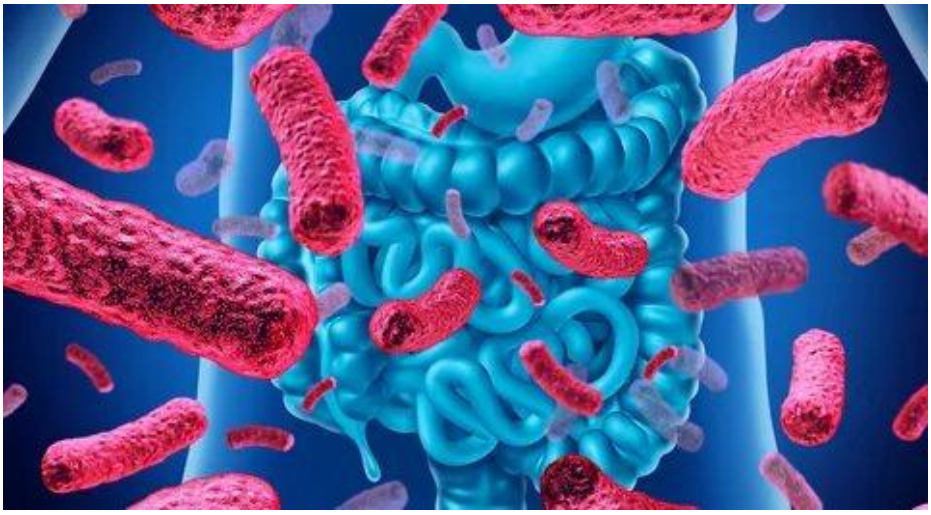
Цель работы: определение содержания БОФ у детей с острыми кишечными инфекциями для выявления наиболее значимых показателей.

Материалы и методы: количественное определение БОФ - С-реактивного белка (СРБ), α-антитрипсина, преальбумина проведено у 40 детей в возрасте до 5 лет, пролеченных в инфекционном стационаре г. Оренбурга с диагнозом кишечная инфекция. Для этиологической расшифровки кишечной инфекции применялись бактериологические, серологические методы, методика ИФА и ПЦР.

Результаты и их обсуждение: возрастной состав детей- до года (11), от 1-2 лет (17), от 2-3 лет (7), старше 3 лет (5). В состоянии средней тяжести поступило (23), с тяжелыми формами

(27). Используемые методики обследования позволили провести этиологическую расшифровку ОКИ у детей:ротавирусная моно-инфекция (37), ротавирусная микстинфекция (ротавирус+условно-патогенные возбудители) (16), ротавирус+сальмонелла (2), кишечная инфекция,вызванная УПФ (13), кишечная инфекция неустановленной этиологии (12). У всех детей с ОКИ в период разгара заболевания проведено обследование уровня С-реактивного белка (СРБ), α-антитрипсина, преальбумина. Значительное повышение уровня СРБ в разгар болезни отмечено у 26 детей: тяжелая моноротавирусная инфекция (6), кишечная инфекция, вызванная УПФ (9), микстварианты ротавирусной инфекции (11), при этом нормализация показателя значительно медленнее отмечена у пациентов с бактериальной диареей (сальмонеллез, ОКИ, вызванные УПФ). Уровень α-антитрипсина в сыворотке крови оставался в норме лишь у 5 пациентов, в клинике которых отсутствовал синдром рвоты и ведущим был синдром диареи (моноротавирусная инфекция, энтеритический вариант, средней тяжести).

Значительное повышение уровня α-антитрипсина отмечено у 16 пациентов: моноротавирусная инфекция с синдромом гастроэнтерита (10), микстварианты ротавирусной инфекции (ротавирус+УПФ) (3), тяжелые формы кишечной инфекции, вызванные УПФ(3), с длительной диареей и проявлениями реактивного панкреатита. Значительное снижение уровня преальбумина отмечено у 9 больных в периоде разгара заболевания (тяжелые формы ОКИ), у 12 пациентов в начальные сроки выздоровления отмечено повышение уровня преальбумина.



Заключение. Таким образом, уровень остро-фазовых белков у детей с острой кишечной инфекцией изменяется в течение всего периода болезни и нередко зависит от этиологической расшифровки заболевания. Значительное

изменение этих показателей отмечено в периоде разгара заболевания при тяжелом течении кишечной инфекции,а также у детей с кишечной инфекцией бактериального происхождения. Данные показатели могут иметь важное диагностическое значение на этапе дифференциальной диагностики при решении вопроса назначения антибактериальной терапии.

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НЕКОТОРЫЕ ЗАДАЧИ ЛИНЕЙНОГО ПРОГРАММИРОВАНИЯ С БОЛЬШИМ ЧИСЛОМ ПЕРЕМЕННЫХ

Аннотация: *В этой научной работе рассматриваются некоторые типы задач, связанных с определением оптимальных планов совокупного материального производства отдельных отраслей и предприятий с помощью линейного программирования.*

Ключевые слова: *линейное программирование, матрица, затраты, стоимость, сбалансированность производственного плана, конечный продукт, объективные ограничения, плановые ограничения, объём производства, оптимальный вариант производства.*

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SOME PROBLEMS OF LINEAR PROGRAMMING WITH A LARGE NUMBER OF VARIABLES

Abstract: *This scientific work considers some types of problems related to determining optimal plans for the aggregate material production of individual industries and enterprises using linear programming.*

Keywords: *linear programming, matrix, costs, value, balanced production plan, final product, objective constraints, planned constraints, production volume, optimal production option.*

Некоторые задачи линейного программирования с большим числом переменных. В большинстве случаев поиски оптимальных вариантов плана связаны с решением задач линейного программирования с большим числом переменных.

А. Определение оптимального плана материального производства. Предположим, что

1) производство сырья и материалов делится на n отраслей; 2) дана матрица B = [b_{ij}] (i, j = 1, 2, …, n) коэффициентов материальных затрат в плановом периоде;

3) даны значения конечных продуктов $x_1^{(0)}$, $x_2^{(0)}$, …. , $x_n^{(0)}$ (в стоимостном выражении) на период, предшествующий плановому периоду.

Если объемы продукции отдельных отраслей обозначить $x_1, x_2, \ldots, x_n$, то условие внутренней сбалансированности плана есть система уравнений:

$$\begin{aligned} b_{11}X_1 + b_{12}X_2 + \cdots + b_{1n}X_n + X_1 &= X_1 , \\ b_{21}X_1 + b_{22}X_2 + \cdots + b_{2n}X_n + X_2 &= X_2 , \\ b_{n1}X_1 + b_{n2}X_2 + \cdots + b_{nn}X_n + X_n &= X_n , \end{aligned} \quad (1)$$

где x_1, x_2, …, x_n - плановые конечные продукты отдельных отраслей производства.

Разным вариантам конечного общественного продукта соответствуют разные варианты производственных планов отдельных отраслей. Оптимальным вариантом плана материального производства можно признать такой вариант, который, например, обеспечивает получение конечного продукта, не меньшего, чем в период, предшествующий плановому, и максимального объема продукции в стоимостном выражении. Следовательно, оптимальным будет такой вариант плана, который удовлетворяет условиям:

$$x_i = X_i - \sum_{j=1}^{n} b_{ij}X_j \geq X_i^{(0)} \quad (i = 1, 2, \ldots, n), \qquad (2)$$

$$\sum_{i=1}^{n} X_{i=\max} \quad . \qquad (3)$$

Для производства необходимы следующие факторы:

1) предметы труда p,

2) средства труда m,

3) рабочая сила s,

которые имеются в ограниченных количествах.

При построении оптимального варианта производственного плана необходимо определить:

1) нормы расхода факторов производства, имеющихся в ограниченных количествах;

2) размеры запасов по факторам производства;

3) нижние пределы объемов конечных продуктов.

Примем в качестве критерия оптимальности производства максимум конечного общественного продукта; пусть матрица

$$\begin{bmatrix} P_{11} & P_{12} & \cdots & P_{1n} \\ m_{11} & m_{12} & \ldots & m_{1n} \\ S_{11} & S_{12} & \ldots & S_{1n} \end{bmatrix}$$

будет матрицей норм расхода факторов производства (на единицу конечного продукта). Предположим также, что размеры запасов факторов производства составляют соответственно P, M и S.

Следовательно, оптимальным будет такой вариант плана материального производства, который удовлетворяет условиям:

$$x_i = X_i - \sum_{j=1}^{n} b_{ij} X_j \geq x_i^{(0)} \quad (i = 1, 2, \dots, n), \qquad (2)$$

$$p_{11}x_1 + p_{12}x_2 + \cdots + p_{1n}x_n \leq P\,, \qquad (4)$$

$$m_{11}x_1 + m_{12}x_2 + \cdots + m_{1n}x_n \leq M\,, \qquad (5)$$

$$s_{11}x_1 + s_{12}x_2 + \cdots + s_{1n}x_n \leq S\,, \qquad (6)$$

$$\sum_{i=1}^{n} x_{i=\max}\ . \qquad (7)$$

Условия (4), (5), (6) означают, что расход не может превысить ресурсы этих факторов.

Оптимальный вариант плана материального производства можно также определить и другим способом. Предположим, что нам известны:

1) матрица материальных затрат

$B = [b_{ij}]\ (i, j = 1, 2, \dots, n)$,

2) затраты живого труда $z_j (j = 1, 2, \dots, n)$ на единицу продукции в стоимостном выражении,

3) максимальная занятость z в материальном производстве,

4) заданные конечные продукты $x_i^{(0)} (i = 1, 2, \dots, n, i \neq k)$.

В качестве оптимального проекта плана можно принять такой вариант, при котором конечный продукт k-й отрасли максимальный, конечные продукты других отраслей не меньше намеченных уровней, а занятость не превышает величины Z. Следовательно, оптимальной будет структура производства в отдельных отраслях, которая удовлетворяет условиям:

$$X_i - \sum_{j=1}^{n} b_{ij} X_j \geq X_i^{(0)} \quad (i = 1, 2, \dots, n), \qquad (8)$$

$$\sum_{j=1}^{n} z_j X_j \leq Z, \qquad (9)$$

$$X_j \geq 0 \quad (j = 1, 2, \dots, n), \qquad (10)$$

$$x_k = X_k - \sum_{j=1}^{n} b_{kj} X_j = \max. \qquad (11)$$

Можно также определить и иные критерии оптимальности производственного плана. Предположим, что материальное производство делится на n отраслей, причем межотраслевые связи определяет матрица

$$B = [b_{ij}]\ (i, j = 1, 2, \dots, n).$$

Предположим далее, что z_j- количество рабочей силы, необходимое для производства единицы продукции j-й отрасли, а занятость, не связанная с производством, есть z_0. Если стоимость продукции j-й отрасли обозначить X_j, то z_jX_j определяет затраты труда, необходимые для осуществления производства в j-й отрасли, а суммарные затраты общественного труда, необходимые для выполнения производственного плана, составляют:

$$\sum_{j=1}^{n} z_jX_j.$$

Если ресурсы рабочей силы составляют z_0, то должно удовлетворяться уравнение

$$\sum_{j=1}^{n} z_jX_j + z_0 \le Z_0.$$

Кроме того, имеют место балансовые уравнения продукции:

$$X_i = \sum_{j=1}^{n} b_{ij}X_j \ge x_i \ \ (i = 1, 2, \dots, n),$$

где x_i- конечный продукт i-й отрасли.

В качестве оптимального можно рассматривать такой вариант производственного плана, который обеспечивает получение соответствующих конечных продуктов

$$x_1^{(0)}, x_2^{(0)}, \dots, x_n^{(0)}$$

при минимальных затратах общественного труда. Таким образом, необходимо определить X так, чтобы

$$Z = \sum_{j=1}^{n} z_jX_j = \min$$

при условиях :

$$X_i - \sum_{j=1}^{n} b_{ij}X_j = x_i^{(0)} \ \ (i = 1, 2, \dots, n), \qquad (13)$$

$$X_j \ge 0, \ \ x_i^{(0)} \ge 0 \quad (i, j = 1, 2, \dots, n), \qquad (14)$$

$$\sum_{j=1}^{n} x_jX_j + z_0 \le Z_0. \qquad (15)$$

Неравенства в задачах оптимального планирования представляют собой определенные ограничения своюэободы выбора варианта плана. Эти ограничения можно разделить на две группы:

1) объективные ограничения,
2) плановые ограничения.

Объективные ограничения не зависят от решений, связанных с планом, например от состояния и структуры основных средств на начало планового периода, размера спроса и предложения на внешних рынках, существующей техники производства, ресурсов рабочей силы, имеющихся в наличии на начало периода и т. п.

Плановые ограничения устанавливаются на основе определенных

социально-экономических решений. К ним можно отнести такие ограничения, как необходимые размеры коллективного потребления, объем непроизводственных капиталовложений, занятость в материальном производстве, намеченные валютные сальдо в обороте с отдельными внешними рынками, намеченные уровни заработной платы и других доходов населения.

Б. Определение плана отрасли производства. Пусть отрасль производства представлена объединением, в подчинении которого находится n промышленных предприятий, каждое из которых производит продукты 1, 2, …, m.

Для объединения установлен план производства отдельных продуктов в количествах $A_1,\ A_2, \dots, A_m$. Плановые производственные мощности предприятий (в рабочих часах) составляют соответственно $T_1,\ T_2, \dots, T_n$, а издержки производства на единицу продукта в соответствующем предприятии составляют $c_{ij} (i = 1,\ 2, \dots, m;\ j = 1, 2, \dots, n)$.

Оптимальным будет такой план, при котором издержки производства планируемой продукции объединения будут минимальными.

Обозначим через $x_{ij} (i = 1,\ 2, \dots, m;\ j = 1, 2, \dots, n)$ объем производства i-го продукта в плановом периоде на j-м предприятии. Должны выполняться условия:

$$\begin{aligned} x_{11} + x_{12} + \cdots + x_{1n} &= A_1, \\ x_{21} + x_{22} + \cdots + x_{2n} &= A_2, \\ \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots & \\ x_{m1} + x_{m2} + \cdots + x_{mn} &= A_m, \end{aligned} \qquad (1)$$

(некоторые из переменных x_{ij} могут равняться нулю).

Второе условие, которое должны выполнять переменные x_{ij}, связано с тем, что объем производства на каждом предприятии не может превышать его производственных мощностей. Поэтому должны выполняться условия:

$$\begin{aligned} t_{11}x_{11} + t_{21}x_{21} + \cdots + t_{m1}x_{m1} &\le T_1, \\ t_{12}x_{12} + t_{22}x_{22} + \cdots + t_{m2}x_{m2} &\le T_2, \\ \cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots & \\ t_{1n}x_{1n} + t_{2n}x_{2n} + \cdots + t_{mn}x_{mn} &\le T_n. \end{aligned} \qquad (2)$$

Очевидно, что должны также выполняться условия:

$$x_{ij} \ge 0 \quad (i = 1,\ 2, \dots, m;\ j = 1, 2, \dots, n). \qquad (3)$$

Поскольку объем производства в отрасли следует так распределить между предприятиями, чтобы совокупные издержки производства были минимальны, то должно выполняться условие:

$$\begin{aligned} C = {} & c_{11}x_{11} + c_{12}x_{12} + \cdots + c_{1n}x_{1n} + \\ & + c_{21}x_{21} + c_{22}x_{22} + \cdots + c_{2n}x_{2n} + \\ & + c_{m1}x_{m1} + c_{m2}x_{m2} + \cdots + c_{mn}x_{mn} = \min. \end{aligned} \qquad (4)$$

Решение задачи сводится к тому, чтобы найти такие значения неизвестных $x_{ij}(i = 1,\ 2, \dots, m;\ j = 1, 2, \dots, n)$, чтобы они удовлетворяли условиям (1), (2), (3) и чтобы выражение (4) приняло минимальное значение.

В рассматриваемом случае критерий оптимальности – издержки производства. Можно также принять и иной критерий оптимальности, например максимальное использование производственных мощностей предприятий. Тогда оптимальным будет такой вариант плана объединения, для которого выполняются условия (1), (2), (3) и

$$\sum_{i=1}^{m}\sum_{j=1}^{n} t_{ij}\, x_{ij} = \max. \qquad (5)$$

Пример. В качестве примера рассмотрим оптимальный план размещения сельскохозяйственного производства. Пусть площадь пахотных земель по урожайности с 1 га разделена на две зоны. Урожайность четырех видов зерновых и картофеля, а также затраты труда (в рабочих часах) приведены в следующей таблице:

	Зерновое по зоне		**Картофель по зоне**	
	I	II	I	II
Урожайность (ц)	18	20	110	70
Затраты (в рабочих часах) . . .	0,8	1	11	14

Ресурсы факторов производства составляют следующие величины:

	Зона	
	I	II
Сельскохозяйственные угодья (тыс. га)	650	550
Рабочие дни (тыс.) . . .	1000	1200

Факторы производства по зонам	Единица измерения	Зона I		Зона II		Ресурсы факторов производства
		Зерновые	Картофель	Зерновые	Картофель	
Сельскохозяйственные угодья в зоне I . . .	га.	0,04	0,02			650
Рабочие дни в зоне I . .	е д.	0,04	,2			1000
Сельскохозяйственные угодья в зоне II . . .	га.			0 ,0725	0,01 0,17	550 1200
Рабочие дни в зоне II. .	ед.			0,12		

Цена зерновых установлена в размере 220 злотых за центнер, а картофеля - 130 злотых за центнер. По плану производство зерновых должно составить не менее 15 млн. ц, а картофеля - не менее 7 млн. ц.

Из этих данных следует, что затраты факторов производства на 1 ц продукции составляют величины, приведенные в таблице:

Плановые объёмы производства зерновых и картофеля в зоне I обозначим x1, x2, а в зоне II - x3 и x4. Имеем следующие ограничения:

$$0{,}04x_1 + 0{,}02x_2 \le 650\,000 \quad (6)$$

$$0{,}04x_1 + 0{,}2x_2 \le 1\,000\,000 \quad (7)$$

$$0{,}0725x_3 + 0{,}01x_4 \le 550\,000 \quad (8)$$

$$0{,}12x_3 + 0{,}17x_4 \le 1\,200\,000 \quad (9)$$

$$x_1 + x_3 \ge 15\,000\,000 \quad (10)$$

$$x_2 + x_4 \ge 7\,000\,000 \quad (11)$$

Если в качестве критерия оптимальности принять максимальную стоимость сельскохозяйственной продукции, то оптимальным будет такой вариант плана сельскохозяйственного производства, в котором неизвестные x1, x2, x3 и x4 удовлетворяют условиям (6) - (11) и в котором для неизвестных выражение

$$(x_1 + x_3)\,220 + (x_2 + x_4)\,130$$

принимает максимальное значение.

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АКТУАЛЬНЫЕ АСПЕКТЫ РЕАБИЛИТАЦИИ ДЕТЕЙ С ДЦП

Аннотация: *Церебральный паралич (ЦП) остается одной из ведущих причин двигательной инвалидности у детей, требующей комплексного и междисциплинарного подхода к реабилитации. В статье рассмотрены современные методы реабилитации детей с ЦП, включая физиотерапию, логопедическую терапию, эрготерапию, роботизированные системы и технологии виртуальной реальности. Освещены ключевые организационные проблемы, такие как недостаток реабилитационных центров, нехватка квалифицированных специалистов и отсутствие унифицированных стандартов ведения пациентов. Представлены перспективные пути их решения, включая развитие региональных центров, внедрение инновационных технологий и повышение квалификации медицинских кадров.*

Ключевые слова: *Реабилитация, церебральный паралич, инновационные технологии, физиотерапия, логопедическая терапия, роботизированные системы.*

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CURRENT ASPECTS OF REHABILITATION OF CHILDREN WITH CEREBRAL PALSY

Abstract: *Cerebral palsy (CP) remains one of the leading causes of motor disability in children, requiring a comprehensive and interdisciplinary approach to rehabilitation. The article discusses modern methods of rehabilitation of children with CP, including physiotherapy, speech therapy, occupational therapy, robotic systems and virtual reality technologies. Key organizational problems, such as the lack of rehabilitation centers, shortage of qualified specialists and the absence of unified standards for patient care, are highlighted. Promising solutions are presented, including the development of regional centers, the introduction of innovative technologies and advanced training of medical personnel.*

Key words: *Rehabilitation, cerebral palsy, innovative technologies, physiotherapy, speech therapy, robotic systems.*

Введение. В последние годы увеличилось внимание к реабилитации детей с ЦП, так как раннее и комплексное вмешательство может значительно

улучшить их двигательную активность, качество жизни и уровень социальной интеграции [7]. Современные подходы к реабилитации включают физиотерапию, логопедию, эрготерапию, применение ботулинического токсина для снижения спастичности, а также использование роботизированных технологий и методов виртуальной реальности [8,9]. Тем не менее, организация реабилитационной помощи сталкивается с рядом проблем, включая нехватку специализированных учреждений и отсутствие унифицированных протоколов лечения [10].

Для Узбекистана проблема реабилитации детей с ЦП особенно актуальна, поскольку в стране ежегодно регистрируется более 300 новых случаев заболевания, при этом доступность реабилитационных услуг в отдаленных регионах остается довольно низкой [11]. Большинство реабилитационных центров сосредоточено в Ташкенте, что создает значительную нагрузку на учреждения здравоохранения и ограничивает доступ пациентов из сельских районов [12].

Целью настоящей статьи является анализ современных подходов к реабилитации детей с ЦП, изучение ключевых организационных проблем в Узбекистане, России и за рубежом, а также обзор перспективных направлений для улучшения качества реабилитационной помощи.

Эпидемиология и этиология церебрального паралича

Церебральный паралич (ЦП) является наиболее распространенной причиной двигательной инвалидности у детей, встречаясь в 2–3 случаях на 1000 живорожденных детей [1,2]. Распространенность заболевания варьирует в зависимости от уровня развития систем здравоохранения, методов перинатальной диагностики и реабилитации. В развитых странах наблюдается снижение частоты ЦП благодаря улучшению перинатального ухода и внедрению профилактических мер, однако в регионах с ограниченными ресурсами эта проблема сохраняет свою актуальность [3]. В Узбекистане ежегодно регистрируется более 300 новых случаев ЦП, при этом значительная часть случаев приходится на сельские регионы, где доступ к специализированной медицинской помощи остается ограниченным [4].

Этиология и факторы риска. ЦП — это полиэтиологичное заболевание, обусловленное воздействием множества факторов, которые условно делятся на пренатальные, перинатальные и постнатальные:

- Пренатальные факторы: включают внутриутробные инфекции (цитомегаловирус, токсоплазмоз), хроническую гипоксию плода, генетические мутации и аномалии развития мозга [5, 6]. Эти факторы могут приводить к нарушению развития белого вещества и структурной целостности мозга.
- Перинатальные факторы: такие как асфиксия при родах, преждевременные роды (особенно менее 32 недель), внутричерепные кровоизлияния и гипоксически-ишемическая энцефалопатия, являются основными причинами ЦП у недоношенных детей [7, 8].

- Постнатальные факторы: включают инфекционные заболевания центральной нервной системы (менингит, энцефалит), черепно-мозговые травмы и гипоксию, развивающуюся в первые месяцы жизни [9].

Современные подходы к этиологическому анализу. Диагностика факторов риска ЦП основывается на современных технологиях, которые позволяют выявлять не только структурные аномалии мозга, но и генетические причины заболевания:

1. Магнитно-резонансная томография (МРТ): позволяет визуализировать повреждения белого вещества, кровоизлияния и признаки гипоксически-ишемической энцефалопатии. Этот метод признан золотым стандартом диагностики у детей с подозрением на ЦП [10].
2. Нейросонография: эффективна для ранней диагностики у новорожденных, особенно у недоношенных детей, для выявления кровоизлияний, вентрикуломегалии и гипоксических изменений [11].
3. Молекулярная генетика: используется для выявления редких генетических мутаций, связанных с нарушениями развития мозга, таких как изменения в генах ACTB или TUBB2B [12].
4. Методы функциональной нейровизуализации: такие как диффузионно-тензорная визуализация (DTI) и функциональная МРТ, применяются для оценки состояния белого вещества и его влияния на двигательные функции [13].

Современные методы реабилитации детей с церебральным параличом

Реабилитация детей с церебральным параличом (ЦП) требует комплексного подхода, включающего физическую терапию, логопедическую коррекцию, эрготерапию, медикаментозное лечение и использование современных технологий. Цель реабилитации заключается не только в улучшении двигательных навыков, но и в повышении уровня самостоятельности и качества жизни ребенка [5, 7].

1. Физиотерапия. Физиотерапия является основой реабилитации детей с ЦП. Основные методы включают:

- **Метод Бобата:** используется для улучшения двигательного контроля и нормализации мышечного тонуса [13].
- **Концепция Войта:** направлена на стимуляцию рефлекторных движений и развитие двигательных паттернов [14].
- **Лечебная физкультура:** применяется для укрепления мышц, улучшения координации и равновесия [15].

Физиотерапия способствует снижению спастичности и улучшению двигательных функций, особенно у детей с легкой и умеренной степенью тяжести ЦП.

2. Логопедическая терапия. Коррекция речевых нарушений является важным направлением реабилитации. Логопедические занятия включают:

- **Артикуляционную гимнастику:** для улучшения работы речевого аппарата [15].
- **Использование биоакустической стимуляции:** для активации речевых центров мозга [6].

Логопедическая терапия способствует улучшению коммуникативных навыков и социальной адаптации детей.

3. Эрготерапия. Эрготерапия направлена на развитие навыков самообслуживания и бытовой самостоятельности. Программы включают:

- Упражнения с использованием адаптированного оборудования.
- Обучение базовым навыкам: одевание, питание, использование письменных принадлежностей [12].

Эрготерапия играет ключевую роль в подготовке детей к интеграции в школьную и социальную среду.

4. Медикаментозное лечение. Применение ботулинического токсина типа А для снижения спастичности признано золотым стандартом лечения ЦП. Этот метод уменьшает мышечный тонус и улучшает функциональные способности, что подтверждено исследованиями в России и Узбекистане [9].

5. Инновационные технологии. Современные технологии открывают новые возможности для реабилитации:

- **Роботизированные системы:** используются для тренировки ходьбы и улучшения двигательных функций [8].
- **Виртуальная реальность:** помогает стимулировать мозговую активность и улучшать моторику [15].

Организационные проблемы реабилитации детей с церебральным параличом

Реабилитация детей с церебральным параличом (ЦП) сталкивается с рядом организационных проблем, которые ограничивают доступность и эффективность реабилитационных программ. Эти трудности характерны как для развивающихся стран, таких как Узбекистан, так и для регионов с ограниченными ресурсами в развитых государствах [5, 7].

1. Недостаток специализированных учреждений. Одной из основных проблем является нехватка реабилитационных центров. В Узбекистане большая часть таких учреждений сосредоточена в крупных городах, например, в Ташкенте, что затрудняет доступ для пациентов из сельских регионов. По данным Министерства здравоохранения Республики Узбекистан, около 60% детей с ЦП не получают регулярной реабилитации в связи с территориальной удаленностью [4]. В России наблюдается схожая ситуация: реабилитационные центры часто перегружены, а время ожидания может превышать несколько месяцев [10].

2. Нехватка квалифицированных специалистов. Во многих странах, включая Узбекистан, существует острый дефицит специалистов, таких как физиотерапевты, логопеды, эрготерапевты и неврологи, которые обучены работать с детьми с ЦП. Программы подготовки медицинских кадров не

всегда охватывают современные методики реабилитации, что приводит к снижению качества оказываемой помощи [6].

3. Недостаточное финансирование. Реабилитация детей с ЦП требует значительных финансовых затрат. Государственные программы зачастую покрывают лишь часть расходов, оставляя значительную нагрузку на семьи пациентов. В Узбекистане расходы на реабилитацию составляют около 30% от семейного бюджета, что делает услуги недоступными для семей с низким доходом [11]. В странах Европы и Северной Америки внедрены системы государственного страхования, которые частично решают эту проблему [12].

4. Отсутствие унифицированных стандартов. В большинстве случаев отсутствуют стандартизированные протоколы ведения пациентов с ЦП, что приводит к вариативности в подходах и снижению эффективности лечения. В России и Узбекистане до сих пор нет единых рекомендаций, которые могли бы обеспечить преемственность и системность реабилитации [8].

5. Роль семьи. Еще одной важной проблемой является недостаточное вовлечение семей в процесс реабилитации. Родители часто не имеют достаточных знаний о том, как поддерживать своих детей дома, а образовательные программы для семей охватывают лишь небольшую часть пациентов [7]. Исследования показывают, что активное участие семьи в реабилитационном процессе улучшает результаты лечения и способствует социальной адаптации детей [9].

Пути решения. Для решения указанных проблем необходимы следующие меры:

- **Создание региональных центров реабилитации:** это улучшит доступность услуг для сельских жителей.
- **Обучение специалистов:** организация курсов повышения квалификации по современным методам реабилитации.
- **Финансовая поддержка:** разработка государственных программ, направленных на снижение затрат для семей.
- **Введение стандартов:** создание унифицированных протоколов ведения детей с ЦП.
- **Работа с семьей:** проведение образовательных мероприятий и психологическая поддержка родителей.

Роль семьи в реабилитации детей с церебральным параличом

Участие семьи является ключевым компонентом успешной реабилитации детей с церебральным параличом (ЦП). Семья играет центральную роль в обеспечении непрерывности ухода, психологической поддержки ребенка и реализации реабилитационных мероприятий в домашних условиях [5,7]. Исследования показывают, что активное участие семьи в процессе лечения улучшает функциональные и социальные исходы у детей с ЦП [6].

1. Вовлеченность семьи в реабилитационный процесс. Одной из важнейших задач является обучение родителей и близких навыкам ухода и проведения простых реабилитационных упражнений дома. В странах с

развитыми системами реабилитации действуют специальные образовательные программы для родителей. Например, в Швеции и Норвегии такие программы включают регулярные тренинги, консультации и психологическую поддержку [12]. В Узбекистане подобные программы находятся на стадии разработки, и их охват остается ограниченным [4].

2. Психологическая поддержка родителей. Родители детей с ЦП часто сталкиваются с высоким уровнем стресса, депрессией и эмоциональным выгоранием. Организация групп взаимопомощи, консультации психологов и психотерапевтов помогают снизить уровень стресса и улучшить качество жизни семьи в целом. В России существует практика создания специализированных центров для психологической поддержки семей, но в Узбекистане такие услуги пока доступны только в крупных городах [10].

Пути решения. Для повышения вовлеченности семьи в процесс реабилитации рекомендуется:

- Создание доступных образовательных программ для родителей, включая онлайн-курсы и видеоматериалы.
- Организация систематической психологической помощи для семей.
- Государственная поддержка в виде льгот и субсидий на реабилитационные услуги.
- Развитие социальных инициатив, направленных на интеграцию детей с ЦП в образовательные и культурные учреждения.

Инновационные подходы и перспективы в реабилитации детей с церебральным параличом

Современные достижения в области медицинских технологий открывают новые возможности для реабилитации детей с церебральным параличом (ЦП). Инновационные подходы включают использование роботизированных систем, технологий виртуальной и дополненной реальности, биоинженерных решений и других методов, направленных на улучшение функциональных возможностей и качества жизни пациентов [5, 7].

1. Роботизированные системы. Роботизированные технологии активно используются для реабилитации детей с нарушениями двигательных функций. Наиболее распространенные системы:

- **Экзоскелеты:** обеспечивают поддержку при ходьбе, стимулируя правильные двигательные паттерны [18].

2. Биоинженерные и генетические технологии. Инновационные биоинженерные разработки, такие как 3D-печать ортопедических приспособлений, позволяют создавать индивидуализированные устройства для коррекции двигательных нарушений. Генетические исследования открывают перспективы диагностики и коррекции наследственных факторов, влияющих на развитие ЦП [19].

3. Электростимуляция. Функциональная электростимуляция используется для активации мышц и улучшения их силы. Этот метод

применяется для реабилитации верхних и нижних конечностей, а также для коррекции осанки [16].

4.Персонализированный подход. Современные реабилитационные программы разрабатываются с учетом индивидуальных потребностей каждого пациента. Использование больших данных и алгоритмов искусственного интеллекта (ИИ) позволяет прогнозировать эффективность терапии и адаптировать методы лечения под конкретного ребенка [6].

Перспективы внедрения инновационных технологий в Узбекистане. В Узбекистане внедрение инновационных методов ограничено недостаточной материально-технической базой и нехваткой квалифицированных кадров. Для решения этой проблемы необходимо:

- Повышение квалификации специалистов в области роботизированной и технологической реабилитации.
- Инвестиции в создание специализированных центров с использованием инновационного оборудования.
- Международное сотрудничество с ведущими реабилитационными центрами для обмена опытом и внедрения лучших практик.

Заключение. Церебральный паралич (ЦП) остается одной из ведущих причин двигательной инвалидности у детей, требующей комплексного и междисциплинарного подхода к реабилитации. Проведенный анализ показывает, что несмотря на значительные достижения в области диагностики и лечения, остаются серьезные организационные проблемы, которые ограничивают доступность и эффективность реабилитационной помощи.

Инновационные подходы, такие как роботизированные системы, технологии виртуальной и дополненной реальности, биологическая обратная связь и персонализированный подход, открывают новые возможности для улучшения исходов реабилитации. Однако их внедрение требует значительных инвестиций в материально-техническую базу, обучение специалистов и создание технологической инфраструктуры.

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МЕТОДОЛОГИЧЕСКИЕ ОСНОВЫ СТАНОВЛЕНИЯ МОТИВАЦИИ К СОВРЕМЕННЫМ ПРОФЕССИЯМ У НАЧАЛЬНЫХ КЛАССОВ СРЕДСТВАМИ МЕЖДУНАРОДНЫХ ОБРАЗОВАТЕЛЬНЫХ ТЕХНОЛОГИЙ

Аннотация: *В данной работе рассматриваются методологические аспекты формирования мотивации к современным профессиям у младших школьников с использованием международных образовательных технологий. Акцент сделан на анализе проектного подхода, который способствует формированию у детей раннего интереса к актуальным профессиональным направлениям. Представлены результаты применения методики Профессии через призму проектов, включая её влияние на развитие социальных, коммуникативных и креативных навыков учащихся. В работе предоставляются данные о результативности внедрения методики, включая сравнительный анализ показателей заинтересованности и освоения знаний в экспериментальной и контрольной группах. Подчёркивается значимость проектного обучения для формирования устойчивой мотивации к профессиональному самоопределению.*

Ключевые слова: *мотивизация, профессии, школьники, проекты, методика, технологии, обучение, навыки, анализ, развитие*

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METHODOLOGICAL BASIS FOR DEVELOPING MOTIVATION FOR MODERN PROFESSIONS IN PRIMARY SCHOOLS BY MEANS OF INTERNATIONAL EDUCATIONAL TECHNOLOGIES

Abstract: *This paper examines the methodological aspects of developing motivation for modern professions in primary school students using international educational technologies. The emphasis is on the analysis of the project-based approach, which helps to develop early interest in relevant professional areas in children. The results of applying the "Professions through the Prism of Projects" methodology are presented, including its impact on the development of students' social, communicative and creative skills. The paper provides data on the*

effectiveness of the methodology implementation, including a comparative analysis of interest and knowledge acquisition indicators in the experimental and control groups. The importance of project-based learning for developing sustainable motivation for professional self-determination is emphasized.

Key words: *motivation, professions, schoolchildren, projects, methodology, technologies, training, skills, analysis, development*

Введение: Современные образовательные тенденции акцентируют внимание на необходимости формирования у школьников мотивации к выбору профессий, востребованных в высокотехнологичных и динамично развивающихся отраслях. Начальное образование играет ключевую роль в закладке основ профессионального самоопределения, ведь именно в младшем школьном возрасте формируются первые представления о труде, профессиях и значении личного вклада в общественное развитие. Использование международных образовательных технологий, таких как STEAM, проектное обучение и цифровые платформы, предоставляет уникальные возможности для эффективного достижения этой цели. Однако процесс внедрения таких подходов сталкивается с рядом вызовов, требующих системного решения.

Методология: Профессии через призму проектов. Данная методика направлена на формирование у младших школьников интереса и мотивации к современным профессиям через участие в проектной деятельности, основанной на использовании международных образовательных технологий. Основной подход заключается в создании интегративных мини-проектов, которые объединяют элементы STEAM (наука, технологии, инженерия, искусство и математика). Ученики выполняют творческие задания, связанные с реальными профессиями, например, разрабатывают макет экологически чистого города, создают простые механизмы или программируют движение робота. Особенность методики заключается в акценте на игровых и интерактивных формах обучения. Например, на начальном этапе ученики участвуют в ролевых играх, где они пробуют себя в роли профессионалов, решая задачи, связанные с их профессией. Далее учитель сопровождает процесс выполнения проектов, поощряя детей к самостоятельному поиску информации и креативным решениям. На завершающем этапе проводится групповая презентация, где школьники делятся результатами своей работы.

Результат: Результаты проведённого исследования по методике Профессии через призму проектов подтвердили её эффективность в формировании мотивации к современным профессиям у младших школьников. Исследование проводилось в течение двух месяцев среди 120 учеников начальных классов, разделённых на экспериментальную и контрольную группы. В экспериментальной группе, где применялась методика, 87% учащихся проявили повышенный интерес к выполнению проектных заданий, связанных с профессиями. В то же время в контрольной группе, где использовались традиционные формы обучения, этот показатель составил всего 54%. Также в экспериментальной группе 72% детей смогли

самостоятельно назвать не менее трёх современных профессий и описать их основные характеристики, тогда как в контрольной группе аналогичный результат показали только 39% участников. В ходе исследования было выявлено, что использование проектной деятельности положительно сказалось на развитии у учащихся таких навыков, как работа в команде (увеличение на 25% по сравнению с контрольной группой) и креативное мышление (рост на 18%). Учителя отметили, что дети стали проявлять больше инициативы и интереса к выполнению задач, связанных с реальными жизненными ситуациями. Итоги исследования демонстрируют, что интеграция международных образовательных технологий в учебный процесс начальной школы способствует не только формированию устойчивой мотивации к профессиям, но и развитию универсальных навыков, необходимых для успешного обучения и последующего профессионального становления.

Таблица 1.

Анализ результатов исследования методики Профессии через призму проектов

Параметр	**Экспериментальная группа (%)**	**Контрольная группа (%)**	**Разница (%)**	**Польза**	**Минусы**
Интерес к проектным заданиям	87	54	+33	Повышение мотивации к обучению	Требуется больше времени на подготовку
Знание современных профессий	72	39	+33	Расширение кругозора учащихся	Необходимость специализированного контента
Навыки работы в команде	+25 (по сравнению с КГ)	-	+25	Развитие социальных компетенций	Зависимость от уровня взаимодействия в группе
Креативное мышление	+18 (по сравнению с КГ)	-	+18	Развитие творческого подхода	Требуются дополнительные ресурсы
Инициативность учащихся	Высокая	Средняя	-	Повышение интереса к обучению	Зависимость от индивидуальных способностей

Заключение: Формирование мотивации к современным профессиям у младших школьников средствами международных образовательных технологий открывает новые горизонты для начального образования.

Интеграция подходов, таких как STEAM, и использование цифровых ресурсов позволяют не только повысить интерес детей к обучению, но и подготовить их к требованиям будущего рынка труда. Однако успешная реализация данной задачи возможна лишь при комплексной поддержке образовательных учреждений, учителей и родителей, а также при активной адаптации международного опыта к национальным особенностям образовательной системы.

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АМЕРИКА ОҚ КАПАЛАГИ БИОЭКОЛОГИЯСИ ВА ЗАРАРИНИ ЎРГАНИШ

Аннотация: *Америка оқ капалаги тарқалиши, биоэкологияси, зарари ва авлод бериши хақида келтирилган.*

Калит сўзлар: *ўрмон дарахтлари, тут, Америка оқ капалаги, тухум, личинка, ғумбак, етук зот.*

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BIOECOLOGY AND DAMAGE STUDY OF THE AMERICAN WHITE BUTTERFLY

Abstract: *Distribution of the American white butterfly, bioecology, damage and*
Generation is mentioned.

Key words: *forest trees, mulberry, American white butterfly, egg, larva, mushroom, adult.*

Мамлакатимизда мевали боғларни кўпайтириш учун хамма имкониятлар мавжуд, хусусан табиий иқлим шароитлари хам мевали дарахтларни экиб ўстиришга қулайдир. Аммо кўпчилик мевали дарахтлар бир ерда кўп йил ўсиши туфайли зараркунандалар кўпайиб, илдиздан тортиб меваларгача катта зарар етказади.

Америка оқ капалаги- Hyphantria cunea Lepidoptera туркуми, Aretidae оиласига мансуб. Ўрмон дарахтлари, тут ва мевали дарахтлар учун катта хавф туғдирувчи хашарот.

Бу хашаротнинг ватани Шимолий Америка ва Канаданинг жанубий худудлари ҳисобланади. Ҳозирда бу хашарот кўпгина Европа мамлакатларида ҳам мавжуд.

Капалаги йирик, қанотини ёзганда 4-5 см келади. Ранги оқ, урғочисининг мўйлови ипсимон, эркагиники патсимон. Тухумдан юмалоқ

(0,6 мм), оч яшилдан сарғиш-ҳаворанггача товланиб туради. Қуртлари йирик, 3.0-3.5 см келади, орқаси бўйлаб 2 қатор ва ёнларида 4 қатор сўгалчалари бор, улардан узун туклар чиқиб туради. Дастлабки ёш қуртлари-оч сариқ, боши қора, сўгалчаларидаги қилчалари узун, қора ва оқ калта туклари бўлади. Катта ёшдаги қуртларнинг туси ўзгаради, унинг орқа томони силлиқ, сариқ орқадаги сўгалчалари қора бўлиб, танасининг икки ёнидан биттадан сариқ, кенг тасма чизик ўтади, боши ва оёқлари ялтироқ қора тусда. Ғумбаги 8-10 мм, ранги тўқ қўнғир, танасининг охирида 10-19 та қармоқсимон қиллари бор. Ғумбаги сийрак пилла ичида жойлашади.

Америка оқ капалаги ғумбаклик шаклида турли пана жойларда: пўстлоқ ости, новдалар айрилган жойлар, тут каллаклари, хазон ости ва тупроқнинг тепа қатламларида қишлаб чиқади.

Баҳорда кунлар исиши билан капалаклар учиб чиқади ва тунги ҳаёт кечиради. Тухумини тўп-тўп қилиб (одатда 400-500 тадан), жами 2000 тагача қўяди. Тухум тўдасининг устини тана туклари билан беркитиб кетади. Тухумларнинг инкубация даври 5-10 кунга чўзилиши мумкин. Тухумдан очиб чиққан қуртлар дастлаб очиқ яшай бошлайди. Бешинчи ёшдан бошлаб қуртлар ўргимчак остидан чиқади ва якка-якка бўлиб яшашга киришади. Қуртлар жами 7 ёшни кечиради. Қуртлик даври учун оқ капалак 45-55 кунни талаб этади. Шундан кейин ғумбакланади ва 8-14 кундан кейин иккинчи

бўғин капалаклари учиб чиқади. Ушбу хашарот бир мавсумда 2-3 бўғин бериши мумкин.

Америка оқ капалагини кириб келишини олдини олиш каттик карантин чораларни Республика Давлат карантин инспекцияси ва унинг вилоятлардаги мутахассислари томонидан кўлланиладиган чоралар билан бир вақтда барча

қишлоқ аҳлисига мурожаат қиламиз, нотаниш зарарли хашорат пайдо бўлиши аниқланса тезда карантин инспекциясига хабар бериш керак бўлади.

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ЗАЙТУН НАВЛАРИ ЯНГИ ЭКОЛОГИК МОСЛАШИШИ ТАХЛИЛИ

Аннотация: *Мақолада зайтун ўсимлиги (Olea europaea)нинг ўсиш ва ривожланиш динамикаси тадқиқ қилинган. Тадқиқотда зайтуннинг янги муҳитдаги ўсиш жараёнлари, ҳар хил навлар ўртасидаги фарқлар ва уларнинг экологик шарт-шароитларга мослашиш хусусиятлари орасидаги алоқалар ўрганилган. Мақолада турли зайтун навларининг (Қоракўз, Изумруд, Газиантеп, Крымская 172) поя диаметри ва новдаларининг узунлиги бўйича кузатишлар келтирилган. Тадқиқотлар давомида, ҳар бир навдаги новда ўсиши ва ривожланиш жараёнлари тўлиқ таҳлил қилинган. Шунга асосан, мақола зайтуннинг маҳаллий шарт-шароитда иқлимлаштирилиши ва агротехник шартларининг аҳамиятини кўрсатади.*

Калит суз: *зайтун, навлар, биологик хусусиятлари, махсулдорлиги, агротехнологик усуллари,хосилдорлиги.*

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ANALYSIS OF NEW ECOLOGICAL ADAPTATION OF OLIVE VARIETIES

Abstract:*The article investigates the growth and development dynamics of the olive plant (Olea europaea). The study explores the growth processes of olive in new environments, differences between various cultivars, and their adaptation to ecological conditions. Observations on the stem diameter and shoot length of different olive varieties (Koraköz, Izumrud, Gaziantep, Crimea 172) are presented in the article. Throughout the research, the processes of shoot growth and development for each variety were fully analyzed. Based on the results, the article highlights the importance of olive adaptation to local conditions and agronomic factors.*

Key word: *olive, varieties, biological properties, productivity, agrotechnological methods, productivity.*

Зайтун ўсимлиги ўсиш ривожланиш жараёнида эрта баҳордан кеч кузгача ўсиш ва ривожланиши давом этади, шунинг учун ҳам, бу дарахт

“доимо яшил” деган номга эга бўлган. Маълумки, бошқа дарахтларнинг барглари сентябр, октябр ойларида биологик, физиологик жиҳатдан пишиб етилади вахужайралари таркибидаги барча кимёвий жарёнлар тўхтайди. Барглар ўсув даврида ёғочлик моддаси ҳосил бўлиши жараёнида ўз фаолиятини тўхтатади.

Зайтун ўсимлигининг новдалари ва барглари баҳорда май ойидан бошлаб, октябр ойининг охиригача ўсиб ривожланади. Зайтун новдаларининг ўсиши ва ривожланиши ўзига хос бўлиб, бошқа ўсимликлардан бирмунча фарқ қилади. Шуниси характерлики, зайтун поялари ўсишдан тўхтаса ҳам новдалари ўсиб боради, биринчи тартиб новдадан, иккинчи тартиб новдаларнинг узун бўлиши фақат зайтунга хос бўлган ҳолатдир. Зайтуннинг ўсиши ўзига хос занжирлар “ўрими”ни ҳосил қилади.

Зайтун новдаларининг ўсиши ва ривожланишини аниқлаш учун ҳар бир вариантдан 5 тадан ўсимлик олинди ва ҳар бир дарахтдан иккитадан ўсув новдаси олиниб, этикетка осиб қуйилди ва зайтун новдалари, пояларида ҳар ўн кунда ўлчаш ишлари олиб борилди. Зайтуннинг тез ўсиши, унга шакл бериш ишларини яхши бўлишига олиб келади, тажрибаларимизда тез ўсган новдаларга чиройли қилиб, косасимон тарзда шакл берилди.

Тадқиқот йилларида интродукция қилинган нав намуналарида зайтуннинг пояси диаметрининг ўсиш динамикаси ойлар бўйича ўсиш жараёнининг поя диаметрининг айланаси 1,5 смдан 2,7 смни, 5 туп кўчатда апрел ойида поянинг ўртача диаметри 2,2 смни ташкил қилди. Ушбу нав намунасида май ойида поянинг диаметри 2,6, июн ойида 2,7, июл ойида 2,8 см, октябр ойига келганда, поя диаметри 3,7 см бўлганлиги қайд этилди.

Туркиядан келтирилган Газиантеп нави кўчатларининг пояси диаметри апрел ойида энг кичик 2,3 см ни, энг йўғон поялари эса 3,0 смни ташкил қилди. Ўртача апрел ойида бу навда пояларнинг йириклашуви 1,0-1,3 см га юқори бўлганлигини кузатилди. Октябр ойига келиб, зайтун кўчатлари поясининг диаметри 3,5-3,7 см ни га тенг бўлганлиги аниқланди. Газиантеп нав кўчатларида поянинг диаметри Қоракўз нав намуналарига нисбатан 0,5-0,9 см га йўғон бўлиб, поя диаметри ўртача 1,2 смга ўсганлиги қайд этилди.

Крымская 172 нав намуналари поясининг диаметри турли хил бўлганлиги кузатилди. 1 туп зайтунда поясининг диаметри апрел ойида олиб борилган кузатишларга кўра, 1,5 см дан 2,4 см ни ташкил қилган бўлса, май ойида олиб борилган кузатишларда поянинг диаметри 1,0смга ўсганлигини аниқланди. Июн ойида поянинг диаметри ўзгармади, аммо, июл ойида поянинг диаметри 3,3 смга, яъни икки ой давомида 0,8 см га ўсганлиги қайд этилди. Октябр ойида Испания зайтун нави пояларининг диаметри 6,0 смни ташкил қилди.

Зайтун навлари пояси диаметрининг йўғонлашиши барча навларда деярли бир хил бўлди.Қоракўз ва Изумруднавларида пояларининг диаметри 2,2-2,5 см бўлган бўлса, октябр ойида ҳам 3-4 смКрымская 172 нави пояси диаметри ўсув даври бошида 2,3 смни ташкил қилган бўлса, 26 октябрда 6,0 см бўлганлиги кузатилди. Интродукция қилинган зайтун навларифақат

биологик жиҳатдан эмас, ботаник белгиларига кўра ҳам, бир-бирига ўхшашлиги аниқланди.

Ўтказилган тадқиқотларимизда (2022-2024 й) зайтун новдаларининг ўсиш динамикасини кузатишлардан маълум бўлдики (1.1-жадвалга қаранг),ўртача уч йилда Изумруд навида апрел ойининг биринчи декадасида бирламчи новданинг узунлиги 4,6 см ни ташкил этган бўлса, учинчи декасидаэса, новданинг узунлиги 8,7 см ни ташкил этди, 5 майдаги кузатишларимиз новдаларининг ўртача узунлиги 12,3 смга ўсганлиги кузатилди. Май ойининг иккинчи декасидан учинчи декадасигача зайтун кўчатларида 12,0 смга, июн ойининг биринчи декадасидан учинчи декадасигача деярли 11,4 смга ўсганлиги аниқланди. Октябр ойининг охирига келиб бирламчи новдаларнинг узунлиги 131,7 см гача ўсиб, ривожланганлиги кузатилди.

Қримдан (Қоракўз) келтирилган зайтун бирламчи новдалари ўрганилган Изумруд, Газиантеп, Крымская 172 навларига қараганда бироз секин ўсиб, октябр ойининг учинчи декадасида аниқланганда ўртача уч йилда105,0 смни ташкил этиб, бу навларга қараганда 22,3-35,4 см га паст бўлганлиги қайд этилди.

Туркиядан келтирилган Газиантеп навида апрел ойининг биринчи декадасида новданинг узунлиги 5 туп кўчатда ўртача 4,1 смни, 5 майда эса,13,1 см, иккинчи-учинчи декадаларида эса 19,7-30,1 см ни ташкил қилди. Кузатишларимизни май ойининг ҳар 10 кунда 10,4-12,4 см га ўсганлиги қайд этилди. Июн ойининг учинчи декадасида зайтун кўчатлари 56,7 см,июннинг биринчи-иккинчи декадаларида новдаларнинг ўсиши орасидаги фарқ7,6 см ташкил этганлиги қайд этилди. Туркиядан келтирилган зайтун бирламчи новдалари октябр ойининг учинчи декадасида 140,4 см га ўсганлигини кўрсатди. Ушбу навнинг новдалари узунлиги ёки йиллик ўсиш динамикаси Қрим нав намунасига қараганда 34,1-35,4 смга юқори бўлганлиги кузатилди. Кўчатлар новдаларининг ўсиш динамикаси тезлиги апрел ойининг учинчи декадасида новданинг ўртача узунлиги 8,9 см бўлган бўлса, май ойининг биринчи декадасидан кейин новдалар 4,2 смга ўсганлиги маълум бўлдиЎрганилган зайтун навлари бўйича кўчатларнинг ўсиш жараёнидамай ойида унча катта фарқ сезилмади, июн ойининг учинчи декадасига келиб навлар ўртасида новдаларнинг узунлиги бўйича сезиларли фарқ кузатилиб, 5,7 смдан 11,6 см ни ташкил этди.

Энг юқори кўрсаткичлар Газиантеп ва Изумруд навларида кузатилиб, июн ойининг биринчи декадасидан июл ойининг учинчи декадасигача новдалар 33,3-44,3 смга ўсганлиги кузатилиб,новдалар узунлиги 72,7-86,8 см ни ташкил этди. Октябр ойида ушбу новдалар бўйининг узунлиги ўртача 131,7-140,4 см бўлганлиги қайд этилди (1.1-жадвалга қаранг).

1.1-жадвал

Зайтун навларида новдаларининг ўсиш динамикаси, см; 2022- 2024 йиллар

Навлар	Кузатув санаси							
	5.04	25.04	15.05	5.06	25.06	15.07	5.10	25.10
Изумруд	4,6	8,7	17,0	39,4	50,8	67,3	108,0	131,7
Қоракўз	4,1	8,9	19,7	42,5	56,7	75,1	118,5	140,4
Газиантеп	3,8	7,1	16,2	36,5	45,1	59,0	87,1	105,0
Крымская 172	4,4	7,5	17,3	39,2	52,6	61,3	110,3	127,3

Тажрибаларимиз асосида шу нарса қайд этилдики, Крымская 172 нави ҳам бизни шароитимизда қулай ўсганлиги кузатилди. Дастлабки ривожланиш ойларида республикамизда янгидан иқлимлаштирилганҚоракўз ва Изумруд навлари бир хилда ўсиб, июн-июл ойларига келиб новдаларнинг серавж ривожланганлиги кузатилиб, узунлиги 52,6-70,5 см ни, октябр ойининг охирида эса, новдалар узунлиги ўртача уч йилда 127,3 см га ташкил этиб, Изумруд ва Газиантеп навларидан 4,4-13,1 см га паст, Қоракўз навидан 22,3 см га юқори бўлганлиги қайд этилди.

Хулоса ўрнида, ўрганилган турли зайтун навларини ўсиши, ривожланиши асосида иқлимлаштирилган Қоракўз нави новдалари бир вегетация йилида 101,4-105,0 см гача ўсиши, иқлимлаштирилган Изумруд ва Газиантеп навларида 131,7-140,4 см гача новдалар ўсиши кузатилди. Туркия навларининг кўпроқ бўйига ўсиши ва ён шохларининг камлиги билан, иқлимлаштирилган Изумруд ва Қоракўз нав намуналарига нисбатан секин ўсиши, ён шохларининг кўплиги билан бир-биридан фарқланди.

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ИЗМЕНЕНИЯ СОДЕРЖАНИЯ КАЛЬЦИЯ В ПЛАЗМЕ КРОВИ У БОЛЬНЫХ ТУБЕРКУЛЁЗНЫМ СПОНДИЛИТОМ

Аннотация. *В данной статье приведено данные исследования, изменения содержания кальция в плазме крови у больных туберкулёзным спондилитом. Изучен 101 больной, в том числе 56 больных в стадии разгара и 45 в стадии затихания. Кальций в крови определялся по методу де Ваарда. Полученные данные показывают, содержание кальция в плазме крови зависит от стадии заболевания. В период разгара оно равно в среднем 9,8 мг%, а в период затихания - 10,05 мг %.*

Ключевые слова: *туберкулёз, кальций, остеопороз, кровь, плазма, спондилит.*

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CHANGES IN CALCIUM CONTENT IN BLOOD PLASMA IN PATIENTS WITH TUBERCULOUS SPONDYLITIS

Abstract. *This article presents research data on changes in calcium levels in the blood plasma in patients with tuberculous spondylitis. 101 patients were studied, including 56 patients in the peak stage and 45 in the subsiding stage. Calcium in the blood was determined using the de Waard method. The data obtained show that the calcium content in the blood plasma depends on the stage of the disease. During the peak period it is on average 9.8 mg%, and during the subsidence period it is 10.05 mg%.*

Key words: *tuberculosis, calcium, osteoporosis, blood, plasma, spondylitis.*

Актуальность. Туберкулезный спондилит – хроническое тяжелое инфекционное заболевание позвоночника, вызванное Mycobacterium tuberculosis. [1]. Тем не менее, даже при наличии высокотехнологичных методов диагностики туберкулезный спондилит до сих пор выявляют в 40% случаев на поздних стадиях, а распространенные и осложненные формы встречаются у 70% взрослых пациентов [2]. В связи с чем, клиническая картина заболевания за последние десятилетия стала более многообразной,

увеличилась длительность болезни и изменился прогноз [3]. Поскольку туберкулёзный остит локализуется, как правило, вблизи сустава и, если не проведено своевременное лечение, то воспаление может перейти на сустав. П.Г. Корнев назвал такой очаг воспаления внутри губчатой кости оститом, а фазу заболевания – преартритической [4].

Цель исследования: Изучит изменения содержания кальция в плазме крови у больных туберкулёзным спондилитом.

Материалы и методы. Для исследования, изменения содержания кальция в плазме крови у больных туберкулёзным спондилитом, нами было отобрано всего 101 больных, в том числе 56 больных в стадии разгара и 45 в стадии затихания. Кальций в крови определялся по методу де Ваарда с точностью определения +0,1мг %.

Результаты и обсуждение. В период разгара количество кальция в крови колебалось от 7,98 мг % до 11,96 мг % (в среднем 9,8мг %). При затихании процесса количество кальция от 7,7мг % до 14,0 мг % (в среднем 10,05 мг %). Динамика содержания кальция в плазме крови в зависимости от давности заболевания представлены в таблице 1.

