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## **BOSHLANG'ICH TA'LIMDA O'QUVCHILARDA SHAXSLARARO MUNOSABATLARGA KIRISHISH KO'NIKMALARINI SHAKLLANTIRISH IMKONIYATLARI**

*Annotatsiya. Maqolada boshlang'ich ta'limda o'quvchilarda shaxslararo munosabatlarga kirishish ko'nikmalarini shakllantirish imkoniyatlari haqida so'z boradi.*

*Kalit so'zlar: boshlang'ich ta'lim, shaxslararo munosabatlar, ko'nikma, ijtimoiy ong, innovatsion texnologiyalar.*

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## **OPPORTUNITIES FOR FORMING INTERPERSONAL RELATIONSHIP SKILLS IN STUDENTS IN PRIMARY EDUCATION**

*Abstract. The article talks about the possibilities of forming interpersonal skills in students in primary education.*

*Key words: primary education, interpersonal relations, skills, social consciousness, innovative technologies.*

Zamonaviy ta'limda muhim bo'lgan shaxslararo munosabatlarga kirishish ko'nikmalarini rivojlantirish o'quvchilarni boshlang'ich sinfdanoq mustaqil fikrlashga o'rgatish masalasini hal qilishda muhim omillardan biri hisoblanadi. Bugungi kunda sifatli ta'lim-tarbiya berish maqsadida samarali ta'lim vositalarini yaratish va ularni amalda qo'llash, yangilarini egallash, XXI asr ta'lim muhitini ilgari surish va rivojlantirish kabi muhim masallar bugungi kun uchun dolzarbdir.

Ushbu masalani to'laqonli hal qilish maqsadida O'zbekiston Respublikasi Vazirlar Mahkamasining 2017 yil 6 apreldagi "Umumiy o'rta va o'rta maxsus, kasb-hunar ta'limining davlat ta'lim standartlarini tasdiqlash to'g'risida"gi 187 sonli Qarori tasdiqlandi va yangi o'quv yilidan boshlab barcha ta'lim muassasalarida joriy etilishi belgilab berildi. Davlat ta'lim standartining maqsadi - umumiy o'rta ta'lim tizimini mamlakatda amalga oshirilayotgan ijtimoiy-iqtisodiy islohotlar, rivojlangan xorijiy mamlakatlarning ilg'or tajribalari hamda ilm-fan va zamonaviy axborotkommunikatsiya texnologiyalariga asoslangan

holda tashkil etish, ma'naviy barkamol va intellektual rivojlangan shaxsni tarbiyalashdan iborat.

XXI asrga xos bo'lgan shaxsga yo'naltirilgan ta'lim uslubida asosiy e'tibor o'quvchining ehtiyoj va qiziqishlariga qaratilgan bo'lib, uning markazida o'qituvchining xohish va istaklari o'rin olgan bo'lib, an'anaviy ta'limdan farqlanadi. Binobarin, mazkur uslublarning har birini qamrab oluvchi mavzular, ko'rsatmalar, sinf xona muhiti, baholash mexanizmi va texnik qo'llanmalardan foydalanish kabi masalalarda turli xil yondashuvlarga asoslanilgan holda kafolatlangan natijani ta'minlash, ko'zlangan maqsadga erishishni nazarda tutadi. Ta'lim berishdagi zamonaviy yondoshuvlarni rivojlantirish o'quvchilarda teran fikrlashga ega bo'lishni, shaxslararo munosabatlarda ishlashni rivojlantirishni talab etadi. O'quvchida quyidagi kompetensiyalar shakllanishiga ko'maklashadi:

- ko'p qirrali, murakkab vazifalarni amalga oshirishga o'rganishi;
- har bir muammo xususida chuqur fikrlash va o'z bilimini oshirib borishni boshqara olishi;

- o'z tengdoshlari, o'qituvchilar va mutaxassislar bilan chuqur mulohazani talab etuvchi muhim vazifalarni bajarishda shaxslararo munosabatlar qila olishlari;

- qarorlar qabul qilish, muammolarni hal etish va yangi fikrlar yaratishda texnologiyalardan foydalana olish.

Yuqoridagi fikrlardan kelib chiqqan holda boshlang'ich sinflardan boshlab o'quvchilarda:

- *Mas'uliyat va moslashuvchanlik;*
- *Muloqot qilish ko'nikmalari;*
- *Ijodiylik va qiziquvchanlik;*
- *Tanqidiy fikrlash va tizimli fikrlash;*
- *Axborot va ommaviy axborot vositalaridan foydalanish;*
- *Shaxslararo va shaxslararo munosabatlar;*
- *Muammolarni aniqlash, shaklga solish va yechimini topish;*
- *O'z-o'zini yo'naltirish;*
- *Ijtimoiy mas'uliyat.*

Boshlang'ich ta'limda shxslararo munosabatlarni rivojlantirish orqali o'quvchilarga bilim berish natijasida ular har bir fan bo'yicha qo'yilgan malaka talablarini egallash, fanga oid xususiy va tayanch kompetensiyalarni o'zlashtirib olish imkoniyatlariga ega bo'ladilar.

Ta'lim-tarbiya jarayoni shaxslararo munosabatlarda o'qitish asosida tashkil etilganda o'quvchilar o'z ko'nikmalarini yaxshiroq shakllantirishga erishadilar, har bir mavzuni o'zlashtirish maqsadida tanlangan usul va vositalardan samarali foydalanib, uni amaliyotning muhim tarkibiy qismlarida tadbiiq etish orqali amalga oshiradilar.

Boshlang'ich ta'limda o'quv-biluv jarayonini shaxslararo munosabatlar asosida tashkil etish va rivojlantirish Davlat ta'lim standartining quyidagi asosiy prinsiplarga ham asoslanadi:

- o'quvchi shaxsi, uning intilishlari, qobiliyati va qiziqishlari ustuvorligi;
- umumiy o'rta ta'lim mazmunining insonparvarligi;
- Davlat ta'lim standartining ta'lim sohasidagi davlat va jamiyat talablariga, shaxs ehtiyojiga mosligi;

- umumiy o'rta ta'limning mazmuni, shakli, vositalari va usullarini tanlashda innovatsiya texnologiyalariga asoslanilganligi;

- o'quvchilarda fanlarni o'rganish va ta'lim olishni davom ettirish uchun tayanch va fanlarga oid umumiy kompetensiyalarni rivojlantirishning ta'minlanganligi;

- rivojlangan xorijiy mamlakatlarning ta'lim sohasida me'yorlarni belgilash tajribasidan milliy xususiyatlarni hisobga olgan holda foydalanish

Ta'limning uzluksizligi, uzviyligi, o'quvchi shaxsi va qiziqishlari ustuvorligidan kelib chiqib, ularning yosh xususiyatlariga mos ravishda boshlang'ich sinflardan boshlab quyidagi tayanch kompetensiyalar:

- *Kommunikativ kompetensiya*

- *Axborotlar bilan ishlash kompetensiyasi*

- *O'zini o'zi rivojlantirish kompetensiyasi*

- *Ijtimoiy faol fuqarolik kompetensiyasi*

- *Milliy va umummadaniy kompetensiya*

- Matematik savodxonlik, fan va texnika yangiliklaridan xabardor bo'lish hamda foydalanish umumta'lim fanlari orqali o'quvchilarda shakllantiriladi.