Таблица 1

Динамика изменения содержания кальция в крови в зависимости от давности заболевания

Давность заболевания	Стадия разгара		Стадия затихания	
	содержание кальция в	в среднем	содержание кальция в мг%	в среднем
до 1 года	8,74-11,16	10,00	10,08-11,01	10,64
от 1 до 2 лет	8,02-11,29	10,00	9,06-14,00	11,16
от 2 до 3 лет	9,00-11,20	9,77	7,70-10,71	9,49
от 3 до 4 лет	8,82- 9,96	9,24	10,00-10,78	10,39
от 4 и более	9,05-11,96	10,12	8,03-10,9	9,51

Полученные данные показывают, что в стадии разгара содержание кальция в крови имеет тенденцию к снижению при увеличении давности заболевания. При давности заболевания более чем года, по-видимому, имело место обострение процесса. В период затихания процесса динамика содержания кальция в крови не имеет какой-либо закономерности в зависимости от давности заболевания и по-видимому, зависит от степени разрушения позвоночника и характера восстановительных процессов. Так, при образовании блока содержание кальция равняется 9,8 мг %, а при затихании процесса блок равняется 10,1 мг %. При очаговых поражениях позвоночника среднее содержание кальция равнялось 9,56 мг %, а при распространенном процессе 10,0 мг %. В зависимости от степени структурных

изменений и выраженности остеопороза, все больные с разгаром заболевания могут быть разделены на три группы:

в первой - рентгенологически - полностью отсутствует трабекулярная сеть в телах позвонков;

во второй - трабекулярная сеть отсутствует в очаге поражения

в третьей - во всех отделах позвоночника отмечается трабекулярная сеть средней интенсивности. Соответственно содержание кальция в плазме крови 9,8-9,91-9,89 мг %. Таким образом, во всех трех группах содержание кальция плазме крови почти не отличается и не выходит за пределы среднего показателя для группы больных с разгаром заболевания (9,8 мг %).

В период затихания процесса происходит восстановление трабекулярной сети, и, в зависимости от степени этого процесса, больные так же могут быть разбиты на три группы:

-первая - со слабым восстановлением трабекулярной структуры,

-вторая - со средним,

-третья - с хорошим восстановлением трабекул, при соответствующем содержании кальция 10,52 - 9,66 - 10,43 мг %. Мы можем согласиться с данными авторов, утверждающих, что степень остеопороза и его характер не связаны с количественным содержанием кальция в сыворотке крови.

Выводы: Таким образом, содержание кальция в плазме крови зависит от стадии заболевания. В период разгара оно равно в среднем 9,8 мг %, а в период затихания - 10,05 мг %. В период разгара содержание кальция зависит от давности заболевания и имеет тенденцию к снижению по мере увеличения последней. Содержание кальция в крови не связано со степенью и характером структурных изменений (остеопозором) как в очаге поражения, так и в отделах позвоночника, прилежащих к очагу поражения. Мы думаем, что эти данные можно применят в диагностике и прогнозировании туберкулеза.

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ФЛАВОНОИДЫ RUSSOWIA SOGDIANA (BGE). FEDSCH

Аннотация. *Из растений Russowia sogdiana выделены апигенин кверцетин изорамненин кверцетин-7-о-D-глюкопиранозид изорамнетин-7-о -D-глюкопиранозоид сапонаретин и витексин относящиеся к новому типу флавоноидов. Химическими и спетральными методами установлено их строение.*

Ключевые слова: *Флавоноид, ИК-спектр, ЯМР-спектр, масс-спектр, ПМР-спектр, УФ-спектр, апигенин, кверцетин, изорамнетин, сапонаретин, витексин.*

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ALKALOIDS OF BERBERIS XV. STUDY OF THE STRUCTURE OF A NEW ALKALOID

Annotation. *Apigenin quercetin isoamnenin quercetin-7-o-D-glucopyranooside isoramnetin-7-o-D-glucopyranozoide saponaretin and viteksin belonging to a new type of flavonoids were isolated from the plants Russowiasogdiana. Their structure has been established by chemical and spectral methods.*

Keywords: *Flavonoid IR spectrum NMR spectrum mass spectrum PMR spectrum UV spectrum apigenin quercetin isoramnetin saponaretin and viteksin.*

Ученые всего мира в настоящее время проявляют колоссальный интерес к флавоноидам лекарственных растений, что обусловлено их высокой

биологической активностью, широтой терапевтического эффекта и малой токсичностью [1,4]. Флавоноиды привлекают внимание исследователей как физиологически активные вещества с разносторонним спектром действия. Они являются важными и даже наиболее активными действующими началами растений и растительных препаратов, используемых в народной и научной медицине в качестве желчегонных, противовоспалительных, спазмолитических, противоаллергических и сосудорасширяющих средств [1,4]. В результате проведенных в последнее время исследований получены препараты гипоазотемического, гипогликемического и антивирусного действия [4]. Однако препаратов, содержащих флавоноиды, пока имеется немного. Чаще эти соединения находятся в растениях в комплексе с другими БАВ и используются суммарно. Следовательно, поиск новых источников флавоноидов с целью их практического использования относится к актуальным задачам.

Из литературных данных известно, что многие представители растений семейства *Asteraceae* богаты биологически активными флавоноидами [4,6]. *Russowiasogdiana*(Bge). Fedsch(руссовия согдийская) относится к данному семейству и представляет собой однолетнее травянистое растение, встречающийся на выходах пестроцветных пород в нижнем поясе гор Средней Азии, долины рек Зеравшан, Сырдарья, Кызылкум, Каракум. [6].

Растительное сырье (надземная часть *Russowiasogdiana*) для исследования заготовили собрано в середине мая 2023 г. в период цветения в окрестностях г. Ферганы Республики Узбекистан. Высушенную и измельченную надземную часть экстрагировали при комнатной температуре 96%-ным этанолом. Объединенный экстракт сгущали в вакууме, разбавляли водой в соотношении 1:1. Водно-спиртовый экстракт последовательно подвергали жидкость-жидкостной экстракции петролейным эфиром, хлороформом, этилацетатом и н-бутанолом.

Этилацетатную фракцию хроматографировали на колонке (180 х 3,5 см) с силикагелем в градиентной системе растворителей хлороформ-пропанол-2. Собирали фракции по 400 мл. При элюировании колонки смесью хлороформ-пропанол-2 в соотношении(92:8) из отдельных фракций после рехроматографирования на колонке с сефадексом LH- 20 и перекристаллизации из этанола выделили вещества 1, 2 и 3. При дальнейшем элюировании колонки смесью хлороформ-пропанол-2 в соотношении (86:14) выделили вещества 4 и 5. Продолжая промывание колонки смесью хлороформ-пропанол-2 в соотношении (82:18) выделили вещества 6 и 7. Полученные вещества очищены дробной перекристаллизацией из различных растворителей и рехроматографированием на полиамиде.

На основании изучения спектральных данных соединения 1,6 и 7 отнесены к производным флавона, а вещества 2-5 - к производным флавонола [6,7]. Флавоноиды идентифицировали на основании результатов кислотного гидролиза, изучением спектральных данных и сравнением физико-химических констант с литературным сведениями.

Апигенин (1). Кристаллы светло-желтого цвета состава $C_{15}H_{10}O_5$, 346-348 °С (с разл.). $C_{15}H_{10}O_5$, т.пл. 346-347 °С (с разл.), y_{max} 270, 340 нм. Данные ^1H- и ^{13}C-ЯМР спектров соответствуют опубликованным параметрам [6,7].

Кверцетин (2). Кристаллы желтого цвета состава $C_{15}H_{10}O_7$(M^+302) с т.пл. 313-314 **°С,** y_{max} 257, 268, 372 нм. Данные 1Н- и ^{13}C-ЯМРспектров соответствуют опубликован- ным сведениям [6,7].

Изорамнетин (3). Кристаллы желтого цвета состава $C_{16}H_{12}O_7$, M^+ 316 (100%), т. пл. 294-297 °С (водный спирт),)y_{max} EtOH 257, 270 пл, 371 нм. ^1H-ЯМР спектр (ДМСО-d_6, **σ**, м.д.): 3.85 (с, 3Н, -OCH_3), 6.35 (д, 2,0 Гц, Н-6), 6.68 (д, 2,0 Гц, Н-8), 6.83 (д, 9,0 Гц, Н-5') 7.69 (дд, 2,0 и 9,0 Гц, Н-6'), 7.58 (д, 2,0 Гц, Н-2'), 12.56 (с, 5-ОН) [6,7].

Кверцетин-7-0-β-D-глюкопиранозид (4) - кристаллы желтого цвета состава$C_{21}H_{20}O_{12}$**с**т. пл. 245-247 °С, y_{max}257, 266, 374 нм; +NaOAc273, 390. ПМР-спектр (Ру-d_5**σ**м.д.): 3.87-4.60 (протоны глюкозы), 5.73 (д, 6,5 Гц, Н-1"), 6.69 (д, 2,5 Гц, Н-6), 6.91 (д, 2,5 Гц Н-8), 7.25 (д, 8,5 Гц, Н-5'), 7.96 (дд, 2,5 и 8,5 Гц, Н-6') и 8.50 (д, 2,5 Гц, Н-2).

Гидролиз вещества 4 5%-ным раствором хлороводородной кислоты привел к получению кверцетина и D-глюкозы [7,8].

Изорамнетин-7-0-β-D-глюкопиранозид (5) - кристаллы светло-желтого цвета состава $C_{22}H_{22}0_{12}$, с т. пл. 250-252 °С, y_{max} 255, 271, 327, 376 нм; +NaOAc273, 390. ПМР- спектр (Ру-d_5, **σ**, м.д.) содержит сигналы при 3.77 (с, -ОСНз), 3.90-4.57 (протоны глюкозы), 5.70 (д, 6,5 Гц, Н-1"), 6.72 (д, 2,5 Гц, Н-6), 7.02 (д, 2,5 Гц, Н-8), 7.24 (д, 8,0 Гц, Н-5'), 8.08 (дд, 2,5 и 8,0 Гц, Н-6'), 8.14 (с, Н-2'), 13.08 (уш. с, 5-ОН).

В результате кислотного гидролиза вещества 5 5%-ным раствором хлороводородной кислоты получили кверцетин и D-глюкозу [7,8].

Сапонаретин (апигенин-б-С-β-D-глюкопиранозид) (6) - кристаллы светло-желтого цвета состава $C_{21}H_{20}0_{10}$ с т.пл. 222-224 °С, y_{max} 272, 294, 339 нм. Спектр ^{13}C-ЯМР (DMCO-d_6**σ**, м.д.): 61.4 (С-6"), 70.2 (С-2"), 70.5 (С-4"), 73.2 (С-1"), 78.9 (С-3"), 81.3 (С-5"), 93.8 (С- 8), 102.9 (С-3), 103.5 (С-10), 108.9 (С-6), 116.1 (С-3',5'), 121.3 (С-Г), 128.3 (С-2',6'), 156.4 (С-5), 160.6 (С-4'), 161.2 (С-9), 163.3 (С-2), 163.7 (С-7), 182.0 (С-4).

При окислении гликозида 6 раствором $FeCl_3$получили апигенин и D-глюкозу [7,9].

Витексин (апигенин-8-С-β-D-глюкопиранозид) (7) - кристаллы желтого цвета состава $C_{21}H_{20}0_{10}$ с т.пл. 247-249 °С, y_{max} 285, 337 нм. ПМР-спектр (Ру-d_5, **σ**, м.д.): 4.05- 4.55 (протоны углеводной части), 4.75 (т, 8,0 Гц, Н-2"), 5.79 (д, 8,0 Гц, Н-1"), 6.76 (с, Н-3), 7.07 (д, 9,0 Гц, Н-3',5'), 7.35 (с, Н-6), 7.74 (д, 9,0 Гц, Н-2',6') [7,9].

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ОЦЕНКА УРОВНЯ ИННОВАЦИОННОЙ ДЕЯТЕЛЬНОСТИ ПРОМЫШЛЕННЫХ ПРЕДПРИЯТИЙ

Аннотация:*В статье рассматриваются подходы к оценке уровня инновационной деятельности промышленных предприятий. Анализируются ключевые показатели, влияющие на инновационную активность, включая инвестиции в исследования и разработки, внедрение новых технологий, уровень цифровизации и кадровый потенциал. Приведены методы количественной и качественной оценки инновационного развития, а также рассмотрены факторы, способствующие повышению конкурентоспособности предприятий за счет инноваций. Особое внимание уделено практическим рекомендациям по совершенствованию инновационной политики промышленных организаций.*

Ключевыеслова:*инновационная деятельность, промышленные предприятия, оценка инноваций, технологическое развитие, цифровизация, конкурентоспособность, инновационная политика.*

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ASSESSMENT OF THE LEVEL OF INNOVATION ACTIVITY OF INDUSTRIAL ENTERPRISES

Annotation:*The article discusses approaches to assessing the level of innovation activity of industrial enterprises. The key indicators influencing innovation activity are analyzed, including investments in research and development, the introduction of new technologies, the level of digitalization and human resources. The methods of quantitative and qualitative assessment of innovative development are presented, as well as the factors contributing to increasing the competitiveness of enterprises through innovation. Special attention is paid to practical recommendations for improving the innovation policy of industrial organizations.*

Keywords:*innovation activity, industrial enterprises, innovation assessment, technological development, digitalization, competitiveness, innovation policy.*

Система показателей инновационной деятельности предоставляет информацию для использования при принятии внутренних решений и для информирования инвесторов. Чтобы показатели были максимально полезными, они должны соответствовать трем условиям: Во-первых, необходимо, чтобы они были количественными.

Перекрестное лицензирование патентов и качество могут быть отражены в приложении. Во-вторых, критерии должны быть стандартными или легко стандартизируемыми, чтобы различные компании могли сравнивать их для оценки конкурентоспособности.

В-третьих, они должны быть признаны применимыми на практике путем установления значительных статистических связей между показателями корпоративной стоимости, такими как рост производительности труда и окупаемость фондов. Эти три критерия для выбора конкретных показателей удовлетворяют потребности пользователей в информации, такие как сравнимость показателей внутри отрасли.

Индикаторы представляют собой средства, используя которые вы можете измерить ваше продвижение вперёд к решению поставленных задач и продемонстрировать ваши достижения и трудности. Представленная ниже схема показывает место индикаторов в процессе планирования оценки

Рисунок 1. Цели и процесс планирования оценки

При разработке оценки каждого проекта эти общие разделы представляют собой важные элементы, которые следует учитывать. Цели — это значительные изменения, которые вы хотите сделать, и они обычно не измеримы. Например, уменьшение стигматизации в обществе может быть целью. Задачи представляют собой конкретные измеримые достижения, которые вы должны выполнить, чтобы достичь определенной цели.

Оценка через систематизацию показателей инновационной деятельности уточнение касается совершенствования инновационной деятельности на устранение недостатков и превращение их в силу положительного воздействия определяет действие, которое произошло. Соответственно, необходимо будет подобрать индикаторы и эффективно их

использовать. Многие развитые ведущие горнодобывающие отрасли консультативное предприятие для проведения такой оценки нанимают специалистов и пользуются их услугами.

Инновация является материализованным результатом инвестиций в инновационные технологии и новейшие технологии, что приводит к более эффективным формам организации производства, труда, обслуживания и управления. Эти формы организации включают улучшение учета, методов планирования, анализа и оценки, а также более совершенные методы контроля и учета. Повышение экономической результативности деятельности предприятия достигается за счет этих нововведений в области техники, технологии, организации труда или управления, основанных на достижениях науки и передового опыта. Таким образом, оценка инновационной деятельности компании имеет решающее значение. Эта оценка является ключом к экономичности, качеству и удовлетворенности клиентов от внедрения инноваций и разработки новых продуктов. Предложенная в работе система показателей рекомендуется использовать для проведения независимого экспертного анализа на промышленных предприятиях. Это позволит наилучшим образом оценить развитие инновационной деятельности предприятия.

Путем оценки инновационного потенциала, активности и результативности предприятия формирование механизма совершенствования инновационной деятельности или разработанные с целью развития этой структуры оценки, основывался на том, что модификационные основы могут применяться во всех отраслях промышленности. Национальная оценка инновационной деятельности предприятий горнодобывающей отрасли, не имея общих методов оценки требуется развитие этой отрасли. Поэтому необходимо разработать национальную систему оценки предприятий

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МЕТОД ПОДЗЕМНОГО ВЫЩЕЛАЧИВАНИЯ УРАНА В УЗБЕКИСТАНЕ

Аннотация. *Статья посвящена методу подземного выщелачивания (ПВ) урана в Узбекистане, который является одним из наиболее экологичных и экономически эффективных способов добычи урана. Рассматриваются история внедрения метода, его технологические и экологические преимущества, роль Узбекистана на мировом рынке урана, а также перспективы дальнейшего развития с использованием инновационных технологий. Особое внимание уделено вопросам мониторинга и цифровизации, которые позволяют минимизировать воздействие на окружающую среду.*

Ключевые слова: *уран, подземное выщелачивание, добыча, экология, инновации, Узбекистан, горная промышленность, цифровизация.*

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URANIUM IN-SITU LEACHING METHOD IN UZBEKISTAN

Annotation. *The article focuses on the in-situ leach (ISL) method for uranium extraction in Uzbekistan, which is one of the most environmentally friendly and economically efficient mining techniques. The paper discusses the history of ISL implementation, its technological and ecological benefits, Uzbekistan's role in the global uranium market, and future development prospects with innovative technologies. Particular attention is given to monitoring and digitalization processes that minimize environmental impact.*

Key words: *uranium, in-situ leach, mining, ecology, innovation, Uzbekistan, mining industry, digitalization.*

Введение. Уран играет ключевую роль в мировой атомной энергетике, обеспечивая около 10% глобальной выработки электроэнергии [1]. Узбекистан, обладая значительными запасами урана, является одним из лидеров в его добыче. Современные методы, такие как подземное выщелачивание (далее – ПВ), позволили стране не только укрепить свои позиции на мировом рынке, но и минимизировать экологические риски [2].

Государственное предприятие «Навоийуран» (далее – ГП «Навоийуран»), основанное в 2022 году, активно использует метод подземного выщелачивания, что делает Узбекистан примером успешного внедрения экологически безопасных технологий в добывающую промышленность.

Подземное выщелачивание. Прогрессивный метод в настоящее время широко применяется при добыче урана. Этот метод за короткое время прошел все стадии исследований, разработки и промышленного внедрения на гидрогенных месторождениях, залегающих в проницаемых осадочных породах депрессионных зон земной коры, где вскрытие, подготовка рудных тел и добыча урана осуществляются через скважины. Уже имеется большой положительный опыт добычи урана методом выщелачивания из труднопроницаемых руд, в которых проницаемость создается искусственным путем предварительного дробления их на месте залегания. Рассматривая метод подземного выщелачивания гидрогенных месторождений проницаемых руд, хотелось бы выделить некоторые важные аспекты, которые оказывают весьма существенное положительное влияние на экономические, социальные и экологические условия разработки месторождений урана. При использовании этого метода отпадает необходимость строительства дорогостоящих рудников или карьеров и гидрометаллургических заводов, расходования многих материалов; сокращается численность работающих на строительстве и при эксплуатации месторождений; увеличиваются природные сырьевые ресурсы в результате разработки месторождений с бедным и убогим содержанием урана в руде, залегающих в сложных гидрогеологических условиях (их разработка традиционными способами экономически невыгодна). При этом коренным образом улучшаются условия труда, обеспечивается более полное использование богатств недр, сводятся к минимуму потери урана при добыче и переработке, извлекается металл из забалансовых руд. Метод подземного выщелачивания занимает важное место в охране окружающей среды, так как при его использовании поверхность земли и воздушный бассейн почти не загрязняются. Можно без преувеличения сказать, что разработка гидрогенных месторождений методом подземного выщелачивания резко изменит в лучшую сторону производительность силы и производственные отношения в уранодобывающей промышленности, что имеет исключительно важное экономическое значение. Перспективы развития добычи урана методом подземного выщелачивания поистине колоссальны. Гидрогенные

месторождения урана в проницаемых осадочных толщах депрессионных зон земли [3].

Урановые ресурсы Узбекистана. С середины прошлого века Узбекистан ведет разработку урановых месторождений. Первое месторождение – Учкудук – стало отправной точкой для отрасли [4]. Сегодня в стране известно более 40 месторождений (рисунок 1), крупнейшие из которых расположены в Навоийской области.

Особенности залежей:

- урановые руды связаны с песчаниковыми месторождениями;
- глубина залегания варьируется от 200 до 700 метров;
- основные рудовмещающие породы: песчаники, алевролиты, глины [5].

Метод подземного выщелачивания. Метод подземного выщелачивания был внедрен в Узбекистане в 1994 году и стал основным способом добычи урана (рисунок 2) [6].

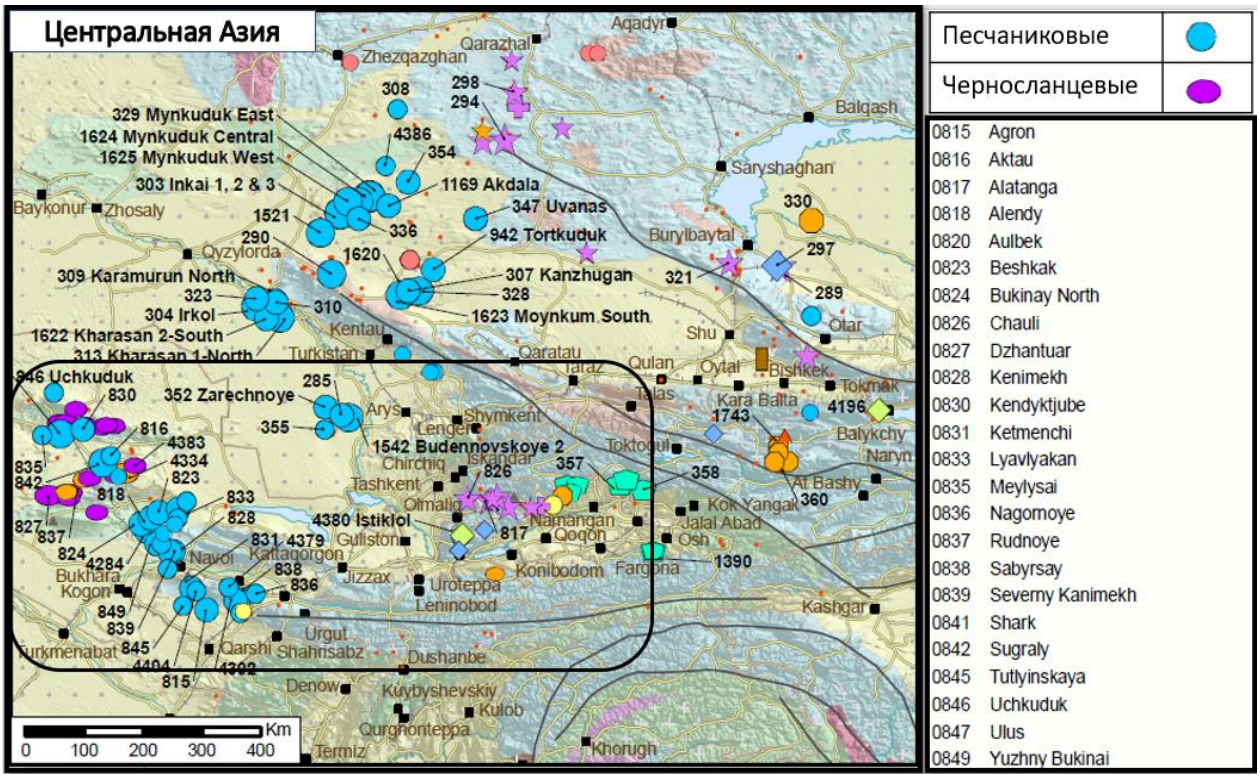

Рисунок 1: Карта месторождений урана в Узбекистане (World Distribution of Uranium Deposits. International Atomic Energy Agency (IAEA). Second edition. 2018).

Принцип метода:

1. Через пробуренные скважины закачивается химический раствор (чаще всего серная кислота).

2. Раствор вступает в реакцию с урановой рудой, образуя водорастворимые соединения.

3. Образовавшийся раствор с ураном извлекается на поверхность.
4. Уран извлекается из раствора на перерабатывающем заводе.
Преимущества метода:
1. Экологическая безопасность:
- отсутствие карьеров и шахт;
- минимальное воздействие на ландшафт.

2. Экономическая эффективность:
- снижение затрат на переработку и транспортировку руды;
- возможность применения на сложных геологических участках.

3. Высокая производительность:
- возможность добычи на больших глубинах.

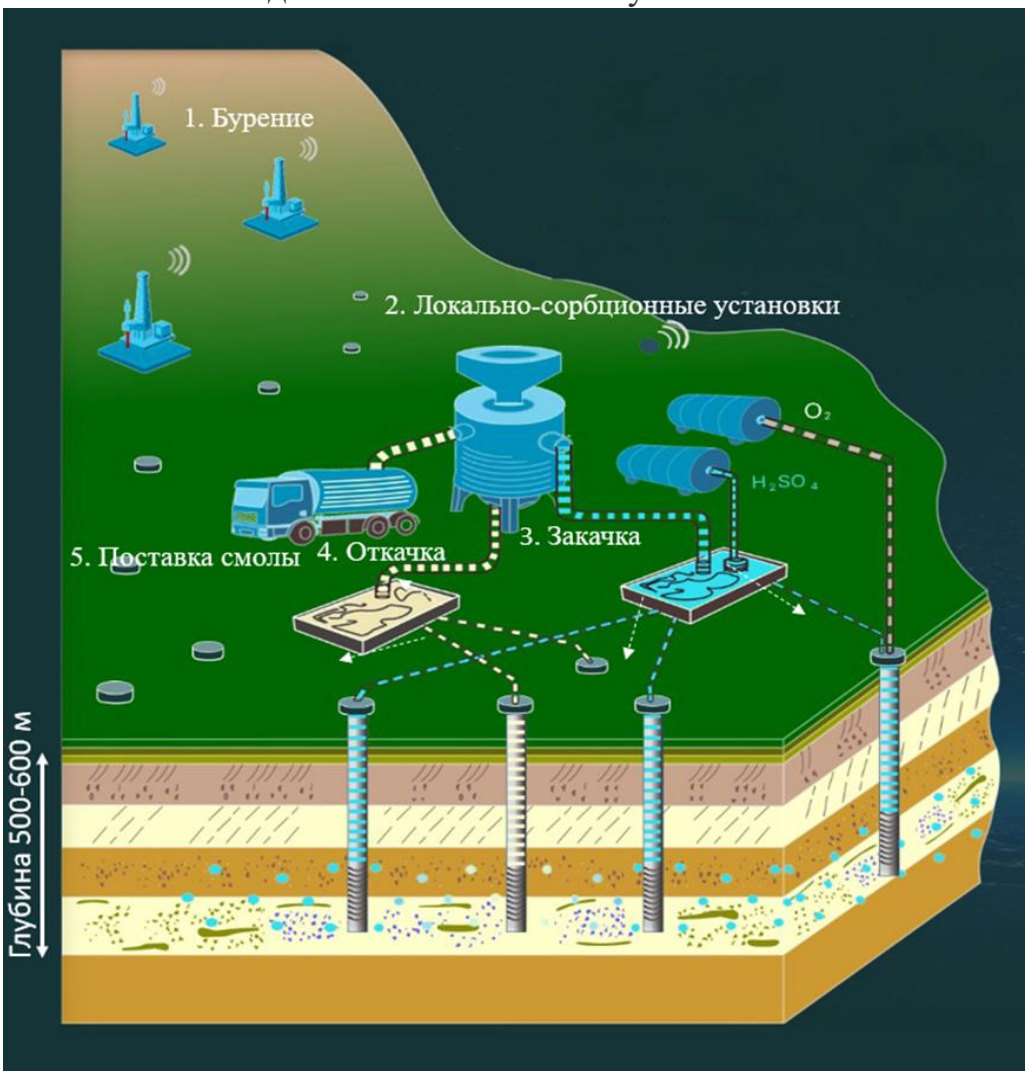

Рисунок 2: Схема метода подземного выщелачивания (автор – начальник отдела внедрения цифровой трансформации Проектного офиса ГП «Навоийуран» С. С. Адизов).

Экологические аспекты. Метод ПВ требует строгого контроля:
- за качеством химических растворов, чтобы избежать загрязнения подземных вод.
- за состоянием экосистемы после завершения работ;
- за соблюдением международных стандартов [7].

Узбекистан применяет системы мониторинга, которые позволяют своевременно предотвращать возможные риски.

Цифровизация и перспективы. ГП «Навоийуран» активно внедряет цифровые технологии:

- 3D-моделирование месторождений для точного планирования добычи;
- автоматизированный контроль в реальном времени для повышения эффективности процессов.

Эти инновации позволяют минимизировать человеческий фактор, повышая точность и безопасность операций.

Заключение. Метод подземного выщелачивания стал важным шагом в развитии урановой промышленности Узбекистана. Он обеспечивает экологически безопасную и экономически эффективную добычу, укрепляя позиции страны на мировом рынке урана. Благодаря внедрению современных технологий и строгому контролю за экологией, Узбекистан остается примером устойчивого развития в добывающей промышленности.

Разработка и внедрение метода подземного выщелачивания при добыче урана являются большим научнотехническим достижением горнорудной промышленности. Метод выщелачивания урана из рудных тел с естественной или искусственной созданной проницаемостью на месте их залегания имеет ряд преимуществ по сравнению с традиционными способами добычи. Это относится и к техникоэкономическим показателям, и к вопросам вовлечения в эксплуатацию месторождений бедных руд, залегающих в сложных горногеологических условиях. Велико социальное значение метода, выражающееся прежде всего в коренном изменении характера труда горнорабочих и значительном росте производительности труда. Велики преимущества метода ПВ и в области охраны окружающей среды.

В разработке и внедрении в производство метода подземного выщелачивания сделаны хотя и важные, но только первые шаги. Полученные к настоящему времени данные о закономерностях протекания процессов в ведрах и накопленный опыт эксплуатации месторождений позволяют вполне определенно говорить о несомненной перспективности метода и расширения границ его вриминения в будущем. Дальнейшее развитие метода связывается с повышением достоверности геохимических и гидрогеологических исследований месторождений, углубленным изучением закономерностей протекания процессов в недрах в извлечения полезных ископаемых, с совершенствованием технологии и средств технического осонащения предприятий ПВ. Кажущаяся на первый взгляд простота схемы технологических процессов при подземном выщелачивании включает в себя сложные в взаимозависимые физикохимические процессы перевода полезного компонента в раствор в недрах земли. Процессы протекают благодаря искусственно созданным геохимическим условиям в разрабатываемом рудном теле и в то же время во многом определяются совокупностью природных факторов гидрогеологического характера.

Следовательно, оптимальный режим протекания процессов в рудном теле и возможность управлять им находятся в прямой зависимости от глубины и полноты знаний как природных условий месторождения, так в закономерностей их изменения при создании геохимической обстановки для извлечения полезного ископаемого. При масштабах добычи урана подземным выщелачиванием большое значение приобретают автоматизированные системы управления технологическими процессами. В дальнейшем роль этих систем будет увеличиваться особенно в связи с необходимостью уточнения взаимосвязи между факторами, влияющими на процесс ПВ, и принятия на основе выявленных зависимостей решений по оптимизации условий эксплуатации [3].

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ЗДРАВООХРАНЕНИЕ В ОБЩЕСТВЕ

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ОСНОВНЫЕ МЕТОДЫ ИЗУЧЕНИЯ ХРОМОСОМ ЧЕЛОВЕКА

Аннотация. *В данной статье рассматриваются основные методы, применяемые в современных биологических и медицинских исследованиях для анализа структуры, количества хромосом и генетических аномалий, включают кариотипирование, флуоресцентную ин ситу гибридизацию (FISH), а также методы, основанные на полиморфизме ДНК. Каждый из этих методов позволяет исследовать как структурные, так и числовые изменения в генетическом материале, что играет важную роль в диагностике наследственных хромосомных заболеваний.*
Ключевые слова: *цитогенетика, кариотип, флуоресцентную ин ситу гибридизацию (FISH), полиморфизм ДНК, хромосомные болезни, диагностика*

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THE MAIN METHODS OF STUDYING HUMAN CHROMOSOMES

Annotation. *This article examines main methods used in modern biological and medical researches for structural analysis, the number of chromosomes and*

genetic anomalies including karyotyping, fluorescence in situ hybridization (FISH) as well as methods based on polymorphism of DNA. Each of these methods let to survey structural and numerical changes in genetic material which plays a crucial role in diagnosis of hereditary and chromosomal diseases.

Key words: *cytogenetic, kariotyp, fluorescence in situ hybridization (FISH), polymorphism of DNA, chromosomal diseases, diagnostics.*

Цитогенетическое исследование охватывает несколько различных методов, каждый из которых имеет свои особенности, преимущества и области применения. Основные методы, применяемые для анализа хромосом и генетических аномалий, включают кариотипирование, флуоресцентную ин ситу гибридизацию (FISH), а также методы, основанные на полиморфизме ДНК. Каждый из этих методов позволяет исследовать как структурные, так и числовые изменения в генетическом материале, что играет ключевую роль в диагностике заболеваний, исследовании механизмов наследования и понимании клеточных процессов.

Кариотипирование — это метод исследования хромосом, который позволяет определить их число, структуру и возможные аномалии. Кариотипирование проводится на основании анализа метафазных хромосом, полученных из клеток организма. Этот метод является основным для выявления числовых (например, трисомия) и структурных аномалий хромосом (например, делеций, инверсий, транслокаций).

Существует несколько методов кариотипирования, среди которых можно выделить:

Стандартное кариотипирование: Метод, при котором хромосомы визуализируются с помощью микроскопа после окрашивания специальными красителями. Этот метод позволяет выявить аномалии в числе хромосом и основные хромосомные аберрации;

Метод дифференциального окрашивания хромосом: применяется для выявления мелких структурных изменений. Один из таких методов — окрашивание хромосом с помощью типа G-окраски (G-бандаж), при котором хромосомы окрашиваются в полосы, что позволяет выявить даже малые изменения в их структуре;

Сравнительное кариотипирование: Сравнение хромосом разных видов позволяет анализировать различия в структуре и числе хромосом, что важно для исследования эволюции и родственных связей между видами;

В Онкологии: кариотипирование используется для исследования хромосомных изменений в раковых клетках, таких как наличие хромосомных транслокаций или амплификаций.

В Эволюции: сравнительное кариотипирование помогает ученым изучать эволюционные изменения и родственные связи между видами.

Флуоресцентная гибридизация (FISH) — это молекулярно-генетический метод, который используется для детекции специфических участков ДНК на хромосомах с помощью флуоресцентных меток. Этот метод

значительно повышает точность и чувствительность диагностики, позволяя не только исследовать числовые, но и структурные аномалии хромосом.

FISH имеет несколько важных применений в цитогенетике:

- Выявление хромосомных транслокаций: например, для диагностики хронического миелолейкоза (ХМЛ) используется метод FISH для обнаружения транслокации между хромосомами 9 и 22 (филадельфийская хромосома), которая является характерной для этого заболевания.

- Выявление амплификаций генов: FISH позволяет обнаруживать увеличение числа копий определенного гена, что играет ключевую роль в диагностике различных видов рака. Например, для диагностики рака молочной железы исследуют амплификацию гена HER2, что помогает предсказать ответ на таргетную терапию.

- Делеции и инверсии: FISH также используется для выявления более мелких структурных изменений, таких как делеции или инверсии, которые невозможно увидеть с помощью обычного кариотипирования.

FISH играет центральную роль в диагностике генетических заболеваний, этот метод позволяет точно определить хромосомные аномалии, выявляя даже мелкие изменения на хромосомах, которые не видны при стандартном кариотипировании.

Кроме того, метод FISH активно используется в онкологии для мониторинга хромосомных изменений в раковых клетках, что позволяет выявить предрасположенность к онкологическим заболеваниям и подобрать наиболее эффективное лечение.

Цитогенетический анализ на основе полиморфизма ДНК — это метод, направленный на исследование генетической изменчивости, которая может быть использована для диагностики генетических заболеваний, а также для установления родства и других исследовательских целей.

В диагностике моногенных заболеваний: полиморфизм ДНК позволяет выявить изменения, характерные для моногенных заболеваний, таких как муковисцидоз, синдром Ли-Фраумен и другие наследственные болезни. Анализ специфических маркеров позволяет с высокой точностью выявить мутантные гены, которые ответственны за развитие заболеваний.

В пренатальной диагностике: с помощью методов полиморфизма ДНК можно проводить пренатальную диагностику и выявлять предрасположенность к генетическим заболеваниям у плода. Это особенно важно в случае семейных заболеваний, где необходимо провести диагностику на ранних стадиях беременности.

Цитогенетический анализ на основе полиморфизма ДНК активно используется в установлении родства, например, в судебной медицине или для генеалогических исследований. Оценка генетической изменчивости позволяет точно определить степень родства между индивидами, даже если это дальние родственники. Это также может быть полезно для выявления биологических родителей в случае усыновления.

Таким образом, современные методы цитогенетического анализа значительно расширяют возможности диагностики и исследования генетических заболеваний, но также требуют значительных ресурсов и опыта для их правильного применения

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ВЛИЯНИЕ ГЕСТАЦИОННОГО ГИПОТИРЕОЗА НА ФИЗИЧЕСКОЕ РАЗВИТИЕ ПОТОМСТВА В ДИНАМИКЕ РАННЕГО ПОСТНАТАЛЬНОГО ОНТОГЕНЕЗА

Аннотация: *Чрезвычайная злободневность проблемы гипотиреоза беременных, неопределенность и недостаточная изученность его отрицательных последствий на иммунную систему потомства обусловливают высокую степень актуальности проведения дальнейших исследований в этом направлении. Характер и механизм влияния дефицита тиреоидных гормонов на процесс иммуногенеза остаются неясными и противоречивыми, особенно это касается гипотиреоидного состояния организма в эмбриональный период и период раннего постнатального развития, когда происходит окончательное формирование органов иммуногенеза.*

Ключевые слова: *гестационный гипотиреоз,иммунногенез, потомства, тиреоидные гормоны, эмбриональный период.*

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IMPACT OF GESTATIONAL HYPOTHYROIDISM ON THE PHYSICAL DEVELOPMENT OF THE OFFSPRING IN THE DYNAMICS OF EARLY POSTNATAL ONTOGENESIS

Abstract: *The extreme urgency of the problem of hypothyroidism in pregnant women, the uncertainty and insufficient study of its negative consequences on the immune system of the offspring determine the high degree of relevance of further research in this area. The nature and mechanism of the influence of thyroid hormone deficiency on the process of immunogenesis remain unclear and contradictory, especially with regard to the hypothyroid state of the body in the embryonic period and the period of early postnatal development, when the final formation of the organs of immunogenesis occurs.*

Key words: *gestational hypothyroidism, immunogenesis, offspring, thyroid hormones, embryonic period.*

Три регулирующие системы, нервная, эндокринная и иммунная, участвуют в поддержании гомеостаза. Взаимодействия между нервной и эндокринной системами хорошо изучены и дают начало развитию независимой науки - нейроэндокринологии. Взаимодействия между нейроэндокринной и иммунной системами интенсивно изучаются и рассматриваются как наиболее перспективное направление исследований. Многочисленные доступные на сегодняшний день данные позволяют по-новому взглянуть на межсистемные взаимоотношения между нервной, эндокринной и иммунной системами.

Морфология иммунной и эндокринной системы человека в условиях возрастной нормы, эксперимента и при патологии вызывает интерес у исследователей различных стран мира. На гомеостаз, развитие, старение, метаболизм, инфекции и воспаления влияет перекрестное взаимодействие между этими системами через гормоны, цитокины и нейротрансмиттеры.

Нервная система влияет на иммунную систему через сигналы нейропептидов и гормонов в гипоталамо-гипофизарной оси (надпочечники, гонады, щитовидная железа, гормон роста) или через сигналы норадреналина и ацетилхолина в вегетативной нервной системе. С другой стороны, иммунная система передает обратную связь через тип и концентрацию цитокинов в крови. Дисбаланс в любой из этих систем повышает риск развития тяжелых иммуннологических, психиатрических, воспалительных и аутоиммунных заболеваний. Эти две системы сложны сами по себе и еще более сложны в своем взаимодействии. Поэтому взаимосвязь между иммунной системой и гипоталамо-гипофизарно-тиреоидной осью требует нового изучения.

Современные исследования подтверждают важную роль щитовидной железы в иммунной защите организма. Щитовидная железа производит гормоны, такие как тироксин и трийодтиронин, которые регулируют обмен веществ и играют важную роль в функционировании иммунной системы. Одно из ключевых направлений исследований — это изучение влияния щитовидной железы на иммунные клетки. Не существует ни одного органа в человеческом теле, на функцию которого не влияет щитовидная железа. Она является своего рода «дирижером» обмена веществ. У ученых, впервые описавших железу, возникла ассоциация со щитом, что и дало ей соответствующее название. Орган достаточно мал, и в здоровом состоянии практически незаметен для самого человека, но гормоны щитовидной железы являются одним из основных регуляторов гомеостаза человеческого организма. При их непосредственном участии происходит поддержание и регуляция основных метаболических процессов в тканях и органах; образование новых клеток, их структурная дифференциация, а также генетически запрограммированная гибель старых клеток (апоптоз). Вторым и не менее важным действием является участие гормонов в поддержании температуры тела и производстве энергии (так называемый калоригенный эффект). Гормоны щитовидной железы управляют потреблением кислорода тканями, процессами окисления и выработки энергии, а также контролируют процессы образования и нейтрализации свободных радикалов. Гормоны щитовидной железы регулируют процессы развития, созревания, обновления практически всех тканей и органов и имеют чрезвычайно важное значение для закладки, развития головного мозга плода, формирования интеллекта ребенка, роста и созревания скелета, половой системы, влияют на половое созревание, менструальную функцию и фертильность.

Проведенный анализ литературных источников показывает, что морфология иммунной и эндокринной системы человека в условиях возрастной нормы, эксперимента и при патологии вызывает интерес у исследователей различных стран мира. Влияние гестационного гипотиреоза на физическое развитие потомства в динамике раннего постнатального онтогенеза представляет собой важную тему для изучения, особенно в контексте эндокринологии и педиатрии. Основные аспекты влияния включают:

1. **Нарушение внутриутробного развития**: Гипотиреоз у матери может приводить к задержке роста и развития плода, включая нарушения формирования центральной нервной системы (ЦНС), костной системы и других органов.

2. **Задержка физического развития:** у потомства матерей с гипотиреозом могут наблюдаться:
   - Низкий вес при рождении.
   - Замедленный рост и увеличение массы тела.
   - Задержка формирования двигательных навыков.

3. **Эффекты на ранний постнатальный период**: В ранний постнатальный период гипотиреоз может вызывать:
   - Замедление процессов оссификации (формирования костей).
   - Снижение мышечного тонуса.
   - Нарушения вегетативной регуляции.

4. **Гормональный дисбаланс у потомства**: Дефицит тиреоидных гормонов у матери может отрицательно сказаться на формировании эндокринной системы потомства. Это связано с нарушением передачи гормонов через плаценту и изменением регуляции гипоталамо-гипофизарно-тиреоидной системы у плода.

5. Компенсаторные механизмы и роль ранней диагностики: У некоторых новорожденных могут активироваться механизмы компенсации, однако это не всегда предотвращает долгосрочные последствия. Ранняя диагностика и корректирующая терапия у матери (например, заместительная терапия левотироксином) существенно снижают риски негативного влияния на потомство.

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ТУҒМА БРОНХ АНОМАЛИЯЛАРИДА ИММУНОГИСТОКИМЁВИЙ ТАҲЛИЛНИНГ АҲАМИЯТИ. ЯНГИ ТУҒИЛГАН ЧАҚАЛОҚЛАРДАГИ ҲОЛАТ

Резюме:*Туғма бронх аномалиялари янги туғилган чақалоқларда учрайдиган ноёб ва клиник жиҳатдан аҳамиятли касалликлардан бири ҳисобланади. Ушбу аномалияларнинг ташҳиси ва патогенезини ўрганишда морфологик, иммуногистокимёвий ва генетик тадқиқотлар керакли ўрин тутади.*

Ушбу тадқиқотда иммуногистокимёвий таҳлил усуллари ёрдамида туғма бронх аномалиялари учрайдиган тўқималардаги ҳужайравий ўзгаришлар ва асосий биомаркерлар (CK7, TTF-1, VEGF) натижаси баҳоланди. Ушбу тадқиқот аномалияларга олиб келувчи асосий механизмларни ўрганишга қаратилган бўлиб, эпителиал ва мезенхимал ҳужайралар ўртасидаги ўзаро таъсирнинг даражаси ўрганилди.

Изланиш натижалари иммуногистокимёвий таҳлил туғма бронх аномалияларини барвақт аниқлашда ва уларнинг келиб чиқиш патогенезини чуқурроқ тушунишда самарали усул эканлиги аниқланди. Шунингдек, бу усул туғма бронх аномалияларини индивидуал даволаш ва прогнозлаштиришда муҳим аҳамиятга эга бўлиши мумкин.

Калит сўзлар*: туғма бронх аномалиялари, иммуногистокимёвий таҳлил, янги туғилган чақалоқлар, биомаркерлар, патогенез.*

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THE ROLE OF IMMUNOHISTOCHEMICAL ANALYSIS IN CONGENITAL BRONCHIAL ANOMALIES: THE CONDITION IN NEWBORNS.

Abstract:*Congenital bronchial anomalies are one of the rare and clinically significant diseases found in newborns. Morphological, immunohistochemical, and genetic studies are essential for the diagnosis and study of the pathogenesis of these anomalies.*

In this study, cellular changes and key biomarkers (VEGF, CK7, TTF-1) in tissues

with congenital bronchial anomalies were evaluated using immunohistochemical analysis methods. The study aimed to investigate the main mechanisms leading to these anomalies and the degree of interaction between epithelial and mesenchymal cells.
The research results demonstrated that immunohistochemical analysis is an effective method for the early detection of congenital bronchial anomalies and for a deeper understanding of their pathogenesis. Furthermore, this method may play a crucial role in the individualized treatment and prognosis of congenital bronchial anomalies.
Keywords: *congenital bronchial anomalies, immunohistochemical analysis, newborns, biomarkers, pathogenesis.*

Кириш

Туғма бронх аномалиялари респиратор тизимдаги кам учрайдиган, лекин жиддий оқибатларга олиб келиши мумкин бўлган туғма патологиялардан бири ҳисобланади. Янги туғилган чақалоқларда бу ҳолат анатомик ва функционал нуқсонлар орқали намоён бўлади. Бундай патологиялар нафақат чақалоқларнинг нормал ривожланишига салбий таъсир кўрсатади, балки уларнинг эрта ташхиси ва самарали даволаши учун жиддий тиббий ёндашувларни талаб қилади. Замонавий тиббиётда туғма бронх аномалиялари сабабларини тушуниш ва уларни самарали даволаш учун илмий асос яратиш муҳим вазифалардан бири бўлиб қолмоқда.

Туғма бронх аномалиялари келиб чиқишини тушуниш учун морфологик, молекуляр-генетик ва иммуногистокимёвий таҳлиллардан фойдаланиш замонавий тадқиқотлар марказида турибди. Хусусан, иммуногистокимёвий таҳлил ушбу патологияларни ўрганишда муҳим восита ҳисобланади, чунки у тўқималардаги ҳужайравий ўзгаришларни аниқлаш, биомаркерларни баҳолаш ва аномалияларнинг патогенетик механизмларини аниқлаш имконини яратади.

Масалан, CK7, TTF-1 ва VEGF каби асосий биомаркерлар бронх тўқималарининг нормал ва патологик ҳолатини ажратишда муҳим аҳамиятга эга. Ушбу маркерлар нафас йўлларидаги эпителиал ва мезенхимал ҳужайраларнинг функционал ўзаро таъсирини ўрганишга имкон беради. Шунингдек, ҳужайраларараро сигнал йўлларининг бузилиши ва унинг туғма аномалияларга олиб келиши мумкин бўлган жараёнларини аниқлашда кенг фойдаланилади.

Ушбу тадқиқотнинг асосий мақсади – туғма бронх аномалияларининг ҳужайравий ва молекуляр жиҳатларини ўрганиш, ушбу жараёнларга таъсир қилувчи биологик механизмларни тушуниш ва патологиянинг эрта диагностикаси учун илмий асос яратишдан иборат. Тадқиқот натижалари нафақат патологияларнинг этиологиясини тушунишга, балки уларни индивидуал даволаш бўйича замонавий стратегияларни ишлаб чиқишга хизмат қилиши мумкин.

Туғма бронх аномалиялари бўйича илмий изланишлар нафақат янги ташхис қўйиш имкониятларини яратади, балки касалликни барвақт аниқлаш, унинг ривожланишини олдини олиш ва шахсий даволаш дастурларини ишлаб чиқишда катта аҳамиятга эга. Ҳозирги тадқиқот ушбу мақсадларга эришиш йўлидаги илмий асосни такомиллаштиришга қаратилган бўлиб, келгуси изланишлар учун кенг имкониятлар очади.

Материал ва метод

Тадқиқот учун материал сифатида Андижон давлат тиббиёт институти ҳамда Республика патологик анатомия бюросида олинган 40 нафар беморнинг клиник-анамнестик маълумотлари ва биопсия материаллари ўрганилди. Ушбу беморлар туғма бронх аномалиялари ташхиси билан қайд этилган бўлиб, уларнинг ёши янги туғилган чақалоқлардан 1 ойгача бўлган болаларни ташкил этди. Солиштириш учун назорат гуруҳи сифатида туғма бронх аномалиялари кузатилмаган 20 нафар соғлом чақалоқларнинг тўқима материаллари олинди. Ҳар бир бемордан бронх эпителийи ва перибронхиал тўқималардан биопсия олинди. Ҳар бир биопсия бўлагининг ўлчами тахминан 1×1 см бўлиб, зарарланган ва соғлом участкалардан олинди. Биопсия материаллари 10% формалин ва фосфат буфер эритмасида 72 соат давомида фиксация қилинди. Суюкли ва қийин кесиладиган бўлаклар 10% нитрат кислотасида декальцификация қилинди. Кейин биопсия материаллари қадамма-қадам дегидратация қилиниб, парафин воситасида блокларга тайёрланди.

Парафин блокларидан 5-7 μм қалинликда гистологик кесмалар олинди. Кесмалар депарафинлаштирилди ва гематоксилин ва эозин бўялди. Иммуногистокимёвий таҳлиллар биомаркерлар (PAX8, CK7, COX-2, CDX2) даражасини баҳолаш мақсадида ўтказилди. Бунинг учун зарур бўлган антигенларни қайта тиклаш ва махсус антитаначалар билан боғланиш босқичлари амалга оширилди. Гистологик ва иммуногистокимёвий препаратлар ёруғлик микроскопи орқали ўрганилди. Керакли жойлардан фотосуратлар олинди ва улардаги тўқима ўзгаришлари баҳоланди.

Тадқиқот жараёнида олинган маълумотлар туғма бронх аномалиялари патогенези, морфологияси ва иммунологик механизмлари ҳақида қимматли маълумотларни ошкор қилишга имкон берди.

Натижа ва муҳокамалар

Туғма бронх аномалиялари бўйича олинган биопсия материалларига иммуногистокимёвий таҳлил ўтказилди ва тўқималардаги асосий биомаркерлар (PAX8, CK7, COX-2, CDX2) даражаси баҳоланди. Ушбу биомаркерлар нафас йўллари эпителиал тўқималарининг дифференциацияси, яллиғланиш жараёни ва патогенездаги асосий механизмларни тушунишга ёрдам берди. PAX8 биомаркери асосан эпителиал тўқималарнинг дифференциациясида иштирок этади. Таҳлил натижалари шундан далолат бердики, туғма бронх аномалиялари бўлган беморларда PAX8 экспрессияси паст даражада қайд этилди. CK7 эпителиал ҳужайраларнинг кўрсаткичи бўлиб, нафас йўллари эпителийи структураси ва функцияси билан боғлиқ.

Аномалиялар бўлган беморларда CK7 экспрессияси меъёрдан юқори экани аниқланди. Бу ҳолат бронхлардаги ҳужайралар гиперплазиясини ва регенерация жараёнининг кучайганлигини англатади. COX-2 яллиғланиш жараёнида муҳим роль ўйнайдиган ферментдир. Таҳлил натижалари шундан далолат бердики, COX-2 экспрессияси юқори даражада қайд этилди. Бу туғма аномалияларда эпителий ва перибронхиал тўқималардаги яллиғланиш жараёнининг фаол эканлигини кўрсатади. Яллиғланишнинг ушбу даражада фаоллиги патогенез жараёнининг давомийлигига ишора қилади. CDX2 асосан ҳужайраларнинг трансформация жараёни ва ўзаро таъсирини баҳолайдиган биомаркер ҳисобланади. Беморларда CDX2 экспрессияси меъёрдан паст экани кузатилди. Бу ҳолат бронх эпителийининг нормал дифференциация жараёни бузилганлигини ва туғма аномалиялар механизмлари билан боғлиқ ўзгаришларни кўрсатади.

Тадқиқот натижалари туғма бронх аномалияларида эпителий тўқималарининг ривожланишига ҳалақит берувчи асосий механизмларни очиб берди. PAX8 ва CDX2 экспрессиясининг паст даражада қайд этилиши эпителий дифференциациясининг бузилишига ишора қилади. CK7 экспрессиясининг юқори даражадаги ҳолати ҳужайралар гиперплазиясини кўрсатган бўлса, COX-2 яллиғланиш жараёнлари патогенез жараёнининг асосий қисми эканлигини намоён этди.

Маркер	**Беморлар (40 та)**	**Назорат гуруҳи (20та)**	**Таҳлил**
PAX8	70% ижобий натижа	25% ижобий натижа	ПАХ8 экспрессияси юқори бўлганда, эпителий дифференциациясининг бузилиши кўрсатилади.
CK7	85% ижобий натижа	20% ижобий натижа	CK7 экспрессиясининг ошиши, бронх гиперплазияси ва тўқимадаги ўзгаришларнинг белгиси.
COX-2	70% юқори натижа	15% юқори натижа	COX-2нинг юқори экспрессияси яллиғланиш ва патологиянинг фаоллигини кўрсатади.
CDX2	65% ижобий натижа	30% ижобий натижа	CDX2нинг паст ёки юқори экспрессияси: эпителий дифференциациясининг бузилиши ва мураккабликлар.

Иммуногистокимёвий таҳлил туғма бронх аномалиялари патогенезини тушунишда самарали усул эканлигини кўрсатди. Бу маълумотлар аномалияларнинг эрта диагностикаси ва индивидуал даволаш стратегияларини ишлаб чиқиш учун муҳим илмий асос бўлиб хизмат қилади.

Хулоса

Ушбу тадқиқот туғма бронх аномалияларининг патогенезини чуқурроқ тушуниш учун иммуногистокимёвий таҳлилнинг аҳамиятини ўрганишга қаратилган. Тадқиқотда, асосан, 4 та биомаркер – PAX8, CK7, COX-2 ва CDX2нинг экспрессияси аниқланди. Бу биомаркерлар бронх аномалияларининг морфогенезидаги асосий механизмларни ва яллиғланиш, дифференциация ва гиперплазия жараёнларини ҳамда уларнинг патогенезини тушунишга ёрдам берди.

PAX8 биомаркери туғма аномалиялар бўйича эпителийнинг дифференциациясига таъсир кўрсатади. Ушбу тадқиқот натижаларига кўра, PAX8 экспрессиясининг паст даражада бўлиши туғма аномалияларнинг эпителий дифференциациясининг бузилишига ишора қилади. Бу ҳолат, шунингдек, бронхларнинг ривожланиш жараёнидаги хато ва аномалияларга бўлган олиб келувчи муаммоларни кўрсатади.

CK7 биомаркери эпителиал ҳужайраларнинг тузилишини ва фаоллигини кўрсатади. Тадқиқот натижалари, CK7нинг юқори даражадаги экспрессияси гиперплазия ва бронх тўқимасидаги қайта ривожланиш жараёнларининг фаоллигини кўрсатади. Бу, ўз навбатида, аномалияларнинг механизмларини тушунишга ёрдам беради. Гиперплазиянинг юқори даражаси, яъни ҳужайраларнинг ортиқча ривожланиши, туғма аномалияларнинг патогенезида муҳим рол ўйнаши мумкин.

COX-2 яллиғланиш жараёнларида муҳим роль ўйнайдиган фермент ҳисобланади. Тадқиқотда аниқланган COX-2нинг юқори экспрессияси яллиғланиш жараёнининг фаоллигини ва бронх аномалияларининг патогенезидаги яллиғланишнинг муҳимлигини кўрсатади. Яллиғланиш, ўз навбатида, турли патологияларнинг ривожланишини тезлаштириши ва туғма аномалияларнинг кутилганида кўпроқ фаол бўлишига олиб келиши мумкин.

CDX2 биомаркери бронх эпителийи ва ичак тўқималарининг дифференциациясини баҳолайди. Тадқиқот натижалари CDX2нинг паст даражадаги экспрессияси туғма аномалияларнинг эпителий дифференциациясининг бузилишига ишора қилади. Бу ҳолат, эпителий ҳужайралари нормал равишда ривожланмаслигини ва тўқимадаги трансформация жараёнининг узилишини кўрсатади.

Тадқиқотнинг натижалари туғма бронх аномалияларининг патогенезида бир неча муҳим механизмларнинг мавжудлигини намоён этди. PAX8 ва CDX2нинг паст экспрессияси эпителий дифференциациясининг бузилиши ва бронх тўқимасидаги ўзгаришларнинг асосий кўрсаткичлари бўлиши мумкин. CK7нинг юқори экспрессияси ҳужайралар гиперплазиясини, COX-2нинг юқори экспрессияси эса яллиғланиш жараёнининг фаоллигини кўрсатади. Бу ҳолатлар туғма бронх аномалиялари патогенезидаги асосий

механизмларнинг фаол ишлаётганлигини ва патологиянинг давомийлигини кўрсатади.

Илмий тадқиқот натижалари туғма бронх аномалияларини эрта аниқлаш, уларнинг патогенезини тушуниш ва индивидуал даволаш стратегияларини ишлаб чиқишда муҳим аҳамиятга эга. Шундай қилиб, иммуногистокимёвий таҳлил усуллари туғма аномалияларнинг патогенезидаги муҳим биомаркерларни аниқлашга ва уларга асосланган илғор ташхис ва даволаш усулларини ишлаб чиқишга ёрдам беради.

Келгусидаги тадқиқотлар ушбу биомаркерлар билан боғлиқ янада чуқурроқ таҳлилларни амалга ошириб, янги даволаш ёки профилактика стратегияларини ишлаб чиқишга кўмаклашиши мумкин.