Dars jarayonlarida ko'pincha o'quvchilar qo'yilgan maqsadlarga erishish yo'lida shaxslararo munosabatlarda ishlashga undaladilar. Shaxslararo munosabatlar jamoa bo'lib ishlashni, ya'ni bir yoki undan ko'p insonlar bilan maqsadlarni belgilab olish va ularga birgalikda erishishni talab etadi. Tadqiqotlar shuni ko'rsatadiki, shaxslararo munosabatlar o'quvchilarga o'zlashtirishda muvaffaqiyatga erishish imkoniyatlarini yaratib beradi. Chunki, ushbu uslub orqali o'quvchilar savollar bilan murojaat qilishlari, fikrlar xususida bahs yuritishlari, yechimlarni qidirishlari, teran fikrlashlari hamda dars mavzusini chuqurroq tushinishga erishishlari mumkin. Shuningdek, navbat bilan harakat qilish, o'rtoqlashish, boshqalarga ko'maklashish hamda boshqalarning yordamini qabul qilish kabi ko'nikmalarni aynan shaxslararo munosabatlar uslubi orqali shakllantirish mumkin. Shaxslararo munosabatlar qiluvchi guruhlar yoki juftliklar ko'plab uslublar orqali tashkil etilishi mumkin:

O'qituvchilarga ushbu bo'limdagi barcha amaliyotlarni bajarishda birgalikda ishlaydigan juftliklarni tuzish tavsiya etiladi. Bundan ko'zlangan maqsad ikki o'quvchi birgalikda dars o'zlashtirishlariga imkon yaratishdir. Shaxslararo munosabatlar qilish ko'nikmasi o'quvchilardan tabiiy ravishda paydo bo'lmasligi va buning uchun rag'batlantirish, rol o'yinlari, bevosita ko'rsatmalar va mashq uchun vaqt talab etilish mumkin. Masalan, birgalikda ishlash uslublari xususida bahs yuritilishi mumkin, jumladan, navbat bilan fikr bildirish, boshqalar gapirayotganda quloq solish orqali hamda o'z o'zlashtirish jarayoniga mas'uliyat



his etish orqali. O'quvchilar shaxslararo munosabatlar qilganlarida va birgalikda ish olib borganlarida o'qituvchilar guruhlardagi barcha o'quvchilar:

- Ishtirok etishlari va o'zlarini jarayonning bir qismi sifatida his etishlarini.
- Ko'zlagan natijalariga erishish yo'lida o'z maqsadlari va rejalarini kelishib olishlariga.

- O'z natijalariga erishish uchun ularga ajratilgan bo'limlar ustida ishlashlariga.

- Birgalikda bajargan ishlarini qanday yaxshilash mumkinligi xususida birga bosh qotirishlari.

- O'zlari bajargan ish xususida gapirishlari va fikr bildirishda birbirlariga yordam berishlarini ta'minlashlari lozim.

Har qanday texnik va texnologik jihatdan to'g'ri tashkil etilgan, shaxslararo munosabatlar asosida olib borilgan dars jarayoni natijasida:

- O'quvchida o'ziga va ishiga mas'uliyatli bo'lish;

- Har qanday jarayonga moslasha olish ko'nikmasini tarbiyalash bilan birga o'ziga va boshqalarga nisbatan yuqori marra va standartlarni belgilash va ularga erishishga intilish;

- Turli xil shakl va mazmundagi samarali og'zaki, yozma va multimediyaga asoslangan muloqotni anglash, boshqarish va ijod qilish;

- Yangi g'oyalar o'ylab chiqish, ularni amalga oshirish va boshqalarga ham ma'lum qilish;

- Kutilmagan yangi va turli imkoniyatlarga tayyor turish;

- Masalani anglashda va murakkab qarorlar qabul qilishda puxta dalillar keltirish;

- Turli xil shakllarda va vositalar orqali axborotlarni tahlil etish, baholash, boshqarish va yangi ma'lumotlar yaratish;

- Jamoada ishlay olish va yetakchilik qobiliyatlarini namoyon etish;

- Turli xil rollar va mas'uliyatlarni qabul qila olish va boshqalar bilan birgalikda samarali mehnat qila olish;

- Shaxsiy tushunish va o'rganish ehtiyojlarini kuzatib borish;

- Topshiriqlarni hal qilishga yordam beruvchi va mos keluvchi manbalarni aniqlash;

- Jamiyat foydasini nazarda tutgan holda mas'uliyat bilan harakat qilish;

- Shaxsiy hayotda, ish o'rnida va jamiyat orasida odob va axloq bilan ish tutish kabi ko'nikmalar shakllanadi.

Zero, XXI asrga xos shaxslararo munosabatlar asosida o'qitish va ta'lim olishning zamonaviy usuli o'quvchilarni yuqori darajadagi fikrlash ko'nikmalariga ega bo'lishlarini ta'minlashga xizmat qiladi. Ularni fikrlash chegarasidan tashqariga chiqishga, ijodiy, samarali va odobli fikrlashga undaydi. Bunday fikrlash esa yuqori darajadagi fikrlash ko'nikmalariga ega bo'lishni talab etadiki, bunga tahlil, sintez, o'z fikrlash jarayonini tushuna olish muammolarni yechish va baholash kabi qobiliyatlar kiradi.

Bugungi kunda ta'lim oldida turgan ijtimoiy buyurtma shundan iboratki, o'quv-tarbiya jarayonida o'quvchilarning ijrochilik ko'nikmalarini shakllantirish bilan cheklanmaslik kerak. Vazifaning murakkabligi shundaki, ta'lim-tarbiya o'quvchilarda xulq-atvorning shaxsiy, ichki asoslarini shakllantirishi lozim. Bu amalda o'quvchining shaxsiy sifatlarini namoyon qilish imkonini berishi lozim

O'quvchining shaxsiy sifatлари – bu har bir kishida o'ziga xos tarzda hosil bo'ladigan, uning umumiy qadriyatlarga bo'lgan munosabatini namoyon qiladigan, shaxsiy ahamiyatga ega bo'lgan sifatlaridir. Ular madaniyatlik, ijodkorlik, erkinlik, mustaqillik, tanlov imkoniyatiga egalik, fidoiylik, baynalminallik, shaxsiy yaratuvchilik, bunyodkorlik, o'ziga xoslik, fuqarolik jamiyatiga mansublik, haqgo'ylik, intizomlilik, hamjihatlik, hamdardlik kabilar. Yuqorida ko'rsatilgan talablarni bajarish kabi muhim vazifa har bir mahoratli va kompetentli o'qituvchi zimmasiga ulkan ma'suliyat yuklaydi.

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## **DIGITAL LITERACY IN THE CLASSROOM: PREPARING STUDENTS FOR A DIGITAL WORLD**

*Abstract. Digital Literacy in the Classroom is an essential component of modern education, aimed at preparing students for a rapidly evolving digital world. It involves teaching students how to effectively and responsibly use technology, understand digital content, and engage with online communities. This educational approach encompasses a wide range of skills, including internet navigation, digital communication, online safety, and critical thinking in digital contexts. Digital Literacy is crucial for students to become competent, ethical, and savvy digital citizens, capable of navigating the complexities of the digital landscape in their personal, academic, and future professional lives.*

*Keywords. Digital Literacy, Technology in Education, Online Safety, Critical Thinking, Digital Citizenship, Internet Navigation, Digital Communication, Modern Education, Digital Content, Online Communities.*

Digital Literacy in the Classroom is increasingly recognized as a fundamental aspect of education in the 21st century. With the pervasive influence of technology in all spheres of life, equipping students with digital literacy skills is crucial for their success and safety in the digital age. This approach encompasses not just the ability to use technology, but also the skills to critically evaluate, create, and responsibly engage with digital content. Digital Literacy prepares students to navigate the digital world effectively, fostering their academic, personal, and professional growth.

**Importance of Digital Literacy:** Digital Literacy is vital in a world where technology permeates every aspect of life. It enables students to navigate the digital environment safely and effectively, and prepares them for future careers in an increasingly digital workforce.

**Core Components of Digital Literacy:** These include understanding and using technology, critical thinking and evaluation of digital content, digital communication and collaboration, and online safety and ethics.