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СТВОЛОВЫЕ КЛЕТКИ В ЭМБРИОЛОГИИ, РОЛЬ СТВОЛОВЫХ КЛЕТОК В РАЗВИТИИ ЭМБРИОНА И ИХ ПОТЕНЦИАЛ В РЕГЕНЕРАТИВНОЙ МЕДИЦИНЕ

Аннотация. *Эта статья посвящена стволовым клеткам в эмбриологии. Стволовые клетки в эмбриологии — это недифференцированные клетки эмбриона, способные к самообновлению и дающие начало всем типам клеток организма. В статье также рассматривается роль стволовых клеток в развитии эмбриона и их потенциал в регенеративной медицине.*

Ключевые слова: *тотипотентный, плюрипотентный, мультипотентный, мезенхимальный, преэклампсия, зародышевые листки, хондроцит, остеобластам, адипоцитам.*

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STEM CELLS IN EMBRYOLOGY, THE ROLE OF STEM CELLS IN EMBRYO DEVELOPMENT AND THEIR POTENTIAL IN REGENERATIVE MEDICINE

Abstract*. This article is dedicated to embryonic stem cells. Embryonic stem cells are undifferentiated cells of the embryo capable of self-renewal and giving rise to all types of cells in the body. The article also discusses the role of stem cells in embryo development and their potential in regenerative medicine.*

Keywords: *totipotent, pluripotent, multipotent, mesenchymal, preeclampsia, germ layers, chondrocyte, osteoblasts, adipocytes.*

Стволовая клетка — это недифференцированная клетка, которая является плюрипотентной, то есть может дифференцироваться в различные типы клеток. Существует два типа стволовых клеток: взрослые стволовые клетки и эмбриональные стволовые клетки человека.

Стволовые клетки различаются по потенциалу: 1) Тотипотентные (зигота) могут образовать все клетки организма и плаценту. 2)Плюрипотентные (эмбриональные стволовые клетки и индуцированные плюрипотентные стволовые клетки) дифференцируются во все ткани организма, но не формируют плаценту. Они дают начало трем зародышевым листкам:

• Эктодерма (нервные ткани)

• Мезодерма (кроветворные, костные, почечные клетки)

• Энтодерма (эпителий лёгких и печени)

ИПСК имеют преимущество перед ЭСК, так как не связаны с этическими проблемами, но обе группы клеток несут риск образования опухолей.

Мультипотентные стволовые клетки могут дифференцироваться только в ограниченные типы клеток. Они присутствуют во многих тканях организма: лёгких, мышцах, жировой ткани, костном мозге, коже и мозге.

Основные виды:

•Мезенхимальные стволовые клетки (МСК) → хондроциты, остеобласты, адипоциты.

•Гемопоэтические стволовые клетки (ГСК) → лимфоидные и миелоидные клетки крови.

•Эпителиальные стволовые клетки (ЭСК) → кератиноциты, волосяные фолликулы, железы.

•Нервные стволовые клетки (НСК) → астроциты, олигодендроциты, нейроны.

Биологическая роль мульипотентных фетальных стволовых клеток. Они регулируют функции соседних клеток, способствуют регенерации тканей и поддерживают гомеостаз. Важную роль играют в динамических процессах развития плода, особенно в плаценте и плодных оболочках. Среди них особо выделяются стволовые клетки амниотической жидкости, обладающие высокой мультипотентностью, возможно, происходящие из аберрантно мигрирующих PGC.

Мультипотентные стволовые клетки плода перспективны для терапии заболеваний репродуктивной системы, поскольку:

•Их легко получить без этических и законодательных ограничений, они быстро размножаются и масштабируются in vitro.

•Они обладают высокой способностью к дифференцировке (все три зародышевых листка), генетической стабильностью, эуплоидным кариотипом и низкой онкогенностью.

•Клетки, такие как амниотический эпителий и стволовые клетки амниотической жидкости, не вызывают образования тератом и имеют низкую иммуногенность.

•Их терапевтический эффект обусловлен не только интеграцией в повреждённые ткани, но и широкими паракринными воздействиями (секреция микроРНК и белков).

•Они поддаются генетической модификации и могут служить носителями для новых терапевтических концепций, включая генные терапии.

•Первые клинические испытания уже начаты для лечения бесплодия и преэклампсии. Однако остаются вопросы функциональности, специфичности, воспроизводимости и безопасности, требующие дальнейших исследований и этических обсуждений.

Фетальные стволовые клетки (ФСК) получают из тканей плода после прерывания беременности, при соблюдении этических норм. Они содержатся в различных органах (печень, лёгкие, почки) и накапливают меньше мутаций, что делает их ценными для исследований и клеточных технологий. Однако их количество ограничено, доступ затруднён, а дифференцировочный потенциал требует дальнейшего изучения.

Получение линий эмбриональных стволовых клеток человека. Эмбриональные стволовые клетки человека (ЭСК) получают из внутренней клеточной массы (ВКМ) бластоцисты. Для выделения ВКМ используют механическое или лазерное рассечение, а также иммунохирургию (менее предпочтительный метод из-за использования нечеловеческих антител).

Регенеративная медицина использует стволовые клетки для восстановления тканей и органов. Первой успешной процедурой стала трансплантация костного мозга (1956), применяемая при лейкемии и лимфоме. Открытие эмбриональных и индуцированных плюрипотентных стволовых клеток расширило терапевтические возможности. Основные направления применения:

1. Лечение нейродегенеративных заболеваний – восстановление нейронов при болезни Паркинсона, Альцгеймера, после инсульта и травм.

2. Регенерация тканей и органов – восстановление сердечной мышцы, заживление ожогов, выращивание искусственных органов.

3. Терапия аутоиммунных и онкологических заболеваний – пересадка гемопоэтических стволовых клеток при лейкемии, использование мезенхимальных клеток для подавления воспалений.

4. Генная терапия – редактирование генома для лечения наследственных болезней.

Также стволовые клетки применяются в дерматологии и пластической хирургии (омоложение кожи, лечение рубцов), а клеточная терапия эффективна при диабетических язвах и хронических ранах.

Заключение.

Стволовые клетки обладают уникальной способностью к самообновлению и дифференцировке, играя ключевую роль в развитии

организма и регенеративной медицине. Современные методы культивирования и генетического редактирования расширяют их применение, однако для клинического внедрения необходимы дальнейшие исследования безопасности и эффективности. Стволовые клетки открывают новые возможности в лечении тяжёлых заболеваний, делая их изучение приоритетным направлением биомедицинской науки.

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МИКРОФЛОРА КИШЕЧНИКА И ИММУННЫЙ СТАТУС ПРИ ШИГЕЛЛЕЗАХ И ЯЗВЕННЫХ КОЛИТАХ: РОЛЬ ДИСБАКТЕРИОЗА В ПАТОГЕНЕЗЕ

Аннатация. *Подчеркивается, что дисбактериоз, характеризующийся количественным и качественным дисбалансом микробиоты, не только сопровождает, но и активно участвует в развитии и прогрессировании этих заболеваний, оказывая значительное влияние на иммунный статус. Представлена информация о взаимосвязи между нарушением состава микрофлоры кишечника и иммунными реакциями при шигеллезах и ЯК, что позволяет лучше понять патогенез этих заболеваний.*

Ключевые слова. *дисбактериоз, микрофлора кишечника, шигеллезы, дизентерия, язвенный колит, иммунный статус, микробиота.*

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INTESTINAL MICROFLORA AND IMMUNE STATUS IN SHIGELLOSIS AND ULCERATIVE COLITIS: THE ROLE OF DYSBACTERIOSIS IN PATHOGENESIS

Abstract. *It is emphasized that dysbacteriosis, characterized by quantitative and qualitative imbalance of microbiota, not only accompanies, but also actively participates in the development and progression of these diseases, exerting a significant impact on the immune status. Information is presented on the relationship between the violation of the composition of intestinal microflora and immune reactions in shigellosis and UC, which allows us to better understand the pathogenesis of these diseases.*

Keywords*. dysbacteriosis, intestinal microflora, shigellosis, dysentery, ulcerative colitis, immune status, microbiota.*

Введение. Инфекционные и воспалительные заболевания кишечника, такие как шигеллезы (дизентерия) и язвенный колит (ЯК), представляют собой значимую проблему в современной гастроэнтерологии, характеризующуюся высокой распространенностью, хроническим течением и существенным снижением качества жизни пациентов [1, 2]. Ключевым аспектом патогенеза этих заболеваний является дисбаланс кишечной микрофлоры (дисбактериоз), определяемый как качественное и/или количественное нарушение состава микробиоты, приводящее к нарушению ее функций [3,7]. Растущий объем данных свидетельствует о том, что дисбактериоз не только сопровождает инфекционные и воспалительные процессы в кишечнике, но и играет активную роль в их развитии и прогрессировании, оказывая существенное влияние на иммунный статус организма [4, 5].

Целью исследования являлась оценка изменений микробиоценоза кишечника и показателей иммунной системы у больных шигеллезами, язвенный колита для определения роли дисбактериоза в патогенезе этих заболеваний.

Материалы и методы. В исследование были включены пациенты с установленным диагнозом шигеллеза (дизентерии), язвенного колита. Критериями включения для пациентов с язвенного колита являлись подтвержденный диагноз на основании клинических, эндоскопических и гистологических данных. Критериями исключения были прием антибиотиков в течение месяца до включения в исследование, наличие сопутствующих аутоиммунных заболеваний и иммунодефицитных состояний. Контрольную группу составили практически здоровые лица, сопоставимые по возрасту и полу с основной группой, без анамнеза заболеваний желудочно-кишечного тракта и приема антибиотиков.

Забор проб фекалий для микробиологического исследования осуществлялся стерильно, в одноразовые контейнеры с транспортной средой, и доставлялся в лабораторию в течение часа для посева на селективные и дифференциально-диагностические питательные среды (агар Эндо, среда Сабуро). Идентификация выделенных микроорганизмов проводилась комплексом стандартных микробиологических методов, включающих микроскопию мазков, окрашенных по Граму, определение морфологических, тинкториальных и культуральных свойств, а также биохимическую идентификацию с использованием коммерческих тест-систем (API 20E, BioMerieux). Для количественной оценки содержания различных групп микроорганизмов проводился подсчет колоний, выросших на соответствующих питательных средах, с последующим пересчетом на КОЕ/г фекалий.

Оценка иммунного статуса проводилась методом проточной цитометрии на анализаторе (Beckman Coulter FC500), с использованием моноклональных антител, конъюгированных с различными флуорохромами, для определения субпопуляций Т-лимфоцитов (CD3+, CD4+, CD8+) и В-

лимфоцитов (CD19+, CD20+). Функциональная активность фагоцитов оценивалась путем определения фагоцитарного индекса и фагоцитарного числа с использованием опсонизированных частиц латекса. Цитотоксическая активность естественных киллеров (NK-клеток) определялась в стандартном 4-часовом тесте с использованием клеток-мишеней K562.

В контрольной группе здоровых лиц при микробиологическом исследовании фекалий не было выявлено патогенных микроорганизмов, таких как *Salmonella spp., Shigella spp*., энтеропатогенные серотипы *Escherichia coli*, гемолитические стрептококки, энтерококки, патогенные простейшие и гельминты. Показатели клеточного иммунитета – абсолютное и относительное содержание Т-лимфоцитов (CD3+), Т-хелперов (CD3+CD4+), цитотоксических Т-лимфоцитов (CD3+CD8+) и В-лимфоцитов (CD19+CD20+) – находились в пределах референсных значений. Функциональная активность фагоцитов и NK-клеток также соответствовала нормальным показателям.

У больных дизентерией в посевах фекалий наиболее часто выделялись *Shigella Flexneri* и *Shigella Sonnei*. Помимо этого, отмечалось повышенное количество условно-патогенных микроорганизмов (УПМ) – представителей нормальной микрофлоры кишечника. Частота выделения гемолитической флоры (представленной преимущественно *Escherichia coli*), бактерий группы *Proteus* и дрожжевых грибков рода *Candida* была значительно выше по сравнению с контрольной группой ($p<0.05$). При анализе иммунного статуса у пациентов с тяжелыми формами дизентерии наблюдалось снижение абсолютного числа Т-лимфоцитов (CD3+) и цитотоксических Т-лимфоцитов (CD3+CD8+) в периферической крови ($p<0.05$), а также увеличение количества В-лимфоцитов (CD19+CD20+).

У больных ЯК микробиоценоз кишечника характеризовался значительными изменениями. Выявлялись различные УПМ. В большинстве случаев был диагностирован кишечный дисбактериоз, характеризующийся снижением количества бифидобактерий и лактобацилл и преобладанием УПМ. Иммунологические исследования у больных ЯК выявили нарушения функций иммунной системы, проявлявшиеся в дисбалансе субпопуляций Т- и В-лимфоцитов. Кроме того, отмечалось снижение функциональной активности фагоцитов (снижение фагоцитарного индекса и фагоцитарного числа) и цитотоксической активности естественных киллеров (NK-клеток) ($p<0.05$).

Обсуждение. Результаты проведенного исследования убедительно демонстрируют важную роль дисбактериоза в развитии и прогрессировании шигеллезов и язвенного колита (ЯК). При шигеллезе нарушение баланса микрофлоры создает благоприятные условия для колонизации патогенных шигелл, что приводит к активации врожденного и адаптивного иммунного ответа и развитию острого воспалительного процесса в слизистой оболочке кишечника. Выделение Shigella flexneri и Shigella sonnei в качестве основных возбудителей подтверждает их этиологическую роль в развитии дизентерии в

исследуемой популяции. Снижение количества Т-лимфоцитов (CD3+, CD8+) при тяжелых формах дизентерии может отражать истощение пула цитотоксических Т-клеток в результате длительной антигенной стимуляции и их миграцию в очаг воспаления в кишечнике, как было показано в исследованиях [6]. Повышенная частота выделения УПМ и гемолитической флоры может усугублять воспаление и способствовать развитию системных осложнений.

При язвенном колите микробиоценоз кишечника характеризуется выраженным дисбактериозом с преобладанием УПМ, что поддерживает хроническое воспаление в кишечной стенке и способствует развитию аутоиммунных реакций. Дисбаланс субпопуляций Т- и В-лимфоцитов, наблюдаемый у больных ЯК, указывает на нарушение регуляторных механизмов иммунного ответа. Снижение количества Т-хелперов (CD3+CD4+) может приводить к нарушению функции Т-регуляторных клеток (Tregs), которые играют ключевую роль в поддержании иммунной толерантности к комменсальной микрофлоре и предотвращении аутоиммунных реакций. Снижение функциональной активности фагоцитов и NK-клеток может быть следствием хронической иммунной стимуляции и дисфункции иммунных клеток в условиях воспаления. Полученные результаты согласуются с данными других исследований, демонстрирующих роль микробиоты в патогенезе ЯК [8] и подчеркивающих важность восстановления баланса микрофлоры для контроля над заболеванием.

Выводы. На основании полученных данных можно заключить, что дисбактериоз является важным патогенетическим фактором в развитии и прогрессировании шигеллезов и язвенного колита. При шигеллезе дисбактериоз способствует колонизации патогена и развитию острого воспаления, в то время как при язвенном колите дисбактериоз поддерживает хроническое воспаление и способствует развитию аутоиммунных реакций. Коррекция дисбактериоза и восстановление нормального микробиоценоза кишечника могут являться перспективной терапевтической стратегией в комплексном лечении данных заболеваний. Дальнейшие исследования необходимы для уточнения механизмов взаимодействия микрофлоры кишечника и иммунной системы при шигеллезах и ЯК, а также для разработки новых методов персонализированной терапии, направленных на восстановление баланса микробиоты и модулирование иммунного ответа. В частности, перспективным направлением является изучение роли метаболитов микробиоты, таких как короткоцепочечные жирные кислоты (КЖК), в регуляции иммунных процессов в кишечнике.

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ЗАГРЯЗНЕНИЕ АТМОСФЕРНОГО ВОЗДУХА И ЕГО ВЛИЯНИЕ НА ЗДОРОВЬЕ ЧЕЛОВЕКА

Аннотация: *в условиях урбанизации и роста автотранспорта качество атмосферного воздуха становится важным фактором, влияющим на здоровье населения. В данной статье проведено исследование уровня загрязнения воздуха в различных районах Ташкента и его влияния на здоровье жителей. Проведен мониторинг концентрации загрязняющих веществ (PM2.5, PM10, CO, CO_2, NO_2, SO_2) с использованием портативных газоанализаторов, а также анализ медицинской статистики, опрос жителей и экспериментальное изучение влияния воздуха на физиологические показатели. Полученные результаты демонстрируют высокий уровень загрязнения воздуха в центральных и промышленных районах города, коррелирующий с увеличением числа заболеваний органов дыхания и сердечно-сосудистой системы.*

Ключевые слова: *качество воздуха, загрязнение, PM2.5, респираторные заболевания, сердечно-сосудистые болезни, Ташкент.*

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AIR POLLUTION AND ITS IMPACT ON HUMAN HEALTH

Abstract: *in the context of urbanization and growth of motor transport, the quality of atmospheric air becomes an important factor affecting the health of the population. This article studies the level of air pollution in various areas of Tashkent and its impact on the health of residents. Monitoring of the concentration of pollutants (PM2.5, PM10, CO, CO_2, NO_2, SO_2) was carried out using portable gas analyzers, as well as an analysis of medical statistics, a survey of residents and an experimental study of the effect of air on physiological indicators. The results demonstrate a high level of air pollution in the central and industrial areas of the city, correlating with an increase in the number of respiratory and cardiovascular diseases.*

Keywords: *air quality, pollution, PM2.5, respiratory diseases, cardiovascular diseases, Tashkent.*

В 2025 году в Узбекистане особое внимание уделяется вопросам экологии и устойчивого развития. Президент Шавкат Мирзиёев объявил 2025 год Годом охраны окружающей среды и «зелёной» экономики. Это решение подчёркивает стремление страны к созданию устойчивого баланса между экономическим ростом и сохранением окружающей среды. В рамках этого года планируется реализация государственной программы, направленной на внедрение «зелёных» технологий, экономию водных ресурсов, расширение озеленённых территорий и улучшение здоровья населения. Особое внимание будет уделено борьбе с загрязнением воздуха, что напрямую связано с улучшением качества жизни и здоровья жителей Ташкента.

Качество атмосферного воздуха оказывает значительное влияние на здоровье людей, особенно в мегаполисах. По данным Всемирной организации здравоохранения (ВОЗ), загрязнение воздуха является одной из ведущих причин преждевременной смертности в городах. В Ташкенте, крупнейшем городе Узбекистана, наблюдается рост автомобильного транспорта и промышленности, что приводит к ухудшению экологической обстановки.

Актуальность исследования: проблема загрязнения воздуха в Ташкенте остаётся недостаточно изученной, а его влияние на здоровье населения требует более детального анализа. Настоящее исследование направлено на выявление взаимосвязи между уровнем загрязнения воздуха и распространённостью заболеваний среди горожан, а также на разработку рекомендаций по улучшению экологической ситуации.

Методы исследования:

Мониторинг качества воздуха: исследование проводилось в 10 районах Ташкента, включая центральные (Чиланзар, Юнусабад, Мирзо-Улугбек), промышленные (Алмазар, Бектемир) и окраинные (Зангиота, Янгихаёт) зоны, а также парковые территории (Ботанический сад, парк Навои).

Оборудование:

- **AirVisual Pro** – анализ PM2.5, PM10, CO_2, температуры, влажности.
- **Temtop M2000** – анализ CO, CO_2, NO_2, SO_2.

- **Официальные данные**
- **Узгидромета** – для сравнения.

Опрос жителей: было опрошено 300 респондентов, проживающих в разных районах города. Анкета включала вопросы о восприятии качества воздуха, частоте респираторных симптомов и использовании мер защиты.

Экспериментальное исследование: 10 добровольцев проходили измерения сатурации кислорода и пульса до и после пребывания в районах с разным уровнем загрязнения. Использовались:

- **Пульсоксиметр Beurer PO80** – измерение сатурации.
- **Фитнес-браслеты Xiaomi Mi Band 7** – контроль частоты пульса и уровня стресса.

Результаты исследования:

Уровень загрязнения воздуха

- **Центр (Чиланзар, Юнусабад)** – PM2.5: 55-75 мкг/м³ (выше нормы ВОЗ – 25 мкг/м³).
- **Промзоны (Бектемир, Алмазар)** – PM2.5: 80-120 мкг/м³ (критический уровень).
- **Парки (Навои, Ботанический сад)** – PM2.5: 15-25 мкг/м³.
- **Окраины (Зангиота, Янгихаёт)** – PM2.5: 30-50 мкг/м³.

Опрос жителей:

- **72%** жалуются на усталость и головные боли.
- **65%** отмечают ухудшение дыхания в зимний период.
- **48%** имеют хронический кашель или аллергию.
- **50%** используют очистители воздуха дома.
- **80%** жителей центра оценивают воздух как "очень грязный".

Экспериментальные данные:

- В центре города сатурация **снижалась на 2%**, пульс увеличивался на **10-15 ударов/мин**.
- В парке показатели оставались в норме.
- В помещении с очистителем воздуха улучшались показатели сатурации.
- Использование маски снижало раздражение слизистых.

Заключение: Исследование показало, что уровень загрязнения воздуха в Ташкенте, особенно в центре и промышленных зонах, превышает допустимые нормы. Это негативно сказывается на здоровье жителей, увеличивая распространённость респираторных и сердечно-сосудистых заболеваний. Опросы подтвердили субъективное восприятие загрязнённого воздуха как угрозы здоровью. Экспериментальные исследования выявили физиологические изменения при вдыхании загрязнённого воздуха.

Рекомендации

- Развитие системы мониторинга качества воздуха и информирования населения.
- Увеличение количества зелёных зон и озеленение городских улиц.
- Контроль выбросов автотранспорта и промышленных предприятий.

- Внедрение экологически чистого общественного транспорта.
- Популяризация использования очистителей воздуха и защитных масок.

Перспективы дальнейших исследований

Будущие исследования могут включать анализ долгосрочного влияния загрязнения воздуха на здоровье и разработку стратегий по снижению воздействия вредных веществ.

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НЕКОТОРЫЕ ВОПРОСЫ ДИНАМИКИ ДИСТРОФИЧЕСКИХ ПРОЦЕССОВ У БОЛЬНЫХ ТУБЕРКУЛЕЗНЫМ СПОНДИЛИТОМ

Аннотация. *В ходе исследования изучено 160 больных туберкулёзным спондилитом, из них 89 в стадии разгара и 71 больной в стадии затихания. В период разгара отмечалось снижение температуры по сравнению с нормой выше и ниже очага поражения и близкая к норме температура над очагом поражения. Динамика дистрофических нарушений в основном совпадает с клинико-рентгенологическими изменениями туберкулёзного процесса и изучение показателей дистрофии может служить дополнительными критериями для характеристики течения туберкулёзного спондилита.*

Ключевые слова: *туберкулёз, остеопороз, спондилит, детей, позвоночник.*

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SOME ISSUES OF THE DYNAMICS OF DYSTROPHIC PROCESSES IN PATIENTS WITH TUBERCULOUS SPONDYLITIS

Abstract: *During the study, 160 patients with tuberculous spondylitis were studied, of which 89 were in the peak stage and 71 patients were in the subsiding stage. During the peak period, there was a decrease in temperature compared to the norm above and below the lesion and a temperature close to normal above the lesion. The dynamics of dystrophic disorders basically coincides with clinical and radiological changes in the tuberculosis process, and the study of dystrophy indicators can serve as additional criteria for characterizing the course of tuberculous spondylitis.*

Key words: *tuberculosis, osteoporosis, spondylitis, children, spine.*

Актуальност. Туберкулезная инфекция по праву считается одной из главных проблем тысячелетия, сохраняя за собой лидерство среди причин высокого уровня летальности и развития инвалидности у трудоспособного

населения [1]. Туберкулез не щадит ни взрослых, ни детей. Только в 2017 г. от туберкулеза умерло более 1,3 млн человек с ВИЧ-негативным статусом и более 300 тыс. – с ВИЧ-инфекцией, а заболело свыше 10 млн. Большинство пациентов проживает в Китае, Индии, Пакистане, Бангладеш, Нигерии, Южной Африке, Индонезии и на Филиппинах. Эти государства относятся к списку 30 стран с самой неблагополучной эпидемиологической обстановкой по туберкулезу, в которых сконцентрировано 87 % всех заболевших в мире [2]. Туберкулезный спондилит – наиболее часто встречаемая форма костно-суставного туберкулеза [3,4]. Тем не менее, даже при наличии высокотехнологичных методов диагностики туберкулезный спондилит до сих пор выявляют в 40% случаев на поздних стадиях, а распространенные и осложненные формы встречаются у 70% взрослых пациентов [5,6].

Цель исследования. Изучит динамики дистрофических процессов у больных туберкулезным спондилитом.

Материалы и методы: нами изучено 160 больных туберкулёзным спондилитом, из них 89 в стадии разгара и 71 больной в стадии затихания. У всех больных характер течения процесса определялся на основании клинико-рентгенологических данных и лабораторных исследований. Дистрофические процессы изучались путем измерения кожной температуры при помощи электротермометра (модель «0,58»с точностью измерения ±0,2°С). Потоотделение исследовалось методом йод-крахмальной пробы В. Л. Минора. Электровозбудимость проверялась на основании измерения реобазы и хроноксии (хроноксиметр ХА-3).

Результаты исследование: Во всех случаях исследование производилось соответственно очагу поражения, выше очага поражения и ниже. Измерения производились симметрично с обеих сторон от позвоночного столба. Разработка полученных данных показала, что данные с обеих сторон от позвоночника в большинстве случаев совпадали и это позволило нам объединить их и представить в виде средних цифр,

С учетом стадии процесса все больные по возрасту распределялись следующим образом:

Таблица 1

Возрастное распределение пациентов

№	Возраст	Стадия разгара	Стадия затихания
1	до 5 лет	32 больных	16 больных
2	от 6 до 10 лет	7	21
3	от 11. до. 15	11	6
4	от 16 до 20	6	6
5	от 21 до 30	23	11
6	от 31 до 40	5	7
7	от 41 и более	5	3

По давности заболевания:

Таблица 2

Распределение на протяжении заболевания

№	Возраст	Стадия разгара	Стадия затихания
1	до 1 года	29 больных	5 больных
2	от 1 до 2 лет	39	30
3	от 2 до 3 лет	9	20
4	от 3 до 4 лет	6	6
5	от 4 и свыше	6	10

По локализации заболевания:

Таблица 3

Распределение по локализации

№	Возраст	Стадия разгара	Стадия затихания
1	Грудной отдел позвоночника	44 больных	39 больных
2	Грудно-поясничный отдел позвоночника	35	25
3	Поясничный отдел позвоночника	10	7

Наиболее стабильными оказались изменения потоотделения. Как в стадии разгара, так и в стадии затихания, независимо от локализации процесса и его давности, наблюдалось некоторое снижение потоотделения (гипогидроз) выше и ниже очага поражения и нормальное потоотделение, реже повышенное, непосредственно над очагом поражения.

По данным Л. Я. Шаргородского и М. С. Ходжаева, кожная температура спины человека в возрасте от 6 лет и старше колеблется в пределах 33,7°С-34,4°С. По нашим данным, средняя температура у больных туберкулёзом позвоночника в период разгара заболевания равнялась 32,9°С выше очага поражения, 33,5°С - соответственно очагу поражения и 32,6°С - ниже очага поражения. В период затихания заболевания кожная температура спины соответственно равнялась 32,5°С выше очага поражения, 32,7°С - над очагом поражения и 31,8°С - ниже очага. Таким образом, в период разгара отмечалось некоторое снижение температуры по сравнению с нормой выше и ниже очага поражения и близкая к норме температура над очагом поражения. При затихании процесса имеется тенденция к общему равномерному понижению температуры, но тоже с превалированием этих явлений выше и ниже очага поражения.

Динамика изменений кожной температуры в зависимости от давности заболевания и локализации процесса представлена в таблице 4.

Таблица 4

Динамика изменений кожной температуры

№	Возраст	Стадия разгара			Стадия затихания		
		выше очага	над очагом	ниже очага	выше очага	над очагом	ниже очага
	Давность заболевания						
1	до 1 года	33,0	33,5	33,1	33,0	33,5	32,5
2	от 1 до 2 лет	32,9	33,5	32,6	33,1	33,5	32,5
3	от 2 до 3 лет	33,0	33,2	32,4	32,6	32,8	32,1
4	от 3 до 4 лет	32,1	33,0	31.5	32,8	33,2	32,3
5	от 4 и более	33,0	33,3	32.7	33,0	33,3	32,6
	Локализация процесса						
1	Грудной отдел	32,6	33,5	32,5	33,2	33,7	32,4
2	Грудно-поясничный отдел	32,8	33,5	32,7	33,0	32,9	32,7
3	Поясничный отдел	32,7	33,2	32,7	32,9	33,2	32,9
4	Средний показатель	32,9	33,5	32,6	32,5	32,7	31,8

Анализ данных таблица 1 показывает, что наибольшие отклонения от средних цифр мы имеем в период разгара при давности заболевания от 3 до 4 лет. Локализация процесса не играет существенной роли в колебании показателей кожной температуры. В период затихания процесса большую нормализацию показателей можно наблюдать в случаях с давностью заболевания от 1 года до 3 лет и при локализации процесса в грудном и грудно-поясничном отделах позвоночника.

Изменение электровозбудимости, как уже указывалось, изучалось на основе измерения реобазы и хроноксии. Средние цифры для стадии разгара колебались в пределах 63-70 вольт реобазы и 0,5-0,6 мил. сек. хроноксии, В стадии затихания- 52-67 вольт реобазы и 0,3-0,4 мил. сек. хроноксии.

Отсутствие в доступной нам литературе показателей нормальной реобазы и хроноксии для мышц спины не позволяет провести сравнение и нам приходится ограничиться изучением относительной динамики этих данных (таблица 5).

Таблица 5

Динамика реобазы мышц спины (мил. сек.)

№	Возраст	стадия разгара			стадия затихания		
		выше очага	над очагом	ниже очага	выше очага	над очагом	ниже очага
	Давность заболевания						
1	до 1 года	61	71	69	55	65	57
2	от 1 до 2 лет	66	72	68	59	64	61
3	от 2 до 3 лет	71	75	71	57	67	61
4	от 3 до 4 лет	62	72	65	73	84	78
5	от 4 и более	56	65	58	55	67	62
	Локализация процесса						
1	Грудной отдел	66	70	67	59	64	62
2	Грудно-поясничный отдел	60	66	62	61	70	64
3	Поясничный отдел	56	69	62	58	68	56
4	Средний показататель	63	70	66	52	67	56

Анализ динамики изменения реобазы показывает, что этот показатель имеет тенденцию к увеличению в период разгара, заболевания в зависимости от давности заболевания, но до определенного предела, и при давности заболевания свыше 4 лет становится даже ниже среднего. При поражении грудного отдела позвоночника реобаза значительно выше, чем при поражении грудно-поясничного отдела и особенно поясничного.

В период затихания наблюдается обратная картина: реобаза уменьшается и тем более, чем меньше давность заболевания и опять до определенного предела. Начиная с давности заболевания 4 года и более цифры реобазы приближаются к цифрам, характерным для больных с давностью заболевания в пределах 1 года. Динамика восстановления показателей реобазы в зависимости от локализации процесса не так показательна и не дает какой-либо определенной закономерности.

Показатели хроноксии изменяются в очень небольших пределах и в малой степени зависят от давности процесса и его локализации. В период разгара заболевания хроноксия колебалась в пределах 0,4-0,6 мил. сек. с небольшой тенденцией к увеличению параллельно возрастанию давности заболевания. При затихании процесса наблюдается уменьшение величины хроноксии независимо от давности и локализации процесса, и величина ее колеблется в пределах 0,3-0,7 мил. секунды. Только при большой давности процесса, более 4 лет, отмечается не снижение величины хроноксии, а наоборот, её увеличение.

Выводы: 1. Непосредственно вблизи очага поражения при туберкулёзном спондилите, а так же выше и ниже очага поражения наблюдаются значительные дистрофические и нейротрофические изменения

в виде изменения кожной температуры, нарушения потоотделения и электровозбудимости.

2. Степень дистрофических нарушений, в первую очередь, определяется стадией течения туберкулёзного процесса.

3. Характер и степень дистрофических изменений зависят от давности процесса и его локализации.

4. Наименьшие изменения претерпевают, по-видимому, нарушения потоотделения, которые, возникнув в начальный период заболевания, остаются неизменными на протяжении всей болезни и в период её затихания.

5. Наибольшим изменениям подвергается показатель реобазы, который чутко реагирует на всю динамику процесса.

6. Динамика дистрофических нарушений в основном совпадает с клинико-рентгенологическими изменениями туберкулёзного процесса и изучение показателей дистрофии может служить дополнительными критериями для характеристики течения туберкулёзного спондилита.

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ИНФОРМАЦИОННЫЕ И КОММУНИКАТИВНЫЕ ТЕХНОЛОГИИ

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Gurlan tuman 1-son politexnikumi o'qituvchisi

DAVLATIMIZ IQTISODIYOTINI RIVOJLANTIRISHDA INFORMATIKA VA RAQAMLI TEXNOLOGIYALARINING O'RNI

Annotatsiya*:Bugungi zamonda raqamli bilimlar va zamonaviy axborot texnologiyalari taraqqiyotga erishishning muhim shartlaridan biridir. Raqamli texnologiyalar nafaqat davlat va jamiyat boshqaruvini takomillashtiradi va ijtimoiy sohada odamlarga katta qulayliklar yaratadi. Bundan tashqari raqamli texnologiyalar ijobiy iqtisodiy o'sishiga zamin yaratadi: mahsulot va xizmatlar sifatini oshiradi, va ortiqcha xarajatlarni kamaytiradi, va yana bir muhim afzallik — korrupsiyaga chek qo'yadi.*

Kalit so'zlar: *Raqamli iqtisodiyot, innovatsion boshqaruv, ish yuritish jarayoni, IT yechimlar.*

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THE ROLE OF INFORMATICS AND DIGITAL TECHNOLOGIES IN THE DEVELOPMENT OF THE ECONOMY OF OUR STATE

Annotation: *in today's time, digital knowledge and modern information technology are one of the important conditions for achieving progress. Digital technologies not only improve the management of the state and society and provide great facilities to people in the social sphere. In addition, digital technologies provide the basis for positive economic growth: increases the quality of products and services, and reduces overhead costs, and another important advantage — the end of corruption.*

Keywords: *Digital Economy, Innovative Management, proceedings, IT solutions.*

Raqamli iqtisodiyotga bo'lgan qiziqish jamiyat va iqtisodiyotda ro'y bergan jiddiy o'zgarishlar tufayli sezilarli darajada o'sdi. Zamonaviy texnologiyalar va platformalar mijozlar, hamkorlar va davlat tashkilotlari bilan shaxsiy muloqotni minimallashtirish hisobiga korxonalar va jismoniy shaxslarga xarajatlarni qisqartirishga yordam berdi, shuningdek, o'zaro muloqotni yanada tez va oson yo'lga qo'yishga imkoniyat yaratdi. Natijada tarmoq resurslariga asoslangan, raqamli yoki elektron iqtisodiyot paydo bo'ldi.

«Raqamlashtirish» so'zi aslida yangi atama bo'lib, innovatsion boshqaruv va ish yuritish jarayoniga IT yechimlarning jalb etilishini, buning samarasi o'laroq esa

internet buyumlardan tortib, elektron hukumatgacha bo'lgan barcha tizimlarda axborot texnologiyalarini qo'llashni ko'zda tutadi.

Iqtisodiyotning raqamli segmentiga tegishli bosh manba – trakzaksion sektorning o'sishidir. Rivojlangan mamlakatlarda bu ko'rsatkich YaIMning 70 foizdan ortiq miqdorni tashkil etib, davlat boshqaruvi, konsalting va informatsion xizmat ko'rsatish, moliya, ulgurji va chakana savdo, shuningdek, xizmatlar sohasini (kommunal, shaxsiy va ijtimoiy) birlashtiradi.

Iqtisodiyot diversifikatsiyasi va dinamikasi qanchalik yuqori bo'lsa, mamlakat ichida va tashqarisida noyob axborotlar aylanmasi shunchalik ko'p, milliy iqtisodiyotlar ichida axborot trafigi esa shu qadar salmoqli bo'ladi. Shu bois ishtirokchilar soni ko'p va IT xizmatlar keng tarqalgan bozorlarda raqamli iqtisodiyot jadal sur'atlarda rivojlanadi.

Ayniqsa, bu – transport, savdo, logistika va shu singari internet bilan faol ishlovchi sohalarga cheksiz qulayliklar yaratadi. Ayrim tadqiqotchilarning fikriga ko'ra, ularda elektron segmentning ulushi YaIMning 10 foiziga yaqinlashib, 4 foiz aholi bandligini ta'minlaydi. Eng ahamiyatlisi, bu ko'rsatkichlar barqaror tarzda o'sib boradi.

Shubhasiz, raqamli iqtisodiyotning samaradorligiga nafaqat axborot texnologiyalarining qamrovi va infratuzilmaning mavjudligi, balki ishbilarmonlik muhiti, inson kapitali va muvaffaqiyatli boshqaruv instrumentlari kabi standart iqtisodiy mezonlar ham ta'sir ko'rsatadi. Binobarin, iqtisodiy taraqqiyot aynan ularga tayanadi, bu esa ushbu mezonlarning raqamli iqtisodiyot rivojlanishida avvalgiday muhim o'rin tutishini bildiradi.

Hozir butun dunyo bo'ylab yangi servislar va biznes modellarni yaratish uchun IT instrumentlardan foydalanadigan eski va yangi kompaniyalar aksariyat sohalarda yetakchi bo'lgan kompaniyalarga kuchli raqobat tug'dirmoqda.

Prognozlarga ko'ra, yaqin yillarda makroiqtisodiyot «lean production», addiktiv, nano va biotexnologiya mezonlariga tayanadigan ishlab chiqaruvchilarga qattiq bog'liq bo'lishi kutilmoqda. Shu munosabat bilan oqilona boshqaruv uchun zarur hisoblangan axborot ko'lami ham ortib boradi, ishlab chiqarish va fuqarolar muloqoti, biznes va davlat organlarini boshqarish tuzilmasi esa jiddiy o'zgarishlarni boshdan kechiradi.

Quyidagilar bunda ijtimoiy va iqtisodiy taraqqiyot yo'liga bosqichma-bosqich chiqish uchun asosiy shart va omillar sifatida ko'rsatilmoqda:

- axborotlashtirish va davlat boshqaruvi organlari hamda munitsipal xizmatlarni integratsiyalash hisobiga elektron hukumat va raqamli shahar konsepsiyalarini tatbiq etish;
- yangi texnologik avloddagi mahsulotlarni yalpi ishlab chiqarish (pilotsiz avtomobillar va boshqalar singari);
- o'ziga xos bezak va qurilish materiallari yordamida «aqlli» va ekologik uylarni barpo etishga oid g'oyalarni amalga oshirish;
- autsorsing, o'zini band etish va boshqalar orqali bandlikning muqobil shakllarini keng targ'ib qilish;

➢ muayyan vazifalarni bajarish uchun ishchi-frilanserlarni izlashga xizmat qiladigan professional tarmoqlarni yaratish.

Yuqoridagilar barchasi biznesga ishlab chiqarish va boshqaruvda tovar va elektron xizmatlar integratsiyalanadigan zamonaviy platformalar yordamida xarajatlarni qisqartirishga imkoniyat beradi. Birinchi galda bu masala xizmatlar buyurtmasi integratsiyasi, resurslardan birgalikda foydalanish, kontragentlarni tanlash, elektron savdoni yuritish, to'lovlar va boshqalarga tegishlidir.

Texnologik raqamli muhit – bu yuridik va jismoniy shaxslar hamkorlikdagi faoliyat uchun butunlay yangi muloqotni yo'lga qo'yadigan «akvarium» hisoblanadi. Axborot texnologiyalari korxonalarga butunlay yangi, yanada jadal ish sur'atlarini o'zlashtirish hamda xizmat va mahsulotlar shaklini xilma-xillashtirishga imkoniyat yaratadi. Bundan tashqari, tadqiqotchilar qisqa saqlanadigan mahsulotlarning bozorga chiqarilishi haqida ham gapirishmoqda.

Xizmat ko'rsatish sohasi haqida gapiradigan bo'lsak, axborot texnologiyalari ko'plab kundalik vazifalarni hal qiladi, buning natijasida esa yirik ko'lamdagi amallar tezroq, arzonroq, qulayroq va o'rtadagi vositachilarsiz bajariladi.

Elektron savdo, internet-banking va boshqa shu kabi zamonaviy yo'nalishlar kundan kunga rivojlanib bormoqda. Natijada daromadni oshirish uchun aksar sohalarda avtomatik tarmoqli servislar (masalan, sifatli veb-sayt yoki mobil ilova kabi) biznesdagi vositachilar o'rnini egallamoqda.

Buning samarasi o'laroq biznes xizmatga belgilangan narxlarni sezilarli darajada tushirishi, makroiqtisodiy yo'nalishda esa yakka ishlab chiqarish va noto'liq bandlik ko'rsatkichlari o'sishi mumkin. Shuningdek, kraudfanding va kraudsorsing kabi yo'nalishlar ham hozirda yangi iqtisodiy texnologiyalar sirasiga kiritilmoqda.

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ARIFMETIK VA GEOMETRIK PROGRESSIYA

Annotatsiya: *ushbu maqolada arifmetik hamda geometrik progressiya haqida umumiy ma’lumot berilgan bo’lib va unga doir formulalar keltirilgan.*

Kalit so’zlar: *arifmetik progressiya, ixtiyoriy n natural son, geometrik progressiya, n hadi, yig’indi, ayirma, tenglik*

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ARITHMETIC AND GEOMETRIC PROGRESSION

Annotation: *this article provides an overview of arithmetic and geometric progression, and provides formulas for it.*

Keywords: *arithmetic progression, arbitrary n natural number, geometric progression, n term, sum, subtraction, equality*

Zamonaviy ta’limni tashkil etishga qo‘yiladigan muhim talablardan biri ortiqcha ruhiy va jismoniy kuch sarf etmay, qisqa vaqt ichida yuksak natijalarga erishishdir. Qisqa vaqt orasida muayyan nazariy bilimlarni o‘quvchilarga etkazib berish, ularda ma’lum faoliyat yuzasidan ko‘nikma va malakalarni hosil qilish, shuningdek, o‘quvchilar faoliyatini nazorat qilish, ular tomonidan egallangan bilim, ko‘nikma va malakalar darajasini baholash o‘qituvchidan yuksak pedagogik mahorat hamda ta‟lim jarayoniga nisbatan yangicha yondashuvni talab etadi. Ma'lumki, uzluksiz va uzviylashtirilgan ta'lim tizimida ortiqcha takrorlanishga chek qo‘yib, avvalo, jamiyatning ma’naviy, intellektual salohiyatini kengaytiradi, davlatning ijtimoiy va ilmiy-texnik taraqqiyotini takomillashtirish omili sifatida ishlab chiqarishning barqaror rivojlanishini ta'minlaydi. Innovatsion pedagogik texnologiyalarning rivojlanishi va ularning o‘quv-tarbiya jarayoniga kirib kelishi, shuningdek, axborot texnologiyalarining tez almashinuvi va takomillashuvi jarayonida har bir pedagog o‘z kasbiy tayyorgarligini, pedagogik mahoratini rivojlantirib borishini talab etadi.

Agar (a_n) **ketma-ketlik** $a_1 = a$ va ixtiyoriy n natural son uchun $a_{n+1} = a_n + d$ shart o’rinli bo’lsa, bu ketma-ketlik arifmetik progressiya deyiladi. Bunda a va d arifmetik progressiyaning mos ravishda birinchi hadi va ayirmasi deyiladi. Arifmetik progressiya monoton ketma-ketlik bo’ladi: agar $d>0$ ($a_{n+1}-a_n = d>0$) bo’lsa, o’suvchi bo’ladi; agar $d<0$ ($a_{n+1}-a_n = d<0$) bo’lsa, kamayuvchi bo’ladi; agar $d=0$ bo’lsa, o’suvchi bo’lmaydi.

Arifmetik progressiyaning n- hadi uchun quyidagi formula o’rinli bo’ladi.

$$a_n = a + d(n-1)$$

isboti: **Arifmetik progressiya uchun** $a_2-a_1=d$, $a_3-a_2=d$, $a_4-a_3=d$,…….$a_n-a_{n-1}=d$ shartlar o'rinlidir.

Buni quyidagi ko'rinishda yozish mumkin.

$a_2=a_1+d$, $a_3=a_1+2d$, $a_4=a_1+3d$,…….$a_n=a_1+(n-1)d$

Arifmetik progressiya quyidagi xossalarga ega.

1.$a_n=$

2.$a_k+a_m=a_p+a_q$ $(k+m=p+q)$

Arifmetik progressiyaning dastlabki n ta hadi yig'indisi uchun quyidagi formula o'rinlidir.

$S_n=a_1+a_2+a_3+\ldots+a_n=$

$$\frac{a_1+a_n}{2}n$$

=

$$\frac{2a_1+d(n-1)}{2}n$$

Isboti: Agar $S_n=a_1+a_2+a_3+\ldots+a_n$ bo'lsa, unda $S_n=a_n+a_{n-1}+a_{n-2}+\ldots+a_2+a_1$ tenglik ham o'rinli bo'ladi. Bu ikki tenglikni qo'shib yuborib hamda xossasidan foydalansak isbotlanishimiz kerak bo'lgan formula kelib chiqadi.

Agar (b_n) **ketma-ketlik** $b_1=b$ va ixtiyoriy **n natural son uchun** $b_{n+1}=b_nq$ shart o'rinli bo'lsa, bu ketma-ketlik geometrik progressiya deyiladi. Bunda b va q geometrik progressiyaning mos ravishda birinchi hadi va maxraji deyiladi. Agar geometik progressiyada $b>0$ va $q>0$ bo'lsa, o'suvchi bo'ladi; agar $b>0$ va 01 bo'lsa, **kamayuvchi hisoblanadi**; $b<0$ va 0

Geometrik progressiyaning n- hadi uchun quyidagi formula o'rinli bo'ladi.

$b_n=bq^{n-1}$

isboti: **Geometrik progressiya uchun** $b_2=b_1q$, $b_3=b_2q$, $b_4=b_3q$,……..,$b_n=b_{n-1}q$ shartlar o'rinlidir.

Buni quyidagi ko'rinishda yozish mumkin.

$b_2=b_1q$, $b_3=b_1q^2$, $b_4=b_1q^3$,……..,$b_n=b_1q^{n-1}$

Xossasi:

1.$b_n=b_{n-1}b_{n+1}$

2.$b_kb_m=b_pb_q$ $(k+m=p+q)$

Geometrik progressiyaning dastlabki n ta hadi yig'indisi uchun quyidagi formula o'rinlidir.

$$b\frac{1-q^n}{1-q}$$

$S_n = b_1+b_2+b_3+….+b_n$ =

Isboti: $S_n = b_1+b_2+b_3+….+b_n$ tenglik o’rinlidir. Bu tenglikni ikki tarafini q ga ko’paytirib quyidagi tenglikni hosil qilamiz.

$qS_n = qb_1+qb_2+qb_3+….+qb_n$

Bu ikkita tenglikni bir-biridan ayirib $(1-q)S_n = b(1-q^n)$

$$b\frac{1-q^n}{1-q}$$

Bu tenglikdan S_n = ni hosil qilamiz.

Ceksiz kamayuvchi geometrik progressiyaning yig’indsi

$$\frac{b}{1-q}\ |q|<1¿$$

$S = b_1+b_2+b_3+…….=$ formula orqali topiladi. (Bunda

Isboti: Agar

$|q|<1$

bo’lsa,

$$\lim_{n\to\infty} q^n$$

=0 ga teng bo’ladi.

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KOMPYUTER GRAFIKASI VA DIZAYNDA DASTURIY VOSITALAR

Annotatsiya: *ushbu maqolada kompyuter grafikasi haqida umumiy ma’lumot hamda dizaynda dasturiy vositalar, ularning turlari haqida ma’lumotlar keltirilgan.*
Kalit so‘zlar: *Kompyuter grafikasi, tasvirlar, monitor ekran, magnit tashuvchilar, qog‘oz.*

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SOFTWARE TOOLS IN COMPUTER GRAPHICS AND DESIGN

Annotation: *this article provides an overview of computer graphics as well as information about software tools, their types in design.*
Keywords: *computer graphics, images, monitor screen, magnetic carriers, paper.*

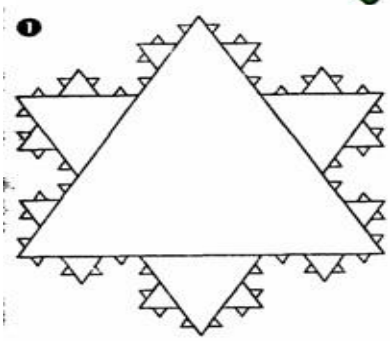
Kompyuter grafikasi- bu hisoblash tizimlarining dasturiy hamda apparat vositalari yordamida tasvirlarni hosil qilish, qayta ishlash vositalarini va uslublarini o‘rganuvchi, informatikaning bir bo‘g‘inidir. Kompyuter grafikasi tasvirlarni monitor ekranida yoki nusxa sifatida tashqi tashuvchilar masalan, magnit tashuvchilar, qog‘oz, kinoplyonkalarda namoyish etishning turli ko‘rinishlarini va shakllarini o‘z ichiga qamrab oladi. Axborotlarni vizuallashtirish insoniyat faoliyatining turli sohalarida qo‘llanilmoqda, masalan, kompyuter tomografiyasi, samolyotlar va kemalar korpuslarini modellash, moddalar tuzilishining o‘rganish, magnit maydonlarini o‘rganish, geologik plastlar, binolarni konstruktsiya qilish, qurollanish, qurilmalar va moslamalar, er sirtini tadqiq qilish, ob havoni tadqiq qilish. Kompyuter grafikasi kompyuterlar, televizorlar va kinotexnalogiyalar asosida yuzaga keladi.

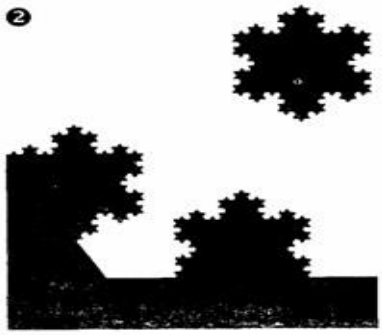
Ma’lumotlarni grafik ko‘rinishda tasvirlash kompyuter tizimlarining, ayniqsa shaxsiy (personal) tizimlarining eng oddiy texnologiyasiga aylanib ulgurgan. Foydalanuvchi grafik interfeysi, bugungi kunda operatsion tizimlardan boshlab boshqa murakkab dasturlarining standarti hisoblanadi.

Tasvirlarni hosil qilish usullariga qarab kompyuter grafikasi rastrli, vektorli va fraktal grafika turlariga bo‘linadi.

Tasvirlarni hosil qilish uchun yana bitta qabul qilingan usuli bu-uch o‘lchamli (3D) grafika. 3D grafika obyektlarni hajmiy (uch o‘lchamli) modellarini hosil qilish usullari va vositalarini o‘rganadi.

Kompyuter grafikasining apparat-dasturiy vositalari matematika, fizika, kimyo, biologiya, dasturlashtirishning eng so‘ngi yutuqlari asosida ishlab chiqiladi.





Rastrli grafikada tasvirlar to‘r shaklida joylashgan vann piksel deb, nomlanuvchi nuqtalardan hosil qilinadi. Rastrli grafikada chiziqlar emas, piksellarning rastr ko‘rinishi o‘zgaradi. Rastrli grafika ekran sirt birligidagi ruxsat etilgan nuqtalar (piksellar) soni bilan xarakterlanadi, ya’ni bunda tasvir ko‘p sondagi rangli nuqtalarning jamlanmasidan iborat bo‘lib, agar nuqtalar qancha ko‘p bo‘lsa vizual tasvir ham shuncha sifatli bo‘ladi va tasvir hajmi shuncha katta bo‘ladi. Rasterli namoyish etish odatda fotografik tasvirlarni namoyish etganda ko‘p sonli detallar va ranglardan foydalanadi.

Ruxsat etilganlik bir dyuym yuzasidagi joylashgan nuqtalar soni bilan o‘lchanadi (dpi). Bundan tashqari tasvir sifati, nuqtaning qabul qilishi mumkin bo‘lgan ranglari soni bilan ham xarakterlanadi.

Rastrli tasvirlar uchun, uzunlik birligidagi nuqtalar sonini ifodalaovchi ruxsat etilganlik 3 turga ega:

1-original ruxsat etilganligi;

2-ekrandagi tasvir ruxsat etilganligi;

3-chop etiluvchi tasvir ruxsat etilganligi.

Original ruxsat etilganligi dyuymdagi nuqtalar soni bilan aniqlanadi (dots perinch-dpi) va tasvir sifatiga qo‘yilgan talabga, fayl o‘lchamiga, kiruvchi

illyustratsiyani raqamlashtirish usuliga va fayl faoliyatiga bog‘liq. Umumiy holda quyidagi qoida ham o‘rinlidir: tasvir sifatiga qanchalik talab katta bo‘lsa, originalning ruxsat etilganligi shunga yuqori bo‘lishi kerak.

Ekrandagi tasvir ruxsat etilganligi. Tasvirning ekrandagi nusxasi uchun rastrning elementar nuqtasini – piksel deb nomlash qabul qilingan. Piksel o‘lchami ekran ruxsat etilganligiga (standart qiymatlar sohasidan), original ruxsat etilganligiga va namoyish etish masshtabiga bog‘liq.

20-21 dyuym dioganalga ega bo‘lgan tasvirlarni qayta ishlovchi monitorlar odatda quyidagi standart ekran ruxsat etilganliklarini ta’minlay oladi: 640x480, 800x600, 1024x768, 1280x1024, 1600x1200, 1600x1280, 1970x1200, 1920x1600 nuqtalar. Sifatli monitorlarda lyuminoforning 2 ta qo‘shni nuqtalari orasidagi masofa 0,22-0,25 mm ga teng bo‘ladi. Ekraniy nusxa uchun 72 dpi, rangli lazerli printerda chop etish uchun 150-200 dpi, fotoqurilmaga chiqarish uchun esa 200-300 dpi ruxsat etilgan etarli hisoblanadi.

Chop etiluvchi tasvir ruxsat etilganligi va miniatura tushunchasi. Huddi tasvirning asl nusxasi (qog‘ozdagi) kabi, ekrandagi nusxasining ham nuqtalari o‘lchami, qo‘llanilgan usullar va original rastr ko‘rsatgichlariga bog‘liq.

Rastr turi chastotasi, dyuymdagi chiziqlar soni bilan aniqlanadi (linesper inch-Lpi) va miniatura deb nomlanadi.

Rastr nuqtasi o‘lchami har bita element uchun hisoblanadi va shu yacheykadagi ton intensivligiga bog‘liq. Intensivlik qancha yuqori bo‘lsa, rastr elementi shunchalik to‘liq qoplanadi. Agar yacheykaga obsolyut qora rang tushsa, rastr nuqtasi o‘lchami–rastr elementi o‘lchami bilan mos tushadi. Bu holatda 100% to‘ldirish haqida gapiriladi. Absolyut oq rang uchun esa to‘ldirish (qoplash) qiymati 0% ni tashkil etadi. Amaliyotda element to‘ldirilganligi 3 % dan 90% gacha bo‘lishi mumkin.

Ton intensivligini 256 bosqichli taqsimlash qabul qilingan. Ko‘p sonli gradatsiya esa inson ko‘zi bilan farqlanmaydi. Kam sonlisi esa tasvir ko‘rinishini yomonlashtiradi. Hisoblash qiyin emaski, tonning 256 bosqichini namoyish etish uchun 256=16x16 ta nuqtali rastr yacheykasiga ega bo‘lishi etarli.

Tasvirni printerdan yoki poligrafik qurilmada chop etishda, rastr piklaturasi, talab qilinuvchi sifat, apparatlar imkoniyati va chop etiluvchi maxsulotlar ko‘rsatkichlaridan kelib chiqib chop etiladi. Lazer printerlar uchun 65-100 Lpi, gazetalar uchun 65-85 Lpi, kitob jurnallari uchun – 85-133 Lpi, badiiy va reklama ishlari uchun -133-300 Lpi miniatura taklif etiladi.

Rastrli tasvirlarni masshtablash. Rastrli grafikaning asosiy kamchiliklaridan biri bu – tasvirni kattalashtirishdagi pikselizatsiyadir. Faqat bitta originalda ma’lum nuqtalar soni bo‘ladi, agar tasvir o‘lchami kattalashtirilsa rastr elementlari sezilib qoladi, ya’ni tasvir xiralashadi.

Piksellashtirishga qarshi jarayon uchun, originalni masshtablashtirishda sifatli vizuallashtirish uchun etarli bo‘lgan ruxsat etilganlik bilan, oldindan raqamlashtirish qabul qilingan. Boshqa usul, berilgan chegarada piksellashtirish effektini kamaytirish imkonini beruvchi, stoxastik rastrlarni qo‘llashdan iborat. Ayrim hollarda masshtablashtirishda interpolyatsiya metodi qo‘llaniladi, bunda

illyustratsiya (tasvir) o‘lchami nuqtalar o‘lchamining o‘zgarishi bilan emas, balki zaruriy oraliq nuqtalarni qo‘shish bilan amalga oshiriladi.

Adobe Photoshop dasturi- grafik obyektlarni qayta ishlash, o‘zgartirish, saqlash uchun qo‘llanuvchi ko‘p sonli dasturlardan biridir. Adobe Photoshop palitra bilan ishlash, skanerlash, import va eksport qilish, sohani belgilash, konturlar, rasm chizish, rang tanlash, qatlamlar, niqoblar, filtr, tasvir o‘lchami, tasvir ruxsat etilganligi, tasvirni almashtirish, tasvirni chop etish va boshqa ko‘plab imkoniyatlarga ega.

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ZAMONAVIY DASTURLASH TILLARI

Annotatsiya: *ushbu maqolada hozirgi kundagi eng zamonaviy dasturlash tillari haqida ma’lumotlar keltirilgan.*

Kalit so’zlar: *kompyuter texnikasi, Python, Veb-dasturlash, ma'lumotlarni tahlil qilish, JavaScript, Java, C++.*

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MODERN PROGRAMMING LANGUAGES

Annotation: *this article contains information about the most modern programming languages of the present day.*

Keywords: *computer hardware, Python, Web Programming, Data Analysis, JavaScript, Java, C++.*

Zamonaviy kompyuterlarda turli dasturlash tillari keng qo’llanilmoqda. Bu dasturlar iqtisodiyot, boshqarish, xizmat ko’rsatish va ishlab chiqarishning turli sohalarida muhim ahamiyatga molik masalalarni hal qilishda ba’zan yagona omil bo’lib qolmoqda. Zamonaviy ishlab chiqarish korxonalarida ishlab chiqarish jarayonini takomillashtirish va avtomatlashtirishda dasturlashning ahamiyati katta. Sanoatning turli sohalarida ishlatilayotgan avtomatlashtirilgan jihozlar, robot texnikalari ham turli algoritmik tillarda yozilgan ma’lum dasturlar asosida kompyuterlar yordamida boshqariladi. Bu esa o’z navbatida, ishlab chiqarish korxonalarida xizmat qilayotgan, nafaqat boshqaruv xodimlari va muhandislariga, balki ishchilarga ham dasturlash tillarini puxta egallashlarini taqozo etadi.