**Integration into Curriculum:** Digital Literacy can be integrated into various subjects, using technology as a tool for learning and creativity. It involves teaching students how to research online, evaluate sources, and use digital tools for academic purposes.

**Teaching Strategies and Tools:** Effective strategies include project-based learning using digital tools, teaching safe online practices, and encouraging critical thinking about digital media and information.

**Challenges and Barriers:** Challenges include ensuring equitable access to technology, keeping up with rapidly changing digital landscapes, and addressing the digital divide. As technology continues to evolve, Digital Literacy education needs to adapt, preparing students for emerging technologies and digital trends.

Digital Literacy in the Classroom is essential for preparing students to thrive in a digital world. It equips them with the skills to effectively use technology, critically assess digital information, and engage responsibly in online spaces. As technology continues to advance, the importance of Digital Literacy will only grow, making it a critical component of modern education. It's imperative for educational systems to continuously adapt and update their digital literacy curricula to prepare students for the challenges and opportunities of the digital age.

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## **ENVIRONMENTAL EDUCATION: CREATING ECO-CONSCIOUS CITIZENS**

*Abstract. Environmental Education is a critical aspect of contemporary education, aimed at fostering an understanding and appreciation for the environment, promoting the value of sustainable living, and encouraging individuals to actively engage in environmental conservation. This educational approach integrates knowledge about environmental issues with the development of skills and attitudes necessary to contribute to environmental protection. It seeks to create eco-conscious citizens who are informed, concerned, and motivated to take action for the preservation and improvement of the environment. Environmental Education covers topics like biodiversity, sustainability, and ecological responsibility, promoting a harmonious relationship between humans and nature.*

*Keywords. Environmental Education, Sustainable Living, Eco-Consciousness, Environmental Conservation, Biodiversity, Sustainability, Ecological Responsibility, Environmental Issues, Nature Conservation, Environmental Stewardship.*

Environmental Education is an interdisciplinary approach that combines knowledge about the environment with the development of skills and attitudes necessary for responsible environmental stewardship. It aims to cultivate an understanding of ecological principles and the human impact on the environment, encouraging individuals to engage in sustainable practices and make informed decisions.

**Curriculum and Pedagogy:** The approach integrates environmental themes into various subjects, such as science, geography, and social studies, and utilizes experiential learning methods like field trips, community projects, and hands-on activities to deepen understanding and engagement.

**Role of Educators and Institutions:** Teachers and educational institutions play a pivotal role in shaping environmental consciousness. This involves not only imparting knowledge but also modeling sustainable practices and fostering a culture of environmental responsibility within the school and community.

**Engagement and Advocacy:** A significant aspect of Environmental Education is encouraging active participation in environmental conservation efforts. This includes involvement in community initiatives, advocacy for sustainable policies, and promoting practices like recycling, energy conservation, and biodiversity preservation.

**Challenges and Opportunities:** While Environmental Education faces challenges such as resource limitations and varying levels of community support, it also presents opportunities for innovation, interdisciplinary collaboration, and the development of new educational models.

**Global Perspectives and Cultural Contexts:** Environmental Education varies globally, reflecting different cultural, geographical, and socioeconomic contexts. It is crucial in addressing global environmental challenges, such as climate change, deforestation, and pollution.

Environmental Education is essential in cultivating a generation of informed and responsible citizens who are equipped to address environmental challenges. By integrating environmental literacy with action, it plays a pivotal role in promoting sustainable development and ecological responsibility. While challenges exist, the growing recognition of the importance of environmental stewardship in education suggests a promising future for this field.

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## **THE SPIRITUAL AND MORAL EDUCATIONAL VALUE OF THE WORKS OF MODERN ENLIGHTENER MAHMUDHOJA BEHBUDI**

*Annotation. This article provides information about the national idea, ideological views, promotion of the national idea and the spiritual and moral educational significance of Jadid enlightener Mahmudhoja Behbudi.*

*Key words: Jadid enlighteners, discovery, idea, ideology, Mahmudhoja Behbudi, theater.*

In-depth study of the modernist movement, wide promotion of the noble goals of the intellectuals and progressives who created and worked in that period have been in the constant attention of our state. President Shavkat Mirziyoev addressed this issue in his address to the Parliament on January 24, 2020. The more we study this spiritual treasure, the more we will find the right answers to many questions that still concern us today. The more actively we promote this priceless wealth, the more our people, especially our youth, will realize the value of today's peaceful and free life. " The activity of the Jadids was once again recognized in the Decree "On awarding the representatives of the Enlightenment Jadidism Movement" signed by the President on September 30, 2020. At the beginning of the 20th century, Abdulla Avloni, Mahmudhoja Behbudi, Munavvar Qori Abdurashidkhanov were awarded "For Great Services" for their invaluable contribution to the creation of the national education system and the independence of our country, the freedom and liberty of our people, and the prosperous and prosperous life of future generations. [2]. The movement of Jadidism arose in Turkestan, Caucasus, Crimea and Tatarstan at the end of the 19th century and the beginning of the 20th century. The promotion of new political and social ideas by a number of enlightened individuals laid the foundation for the Jadidism movement. The word Jadid is derived from Arabic and means new. The new political, educational and social processes that began in this period were called modernism or progressive movement. The founder of the movement was Ismoilbek Gaspirinsky from Crimea. In particular, at the end of the 19th century and the beginning of the 20th century, the modernism movement gained importance in the processes of the Turkestan region, and a number of advanced ideas were put forward. At that time, the financial situation of Turkestan residents was difficult, illiteracy and religious fanaticism were widespread among the people. According to the Jadids, the only way to awaken the people from the sleep of heedlessness was to enlighten them. In this way, it was necessary to introduce

new systems and procedures, to open new method schools and to acquaint people with advanced world experience. Therefore, the essence of the Jadidism movement was to bring the thinking of the nation and society to a new level. In order to analyze the emergence and stages of development of modernism movement, it is appropriate to dwell on the historical processes of that period. At the end of the 19th century, Tsarist Russia began to abolish the order of the Khanate after conquering Turkestan. Turkestan's lagging behind in development became known after the construction of the railway, the establishment of the first industrial enterprises, and the new scientific ideas brought to Central Asia by Russian scientists. Due to the monarchy system during the Khanate period, the country still had a medieval way of life. Mahmudhoja Behbudi, Munavvarqori Abdurashidkhanov, Fitrat, Cholpon, Ashurali Zahiri, Ishak Khan Ibrat, Fayzulla Khojayev, Abdulvahid Burkhanov can be noted as modernists in Turkestan. They were at the beginning of the national awakening movement. Mahmudhoja Behbudi was born on January 19, 1875 (1291 Hijri 10th Zulhijja) in the village of Bakhshitepa near Samarkand in the family of a priest. His father, son of Behbudkhoja Salihkhoja, was from Turkestan, a descendant of Ahmad Yassavi, his maternal grandfather was Niyozkhoja from Urganch, who came to Samarkand during the reign of Amir Shahmurad (1780-1785). Through traditional education, and then diligently and persistently working on himself, he rises to the highest positions of Sharia - qazi, mufti. In 1899-1900, Behbudi went on a pilgrimage with his friend Haji Baqo from Bukhara. Behbudi witnessed many wonderful events during his trip. Especially during the trip, he will strengthen his views about the new school. In 1903-1904, Mahmudhoja went to Moscow and Petersburg, in 1906 he was in Kazan, Ufa, and Nizhny Novgorod. This was a business trip, not a trip. Our country has gained fame as a land of great scientists and saints who made a great contribution to the development of world civilization and science. It is of great importance to promote the life and work of our great thinkers, who are the roots of our spirituality, and their ideas that influence the spiritual and moral education of our youth today. You can learn to think about strength, what is homeland and soil. It is known that the socio-political, educational movement that arose in Turkestan at the end of the 19th century - the beginning of the 20th century brought enlightened persons - jadids - to the stage of history. Such encyclopedic scholars as Mahmudhoja Behbudi, Munavvarqori Abdurashidkhanov, Abdurauf Fitrat, Ubaidullohoja Asadullohojayev, Abdulla Avloni are among them. They sought to use their knowledge for the development of the nation and society, and did not spare their money when the opportunity arose. Writer, publicist, pedagogue, scientist, religious and public figure Mahmudhoja Behbudi was one of the founders and leaders of the Jadidism movement in Turkestan. He "was not only a theoretician of enlightenment and educational work, but also showed enthusiasm in the development of the country's education from the practical side. " Also, Behbudi compared the reform of the lower and upper school to the reform of the nation and considered it a national