Ma'lumki, kompyuter texnikasidan samarali foydalanish ikki qism texnik va dasturiy ta'minotning uzviyligini talab etadi. Bu uzviylik kompyuter texnik ta'minotining jadal sur'atlar bilan takomillashib borishiga mos dasturiy ta'minotni ham keskin sur'atlar bilan rivojlanishiga sabab bo'ladi, va aksincha. Buning sababi ma'lum, mos dasturiy ta'minotsiz har qanday kompyuter «qimmatbaho o'yinchoq» bo'lib qolaveradi.

Mashhur dasturlash tillari:

*Python: O'rganish oson, ko'p qirrali va keng qo'llaniladigan til. Veb-dasturlash, ma'lumotlarni tahlil qilish, mashina o'rganish va boshqa sohalarda qo'llaniladi.

Python dasturlash tili ularning eng mashhurlaridan biridir Python vebsaytlar, ilovalar va o'yinlar yaratish uchun ishlatilishi mumkin bo'lgan ilg'or dasturiy mahsulotlarni yaratish uchun dunyodagi eng mashhur dasturlash tillaridan biridir. O'rganish va qo'llashning soddaligi. Python sodda va qulay dasturlash tili bo'lib, boshqa dasturlash tillariga nisbatan uning yordamida dastur tuzish qiyinchilik tug'dirmaydi. Mukammal kutubxonaning mavjudligi. Pythonda dastur tuzish jarayonida kutubxonadagi tayyor funksiyalardan foydalanish mumkin. Bu esa murakkab dasturlarni ham qisqa vaqtda tuzish imkonini beradi. Python dasturlash tilini o'rganish uchun uni o'zining rasmiy saytidan yuklab olib, keyin o'rnatish zarur. Python kompyuterga IDLE dasturi bilan birga o'rnatiladi.

* JavaScript: Veb-saytlarni interaktiv qilish uchun ishlatiladi. Shuningdek, mobil ilovalar, server tomonidagi dasturlash va boshqa sohalarda ham qo'llaniladi.

JavaScript - bu interaktiv va dinamik veb-saytlarni yaratish uchun keng qo'llaniladigan dasturlash tili. U birinchi marta 1995 yilda Brendan Eich tomonidan ishlab chiqilgan va hozirda ECMAScript standartlari organi tomonidan qo'llab-quvvatlanadi. JavaScript barcha asosiy veb-brauzerlar tomonidan qo'llab-quvvatlanadigan yuqori darajali, talqin qilingan dasturlash tilidir.

JavaScript asosan veb-brauzerda ishlaydigan mijoz tomoni skriptlarini yaratish uchun ishlatiladi. Bu shuni anglatadiki, u serverda emas, balki foydalanuvchining kompyuterida bajariladi. Bu foydalanuvchi tajribasini tezroq va sezgirroq qilish imkonini beradi, chunki kod to'g'ridan-to'g'ri brauzerda serverga borishni talab qilmasdan ishlashi mumkin. Bundan tashqari, JavaScript-dan Node.js kabi texnologiyalar

yordamida server tomonidagi skriptlarni yaratish uchun foydalanish mumkin.

* Java: Katta dasturlarni yaratish uchun ishlatiladi. Mobil ilovalar, veb-dasturlash va korporativ dasturlarni yaratishda qo'llaniladi.

Java dasturlash tili va platforma

Java yuqori darajada himoyalangan va obyektga yo'naltirilgan dashturlash tilidir. **Platforma**: dastur bajarila oladigan ixtiyoriy qurilma yoki dasturiy muhit platformadir. Javaning o`zini maxsus bajarilish muhiti – platformasi mavjud (JRE – Java Runtime Environment).

Javadan qayerda foydalaniladi?

Sun firmasining ma'lumotlariga qaraganda 3 mlrd. atrofidagi qurilmada javadan foydalaniladi.

Mana ulardan ba'zilari:

- Shaxsiy kompyuter dasturlari (Desktop Applications) – acrobat reader, media-player, antiviruslar va h.k.;
- Veb dasturlar;
- Korxona-tashkilotlar dasturlari (Enterprise Applications) – bank yoki ishlab chiqarishga oid dasturlar;
- Mobil dasturlar;
- Smart kartalar;
- Robotlar;
- O'yinlar.

* C++: Yuqori samaradorlik talab qilinadigan dasturlarni yaratish uchun ishlatiladi. O'yinlar, operatsion tizimlar va boshqa sohalarda qo'llaniladi.

C++ dasturlash tili C tiliga asoslangan. C esa o’z navbatida B va BCPL tillaridan kelib chiqqan. BCPL 1967 yilda Martin Richards tomonidan tuzilgan va operatsion sistemalarni yozish uchun mo’ljallangan edi. C++ tilini 80 yillarda AT&T Bell Labs korxonasi ishchisi Byarnom Straustrup tuzgan. Avtorning aytishicha, bu tilni tuzishda u hech qanday qog’ozlarni qoralamagan va hamma ishni yo’l yo’lakay, ketmaketlikda tuzib chiqqan. Uning asosiy maqsadi, o’zi va do’stlari uchun qulay dasturlash tili yaratishdan iborat edi. C++ dasturlash tilining asosi C hisoblanadi va shu tilni(C) misolida C++ tilini tuzib chiqdi.

C dasturlash tilini mukammalashtirgan eng asosiy narsa bu – ob’yektga mo’ljallangan dasturlashni olib kirgani hisoblanadi. Chunki dasturlashda, tez, qulay, tartibli va ixcham yozish uchun ob’yektga mo’ljallangan dasturlash tillaridan foydalanish lozim bo’ladi. Dastlabki C++ dasturlash tilidan foydalanganlar, bu albatta Bell Labs korxonasi hodimlari hisoblanadi.

Nima uchun C ++ dan foydalanish kerak

1. **C++** dasturlash tili dunyo bo'yicha keng foydalanib kelinayotgan dasturlash tili hisoblanadi.

2. **C++** Barcha Grafik Interfeys ga ega Operatsion Sistemalarda uchratish mumkin.

3. **C++** Bu obyektga yo'naltirilgan dasturlash tili hisoblanib. Tuzilgan dasturni osonlik bilan o'zgartirish imkoniyati mavjud.

4. **C++** - Qiziqarli va o'rganishga juda oson.

5. **C++** - Ko'chma va bir nechta platformaga moshlashtirilishi mumkin bo'lgan dasturlar yaratsangiz bo'ladi.

6. **C++** - **C#** va **Java** dasturlash tiliga yaqin bo'lgan dasturlash tili bo'lganligi sababli almashtirish juda oson.

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KIMYO FANINING KELIB CHIQISHI VA HAYOTIMIZDAGI O‘RNI

Annotatsiya: *Siz ushbu maqolada kimyo asoslari, tabiiy boyliklarning kimyo bilan bog‘liqligi, kimyoning har sohaga qanday holatda bog‘liqligi haqida bilib olishingiz mumkin.*

***Kalit so‘zlar**: Kimyo, atom, fan, element, sanoat.*

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THE ORIGIN OF CHEMISTRY AND ITS PLACE IN OUR LIVES

Abstract: *In this article you will learn the basics of chemistry, the relationship of natural resources to chemistry, the relationship of chemistry to any field.*

***Keywords**: Chemistry, atom, science, element, industry.*

Kimyo fani ham boshqa fanlar singari, odamlarning amaliy faoliyati natijasida vujudga kelgan. Kimyoga doir dastlabki bilimlarni o’rganish dastlab qachondan boshlanganligi noma’lumdir, insoniyat qachomdan buyon olovdan foydalana boshlagani, metallarga termik ishlov berishni qachon o’rgangani ma’lum emas. Lekin oziq-ovqat tayyorlash, kundalik ehtiyoj uchun mahsulototlarga kimyoviy kimyoviy ishlov berishda kimyoviy bilimlarning ortib borishi insoniyat rivojida katta burilishlarga ham olib kelgan. Misrda, Xitoyda, Hindistonda, Yunonistonda bunday fikrlar jamlangan. Misrliklar rudalardan temirni suyuqlantirib olish rangdor shisha hosililish, teri oshlash, o’simliklardan dori darmonlar, bo’yoqlar va xushbo’y moddalar ajratib olishni, sopol buyumlar yasashni bilishgan.

Insonlar juda qadimdan qand, yog' va oqsilga boy o‘simlik mahsulotlaridan iste'mol qilganlar. Ular bundan 6 ming yil avval oltin va kumushdan zebu-ziynat buyumlari tayyorlashni bilgan. Eramizdan 2000 yil avval Xitoyda qishloq xo‘jaligi zararkunandalariga qarshi kurashda margimushdan k e n g foydalanilgan. O‘sha davrlarda Misrda o‘simlik va hayvon organizmlar turli bo‘yoq moddalar, rux hamda oltingugurtdan dorivor moddalar tayyorlangan.

Barcha xalqlar juda qadimdan bijg'ish jarayonini bilganlar. Har bir xalqni o‘ziga xos spirtli ichimligi bo‘lgandir. Uni dondan, asaldan yoki uzum sharbatidan tayyorlaganlar. Sirkadan oziq-ovqat tayyorlashdagina foydalanmay, undan bo‘yoq olishda ham foydalanilgan. Lekin o‘sha davrlarda kimyo bilan faqat maxsus kishilargina alohida shug'ullangan.

Kimyoning nazariy masalalari bilan qadimgi grek olimlari eramizdan avvalgi V-VI asrlarda shug'ullangan. Ular butun borliqning asosini to‘rtta ”element” - suv, havo, tuproq va olov tashkil etadi deb tushuntirganlar.

Keyinchalik Arastu (eramizdan avvalgi 384-322-yillari) butun borliq bitta asosiy materiyadan tuzilgan, degan nazariyani yaratdi. Uning fikricha to‘rtta xossa: sovuqlik, issiqlik, namlik va quriqlikning asosiy materiyaga har xil nisbatda birikishidan - suv, havo, tuproq va olov hosil bo‘ladi. Masalan, asosiy materiyaga issiqlik va namlik qo‘shilsa havo, namlik va havo qo‘shilsa suv va hokazo hosil bo‘ladi. Ular bir-biriga aylanishi ham mumkin. Masalan, havo sovutilsa, issiqligi chiqib ketib suvga, suv qizdirilsa namligi chiqib ketib tuproqqa aylanadi va hokazo. Moddiy dunyoga bunday Arastucha qarash Yevropada XVI asrgacha hukm surib keldi.

Har bir jamiyatni, fanni o‘rganish bilan birga uning paydo bo‘lish, rivojlanish, yuksalish va bugungi kundagi mavqeiga erishgunga qadar bosib o‘tgan yo‘li, bu yo‘lning ayrim bosqichlari, ularda yashab o‘tgan izlangan olimlar shu faning yaratilishiga qo‘shgan hissalari, hodisa va atrof muhitdagi materiyani o‘rganishda ularga yondashish usullari va ularni o‘rganish hozirda zamonaviy hayotimizda juda muhim masala bo‘lib qolmoqda.

Kimyo fanining ham o‘z tarixi bor. Bu tarix bilan tanishish kimyo fani qachon paydo bo‘la boshladi, u yoki bu kimyoviy hodisalar qanday qilib kashf qilindi va ular kishilar hayotida o‘rin egallay boshladi.

Fan tarixini o‘rganish shu fanni har tomonlama, chuqur va mukammal, ichki mantiqiy bog‘langan ma`lumotlar asosida omil va vosita hisoblanadi. Kimyo fanining har bir davrning o‘z tarixchilar bo‘lgan. Ammo keyingi ikki- uch asr davomida kimyo tarixini yaratishda ancha ish qilganlar Bertalo, Ladenburg, Djua, Meyer, Marnovnikov va boshqalardir.

Kimyo fanini yaxshiroq o‘zlashtirish uchun avvalambor uning eng asosiy tarkibini ya’ni atom, molekula, kimyoviy element va moddalarning davriy jadvali, ularning o‘lchov birliklarini yaxshilab o‘rganishimiz zarur.

Atom-kimyoviy elementlarning oddiy va murakkab moddalar tarkibiga kiradigan eng kichik zarrasidir.

Molekula- moddaning mustaqil mavjud bo‘la oladigan va shu moddaning fizikaviy va kimyoviy xossalarini o‘zida saqlab qoladigan juda kichik zarrasidir.

Kimyoviy element-o‘zida muayyan hodisalarni mujassamlashtirilgan va kimyoviy usullar bilan boshqa oddiy moddaga aylana olmaydigan atomlar turidir. Demak, oddiy modda elementning erkin holda mavjud bo‘lishi shaklidir.

Kimyo fani biz uchun har sohada kerakli fandir. Masalan, tabiiy qazilma boyliklarini faqat qazib olish bilan ish bitmaydi. Ya’ni u har doim ham sof holatda qazib olinmaydi. Uni qazib olib, avval u qanday ekanligini aniqlash, tarkibiy qismlarini bilish, uni tozalash lozim. Bizga bu fan nafaqat qazilmalar bilan ishlashda balki, tekstil, tibbiyot, farmasevtika, agrar soha va hokazo yo‘nalishlar uchun kerak.

Mustaqil respublikamizni ilmiy-texnika taraqqiyoti asosida sotsial iqtisodiy rivojlantirish dasturi ishlab chiqilgan bo‘lib, xalq xo‘jaligini sifat jihatdan qayta

ko‘rib yanada yuqori pog‘onalarga ko‘tarish uchun qator masalalarga kompleks va sistemali ravishda yondashilgan holda ish ko‘rila boshladi.

Muhim yo‘nalishlar rivojlanishini ta’minlab, ishlab chiqarilayotgan mahsulotlar sifatini yanada oshirish, iqtisodiy rivojlanishni yangi izga solish, boshqarishning samarali usullaridan foydalanib, sotsial muammolarni keng ko‘lamda kompleks holda hal etish va bu masalalarni hal etishda asosiy omillardan biri ham kimyoga kelib taqaladi.

Mustaqil mamlakatimizda kimyoga oid qator sanoatlar tez sur’atlar bilan rivojlanmoqda, yirik kimyo korxonalari barpo etilmoqda, chunonchi ularda o‘nlab tonna fosfor, sirka kislota angridi, sirka kislota, ammiak, ammoniy, nitrate, azot kislota, soda, sement, shisha, karbamid, paxta selluloza, akrilatnitrit, kaprolaktam, atsetilen, etilen nitron, kapron va atsetat tolalar va xalq xo‘jaligini muvaffaqiyatli rivojlantirish uchun zarur bo‘lgan ko‘pgina boshqa mahsulotlar respublikamiz mintaqalaridagi yer osti va usti zahiralaridan foydalanib ishlab chiqarilmoqda.

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ONA TILI DARSLARINI 10-11 SINFLARDA O‘QITISH METODIKASI

Annotatsiya: *Ushbu maqolada ta’lim jarayonida yangi interfaol metodlarni qo‘llash dars sifati samaradorligini oshirishga xizmat qilishi, o‘qitish jarayonida zamonaviy yondashilganda o‘quvchilarning hamkorlikda ishlashiga va qisqa vaqt ichida katta hajmdagi axborotlarni o‘zlashtirish haqida mushohada yuritilgan.*

Tayanch so‘zlar*: interfaol metodlar, dars samaradorligi,innovatsion ta’lim texnologiyalari, o‘quv jarayoni, ko‘nikma, malaka, dars jarayoni, intellektual salohiyat.*

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METHODOLOGY OF TEACHING MOTHER TONGUE LESSONS IN GRADES 10-11

Abstract: *The use of new interactive methods in the educational process will help to increase the effectiveness of lesson quality, a modern approach to the teaching process focused on students working together and assimilating large amoounts of information in a shortperiod of time.*

Keywords: *interactive methods, lesson effectiveness, innavatie learning process, skill, competence, lesson process, intellectual potential.*

Mustaqillik sharofati bilan respublikamizda yangilanish, rivojlanish davri boshlanib, ijtimoiy hayotimiz umumjahon andozalariga mos taraqqiyot yo‘nalishlariga jadal sur’atlar bilan kirib bormoqda. ”XXI asr yoshlarini har tomonlama rivojlangan, etuk dunyoviy fikr yuritadigan, bilimli barkamol shaxslarni jahon ta’lim standartlariga mos ravishda tarbiyalash dolzarb vazifalardan biridir”.

Yangi asr o‘qituvchisini tayyorlashda uning pedagogik - psixologik jihatdan chuqur bilimga egaligi, intellektual salohiyatning yuksak darajadaligi, innovatsion ta’lim texnologiyalari, ta’limning interfaol usullari va ilg‘or samarali metodlariga oid ijodiy faollikni oshirishning samarali usullaridan xabardor bo‘lishi muhim ahamiyat kasb etadi. O‘quv jarayoniga tatbiq etilayotgan “Kadrlar tayyorlash milliy dasturi” hamda umumiy o‘rta ta’lim muassasalari uchun yaratilgan “Davlat ta’lim standarti”da o‘quvchilarning bilishlari zarur bo‘lgan majburiy bilimlar hajmi aniq ko‘rsatilgan. Ularni o‘quvchilarga etkazish, o‘quvchilarni faqat puxta bilim olibgina qolmay, balki mustaqil ravishda o‘qib olish va ijodiy izlanishga yo‘naltirish, o‘zlaridagi qobiliyatni rivojlantira borish ko‘nikmalarini orttira olish uchun o‘qituvchilar yangi pedagogik texnologiya asosida pedagogikaning turli shakl va usullaridan foydalana olishlari zarur bo‘ladi.

Hozirgi kunda barcha ta’lim muassasalarida o‘qitish jarayonida interfaol usullardan foydalanishga erishilmoqda. Bu esa interfaol ta’lim asosida tashkil etilayotgan pedagogik jarayonlarning mazmun-mohiyatini to‘liq tushunib etishga va ularni samarali, qiziqarli, sifatli bo‘lishini ta’minlashga ko‘maklashadi. “Interfaol usullaridagi darslar o‘quvchini ijodiy fikrlashga, olingan axborotlarni faollikda hal etishga, fikrni erkin bayon etishga, tashabbuskorlikka, guruhlarda masalalar echimini topishga, hamkorlikda ish yuritishga, fikrni yozma ravishda bayon etishga chorlaydi. Interfaollik – bu o‘zaro ikki kishi faolligi, ya’ni bunda o‘quv-biluv jarayoni o‘zaro suhbat tariqasida dialog shaklida (kompyuter yordamida) yoki o‘quvchining o‘zaro muloqotiga asosan kechadi” .

Interfaol ta’lim asosini interfaol metodlar tashkil etadi. Ta’lim jarayonida o‘quvchilar hamda o‘qituvchi o‘rtasida hamkorlikni qaror toptirish, faollikni oshirish, ta’lim oluvchilar tomonidan bilimlarni samarali o‘zlashtirish, ularda shaxsiy sifatlarni rivojlantirishga xizmat qiladigan metodlar interfaol metodlar sanaladi. Ona tili darslarida zamonaviy usullardan foydalanish o‘quvchilarning mustaqil fikrlash qobilyatini shakllantirish hamda mavzuni o‘zlashtirishda yaxshi samara beradi.

INSERT JADVALI			
V	+	**-**	?

Fikrimizning dalili sifatida 10-sinf ona tili darsligidagi “Olmosh” mavzusining o‘rganilishi bo‘yicha “Olmoshning ma’no turlari” mavzusidagi klasterni quyidagicha shakllantirish mumkin. Bu metod darsning chaqiruv pog‘onasida o‘quvchilarning diqqat-e’tiborini o‘ziga qaratish va darsga bo‘lgan qiziqishni oshirish maqsadida qo‘llanadi. O‘tilgan mavzularni takrorlash va esga olishda klaster metodidan foydalanilsa samarali natija beradi. Bu metodni mantiqiy ketma- ketlikda, mantiqiy tizimlashgan holda bog‘lab ketishi kerak.

Mavzuni “Insert jadval” metodi asosida o‘rganish va mustahkamlah ham maqsadga muvofiq. Bu metod mustaqil o‘qish, ma’ruza tinglash jarayonida olinadigan ma’lumotlarni bir tizimga keltirishga imkoniyat yaratadi. Xususan, “Olmoshlar va uning qo‘llanishi” mavzusini berilgan jadval bo‘yicha o‘quvchilar olgan bilimlari asosida mustahkamlash mumkin!

(V)- bilaman
(+)- yangi axborot
(-) – to‘g‘ri kelmadi
(?)- tushunmadim

Shuningdek, 11-sinf ona tili darsligining “So‘z birikmasi sintaksisi” mavzusini o‘rganishda “Aqliy hujum” metodini foydalanish mumkin. Bu metod barcha o‘quvchilarni darsga jalb etadi, munozara olib borish madaniyati shakllanadi eng asosiysi mavzuga qiziqish uyg‘onadi. Bunda sinf o‘quvchilarini 4 guruhga

bo‘lib, har biri guruh sardorlari mavzu yuzasidan savollarga javob berishlari kerak bo‘ladi. Savollarni quyidagi tartibda shakklantirish lozim:

1. Ikki va undan ortiq mustaqil so‘z grammatik va ma’no jihatdan birikib, qanday birikma hosil bo‘ladi?

So‘z birikmasi qanday so‘zlardan tuziladi?

2. So‘z birikmasi hokim so‘zning qaysi turkumga oid so‘z bilan ifodalanishiga qarab, necha guruhga bo‘linadi?

3. Otli so‘z birikmasida hokim so‘z qanday so‟zlar bilan ifodalanadi? Keyingi topshiriq tushirib qoldirilgan so‘zlarni tez va to‘g‘ri yozish bo‘ladi.

Bunda o‘quvchilar guruh bilan bajarishadi. Har bir o‘quvchining o‘z fikrini tengdoshlariga etkaza olish va jamoaviy ishlash qobiliyati rivojlanadi. Topshiriq quyidagicha beriladi:

1. So‘z birikmalari tarkibidagi tobe va hokim so‘zning hech qanday qo‘shimchasiz, faqat ohang va ma’nosiga ko‘ra bog‘lanishi … deyiladi.

2. Tobe so‘zning hokim so‘zga tushum, jo‘nalish, o‘rin-payt va chiqish kelishigi qo‘shimchalari yoki ko‘makchilar yordamida bog‘lanishi … deyiladi.

3. Tobe so‘zning hokim so‘zga qaratqich kelishigi qo‘shimchasi yordamida, hokim so‘zning esa tobe so‘zga egalik qo‘shimchalari yordamida bog‘lanishi … deyiladi.

4. Bir so‘zning boshqa bir so‘zga bo‘ysunishi orqali bog‘lanishi … deyiladi.

Umuman olganda interfaol metodlar ta’lim-tarbiya sifatini yaxshilash, samaradorligini oshirish, o‘qituvchi va o‘quvchi o‘rtasidagi hamkorlikni ta’minash, yagona maqsad sari intilish, o‘quvchilarning ichki imkoniyatlarini ro‘yobga chiqarishda katta amaliy ahamiyatga ega.

1. Ta’lim jarayonida interfaol metodlarni qo‘llash dars sifati samaradorligini oshirishga xizmat qiladi.

2. O‘qitish jarayonida zamonaviy yondashilganda o‘quvchilarning hamkorlikda ishlashiga va qisqa vaqt ichida katta hajmdagi axborotlarni o‘zlashtirishiga imkon tug‘iladi.

3. Interfaol metod asosida ta’lim jarayoni qatnashchilarining faolligi ta’minlanadi.

Xulosa qilib aytganda, yuqoridagi kabi mashqlarni amalda qo‟llashda ona tili fanining o‘zaro integratsiyasi grammatik tushunchalarni o‘zlashtirishni zerikarli ishdan faollikka undovchi qiziqarli ishga aylantiradi. Ona tili darslarida mustaqil ishlarni tashkil etishda tanlangan mashqlar har tomonlama ta’limiy va tarbiyaviy yo‘nalishda, rang-barang mavzularda, shaklan va mazmunan mukammal, mantiqan to‘g‘ri, tili sodda va ravon, o‘quvchi uchun tushunarli bo‘lish maqsadga muofiqdir. Ana shundagina matn, matn yaratish va matn tahlil qilish o‟quvchi uchun zarur bo‟lgan natijani beradi hamda kommunikativ savodxonlik darajasini oshirishga xizmat qiladi.

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FEATURES OF THE DEVELOPMENT OF SMALL BUSINESS IN UZBEKISTAN

Abstract: *This article is devoted to business and private entrepreneurship, as well as the importance and importance of products in various industries and contributing to the development of the country. The article considers the need for small business development in Uzbekistan, as well as its role in the industrial development of the country's economy. The current situation is analyzed, as well as the factors directly influencing their development. Promising areas of small business development in New Uzbekistan in the modern realities of the national economy have been identified.*

Keywords: *small business, private enterprise, reform, Export, import, share, new job, employment, services sector, welfare of life, industry, privilege.*

Introduction: Given the significant importance of small business and private enterprise in the social economic development of the country, the policy of consistent development of the industry has been systematically continued in the Republic of Uzbekistan since the first years of independence. One of the most important steps in this regard is the formation of a hierarchical regulatory and legal system in order to strengthen the legal framework of entrepreneurial activity. The development of small business is an important factor in increasing the share of the middle layer in the structure of society, while ensuring economic, social and political stability in the country. Small businesses are of great importance in stabilizing the economy in developed countries such as the United States, Germany, China, France, Japan, Italy. “According to the International Small Business Council (ICSB), small business entities account for more than 90% of all enterprises, 60-70% of employed, 50% of gross domestic product” [1]. These enterprises form the basis of the economy of developed countries of the world, play an important role in the employment of women and young entrepreneurs and low-income groups in promoting economic development.

Literature review: The development of small business and private entrepreneurship, the theoretical and methodological aspects of its support, have been studied in the economic literature by many scientists, including foreign

economic scientists J.B.Sey, Dj.Keynes, R.Hezrich, M.Peters, Y.Schumpeter, P.V.Druker, R.Cantillon, R.Kemble, K.R.McConnell, L.S.Brue, A.Marshall, D.Ricardo, F.Kene, A.A.Abalkin, A.N.Asaul, I.N.Buzdalov, N.D.Kondratev. In the works of such scientists as Chayanov, it is illuminated in detail. Practical issues of the development of entrepreneurship were discussed by local scientists A.Vakhabov, Sh.Shodmonov, A.Immortal, T.Farmanov, U.Gofurov, A.Qalandarov's Works.

The works of these authors have been limited to highlighting some aspects of small business and entrepreneurship. But in the conditions of implementation of programs for the development strategy of New Uzbekistan for 2022 — 2026 and the strategy of Uzbekistan-2030, its theoretical foundations and specifics have not been thoroughly analyzed by them in a new economic context.

Methodology of research: Methods such as scientific abstraction, dialectical research, induction and deduction, targeted development, monographic observation, systematic and comparative analysis, graphic representation, expert assessment and economic statistics were widely used in the development of scientifically based conclusions and recommendations based on the comprehensive analysis of the problem raised in the scientific article.

Analysis and results: The increasing share of private entrepreneurship in the country's gross domestic product is one of the important factors in filling the domestic market with competitive and high-quality goods, expanding the scope of services in line with modern requirements, increasing the number of products in demand in world markets, with high added value in the export structure, creating new jobs, primarily for young people, and on this basis increasing the income and well-being of the population. Compared to other countries, the formal private sector operating in our republic is characterized by several features, in particular:

• the entry of new enterprises into the formal sector is lower than in other countries;

• labor productivity in small enterprises entering the market is low and their growth rates remain sluggish;

• the employment level in the formal private sector is growing at a faster rate than in small enterprises in other sectors;

• low intensity of effective use of available resources;

• the low practical application of the results of innovative activities, the low innovative activity of private enterprises negatively affects their level of competitiveness, in particular, 8.2% of private formal enterprises operating in Uzbekistan have internationally recognized quality certificates.

In accordance with the current legislation in Uzbekistan, business entities are divided into the following categories based on the number of employees and annual income:

• a) small business entities:

• individual entrepreneurs;

• microfirms - business entities whose founders (participants) are individuals and whose total income during the calendar year is up to 1 billion soums;

• small enterprises - business entities with a total income during the calendar year of 1 billion to 10 billion soums;

• b) medium-sized business entities - business entities with a total income during the calendar year of 10 billion to 100 billion soums;

• e) large business entities - business entities with a total revenue of 100 billion soums or more during the calendar year [2].

Today, more than 80% of the total employed population in our country works in the private sector. Small business enterprises account for more than 90% of all existing economic entities. Currently, 51.2% of the gross domestic product, 26.9% of industrial production, 74.7% of construction and 97.0% of agricultural production fall on this sector - private entrepreneurship [4]. In 2023, the highest share of small business entities in the GRP by region was in Surkhandarya region - 75.9%, in Jizzakh region - 73.7% and in Namangan region - 72.8%. Also, in 2023, the share of small business and private entrepreneurship in exports was 29.0% and in imports - 50.7% [2].

The improvement of the business environment created the basis for the economic development of the small business sector on a solid basis and a steady growth.

Table 1.

Small business 2005-2023 the main indicators of development in the years

N	Indicators	measurement unit	2005	2010	2017	2020	2023
1.	The share of small business in gdp,	%	38,2	52,5	53,3	53,9	equals to 54,3
2.	Small and micro enterprises at the same time	%	21,5	32,7	36,3	36,7	36,8
3.	The number of those who are employed in small business	the million man	content 6.7	8,6	9,9	10,4	10,3
4.	The share in total employment	%	65,5	74,3	78,3	79,4	74,0

As can be seen from Table 1, the share of small businesses in GDP increased from 38.2% to 54.3% or 16.1 points over the period 2005–2023, including an increase in the share of small enterprises and microfirms in GDP from 21.5% to 36.8% or 15.3 points, respectively. The number of people employed in the small business sector was 6.7 million in 2005 and 9.9 million in 2017, while in 2023 the number of people employed in this sector was 10.3 million or 74.0 percent of the country's economically active population [3]. For comparison, the share of small businesses in total employment is 54% in the USA, 56% in the UK, 69.5% in Germany, and 71% in Italy. The increase in employment in the small business sector is an important factor in reducing the number of low-income people and reducing

poverty. Due to the steady growth of newly established small business entities, the creation of a favorable business environment, the reduction of tax rates on single tax payments, the simplification of production infrastructure and the conditions for the purchase of resources, as well as the development of cooperative relations between large companies and small business entities, the share of small businesses in the production of industrial products has increased from 9.8% in 2005 to 26.9% in 2023 [2]. The rapid development of the small business sector largely determines the high socio-economic effectiveness and interest in the mechanism for implementing structural reforms. The Strategy of Actions implemented in our country [5], as well as the Strategy "Uzbekistan-2030", which acts as its logical continuation, pay special attention to measures to ensure reliable protection of private property rights and guarantees, eliminate all obstacles and restrictions on the development of private entrepreneurship and small business, give it full freedom, and implement the principle "If the people are rich, the state will be rich and strong" [6]. As a result, small business entities have a larger share compared to other economic entities in all sectors and areas of the national economy, including the commodity market. A slightly higher growth in the share of production by small enterprises by 16.1 points was observed in the food industry, where the volume of production by small business entities in this sector increased by 33% in 2023 compared to 2008. As a result of the great attention paid to the development of farmers and dehkan (homestead) farms, the share of small businesses in agricultural production increased from 85.7% to 99.0% between 2005 and 2023.

Table 2.

2005-2023 years of the economy change in the product of the share of small business

No	Networks	measurement unit	2005	2010	2017	2020	2023
1.	The industry,	per cent	9,8	18,8	has a 39,6	27,5	26,9
2.	Agricultural	interest	85,7	97,8	99,0	97,0	99,0
3.	Building	interest	49,4	53,1	65,1	72,4	was 74.7
4.	Retail trade	per cent	43,7	50,3	increased to 88.4	82,4	83,8
5.	The paid service	interest	52,5	47,0	50,5	51,5	52,1

Table 2 shows that, along with the construction of housing estates, small businesses are also constructing and commissioning drinking water networks, rural medical centers, general education institutions, social infrastructure, and service facilities. If in 2010 52.5% of construction work was carried out by small

businesses, this figure increased to 64.8% in 2017 and 78.6% in 2023, in particular, in Andijan region in 2023 this figure amounted to 94.5%, in Namangan region - 93.2% and in Surkhandarya region - 91.8%. The share of small businesses in retail turnover reached 83.8% in 2023 with a growth rate of 120%, which is twice as much as in 2005 [3].

State support for small businesses producing export-oriented products has created the basis for an increase in the share of small businesses in the growth of export products and services. Due to the average growth of export indicators of small businesses by 108-110%, the share of small businesses in the country's total foreign trade turnover increased from 18.0% in 2005 to 29.0% in 2023 [2].

By type of economic activity, a total of 86,030 new small enterprises and microfirms were established in 2023, which is 4.5% less than in 2022. When analyzed by sector and industry, 9388 new small and micro-enterprises were established in agriculture, forestry and fisheries (10.9%), 14101 in industry (16.4%), 4859 in construction (5.6%), 33470 in trade (38.9%), 3946 in transportation and storage (4.6%), 2932 in information and communication (3.4%), 1,458 in healthcare and social services (1.6%), 5955 in accommodation and food services (6.9%), and 9921 (11.5%) in other activities. At the same time, when studying the sectoral structure of all operating small business entities, it is found that 51.2% of all entities operating in industry are small business entities, 94.8% in agriculture, forestry and fisheries, 51.4% in investment, 74.7% in construction, 83.8% in retail trade, 91.6% in passenger transportation, and 73.5% in freight turnover [2]. In conclusion, small business plays an important role in Uzbekistan's worthy entry into the global economic community. Many business analysts and researchers believe that in the 21st century, small business and private entrepreneurship will become a dynamic part of the economy in a number of countries and will form a solid foundation for the development of the national economy. In other words, small business is the main basis for the successful development and prosperity of any state and is recognized as a key sector of the economy in the context of the transition to market relations. Therefore, the growth rates of the country's gross domestic product and the increase in the well-being of the population depend to a large extent on the development of small business and private entrepreneurship.

Now, in order to further develop the activities of business entities in our country:

- • In accordance with the “Uzbekistan – 2030” strategy, it is planned to increase the share of the non-state sector in the economy to 85% by 2030, and reduce the number of 2,300 enterprises with a state share by 6 times;
- • It is planned to abolish 17 types of state monopolies in the republic, widely involve the private sector in these sectors, and retain only the main energy and transport networks, sectors related to public administration and security in the state economy;
- • It is aimed to transfer the construction and management of railways and highways, gas and electricity supply services to the private sector;

- It is planned to widely introduce private partnership mechanisms in such state monopoly sectors as irrigation, waste processing, energy and heat supply in social facilities;
- It is planned to expand the practice of granting strategically useful mineral deposits to local business entities, and to increase the number of permits issued for gold, silver, non-ferrous metals, tungsten, coal, and ore deposits by 4 times;
- In order to ensure the stability of the tax system, it is planned to guarantee that the value-added and profit tax rates for businesses will not be increased for 3 years;
- It is aimed to fully digitize, simplify the tax system and create equal opportunities for all entrepreneurs, ensuring all necessary conditions for the official sector to be advantageous and profitable over illegal activities;
- It is planned to expand the opportunities for small and medium-sized businesses to enter international markets, develop microfinance, support innovations and startups, and implement new instruments for developing cooperation with large businesses;
- Transition from "simple hand" labor to industrialized production stage in providing employment on the basis of family business, the amount of preferential loan for equipment is 100 mln. it is planned to increase to soums;
- It is planned to provide all services to business entities through an online portal based on the principle of “single window” and to reduce the time of service up to 3 times on average.

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BOSHLANG‘ICH TA’LIM YO‘NALISHI TALABALARINI O‘QITISHDA MOBIL TEXNOLOGIYALARDAN FOYDALANISH

Annotatsiya: *Bugungi kunda zamonaviy ta’limga talab tobora ortib borayotgan davrda mobil texnologiyalari asosidagi mobil ta’limga ham ehtiyoj ortmoqda. Maqolada zamonaviy mobil qurilmalardan ta’lim jarayonida foydalangan xolda mashg’ulotni qiziqarli tarzda olib borishga qaratilgan. Maqolada mobil ta’lim har joyda va har qanday sharoitda ham qulay bo‘lib, ta’lim oluvchilar mobil qurilmalardan behuda emas, balki ta’lim olishda foydalanishi, bunda mobil ilovalar hamda qo‘l kelishi haqida fikrlar bayon qilingan.*

Kalit so`zlar : *mobil texnologiya, m-learning, mobil ta’lim, mobil texnologiya turlari, LMS, mobil qurilma, mobil ilova.*

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USE OF MOBILE TECHNOLOGIES IN EDUCATION OF STUDENTS OF PRIMARY EDUCATION

Abstract: *Today, in an era where the demand for modern education is increasing, the need for mobile education based on mobile technologies is also increasing. The article focuses on making learning interesting by using modern mobile devices in the educational process. The article presents ideas on how mobile education is convenient everywhere and in any conditions, and how learners can use mobile devices not for nothing, but for learning, and mobile applications and their usefulness.*

Keywords: *mobile technology, m-learning, mobile education, types of mobile technology, LMS, mobile device, mobile application.*

Kirish. Zamonaviy bilim va yuksak ma’naviy-axloqiy fazilatlarga ega, mustaqil fikrlaydigan yuqori malakali kadrlar tayyorlash jarayonini sifat jihatidan yangi bosqichga ko‘tarish, oliy ma’lumotli mutaxassislar tayyorlash sifatini oshirish, ta’lim jarayoniga raqamli texnologiyalar va zamonaviy usullarni joriy etish - davlat siyosatining ustuvor vasifalaridan biri ekanligini belgilandi. Oliy ta’lim tizimini 2030-yilgacha rivojlantirish konsepsiyasida ham zamonaviy axborot-kommunikatsiya texnologiyalari va ta’lim texnologiyalarining mustahkam integratsiyasini ta’minlash, ta’lim jarayonlarini raqamli va mobil texnologiyalar

asosida tashkil etish, masofaviy ta’lim xizmatlarini rivojlantirish, vebinar, onlayn, “blended learning”, “flipped classroom” texnologiyalarini amaliyotga keng joriy etish, zamonaviy mobil texnologiyalar asosida masofaviy ta’lim dasturlarini tashkil etish, mobil qurilmalar yordamida masofadan turib foydalanish imkonini beruvchi o‘quv platformalari yaratish, mobil texnologiyalardan foydalanish orqali talabalar va o‘qituvchilar uchun ta’lim jarayonini yanada moslashuvchan qilish alohida ko‘rsatib o‘tilgan [1].

O‘zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning gi 2023-yil 26-maydagi PF-79-son farmonida “umumiy o‘rta ta’lim muassasalarining boshlang‘ich sinflarida informatika fani, o‘rta sinflarda esa o‘quvchilarning moliyaviy savodxonligini oshirishga qaratilgan darslar joriy etiladi” deyilgan [2]. Shunga muvofiq, Maktabgacha va maktab ta’limi vazirining 2023 yil 15 maydagi 125-sonli buyrug‘iga asosan O‘zbekiston Respublikasi maktablarida 2023-2024-o‘quv yilidan boshlab, umumiy o‘rta ta’lim maktablarining 1-sinfida “Informatika va axborot texnologiyalari” fanini o’qitish joriy qilingan [3]. Demak, bundan ko‘rinadiki bo‘lajak boshlag‘ich sinf o‘qituvchilarini kasbiy faoliyatga tayyorlash, ularni mobil qurilmalardan dars jarayonida samarali foydalana olish ko‘nikmalarini shakllantirish, zamonaviy raqamli texnologiyalardan foydalanib dars samaradorligini yanada oshirish, “Boshlang‘ich sinflarda axborot texnologiylari” fanini mobil texnologiyalar asosida o‘qitish bugungi kunning dolzarb pedagogik muammolaridan biri bo‘lib ko‘rinmoqda.

Adabiyotlar sharhi. Byuk Britaniya olimlari Sharples, Taylor, va Vavoula tomonidan 2005 yilda nashr etilgan "Towards a Theory of Mobile Learning" maqolasi mobil o‘qitish sohasida fundamental ish hisoblanadi. Ular mobil o‘qitishning nazariy asoslarini rivojlantirishga urinishgan va shu bilan o‘quv jarayonida yangi texnologiyalarning rolini tushuntirishga harakat qilishgan. Sharples va hamkasblari o‘z ishlarida mobil o‘qitishni faqat texnologiya orqali emas, balki o‘qishning kengayishi va moslashuvchan jarayon sifatida ko‘rib chiqadilar [4]. Ularning takliflari mobil texnologiyalarni o‘qitish jarayoniga integratsiya qilishda foydali bo‘lib, hozirgi zamonaviy ta’lim tizimida ularni joriy qilish uchun mustahkam poydevor bo‘lib xizmat qiladi.

Mohamed Ally fikricha mobil texnologiyalarning ta’limdagi o‘rnini amaliy va interaktiv imkoniyatlarni kengaytirishda muhim o‘rin tutishini ta’kidlaydi. Mobil texnologiyalar orqali talabalarga kengaytirilgan reallik yordamida murakkab tushunchalarni real va amaliy ko‘rinishda o‘rganish imkoniyati yaratiladi. U bu texnologiyalar ta’limni istalgan joyda va vaqtda olishga moslashish, shuningdek, murakkab tushunchalarni interaktiv tarzda o‘zlashtirishga yordam beradi, deb hisoblaydi. Shu orqali talabalar tajribaga asoslangan o‘quv jarayonini boshdan kechirishi mumkin [5].

H. Crompton o‘zining “Increasing Engagement through Mobile Learning Interactivity” maqolasida mobil texnologiyalarning ta’lim jarayonidagi interaktivlikni oshirishga qaratilgan imkoniyatlarini o‘rganadi. Cromptonning fikricha, mobil texnologiyalar yordamida talabalar o‘zlariga qiziqarli va dinamik tarzda ta’lim olishlari mumkin, bu esa ularning o‘zlashtirish darajasini oshiradi. U

ta’limdagi interaktivlikni kuchaytirish uchun multimedia, o‘yinlashtirish va shaxsiylashtirilgan o‘quv platformalari kabi yondashuvlarni qo‘llash muhimligini ta’kidlaydi. Bu usullar orqali talabalar faolroq bo‘lib, bilim olish jarayonida ko‘proq ishtirok etish imkoniyatiga ega bo‘ladi [6].

Gwo-Jen Hwang[7] o‘zining “Strategies for Personalizing Mobile Learning Systems” ilmiy ishida ta’limda mobil texnologiyalar yordamida shaxsiylashtirilgan o‘quv muhitlarini yaratish imkoniyatlariga to‘xtaladi. Hwang ta’lim tizimida har bir talabaning ehtiyojlariga mos o‘quv modullarini ishlab chiqish uchun moslashuvchan va individual yondashuvlar qo‘llanilishi muhimligini ta’kidlaydi.

Cheon J. va Lee S. mobil texnologiyalarni ta’limda qo‘llash bo‘yicha tadqiqotlarida interaktiv mobil ilovalar yordamida o‘quvchilarning bilim olish jarayonini qanday kuchaytirish mumkinligi haqida fikr bildiradilar. Ular mobil ilovalar orqali o‘quvchilar qiziqarli va moslashuvchan ta’lim muhitiga ega bo‘lishadi, bu esa ularni o‘qishga ko‘proq jalb qiladi va o‘zlashtirish darajasini oshirishini, talabalar mobil ilovalarda o‘z natijalari va xatolarini darhol ko‘rishini, o‘zlarini tezda tuzatish imkoniyatiga ega bo‘lishlarini va bu jarayon o‘qituvchi va talaba o‘rtasidagi aloqa sifatini yaxshilashini ta’kidlaydilar [8].

Novikov M, Y. o‘zining dissertatsiyasida maktablarda informatika o‘qitish uchun mobil texnologiyalardan foydalanish imkoniyatlarini tahlil qiladi. Ural Davlat Pedagogika Universitetida himoya qilingan ushbu ishda Novikov o‘quv jarayonida interaktiv va shaxsiylashtirilgan mobil texnologiyalardan foydalanish informatika fanini o‘zlashtirish samaradorligini oshirishi mumkinligini ta’kidlaydi. Dissertatsiya ta’limning mobil texnologiyalarga asoslangan usullarini ishlab chiqish va sinovdan o‘tkazishga qaratilgan [9].

Xanimqulov Baxrom Roxmonqulovichning “Integratsiyalashgan darslarda mobil o‘qitish texnologiyalaridan foydalanish metodikasi” mavzusidagi dissertatsiyasi ta’lim jarayonida mobil texnologiyalarni joriy etish va ulardan foydalanishni o‘rganishga qaratilgan. Dissertatsiyaning dolzarbligi zamonaviy ta’limda mobil texnologiyalarning keng joriy etilishi bilan bog‘liq. Ta’lim tizimida texnologiyalarning rivoji va raqamli bilim olish muhim ahamiyat kasb etadi [10].

Yuqoridagi xorijiy, rus, o‘zbek olim va mutafakkirlarning ilmiy izlanishlari taxlili shuni ko‘rsatadiki, Oliy ta’lim tizimida o‘quv mashg‘ulotlarini tashkil qilishda zamonaviy mobil texnologiyalardan foydalanish, bo‘lajak boshlag‘ich sinf o‘qituvchilarini mobil texnologiyalardan keng foydalanish ko‘nikmalarini shakllantirish bugungi kundagi dolzarb pedagogik muammolaridan biri bo‘lib ko‘rinmoqda.

Tadqiqot metodologiyasi. “**Mobil**” so‘zi lotin tilidan kelib chiqqan bo‘lib, aslida “harakatlanuvchi” yoki “ko‘chuvchi” degan ma’noni anglatadi. Zamonaviy kontekstdagi “mobil” atamasi, ko‘chma, harakatlanuvchi yoki ko‘tarib yurishga qulay bo‘lgan qurilmalarni, xususan, smartfonlar, planshetlar va boshqa simsiz ulanish imkoniga ega texnologiyalarni ifodalaydi [11].

“**Texnologiya**” so‘zi yunon tilidan olingan bo‘lib, ikki qismdan iborat: “tekhnē” (hunarmandlik, san’at yoki mahorat) va “logos” (bilim, ilm, nazariya). Bu so‘z ilmiy bilim va amaliy ko‘nikmalarni muayyan maqsadlarga erishish uchun

qo‘llash degan ma’noni anglatadi. Zamonaviy tushunchada texnologiya inson hayotini yaxshilash va jarayonlarni avtomatlashtirish uchun qo‘llaniladigan vositalar, usullar va jarayonlar majmuasidir [12].

“**Mobil texnologiya**” so‘zining lug‘aviy ma’nosi ko‘chma, ya’ni ko‘tarib yurishga qulay bo‘lgan, harakatlanish imkoniyatiga ega bo‘lgan qurilmalar xisoblanadi va ular yordamida qo‘llaniladigan dasturiy ta’minot majmuasi bilan bog‘liqdir. Mobil texnologiyalar zamonaviy aloqa, ta’lim, va axborot olishning muhim qismlaridan biri bo‘lib, foydalanuvchilarga turli xizmatlardan foydalanish imkonini beradi. Bu texnologiyalar odatda simsiz ulanish va har qanday joyda foydalanish uchun mo‘ljallangan [13].

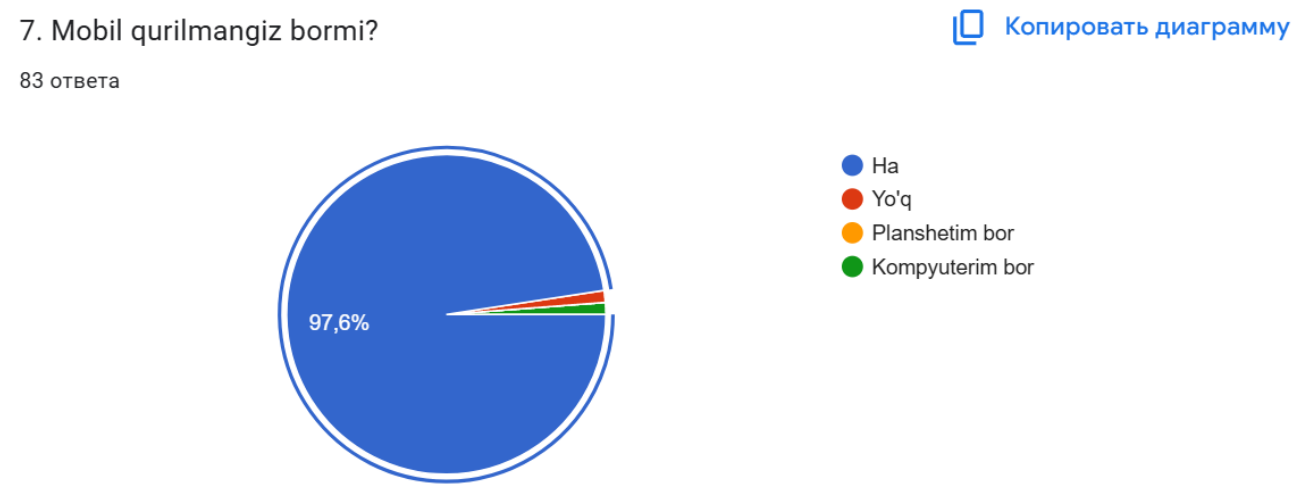
Mobil texnologiyalar asosida o‘qitish — bu o‘quv jarayonida mobil qurilmalar, masalan, android, ios, smartfonlar, planshetlar yoki netbuklardan foydalanish orqali bilimlarni yetkazish va o‘zlashtirish usuli xisoblanadi. Bu yondashuv o‘qitish jarayonini qulay va moslashuvchan qilish bilan birga, o‘quvchilarning darsga qiziqishini oshirish, bilimlarni interaktiv tarzda yetkazish va nazorat qilish imkonini beradi. Mobil texnologiyalarning ta’lim sohasiga kirib kelishi va ommalashishiga bir qator omillar sabab bo‘ldi. Avvalo, 2000-yillarning boshlarida internetning rivoji va mobil qurilmalarning ommalashuvi natijasida o‘qitish jarayoni joy va vaqtdan qat’i nazar olib boriladigan darajada kengaydi [5]. Bundan tashqari, zamonaviy smartfonlar va planshetlarning paydo bo‘lishi ta’lim jarayoniga yangi usullar va imkoniyatlar olib keldi.

COVID-19 pandemiyasi mobil texnologiyalarning ta’limda qo‘llanishini tezlashtirdi. Pandemiya ta’lim jarayonida masofaviy va mobil texnologiyalarning qanchalik zarur ekanligini yaqqol ko‘rsatdi. Mobil qurilmalar yordamida o‘quvchilar Zoom, Google Classroom, Microsoft Teams kabi platformalarda darslarga qatnashib, bilim olishda davom etishdi. Bu davrda talaba va o‘qituvchilarga vaqt va joy cheklovlarisiz ta’lim olish imkoniyati berildi [14].

Mobil texnologiyalar asosidagi o‘qitish metodlariga mobil qidiruv, mobil so‘rov, mobil loyihalash, web-kvest, interfaol video, podkast, mobil viktorina, to‘ldirilgan xaqiqiylik, bulutli texnologiyalar kiradi.

Tahlil va natijalar. Mobil texnologiyalar asosida o‘qitish bo‘yicha boshlang‘ich ta’lim yo‘nalishi talabalaridan so‘rovnoma o’tkazildi. Bu so‘rovnomada jami 83 nafar talabalar qatnashdilar. So’rovnomada mobil qurilmagiz bormi degan savolga 83 nafar talabadan 81 nafar talabalar bor deb javob berishdi 1 nafar talaba kompyuterim bor va 1 nafar talaba mobil qurilmam yo‘q deb javob

berdi.



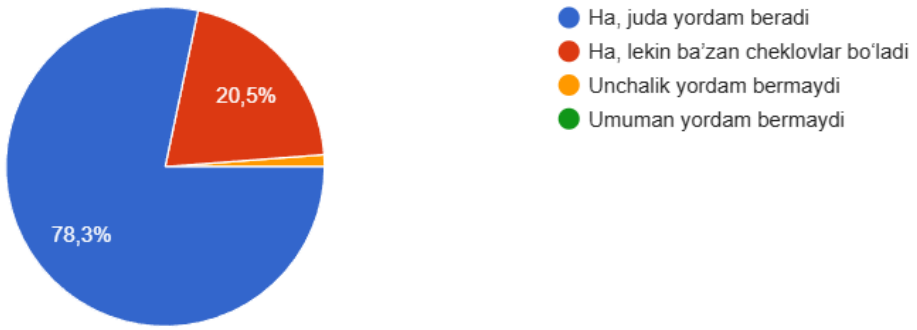
Mobil qurilmangizdan foydalanish darajangizni belgilang? 1 dan 5 gacha baxolang degan savolga 83 nafar talabadan 30 nafar talabalar 5 baxoga bilaman, 32 nafar talabalar 4 bahoga bilaman, 18 nafar talabalar 3 bahoga bilaman, 3 nafar talabalar esa 1 va 2 baxoga bilaman deb javob berishdi.

Sizningcha, mobil texnologiyalar ta’lim jarayonini samarali va qiziqarli qilishga yordam beradimi? degan savolga 83 nafar talabadan 65 nafar talaba ha, juda yordam berdi deb, 17 nafar talaba ha, lekin ba’zan cheklovlar bo‘ladi deb 1 nafar talaba esa unchalik yordam bermaydi deb javob berishdi. Umuman yordam bermaydi degan javobni xech kim tanlamadi.

13. Sizningcha, mobil texnologiyalar ta’lim jarayonini samarali va qiziqarli qilishga yordam beradimi?

Копировать диаграмму

83 ответа

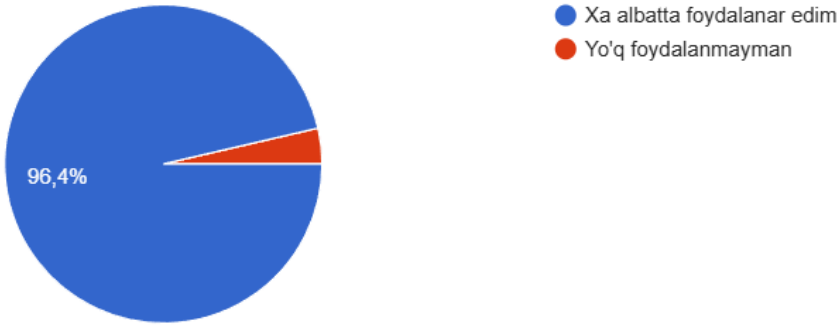


Mobil qurilmangizdan dars mashg‘ulotlarini o‘zlashtirishda foydalanish imkoniyati bo‘lganda foydalanarmidingiz? degan savolga 83 nafar talabadan 80 nafar talaba xa albatta foydalanar edim deb, 3 nafar talaba esa yo’q foydalanmayman deb javob berishdi.

12. Mobil qurilmangizdan dars mashg'ulotlarini o'zlashtirishda foydalanish imkoniyati bo'lganda foydalanarmidingiz?

Копировать диаграмму

83 ответа

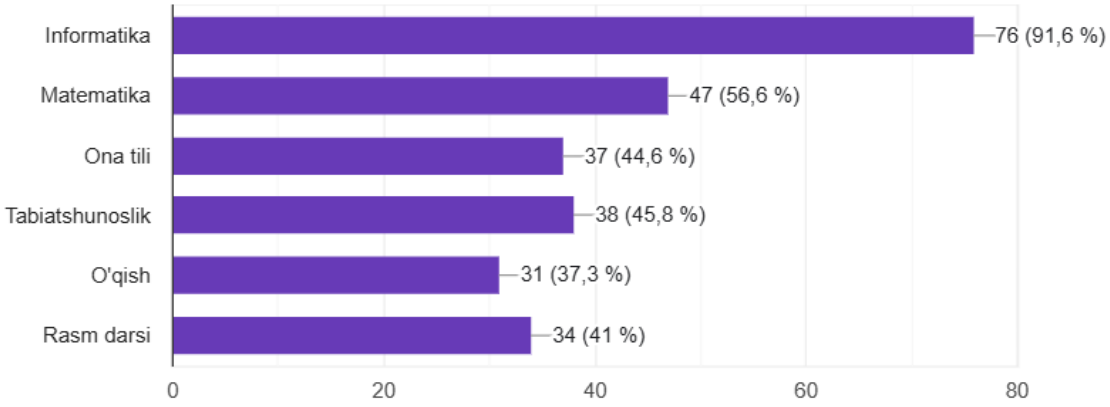


Mobil qurilma orqali mobil texnologiyalardan qaysi fanlarda foydalanish maqulroq deb o‘ylaysiz? degan savolga 83 nafar talabadan 76 nafar talaba informatika fanida foydalanish kerak degan javobni tanladi ya’ni foiz xisobida 91,6% ni tashkil qildi.

15. Mobil qurilma orqali mobil texnologiyalardan qaysi fanlarda foydalanish maqulroq deb o'ylaysiz?

Копировать диаграмму

83 ответа

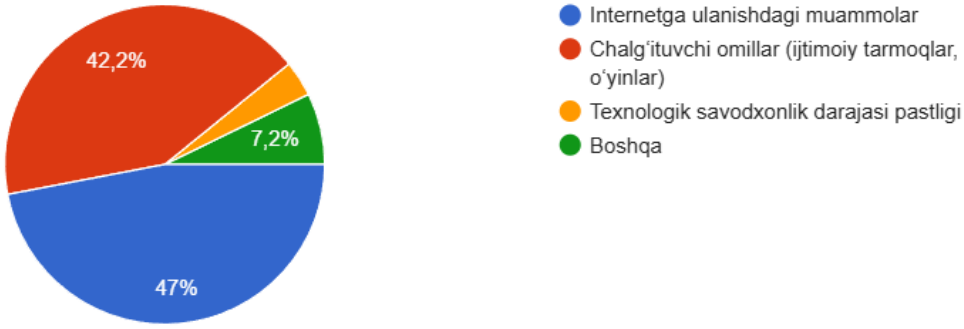


Mobil qurilma orqali mobil texnologiyalardan asosida o‘qitish qanday muammolarni keltirib chiqadi? degan savolga 83 nafar talabadan 39 nafar talaba Internetga ulanishdagi muammolar deb, 35 nafar talaba chalg‘ituvchi omillar deb, 3 nafar talaba texnologik sovodxonlikning pastligi deb, 6 nafar talaba esa boshqa omillar deb javob berishdi.

14. Mobil texnologiyalar ta'lim jarayonida qanday muammolarni keltirib chiqaradi?

Копировать диаграмму

83 ответа



Yuqoridagi fikr mulohazalar va so’rovnomadagi javoblarning taxlil qiladigan bo‘lsak, mobil texnologiyalarni ta’lim jarayoniga tadbiq qilish bugungi kunning dolzarb vazifalaridan biri ekanligini ko‘rsatib turibdi [15,16].

Xulosa va takliflar. Mobil texnologiyalarni kengroq qo‘llash uchun infratuzilmani takomillashtirish va barcha o‘quvchilarni zamonaviy qurilmalardan dars jarayonida oqilona foydalanish ko‘nikmalarini shakllantirish kerak.

5. Shaxsiylashtirilgan va moslashuvchan ta’lim yondashuvlarini joriy qilish, o‘quvchilarning ehtiyojlarini inobatga olish zarur.
6. Pedagoglar uchun texnologiyadan foydalanish bo‘yicha amaliy treninglar o‘tkazish, ularning malakasini oshirishga alohida e’tibor qaratish lozim.
7. O‘yinlashgan ta’lim, AR/VR texnologiyalar va mobil ilovalardan foydalangan holda darslarni qiziqarli va samarali qilish zarur.

8. Ta’limda masofaviy va gibrid modellarni yanada rivojlantirish uchun raqamli platformalarni takomillashtirish lozim.

Mobil texnologiyalar va zamonaviy o‘qitish yondashuvlarini to‘g‘ri qo‘llash orqali ta’lim sifatini oshirish, talabalarni yangi bilim va ko‘nikmalar bilan qurollantirish mumkin. Bu esa ularni kelajakda zamonaviy jamiyat ehtiyojlariga moslashgan mutaxassislar sifatida tayyorlashga xizmat qiladi.

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ПСИХОЛОГИЯ УСПЕХА: КАК ФОРМИРОВАТЬ МАТЕМАТИЧЕСКУЮ УВЕРЕННОСТЬ У УЧЕНИКОВ

Аннотация: *В статье рассматривается математическая уверенность как вера ученика в свои способности решать задачи и преодолевать сложности, что способствует формированию позитивного отношения к математике. Подчёркивается важность создания поддерживающей атмосферы в классе и применения активных методов обучения, включая положительное подкрепление и групповую работу. Также акцентируется внимание на работе с ошибками как на ключевом элементе в процессе формирования уверенности, что позволяет развивать у учащихся настойчивость и мотивацию к обучению.*

Ключевые слова: *математическая уверенность, обучение математике, психология успеха, успех в учебе.*

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PSYCHOLOGY OF SUCCESS: HOW TO FORM MATHEMATICAL CONFIDENCE IN STUDENTS

Abstract: *This article discusses mathematical confidence as a belief in a student's ability to solve problems and overcome challenges, which fosters a positive attitude toward mathematics. The importance of creating a supportive classroom atmosphere and employing active learning methods, including positive reinforcement and group work, is emphasized. Attention is also drawn to addressing errors as a key element in the process of building confidence, which helps develop students' perseverance and motivation for learning.*

Keywords: *mathematical confidence, mathematics education, psychology of success, academic success.*

Математическая уверенность может быть определена как практика веры в свои способности решать математические задачи и справляться с математическими концепциями. Это внутреннее восприятие и отношение ученика как к себе, так и к самой математике. Уверенность в математике помогает обучающимся не только успешно выполнять задания, но и воспринимать математические трудности как возможности для роста и обучения. Математическая уверенность играет ключевую роль в формировании позитивного отношения к этому предмету. Ученики, обладающие высокой уверенностью, чаще проявляют интерес и активность на уроках, испытывают меньше стресса при решении задач и готовы браться за более сложные задания. Напротив, низкая математическая уверенность может приводить к избеганию уроков математики, что в свою очередь может порождать негативное отношение к учебе в целом.

Уровни математической уверенности могут быть классифицированы следующим образом:

Низкая уверенность	ученики, испытывающие страх перед математикой, часто избегают задач и не верят в свои способности.
Средняя уверенность	ученики, которые могут решить некоторые задачи, но сталкиваются с трудностями и не всегда верят в свои возможности.
Высокая уверенность	ученики, которые активно участвуют в занятиях, проявляют интерес к математике и готовы принимать вызовы.

Исследования показывают, что уровень математической уверенности напрямую влияет на учебные достижения и общую мотивацию учеников. Уверенные в себе учащиеся имеют тенденцию устанавливать более высокие цели, проявляют настойчивость при столкновении с трудностями и, как правило, показывают лучшие результаты на экзаменах и контрольных работах.

В данной статье мы рассмотрим различные подходы, которые могут помочь учителям вдохновить и мотивировать своих учеников к изучению математики.

Создание положительной атмосферы в классе — это важный аспект работы учителя. Мы советуем применять различные стратегии для формирования дружеской и поддерживающей среды. Один из таких подходов — это регулярное использование положительного подкрепления. Учителю необходимо стараться отмечать успехи каждого ученика, что помогает им чувствовать свою ценность и уникальные способности. Роль учителя как вдохновителя и наставника в этом процессе трудно переоценить. Учитель должен не только обучать, но и поддерживать, вдохновлять и давать ученикам возможность быть смелыми.

Вот несколько конкретных примеров:

• Система "Похвала дня": в конце урока выбирайте одного-двух учеников, которые продемонстрировали особые успехи или старания, и публично отмечайте их достижения. Это поможет создать атмосферу поддержки и вдохновит других.

• "Личные успехи": каждый ученик может вести дневник самосовершенствования, где будет записывать свои достижения и цели накануне занятий.

• Модель наставничества: старшеклассники становятся наставниками для младших классов по математике, что дает им возможность чувствовать плечо взрослого друга и укрепляет у них уверенность в себе.

• Метод "выбор ученика": периодически можно давать учащимся возможность выбирать, какую тему или тип задачи они хотят изучать на следующем уроке, побуждая их участвовать в формировании учебного процесса.

Активные методы обучения позволяют значительно повысить вовлеченность учеников. В своей практике стоит использовать различные групповые задания и игровые технологии. Например, online игры, в которых используются математические концепции на Интернет платформе genially.com, которые вовлекают детей в процесс обучения и делают его веселым.

Игровые элементы, такие как математические конкурсы или знаковые дела, не только вовлекают учащихся, но и делают обучение более увлекательным и доступным.

Работа с ошибками и неудачами — еще один ключевой элемент формирования математической уверенности.

Важно транслировать ученикам психологически позитивное восприятие ошибок, объясняя, что ошибки — это часть обучения. Необходимо проводить уроки, на которых учитель с учениками будет разбирать ошибки вместе, анализировать, что пошло не так, и искать пути исправления. Например, учитель может предложить упражнения, в которых ученики должны исправить ошибки в заранее подготовленных примерах. Хорошим продолжением такого задания будет предложение учащимся привести примеры своих ошибок в ходе урока, с переносом их на доску для совместного обсуждения. Это поможет им не только практиковаться, но и развивать навыки анализа своих действий.

Интересным форматом является создание "стены ошибок", на которой учащиеся могут размещать свои ошибки и разбирать их вместе на перемене. Это помогает снять напряжение, связанное с ошибками.

Формирование математической уверенности — это многоступенчатый процесс, который требует от учителей постоянного внимания к внутреннему состоянию учеников и умения создавать поддерживающую атмосферу. Использование активных методов обучения и работа с ошибками, в свою очередь, помогают детям развивать уверенность в себе и своих математических способностях. В результате этого процесса мы можем подготовить более мотивированных и успешных учащихся, что, безусловно, повысит общий уровень обучения в школе.

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РЕЗУЛЬТАТЫ ИСПЫТАНИЙ АГРЕГАТА ДЛЯ ОБРАБОТКИ ПОЧВЫ

Аннотация:*По результатам испытаний выбрано секция рабочих органов для полосной обработки почвы, экспериментальным путем определены параметры высота, длина почвосдвигающей пластинки ее плоскорежущей лапы и угол атаки дисков. А также результаты испытаний показали, что наиболее приемлемым для полосной обработки почвы является сочетание рабочих органов, состоящее из односторонней плоскорежущей лапы с почвосдвигающей пластинкой, стрельчатой лапы и пары дисковых рабочих органов, обеспечивающих высокие показатели по качеству крошения почвы и выравненности поверхности обрабатываемых полос, а также очищению их от стерни и корней.*

Ключевые слова: *секция культиватора, длина почвасдвигающей пластинки, плоскорежущей лапы, рабочие органы, стрельчатая лапа, плоскорежущая лапа, обрабатываемой полосы, полосной обработки почвы, крошения почвы, угол атаки дисков.*

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TEST RESULTS OF THE UNIT FOR SOIL TREATMENT

Abstract:*Based on the test results, a section of working bodies was selected for strip tillage, the height, the length of the soil-shifting plate of its flat-cutting paw and the angle of attack of the disks were determined experimentally. As well as the*

test results showed that the most acceptable for strip tillage is a combination of working bodies, consisting of a one-sided flat-cutting paws with a soil-shifting plate, a pointed arm and a pair of disk working bodies, providing high rates of soil crumbling quality and leveling of the surface of the treated strips, as well as cleansing them of stubble and roots.

Keywords: *cultivator section, the length of the soil-shifting plate, flat-cutting legs, working bodies, lancet paw, flat-cutting paw, cultivated strip, strip tillage, soil crumbling, disk attack angle.*

Исследования, проведенные в УзМЭИ, УзПИТИ, а также других научных учреждений показали, что для выращивания кормовых культур после зерновых наиболее перспективной является полосная обработка почвы с одновременным севом. При этом за один проход агрегата осуществляется рыхление почвы в зоне прохода заделывающих рабочих органов сеялки и высев семян возделываемой культуры. Это обеспечивает резкое снижение (по сравнению со сплошной обработкой плугом, чизелем- культиватором или дисковой бороной) затрат труда, средств и расхода ГСМ, а самое главное посевы повторных культур удается осуществлять в самые кратчайшие сроки.

На основании проведенных обзора и исследований для осуществления полосной обработки почвы с одновременным севом нами выбран агрегат, состоящий из пропашного трактора, передних.секций хлопкового культиватора и сеялки, навешиваемой на навесную систему трактора[1,2,3].

При движении агрегата по полю рабочие органы, установленные на грядилях передних секций культиватора, очищают обрабатываемые полосы (в основном вершины сохранившихся от предыдущего года гребней междурядий хлопчатника и других культур) от после уборочных остатков и рыхлят их верхний слой, а сеялка осуществляет высев и заделку семян в эти обработанные полосы.

Результаты испытаний показали, что наиболее приемлемым для полосной обработки почвы является сочетание рабочих органов, состоящее из односторонней плоскорежущей лапы с почвосдвигающей пластинкой (рис 1.), стрельчатой лапы и пары дисковых рабочих органов, обеспечивающих высокие показатели по качеству крошения почвы и выравненности поверхности обрабатываемых полос, а также очищению их от стерни и корней.

Технологический процесс работы рабочих органов протекает следующим образом: при движении агрегата односторонняя плоскорежущая лапа подрезает корни стерни обрабатываемой полосы. Подрезанная стерня с почвой перемещается в сторону от полосы обработки почвосдвигающей пластинкой, затем очищенная полоса рыхлится стрельчатой лапой. Образованные стрельчатой лапой неровности выравниваются дисками.

Основными параметрами рабочих органов, оказывающими влияние на их качественные и энергетические показатели работы являются: высота *(H)* и длина (l), почвосдвигающей пластинку, угол *(a)* атаки дисков. С целью определения их рациональных значений были проведены специальные опыты.

Опыты проводились на полях экспериментального хозяйства УзМЭИ в период подготовки полей, освободившихся от озимых зерновых под повторные посевы.

По механическому составу почва полей, где проводились опыты, относится к средне-тяжелосуглинистым сероземам давнего орошения с глубоким (5…10 м) залеганием грунтовых вод.

В опытах изучали агротехнические качество крошения почвы, степень очищения обработанной полосы от стерни, степень выровненности ее поверхности и энергетические (тяговое сопротивление)показатели работы рабочих органов для полосной обработки почвы в зависимости от высоты и длины почвосдвигающей пластинки, угла установки дисковых рыхлителей к направлению движения, поперечного расстояния между ними и скорости движения агрегата [4,5,6].

Перед проведением опытов определили влажность и твердость почвы, количество стерни и засоренность поля сорняками.

Количество стерни и засоренность полей в период опыта определяли методом наложения рамки длиной 1 м и шириной, равной ширине зоны обработки. В каждой обработанной полосе учитывалось количество сорняков и стерни. Повторность опыта 5-кратная.

Рис. 1. Секция рабочих органов для полосной обработки почвы:
1-механизм навески; 2-грядил; 3- плоскорежущая лапа; 4-почвосдвигающая пластинка; 5-стрельчатая лапа; 6-дисковый рыхлитель

Качество крошения почвы определяли путём просеивания разрыхленной почвы через сита с диаметрами отверстий 50 и 25 мм, а тяговое сопротивление рабочих органов-тензометрированием.

Степень очищения обрабатываемой полосы от стерни и корней определяли количественным подсчетом их до и после прохода рабочих органов в 5-ти кратной повторности.

Выровненность поверхности обработанной полосы определялся с использованием координатной рейки. Горизонтальность рейки проверяли по уровню. Расстояние от поверхности поля до нижней стороны рейки замеряли с точностью до 0,5 см по всей ширине обрабатываемой полосы с интервалом в 1 см. Повторность измерений 5-кратная.

Данные опытов обработаны методом математической статистики на ЭВМ с определением среднего значения, средне квадратического отклонения и коэффициента вариации.

Влияние длины и высоты почвосдвигающей пластинки на показатели работы секции рабочих органов. В опытах было изучено влияние этих параметров на качество крошения почвы, степень очищения обработанной полосы от стерни и тяговое сопротивление плоскорежущей лапы.

Результаты опытов представлены в табл. 1-2.

Таблица 1. Изменение качества крошения почвы и степени очищения обработанной полосы от стерни в зависимости от длины и высоты почвосдвигающей пластинки

Длина/ оты пла нки, мм	Содержание фракций почвы (%) размерами, м	Степень очищения обраб нной полосы от стерни, %		
	>50	50…25	<25	
250/30	12,42/13,62	13,93/12,43	73,65/73,95	83,10/77,45
280/40	10,04/9,36	10,33/11,40	79,63/79,24	88,24/88,24
310/50	10,03/3,44	8,28/10,25	81,70/86,31	88,64/88,00
340/60	7,32/4,82	9,27/5,13	83,11/90,05	87,98/88,31

Таблица 2. Изменение тягового сопротивления плоскорежущей лапы в зависимости от длины и высоты почвосдвигающей пластинки

Длина ластин мм	Тяговое сопротивле е, Н	Высо пласти и, мм	Тяговое сопротивление, Н		
	$M_{ср}$	±<Ь		$M_{ср}$	± a
250	178,2	4,37	30	159,6	4,10
280	190,4	2,15	40	175,2	4,01
310	198,5	3,12	50	186,4	2,11
340	211,6	4,13	60	195,2	1,49

Из данных таблиц 1 следует, что с увеличением длины (с 250 до 340 мм) и высоты (с 30 до 60 мм) почвосдвигающей пластинки качество крошения почвы улучшается. Это можно объяснить увеличением пути протаскивания частиц почвы вперед пластинкой и в результате происходит дополнительное их крошение от вия комков почвы между собой и с поверхностью почвы.

Степень очищения обработанной полосы от стерни с увеличением длины пластинки до 280 мм и ее высоты до 40 мм возрастает, а в дальнейшем остается постоянной, т.е. увеличение длины пластинки более 280 мм и ее высоты более 40 мм на степень очищения почвы от стерни существенного влияния не оказывает.

Из данных табл. 2 следует, что с увеличением как длины, так и высоты пластинки тяговое сопротивление плоскорежущей лапы возрастает, что объясняется увеличением объема почвы и растительных остатков, перемещаемых впереди рабочего органа. Увеличение длины почвосдвигающей пластинки на 30 и ее высоты на 10 мм приводило к возрастанию тягового сопротивления плоскорежущей лапы соответственно на 4,25…6,84 и 4.72…9,77 % .

Таким образом, на основании проведенных исследований можно утверждать, что длина почвосдвигающей пластинки должна быть не менее 280 мм, а высота не менее 40 мм.

Влияние угла установки дисковых рыхлителей к направлению движения на показатели работы секций рабочих органов. В экспериментальных исследованиях было изучено влияние угла установки дисковых рыхлителей к направлению движения на их тяговое сопротивление, качество крошения почвы, а также степень выровненности поверхности обрабатываемой полосы. Результаты опытов представлены в таблице 3.

С увеличением угла установки дисков с 10° до 20° тяговое сопротивление диска возрастало с 138,4 до 180,8 Н, содержание агрономических ценных фракций (фракции, размерами менее 25 мм) с 68,84 до 78,66 %. Это объясняется тем, что с увеличением угла установки диска интенсивность его воздействия на почву возрастает [7,8,9].

Основным показателем работы дисковых рыхлителей является степень выровненности поверхности почвы обрабатываемой полосы. Из данных табл. 3 следует, что с увеличением угла установки дисков **с** 10 до 20° степень выровненности поверхности почвы повышается с 44,6 до 83,2 %.

Рис. 2. Профили поверхности почвы обработанной полосы при углах установки дисков: 10° (1), 15° (2), 20° (3)

На рис. 2 представлены профили поверхности почвы после прохода дисковых рыхлителей с углами установки 10°, 15° и 20° . Из данных следует, что полное закрытие борозды, образованной стрельчатой лапой, обеспечивается при углах установки дисков 15° и 20°, при угле установки дисков 10° она закрывается частично [10,11].

Таблица 3. Изменение показателей работы секции рабочих органов в зависимости от угла установки дисковых рыхлителей к направлению движения.

Угол[SEP]танов[SEP]гра,	Содержание фракций (% размерами, м	Степен выровн ности,	Тяговое сопротивле е, Н			
	>50	50…2	<25		$M_{ср}$	$\pm a$
10^0	16,2	14,96	68,84	44,6	138,4	3,07
15^0	12,0	13,97	73,98	66,7	168,9	3,38
20^0	9,96	11,39	78,66	83,2	180,8	2,43

Таким образом, на основании вышеизложенного угол установки дисковых рыхлителей можно рекомендовать в пределах 15° …20°.

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РАЗВИТИЕ АЛГОРИТМИЧЕСКОГО МЫШЛЕНИЯ НА УРОКАХ ИНФОРМАТИКИ С ПОМОЩЬЮ ИЗУЧЕНИЯ ЯЗЫКА PYTHO

Аннотация: *в статье рассматриваются методические рекомендации по развитию алгоритмического мышления посредством языка Python. Делается акцент на некоторых особенностях данного языка. Даются практические рекомендации по проведению уроков для учителей информатики.*

Ключевые слова: *программирование, алгоритмическое мышление, алгоритм.*

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DEVELOPING ALGORITHMIC THINKING IN COMPUTER SCIENCE LESSONS BY LEARNING PYTHON

Abstract: *the article discusses methodological recommendations for the development of algorithmic thinking through the Python language. The emphasis is on some of the features of this language. Practical recommendations on conducting lessons for computer science teachers are given.*

Keywords: *programming, algorithmic thinking, algorithm.*

Тенденции развития современного общества предъявляют совершенно новые требования к умениям и навыкам учащихся. Если в 80-ых годах компьютер был чем-то недосягаемым для обычного школьника, то сегодня каждый учащийся свободно может управляться с ним. Чтобы в будущем ученик умел не только получать знания, но и мог решать разнообразные практические и теоретические задачи, был способен самостоятельно добывать нужные ему знания с использованием современной техники, умел быстро и правильно решать возникшие в его жизни задачи и проблемы, он должен научиться думать.

Если мы обладаем желание вырастить таких людей, то необходимо формировать у учащихся разнообразные методы мышления, общие способы подхода к любой задаче и проблеме. Одним из наиболее необходимых типов мышлений в наше время является алгоритмическое мышление, которое в

большинстве своем формируется на уроках информатики, математики, а также физики. Без данного вида мышления не обходится ни один процесс в реальности.

Умение составлять и решать задачи требует специального навыка – алгоритмического мышления, который вырабатывается и совершенствуется на протяжении жизни человека.

Алгоритмическое мышление можно понимать, как систему мыслительных приемов, направленных на решение задач. Тут скрыты две стороны понимания. Первая, определить чужой алгоритм. Вторая, построить свой. Если при решении какой-либо задачи вам приходится взаимодействовать с чем-либо, придется понимать, как оно устроено. Только после понимания внутреннего строения можно встраивать свой алгоритм [3].

Алгоритмическое мышление отличается формальностью, логичностью, ясностью. С помощью него можно решать любую задачу, выполняя определенный алгоритм, построенный для решения. Именно такой вид мышления способствует успешному изучению программирования.

Знакомясь с современными методиками преподавания информатики, совершенно точно можно прийти к выводу, что курс программирования является одним из основных при изучении данного предмета [2].

К сожалению, в данное время наблюдается крайне низкий уровень подготовки школьников по вопросам программирования и алгоритмизации. После изменений, внесенных во ФГОС в 2022 году, мы видим, что изучение программирования в большинстве своем предполагается на углубленном уровне. Базовый уровень предполагает знакомство с разделом алгоритмизации в 8-ом классе, в то время как на углубленном уровне данные вопросы рассматриваются в 7-ом. Если говорить о программировании, то базовый уровень не предусматривает рассмотрение вопросов, связанных с циклическими алгоритмическими конструкциями. Данной темы касаются лишь на углубленном уровне.

С одной стороны, это правильно, теперь мы имеет четкое разграничение изучаемых тем на базовом и углубленном уровнях, но с другой стороны, вопросы, которые на базовом уровне не рассматриваются помогают наиболее точно разобраться в вопросах алгоритмизации.

Что касается языка программирования с помощью, которого в полной мере можно формировать алгоритмическое мышление, то на сегодняшний день предпочтение отдается Python. Его преимущества по сравнению с другими языками отмечают большинство учащихся. Он достаточно прост в усвоении, лаконичен, имеет легкий и понятный синтаксис, по сравнению с любым другим языком, обладает обширной сферой использования, динамичной типизацией, большим количеством библиотек и широко востребован на сегодняшнем рынке.

Язык Python – это инструмент для создания программ самого разнообразного назначения, который доступен даже для новичков. Как показывает практика, даже те, кто совершенно не знаком с

программированием прибегают к знакомству именно посредством данного языка.

Стоит понимать, что, начиная раздел программирования, обучающиеся уже имеют представление об алгоритмизации, поэтому целесообразно во время проведения уроков проводить аналогию между основами алгоритмизации и начальными сведениями программирования.

Прежде чем начинать программирование на языке Python необходимо определиться со средой, в которой будут создаваться ваши программы. Мы рекомендует использовать Python IDLE. Это свободно распространяемое ПО, имеющее достаточно понятный интерфейс.

После установки ПО можно перейти к работе. Начиная работу с языком Python необходимо познакомить учащихся с типами данных, которые используются в языке. Перечислим основные типы данных в языке Python: int – целые значения; float – вещественные значения (числа с дробной частью); bool – логические значения, true (истина, «да») или false (ложь, «нет»); str – символ или символьная строка, то есть цепочка символов. Следом перейти к арифметическим операциям и выражениям. После того, как эти вопросы будут разобраны, можно перейти к использованию основных алгоритмических конструкций [1].

Наиболее простым типом алгоритмической конструкции является конструкция следования, согласно которой действия выполняются последовательно друг за другом. В качестве примера данной конструкции можно рассмотреть следующие задачи: сложение нескольких чисел, поиск среднего арифметического, периметров и площадей различных фигур и др. На Python решение данных задач предполагает использование всего двух функций: input( ), print ( ). Первая предполагает ввод информации, вторая ее вывод на экран. При написании программ данного вида стоит отметить, что данная среда воспринимает введенные числа, как символы, поэтому, если вы ввели два числа, первое – 2, второе – 3, на выходе вы получите 23, а не сумму равную 6. Для того, чтобы корректно работать с данными необходимо указывать их тип. Например вместо команды a = input ( ), писать a =int (input ( )), давая понять вашей программе, что вы работаете с целым числом [1, с. 8-9].

Следующая конструкция – ветвление. Данная конструкция реализуется с помощью условного оператора if. Также возможно использование if и else. В Python важную роль играют сдвиги операторов относительно левой границы (отступы). Обратите внимание, что слова if и else начинаются на одном уровне, а все команды внутренних блоков сдвинуты относительно этого уровня вправо на одно и то же расстояние. Для сдвига используют символы табуляции: одно нажатие на клавишу Tab или четыре пробела. Если необходимо ввести несколько альтернативных условий, то можно использовать дополнительные блоки elif (сокращенное от else – if), после которого идет блок инструкций [1]. В качестве примера данной конструкции

можно рассмотреть алгоритм, поиска корней квадратного уравнения или любые алгоритмы, предполагающие условие.

Последняя алгоритмическая конструкция – повторения, в рамках которой организуется работа с циклами. Циклы являются такой же важной частью программирования, как условные операторы. С их помощью можно организовать повторение некоторых частей кода. В Python для записи циклов используются 2 вида команд: while и for. While переводится с английского как «пока», то есть цикл (блок команд) выполняется до тех пор, пока не выполнится заданное условие. Для этого в начале очередного шага цикла выполняется проверка условия. Поэтому оно называется циклом с предусловием. Цикл for повторяет команды необходимое количество раз. Данная команда позволяет сделать программу компактнее. В рамках изучения циклов можно рассмотреть задачи на определение количества цифр в числе, суммы цифр числа и т.д.

После рассмотрения основных алгоритмических конструкций рекомендуется познакомить учащихся со сложными условиями.

В рамках изучения раздела программирования можно параллельно показывать обучающимся насколько компактнее выглядит программа, написанная на языке Python.

Стоит отметить, что алгоритмический подход применим не только в компьютерных науках, но и в любых других. Алгоритмическое мышление необходимо развивать, чтобы понимать внутреннее устройство чего-либо. Для решения любой задачи приходится с чем-то взаимодействовать, и для построения своего алгоритма необходимо понимать строение основной системы. Но все это возможно лишь тогда, когда у человека есть желание думать [3].

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КОМПЬЮТЕРНОЕ ЗРЕНИЕ ДЛЯ АНАЛИЗА ПРОЦЕССА ОБУЧЕНИЯ

АННОТАЦИЯ:*Автоматизированная аналитика обучения становится важной темой в образовательной сфере, которая нуждается в эффективных системах мониторинга процесса обучения и обеспечения обратной связи с преподавателем. Последние достижения в области визуальных датчиков и методов компьютерного зрения позволяют автоматически отслеживать поведение и эмоциональные состояния учащихся на разных уровнях, от университета до дошкольного учреждения. Целью данного исследования разработка структуры системы, которая позволила бы преподавателям фиксировать и составлять краткое описание поведения учащихся в классе как части сбора данных для принятия решений процесс. Система записывает весь сеанс и определяет, когда учащиеся проявляют внимание в классе, а затем сообщает об этом в учебные отделы.*

Ключевые слова: *поведение учащихся, визуальное внимание, распознавание лиц, оценка взгляда, классификация, машинное обучение.*

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COMPUTER VISION FOR LEARNING PROCESS ANALYSIS

ABSTRACT:*Automated learning analytics is becoming an important topic in the educational field, which needs effective systems to monitor the learning process and provide feedback to the teacher. Recent advances in visual sensors and computer vision techniques make it possible to automatically monitor the behaviour and emotional states of learners at different levels, from university to preschool. The aim of this research is to develop a system structure that would allow teachers to record and produce a summary of student behaviour in the classroom as part of the data collection for decision making process. The system records the entire session and identifies when students are showing attention in the classroom and then reports this to the educational institutions.*

Keywords: *student behavior, visual attention, face recognition, gaze estimation, classification, machine learning.*

ВВЕДЕНИЕ

Успеваемость студента зависит от множества факторов, включая качество преподавания, образовательные программы, условия обучения, количество учебных часов, академическую инфраструктуру, институциональный климат и финансовые проблемы. Важно создать эффективный инструмент, который позволит преподавателям и специалистам собирать данные о поведении учащихся с минимальными затратами человеческих ресурсов. Такой инструмент поможет разрабатывать стратегии поддержки учащихся, что, в свою очередь, повысит их академическую успеваемость.

ОБЩИЕ СВЕДЕНИЯ

Многие исследователи изучали влияние поведения студентов на их успеваемость[1-3]. Было выявлено, что учащиеся, отвлекающиеся на просмотр видео, игры или отправку сообщений во время лекций на цифровых устройствах, испытывают сложности с долговременной памятью. Это, в свою очередь, негативно сказывается на их экзаменационных результатах, даже если кратковременная память не страдает. Кроме того, постоянное переключение между задачами приводит к когнитивным затратам: хотя эти затраты могут быть минимальными, в условиях многозадачности они накапливаются и существенно снижают эффективность обучения. Если учащиеся уделяют больше внимания занятиям, вероятность достижения ими высоких результатов значительно возрастает [2].

Для мониторинга поведения учащихся могут применяться два основных подхода: опросы и викторины. Однако эти методы не всегда объективны, так как студенты могут не помнить свои действия или искажать информацию. Современные технологии, в частности компьютерное зрение, позволяют автоматизировать процесс сбора и анализа данных о поведении студентов в режиме реального времени. Это дает возможность систематически анализировать образовательные потребности учащихся и разрабатывать индивидуальные стратегии обучения на основе собранных данных.

СУЩЕСТВУЮЩИЕ И ПРЕДЛАГАЕМАЯ СИСТЕМА

Сегодня академическая аналитика позволяет фиксировать данные в реальном времени и применять предиктивное моделирование для прогнозирования вероятных результатов на основе наблюдаемых моделей поведения. В перспективе такие данные могут использоваться преподавателями для пересмотра учебных курсов, улучшения методов оценки и коммуникации со студентами. Например, если анализ поведения студентов покажет низкий уровень вовлеченности, преподаватели смогут изменить содержание уроков, делая их более интересными и интерактивными. Кроме того, на основании анализа поведения можно проводить индивидуальные консультации с учащимися, у которых наблюдаются проблемы с концентрацией внимания.

Целью данного исследования является разработка алгоритма программной системы, основанной на технологиях компьютерного зрения, для автоматического распознавания поведения учащихся в классе. Система использует камеры, установленные в подходящих местах аудитории, в качестве модуля сбора данных. Распознавание лиц и движений тела позволяет анализировать посещаемость и уровень вовлеченности студентов в процесс обучения.

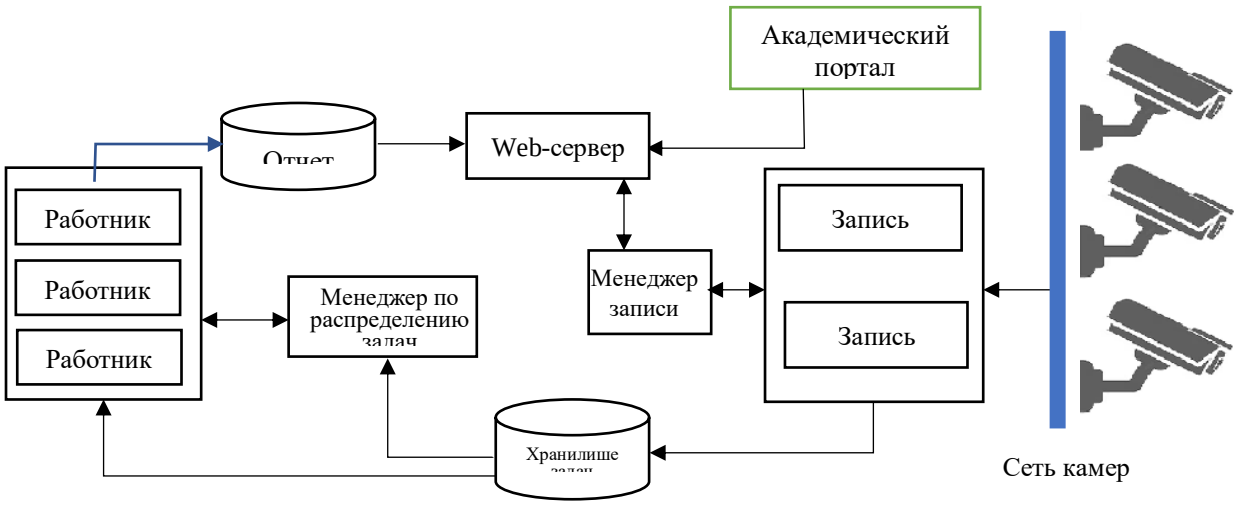
В данной системе применяется каскадное распознавание лиц методом Хаара для детекции лиц студентов, а также методы распознавания ориентиров лица и анализ выражений. Для анализа телодвижений используются каскадные классификаторы и гистограммы ориентированных градиентов (HOG). Определяются несколько ключевых состояний учащихся: активное участие в уроке, отсутствие концентрации и намерение покинуть аудиторию.

Специализированные устройства, такие как Microsoft Kinect, ранее использовались для анализа поведения учащихся. Однако существовали некоторые ограничения: оценки внимания, проводимые наблюдателями, были недостаточно точными, объем данных для обучения был ограничен, а устройства допускали ошибки в распознавании. Кроме того, семи признаков, вычисленных на основе данных Kinect, было недостаточно для полной оценки различий в поведении студентов, например, система не могла корректно распознавать процесс письма[1].

Современные технологии классификации поведения учащихся основаны на анализе их эмоций, варьирующихся от негативных до положительных. Также система сверяет лица студентов с базой данных учебного заведения, чтобы фиксировать посещаемость, и может оценивать состояние учащегося, например, выявлять признаки усталости или стресса. Хотя результаты большинства подобных исследований пока не опубликованы, они демонстрируют перспективность применения технологий распознавания лиц и анализа поведения для образовательных целей [2].

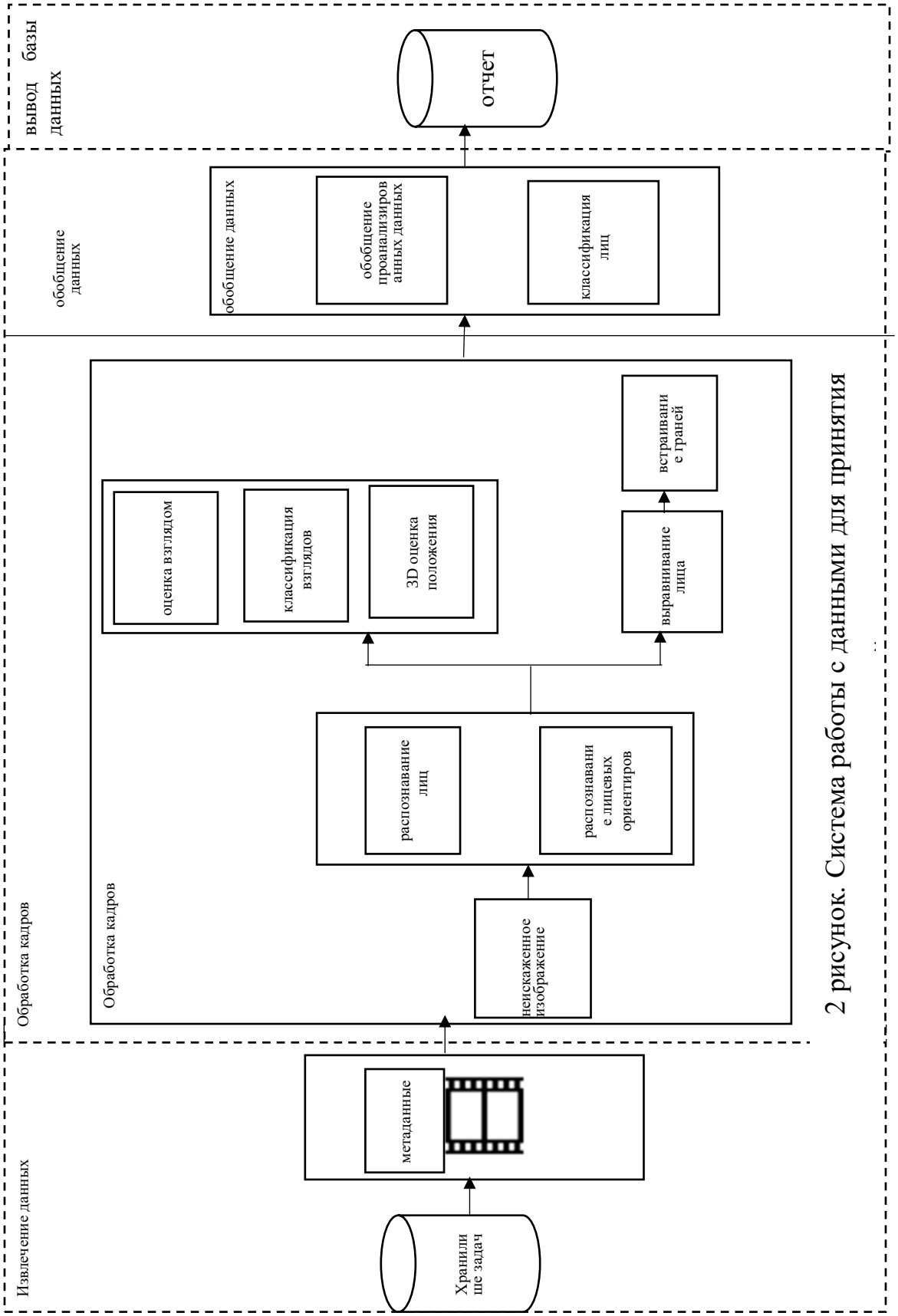
Основным вкладом данного исследования является разработка комплексного алгоритма для автоматизированного мониторинга поведения учащихся. Разработанная система представляет собой инструмент для сбора и анализа данных, помогающий принимать обоснованные решения в образовательном процессе. В системе применяются передовые методы компьютерного зрения, включая распознавание лиц, определение ориентиров на лице, встраивание лица, классификацию эмоций и анализ направления взгляда. Также реализован алгоритм определения местоположения в 3D-пространстве, позволяющий учитывать особенности планировки аудиторий и объединять данные с нескольких камер. Дополнительно используется статистический анализ предыдущих наблюдений для повышения точности алгоритмов компьютерного зрения. Внедренный алгоритм обобщения данных позволяет повысить эффективность анализа и сделать систему более адаптивной к различным условиям [3].

Система мониторинга поведения учащихся напрямую должна быть подключена к сети камер и академическому порталу для получения подробного расписания и уменьшения масштабов распознавания учащихся. На рисунке 1 представлена упрощенная схема системы. Она содержит семь основных компонентов: регистратор, контроллер регистратора, хранилище задач, менеджер назначения задач, рабочий, отчет и веб-сервер. Видеорегистратор (или медиарегистратор мультимедиа) отвечает за запись видео с камеры. Контроллер видеорегистратора отвечает за распределение задач записи. Это означает, что необходимо указать, какой видеорегистратор будет записывать с какой камеры, поскольку процесс видеозаписи выполняется вручную. Между тем, сигнал для запуска/остановки процесса записи контролируется веб-сервером. Хранилище задач - это хранилище для хранения записанных видеороликов и их метаданных (класс в видео, список учащихся, конфигурации камер и т.д.). Менеджер по распределению задач отвечает за автоматическое получение расписаний и распределение задач для работника (worker). Worker который содержит модуль анализа данных (или ядро искусственного интеллекта), должен обрабатывать задачи, назначенные менеджером по распределению задач, и записывать их в базу данных отчетов в качестве результатов. Веб-сервер визуализирует данные из базы данных отчетов и управляет процессом записи. Можно видеть, что основой системы является модуль искусственного интеллекта, который находится внутри модуля «Работник», который можно разделить на четыре этапа: извлечение данных, обработка кадров, обобщение и вывод в базу данных, как показано на рисунке 1.



1 рисунок. Система сбора для обработки данных

На этом рисунке показан обзор системы, которая содержит семь компонентов: запись, контроллер записи, хранилище задач, диспетчер назначения задач, рабочий, а также отчет и веб-сервер.



2 рисунок. Система работы с данными для принятия

На этапе извлечения данных извлекается вся информация о задаче (записанное видео, список учащихся, конфигурации камер и т.д.), предоставленная менеджером по распределению задач. Данные, содержащиеся в видео, извлекаются, а метаданные передаются на этап обработки кадров. На этапе обработки кадров обрабатывается каждый видеокадр и выводятся ограничивающие рамки лица, ориентиры лица, встраивание лица, используя только изображение видеокадра, вектор взгляда, классификацию взгляда и оценку положения в 3D. Кроме того, эти выходные данные извлекаются с использованием изображения видеокадра и конфигураций камеры (положение в трехмерном пространстве, векторы поворота и т.д.), которые были получены из метаданных задачи. Этап подведения итогов отвечает за обобщение всех данных, полученных на этапе 2, для записи в базу данных. Он содержит два компонента: обобщение проанализированных данных и классификация лиц. Компонент обобщения проанализированных данных отвечает за обобщение данных предыдущего этапа. Компонент face classification использует список учащихся из метаданных задачи и данные о лицах для выполнения окончательной классификации после обобщения данных. Наконец, все результаты предыдущего этапа записываются в базу данных [5].

Распознавание лиц - это процесс обнаружения лиц, которые появляются в данной сцене. Это неотъемлемая часть большинства систем идентификации личности. Распознавание лиц - это ответвление общего обнаружения объектов. Общее обнаружение объектов делится на два типа: двухэтапное и одноступенчатое обнаружение объектов. Общее обнаружение объектов можно использовать для задачи распознавания лиц, обучив его на наборах данных о лицах. Двухэтапный алгоритм обнаружения делит процесс обнаружения на два этапа: сканирование в поисках интересных областей и классификация этих областей. Существует несколько популярных двухэтапных алгоритмов обнаружения, таких как R-CNN, Быстрый R-CNN, более быстрый R-CNN, R-FCN и маскирующий R-CNN. Существуют также специальные алгоритмы для распознавания лиц, такие как MTCNN. В отличие от двухэтапного распознавания, одноступенчатый алгоритм непосредственно сопоставляет пиксели входного изображения с координатами ограничивающего прямоугольника и вероятностями классов. К числу последних одноступенчатых алгоритмов обнаружения относятся YOLO, YOLOv2, YOLOv3, SSD , RetinaNet, SSH детектор лиц и RetinaFace детектор лиц. За распознавание лицевых ориентиров отвечает функция выравнивания лица. Существуют отдельные детекторы лицевых ориентиров, такие как OpenCV landmark detector и DLib landmark detector, а также встроенные детекторы лицевых ориентиров, такие как MTCNN и RetinaFace [4].

Распознавание лиц, позволяющее идентифицировать конкретного учащегося, позволяет лицу, принимающему решения, понять реальную ситуацию в отношении каждого отдельного человека. Вместо того, чтобы просто следить за поведением всего класса или неустановленных лиц,

создается профиль каждого учащегося. Встраивание лица - это процесс представления изображения лица в виде вектора чисел. Встраивание лица играет роль выделения признаков в системе распознавания лиц. Алгоритмы встраивания граней можно разделить на три типа в зависимости от их показателей потерь:

- Метрика, основанная на евклидовом расстоянии.
- Метрика, основанная на угловых/косинусных полях.
- Softmax и его варианты.

Существует несколько популярных, недавно разработанных алгоритмов встраивания лиц, таких как DeepFace, FaceNet, VGGFace, SphereFace и современный ArcFace, который обеспечивает точность 99,83% для помеченных лиц в условиях дикой природы (LFW) набор данных. Следующим шагом встраивания лиц является классификация лиц, которая является частью системы распознавания лиц. Алгоритм классификации лиц использует векторы встраивания из алгоритма встраивания лиц и выводит классы идентификаторов (или удостоверения личности) заданных векторов встраивания [5]. Наиболее часто используемым методом для решения задач классификации лиц является определение ближайшего соседа (NN) с заданной метрикой и методом опорных векторов (SVM).

Как описано во многих работах, взгляд и выражение лица имеют большое значение важность для оценки когнитивной вовлеченности или невнимательности учащихся. Были разработаны некоторые методы для оценки взгляда глаз. Однако возможность извлечения взгляда может быть ограничена из-за размытых изображений, разрешения камеры и т.д. В связи с этим возникает необходимость использования положения головы в качестве альтернативного подхода. Для оценки положения головы 3DDFA и KEPLER определяют ориентиры на лице, а затем сопоставляют их с помощью сверточной нейронной сети (CNN) или ее модифицированной версии. Однако использование ориентиров может быть недостатком. Как и в случае с изображениями с низким разрешением, неправильное определение ориентиров может привести к ухудшению результатов. Hopenet объединил ResNet50 с архитектурой с несколькими потерями. Каждая потеря содержала классификацию положения и регрессию, соответствующую рысканию, тангажу и крену по отдельности. Это показало, что он может напрямую предсказывать поворот головы и значительно превосходит методы привязки ориентира к позе, используя самые современные методы определения ориентиров. FSA-Net уделяет особое внимание оценке позы и даже оказался небольшим улучшением по сравнению с Hopenet.

Оценка местоположения играет немаловажную роль в данной задаче. У двух учеников могут быть два одинаковых направления обзора, но объекты наблюдения могут быть разными. Это зависит от положения учеников. Например, два соседа по столу (левый и правый) смотрят налево, но один ученик может смотреть на доску, в то время как другой смотрит за дверь. Таким образом, определение взаимного расположения учеников напрямую

влияет на прогноз того, откуда они наблюдают. Распознавание лиц и определение поведения, по-видимому, слабо взаимосвязаны. Однако важно отслеживать поведение идентифицированного учащегося. Это обеспечивает многоуровневую детализацию при построении системы поддержки принятия решений. При этом обязательным требованием является тестирование в реальном времени для получения максимально эффективного результата.

ЗАКЛЮЧЕНИЕ

В заключение можно отметить, что внедрение технологий компьютерного зрения в образовательный процесс открывает новые возможности для повышения качества обучения. Автоматизированный мониторинг поведения учащихся позволит преподавателям оперативно адаптировать учебные материалы и методы преподавания, а также обеспечит более индивидуальный подход к обучению. Таким образом, использование систем компьютерного зрения может стать важным шагом на пути к созданию более эффективных образовательных технологий.

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БЛОКЧЕЙН СИТЕМЫ КАК БЕЗОПАСНОСТЬ УМНОГО ДОМА

Аннотация: *Безопасность основных элементов умного дома – это одна из главных задач, которую нужно решить. Цифровизация и улучшение технологий приводит к тому, что люди все больше, и больше автоматизируют своё окружение, и получить информацию о владельце все легче.*

Ключевые слова: *Блокчейн, безопасность, дом, устройства, технологии*

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BLOCKCHAIN SYSTEMS AS SMART HOME SECURITY

Abstract: *The security of the main elements of a smart home is one of the main tasks that needs to be solved. Digitalization and technology improvement leads to the fact that people are automating their environment more and more, and it is becoming easier to get information about the owner.*

Key words: *Blockchain, security, home, devices, technology*

Рассмотрение технологии Блокчейн для системы безопасности умного дома

В последнее время технология блокчейн используется в различных отраслях, включая финансы, дистрибуцию, здравоохранение и энергетику. Блокчейн был выбран в качестве одной из ключевых технологий, которые возглавят эпоху четвертой промышленной революции на Всемирном экономическом форуме 2016 года. Мировые институты рыночных исследований, Gartner и Deloitte также выбрали блокчейн в качестве одного из технологических трендов 2017 года . Блокчейн - хорошо известная технология распределенной бухгалтерской книги. Это может преодолеть ограничения косвенных и пассивных гарантий доверия, которыми обладают традиционные централизованные системы, и внедрить децентрализованную систему,

которая может гарантировать пользователям прямые и активные доверительные отношения. Блокчейн может быть легко применен и интегрирован в различные отрасли, а целостность блока обеспечивает целостность данных. Блокчейн состоит из цифрового реестра, который записывает информацию о транзакциях, происходящих в сети, и распределяется между участниками сети. Копия Реестра распределяется между каждым участником сети. Когда происходит новая транзакция, она аутентифицируется с согласия всех участников. Блокчейн состоит из нескольких блоков, которые содержат определенную информацию о транзакции. Поскольку многочисленные блоки объединены в единую блокчейн-цепочку, произвольно изменять конкретные данные невозможно. Блоки соответствуют данным, хранящимся у большинства всех пользователей, где более 51% всех пользователей идентифицированы как подлинные блоки. Если данные какого-либо блока изменены или отсутствуют, их легко восстановить, поскольку в бухгалтерских книгах хранятся данные о хэш-значении. Практически невозможно изменить бухгалтерскую книгу на основе информации об одной транзакции. Изменение данных требует одновременного взлома как минимум 51% всех блоков. Поскольку технология распределенной бухгалтерской книги открыта для всех участников сети, вся новая информация обновляется в режиме реального времени, и информации легко доверять и отслеживать. Устранение присутствия посредников на основе подхода распределенной одноранговой сети и без использования традиционных централизованных систем повышает эффективность и прозрачность транзакций. Это создает быструю и безопасную сетевую среду при меньших затратах. Основанный на сети P2P, блокчейн подключается к равному уровню всеми пользователями, действуя как сервер и одновременно как клиент. Это может решить проблему серверно-клиентской архитектуры, в которой несколько пользователей подключены и управляются через централизованный сервер в существующей сетевой системе.

Шлюз "Умный дом"

Ряд технологий для "умных домов" внедряется по мере роста интереса к жилой среде из-за технологического развития. "Умный дом" относится к жилой среде, оснащенной технологиями, которые могут автоматически управлять устройствами и системами. Управление этими средами зависит от множества переменных условий, таких как затраты, предпочтения жителей и типы зданий в зависимости от технологии. Сетевая структура, которая может автоматически регулировать температуру и уровни безопасности, а также эффективно взаимодействовать внутри и снаружи умных домов, может предоставить жителям широкий спектр условий жизни, повышая их удовлетворенность. Шлюз для разработки этих сетей обеспечивает функциональность для следующих концепций:

- Разнообразие домашних сетевых подключений.

- Домашняя сеть и интернет-соединения.
- Дистанционное управление и диагностика бытовой техники.
- Гибкие механизмы расширения и обновления программного обеспечения.
- Надежный и безопасный метод удаленного управления.

Реализация этих шлюзов направлена на создание устойчивого "умного дома", который может создавать дополнительную ценность при одновременном устранении различных уязвимостей существующих "умных домов".

Соображения безопасности шлюза "Умный дом"

Несколько устройств, в совокупности составляющих "умный дом", контролируются посредством обмена данными через шлюз. Такая конфигурация сети может раскрыть данные в доме, привести к нарушениям конфиденциальности, вызвать сбои в работе устройств и нанести вред пользователям. Когда пользователь получает доступ к сети "умный дом", реализованной в каждом домохозяйстве, данные, собранные устройствами в целевом формате, могут быть утечены. В отсутствие стандартов безопасности для умных домов и устройств возникают трудности с объединением различных разнородных устройств. По этой причине различные услуги не могут предоставляться пользователям бесперебойно. Безопасность шлюзов имеет важное значение, и ниже описаны требования безопасности к шлюзам в "умных домах".

15. Конфиденциальность: Сети, настроенные в "умных домах", собирают и хранят множество данных, включая конфиденциальную информацию от жильцов. Доступ к этим данным должен быть доступен только уполномоченному персоналу и является важным элементом безопасности "умных домов". Для обеспечения конфиденциальности характеристик "умных домов" мы используем блокчейн с алгоритмом шифрования и настраиваем его с помощью ключа.

16. Целостность: когда данные отправляются и принимаются между каждой конфигурацией, во время передачи данных не должно происходить фальсификации. Хэш-функция снижает вероятность того, что эти данные будут фальсифицированы, и позволяет отслеживать и проверять, какие именно данные записаны.

17. Аутентификация: функция аутентификации в конфигурациях сети "умный дом" предотвращает злоумышленные действия злоумышленника в обычной сети извне. Блокчейн используется для проверки того, что сеть является действительным участником, и может воспользоваться возможностью проверить это в определенное время, чтобы включить правильную конфигурацию сети "Умный дом".

Существующие исследования

Сивараман и др. исследовали и проанализировали уязвимости в системе безопасности сетевого уровня "умный дом" и предложили решения. Можно

управлять сертифицированными устройствами и проверять их с помощью интернет-провайдера и управлять устройствами для умного дома даже во внешней интернет-среде. Однако этот подход неэффективен для обеспечения безопасности внутренней интернет-среды из-за нехватки пользовательских данных для анализа. Копос и др. проверили поток в доме и отсутствие конфиденциальных данных, используя Wireshark для таких устройств, как пожарные извещатели, при создании устройств для умного дома. Этот подход обеспечивает программные решения, но он не может быть совместим с другим программным обеспечением, кроме wireshark.

Ли и др. предложили обновление, которое управляет обновлениями встроенного программного обеспечения встроенных устройств с использованием блокчейна, аутентификацией с использованием цифровых подписей и применяет алгоритмы шифрования с использованием закрытых ключей. Этот механизм не обеспечивает решения для обеспечения безопасности небольшого умного дома, в котором небольшое количество встроенных устройств подключено друг к другу. Булл и др. предложили шлюз, позволяющий централизованно управлять и настраивать с использованием SDN (программно-определяемая сеть) с учетом средств обеспечения гибкой и безопасной связи для быстро растущего числа устройств на базе Интернета вещей. Предлагаемый шлюз основан на централизованной методологии, что может привести к проблеме единой точки отказа. Инь и др. объединили схему защиты конфиденциальности с машинным обучением и предложили новый подход к безопасности, основанный на человекоцентричных вычислениях. Однако этот подход менее эффективен в случае отсутствия достаточного количества обучающих данных для создания модели машинного обучения. Панвар и др. обсудили различные угрозы безопасности и их решения в "умном доме". Они представили всесторонний обзор безопасности "умного дома" с точки зрения статистики различных атак. Пох и др. представил подход PrivHome, обеспечивающий конфиденциальность. Он обеспечивает аутентификацию, безопасное хранение данных и запросы для систем "умный дом". Он изучает и изменяет данные, передаваемые между пользователем, шлюзом, поставщиком услуг и устройством, для поддержки аутентификации данных и конфиденциальности. Шуран и др. представили влияние различных атак безопасности на "умный дом" и оценили их влияние как низкое, умеренное и высокое для соответствующих решений по их смягчению.

Другие подходы к обеспечению безопасности основаны на IoT и киберфизической системной безопасности, в которых используются различные новые технологии, такие как блокчейн, программно-определяемые сети и глубокое обучение.

Сеть шлюза "Умный дом" на основе блокчейна

Блокчейн, применяемый к шлюзам "умный дом", является важной частью аутентификации при передаче данных с сохранением целостности и конфиденциальности между устройствами и другими носителями. Хотя сеть "Умный дом" имеет централизованную сетевую форму в каждом умном доме, она была применена как централизованная к распределенной сети с использованием блокчейна на облачном уровне.

Шлюз "умный дом", основанный на предлагаемой блокчейне, имеет три уровня: уровень устройств, уровень шлюза и облачный уровень. Первый уровень, уровень устройств, состоит из датчиков и устройств, которые собирают и отслеживают данные в сетевой среде "умного дома" с помощью различных разнородных IoT, настроенных в "умном доме". Второй уровень, уровень шлюза, хранит данные, генерируемые уровнем устройств, и предоставляет их пользователям по мере необходимости. Третий уровень, облачный, регистрирует идентификатор шлюза и данные, обрабатываемые каждым шлюзом в блокчейне. Блоки являются общими, чтобы пользователи могли получать информацию в любое время и в любом месте. Это можно выразить так, как показано на рис. 1.

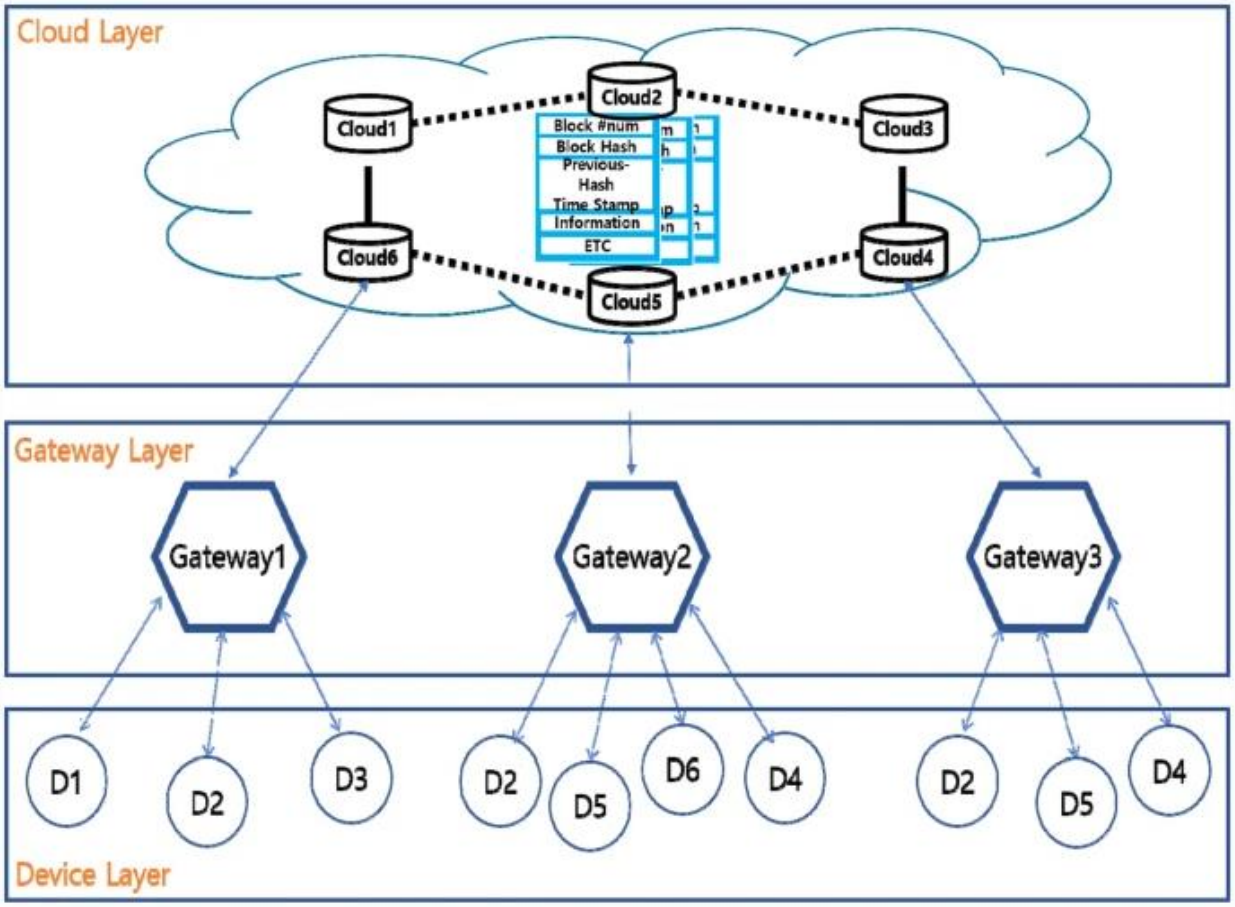

Рис. 1. Обзор конструкции предлагаемой сети

На рисунке 1 показана блок-схема предлагаемой архитектуры, которая позволяет собирать данные с конечных устройств, регистрировать их в

блокчейне и представлять пользователям соответствующим образом. Для сбора и предоставления данных пользователю собранные данные подвергаются обработке и форматированию хэш-значений, создаются блоки и периодически проверяются для поддержания целостности, даже если происходит фальсификация данных. Анализ данных и поддержание качества должны проводиться постоянно, чтобы предоставлять пользователям только необходимую информацию.

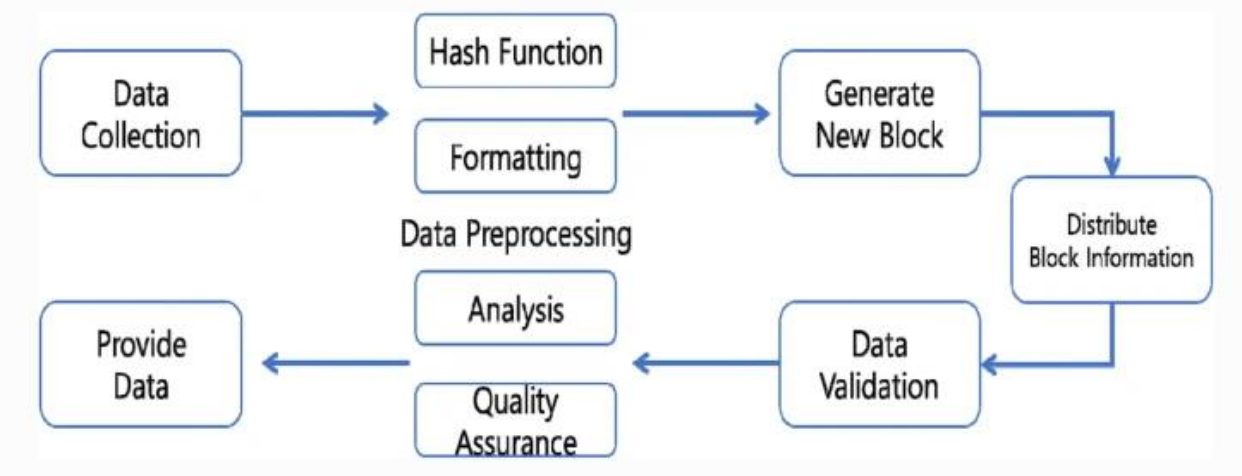

Рис. 2. Методологический поток облачной архитектуры для шлюза для умного дома на основе блокчейна

Устройства интернета вещей, настроенные в "умных домах", подключены к одному шлюзу, и каждому устройству присваивается идентификатор. Эти шлюзы и устройства имеют фиксированные идентификаторы и обладают вычислительной мощностью для работы алгоритмов шифрования и декодирования с помощью PKI и SHA2. Процессы сертификации, регистрации и хранения данных для процессов протокола взаимодействия устройства и шлюза, как показано на рис. 3.

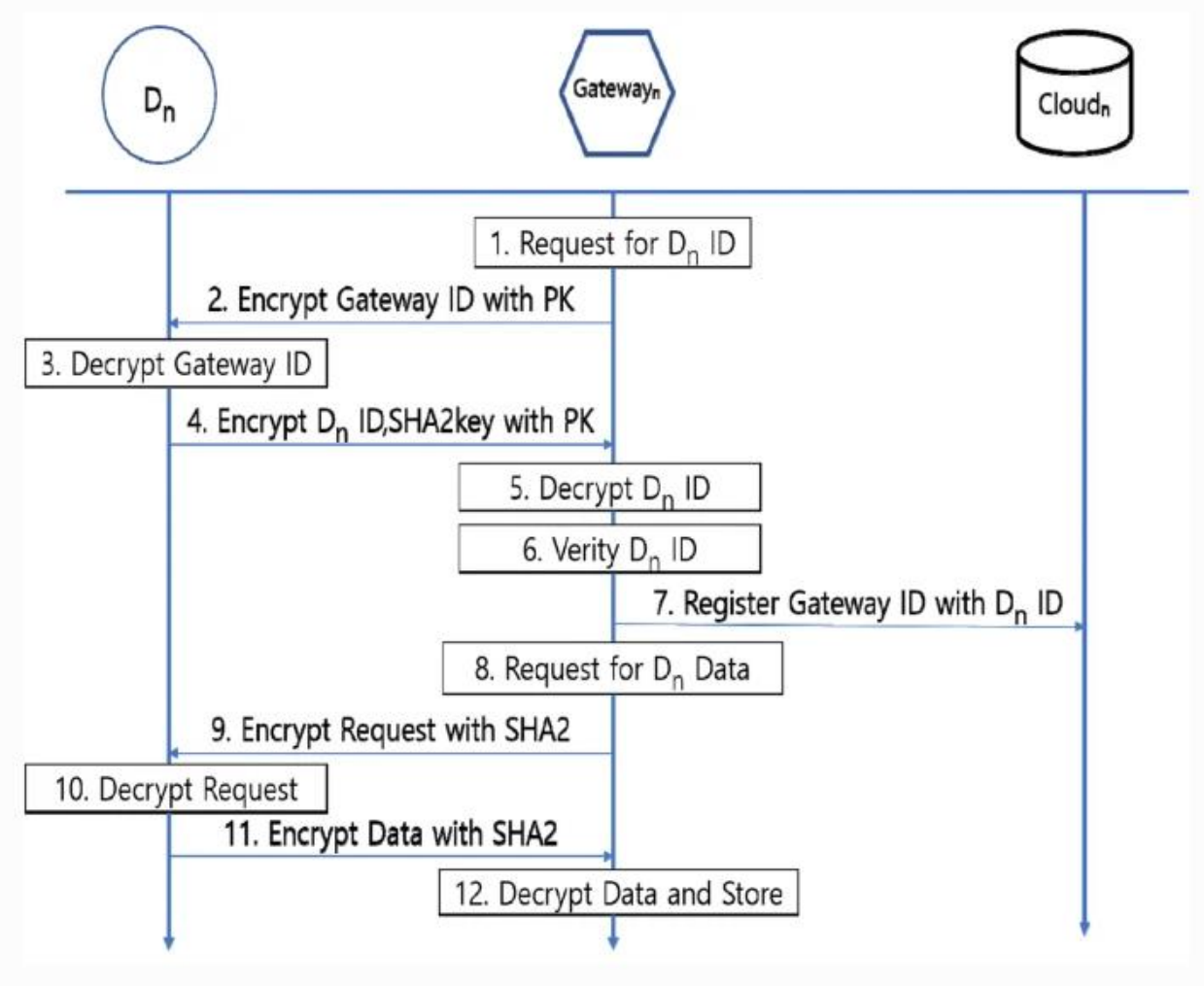

Рис. 3. Идентификация устройств и сбор данных

6. 1. Устройства, сертифицированные для шлюза, всегда должны периодически проверяться. Dn на уровне устройств пытается зарегистрироваться напрямую или автоматически подключается к шлюзу. Шлюз запрашивает идентификатор у подключенного устройства или запрашивается для получения информации о подключенном устройстве.

7. 2. Шлюз устройства реализует криптографический алгоритм для шифрования информации шлюза на устройстве и отправки сообщения. Устройства с помощью предварительно совместно используемых ключей декодируют зашифрованные сообщения.

8. 3. Зашифрованные сообщения, содержащие информацию шлюза, расшифровываются и запрашиваются незарегистрированным или не за шифруемым шлюзом при их получении.

9. 4. Чтобы поделиться ключом алгоритма шифрования SHA2 для непрерывной связи между устройствами и маршрутизатором, мы шифруем идентификатор устройства и ключ SHA2 для отправки сообщений на шлюз.

10. 5. –6.Шлюз декодирует передаваемые сообщения, чтобы убедиться, что они зарегистрированы как обычные устройства.

- 7. После завершения процедуры идентификации между шлюзом и устройством мы сохраняем идентификатор устройства, зарегистрированный на шлюзе, в облаке. Шлюз со временем обменивается данными с облаком для обновления списка идентификаторов устройств.
- 8. Для сбора данных, генерируемых устройством, шлюз создает сообщение с запросом и отправляет его на устройство.
- 9. Сообщения о запросах данных шифруются с помощью ключа алгоритма паролей SHA2, который был проверен в предыдущем процессе.
- 10. –11.При передаче данных с помощью устройства запрашивается ключ к шлюзу декодирования зашифрованного сообщения и шифрования для передачи необработанных данных.
- 12. Шлюз сохраняет полученные необработанные данные путем их декодирования

Управление данными шлюза с использованием блокчейна

Сеть, состоящая из блокчейнов, гарантирует целостность процесса передачи данных и записей. Данные, сгенерированные конечными узлами, участвующими в сети, или сохраненные в базе данных, могут храниться с использованием алгоритма хэширования SHA-3 на основе необходимой сгенерированной информации. Эти блоки сравниваются в режиме реального времени в сети блокчейнов в облаке. Они проверяют данные, обнаруживая, существует ли подделанный блокчейн. Процесс регистрации и мониторинга данных шлюза на блокчейне можно представить на следующем рисунке. 4.

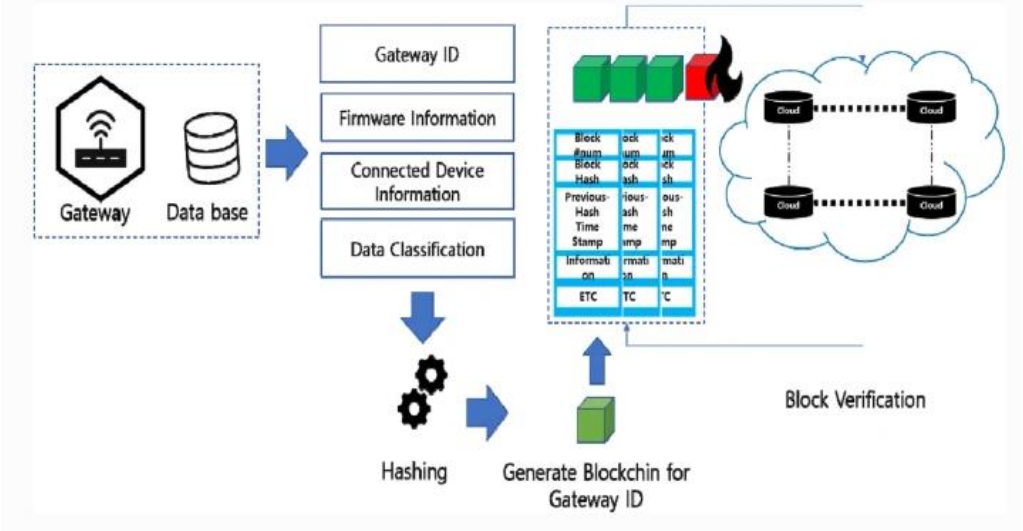

Рис. 4. Управление данными шлюза на основе блокчейна

Предварительная обработка данных внутри шлюза

Данные, генерируемые разнородными устройствами интернета вещей в "умном доме", передаются на шлюз "Умный дом", состоящий из различных размеров и типов данных. Шлюз "Умный дом" предлагаемой архитектуры должен точно управлять IoT и обрабатывать данные в соответствии с

запросом пользователя. На рисунке 4 описывается процесс передачи данных из Интернета вещей в шлюз "Умный дом", где обработка данных разделена на три категории: сбор, предварительная обработка и хеширование.

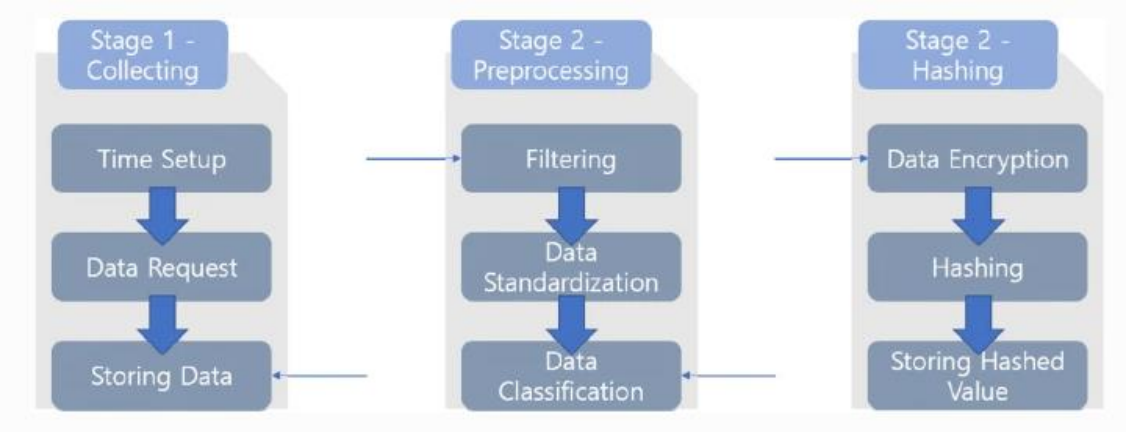

Рис. 5. Предварительная обработка данных шлюза

• Этап 1. Сбор: данные, сгенерированные устройством, передаются маршрутизатору в течение определенного времени. Когда на шлюзе требуются новые данные или когда происходит событие, данные запрашиваются у устройства. Затем необработанные данные отправляются и хранятся на устройстве, хранения данных в шлюзе.

• Этап 2. Предварительная обработка: необработанные данные, отправляемые с устройства, предварительно обрабатываются внутри шлюза. Для повышения эффективности использования пространства для хранения он фильтрует и сохраняет только те данные, которые необходимы маршрутизатору, на основе идентификатора устройства и хранятся с использованием процесса стандартизации и классификации.

• Этап 3. Хеширование: данные, генерируемые в "умном доме", содержат конфиденциальную информацию пользователя, поэтому ими можно управлять с помощью шифрования. Алгоритм SHA256 применяется на основе пароля, указанного пользователем, а общие данные устройства хранятся с помощью хэш-функции.

Использованные источники:

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УДК 378.147

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РАЗВИТИЕ МЕЖКУЛЬТУРНОЙ КОМПЕТЕНЦИИ ЧЕРЕЗ КОММУНИКАТИВНОЕ ОБУЧЕНИЕ КИТАЙСКОМУ ЯЗЫКУ

Аннотация: *В условиях глобализации межкультурная компетенция стала основной грамотностью для участия в международном общении и сотрудничестве. Поскольку международный статус китайского языка повысился, изучающим китайский язык необходимо не только владеть языковыми навыками, но и обладать навыками межкультурной коммуникации. Однако в настоящее время при обучении китайскому языку основное внимание уделяется лингвистическим формам, но не культурному подтексту, что затрудняет удовлетворение потребностей в развитии межкультурной компетенции. В данной статье рассматривается возможность развития межкультурной компетенции посредством коммуникативного обучения китайскому языку, анализируются коннотация и состав межкультурной компетенции, а также отмечается, что коммуникативное обучение китайскому языку соответствует развитию межкультурной компетенции с точки зрения целей, содержания и методов обучения. Далее в статье предлагается стратегия коммуникативного обучения китайскому языку на основе культивирования межкультурной компетенции, включая систематическую разработку учебной программы, методов обучения и учебных ресурсов. Исследование показывает, что коммуникативное обучение китайскому языку может эффективно повысить межкультурную компетенцию студентов, но в будущем необходимо разработать инструменты оценки межкультурной компетенции, изучить более эффективные методы обучения и усилить соответствующие теоретические исследования.*

Ключевые слова: *Межкультурная Компетенция, Коммуникативное Обучение Китайскому Языку, Культурная Осведомленность, Межкультурные Коммуникативные Навыки, Методы Обучения*

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DEVELOPMENT OF INTERCULTURAL COMPETENCE THROUGH COMMUNICATIVE CHINESE LANGUAGE TEACHING

Abstract: *In the context of globalization, intercultural competence has become a basic literacy for engaging in international communication and cooperation. As the international status of Chinese has increased, Chinese language learners not only need to possess language skills, but also need to possess intercultural communication skills. However, Chinese language teaching currently focuses on linguistic forms but not cultural connotation, which makes it difficult to meet the needs of developing intercultural competence. This article explores the possibility of developing intercultural competence through communicative Chinese language teaching, analyzes the connotation and composition of intercultural competence, and points out that communicative Chinese language teaching is consistent with the development of intercultural competence in terms of teaching objectives, contents and methods. The paper then proposes a strategy for communicative Chinese language teaching based on cultivating intercultural competence, including systematic development of curriculum, teaching methods and teaching resources. The study shows that communicative Chinese language teaching can effectively enhance students' intercultural competence, but it is necessary to develop tools for assessing intercultural competence, explore more effective teaching methods and strengthen relevant theoretical research in the future.*

Keywords: *Intercultural Competence, Communicative Chinese Language Teaching, Cultural Awareness, Intercultural Communicative Skills, Teaching Methods*

Введение

В современном обществе, где углубляется процесс глобализации, межкультурная компетенция стала неотъемлемым основным качеством человека для участия в международном общении и сотрудничестве. Межкультурная компетенция требует не только владения языком, но и глубокого понимания и гибкой адаптации к различным культурным ценностям, образу мышления и поведенческим нормам. В связи со значительным укреплением национальной мощи Китая и углубленным продвижением инициативы «Один пояс - один путь» китайский язык, как один из основных языков мира, приобретает все большее значение в международных обменах.[1] Изучающим китайский язык необходимо не только овладеть языковыми знаниями, но и уметь использовать китайский язык для эффективного межкультурного общения, чтобы справляться со сложными задачами в мультикультурной среде. Однако в современной практике преподавания китайского языка все еще наблюдается тенденция фокусироваться на языковых формах, но не на культурных коннотациях, и существует несоответствие между содержанием обучения и целью воспитания межкультурной компетенции, что затрудняет удовлетворение спроса на межкультурные таланты в условиях глобализации. Поэтому вопрос о том, как эффективно повысить межкультурную компетенцию учащихся через коммуникативное обучение китайскому языку, стал важным вопросом,

требующим решения в области преподавания китайского языка и исследований. Обсуждение этого вопроса не только помогает оптимизировать методику преподавания китайского языка и способствует инновационному развитию международного образования на китайском языке, но и имеет далеко идущее практическое значение для развития межкультурного взаимопонимания, уменьшения культурных конфликтов и создания сообщества человеческих судеб.

Понятие и состав межкультурной компетенции

Межкультурная компетенция - это способность человека эффективно общаться, взаимодействовать и решать проблемы в мультикультурной среде, суть которой заключается в знании, понимании и адаптации различных культурных различий. Концепции, связанные с межкультурной компетенцией, включают культурную осведомленность и межкультурную коммуникативную компетенцию, однако между ними существуют существенные различия. Культурная осведомленность фокусируется на восприятии и познании культурных различий, что является основой межкультурной компетенции; межкультурная коммуникативная компетенция подчеркивает использование вербальных и невербальных средств для достижения эффективной коммуникации в конкретных коммуникативных ситуациях, что является практическим воплощением межкультурной компетенции; а межкультурная компетенция не только охватывает первые две, но и включает глубокое понимание культурных различий, способность к адаптации и комплексное качество решения проблем в межкультурных ситуациях. [Компоненты межкультурной компетенции в основном включают в себя культурные знания, культурную осведомленность, навыки межкультурной коммуникации и межкультурные установки. Культурные знания подразумевают систематическое понимание ценностей, обычаев и социальных норм целевой культуры, что является предпосылкой для формирования межкультурной компетенции; культурная осведомленность подчеркивает чувствительность к различиям между собственной культурой и целевой культурой и способность к рефлексии, что является ключом к избежанию культурных конфликтов. Навыки межкультурной коммуникации включают в себя способность к вербальному выражению, навыки невербальной коммуникации и стратегии решения культурных недоразумений, которые являются залогом эффективной коммуникации. Межкультурные установки, с другой стороны, воплощаются в психологических тенденциях открытости, терпимости и уважения к культурным различиям и являются внутренней мотивацией для устойчивого развития межкультурной компетенции. Эти элементы взаимосвязаны и дополняют друг друга, а вместе составляют общую структуру межкультурной компетенции, которая обеспечивает теоретическую основу и практическое руководство для индивидуальной межкультурной адаптации и развития в условиях глобализации.

Совместимость между коммуникативным обучением китайскому языку и развитием межкультурной компетенции

Коммуникативное обучение китайскому языку, как метод обучения, ориентированный на практическое использование языка, естественным образом сочетается с развитием межкультурной компетенции, что в основном отражается в его целях, содержании и методах обучения. Коммуникативное обучение китайскому языку фокусируется на практическом использовании и коммуникативной функции языка, и делает акцент на развитии языковых способностей студентов в реальных или смоделированных коммуникативных ситуациях.[3] Этот вид обучения не только помогает студентам овладеть языковыми формами, но и позволяет им понять культурный подтекст языка на практике, способствуя тем самым накоплению культурных знаний и повышению уровня культурного сознания. Например, с помощью ролевых игр, ситуативных диалогов и других видов деятельности студенты могут интуитивно почувствовать культурные нормы китайского общения, такие как вежливые фразы и способы обращения к людям, а затем углубить свое понимание китайских культурных ценностей и социальных норм.

В процессе обучения китайской коммуникации особое внимание уделяется интеграции культурных знаний и органичному сочетанию изучения языка и культуры. При разработке содержания обучения преподаватели могут помочь студентам сформировать систематические знания о китайской культуре, знакомя их с такими материалами, как классические литературные произведения, исторические события и социальные явления в китайской культуре. Такое накопление знаний о культуре дает студентам необходимый запас знаний для понимания межкультурных различий и в то же время закладывает основу для того, чтобы они могли избежать культурного непонимания в межкультурной коммуникации. Например, объясняя китайские идиомы или поговорки, преподаватели могут помочь студентам понять культурную логику, лежащую в основе языка, принимая во внимание их культурное происхождение и исторические корни. Кроме того, коммуникативное обучение китайскому языку создает для студентов возможность практиковать межкультурные коммуникативные навыки, создавая аутентичную языковую среду и коммуникативные сценарии. В процессе обучения, имитирующего реальные сценарии, студентам необходимо применять свои языковые знания для решения практических задач, таких как деловые переговоры и социальный этикет. Такая практика не только улучшает способность студентов к языковому выражению, но и развивает их навыки невербальной коммуникации и межкультурной адаптации. Например, в процессе имитации деловых переговоров студентам необходимо не только использовать профессиональную китайскую речь, но и обращать внимание на невербальные факторы, такие как язык тела и управление выражением лица, чтобы адаптироваться к коммуникативным привычкам китайской культуры.

Китайское коммуникативное обучение подсознательно воспитывает у студентов кросс-культурные установки через интерактивное общение. В ходе дискуссий в классе, групповой работы и других видов деятельности студентам приходится общаться и сотрудничать с однокурсниками из разных культур, и такое взаимодействие может помочь студентам признать объективное существование культурных различий и воспитать в них открытость, терпимость и уважение к культурным различиям.[4] При обсуждении различий между китайской культурой и родными культурами учащихся, студенты могут задуматься о характеристиках своих собственных культур через сравнение, таким образом формируя более диверсифицированную культурную перспективу.

Коммуникативное обучение китайскому языку в значительной степени соответствует воспитанию межкультурной компетенции с точки зрения целей, содержания и методов обучения, и может способствовать культурному пониманию через изучение языка, улучшать навыки межкультурной коммуникации через моделирование реальных сценариев и воспитывать межкультурное отношение через интерактивные обмены. Такой способ обучения не только помогает студентам овладеть навыками китайского языка, но и закладывает прочную основу для их межкультурной адаптации и развития в условиях глобализации.

Формирование межкультурной компетенции в коммуникативных стратегиях преподавания китайского языка

В условиях глобализации интеграция цели развития межкультурной компетенции в коммуникативное обучение китайскому языку стала важным направлением развития международного образования в области китайского языка. Для достижения этой цели преподавателям необходимо систематически разрабатывать стратегии обучения в трех аспектах: учебный план, методы обучения и учебные ресурсы, чтобы создать научную и эффективную систему для развития межкультурной компетенции.

Что касается учебной программы, то следует предложить курсы, связанные с межкультурной коммуникацией, чтобы систематически объяснять межкультурные теории и случаи. Такие курсы могут охватывать основные концепции межкультурной коммуникации, теоретические основы культурных различий, стратегии межкультурной адаптации и т. д., а также анализировать причины и решения культурных конфликтов на практических примерах.[5] Анализируя различия между Китаем и Западом с точки зрения концепции времени и стилей общения, студенты помогают понять влияние культурных различий на коммуникативное поведение. Включите культурное содержание в курсы языковых навыков и разработайте задания по аудированию, чтению и письму с кросс-культурной тематикой. На курсах аудирования вводятся интервью или выступления, связанные с китайской культурой, на курсах говорения разрабатываются диалоговые упражнения в ситуациях межкультурного общения, на курсах чтения подбираются тексты, отражающие культурные особенности Китая, а на курсах письма студентов

поощряют к написанию аргументированных эссе или рефлексивных дневников на межкультурную тематику. Такой способ сочетания обучения языковым навыкам с изучением культуры позволяет студентам углубить понимание культуры, одновременно совершенствуя свои языковые навыки.

Что касается методов обучения, то эффективной стратегией является метод обучения, основанный на задачах. Преподаватели могут разрабатывать аутентичные задания по межкультурной коммуникации, такие как имитация деловых переговоров, межкультурная командная работа и т.д., чтобы студенты могли использовать свои языковые знания и ощутить культурные различия в процессе выполнения заданий. Кроме того, ролевые игры и моделирование диалога также являются важными средствами создания ситуаций межкультурной коммуникации. Играя роли представителей разных культур, студенты могут лучше почувствовать культурные различия и попытаться решить проблемы с разных точек зрения. Например, чтобы смоделировать деловые переговоры между китайской компанией и иностранным клиентом, студентам необходимо выражать свои мысли на китайском языке и адаптироваться к коммуникативным привычкам китайской культуры в ходе ролевой игры. В то же время преподаватели должны поощрять студентов к культурным сравнениям и размышлениям, чтобы развивать их критическое мышление. Что касается средств обучения, то использование мультимедийных технологий для предоставления богатых культурных и аудиовизуальных материалов является важным способом повышения эффективности обучения. Преподаватели могут представить элементы китайской культуры, такие как традиционные фестивали, культура питания, формы искусства и т.д., в различных формах, таких как видео, аудио и фотографии, чтобы повысить интерес учащихся к обучению и их культурное восприятие. Кроме того, введение аутентичных корпусов может приблизить содержание обучения к реальности. Аутентичные корпуса, такие как новостные репортажи, кино- и телепроизведения, литература и т.д., могут не только обеспечить аутентичный языковой материал, но и отразить культурную динамику китайского общества. Выбор современных китайских фильмов в качестве материалов для аудирования позволяет студентам понять язык и одновременно ощутить культурные изменения в китайском обществе. Приглашение представителей целевой культуры для общения и взаимодействия друг с другом может дать студентам аутентичный опыт межкультурного общения. Приглашение китайских студентов или экспертов по культуре принять участие в дискуссиях в классе и поделиться своим культурным опытом и взглядами позволяет студентам напрямую взаимодействовать с представителями целевой культуры, тем самым углубляя их понимание китайской культуры.

Подводя итог, можно сказать, что стратегия преподавания китайской коммуникации, основанная на развитии межкультурной компетенции, должна быть систематически разработана с трех сторон: учебный план, методы обучения и учебные ресурсы, чтобы всесторонне улучшить межкультурную

компетенцию студентов, предлагая курсы межкультурной коммуникации, интегрируя культурное содержание, разрабатывая аутентичные задания, создавая коммуникативные ситуации, используя мультимедийные ресурсы и вводя аутентичный корпус. Такая систематическая стратегия преподавания может не только помочь студентам овладеть навыками китайского языка, но и обеспечить мощную поддержку для их межкультурной адаптации и развития в условиях глобализации.

Заключение

Воспитание межкультурной компетенции посредством коммуникативного обучения китайскому языку имеет не только большое практическое значение, но и вполне осуществимо. Сосредоточившись на практическом использовании языка, интегрируя культурные фоновые знания и создавая реальные сценарии общения, коммуникативное обучение китайскому языку обеспечивает эффективный практический путь для культивирования межкультурной компетенции. Благодаря систематической разработке учебной программы, разнообразным методам обучения и богатым учебным ресурсам студенты могут постепенно совершенствовать свои культурные знания, культурную осведомленность, навыки межкультурного общения и межкультурные установки в процессе изучения языка, чтобы иметь возможность эффективно общаться и адаптироваться в мультикультурной среде. Однако в текущем исследовании все еще существуют некоторые проблемы, требующие решения. Будущие исследования должны быть направлены на разработку инструментов оценки межкультурной компетенции для различных учащихся для научного измерения эффективности преподавания; изучение эффективных способов интеграции развития межкультурной компетенции в китайское международное образование для содействия инновациям в методах обучения; и в то же время укрепление исследований в области преподавания и обучения межкультурной коммуникации для создания более совершенной теоретической системы и практической модели, чтобы обеспечить теоретическую поддержку и практическое руководство для устойчивого развития китайского международного образования. Углубленное изучение этих направлений исследований будет способствовать дальнейшему повышению качества китайского коммуникативного обучения, воспитанию большего числа международных талантов с межкультурной компетенцией и внесет вклад в развитие глобального культурного обмена и сотрудничества.

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ИСПОЛЬЗОВАНИЕ ЦИФРОВЫХ ТЕХНОЛОГИЙ В ОБУЧЕНИИ ИГРЕ НА ФОРТЕПИАНО: ПЕРСПЕКТИВЫ И ВЫЗОВЫ

Аннотация :*В данной статье рассматриваются перспективы и проблемы применения цифровых технологий в обучении игре на фортепиано. С быстрым развитием информационных технологий цифровые технологии привнесли в преподавание фортепиано персонализированный опыт обучения, оптимизацию и совместное использование ресурсов, инновационный режим обучения и другие возможности, а также стали важной силой, способствующей модернизации образования и повышению качества преподавания. Однако появились и такие проблемы, как адаптивность технологий, контроль качества преподавания, баланс между технологиями и искусством и безопасность частной жизни. Цель статьи - проанализировать эти проблемы и предложить стратегии их решения. Полученные результаты подчеркивают, что цифровые технологии обладают большим потенциалом в качестве вспомогательного инструмента в фортепианном образовании, но требуют внимания и поддержки со стороны сообщества для решения проблем. Научная новизна статьи заключается в комплексной оценке плюсов и минусов цифровых технологий в обучении игре на фортепиано, что создает теоретическую основу и практическое руководство для процесса модернизации фортепианного образования.*

Ключевые слова: *Фортепианное Обучение, Инновационное Обучение, Персонализированное Обучение, Цифровые Технологии, Современное Образование*

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USING DIGITAL TECHNOLOGIES IN PIANO TEACHING: PERSPECTIVES AND CHALLENGES

Abstract :*This paper discusses the prospects and challenges of applying digital technology in piano teaching. With the rapid development of information technology, digital technology has brought personalized learning experience, resource optimization and sharing, innovative teaching mode and other features to piano teaching, and has become an important force to promote the modernization*

of education and improve teaching quality. However, challenges such as technology adaptability, teaching quality control, the balance between technology and art, and privacy security have also emerged. The purpose of the article is to analyze these challenges and propose strategies to address them. The findings emphasize that digital technologies have great potential as an assistive tool in piano education, but require attention and support from the community to address the challenges. The scientific novelty of the article lies in the comprehensive evaluation of the pros and cons of digital technologies in piano teaching, which provides a theoretical basis and practical guidance for the process of modernizing piano education.

Keywords: *Piano Teaching, Innovative Teaching, Personalized Learning, Digital Technologies, Modern Education*

Введение

Преподавание фортепиано в течение длительного времени в основном опирается на режим обучения один на один, который может обеспечить прямое руководство и немедленную обратную связь от преподавателя к ученику, но в то же время существуют и присущие ему ограничения. При традиционном режиме преподавательские ресурсы распределены неравномерно: высококлассные преподаватели часто сосредоточены в крупных городах или профессиональных колледжах и университетах, в то время как в отдаленных районах или низовых школах ресурсы музыкального образования относительно скудны. Кроме того, традиционный способ обучения ограничен временем и пространством, и студенты должны прибыть в определенное место в определенное время, чтобы посетить занятия, что не только увеличивает стоимость обучения, но и ограничивает гибкость и эффективность обучения. С быстрым развитием цифровых технологий их применение в сфере образования становится все более распространенным, и фортепианное образование не является исключением.[1] В последние годы появились такие цифровые технологии, как «умные» фортепиано, программное обеспечение для обучения музыке и платформы для онлайн-обучения, которые внесли революционные изменения в процесс обучения игре на фортепиано. Эти технологии не только обогатили средства обучения и повысили эффективность преподавания, но и устранили географические ограничения, сделав качественные образовательные ресурсы для фортепиано широко распространенными и общими.

Цель данной работы - изучить перспективы и проблемы применения цифровых технологий в обучении игре на фортепиано, проанализировать, как цифровые технологии могут преодолеть ограничения традиционного режима обучения игре на фортепиано, и в то же время указать на проблемы, которые могут возникнуть в процессе интеграции цифровых технологий, и предложить соответствующие стратегии их решения. Предполагается, что исследование, проведенное в данной статье, даст преподавателям фортепиано полезные рекомендации, будет способствовать модернизации фортепианного образования, а также популяризации и развитию фортепианного искусства.

Поэтому написание данной работы имеет не только важное теоретическое, но и практическое значение.

Обзор цифровых технологий и состояние их применения в обучении игре на фортепиано

Цифровые технологии, являющиеся ядром современных информационных технологий, представляют собой технологию преобразования информации в цифровые формы, которые могут быть распознаны и обработаны компьютерами с помощью компьютеров и соответствующего оборудования. В сфере музыкального образования цифровые технологии, обладающие уникальными преимуществами, привнесли беспрецедентные изменения в процесс обучения игре на фортепиано. Интеллектуальные фортепиано, программное обеспечение для музыкального образования, онлайн-платформы для обучения и т. д. являются наиболее распространенными формами применения цифровых технологий в обучении игре на фортепиано.[2] Благодаря встроенным датчикам и процессорам интеллектуальные фортепиано способны анализировать силу клавиш и ритм в реальном времени и обеспечивать мгновенную обратную связь; музыкальное образовательное программное обеспечение объединяет богатые нотные ресурсы, треки для тренировок и интерактивные учебные модули, предоставляя студентам индивидуальные учебные маршруты; а платформы онлайн-обучения разрушают географические ограничения, позволяя преподавателям и студентам преодолевать пространственные барьеры и проводить высокоэффективное дистанционное обучение.

В Китае онлайн-платформы для обучения игре на фортепиано, такие как «Музыкальный мастер-класс», обеспечивают систематический и удобный способ обучения студентов игре на фортепиано за счет интеграции высококачественных образовательных ресурсов. Эти платформы не только предоставляют насыщенные видеоуроки и интерактивные упражнения, но и отслеживают успехи учеников в реальном времени с помощью интеллектуальных систем оценки и предоставляют индивидуальные рекомендации по обучению. За рубежом программное обеспечение для обучения музыке, такое как «Flowkey» и «Yousician», использует передовую технологию распознавания звука для предоставления студентам мгновенной обратной связи, помогающей им исправить ошибки и улучшить свои навыки игры. Эти примеры не только демонстрируют потенциал цифровых технологий в повышении эффективности обучения игре на фортепиано, но и доказывают их положительный эффект в повышении интереса и мотивации учащихся к обучению. Однако, несмотря на то, что применение цифровых технологий в обучении игре на фортепиано начало приносить свои плоды, степень их интеграции и популярности все еще нуждается в улучшении. В настоящее время, несмотря на то, что все больше преподавателей и студентов начинают пытаться использовать цифровые технологии в обучении, популярность цифровых технологий в преподавании фортепиано невелика из-за таких факторов, как принятие технологии и вложение средств. Кроме того,

некоторые преподаватели по-прежнему склонны использовать цифровые технологии в качестве дополнения к традиционным методам обучения, а не как доминирующие, что в определенной степени ограничивает глубокую интеграцию цифровых технологий в преподавание. Поэтому в будущем необходимо усилить пропаганду и применение цифровых технологий в обучении игре на фортепиано, а также поощрять преподавателей к активному поиску органичного сочетания цифровых технологий и традиционных методов обучения, чтобы способствовать модернизации фортепианного образования.

Перспективы использования цифровых технологий в обучении игре на фортепиано

Стремительное развитие цифровых технологий открыло беспрецедентные возможности для обучения игре на фортепиано, что не только значительно обогатило методику преподавания, но и позволило студентам получить более персонализированный и эффективный опыт обучения. Благодаря глубокому анализу учебных привычек, успехов и способностей учеников цифровые технологии могут точно подбирать учебный материал и практические рекомендации в соответствии с индивидуальными потребностями учеников. Например, интеллектуальное программное обеспечение для фортепиано и музыкального образования может грамотно рекомендовать подходящий репертуар и методы практики на основе данных об успеваемости учащихся, помогая им целенаправленно совершенствовать свои навыки. Кроме того, интеллектуальные системы обратной связи могут мгновенно указывать на ошибки и давать предложения по улучшению, отслеживая исполнение учеников в режиме реального времени. Такой механизм мгновенной обратной связи значительно повышает эффективность обучения и позволяет ученикам быстрее овладеть исполнительским мастерством.[3] Цифровые технологии также устраняют географические ограничения, что позволяет широко распространять и использовать высококачественные образовательные ресурсы для фортепиано. Платформы онлайн-обучения не только предоставляют студентам множество видеоуроков и интерактивных упражнений, но и позволяют учащимся в отдаленных районах получить доступ к первоклассным учебным ресурсам через прямые трансляции, записи и другие формы. Эти платформы также способствуют взаимодействию между преподавателями и студентами и укрепляют сплоченность учебного сообщества. Студенты могут задавать вопросы и делиться своим опытом на платформе, а преподаватели - отвечать на вопросы и давать индивидуальные рекомендации в режиме реального времени. Такой интерактивный режим не только повышает качество преподавания, но и развивает у студентов способность к самостоятельному обучению и дух сотрудничества.

Что касается инновационных методов обучения, то цифровые технологии также демонстрируют большой потенциал. Применение таких технологий, как виртуальная реальность (VR) и дополненная реальность (AR),

позволяет студентам погрузиться в процесс обучения. Моделируя сцены сольных концертов, студенты могут почувствовать атмосферу сцены вживую и улучшить свои сценические данные. В то же время интерактивные обучающие игры и другие инновационные формы также значительно стимулируют интерес студентов к обучению, благодаря чему они могут овладеть навыками игры в непринужденной и приятной атмосфере. Эти новые технологии не только обогащают методику преподавания, но и дают студентам более разнообразный и интересный опыт обучения, что способствует развитию их музыкальной грамотности и творческих способностей.

Цифровые технологии также позволяют получить объективные и количественные показатели оценки успеваемости при обучении игре на фортепиано. Грамотно анализируя данные об успеваемости учеников, преподаватели могут более точно проинструктировать учеников, помочь им выявить недостатки в их игре и разработать планы по улучшению. Кроме того, применение технологии анализа больших данных оказывает мощную поддержку в корректировке стратегий обучения. Преподаватели могут анализировать эффективность обучения на основе данных об успеваемости студентов и своевременно корректировать методы и ход обучения, чтобы обеспечить качество преподавания.[4] Такое принятие решений на основе данных не только улучшает научный и целенаправленный характер преподавания, но и оказывает мощную поддержку процессу модернизации фортепианного образования.

Применение цифровых технологий в обучении игре на фортепиано имеет широкие перспективы, что не только обеспечивает студентам индивидуальный и эффективный опыт обучения, но и устраняет географические ограничения и способствует широкому распространению и обмену качественными образовательными ресурсами. В то же время цифровые технологии способствуют инновациям в методике преподавания и совершенствованию механизма оценки, внося новые силы в процесс модернизации фортепианного образования. В будущем, благодаря непрерывному развитию и популяризации цифровых технологий, у нас есть основания полагать, что обучение игре на фортепиано станет лучшим завтрашним днем.

Проблемы и стратегии

Интеграция цифровых технологий в преподавание фортепиано, несмотря на многие удобства и инновации, которые она приносит, также сталкивается с многочисленными проблемами в плане адаптации технологий, качества преподавания, баланса между технологиями и искусством, а также конфиденциальности и безопасности.

Что касается технологической адаптации, то существуют различия в восприятии новых технологий преподавателями и учениками, а также в навыках работы с ними. Некоторые преподаватели могут иметь ограниченные возможности для понимания и применения новых технологий, в то время как

некоторые студенты могут быть в замешательстве из-за незнакомства с цифровыми инструментами. По этой причине особенно важно усилить обучение технологиям и обеспечить постоянную техническую поддержку. Благодаря регулярным программам обучения технологиям можно повысить цифровую грамотность учителей и их педагогические способности, а для учащихся разработать простые и понятные руководства по эксплуатации, которые помогут им быстро освоить цифровые инструменты и тем самым сократить разрыв в технологической адаптации.

Обеспечение качества преподавания и предотвращение списывания стали еще одной серьезной проблемой в среде онлайн-обучения. Для обеспечения качества преподавания можно создать эффективные механизмы контроля, такие как регулярное проведение онлайн-экзаменов и обеспечение точной оценки истинного уровня студентов с помощью видеомониторинга в режиме реального времени и проверки работ. Кроме того, используя преимущества цифровых технологий, можно разработать интеллектуальную систему оценки, которая будет объективно и количественно анализировать успеваемость студентов, обеспечивая научную основу для качества преподавания.

Стремясь к технологическому удобству, не следует пренебрегать артистизмом и эмоциональной выразительностью фортепианного обучения. Цифровые технологии следует рассматривать как вспомогательный инструмент, а не как замену традиционным методам обучения.[5] Преподаватели должны в полной мере использовать преимущества цифровых технологий, такие как интеллектуальная обратная связь и персонализированные учебные маршруты, но в то же время они должны сосредоточиться на развитии музыкального восприятия, эмоционального выражения и творческих способностей учащихся, чтобы гарантировать, что художественный подтекст обучения игре на фортепиано будет унаследован.

Вопросы конфиденциальности и безопасности - это риски, которые платформы онлайн-обучения не могут игнорировать. Утечка личной информации пользователей и данных об обучении приведет к серьезным последствиям. Поэтому очень важно усилить шифрование данных, улучшить пользовательские соглашения и принять другие меры безопасности. Платформа должна использовать передовые технологии шифрования для защиты безопасной передачи и хранения пользовательских данных; в то же время она должна уточнить положения о конфиденциальности в пользовательском соглашении, чтобы обеспечить право пользователя знать и предотвратить злоупотребление данными.

Перед лицом проблем, связанных с применением цифровых технологий в преподавании фортепиано, нам необходимо принять позитивные стратегии преодоления, усилить техническую подготовку, создать эффективный механизм контроля, поддерживать баланс между технологией и искусством, а также усилить защиту конфиденциальности и безопасности, чтобы цифровые

технологии играли положительную роль в преподавании фортепиано и способствовали процессу модернизации фортепианного образования.

Заключение

Применение цифровых технологий в обучении игре на фортепиано имеет широкие перспективы, что может не только обеспечить студентам более персонализированный и эффективный опыт обучения, но и снять географические ограничения и способствовать широкому распространению и обмену качественными образовательными ресурсами. В то же время цифровые технологии способствуют инновациям в методике преподавания и совершенствованию механизма оценки, привнося новые силы в процесс модернизации фортепианного образования. Однако следует также трезво признать, что применение цифровых технологий по-прежнему сталкивается с различными проблемами, такими как техническая адаптация, качество преподавания, баланс между технологией и искусством, а также конфиденциальность и безопасность. Тем не менее, мы не должны отказываться от еды, боясь подавиться, а должны активно реагировать на эти вызовы и в полной мере использовать преимущества цифровых технологий для содействия процветающему развитию фортепианного образования. С этой целью мы призываем все слои общества уделять больше внимания и оказывать поддержку совместному применению и исследованию цифровых технологий в обучении игре на фортепиано. Правительство, школы, предприятия и родители должны работать рука об руку, чтобы увеличить инвестиции, усилить техническую подготовку, улучшить механизм контроля, защитить конфиденциальность и безопасность пользователей, чтобы обеспечить надежную гарантию модернизации фортепианного образования.

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ТЕОРЕТИКО-ПРАВОВОЙ АНАЛИЗ ПОНЯТИЯ РАМОЧНОГО ДОГОВОРА В СОВРЕМЕННОМ ГРАЖДАНСКОМ ПРАВЕ

Аннотация: *В статье проводится комплексный теоретико-правовой анализ понятия рамочного договора как особой договорной конструкции в современном гражданском праве. Исследуются законодательное определение и доктринальные подходы к пониманию данного института. На основе критического анализа организационно-функционального, структурно-динамического и историко-сравнительного подходов формулируется авторское определение рамочного договора.*

Ключевые слова: *рамочный договор, организационный договор, предпринимательские отношения, договорное право, гражданское право.*

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THEORETICAL AND LEGAL ANALYSIS OF THE FRAMEWORK CONTRACT CONCEPT IN MODERN CIVIL LAW

Abstract: *The article provides a comprehensive theoretical and legal analysis of the framework contract concept as a special contractual structure in modern civil law. The research examines the legal definition and doctrinal approaches to understanding this institution. Based on a critical analysis of organizational-functional, structural-dynamic, and historical-comparative approaches, the author's definition of the framework contract is formulated.*

Keywords: *framework contract, organizational contract, business relations, contract law, civil law.*

Институт рамочного договора представляет собой одну из наиболее динамично развивающихся договорных конструкций в современном гражданском праве. Его появление обусловлено объективными потребностями гражданского оборота в гибких правовых механизмах, способных эффективно регулировать долгосрочные договорные отношения

между участниками предпринимательской деятельности. Актуальность исследования определяется возрастающей ролью рамочных договоров в регулировании современных предпринимательских отношений и необходимостью теоретического осмысления данного правового института.

Законодательное регулирование рамочного договора в российском праве осуществляется на основании статьи 429.1 Гражданского кодекса Российской Федерации [2], которая определяет его как договор, устанавливающий общие условия обязательственных взаимоотношений сторон, подлежащие конкретизации и уточнению путем заключения отдельных договоров, подачи заявок или иным образом. Данное определение создает правовую основу для использования рамочных договоров в гражданском обороте, однако оставляет значительное пространство для доктринального толкования природы данного института.

В научной литературе сформировалось несколько ключевых подходов к пониманию рамочного договора. Представители организационно-функционального подхода, среди которых следует особо отметить работы В.Э. Поляковой [6] и Е. Краецкой [5], рассматривают рамочный договор как организационное соглашение, направленное на упорядочение долгосрочных отношений сторон. Они акцентируют внимание на управленческой природе договора и его роли в структурировании предпринимательских отношений. Согласно их позиции, рамочный договор выступает прежде всего как инструмент организации хозяйственных связей, создающий правовую основу для последующего взаимодействия сторон.

Существенный вклад в развитие теории рамочного договора внесли исследования А.Г. Карапетова [4] и С.С. Домбаева [3], которые развивают структурно-динамический подход к пониманию данного института. В их работах рамочный договор анализируется как элемент двухуровневой системы договорных связей, где особое значение приобретают механизмы конкретизации договорных условий и характер взаимодействия рамочного договора с последующими соглашениями. Исследователи подчеркивают, что рамочный договор создает правовую основу для заключения конкретизирующих соглашений, определяя общие параметры взаимодействия сторон.

Особого внимания заслуживает историко-сравнительный анализ понятия рамочного договора, проведенный Д.А. Гонтарем [1]. Ученый прослеживает эволюцию данного института от римского права до современного регулирования в европейских правовых системах. Такой подход позволяет лучше понять генезис рамочного договора и особенности его правового регулирования в различных юрисдикциях. Исследователь убедительно показывает, что формирование института рамочного договора в российском праве происходило под влиянием как зарубежного опыта, так и потребностей отечественного гражданского оборота.

Проведенное исследование позволяет сформулировать авторское определение рамочного договора как особой организационной договорной

конструкции, представляющей собой гибкий правовой механизм долгосрочного регулирования предпринимательских отношений, который определяет общие, стабильные условия взаимодействия сторон и предусматривает возможность их последовательной конкретизации через заключение частных соглашений без порождения немедленных обязательств. Научная новизна предложенного определения заключается в комплексном подходе, который одновременно раскрывает организационную природу договора, подчеркивает его динамический характер, указывает на предпринимательский контекст и акцентирует внимание на отсутствии жестких первоначальных обязательств.

Исследование различных научных подходов к определению рамочного договора позволяет выявить его сущностные характеристики. К ним относятся организационный характер, направленность на регулирование долгосрочных отношений, наличие механизма конкретизации условий, двухуровневая система договорных связей. Важно отметить, что рамочный договор выступает как гибкий правовой инструмент, позволяющий участникам гражданского оборота выстраивать сложные договорные конструкции, адаптированные к их конкретным потребностям.

Современное понимание рамочного договора формируется на пересечении различных правовых традиций и практических потребностей участников гражданского оборота. Российский законодатель избрал достаточно гибкий подход к регламентации данного института, предоставив сторонам широкие возможности для определения конкретных способов реализации рамочного договора. Вместе с тем, существующее правовое регулирование требует дальнейшего совершенствования в части более четкого определения механизмов взаимодействия рамочного договора и конкретизирующих соглашений.

Проведенное исследование позволяет сделать вывод о комплексной природе рамочного договора как современного инструмента регулирования предпринимательских отношений. Предложенное авторское определение раскрывает его сущностные характеристики и может служить основой для дальнейшего совершенствования правового регулирования данного института. Перспективы дальнейших исследований связаны с более детальным изучением механизмов взаимодействия рамочного договора с иными договорными конструкциями и анализом практики его применения в различных сферах предпринимательской деятельности.

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ГЛОБАЛЬНАЯ КОНКУРЕНЦИЯ В СФЕРЕ ЭЛЕКТРОННОЙ ТОРГОВЛИ И ЕЁ ВОЗДЕЙСТВИЕ НА МЕЖДУНАРОДНЫЕ ЭКОНОМИЧЕСКИЕ ОТНОШЕНИЯ

Аннотация: *Стремительное развитие глобальной электронной коммерции глубоко меняет структуру международных экономических отношений. В данной статье рассматривается двойное влияние глобальной конкуренции в области электронной коммерции на международные экономические отношения, анализируется ее положительная роль в стимулировании роста международной торговли, содействии реструктуризации глобальных цепочек создания стоимости и укреплении международного сотрудничества, но в то же время отмечаются проблемы, связанные с усилением цифрового разрыва, возникновением вопросов безопасности данных и защиты конфиденциальности, а также обострением противоречий в международной торговле. Исследование показывает, что, хотя электронная коммерция придала новую динамику мировой экономике, нельзя игнорировать неравенство и риски, которые она несет. По этой причине в данной работе подчеркивается необходимость разработки справедливых и разумных правил электронной коммерции, укрепления цифровой инфраструктуры и управления безопасностью данных на основе международного сотрудничества для решения этих проблем. Будущие исследования должны быть направлены на изучение влияния новых технологий на конкурентную среду электронной коммерции и путей достижения устойчивого развития глобальной электронной коммерции на основе многостороннего сотрудничества.*

Ключевые слова: *Глобальная Электронная Коммерция, Международные Экономические Отношения, Безопасность Данных, Международная Торговля, Международное Сотрудничество*

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GLOBAL E-COMMERCE COMPETITION AND ITS IMPACT ON INTERNATIONAL ECONOMIC RELATIONS

Abstract: *The rapid development of global e-commerce is profoundly changing the structure of international economic relations. This article examines the dual impact of global e-commerce competition on international economic relations, analyzing its positive role in stimulating the growth of international trade, facilitating the restructuring of global value chains, and strengthening international cooperation, but at the same time noting the challenges of intensifying digital divide, raising data security and privacy issues, and exacerbating contradictions in international trade The study shows that although e-commerce has given a new dynamic to the global economy, the inequalities and risks it brings cannot be ignored. For this reason, this paper emphasizes the need to develop fair and reasonable e-commerce regulations, strengthen digital infrastructure, and manage data security through international cooperation to address these challenges. Future research should focus on the impact of new technologies on the competitive environment of e-commerce and how to achieve sustainable development of global e-commerce through multilateral cooperation.*

Keywords: *Global E-Commerce, International Economic Relations, Data Security, International Trade, International Cooperation*

Введение

Глобальная электронная коммерция развивается с поразительной скоростью и стала важной движущей силой глобальных экономических изменений. Популярность интернет-технологий, инновации в области цифровых методов оплаты и совершенствование логистических сетей заложили прочную основу для глобального развития электронной коммерции. Электронная коммерция не только изменила традиционную бизнес-модель, но и оказала глубокое влияние на глобальную структуру торговли, разделение труда в промышленной цепи и поведение потребителей, став новым двигателем экономического роста. Однако с быстрым развитием электронной коммерции глобальная конкуренция становится все более острой, что отражается не только на предприятиях, но и перерастает в игру экономической силы и власти между странами.[1] На этом фоне необходимо ответить на важный вопрос: как глобальная конкуренция в сфере электронной коммерции влияет на международные экономические отношения? В данной статье мы проанализируем структуру конкуренции, положительные последствия, потенциальные проблемы и международное сотрудничество, изучим двойное влияние конкуренции в сфере электронной коммерции на международные экономические отношения и подчеркнем важность создания справедливой и инклюзивной глобальной системы управления электронной коммерцией, чтобы обеспечить новые перспективы и размышления для соответствующих исследований.

Модель глобальной конкуренции в сфере электронной коммерции

Глобальная конкуренция в сфере электронной коммерции представляет собой сложную ситуацию с множеством участников и многомерными играми. Страны, предприятия и платформы, являющиеся основными игроками, ведут

ожесточенную конкурентную борьбу за долю рынка, технологические инновации, информационные ресурсы и логистические сети. Страны повышают конкурентоспособность своей электронной коммерции путем разработки политики, улучшения инфраструктуры и развития международного сотрудничества, а предприятия и платформы борются за доминирование на рынке путем технологических инноваций, оптимизации бизнес-моделей и глобализации. Эта конкуренция не ограничивается одной сферой, а характеризуется трансграничной интеграцией, например, конкуренция за информационные ресурсы переплетается с конкуренцией за технологические инновации, а совершенствование логистических сетей тесно связано с расширением доли рынка. Кроме того, динамика и сложность конкуренции в сфере электронной коммерции становятся все более заметными: быстрое развитие технологий, диверсификация потребительского спроса, изменения в международной политической и экономической обстановке - все это делает конкурентную среду полной неопределенности. Эта неопределенность дает возможность странам с развивающейся экономикой и компаниям обогнать других, но также создает проблемы для традиционных экономических держав и отраслевых гигантов. Поэтому понимание сложности и динамики глобального конкурентного ландшафта электронной коммерции важно для понимания будущих тенденций экономического развития и разработки эффективных конкурентных стратегий. В данной статье утверждается, что только полное понимание и адаптация к этому конкурентному ландшафту позволят нам занять выгодное положение в жесткой международной конкуренции и достичь устойчивого развития.

Положительное влияние глобальной конкуренции в области электронной коммерции на международные экономические отношения

Глобальная конкуренция в сфере электронной торговли оказывает далеко идущее положительное влияние на международные экономические отношения, прежде всего способствуя росту международной торговли. Снижая операционные издержки и оптимизируя торговые процессы, электронная коммерция разрушает географические ограничения традиционной торговли и позволяет малым и средним предприятиям (МСП) легче участвовать в глобальном рынке, расширяя тем самым доступ на рынок. В то же время применение цифровых технологий значительно повысило эффективность торговли, например, использование электронных платежей, интеллектуальной логистики и технологии блокчейн, сделав трансграничные сделки более безопасными, прозрачными и эффективными.[2] Это повышение эффективности отражается не только на торговле товарами, но и способствует быстрому развитию торговли услугами, например, появлению таких новых областей, как цифровой контент, онлайн-образование и телемедицина.

Кроме того, конкуренция в сфере электронной коммерции способствовала перестройке глобальных цепочек создания стоимости. Если в традиционных ГЦС центральное место занимало производство, то рост

электронной коммерции привел к значительному усилению позиций услуг и цифровых отраслей в цепочке создания стоимости. Такая реконфигурация способствовала дальнейшему совершенствованию международного разделения труда, и страны могут сосредоточиться на конкретных сегментах цепочки создания стоимости в соответствии со своими сильными сторонами, повышая тем самым общую конкурентоспособность. В то же время развитие электронной коммерции привело к появлению большого количества новых рабочих мест, особенно в сфере цифрового маркетинга, анализа данных и управления логистикой, что придало новую динамику глобальному рынку труда. Что еще более важно, конкуренция в сфере электронной коммерции укрепила международное экономическое сотрудничество. Чтобы поддержать развитие электронной коммерции, страны увеличили инвестиции в развитие цифровой инфраструктуры и способствовали выработке правил трансграничного обмена данными на основе международного сотрудничества. Защита интеллектуальной собственности также стала важной темой международного сотрудничества, и страны создают благоприятные условия для инновационного развития электронной коммерции путем усиления защиты интеллектуальной собственности. Такое сотрудничество не только помогает решить общие проблемы в развитии электронной коммерции, но и закладывает основу для построения более тесных международных экономических отношений.[3] Глобальная конкуренция в сфере электронной коммерции придала новый импульс мировой экономике, способствуя росту торговли, изменению конфигурации цепочки создания стоимости и укреплению международного сотрудничества, и в то же время предоставила новые возможности развития для всех стран. Только в полной мере используя эти положительные эффекты, мы сможем занять выгодное положение в глобальной экономической конкуренции и добиться всеобщего процветания.

Вызовы международным экономическим отношениям, создаваемые глобальной конкуренцией в области электронной коммерции

Содействуя экономическому развитию, глобальная конкуренция в области электронной коммерции в то же время создает ряд серьезных проблем для международных экономических отношений. Усугубление цифрового разрыва стало проблемой, которую нельзя игнорировать. Развитые страны доминируют в сфере электронной коммерции благодаря передовым технологиям и развитой инфраструктуре, в то время как развивающимся странам сложно полноценно участвовать в глобальной конкуренции в области электронной коммерции из-за технологической отсталости и нехватки ресурсов. Разрыв существует не только между странами, но и между крупными предприятиями и малыми и средними предприятиями (МСП), которым зачастую сложно закрепиться в условиях жесткой рыночной конкуренции из-за отсутствия финансовой и технической поддержки. Вопрос безопасности данных и защиты конфиденциальности становится все более

актуальным.[4] В связи с частыми трансграничными потоками данных суверенитет данных и защита частной жизни стали предметом пристального внимания стран. Различия в политике управления данными в разных странах чреваты правовыми конфликтами и кризисами доверия, которые, в свою очередь, влияют на глубину и широту международного экономического сотрудничества. Конкуренция в сфере электронной коммерции также усугубляет противоречия в международной торговле. Такие вопросы, как налог на цифровые услуги, требования к локализации данных и монополии платформ, стали поводом для торговых споров между странами. Эти споры затрагивают не только двусторонние отношения, но и могут оказывать влияние на многостороннюю торговую систему. Перед лицом этих вызовов международному сообществу необходимо срочно укреплять сотрудничество путем выработки справедливых и разумных правил, поощрения обмена технологиями и усиления координации политики, чтобы эффективно разрешать конфликты и добиваться устойчивого развития глобальной электронной торговли.

Международное сотрудничество для решения проблем глобальной конкуренции в области электронной коммерции

Перед лицом проблем, связанных с глобальной конкуренцией в области электронной коммерции, международное сотрудничество становится ключевым способом разрешения конфликтов и достижения беспроигрышных результатов. Необходимо разработать справедливые и разумные международные правила электронной коммерции. Переговоры по электронной торговле в рамках Всемирной торговой организации (ВТО) и положения об электронной торговле в региональных торговых соглашениях служат важной платформой для выработки единых правил на глобальном уровне. Эти правила должны охватывать широкий спектр областей, таких как цифровая торговля, потоки данных, защита прав потребителей и т. д., чтобы обеспечить равные условия для участия стран в глобальной электронной торговле. Однако при разработке правил необходимо сбалансировать интересы разных стран, а различия между развитыми и развивающимися странами с точки зрения технологических возможностей, размера рынка и политических целей делают переговорный процесс непростым.[5] Поэтому международному сообществу необходимо стремиться к наибольшему общему знаменателю и способствовать инклюзивности и работоспособности правил на основе уважения уровня развития каждой страны. Укрепление сотрудничества в области развития цифровой инфраструктуры является важной инициативой, направленной на сокращение цифрового разрыва и развитие возможностей подключения. Недостатки развивающихся стран в области цифровой инфраструктуры ограничивают их возможности участия в глобальной электронной коммерции. В рамках международного сотрудничества развитые страны могут оказать техническую и финансовую поддержку развивающимся странам, чтобы помочь им увеличить охват сети и снизить стоимость пользования Интернетом, создавая тем самым условия

для их интеграции в глобальную цифровую экономику. Региональные проекты цифровой инфраструктуры, такие как строительство трансграничных оптоволоконных кабелей и центров облачных вычислений, также могут способствовать региональной экономической интеграции и повышению общей конкурентоспособности. Укрепление сотрудничества в области безопасности данных и защиты частной жизни является основой для укрепления доверия и развития трансграничных потоков данных. Страны должны совместно разрабатывать международные правила защиты данных и уточнять границы суверенитета данных, трансграничных потоков данных и защиты частной жизни. В то же время необходимо укреплять трансграничное сотрудничество правоохранительных органов и создать совместный механизм реагирования на утечку данных и киберпреступления, чтобы повысить эффективность глобального управления данными. Только благодаря многоуровневому и многоплановому международному сотрудничеству мы сможем эффективно ответить на вызовы глобальной конкуренции в области электронной коммерции, создать открытую, инклюзивную и устойчивую глобальную экосистему электронной коммерции и придать новый импульс процветанию и стабильности мировой экономики.

Заключение

Глобальная конкуренция в области электронной коммерции оказывает двоякое воздействие на международные экономические отношения: она придает новый динамизм мировой экономике, способствуя росту торговли, реструктуризации цепочек создания стоимости и укреплению сотрудничества; она также усугубляет цифровой разрыв, повышает риски безопасности данных и усиливает торговые трения. Такое двойное воздействие подчеркивает настоятельную необходимость укрепления международного сотрудничества. Только выработка справедливых правил, сокращение цифрового разрыва и укрепление системы управления данными позволят разрешить конфликты и достичь взаимовыгодной ситуации. В будущем, с применением новых технологий, таких как искусственный интеллект и блокчейн, глобальная электронная коммерция будет развиваться в более интеллектуальном и персонализированном направлении, а ее влияние на международные экономические отношения будет более масштабным. В данной статье утверждается, что международное сообщество должно воспользоваться этой возможностью, углубить сотрудничество и совместно создать всеохватывающую и устойчивую глобальную экосистему электронной коммерции, чтобы заложить прочный фундамент для процветания и стабильности мировой экономики.

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СОВРЕМЕННЫЕ ТЕХНОЛОГИИ УПРАВЛЕНИЯ ОРГАНИЗАЦИЕЙ

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THE DISRUPTION AND INTEGRATION OF DIGITAL PROJECT MANAGEMENT WITH TRADITIONAL MODELS

Abstract: *Project management has evolved alongside technological advancements, from the Gantt chart in the early 20th century to modern methodologies such as CPM and PERT. However, the rapid rise of digital technologies, including cloud computing, big data, and artificial intelligence, has led to a transformative shift in project management. Digital project management disrupts traditional models by introducing data-driven, highly efficient, and flexible approaches. This study examines the impact of digitalization on project management processes, tools, roles, and culture, highlighting its disruptive effects and integration pathways. While traditional project management methods emphasize structured planning and control, digital project management fosters agility, collaboration, and real-time decision-making. The study explores how digital technologies reconstruct workflows, innovate management tools, redefine managerial roles, and reshape organizational culture. It also proposes integration strategies, combining traditional principles with digital advancements to optimize efficiency and adaptability. Despite challenges such as rapid technological changes, organizational resistance, and data security concerns, effective strategies—including talent development, organizational restructuring, and enhanced data protection—can facilitate seamless integration. The findings contribute to both theoretical advancements and practical guidance for enterprises undergoing digital transformation. As technology continues to evolve, project management must adapt towards greater intelligence, agility, and human-centered practices to maintain competitive advantages in a dynamic business environment.*

Keywords: *Digital Project Management, Traditional Project Management, Agile Methodology, Data-Driven Decision Making, Organizational Transformation*

Introduction

As a systematic management discipline, the development of project management is closely related to technological progress. From the emergence of the Gantt chart in the early 20th century to the birth of the critical path method (CPM) and the program evaluation and review technique (PERT) in the 1950s, project management has gradually formed a traditional model with planning, organization,

command, coordination and control as the core. However, with the rapid development of information technology, especially the rise of new generation information technology such as cloud computing, big data, and artificial intelligence, project management is undergoing a profound digital transformation. Digital project management has emerged and has had a huge impact on the traditional project management model with its advantages such as high efficiency, flexibility, and data-driven.[1] Exploring the subversion and integration of digitalization on the traditional project management model has important theoretical significance and practical value. From a theoretical perspective, this study helps to clarify the impact mechanism of digital technology on various elements of project management, construct a theoretical framework for project management in the digital age, and enrich and develop the project management discipline system. From a practical perspective, this study can provide theoretical guidance for the digital transformation of enterprises, help enterprises improve their project management level and enhance their core competitiveness in the wave of digitalization. This study focuses on the impact of digitalization on project management processes, tools, personnel, culture, etc. Specifically, it will analyze how digital technology reconstructs project management processes, innovates project management tools, transforms the roles of project managers, and promotes changes in project management culture. On this basis, it explores the integration path of digital project management and traditional models to provide reference and reference for future project management practices.

The disruptive impact of digital project management

The rapid development of digital technology has had a profound impact on traditional project management models, and its disruptiveness is mainly reflected in four aspects: project management processes, tools, personnel roles, and culture.

Traditional project management processes usually adopt linear models, such as the waterfall model, which emphasizes strict phase division and sequential execution. However, this model shows obvious limitations when facing complex and changing needs, such as lack of flexibility and slow response speed. In the digital age, new processes such as agile development and iterative development are gradually emerging. These processes are centered on user needs. Through short-cycle iterative development and continuous delivery, they can quickly respond to changes and improve project success rates.[2] In addition, the application of data-driven decision-making has further optimized project management processes. Through real-time collection and analysis of project data, managers can make plans, monitor progress and assess risks more accurately, thereby improving the scientificity and efficiency of decision-making.

Although traditional project management tools, such as Gantt charts and spreadsheets, have played a certain role in planning and task allocation, their limitations are becoming increasingly prominent. For example, information islands lead to inefficient team collaboration, and delayed data updates affect the timeliness of decision-making. The emergence of digital project management platforms has effectively solved these problems. These platforms achieve visual management of

the entire project life cycle through information integration and real-time sharing. At the same time, with the help of artificial intelligence and big data technology, the platform can provide intelligent resource allocation, risk prediction and performance evaluation functions, significantly improving the efficiency and accuracy of project management.

In traditional project management, project managers mainly play the role of planners and task assigners, and their core responsibility is to ensure that projects proceed as planned. However, the digital age has put forward higher requirements for project managers.[3] They not only need to have solid project management knowledge, but also need to master new skills such as data analysis, agile thinking and technical understanding to cope with complex and changing project environments. At the same time, the roles of project team members have also changed significantly. The application of digital tools enables team members to work more autonomously and promote project innovation and continuous improvement through efficient collaboration and knowledge sharing.

Traditional project management culture is usually characterized by clear hierarchy and solidified processes, emphasizing strict institutional norms and top-down management. This culture has certain advantages in a stable environment, but it appears rigid and inefficient in the digital age. The transformation of digital project management culture is mainly reflected in three aspects:

1. More open, encouraging information transparency and cross-departmental collaboration;

2. More inclusive, respecting diversity and innovative thinking;

3. More innovative, advocating data-driven and agile iterative working methods. This cultural change not only enhances the cohesion and creativity of the team, but also provides a strong guarantee for the successful implementation of the project.

In summary, digital technology has a comprehensive subversive impact on project management processes, tools, personnel roles and culture. These changes not only promote the innovation of project management models, but also provide a new path for enterprises to enhance their competitiveness in the digital age. In the future, with the further development of technology, digital project management will continue to evolve and create greater value for organizations.

Integration path of digital project management and traditional model

Digital project management is not a complete replacement of traditional model, but it achieves complementary advantages and coordinated development through the integration of concepts, methods, organization and culture.

Traditional project management concepts emphasize goal orientation, risk management and process control. These core concepts still have important value in the digital age. However, facing the complex and changing project environment, it is difficult to meet the needs by relying solely on traditional concepts. Therefore, it is an inevitable trend to integrate digital thinking such as agile thinking and data-driven into project management practice.[4] Agile thinking emphasizes rapid response to changes and continuous delivery of value, which can effectively

improve the flexibility and adaptability of projects; data-driven provides scientific basis for decision-making and reduces project risks through real-time data analysis and prediction. Through concept integration, project management can enhance its agility and innovation while maintaining robustness.

Traditional project management methods, such as work breakdown structure (WBS) and Gantt chart, play an important role in project planning and control. However, these methods have limitations in information processing and collaborative efficiency. The application of digital tools has injected new vitality into traditional methods. For example, combining WBS with project management software can realize automatic task decomposition and resource optimization allocation; using the digital version of the Gantt chart, task progress can be updated in real time and visual reports can be automatically generated. In addition, digital tools can also provide intelligent support for project decision-making through big data analysis and artificial intelligence algorithms, such as risk prediction, resource optimization and performance evaluation, thereby significantly improving the efficiency and accuracy of project management.

Traditional project management organizations usually adopt a hierarchical structure, emphasizing clear division of responsibilities and top-down management. This structure has certain advantages in a stable environment, but it appears rigid and inefficient in the digital age. Digital team building emphasizes cross-functional collaboration and self-organization management, and improves the team's response speed and innovation ability by building a flexible and flat team structure.[5] At the same time, using digital tools (such as collaboration platforms and knowledge management systems) to strengthen team communication and knowledge sharing can further break down information silos and promote the improvement of team collaboration efficiency. Through organizational integration, project management can enhance its flexibility and synergy while maintaining a clear structure.

Traditional project management culture focuses on process specifications and risk control, which is of great value in ensuring the stable operation of projects. However, in the digital age, over-emphasis on processes and specifications may inhibit innovation and flexibility. Therefore, on the basis of maintaining the advantages of traditional project management culture, integrating open, inclusive and innovative digital culture has become an inevitable choice. For example, by creating a data-driven decision-making atmosphere, team members are encouraged to propose innovative solutions based on data analysis; by advocating agile and iterative working methods, the team's ability to adapt to changes is improved. Cultural integration can not only enhance the cohesion and creativity of the team, but also provide a strong guarantee for the successful implementation of the project.

In conclusion, the integration of digital project management and traditional models is a systematic project that needs to be promoted in a coordinated manner at the four levels of concept, method, organization and culture. Through integration, project management can fully tap the potential of digital technology while maintaining traditional advantages and create greater value for the organization. In the future, with the further development of technology, this integration will continue

to deepen, promoting project management to develop in a more intelligent, agile and humane direction.

Challenges and countermeasures of the integration of digital project management and traditional models

Although the integration of digital project management and traditional models has brought significant benefits to enterprises, it still faces many challenges in practice. To cope with these challenges, targeted countermeasures need to be taken to ensure the smooth progress of the integration process.

Rapid technological updates are one of the main challenges facing digital project management. The rapid development of emerging technologies such as artificial intelligence, blockchain and the Internet of Things requires continuous iteration and upgrading of project management tools and methods. If enterprises fail to keep up with technological changes in a timely manner, they may lead to backward tools, low efficiency, and even missed market opportunities. Secondly, difficulties in organizational structure and cultural transformation are also a major obstacle in the integration process. Traditional enterprises usually have a hierarchical organizational structure and a solidified management model. This structure is rigid and inefficient in the digital age and is difficult to adapt to the needs of agile and flexible project management. In addition, data security and privacy protection issues are becoming increasingly prominent. With the surge in the amount of data in the project management process, how to ensure the security and privacy of data has become an important issue that enterprises must face.

To cope with the above challenges, enterprises need to start from three aspects: talent training, organizational change and data security. Strengthening digital talent training is the key to solving the problem of technology update. Enterprises should improve the digital capabilities of project managers through internal training and external introduction, so that they can master the application of emerging technologies and tools. Promoting organizational change is an effective way to break through traditional thinking patterns.[6] Enterprises need to build an agile and flat organizational structure, reduce management levels, and enhance the autonomy and collaboration of teams to meet the needs of digital project management. Finally, establishing and improving data security and privacy protection mechanisms is the fundamental guarantee for dealing with data risks. Enterprises should formulate strict data management policies and adopt advanced encryption technologies and access control measures to ensure the security and compliance of project data.

All in all, although the integration of digital project management and traditional models faces multiple challenges such as technology updates, organizational transformation and data security, by strengthening talent training, promoting organizational change and improving data security mechanisms, enterprises can effectively respond to these challenges and achieve the coordinated development of digital and traditional models. In the future, with the continuous advancement of technology and the deepening of management practices, the

integration of digital project management will become more mature and create greater value for enterprises.

Conclusion

Digital project management has a profound impact on traditional models, and its subversiveness is reflected in process reconstruction, tool innovation, role transformation and cultural change. Through the application of agile development, data-driven decision-making and intelligent tools, project management efficiency has been significantly improved, and flexibility and adaptability have been continuously enhanced. At the same time, the integration of digitalization and traditional models is not a simple replacement, but a complementary advantage achieved through the collaborative innovation of concepts, methods, organizations and culture. This integration not only promotes the evolution of project management theory, but also provides a new path for corporate practice. In the future, project management will develop in a more intelligent, agile and humanized direction. Intelligence is reflected in the in-depth application of technologies such as artificial intelligence and big data, such as optimizing resource allocation through machine learning and improving communication efficiency through natural language processing. Agility emphasizes rapid response to changes and continuous delivery of value, and improves the adaptability and innovation capabilities of projects through iterative development and cross-functional collaboration. Humanization focuses on the needs and experience of team members, enhances the collaborative experience through digital tools, and creates an open and inclusive working atmosphere.

Future research can focus on the following directions:

1. How to better use artificial intelligence technology to improve project management efficiency, such as developing intelligent risk prediction and decision support systems;

2. Explore the application of digital project management in specific industries or scenarios, such as practice in complex R&D projects or cross-border collaborative projects;

3. Study the impact mechanism of digital project management on organizational performance and innovation capabilities, and provide theoretical support for enterprise digital transformation.

Through continuous research and practice, digital project management will create greater value for organizations and promote the further development of management science.

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HOW SMES BUILD EFFECTIVE CORPORATE LEARNING SYSTEMS: CHALLENGES AND STRATEGIES

Abstract：*In today's rapidly evolving business environment, corporate learning systems play a crucial role in enhancing employee competencies and maintaining organizational competitiveness. While large enterprises have the resources to establish comprehensive learning frameworks, small and medium-sized enterprises (SMEs) often face significant challenges, including budget constraints, limited technological infrastructure, and a lack of dedicated personnel for learning and development. This study explores these barriers in detail and proposes strategic solutions tailored to SMEs. By analyzing resource limitations, technological adoption hurdles, cultural acceptance issues, and the need for personalized content, this research provides actionable recommendations. These include leveraging government support and industry partnerships for financing, selecting cost-effective learning management systems (LMS), fostering a learning culture through leadership involvement and incentives, utilizing modular and microlearning formats for flexible training, and implementing continuous feedback mechanisms to refine learning strategies. The findings underscore the necessity for SMEs to adopt innovative, scalable, and cost-efficient learning solutions to remain competitive. Ultimately, this research contributes to both theoretical discussions on SME learning systems and practical strategies for enhancing workforce capabilities, thereby ensuring sustainable business growth in a dynamic market landscape.*

Keywords：Corporate Learning Systems，SMEs Training Strategies，Learning Management Systems (LMS)，Organizational Development，Employee Skill Enhancement

Introduction

In today's fast-changing business environment, the importance of an enterprise learning system (or enterprise training and development system) is becoming more and more prominent. It is not only related to the improvement of individual employee's ability, but also the key for enterprises to adapt to market changes and maintain competitiveness. Through systematic learning and training, enterprises can ensure that the skills of their employees are updated in tandem with the market demand, thus standing invincible in the fierce competition.

As an important pillar of economic development, SMEs not only contribute a large number of employment opportunities, but are also an important force for

innovation and economic growth. However, compared with large enterprises, SMEs face more severe challenges in terms of resources, technology and talents. Especially in building corporate learning systems, SMEs are often constrained by limited budgets, human resources, and technological bases, making it difficult to effectively implement large-scale, high-quality learning and development programs.[1] The purpose of this paper is to discuss in depth the challenges faced by SMEs in the process of building effective learning systems and to propose corresponding solution strategies. By comprehensively analyzing the limitations of SMEs in terms of resources, technology, culture and content innovation, this paper will put forward a series of practical recommendations aimed at helping SMEs to overcome the obstacles and build a learning system that meets their own needs, so as to enhance the competence of their employees and the competitiveness of their organizations. The research in this paper not only has important theoretical value, but also provides useful guidance for SMEs' practice, which can help promote SMEs to realize sustainable development in the fast-changing business environment.

Basic Theory of Enterprise Learning System

Enterprise learning system, as an important support for modern organizational development, aims to promote the comprehensive improvement of employees' knowledge, skills and attitudes through a systematic and structured learning mechanism. The system covers a number of components, of which the online learning platform has become the mainstream with its convenience and flexibility, which utilizes Internet technology to provide rich and diverse learning resources to meet employees' independent learning needs. Internal training, on the other hand, focuses on the transfer of organization-specific knowledge and skills, and is usually implemented by internal experts or external consultants to ensure that employees' skills match the organization's strategy. In addition, mentoring systems accelerate the integration of new hires and the leadership development of senior managers through one-on-one or group coaching, reinforcing the personalized learning experience.

The value of an effective corporate learning system for an organization cannot be underestimated. It promotes the continuous improvement of employees' abilities, which not only enhances individual professional competitiveness, but also directly improves the overall performance of the team. As a carrier of cultural dissemination, the learning system strengthens the sense of identity and cohesion of the organizational culture by sharing values, codes of conduct, and so on.[2] Furthermore, in the face of the rapidly changing market environment, continuous learning has become the key for enterprises to maintain innovative vitality and enhance core competitiveness. The learning system ensures that the organization can quickly adapt to market changes and seize the first opportunity by continuously updating the knowledge base. To build an efficient enterprise learning system, we need to focus on several key elements. Goal clarity is the foundation to ensure that the learning content is highly compatible with organizational goals and employee development needs to avoid wasting learning resources. Content relevance emphasizes the close connection between learning materials and actual work

scenarios to enhance the practicality and relevance of learning. Participation is an important indicator of the effectiveness of learning. Through gamification design, instant feedback mechanism and other strategies, employees are inspired to learn passionately and promote in-depth learning. In addition, continuous evaluation and iterative mechanism is also an indispensable part, which ensures that the learning system can be continuously optimized according to the feedback to maintain its effectiveness and timeliness.

To sum up, as one of the core driving forces to promote organizational development, the construction and improvement of enterprise learning system should be centered on key elements such as clarity of objectives, relevance of content and high degree of participation, so as to realize the multiple values of improving employees' ability, strengthening organizational culture and enhancing competitiveness. In the future, with the continuous progress of technology and the deepening of learning theory, enterprise learning system will be more intelligent and personalized, injecting stronger vitality for organizational development.

Challenges to Building Learning Systems in SMEs: An In-depth Analysis and Discussion

In a fast-changing business environment, building effective learning systems for SMEs is crucial for their sustainable growth and competitiveness. However, SMEs face multiple challenges in building learning systems, which mainly stem from resource constraints, technology and infrastructure, culture and acceptance, and content and personalization.

SMEs are often faced with tight budgets, which makes it difficult for them to invest in learning technologies and external training. The establishment and maintenance of a learning system requires continuous financial investment, including purchasing or leasing a learning management system (LMS), developing or purchasing learning materials, and hiring external trainers. For SMEs with limited funds, these expenses may constitute a heavy burden. Therefore, SMEs need to make wise investment decisions within their limited budgets to ensure the effectiveness and sustainability of their learning systems. In addition to financial constraints, SMEs also face a lack of human resources.[3] Due to the lack of a dedicated learning and development team, SMEs often struggle to effectively plan, implement and evaluate learning programs. Employees wear multiple hats, making it difficult for them to focus on learning and development work, which may lead to a lack of professionalism and systematicity in the learning system. To overcome this challenge, SMEs may consider partnering with external training organizations or experts, or enhancing employees' learning and development capabilities through internal training.

With the learning management system (LMS) market booming, SMEs face many difficulties in choosing an LMS that suits their needs. There is a wide variety of LMSs on the market with different features and price differences. SMEs need to make a decision based on a number of factors such as cost, ease of use, functional requirements, and scalability. In addition, compatibility and integration between different LMSs may also be an obstacle in the selection process. Therefore, SMEs

need to fully understand the market demand and the characteristics of the LMS in order to make an informed choice. Some SMEs have a weak digitalization foundation, making it difficult to implement e-learning effectively. These companies may lack the necessary hardware equipment and network environment, or their employees may not be receptive to digital learning tools. In order to enhance their digital learning capabilities, SMEs need to invest more in hardware and networks, as well as strengthen employee training and guidance on the use of digital learning tools.

SMEs often lack a corporate culture that encourages continuous learning and personal growth. This lack of culture may lead to a lack of interest and motivation in learning among employees, thus affecting the effective implementation of the learning system. In order to establish a positive learning culture, SMEs need the support and involvement of their leadership to motivate employees to learn by setting clear learning objectives, providing learning resources, and recognizing learning achievements. Employees may be resistant when new learning tasks are introduced. This resistance may stem from concerns about additional workload, skepticism about learning outcomes, or unfamiliarity with new technologies. To overcome this challenge, SMEs need to communicate fully with their employees, explaining the purpose and significance of the learning tasks, while providing the necessary support and guidance to help them overcome the learning barriers.

Customized learning materials are expensive to develop, and generic content may not meet the specific needs of SMEs. To reduce development costs and meet personalization needs, SMEs can consider adopting a blended learning approach that combines online courses and internal training resources to provide learning content in a flexible and diverse way. In addition, SMEs can utilize open-source learning materials or collaborate with other enterprises to develop shared learning resources in order to reduce development costs and improve the applicability of content. [4] Providing personalized learning paths for employees in different positions and levels of competence is the key to establishing an effective learning system in SMEs. However, achieving a personalized learning experience requires advanced technical support and fine-grained data analysis. SMEs may find it difficult to afford high technology development costs or lack the necessary data analysis capabilities. To overcome this challenge, SMEs can consider adopting off-the-shelf personalized learning solutions or working with external partners to develop a personalized learning system that suits their needs. At the same time, SMEs can also collect and analyze employee learning data to continuously optimize learning paths and content to enhance learning effectiveness and satisfaction.

SMEs face multiple challenges in establishing learning systems, and these challenges require enterprises to consider and respond to them comprehensively in terms of resources, technology, culture and content. By making wise investment decisions, choosing appropriate technology solutions, establishing a positive learning culture and providing personalized learning experiences, SMEs can overcome these challenges and build an effective learning system to promote sustainable development and competitiveness.

Coping Strategies and Practices: Exploring the Path of Building Learning Systems in SMEs

The challenges faced by SMEs in building learning systems are complex and diverse, but through innovative financing and cooperation models, reasonable technology selection and optimization, positive culture shaping and incentives, content innovation and sharing, and effective evaluation and feedback loops, these obstacles can be gradually overcome to build an efficient and sustainable learning system.

1. Innovative Financing and Cooperation

SMEs should actively explore government-supported training programs and tax breaks to reduce the construction and operating costs of learning systems. The government usually launches a series of support policies in order to promote the development of SMEs and the upgrading of employees' skills. SMEs can apply for government subsidies or enjoy tax breaks by understanding the relevant policies, thus providing financial support for the construction of learning systems. Establishing partnerships with industry organizations and educational institutions is an effective way for SMEs to share resources and reduce costs. By cooperating with these organizations, SMEs can obtain professional learning resource development, technical support and training services, while sharing costs and realizing resource sharing. This cooperation model helps SMEs build an efficient learning system with limited resources.

2. Technology Selection and Optimization

When selecting a Learning Management System (LMS), SMEs should conduct a comprehensive cost-benefit analysis, taking into account factors such as cost-effectiveness, ease of use, and functional requirements. Cost-effective LMS solutions can help SMEs realize the basic functions of the learning system within a limited budget to meet employee learning needs.[5] At the same time, an easy-to-use LMS can reduce the learning costs of employees and improve the efficiency of the learning system. SMEs should start with the basic functions and gradually increase the advanced functions at the initial stage of learning system construction. This gradual upgrading strategy helps enterprises flexibly adjust the learning system according to the actual needs and avoid the waste of resources caused by excessive investment. At the same time, with the development of the enterprise and the growth of employees' learning needs, a gradually upgraded learning system can better adapt to changes and maintain continuous effectiveness.

3. Culture Shaping and Motivation

The active participation and modeling role of top management is the key to building a positive learning culture. By setting an example through learning behaviors, the leadership can stimulate employees' enthusiasm for learning and form a good atmosphere for all employees to participate in learning. SMEs should guide employees to recognize the importance of learning through the leadership's role modeling, thus promoting the effective implementation of the learning system Setting up learning achievement rewards is an effective means to motivate employees to participate in learning. SMEs can recognize and reward employees

with outstanding performance in learning by setting up reward mechanisms such as learning points and learning stars. This reward mechanism can motivate employees to learn and improve the participation and effectiveness of the learning system.

4. Content Innovation and Sharing

Establishing an internal knowledge sharing platform is an effective way for SMEs to realize content innovation. Through the internal knowledge base, employees can share learning resources, exchange learning experiences, and form a favorable atmosphere of knowledge sharing and learning mutual assistance. SMEs should encourage employees to actively participate in the construction and maintenance of the knowledge base, continuously enrich and improve the learning content, and improve the practicality and relevance of the learning system.[6] The use of micro-learning and modularization forms such as short videos and online quizzes can improve the flexibility and effectiveness of learning. SMEs should design short and concise learning content according to employees' learning needs and time schedule, which is convenient for employees to learn anytime and anywhere. At the same time, the modularized design makes it easy to update and expand the learning content, which helps to maintain the timeliness and adaptability of the learning system.

5. Evaluation of Learning Outcomes

Regular assessment of learning outcomes is the key to ensuring the effectiveness of the learning system. SMEs should establish a scientific learning effect assessment system to regularly check and evaluate the implementation effect of the learning system. Through the evaluation results, enterprises can understand the learning situation and needs of employees, adjust the learning strategy and content in time, and improve the relevance and effectiveness of the learning system. Adjusting learning strategies based on feedback is an important step in forming a closed-loop optimization mechanism. SMEs should establish effective feedback channels to collect employees' opinions and suggestions on the learning system. By analyzing and processing the feedback information, the enterprise can continuously improve the learning system and increase the learning effect and employee satisfaction. This mechanism of continuous improvement helps SMEs maintain flexibility and innovation in learning system construction.

In summary, SMEs can gradually overcome the challenges and build an efficient and sustainable learning system through coping strategies and practices such as innovative financing and cooperation modes, reasonable technology selection and optimization, positive culture shaping and incentives, content innovation and sharing, as well as effective evaluation and feedback loops in the process of constructing a learning system. These strategies and practices not only help SMEs to improve the skill level of employees and enhance organizational competitiveness, but also provide strong support for sustainable development and innovation.

Conclusion

SMEs face multiple challenges such as funding, human resources, technology selection, cultural acceptance, as well as content and personalization in the process

of establishing a learning system. To address these challenges, this paper proposes coping strategies such as innovation financing and cooperation, technology selection and optimization, culture shaping and motivation, content innovation and sharing, and evaluation and feedback loops. These strategies aim to help SMEs overcome resource constraints, optimize technology selection, shape a positive learning culture, innovate learning content, and establish an effective evaluation mechanism so as to build an efficient and sustainable learning system.

With the continuous advancement of technology and the increasing optimization of the policy environment, the development of SME learning systems will usher in new opportunities. The application of cloud computing, big data, artificial intelligence and other technologies will further enhance the intelligence and personalization of the learning system and reduce construction and operation costs. At the same time, the continuous improvement of government training and support policies for SMEs will provide a stronger guarantee for the construction of learning systems. Given the important role of learning systems in enhancing the competitiveness of SMEs, this paper calls on SME managers to pay great attention to the construction of learning systems. Learning systems should be regarded as a key way for sustainable development and innovation, and resources should be actively invested in optimizing learning strategies and continuously upgrading employees' skills in order to adapt to the fast-changing market environment and achieve sustainable development of enterprises. SME managers should grasp the future trend, explore and practice, and make the construction of learning system an important engine to promote enterprise growth.

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THE CONCEPT AND IMPLEMENTATION OF INNOVATIVE LEADERSHIP

Abstract：*In today's rapidly changing market environment, innovation has become a crucial driver for organizations to sustain growth and maintain competitive advantages. Given the rapid technological advancements and increasingly diverse consumer demands, organizations must continuously seek new solutions, products, and services. In this context, innovative leadership plays a pivotal role as both a strategist and a culture shaper. Unlike traditional leadership models that emphasize stability and efficiency, innovative leadership focuses on fostering creativity, adaptability, and risk-taking within teams. This study explores the concept, characteristics, and mechanisms of innovative leadership, proposing a theoretical model comprising four dimensions: visionary guidance, fostering an innovation-friendly atmosphere, knowledge management and teamwork, and risk tolerance with failure learning. Through theoretical analysis and case studies of successful and failed leadership examples, the research provides valuable insights into practical strategies for cultivating innovative leadership, including cultural construction, team development, process management, and technological integration. Additionally, challenges such as organizational rigidity, resource constraints, and external market dynamics are discussed, along with strategies to address them. While this study contributes to the understanding of innovative leadership, future research should explore its cross-cultural variations and the role of artificial intelligence in leadership decision-making.*

Keywords：Innovative Leadership, Organizational Innovation, Knowledge Management, Risk-Taking and Failure Learning, Transformational Leadership

Introduction

In today's rapidly changing market environment, innovation has become a core driver for organizations to continue to grow and maintain competitive advantage. With the rapid advancement of technology and the increasing diversity of consumer needs, organizations must constantly seek new solutions, products and services to adapt to the rapid changes in the market. This ability to continuously innovate not only helps organizations seize market opportunities, but also builds barriers to competition that are difficult to replicate.

Innovation leadership is particularly important in this context. It is not only the developer and promoter of the organization's innovation strategy, but also the shaper and maintainer of the innovation culture. Leaders with innovation leadership

are able to keenly understand market trends, stimulate the creativity and potential of the team, and push the organization to break through and achieve sustainable development.[1] By building an organizational atmosphere that encourages experimentation, tolerates failure, and values learning, innovation leadership can significantly improve the innovation efficiency and conversion rate of an organization, and bring a long-term competitive advantage for the organization. Therefore, it is of great significance to explore the concept and characteristics of innovation leadership and its mechanism in the process of organizational innovation to guide practice and enhance organizational innovation capability. This paper aims to provide useful inspiration and reference for managers through systematic theoretical analysis and practical discussion, and to promote organizations to achieve continuous innovation and prosperity in the rapidly changing market environment.

Theoretical foundation of innovation leadership

Innovation leadership, as an emerging leadership paradigm, is centered on leading organizations to continuously innovate in complex and changing environments in order to gain competitive advantages. Unlike traditional leadership, which emphasizes stable control and efficiency, innovative leadership pays more attention to stimulating team creativity, responding flexibly to changes, and exploring uncharted territories.[2] It requires leaders not only to have strategic vision and decision-making ability, but also to be able to create an organizational culture that encourages innovation and tolerates failure.

In the field of psychology, innovative leadership is closely related to an individual's creative thinking, problem-solving ability, and propensity for risk-taking. By modeling innovation themselves, leaders inspire intrinsic motivation in their team members, encouraging them to challenge the status quo and constantly explore new possibilities. The organizational behavior perspective, on the other hand, emphasizes that innovative leadership accelerates the incubation and implementation of innovative ideas by building an open and inclusive organizational climate that promotes cross-departmental cooperation and knowledge sharing. Transformational leadership and charismatic leadership theories provide important theoretical support for innovative leadership.[3] Transformational leaders guide team members to transcend their personal interests and work toward the common vision of the organization by stimulating their higher-level needs, such as a sense of accomplishment and self-actualization. This leadership style coincides with the core concept of innovative leadership, which emphasizes the critical role of leaders in shaping organizational culture and driving change. Charismatic leaders, on the other hand, through their unique personal charisma and vision, attract and motivate team members to pursue innovative goals together.

The core elements that make up innovative leadership include vision setting, encouraging experimentation, tolerating failure, and knowledge sharing. Vision setting is the starting point of innovation leadership, which requires leaders to be able to see future trends and set clear and challenging innovation goals for the

organization. Encouraging experimentation and tolerating failure creates a safe environment for innovation, allowing team members to take risks and continue to explore. Knowledge sharing facilitates knowledge flow and resource integration within the organization, accelerating the transformation and application of innovative ideas. Together, these elements interact to form a solid foundation for innovative leadership.

Based on the aforementioned theoretical analysis, this paper proposes a conceptual model of innovation leadership, which consists of four core dimensions: vision leadership, innovation climate creation, knowledge management and teamwork, and risk tolerance and failure learning. These dimensions interact with each other and together constitute a comprehensive framework for innovation leadership.

1. Modeling and Dimension Analysis

Vision Leadership: Leaders inspire team members to share a common goal and sense of mission by setting a clear and ambitious innovation vision. This dimension is the starting point of the innovation process, which guides the team to focus on the future, defines the direction of innovation, and provides continuous motivation for organizational innovation.

Creating an innovative atmosphere: Leaders create an organizational atmosphere that encourages innovation and tolerates failure by encouraging open thinking and advocating a culture of trial and error. This atmosphere can stimulate team members' creativity and spirit of adventure, and promote the generation and implementation of new ideas.

Knowledge management and teamwork: Leaders accelerate the transformation and application of innovative ideas by promoting knowledge sharing and strengthening cross-departmental collaboration. [4] Effective knowledge management and teamwork breaks down information silos, improves innovation efficiency, and ensures that innovations are quickly transformed into competitive advantages for the organization.

Risk Tolerance and Failure Learning: By setting reasonable risk boundaries, leaders encourage team members to experiment and learn from failures. This dimension emphasizes the importance of risk management and learning from failure in the innovation process, which helps establish a positive innovation culture and enables the team to grow through failure.

2. Case Insights

Successful case: Steve Jobs, the founder of Apple, has successfully built Apple into one of the most valuable brands in the world with his unique visionary leadership and ability to innovate. He encouraged his team to push the boundaries of technology by setting a clear product vision, while creating a culture that encouraged innovation and tolerated failure.

Failure: Nokia's decline in the smartphone market can be partly attributed to the leadership's neglect of innovation trends. Nokia's failure to adjust its innovation strategy in a timely manner and missing a critical moment in its transition to smartphones ultimately led to its marginalization in the market. This case serves as

a reminder that a leader's innovation leadership is critical to the long-term success of an organization.

By comparing successful and failed leadership cases, we can see that the dimensions of innovation leadership have different applications and challenges in practice. Leaders need to flexibly adjust their leadership strategies according to the actual situation of the organization and the market environment to ensure that innovation leadership is fully effective. At the same time, leaders need to continuously improve their own innovation literacy and leadership capabilities to cope with the increasingly complex and changing innovation challenges.

Implementation Strategies for Innovative Leadership

Innovation leadership is not only a reflection of the leader's personal ability, but also the key to promote the organization's continuous innovation and achieve strategic goals. When implementing innovation leadership, leaders need to develop and implement effective strategies from four dimensions: culture building, team building, process management and technology integration.

1. Culture building: shaping an organizational climate that supports innovation

Leaders play a central role in shaping an organizational culture that supports innovation. First of all, by encouraging open thinking, leaders can stimulate team members' sense of innovation and encourage them to challenge the status quo and come up with new ideas. This requires leaders to have an open mind themselves and to actively listen to and respect the opinions and suggestions of team members. Second, promoting cross-departmental cooperation is a key part of building an innovative culture. Leaders should break down departmental barriers and promote exchanges and cooperation among team members with different backgrounds and specialties to stimulate more innovative sparks. In addition, leaders should also create an organizational atmosphere that encourages innovation and tolerates failure by setting up an innovation reward mechanism and holding innovation competitions, so that team members can dare to try and explore.

2. Team building: creating a diversified and high-performance team

Innovative leadership also plays an important role in creating diversified, high-performance teams. In terms of talent selection, leaders should focus on the diverse backgrounds and abilities of team members, and build a team with different skills and perspectives to provide abundant resources for innovation. In terms of team incentives, leaders should design reasonable incentive mechanisms, such as equity incentives, performance bonuses, etc., in order to stimulate the innovation motivation of team members.[5] At the same time, leaders should also pay attention to the personal growth and development of team members, provide training and learning opportunities, and enhance the team's overall innovation ability. In terms of conflict management, leaders should have superior conflict resolution skills to guide team members to deal with disagreements in a constructive way and promote team harmony and collaboration.

3. Process Management: Ensure the efficient implementation of the innovation project from idea to realization.

The successful implementation of an innovation project cannot be separated from the leader's effective management of the whole process. In the idea generation stage, leaders should encourage team members to actively participate in the idea discussion to stimulate more innovative ideas. In the idea screening and evaluation stage, leaders should apply scientific evaluation methods to ensure that the most promising ideas are prioritized for development. In the implementation phase, leaders should focus on rapid iteration and agile response, and timely adjust the project plan and strategy to adapt to market changes. In terms of resource allocation, leaders should rationally allocate innovation resources to ensure the smooth implementation of key projects. In addition, leaders should establish an effective communication mechanism to ensure smooth information sharing and collaboration among team members.

4. Technology integration: Utilizing emerging technologies to enhance innovation decision-making and teamwork efficiency

In the digital era, emerging technologies such as Artificial Intelligence (AI) and Big Data have become important tools for driving innovation. Leaders should fully utilize these technologies to enhance their innovative decision-making ability and teamwork efficiency. For example, through big data analytics, leaders can more accurately predict market trends and consumer demand, providing a scientific basis for innovation. Through AI technology, leaders can realize intelligent decision support and improve decision-making efficiency and accuracy. At the same time, leaders can also utilize digital collaboration platforms to promote real-time communication and collaboration among team members, improving teamwork efficiency and the quality of innovation results.

In summary, the implementation strategy of innovation leadership involves multiple dimensions such as culture construction, team building, process management and technology integration. Leaders should flexibly apply these strategies according to the actual situation of the organization and the market environment to promote the organization's continuous innovation and achieve long-term development.

Challenges and Strategies

In the process of implementing innovation leadership, leaders not only need to face various challenges within the organization, but also need to deal with changes in the external environment. At the same time, the leader's own continuous learning and ability to adapt to change is also a key factor in determining the effectiveness of innovative leadership.

1. Internal Challenges and Responses

Internal factors that may hinder the development of innovative leadership include rigid hierarchical structure and resource constraints. Hierarchical rigidity may lead to slow decision-making and poor information flow, thus inhibiting innovation. To address this challenge, leaders should promote the flattening of the organizational structure to reduce the number of decision-making levels and improve decision-making efficiency. At the same time, they should establish cross-departmental collaboration mechanisms to promote information and resource

sharing and break down departmental barriers. In terms of resource constraints, leaders should optimize resource allocation to ensure that key innovation projects receive sufficient support. In addition, leaders should advocate frugal innovation and encourage team members to find innovative solutions with limited resources.

2. External Challenges and Adaptation

Changes in the external environment, such as intensified market competition and rapid technological iterations, place higher demands on innovation leadership. In the case of increased market competition, leaders need to pay close attention to market dynamics, timely adjustment of innovation strategy, to ensure that the organization can quickly respond to market changes. Rapid technology iteration requires leaders to have a forward-looking vision of technology, to be able to foresee technology trends, and to lead the organization in technological innovation. To meet these challenges, leaders should establish an agile innovation system, including a fast iterative product development process and a flexible marketing strategy. At the same time, they should strengthen collaborative innovation with external partners to jointly address market and technology challenges.

3. Continuous Learning and Adaptation to Change

A leader's ability to continuously learn and adapt to change is the key to effective innovation leadership. In terms of cultivating innovative thinking, leaders should continuously learn new management concepts and methods, such as design thinking and agile management, in order to stimulate the team's innovation ability. In terms of enhancing digital skills, leaders should keep up with technology trends and master the application of emerging technologies such as big data and artificial intelligence to improve the science and accuracy of decision-making. In addition, leaders should also have the ability of self-reflection and continuous improvement, constantly reviewing and adjusting their own leadership style and behavior to adapt to the needs of organizational development.

To sum up, in the face of internal and external challenges, leaders need to adopt flexible and diverse strategies to promote the optimization of organizational structure, the rational allocation of resources and the adaptation of the external environment. At the same time, the leader's own continuous learning and ability to adapt to change is also an important guarantee for the effective performance of innovative leadership. Through continuous learning and practice, leaders can continuously improve their own innovation leadership and promote the organization to maintain its leading position in the fierce market competition.

Conclusion

This paper discusses in depth the theoretical foundation of innovation leadership, implementation strategies, and challenges and coping strategies, and emphasizes the importance of innovation leadership for organizational innovation and sustainable development. Through theoretical analysis and case studies, this paper reveals the key role of innovation leadership in shaping organizational culture, building effective teams, managing the innovation process and integrating emerging technologies. Practically, this paper summarizes the key success factors of innovation leadership implementation, including leaders' vision leadership,

innovation atmosphere creation, team building and motivation, process management optimization, and continuous learning and adapting to change, which provides practical guidance for managers.

However, this study also has some limitations. For example, topics such as innovation leadership differences in cross-cultural contexts and artificial intelligence-assisted innovation decision-making mechanisms have not been explored in depth. Future research can further expand into these areas to enrich the theoretical system and practical application of innovation leadership. In addition, with the acceleration of globalization and digitalization trends, the dynamics and complexity of innovation leadership will continue to increase, and future research also needs to focus on how to maintain the effectiveness and sustainability of innovation leadership in a rapidly changing environment. By continuing to deepen our research, we expect to provide more comprehensive and in-depth insights into organizational innovation and leadership development.

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QUYOSH KOLLEKTORLARINI RAQAMLI MODELLASHTIRISH: DASTURIY TA'MINOTNI TANLASHNI ASOSLASH VA COMSOL MULTIPHYSICS DASTURINI QO'LLASH

Annatatsiya. *Ushbu maqolada quyosh kollektorlarini modellashtirish uchun dasturiy ta'minotni tanlash muhokama qilinadi, bu quyosh energiyasi sohasida raqamli tadqiqotlarni o'tkazishda muhim qadamdir. Simulyatsiya dasturini ko'rib chiqish.*

Kalit so‘zlar: *ANSYS, COMSOL Multiphysics, MATLAB, OpenFOAM, SolidWorks, modellashtirish.*

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NUMERICAL MODELING OF SOLAR COLLECTORS: JUSTIFICATION OF SOFTWARE SELECTION AND APPLICATION OF COMSOL MULTIPHYSICS

Abstract. *This article discusses the selection of software for modeling solar collectors, which is an important step in conducting numerical studies in the field of solar energy. A review of simulation software.*

Keywords: *ANSYS, COMSOL Multiphysics, MATLAB, OpenFOAM, SolidWorks, modeling.*

Quyosh kollektorlarini modellashtirish uchun bir nechta dasturiy mahsulotlar qo'llaniladi:

ANSYS Fluent: suyuqlik va gaz oqimlari va issiqlik uzatish jarayonlarini simulyatsiya qilish uchun keng qo'llaniladigan kuchli hisoblash suyuqlik dinamikasi (CFD) vositasi [1].

COMSOL Multiphysics: raqamli simulyatsiyalar uchun multifizika platformasi, bu turli xil fizik hodisalar, jumladan issiqlik uzatish, struktura mexanikasi va elektromagnetizm bilan bog'liq muammolarni hal qilishga imkon beradi [2].

MATLAB: Matematik modellashtirish, ma'lumotlarni tahlil qilish va algoritmlarni ishlab chiqish uchun foydalaniladigan yuqori darajadagi dasturlash va hisoblash muhiti [3].

OpenFOAM: oqimlarni, issiqlik uzatishni va ko'p fazali jarayonlarni simulyatsiya qilish uchun keng ko'lamli vositalarni taqdim etuvchi ochiq kodli CFD modellash dasturi [4].

SolidWorks Flow Simulation: SAPR tizimida ishlab chiqilgan modellarning termal va oqim tahliliga imkon beruvchi SolidWorks muhitida CFD tahlili uchun integratsiyalangan modul [5].

COMSOL Multiphysics-ni tanlash uchun asos

COMSOL Multiphysics dasturi quyosh kollektorlarini modellashtirish uchun quyidagi sabablarga ko'ra tanlangan:

1. COMSOL Multiphysics bir vaqtning o'zida bir nechta jismoniy hodisalarni modellashtirish imkonini beradi, bu issiqlik uzatish, suyuqlik dinamikasi va optik jarayonlarning o'zaro ta'sirini hisobga olish kerak bo'lgan quyosh kollektorlari uchun muhimdir [2].
2. Dastur foydalanuvchi tomonidan belgilangan ifodalar va funksiyalarni o'z ichiga olgan muayyan muammo talablariga javob beradigan tenglamalar va chegara shartlarini sozlash imkoniyatini beradi.
3. Intuitiv interfeys va vizualizatsiya: foydalanuvchilar uchun qulay grafik interfeys model yaratishni osonlashtiradi, kuchli vizualizatsiya vositalari esa natijalarni tahlil qilishda yordam beradi.
4. COMSOL Multiphysics haroratga bog'liq xususiyatlarga ega bo'lgan keng qamrovli materiallar kutubxonalarini, shuningdek issiqlik uzatish va nurlanishni modellashtirish uchun tayyor fizika interfeyslarini o'z ichiga oladi.
5. Yordam va hamjamiyat: Katta foydalanuvchilar bazasi va keng qamrovli hujjatlar, o‘quv qo‘llanmalari va misollar dasturni o‘rganish va undan foydalanishni osonlashtiradi [2].

COMSOL Multiphysics afzalliklari

Modellardagi mayda detallarni hisobga olish: OMSOL sizga yuqori darajadagi detallarga ega murakkab geometrik modellarni yaratish imkonini beradi,

bu esa quyosh kollektorlarining konstruktiv xususiyatlarini modellashtirishda ularning samaradorligiga ta’sir etishda muhim ahamiyatga ega.

Multifizikani qo'llab-quvvatlash: issiqlik uzatish, gidrodinamika va optik tenglamalarni bir vaqtning o'zida hal qilish qobiliyati quyosh energiyasini yutish va issiqlik taqsimlash jarayonlarini yanada aniqroq modellashtirishni ta'minlaydi.

Issiqlik uzatishni modellashtirish uchun o'rnatilgan kutubxonalar: O'tkazuvchanlik, konveksiya va radiatsiya uchun oldindan o'rnatilgan jismoniy modellarning mavjudligi modelni sozlashni soddalashtiradi va xatolar ehtimolini kamaytiradi.

Chegara shartlarini o'rnatish: Har xil turdagi chegara sharoitlarini (harorat, oqim, radiatsiya) o'rnatish uchun moslashuvchan asboblar quyosh kollektorining haqiqiy ish sharoitlarini aniq takrorlash imkonini beradi.

Ma'lumotlarni tekshirish qulayligi: Integratsiyalashgan parametrik tadqiqotlar va optimallashtirish vositalari natijalarni eksperimental ma'lumotlar yoki analitik yechimlar bilan solishtirish orqali modelni tasdiqlashga yordam beradi.

Boshqa dasturlar bilan qiyosiy tahlil

ANSYS Fluent: O'zining kuchli CFD imkoniyatlariga qaramay, ANSYS Fluent bir vaqtning o'zida turli jismoniy hodisalarni ko'rib chiqishni talab qiluvchi multifizika muammolari uchun kamroq mos keladi. Bundan tashqari, interfeysning murakkabligi va litsenziyaning yuqori narxi to'siq bo'lishi mumkin.

MATLAB: MATLAB matematik modellashtirish uchun keng qo'llanilsa-da, issiqlik uzatish va gidrodinamika uchun maxsus modullarning yo'qligi uni quyosh energiyasining murakkab muammolari uchun qo'llashni qiyinlashtiradi. Muhim dasturlash va sozlashni talab qiladi.

OpenFOAM: penFOAM ajoyib imkoniyatlarni taklif etadi, lekin dasturlash va CFD bo'yicha chuqur bilim talab qiladi. Grafik interfeysning yo'qligi, ayniqsa murakkab geometriyalar va multifizika masalalari uchun modellashtirish jarayonini murakkablashtiradi.

SolidWorks Flow Simulation: SAPR integratsiyasi geometriyani modellashtirishni osonlashtiradi, lekin multifizika funksiyalari cheklangan. Dastur asosiy termal va oqim tahlili uchun ko'proq mos keladi.

Xulosa.

COMSOL Multiphysics quyosh kollektorlarini modellashtirish uchun xos bo'lgan multifizikaviy muammolarni samarali hal qilish qobiliyati uchun tanlangan.

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THE IMPACT OF STRATEGIC HUMAN RESOURCE OUTSOURCING ON CORE COMPETENCIES OF ENTERPRISES

Abstract: *With the rapid advancement of globalization, enterprises face an increasingly complex and dynamic competitive environment. Enhancing core competencies has become a crucial focus for both academia and industry. Strategic Human Resource Outsourcing (SHRO) has emerged as a management approach that enables firms to optimize resource allocation, reduce costs, and improve efficiency by outsourcing non-core HR functions to specialized agencies. While SHRO is widely adopted in enterprise management, its impact on core competencies remains underexplored. This study aims to bridge this gap by investigating the mechanisms through which SHRO influences corporate core competencies. By integrating Resource-Based View (RBV), Dynamic Capability Theory, and Transaction Cost Theory, this study constructs a theoretical framework to analyze SHRO's influence on enterprises. The findings indicate that SHRO enhances core competencies through resource acquisition and integration, cost control and efficiency improvement, and risk mitigation. Practical strategies such as defining outsourcing objectives, strengthening process management, and ensuring knowledge transfer are proposed to maximize SHRO's benefits. This study not only enriches human resource management and core competency theories but also provides valuable insights for enterprise practice. Future research should incorporate empirical validation and explore industry-specific impacts of SHRO.*

Keywords: *Strategic Human Resource Outsourcing, Core Competencies, Resource-Based View, Dynamic Capability, Transaction Cost Theory*

Introduction

With the acceleration of globalization, the competitive environment faced by enterprises is becoming increasingly complex and changeable. In this context, how to effectively improve the core competitiveness of enterprises has become a common focus of academic and practical circles. As one of the core resources of an enterprise, the management efficiency of human resources directly affects the competitiveness and sustainable development of the enterprise. Strategic Human Resource Outsourcing (SHRO) is an emerging management model that helps enterprises optimize resource allocation, reduce costs and improve efficiency by outsourcing non-core or non-strategic human resource functions to professional institutions.[1] In recent years, SHRO has been increasingly used in enterprise management, but its impact mechanism on the core competitiveness of enterprises has not been fully explored. Therefore, in-depth research on the impact of SHRO

on the core competitiveness of enterprises will not only help enrich the theory of human resource management and core competitiveness, but also provide scientific guidance for enterprise practice, which has important theoretical and practical significance. This study focuses on the impact of SHRO on the core competitiveness of enterprises and aims to answer the following core questions: First, how does SHRO affect the core competitiveness of enterprises? Second, what is the internal mechanism of SHRO affecting the core competitiveness of enterprises? Third, how can enterprises effectively improve their core competitiveness through SHRO? Through the discussion of these issues, this study attempts to construct a theoretical framework to reveal the relationship between SHRO and the core competitiveness of enterprises, and to provide theoretical support and practical suggestions for enterprises to achieve competitive advantages through SHRO.

To achieve the research objectives, this study adopts the following research methods: using literature research method, systematically sorting out relevant theories such as resource-based view, dynamic capability theory and transaction cost theory, laying a theoretical foundation for the research; through logical analysis method, deeply analyzing the internal mechanism of SHRO affecting the core competitiveness of enterprises, including resource acquisition and integration, cost control and efficiency improvement, risk avoidance and response, etc. Through the above research ideas, this paper strives to construct a scientific research framework at the theoretical level to provide reference for subsequent empirical research

Theoretical basis

Strategic Human Resource Outsourcing (SHRO) refers to the management model in which enterprises outsource non-core or non-strategic human resource functions to external professional institutions from a strategic perspective. Unlike traditional operational outsourcing, SHRO emphasizes the strategic optimization of human resource management through outsourcing, thereby helping enterprises focus on core businesses and enhance overall competitiveness. The core competitiveness of an enterprise refers to the unique ability of an enterprise to continuously create competitive advantages. This capability is usually valuable, scarce, inimitable and irreplaceable, and is the key driving force for the long-term development of enterprises. SHRO may have an important impact on the formation and improvement of the core competitiveness of enterprises by optimizing resource allocation and improving management efficiency.

This study mainly constructs an analytical framework based on the resource-based view, dynamic capability theory and transaction cost theory. The resource-based view (RBV) believes that an enterprise is a collection of resources, and its core competitiveness comes from its unique resources. SHRO can help enterprises make up for the lack of internal resources and optimize resource allocation by introducing external high-quality resources, thereby enhancing core competitiveness.[2] For example, outsourcing recruitment, training and other functions can enable enterprises to obtain more professional services and improve the overall level of human resource management. Dynamic capability theory emphasizes that enterprises need to continuously integrate, build and reconstruct

internal and external resources to adapt to environmental changes in a rapidly changing environment. SHRO provides enterprises with a flexible way to obtain resources, enabling them to quickly adjust human resource allocation according to market demand and enhance the adaptability and innovation capabilities of the organization. For example, by outsourcing temporary human resource needs, enterprises can respond to market fluctuations more flexibly and reduce operational risks. Transaction Cost Theory provides an economic explanation for enterprises' choice of outsourcing. The theory holds that enterprises choose outsourcing in order to reduce transaction costs and improve efficiency. By outsourcing non-core functions to professional institutions, SHRO can reduce the fixed cost investment of enterprises in human resource management, while taking advantage of the scale effect and professional advantages of external institutions to reduce operating costs.[3] For example, outsourcing functions such as salary management and employee benefits can significantly reduce the management costs of enterprises, allowing them to invest more resources in core businesses.

In summary, the resource-based view, dynamic capability theory and transaction cost theory provide a solid theoretical basis for analyzing the impact of SHRO on the core competitiveness of enterprises. SHRO can not only help enterprises obtain and integrate external high-quality resources, but also enhance the dynamic adaptability of enterprises by reducing transaction costs and improving management efficiency, thereby creating favorable conditions for the formation and improvement of core competitiveness. These theories provide important theoretical support for this study to construct an analytical framework and put forward strategic recommendations

The impact mechanism of strategic human resource outsourcing on the core competitiveness of enterprises

Strategic human resource outsourcing (SHRO) has a profound impact on the formation and improvement of the core competitiveness of enterprises through three major mechanisms: resource acquisition and integration, cost control and efficiency improvement, and risk avoidance and response. The following will conduct in-depth analysis from these three aspects.

1. Resource acquisition and integration mechanism

One of the core advantages of SHRO is that it can help enterprises obtain high-quality external human resources. In the context of global competition, enterprises have an increasing demand for high-quality talents, and internal resources are often unable to meet this demand. By outsourcing recruitment, training and other functions, enterprises can quickly obtain high-quality talents that meet the strategic needs of enterprises with the help of the talent pool and professional knowledge of external professional institutions. For example, outsourcing recruitment services can help enterprises access a wider talent market and improve recruitment efficiency and quality. In addition, SHRO also promotes the integration and optimization of internal human resources in enterprises. After outsourcing non-core functions, enterprises can focus limited internal resources on core business areas, thereby optimizing resource allocation.[4] For example, after

outsourcing administrative work such as payroll management and employee benefits, the internal human resources department of an enterprise can focus more on strategic planning and organizational development, thereby improving overall management effectiveness. At the same time, SHRO improves the professional level of enterprise human resources management by introducing advanced management tools and methods from external professional institutions, laying a solid foundation for the formation of the enterprise's core competitiveness.

2. Cost control and efficiency improvement mechanism

SHRO plays a significant role in cost control and efficiency improvement. First, by outsourcing non-core human resources functions, enterprises can reduce fixed cost investment in human resources management, such as employee salaries, training costs and office facilities. Outsourcing services usually adopt a pay-as-you-go model, allowing enterprises to flexibly adjust expenditures according to actual needs, thereby reducing operating costs. For example, outsourcing temporary human resources needs can avoid idle human resources in the off-season and significantly reduce labor costs. SHRO improves the efficiency of human resources management in enterprises. External professional institutions usually have rich experience and advanced technical means, and can complete functions such as recruitment, training, and payroll management with higher efficiency. For example, outsourced recruitment services can use big data and artificial intelligence technologies to quickly screen and match candidates and shorten the recruitment cycle. SHRO enables enterprises to focus more resources on core business, thereby improving overall operational efficiency. For example, by outsourcing employee training functions, manufacturing enterprises can focus more on production process optimization and technological innovation, thereby enhancing market competitiveness.

3. Risk avoidance and response mechanism

SHRO also plays an important role in risk avoidance and response. Outsourcing non-core human resource functions can help enterprises avoid potential risks in human resource management. For example, outsourcing payroll management can reduce the risk of tax compliance and labor law compliance, and outsourcing recruitment services can reduce legal disputes and economic losses caused by recruitment errors. External professional institutions usually have rich experience and expertise, which can help enterprises effectively deal with complex human resource management issues. SHRO enhances the ability of enterprises to cope with environmental changes. In a rapidly changing market environment, enterprises need to have a high degree of flexibility and adaptability. By outsourcing temporary human resource needs, enterprises can more flexibly adjust human resource allocation to cope with market fluctuations and business changes.[5] For example, retail enterprises can flexibly respond to changes in human resource needs during peak and off-season sales seasons by outsourcing seasonal labor needs, thereby reducing operational risks. Finally, SHRO improves the flexibility and adaptability of human resource management of enterprises. Outsourcing services enable enterprises to quickly adjust human resource allocation according to strategic

needs, so as to better adapt to changes in the external environment. For example, technology companies can quickly improve employee skills by outsourcing technical training functions to adapt to technological changes and changes in market demand.

SHRO has a profound impact on the formation and improvement of the core competitiveness of enterprises through three major mechanisms: resource acquisition and integration, cost control and efficiency improvement, and risk avoidance and response. These mechanisms not only help enterprises optimize resource allocation and reduce operating costs, but also enhance the flexibility and adaptability of enterprises, providing strong support for enterprises to achieve sustainable development.

Strategic recommendations for enterprises to enhance core competitiveness through strategic human resource outsourcing

Strategic human resource outsourcing (SHRO) provides an important way for enterprises to enhance their core competitiveness, but its successful implementation depends on scientific outsourcing strategies, effective process management, and the establishment of knowledge transfer mechanisms. The following strategic recommendations are made from three aspects: clarifying outsourcing goals, strengthening process management, and focusing on knowledge transfer.

1. Clarify outsourcing goals and formulate scientific outsourcing strategies

Enterprises first need to clarify outsourcing goals to ensure that SHRO is consistent with the overall strategy. Specifically, enterprises should identify their core competencies and determine the functions that need to be outsourced accordingly. For example, for enterprises with technological innovation as their core competency, they can outsource transactional human resource functions (such as salary management and employee benefits) to concentrate resources on R&D and innovation capabilities. At the same time, enterprises need to formulate scientific outsourcing strategies, including outsourcing scope, outsourcing model and supplier selection criteria.[6] When selecting suppliers, enterprises should comprehensively consider the supplier's professional capabilities, service quality, cost-effectiveness and cultural fit to ensure that outsourcing cooperation can effectively support the realization of the company's strategic goals.

2. Strengthen outsourcing process management and ensure outsourcing quality

Outsourcing process management is the key to the successful implementation of SHRO. Enterprises should establish a sound outsourcing management system to clarify outsourcing processes, division of responsibilities and performance evaluation standards. For example, a detailed service level agreement (SLA) can be formulated to clarify the supplier's service scope, quality standards and assessment indicators to ensure the quality of outsourcing services. In addition, enterprises need to strengthen communication and cooperation with suppliers, establish a regular communication mechanism, and promptly resolve problems that arise during the outsourcing process. For example, by holding joint meetings regularly, enterprises can understand the progress of outsourcing services and adjust outsourcing

strategies according to actual needs to ensure that outsourcing services are consistent with the company's strategic goals.

3. Focus on knowledge transfer and enhance the company's own capabilities

Knowledge transfer is an important part of SHRO to achieve long-term value. Enterprises should strengthen knowledge sharing with suppliers and promote the internalization of external knowledge. For example, when outsourcing training functions, enterprises can require suppliers to provide customized training programs and incorporate training content and tools into the company's internal knowledge base for subsequent use.[7] At the same time, enterprises need to focus on cultivating internal human resource management talents and improving their own capabilities. For example, they can cooperate with suppliers to carry out internal training projects to improve employees' professional skills and management level. In addition, enterprises should establish an incentive mechanism for knowledge transfer to encourage employees to actively participate in knowledge sharing and learning, thereby enhancing the company's independent innovation capabilities.

By clarifying outsourcing goals, strengthening process management and focusing on knowledge transfer, enterprises can effectively improve the implementation effect of SHRO and enhance their core competitiveness. These strategies not only help enterprises optimize resource allocation and reduce operating costs, but also improve the professionalism and flexibility of human resource management, providing strong support for enterprises to achieve sustainable development.

Conclusion

This study explored the impact mechanism of strategic human resource outsourcing (SHRO) on the core competitiveness of enterprises from a theoretical perspective and put forward corresponding strategic recommendations. The study shows that SHRO significantly affects the formation and improvement of the core competitiveness of enterprises through mechanisms such as resource acquisition and integration, cost control and efficiency improvement, and risk avoidance and response. Specifically, SHRO helps enterprises obtain external high-quality resources, optimize internal resource allocation, reduce operating costs, improve management efficiency, and enhance the flexibility and adaptability of enterprises, thereby providing strong support for the construction of core competitiveness. Based on the above mechanisms, enterprises can further enhance their core competitiveness by formulating scientific outsourcing strategies, strengthening outsourcing process management, and focusing on knowledge transfer. Clarify outsourcing goals and select appropriate outsourcing suppliers to ensure that outsourcing services are consistent with the strategic goals of the enterprise; secondly, establish a sound outsourcing management system, strengthen communication and cooperation with suppliers, and ensure the quality of outsourcing services; finally, through knowledge transfer and internal talent training, enhance the human resource management capabilities of the enterprise itself and achieve sustainable development.

However, this study is mainly based on theoretical analysis and has not yet been verified with empirical data. Future research can further verify the actual impact of SHRO on the core competitiveness of enterprises through case studies or quantitative analysis. In addition, different types and sizes of enterprises may have different impacts when implementing SHRO. Future research can conduct in-depth discussions on these differences to provide more targeted practical guidance for enterprises. In short, as a strategic management tool, SHRO has broad application prospects in improving the core competitiveness of enterprises, but its successful implementation requires scientific strategic support and continuous practice optimization.

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THE ROLE OF ORGANIZATIONAL CHANGE STRATEGIES IN CORPORATE CRISIS MANAGEMENT

Abstract: *This study explores the critical role of organizational change strategies in corporate crisis management. In response to increasingly complex internal and external challenges, businesses must leverage strategic, structural, cultural, and technological transformations to enhance adaptability and risk resilience. By employing a combination of case analysis and theoretical review, this research examines the impact of various crisis types on enterprises and investigates the specific applications and key success factors of organizational change strategies. Findings suggest that organizational change not only enables firms to effectively navigate short-term crises but also facilitates long-term transformation and sustainable development. The novelty of this study lies in systematically delineating the mechanisms through which organizational change strategies contribute to crisis management, while also identifying future research directions, such as digital transformation, employee psychological responses, and the integration of corporate social responsibility. These insights offer theoretical guidance and practical recommendations for corporate managers.*

Keywords*: Corporate Crisis Management, Organizational Change Strategies, Adaptability, Digital Transformation, Sustainable Development*

Introduction

Corporate crisis management refers to the systematic strategies and actions undertaken by firms to anticipate, address, and resolve crises, thereby ensuring business continuity and long-term development. Against the backdrop of globalization, digitalization, and intensifying market competition, enterprises increasingly encounter multifaceted crises, including economic fluctuations, regulatory shifts, technological disruptions, supply chain breakdowns, and internal managerial failures. Such crises not only pose immediate operational threats but may also exert profound long-term strategic and reputational consequences. Consequently, crisis management has emerged as a critical capability for modern enterprises. However, effective crisis management extends beyond reactive emergency responses; it necessitates proactive strategic planning at the organizational level.[1] In this context, organizational change strategies have gained prominence as essential tools for corporate crisis management.

Organizational change strategies encompass deliberate modifications in a firm's structure, processes, cultural values, or technological frameworks to enhance operational efficiency and competitiveness in response to evolving internal and

external conditions. Within a crisis setting, these strategies facilitate rapid identification of crisis origins, resource reallocation, operational optimization, and cultural transformation, thereby strengthening organizational adaptability and risk resistance. For instance, during an economic downturn, a firm may recalibrate its strategic priorities or restructure cost frameworks to cope with fluctuating market demands. Hence, organizational change strategies serve as both an effective crisis response mechanism and a fundamental pathway for transformation and resilience building.

This paper aims to investigate the role of organizational change strategies in corporate crisis management by analyzing their applications across different crisis scenarios and identifying key success factors. Through this study, we seek to provide theoretical insights and practical guidance for corporate decision-makers, enabling them to navigate crises more effectively and achieve sustainable development.

The Relationship Between Corporate Crises and Organizational Change

A corporate crisis refers to a sudden or cumulative threat that disrupts an organization's operations, potentially stemming from both external environmental shifts or internal managerial deficiencies. These crises can significantly impact an organization's stability, efficiency, and long-term competitiveness. The need for organizational change in crisis management is critical, as it enables businesses to adapt, recover, and realign their strategies to better cope with and overcome the challenges presented by the crisis. When a crisis strikes, it often requires a fundamental reevaluation of organizational structures, strategies, and even corporate culture to regain stability and foster resilience.

The role of organizational change in crisis management is not just a reactive measure but also a proactive tool for organizations to enhance their adaptability and sustainability. Organizational change enables businesses to respond effectively to disruptions by reorienting their goals, modifying processes, and innovating solutions to meet new market demands or overcome operational failures. Change management, in this context, becomes an essential component of strategic crisis management, providing the framework for organizations to recover from the immediate shock and emerge stronger in the long term.

In times of crisis, businesses often face the challenge of restoring confidence among employees, customers, investors, and other stakeholders. Organizational change strategies are crucial for communicating new directions, reassessing goals, and demonstrating leadership commitment to stabilizing the company. The implementation of change provides a signal that the organization is not stagnant but evolving to better adapt to the new environment. This process involves both structural changes, such as leadership restructuring, and operational adjustments, such as streamlining workflows or adopting new technologies.

Technological innovation is often one of the most significant drivers of organizational change in response to a crisis. In a rapidly changing business environment, technology can be leveraged to reduce costs, increase productivity, and improve customer engagement. Companies that embrace digital transformation,

automation, and innovative technologies during a crisis are more likely to maintain operational continuity and sustain a competitive edge. For example, during the COVID-19 pandemic, many organizations were forced to rapidly implement remote working solutions and digital sales platforms, showing how technological change can be an essential part of crisis response.

Moreover, organizational change strategies during a crisis are not limited to operational or technological adjustments. A crisis often brings to light the need for cultural transformation, where a shift in organizational mindset and behavior becomes necessary. Fostering a culture of collaboration, agility, and innovation becomes crucial for organizations to overcome crises and thrive beyond the immediate disruption. This cultural change can help employees feel more engaged, adaptable, and supportive of the organization's new directions, ultimately contributing to a smoother transition and faster recovery.

Leadership plays a vital role in driving organizational change during crises. Strong, transformational leadership is essential in guiding the organization through the turmoil, setting a clear vision, and rallying the workforce around the new goals. Effective crisis leadership involves clear and consistent communication, transparency, and a commitment to the well-being of both the organization and its employees. In this context, leaders must not only manage the operational challenges of a crisis but also instill a sense of hope and purpose, fostering resilience across the organization.

In conclusion, the relationship between corporate crises and organizational change is inextricably linked. Crises force businesses to examine their current strategies, operations, and organizational structures, providing an opportunity for necessary and often transformative change. By embracing organizational change during a crisis, businesses can recover more swiftly, strengthen their foundations, and emerge from the crisis more competitive than before. The role of organizational change strategies in crisis management is essential for businesses seeking long-term growth, resilience, and the ability to thrive in an increasingly uncertain global market.

Impact of Different Types of Corporate Crises on Organizations

External crises typically emerge from uncontrollable environmental factors such as economic downturns, regulatory changes, technological disruptions, and intensified market competition. These crises are often abrupt and widespread, exerting significant pressure on organizations. Economic downturns, for instance, lead to shrinking market demand, declining consumer purchasing power, and substantial revenue losses.[2] During periods of recession, firms often face liquidity constraints, increased cost pressures, and diminished investment capacity, which hinder their ability to execute long-term strategies effectively. These economic challenges force companies to reassess their financial stability and adapt their operations to survive in a contracting market.

Regulatory changes also play a significant role in external crises, as shifts in government policies—such as tax reforms, environmental regulations, or industry access restrictions—can directly alter a firm’s operational landscape. Stricter

environmental policies, for example, may compel high-pollution enterprises to upgrade their technologies or pivot to new business models to remain viable. These regulatory shifts can increase operational costs or require significant adjustments to a company's existing practices, often forcing businesses to divert resources to comply with new legal frameworks rather than focusing on growth initiatives.

Technological disruptions represent another significant external crisis that can affect organizations. Rapid technological advancements often render existing products or services obsolete, forcing companies to innovate or risk becoming irrelevant. The digital transformation of various industries is a prime example, as businesses that were once leaders in traditional sectors now face the pressure of adopting new technologies to stay competitive. Firms that fail to adapt quickly to technological changes may lose their market position and face potential obsolescence in an increasingly digital world.

Intensified market competition is another external factor that can lead to a corporate crisis. Fierce competition can lead to price wars, customer attrition, and a declining market share. Firms that fail to adjust their competitive strategies swiftly and effectively risk losing market positioning. The inability to differentiate products or offer superior value in a saturated market can lead to a significant erosion of a company's customer base, ultimately threatening its long-term survival. Organizations must continuously innovate and adapt their strategies to remain competitive in the face of growing competition.

Internal crises, on the other hand, stem from issues within an organization itself, often arising from strategic missteps, managerial inefficiencies, talent attrition, or cultural conflicts. These crises tend to develop gradually and can be highly destructive if left unaddressed. Strategic failures, for instance, occur when poorly conceived or executed strategies lead to resource misallocation, market mispositioning, or failed expansions. A company that diversifies too aggressively may end up diluting its core competencies, weakening its competitive position, and spreading resources too thinly across ventures that lack synergies with its primary operations.

Managerial inefficiencies can also trigger internal crises, especially when bureaucratic processes, rigid decision-making structures, or ineffective leadership hinder organizational responsiveness and operational efficiency. When management fails to address challenges in a timely manner, the organization's ability to react to both internal and external pressures is compromised, exacerbating the crisis. In such environments, poor leadership can lead to delays in critical decision-making, missed opportunities, and ultimately, an inability to recover from the crisis.

Talent attrition is another internal factor that can destabilize an organization. The loss of key personnel, particularly in knowledge-intensive industries, can erode a firm's innovation capacity, technical expertise, and overall managerial effectiveness. When experienced employees leave, companies may struggle to replace their skills, resulting in a loss of competitive advantage. In sectors where human capital is a critical asset, the departure of top talent can significantly impair

the organization's ability to function effectively and adapt to changing market conditions.

Cultural conflicts within an organization can further exacerbate an internal crisis. Misalignment between the corporate culture and strategic objectives, or internal value divergences, can lead to low employee morale, hinder teamwork, and even trigger organizational discord. When employees feel disconnected from the company's vision or are at odds with its values, it can lead to disengagement and inefficiencies. These internal conflicts can disrupt operations and slow down decision-making processes, preventing the organization from effectively managing the crisis.

Both external and internal crises have profound impacts on organizations. External crises, such as economic downturns, regulatory changes, technological disruptions, and market competition, challenge a company's ability to adapt to rapidly changing conditions. Internal crises, stemming from strategic missteps, managerial inefficiencies, talent attrition, and cultural conflicts, can weaken an organization from within and hinder its capacity to recover. Recognizing the potential sources of crises and developing proactive strategies for crisis management and organizational change is essential for ensuring the long-term resilience and growth of an organization.

The Necessity of Organizational Change in Crisis Management

Given the complexity and volatility of corporate crises, organizational change is a crucial mechanism for crisis resolution and long-term competitiveness.[3] The necessity of organizational change in crisis management manifests in three key aspects:

Adapting to External Environmental Changes: Unpredictable external crises necessitate organizational agility. Through change strategies, firms can realign strategic objectives, optimize resource allocation, and establish flexible operational mechanisms to navigate uncertainties. For instance, during an economic recession, restructuring initiatives may streamline hierarchical layers, reduce operational costs, or explore new market opportunities.

Addressing Internal Deficiencies to Enhance Efficiency: Many internal crises originate from organizational inefficiencies. Implementing change strategies enables firms to diagnose and rectify internal weaknesses, thereby enhancing overall effectiveness. For example, process reengineering or digital transformation can improve operational efficiency, while cultural reforms can strengthen employee engagement and retention.

Turning Crisis into Opportunity for Transformation: While crises pose significant challenges, they also present opportunities for fundamental transformation. Organizational change strategies allow firms to leverage crises as catalysts for strategic innovation and structural evolution. For example, technological disruptions may prompt enterprises to accelerate research and development efforts, ultimately securing competitive advantages.

In conclusion, corporate crises and organizational change are intrinsically linked. Crises serve as catalysts for change, while change initiatives act as essential

instruments for crisis mitigation and organizational renewal. By systematically implementing organizational change strategies, firms can not only overcome crises but also emerge stronger and more resilient, laying the groundwork for sustained growth and market leadership.

Key Organizational Change Strategies and Success Factors in Crisis Management

Organizational change strategies are systematic adjustments implemented by businesses to adapt to shifts in both internal and external environments. These strategies aim to optimize structures and operational models, thus improving adaptability and competitiveness.[4] In the context of crisis management, selecting and implementing the appropriate change strategy is crucial. The main types of organizational change strategies include strategic change, structural change, cultural change, and technological change. Each of these strategies plays a unique role in addressing specific crisis scenarios and has distinct advantages and disadvantages.

Strategic change involves altering a company's business model, market positioning, or competitive strategies to respond to environmental shifts or to achieve long-term goals. During a crisis, strategic change is commonly used to address crises caused by dramatic external environmental changes, such as economic downturns, technological disruptions, or internal issues like business model failures or market positioning errors. For example, during an economic recession, a company might shift its focus from traditional markets to high-growth industries or diversify its portfolio to mitigate risk. While strategic change can reinforce competitiveness and create new growth opportunities, it is often risky and can take a long time to implement, requiring significant resource allocation.

Structural change focuses on modifying organizational hierarchies, processes, and departmental configurations to improve efficiency and responsiveness. In crisis management, structural change is typically deployed to tackle inefficiencies in internal management or address rapid shifts in the external environment. Common scenarios include bureaucratic inefficiencies, rigid decision-making processes, or poor coordination between departments. For instance, in response to increased market competition, a company might restructure its departments and reengineer its processes to speed up decision-making and enhance flexibility. While structural change can improve operational agility, it often faces resistance from employees, leading to potential short-term disruptions.

Cultural change is aimed at reshaping organizational values, behavioral norms, and the overall corporate ethos to strengthen employee cohesion and commitment. During a crisis, cultural change is used to resolve internal cultural conflicts or to combat low employee morale. This strategy is applicable when there is misalignment between corporate culture and strategic goals or when poor teamwork and collaboration are undermining organizational performance. For example, in response to high employee turnover, a company might implement cultural reforms to build a sense of belonging and a culture centered on innovation. However, cultural change requires a long time to implement and its results are often

difficult to measure. Furthermore, it can face employee resistance and potential cultural conflicts.

Technological change refers to adopting new technologies, developing innovative products, or improving production efficiency to strengthen a company's technological competitiveness and adaptability. In crisis management, technological change is frequently used to address disruptions caused by rapid technological advancements or internal technological obsolescence. For example, a company facing technological disruption may adopt artificial intelligence or big data technologies to optimize its production processes and develop smarter products. Technological change can improve capabilities and open new opportunities for growth, but it requires significant investment in both capital and talent, and there are risks associated with technological failure or market rejection.

The successful execution of these organizational change strategies relies on several critical success factors. Leadership is one of the most important factors; visionary leadership from top management provides direction and drives transformation through decisive actions. Effective leaders instill confidence in the workforce, ensuring that change initiatives do not stagnate. Communication is another vital factor. Clear and transparent communication helps stakeholders understand the necessity of the change, minimizing misunderstandings and fostering trust. Additionally, participation from employees enhances their commitment and reduces resistance.[5] Engaging employees through training and feedback channels can facilitate smoother transitions. Resource allocation is essential for the success of change strategies. Adequate financial, human, and technological resources should be allocated from the start and adjusted as needed to ensure that changes are fully supported. Lastly, evaluation plays a critical role in monitoring progress, identifying challenges, and refining strategies to ensure that the transformation is sustainable. Evaluation should be comprehensive, considering both short-term outcomes and long-term objectives.

These change strategies and success factors provide a framework for organizations to navigate through crises and emerge stronger. By carefully selecting the right strategy, aligning leadership, fostering effective communication, involving employees, and ensuring adequate resources, organizations can manage crises effectively and build resilience for future challenges.

The Positive Impact of Organizational Change Strategies on Crisis Management

Organizational change strategies are not merely crisis response mechanisms; they also serve as fundamental drivers of enterprise-wide efficiency and competitiveness. Thoughtfully implemented change strategies can yield several positive effects in crisis management:

Enhancing Adaptability and Resilience: Crises introduce uncertainty into business environments. Strategic, structural, or technological changes enable enterprises to swiftly adjust business models, optimize resource allocation, and adopt innovative technologies, thereby improving adaptability. For instance, digital

transformation facilitates agile responses to market fluctuations, while flexible structures enhance responsiveness to unforeseen disruptions.

Optimizing Resource Utilization: Resource scarcity and inefficiency often exacerbate crises.[6] Process reengineering, departmental restructuring, or technological upgrades can eliminate redundancies, reduce operational costs, and focus limited resources on core business areas, thereby mitigating crisis-induced pressures and generating long-term value.

Fostering Innovation and Growth: Crises necessitate the exploration of new business paradigms. Cultural or technological transformations can cultivate an innovation-driven environment, empowering employees to think creatively and proactively. For example, implementing flat organizational structures and open innovation platforms fosters collaboration and external partnerships, driving technological breakthroughs and business innovation.

Strengthening Organizational Cohesion and Competitive Advantage: Employee morale and team collaboration significantly influence crisis survival. Cultural change and employee participation can reshape corporate values, reinforcing a sense of mission and belonging. Concurrently, strategic and structural changes clarify business direction and enhance market competitiveness, positioning enterprises to emerge stronger from crises.

Conclusion

Organizational change strategies play a pivotal role in corporate crisis management. Through strategic, structural, cultural, and technological transformations, enterprises can navigate environmental uncertainties and internal challenges while enhancing adaptability, optimizing resource allocation, fostering innovation, and bolstering competitiveness. Change strategies not only serve as crisis management tools but also as pathways to corporate transformation and sustainable development.

Future research on organizational change could explore several important directions. One key area is the impact of digital transformation on organizational models and management practices, specifically examining how emerging technologies such as artificial intelligence, automation, and big data reshape traditional structures and decision-making processes within organizations. Additionally, another critical research focus could be on employee psychology and behavioral dynamics during change initiatives, investigating how such processes influence employee attitudes, motivations, and behaviors, and how these factors can either facilitate or hinder the success of organizational change. Lastly, exploring the integration of organizational change and corporate social responsibility could offer valuable insights, particularly in how change strategies can be designed to not only improve economic performance but also create a positive social impact, thus balancing business objectives with broader societal goals.

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TIME MANAGEMENT CHALLENGES FACED BY EMPLOYEES IN TELECOMMUTING AND SOLUTIONS

Abstract: *With the rapid advancement of information technology and the acceleration of globalization, telecommuting has emerged as a significant component of modern business management. The COVID-19 pandemic further accelerated this transition, making remote work a mainstream choice for many enterprises. While telecommuting offers benefits such as reduced operational costs and enhanced work flexibility, it also presents considerable challenges, particularly in time management. Employees working remotely often struggle with blurred boundaries between work and personal life, insufficient self-discipline, decreased communication efficiency, and improper use of technological tools. This study aims to systematically analyze these time management challenges faced by telecommuting employees and propose practical solutions. By synthesizing relevant theories and best practices, this research provides strategic recommendations for both businesses and employees to optimize time management and improve remote work efficiency. The findings contribute to corporate management strategies and offer practical guidance for employees to enhance their self-management skills, ultimately fostering the sustainable development of telecommuting.*

Keywords*: Telecommuting, Time Management, Remote Work Efficiency, Self-Discipline, Communication Strategies*

Introduction

With the rapid development of information technology and the acceleration of globalization, remote work, as a new working mode, has gradually become an important part of modern enterprise management. Especially driven by the COVID-19 pandemic, remote work has rapidly transformed from an auxiliary working mode to a normalized choice for many enterprises. According to relevant research data, the proportion of remote work has increased significantly worldwide, and this trend will continue in the future. Remote work not only reduces operating costs for enterprises, but also provides employees with greater work flexibility and autonomy. However, despite the many advantages of remote work, the challenges it brings cannot be ignored, especially the problems faced by employees in time management.

The time management challenges of remote workers are mainly reflected in the blurring of the boundaries between work and life, the lack of self-management ability, the reduction of communication and collaboration efficiency, and the improper use of technical tools. First, remote work breaks the boundaries of physical

space in the traditional office model. Employees working at home are easily disturbed by family affairs, resulting in the mutual penetration of work time and life time, making it difficult to achieve effective separation.[1] Secondly, remote work places higher demands on employees' self-management ability. Lack of self-discipline and reasonable time planning often leads to low work efficiency. In addition, remote work relies on asynchronous communication and online collaboration, and delays and misunderstandings in information transmission may affect the overall efficiency of the team. Finally, improper use of technical tools may also become an obstacle to time management. For example, over-reliance on tools or unfamiliarity with tool functions will have a negative impact on work processes.

The purpose of this study is to deeply analyze the main challenges faced by remote office employees in time management and explore practical solutions. By systematically combing relevant theories and practical experience, this paper aims to provide scientific time management strategies for enterprises and employees to improve the efficiency and quality of remote work. The significance of the study is to provide theoretical support for enterprises to optimize management in a remote office environment, and on the other hand, to provide practical guidance for employees to improve their self-management ability, thereby promoting the sustainable development of the remote office model.

Time management challenges for remote office employees

As an emerging work model, remote work not only provides employees with flexibility and autonomy, but also brings many time management challenges. These challenges not only affect employees' work efficiency, but may also have a negative impact on their mental health and job satisfaction. The following is an in-depth analysis of the time management problems faced by remote office employees from four aspects: blurred boundaries between work and life, insufficient self-management ability, reduced communication and collaboration efficiency, and improper use of technical tools.

A notable feature of remote work is the integration of work and life space. The traditional office model helps employees to clearly define the boundaries between work and life through the separation of physical space, while remote work breaks this boundary. When employees work from home, it is often difficult to strictly distinguish between work time and life time, resulting in an invisible extension of working time. For example, employees may handle work emails or tasks during non-working hours, thus blurring the boundaries between work and life.[2] In addition, distractions in the home environment (such as family members' activities, housework, etc.) can also distract employees and make it difficult for them to concentrate on completing work tasks. This blurred boundary not only reduces work efficiency, but may also increase employees' work pressure and affect their quality of life.

Remote work places higher demands on employees' self-management ability. In the absence of supervision from superiors and interaction with colleagues, employees need to rely on self-discipline to reasonably arrange their working time

and complete tasks. However, many employees show a lack of self-discipline in the remote working environment and are easily delayed or distracted by external interference (such as social media, family affairs, etc.). In addition, some employees have unreasonable time planning, such as failing to allocate time reasonably according to the priority of tasks, resulting in low work efficiency. This lack of self-management ability not only affects individual work performance, but may also have a negative impact on the overall progress of the team.

Remote work relies on technical tools for communication and collaboration, but this asynchronous communication mode often leads to delays and misunderstandings in information transmission. Compared with face-to-face communication, online communication lacks immediacy and the support of non-verbal information, which can easily lead to incomplete or inaccurate information transmission.[3] For example, text messages in emails or instant messaging tools may be misunderstood, resulting in deviations in task execution. In addition, the lack of face-to-face communication opportunities in remote working environments reduces the interaction between team members, which may weaken the team's cohesion and collaboration efficiency. This reduction in communication efficiency not only affects the timely completion of tasks, but may also have an adverse impact on team atmosphere and employee sense of belonging.

Technological tools are an important support for remote work, but their improper use may also become an obstacle to time management. Some employees over-rely on technical tools and ignore the importance of interpersonal communication. For example, excessive use of automated tools may lead to mechanization and lack of humanization in communication, affecting the effectiveness of teamwork.[4] Some employees are not familiar with the functions of remote office software and fail to make full use of the tools to improve work efficiency. For example, failure to master the advanced functions of project management software may lead to inefficient task allocation and progress tracking. In addition, the failure or instability of technical tools may also interfere with the workflow, further exacerbating the difficulty of time management.

In summary, remote office employees face multiple challenges in time management, including blurred boundaries between work and life, insufficient self-management ability, reduced communication and collaboration efficiency, and improper use of technical tools. These challenges not only affect employee work efficiency and satisfaction, but may also have a negative impact on the overall performance of the enterprise. Therefore, proposing effective solutions to these problems is of great significance to improving the effectiveness of remote office.

Time management solutions for remote office employees

Proposing practical solutions to the challenges faced by remote office employees in time management is the key to improving work efficiency and satisfaction. The following discusses effective strategies for time management for remote office employees from four aspects: establishing clear work boundaries, improving self-management ability, optimizing communication and collaboration methods, and making good use of technical tools.

1. Establish clear work boundaries

In a remote working environment, the blurring of work-life boundaries is one of the main causes of time management problems. Therefore, establishing clear work boundaries is the first step to solve the problem. Employees should set fixed working hours and rest times and strictly abide by them. For example, time management techniques such as the "Pomodoro Technique" can be used to divide working hours into multiple focus periods and arrange short breaks after each period. It is crucial to create an independent workspace. This space should avoid interference from family affairs as much as possible to help employees get into the work state psychologically. With clear time arrangements and physical space separation, employees can better balance work and life, thereby improving work efficiency and reducing work stress.

2. Improve self-management ability

Remote working places higher demands on employees' self-management ability. Developing a detailed work plan is the basis for improving self-management ability. Employees should reasonably arrange daily and weekly work content according to the priority and deadline of the task, and strictly implement the plan.[5] Using time management tools can significantly improve work efficiency. For example, task management software (such as Trello, Asana) and time tracking tools (such as RescueTime) can help employees better plan tasks and monitor time usage. In addition, cultivating self-discipline is the key to overcoming procrastination and distraction. Employees can gradually enhance self-discipline by setting clear goals, breaking down complex tasks, and rewarding mechanisms, so as to maintain an efficient working state in a remote working environment.

3. Optimize communication and collaboration methods

Remote work relies on technical tools for communication and collaboration, so optimizing communication methods is an important part of improving time management efficiency. First, it is crucial to choose the right communication tools. For example, instant messaging tools (such as Slack) are suitable for quick communication, while video conferencing tools (such as Zoom) are more suitable for complex discussions and team meetings. Secondly, regular online meetings help keep the team connected and synchronize work progress. For example, daily stand-up meetings or weekly meetings can be arranged to ensure information sharing and task coordination among team members. In addition, establishing a clear communication process is the key to avoiding information confusion. The team should clarify the frequency, channels and responsible persons of communication to reduce delays and misunderstandings in information transmission, thereby improving overall collaboration efficiency.

4. Make good use of technology tools

Technology tools are an important support for remote work, but the way they are used directly affects the effectiveness of time management. Employees should learn and master the basic and advanced functions of remote work software. For example, mastering the task allocation, progress tracking and report generation functions of project management software can significantly improve work

efficiency. The use of automation tools (such as Zapier and IFTTT) can reduce the time spent on repetitive tasks, allowing employees to focus on more creative and strategic work.[6] However, it should be noted that the use of technology tools should be moderate to avoid over-reliance. While using technology tools to improve efficiency, employees should maintain necessary interpersonal communication to maintain team cohesion and collaboration.

In summary, remote workers can effectively cope with challenges and improve work efficiency in terms of time management by establishing clear work boundaries, improving self-management capabilities, optimizing communication and collaboration methods, and making good use of technology tools. These solutions not only help employees achieve better time management in a remote working environment, but also provide practical guidance for enterprises to optimize remote working management. In the future, with the further development of the remote working model, the continuous innovation and improvement of time management strategies will become the key to improving the effectiveness of remote working.

Conclusion

As an increasingly popular working mode, teleworking provides employees with greater flexibility and autonomy, but it also brings significant time management challenges. This paper summarizes the main challenges of time management for teleworking employees through systematic analysis, including blurred boundaries between work and life, insufficient self-management ability, reduced communication and collaboration efficiency, and improper use of technical tools. In response to these challenges, this paper proposes solutions such as establishing clear work boundaries, improving self-management ability, optimizing communication and collaboration methods, and making good use of technical tools. These strategies not only help employees achieve efficient time management in a teleworking environment, but also provide theoretical support and practical guidance for enterprises to optimize teleworking management.

The importance of time management for teleworking employees is self-evident. Effective time management can not only improve work efficiency, but also help employees better balance work and life, thereby improving job satisfaction and mental health. In a teleworking environment, the strength of time management ability directly affects employees' work performance and career development. Therefore, both enterprises and employees should attach great importance to time management and continuously improve their time management ability through various means such as training, tool support and system construction.

In the future, with the further development of teleworking models and the continuous innovation of technology, time management strategies will continue to evolve. For example, the application of artificial intelligence and big data technologies may provide more intelligent and personalized solutions for time management; the popularization of virtual reality and augmented reality technologies may change the way of remote collaboration and further improve communication efficiency. In addition, as the remote working culture matures,

companies and employees will pay more attention to the balance between work and life, and time management strategies will become more humane and flexible. In short, the future development of remote working time management is full of opportunities and challenges, and requires the joint efforts of academia and practice to promote the sustainable development of the remote working model.

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THE APPLICATION OF BIG DATA ANALYTICS IN MARKETING AND ITS IMPACT ON ENTERPRISE COMPETITIVENES

Abstract:*In the era of big data, rapid advancements in information technology have led to an explosion of data, fundamentally transforming business operations and decision-making processes. This study explores the application of big data analytics in marketing and its impact on enterprise competitiveness. Despite the growing importance of big data in business strategies, many enterprises face challenges in effectively utilizing these vast data resources. This research identifies key applications of big data analytics in marketing, including customer segmentation, precision marketing, and market forecasting. By analyzing consumer behavior and preferences, enterprises can enhance marketing efficiency, optimize resource allocation, and gain a competitive edge. Additionally, this study examines the impact of big data analytics on enterprise competitiveness by improving decision-making accuracy, enhancing market responsiveness, and optimizing advertising strategies. However, enterprises also face challenges such as data security risks, data quality management, and the shortage of skilled professionals. This paper discusses potential solutions to these challenges, including strengthening data encryption, refining data governance strategies, and investing in talent development. The findings contribute to a deeper understanding of how enterprises can harness big data to enhance marketing strategies and sustain competitive advantages in a dynamic market environment.*

Keywords: *Big Data Analytics, Marketing Strategy, Consumer Behavior Enterprise Competitiveness, Data-Driven Decision Making*

Introduction

In the era of big data, the rapid development of information technology has led to an explosive growth in data volume. This change has profoundly affected the operation model and decision-making process of enterprises. Big data not only represents a surge in the amount of information, but also contains unprecedented commercial value and market insight potential. For enterprises, how to effectively mine and utilize these data resources has become the key to improving competitiveness.

In the field of marketing, the importance of big data analysis is becoming increasingly prominent. By deeply mining information such as consumer behavior, preferences and market demand, enterprises can more accurately locate target customer groups and formulate personalized marketing strategies, thereby optimizing resource allocation and improving marketing efficiency and

effectiveness.[1] In addition, big data analysis can also help enterprises predict market trends and adjust strategic directions in a timely manner to ensure that they have the upper hand in the fierce market competition. This study aims to deeply explore the specific application of big data analysis in marketing, including but not limited to customer segmentation, precision marketing, market forecasting and other aspects. At the same time, it will further analyze how big data analysis can improve the scientificity and accuracy of marketing decisions, thereby affecting and enhancing the comprehensive competitiveness of enterprises. Through this study, it is hoped that it can provide theoretical guidance and practical reference for the marketing practice of enterprises in the era of big data, and help enterprises to move forward steadily in a complex and changing market environment.

Application of big data analysis in marketing

In today's data-driven market environment, big data analysis has become a core component of corporate marketing strategies. By analyzing consumers' clicks, browsing, purchases and other behaviors, big data not only reveals consumer behavior patterns, but also provides companies with the ability to gain in-depth insights into consumer psychology and needs.

The widespread application of big data technology enables companies to record and analyze consumers' online behavior in real time. Every click, page dwell time, purchase record, etc. of consumers are converted into valuable data resources.[2] For example, by analyzing consumers' browsing history, companies can identify consumers' interest in a certain type of product and predict their possible future purchase behavior. In addition, combined with consumers' personal information such as geographic location, age, and gender, big data can further refine consumer portraits and help companies more accurately grasp consumers' preferences and needs. This deep insight provides a scientific basis for companies' product development and marketing strategy formulation.

Based on big data analysis, companies can conduct refined market segmentation based on consumers' multi-dimensional information (such as purchase history, browsing behavior, social media activities, etc.). This segmentation not only helps companies identify the characteristics of different consumer groups, but also reveals the differences in needs and preferences between groups. The importance of market segmentation lies in that it enables companies to develop differentiated marketing strategies for different groups, thereby improving the relevance and effectiveness of marketing activities. For example, for young consumers, companies may be more inclined to adopt social media marketing and creative advertising; while for middle-aged and elderly consumers, they may pay more attention to quality assurance and after-sales service. The application of big data in e-commerce platforms is particularly significant, and personalized recommendation systems have become an important means to improve conversion rates and customer satisfaction. By analyzing consumers' historical purchase records and browsing behaviors, e-commerce platforms can intelligently recommend products that meet consumers' interests and needs.[3] This personalized recommendation not only improves consumers' shopping experience, but also significantly increases product

sales and repurchase rates. In addition, the recommendation system can continuously optimize the recommendation algorithm based on consumer feedback and real-time market trends to ensure the accuracy and timeliness of the recommendations. Big data also plays a key role in real-time tracking and analyzing the effectiveness of marketing activities. By collecting and analyzing data during marketing activities (such as click-through rate, conversion rate, user feedback, etc.), companies can quickly evaluate the effectiveness of marketing activities and adjust strategies based on the evaluation results. This data-driven decision-making method not only improves the efficiency of marketing activities, but also helps companies achieve optimal budget allocation. For example, when a company finds that the conversion rate of a certain channel is lower than expected, it can adjust the budget in time and invest more resources in channels with better performance.

The application of big data analysis in marketing has greatly improved the market competitiveness of enterprises. By deeply understanding consumer behavior, realizing refined market segmentation, providing personalized product recommendations, and evaluating marketing effects in real time, big data provides companies with unprecedented marketing insights and decision-making support.

The impact of big data analysis on corporate competitiveness

In today's data-driven business environment, big data analysis has become a key tool for companies to enhance their competitiveness. It not only optimizes the marketing process and enhances market response speed, but also provides a scientific basis for decision-making, thereby comprehensively enhancing the comprehensive competitiveness of enterprises.

Big data analysis significantly improves the marketing efficiency of enterprises through precise advertising. With the help of advanced algorithms, enterprises can analyze consumers' online behavior, interest preferences and historical purchase records, and then accurately locate the target audience. This precise delivery not only reduces advertising costs, but also significantly improves the click-through rate and conversion rate of advertisements. In addition, big data analysis also plays an important role in solving customer problems and improving customer satisfaction. By analyzing customer feedback and interaction data, companies can quickly identify and solve potential problems, thereby enhancing customer loyalty and improving brand image.

Big data enables companies to respond quickly to market changes and seize market opportunities. By collecting and analyzing market data in real time, companies can gain insight into industry trends, competitor dynamics, and changes in consumer demand. This insight enables companies to quickly adjust market strategies and launch new products or services that meet market demand, thereby gaining an advantage in competition. For example, an e-commerce platform found that consumers’ demand for smart home products was growing by analyzing consumer purchasing behavior, so it quickly adjusted its product strategy, increased the variety and inventory of smart home products, and successfully met market demand.[4] Big data analysis has irreplaceable value in providing enterprises with market information and consumer data. By analyzing massive amounts of data,

enterprises can gain in-depth understanding of market trends, consumer preferences, and competitor dynamics, thereby providing a scientific basis for product development, pricing, and promotion strategy formulation. This data-driven decision-making method not only improves the accuracy and efficiency of decision-making, but also reduces decision-making risks. For example, enterprises can formulate more reasonable pricing strategies to maximize profits by analyzing consumer purchasing power and price sensitivity data.

In summary, big data analysis plays an important role in improving corporate marketing efficiency, enhancing market competitiveness, and assisting decision-making. It not only optimizes the company's operating processes, but also provides scientific and accurate decision-making support for enterprises, thereby comprehensively improving the company's comprehensive competitiveness. With the continuous development and application of big data technology, its role in improving corporate competitiveness will become more and more significant.

Challenges and Countermeasures of Big Data Analysis in Marketing

The application of big data analysis in the field of marketing has brought unprecedented opportunities to enterprises, but it is also accompanied by a series of challenges. These challenges mainly involve data security and privacy protection, data quality and management, and technology and talent issues. This article will analyze these challenges in depth and propose corresponding countermeasures.

When collecting and using user data, enterprises face severe challenges in data security and privacy protection. Data leakage and abuse may lead to serious legal consequences and reputation loss; on the other hand, users' concerns about data privacy may also hinder the collection and use of data. To meet this challenge, enterprises should strengthen data encryption technology to ensure the security of data during transmission and storage.[3] At the same time, enterprises should establish strict privacy protection policies, clearly inform users of the collection, use and protection methods of data, and respect users' privacy rights. In addition, enterprises should conduct security audits and risk assessments regularly to promptly discover and fix potential security vulnerabilities.

Data quality is the basis for the accuracy of big data analysis. However, due to the diversity of data sources, differences in data formats, and the complexity of data processing, enterprises face huge challenges in data quality management. Low-quality data may lead to distorted analysis results, thereby affecting the effectiveness of marketing decisions. To meet this challenge, enterprises should establish a strict data quality management system, including data cleaning, data verification, data standardization and other processes to ensure the accuracy, integrity and consistency of data. At the same time, enterprises should also strengthen data governance, clarify data ownership, data responsibility and data process, and improve the standardization and efficiency of data management.

The application of big data technology requires professional data analysis talents as support. However, there is a shortage of data analysis talents in the market and the training cycle is long, which poses a severe challenge to enterprises in the application of big data technology.[5] To meet this challenge, enterprises should

increase investment in technology research and development, introduce advanced big data analysis technologies and tools, and improve the efficiency and accuracy of data analysis. At the same time, enterprises should actively introduce and cultivate data analysis talents, and establish a high-quality data analysis team through internal training and external recruitment. In addition, enterprises should strengthen cooperation with universities and research institutions to jointly cultivate professional talents in the field of data analysis and provide talent guarantee for the long-term development of enterprises.

In conclusion, the application of big data analysis in marketing faces multiple challenges such as data security and privacy protection, data quality and management, and technology and talent issues. To meet these challenges, enterprises should strengthen data encryption, establish strict privacy protection policies, improve data quality management systems, increase investment in technology research and development, and introduce and cultivate data analysis talents. Through the implementation of these measures, enterprises can make full use of the potential of big data analysis, improve marketing efficiency and effectiveness, and achieve sustainable development.

Conclusion

The application of big data analysis in marketing has not only greatly improved the marketing efficiency and accuracy of enterprises, but also significantly enhanced the market competitiveness of enterprises. By deeply exploring consumer behavior, preferences and needs, enterprises can formulate more personalized marketing strategies, improve the click-through rate and conversion rate of advertisements, thereby optimizing the allocation of marketing resources, reducing costs and increasing profits. At the same time, the challenges of big data analysis in data security and privacy protection, data quality and management, technology and talents have also prompted enterprises to continuously improve the data management system, strengthen technology research and development and talent training, and further enhance the comprehensive competitiveness of enterprises.

In the future, the application prospects of big data technology in the field of marketing are broad. With the continuous advancement of technology and the increasing abundance of data, big data analysis will become more intelligent and automated, providing enterprises with more real-time and accurate market insights and consumer portraits. In addition, the integration and application of big data with other emerging technologies such as artificial intelligence and the Internet of Things will open a new chapter in the marketing field and create more commercial and social value for enterprises. Therefore, enterprises should continue to pay attention to the development of big data technology and actively explore its new applications in the marketing field to seize market opportunities and achieve sustainable development.

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RISK MANAGEMENT STRATEGIES FOR INNOVATIVE PROJECTS IN THE CONTEXT OF DIGITAL TRANSFORMATION

Abstract：*In the era of globalization and digital transformation, enterprises are increasingly leveraging emerging technologies such as cloud computing, big data, and artificial intelligence to enhance operational efficiency and market competitiveness. While innovation projects are crucial in driving digital transformation, they also entail significant risks across multiple dimensions, including technology, market demand, organizational culture, and regulatory compliance. This study explores risk management strategies for innovation projects in the context of digital transformation, aiming to provide a systematic methodology for enterprise managers to identify, assess, monitor, and mitigate risks effectively. By integrating traditional risk management frameworks such as COBIT and ISO 31000 with agile risk management approaches, this research emphasizes the importance of proactive planning, technology risk mitigation, organizational adaptation, market responsiveness, human resource development, and legal compliance. The findings suggest that a comprehensive risk management framework can enhance the success rate of innovation projects and ensure sustainable corporate growth in a highly competitive market. This study not only contributes to theoretical advancements in risk management but also offers practical insights for enterprises navigating the challenges of digital transformation.*

Keywords：*Digital Transformation, Innovation Projects, Risk Management, Agile Risk Management, Enterprise Strategy*

Introduction

In today's era of globalization and informationization, digital transformation has become the core driving force for change in all industries. With the rapid development of cloud computing, big data, artificial intelligence and other advanced technologies, enterprises have embarked on the road of digital transformation, aiming to improve operational efficiency, enhance market competitiveness and develop new business models through technological innovation. This trend has not only reshaped the landscape of traditional industries, but also given rise to many new business models, with far-reaching impacts on the global economic structure.

In the wave of digital transformation, innovation projects, as the vanguard of change, carry the important mission of exploring the unknown and breaking through boundaries. However, innovation is often accompanied by high risks, especially in

multiple dimensions such as technology, market, organization and law. Uncertainty in technology, rapid changes in market demand, adaptive challenges in organizational culture, and increasingly stringent compliance requirements collectively constitute the obstacles in the implementation of innovation projects.[1] In view of this, the purpose of this paper is to discuss in depth the risk management strategy of innovation projects in the context of digital transformation, aiming to provide a set of systematic methodology for enterprise managers to effectively identify, assess, monitor and control all kinds of risks in the process of project implementation. Through scientific risk management, we can not only improve the success rate of innovation projects, but also lay a solid foundation for the sustainable development of enterprises, so as to maintain a leading position in the fierce market competition. This study not only has important theoretical value, but also has significant guiding significance for practice.

Overview of Digital Transformation and Innovation Program

Digital transformation, as an important strategic direction of current enterprise development, refers to the profound changes in business processes, products and services, organizational structure and culture through the adoption of emerging digital technologies, such as cloud computing, big data, artificial intelligence, etc., so as to achieve a significant improvement in operational efficiency, continuous optimization of customer experience, and comprehensive enhancement of market competitiveness. This transformation process involves not only technological innovation, but also a profound management revolution, which requires enterprises to fundamentally re-examine and reconstruct their value creation system. Digital transformation is characterized by its comprehensiveness, continuity and disruption, which requires enterprises to strategically integrate digital technology into every aspect of enterprise development, and promote the transformation of operation mode from traditional linear and static to flexible and dynamic.

In this context, innovation projects have become the key carrier and core driving force of digital transformation. Innovation projects are usually technologically cutting-edge, and they tend to focus on the latest technological trends, such as blockchain, IoT, 5G communications, etc., and are committed to transforming these cutting-edge technologies into actual products or services, thus creating new growth points for enterprises.[2] In addition, rapid iterative nature is another distinctive feature of innovation projects. Driven by the acceleration of digital transformation, the market environment and technological trends are changing rapidly, and innovation projects must maintain a high degree of agility to continuously optimize product functions and service experiences through rapid trial and error and continuous iteration to meet the rapid changes in the market. Cross-disciplinary cooperation is also an important manifestation of innovation projects in digital transformation. With the continuous integration and penetration of technology, the knowledge and skills of a single domain can no longer meet the needs of innovation projects. Therefore, innovation projects often need to cross multiple fields such as technology, market, management, etc., integrate resources

and wisdom from different specialties, and form a synergy of collaborative innovation. This cross-discipline cooperation model not only helps to break down traditional barriers and promote the sharing and exchange of knowledge and technology, but also stimulates new ideas and inspirations and promotes the in-depth development of innovation projects.

There is a close and mutually reinforcing relationship between digital transformation and innovation projects. Digital transformation provides unprecedented innovation opportunities for enterprises and promotes the continuous emergence and rapid development of innovation projects; on the other hand, the successful implementation of innovation projects further accelerates the process of digital transformation of enterprises and enhances the overall competitiveness and market position of enterprises.[3] Therefore, in the context of digital transformation, innovation projects are not only an important hand for the transformation and upgrading of enterprises, but also an important engine for promoting the continuous innovation and development of enterprises.

Analysis of Major Risks Faced by Innovation Projects in Digital Transformation

In the wave of digital transformation, innovation projects, as the key driving force for enterprise transformation and upgrading, and their successful implementation are of decisive significance for the long-term development of enterprises. However, this process is not a straight path, and innovation projects face multi-dimensional risk challenges in the implementation process.

Technology risk is the first and foremost challenge that cannot be ignored in innovation projects. Lack of technological maturity may lead to technical bottlenecks in the implementation process, making it difficult to achieve the expected results. At the same time, the rapid updating and iteration of technology makes the project face the risk of obsolescence, and the initial investment may depreciate rapidly. In addition, data security and privacy protection issues are becoming more and more prominent, and any data leakage or privacy infringement may bring serious legal consequences and reputation loss to the enterprise. Organizational culture and management risks also warrant vigilance. A corporate culture that resists change will seriously hinder the advancement of innovation projects, making it difficult to get projects off the ground. Organizational structures that do not adapt to rapid change will affect the efficiency of decision-making and execution of the project. Inadequate leadership may lead to a lack of clear direction and strong impetus, resulting in slow progress or even failure.

Market and competitive risks are also challenges that innovation projects must face. Changes in market demand may cause the project's products or services to be out of step with market demand and lose market competitiveness. The fast response of competitors may make the project in the market in a passive position, difficult to occupy the first opportunity.[4] The uncertainty of market acceptance increases the risk of project success and requires companies to have strong market insight and resilience. Human resource risks should also not be ignored. Talent shortages may lead to a lack of critical skills and experience in the project team,

which may affect the effectiveness of the project. Skill mismatches can lead to ineffective collaboration among project team members, reducing project efficiency. Employee resistance to new technologies may lead to internal conflict, undermining the cohesion and execution of the project team. Legal and compliance risks are the bottom line for innovation programs. Increasingly stringent data protection regulations require organizations to strengthen data management and protection to avoid legal risks. Intellectual property disputes can lead to legal disputes, affecting an organization's ability to innovate and be competitive in the marketplace. The compliance challenges of multinational operations require enterprises to strictly comply with the laws and regulations of each country in the process of globalization to ensure compliant operations.

In summary, the risks faced by innovation projects in digital transformation are complex and varied, requiring enterprises to have comprehensive risk identification, assessment and control capabilities to ensure the smooth implementation of projects and the sustainable development of enterprises.

Application of Risk Management Theoretical Framework in Digital Transformation

As a core component of enterprise management, the basic concept of risk management covers the four key aspects of risk identification, assessment, monitoring and control, aiming to reduce the impact of uncertainty on the achievement of corporate goals through a systematic process. In the context of digital transformation, the importance of risk management is particularly high, and it needs to be combined with specific frameworks and agile methods to adapt to the rapidly changing environment.

Traditional risk management tools, such as risk matrices and Monte Carlo simulations, provide an effective means of quantifying risk. However, digital transformation projects require a more refined management framework due to their complexity and uncertainty. the COBIT (Control Objectives for Information and Related Technology) framework, which emphasizes information technology governance and control, provides a structured guide for information security management in digital transformation. The ISO 31000 Risk Management Principles and Guidelines provide a comprehensive risk management framework that applies to the entire life cycle of digital transformation projects, from strategic planning to implementation, ensuring the systematic and effective management of risk. In the face of the rapid iterative nature of digital transformation projects, the agile risk management methodology has emerged. The approach emphasizes user-centricity, rapid feedback and continuous improvement, and ensures that projects maintain flexibility while effectively controlling risks through an iterative risk management cycle. Agile risk management focuses on teamwork and encourages cross-departmental communication in order to identify and respond to risk changes in a timely manner, while using agile tools such as Kanban boards and burndown charts to visualize and make risk management transparent, ensuring that the project moves forward robustly in an uncertain environment.

In conclusion, combining the theoretical framework of risk management with the specific needs of digital transformation and adopting an agile risk management approach is the key to ensuring the success of digital transformation projects. This not only requires enterprises to have a deep theoretical foundation in risk management, but also to continuously explore and innovate in practice in order to adapt to the challenges and opportunities brought by digital transformation.

Risk Management Strategies for Innovation Projects in the Context of Digital Transformation

In the wave of digital transformation, innovation projects, as a key driver of enterprise transformation and upgrading, face multi-dimensional risk challenges for their successful implementation. In order to ensure the sound promotion of the project and the sustainable development of the enterprise, it is necessary to construct a set of comprehensive and systematic risk management strategies.

Pre-planning and prevention strategy is the foundation of risk management. During the project start-up phase, enterprises should comprehensively identify potential risks through in-depth research and expert consultation, and quantitatively assess the risks using tools such as risk matrix. Based on the assessment results, a detailed risk mitigation plan should be formulated, and risk response strategies and responsible persons should be clearly defined to lay a solid foundation for subsequent risk management. Through adequate preparation in the early stages, enterprises can effectively avoid or reduce risks at the beginning of the project to ensure the smooth launch of the project.

Technology risk management strategy is the core of digital transformation project risk management. When selecting technology, enterprises should comprehensively consider the maturity, stability, compatibility, and future development trend of the technology, and avoid selecting technologies with short technology life cycles and insufficient support. During project implementation, establish a continuous monitoring mechanism to identify and resolve technical failures in a timely manner to ensure the stable operation of the project. At the same time, backup and recovery plans are formulated to ensure that in extreme situations such as data loss or system crash, business operations can be resumed quickly to minimize losses.

Organizational and cultural change strategies are critical to the success of innovation projects. Enterprises should actively promote the establishment of a cultural atmosphere that supports innovation, encourage employees to dare to try and fail, and form an open and inclusive innovation ecosystem. Optimize the organizational structure, break down departmental barriers, promote cross-departmental collaboration, and improve decision-making efficiency. Strengthen leadership training, enhance leaders' awareness of change and risk management capabilities, and ensure that the project moves forward steadily in a complex and changing environment.

Market-adaptive strategies help companies better respond to changes in market demand. Through rapid trial and error, enterprises can quickly find a suitable development path for themselves in the market.[5] Establish a user feedback loop,

collect and analyze user opinions in a timely manner, and continuously optimize products and services. Adopt flexible pricing strategy, adjust the price according to the market demand and competitive situation, and improve market competitiveness.

Human resource development strategy is an important guarantee for innovative project risk management. Enterprises should strengthen employee training and re-education, enhance employees' professional skills and innovation ability, and ensure that the team has the ability to cope with complex challenges. Establish a diversified team to attract talents from different backgrounds to join and promote knowledge sharing and creative collision. Stimulate employees' motivation and creativity through a perfect talent incentive mechanism to provide talent protection for the successful implementation of the project.

Legal compliance and risk management are the bottom line that cannot be ignored in innovation projects. Enterprises should establish a compliance review mechanism to ensure that all activities of the project meet the requirements of laws and regulations. Utilize legal tools to protect intellectual property rights and maintain the core competitiveness of the enterprise. For enterprises with multinational operations, they also need to ensure the compliance of their international business to avoid legal risks and reputational losses caused by compliance issues.

To sum up, the risk management strategy for innovation projects in the context of digital transformation needs to cover various aspects such as pre-planning and prevention, technology risk management, organizational and cultural change, market adaptability, human resource development and legal compliance. By building a comprehensive and systematic risk management framework, enterprises can effectively deal with various challenges in the process of digital transformation and ensure the successful implementation of innovation projects and the sustainable development of enterprises.

Conclusion

In this paper, we have discussed the risk management strategy of innovation projects in the context of digital transformation, revealing the core points and effective strategies of risk management. We emphasize that pre-planning and prevention, technology risk management, organizational and cultural change, market adaptation, human resource development, and legal compliance constitute a comprehensive framework for innovation project risk management. The implementation of these strategies not only helps enterprises effectively identify, assess and control risks in the process of digital transformation, but also enhances their innovation capability and market competitiveness. In the future, risk management strategies will face new challenges as technology continues to advance and markets change rapidly. For example, the widespread application of artificial intelligence, big data and other technologies may bring new technical risks; the trend of diversification and personalization of market demand will require enterprises to have stronger market adaptability and flexibility. Therefore, enterprises need to continuously update their risk management concepts and methods to adapt to new environmental changes.

For enterprise managers, risk management should be incorporated into enterprise strategic planning, and a long-term risk management mechanism should be established to ensure the sound promotion of innovation projects. At the same time, policy makers should also pay attention to risk management in digital transformation, formulate relevant policies and regulations, and provide enterprises with a favorable external environment and policy support. Through the cooperation between government and enterprises, we can jointly promote the healthy development of digital transformation and inject new vitality into economic and social development.

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