idea. Jadidlar started to issue newspapers and magazines that have become a space for exchange of ideas, promotion of advanced ideas and opinions, debates, reflect democratic values, can raise the opposition of opinions, and cover critical articles on socio-political topics For example, the "Oyina" magazine, edited by Mahmudhoja Behbudi, published various articles on the nation and its rights, history, language and literature issues, and the situation in the world in order to spread enlightenment and culture. In his time, Behbudi was one of the people who demanded the rights of himself and his people after seeing the poor condition of the nation and the invasion policy of Tsarist Russia. In the title of one of his articles, he put "Rights are earned, not given". The following negative habits characteristic of a person only when moral education is properly implemented in the family: rudeness, arrogance, depression, laziness, pride, the formation of such moral qualities as greed, betrayal, greed, avarice, patriotism, impatience, ignorance, disbelief, injustice, lying, anger, cruelty, disrespect for elders, disrespect for minors, indiscipline is achieved.

In conclusion, the spiritual and moral educational value of Mahmudhoja Behbudi's works is of great importance in teaching students. It helps to increase the competence of spiritual and moral education of students.

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## **MEDICINES USED IN THE TREATMENT OF VITILIGO**

*Abstract. The characteristics of vitiligo in 41 adults presenting to a university dermatology clinic in Sheffield, UK were studied in a case review. Of 41 patients, 29 women and 12 men, there were 37 European Caucasians, three Asian Caucasians and one black African. Symmetrical and acrofacial types of vitiligo predominated but there were no segmental cases.*

*Keywords: vitiligo, acrofacial, trauma, melanin, vitamin.*

Age of onset was before 20 years in 17, with a mean of 28 years; the oldest onset was 74 years. The average duration of the disease was 16 years. Autoimmune thyroid disease was present in 14 cases (34%). Only seven (18%) gave a family history of vitiligo. A precipitating factor was identified in nine (22%), including pregnancy, sunburn and skin trauma. Topical steroid treatment was given in 33 and narrow-band ultraviolet B was prescribed in nine. This series is unusual in having no cases of segmental vitiligo, perhaps because no children are included, and in having a high prevalence of thyroid disease.

Vitiligo is a disease that causes loss of skin color in patches. The discolored areas usually get bigger with time. The condition can affect the skin on any part of the body. It can also affect hair and the inside of the mouth.

Normally, the color of hair and skin is determined by melanin. Vitiligo occurs when cells that produce melanin die or stop functioning. Vitiligo affects people of all skin types, but it may be more noticeable in people with brown or Black skin. The condition is not life-threatening or contagious. It can be stressful or make you feel bad about yourself.

Treatment for vitiligo may restore color to the affected skin. But it doesn't prevent continued loss of skin color or a recurrence.

Vitiligo signs include:

- 1) Patchy loss of skin color, which usually first appears on the hands, face, and areas around body openings and the genitals
- 2) Premature whitening or graying of the hair on your scalp, eyelashes, eyebrows or beard.
- 3) Loss of color in the tissues that line the inside of the mouth and nose (mucous membranes).

Vitiligo can start at any age, but usually appears before age 30.

Depending on the type of vitiligo you have, it may affect

- 1) nearly all skin surface: with this type, called universal vitiligo, the discoloration affects nearly all skin surfaces.



2) many parts of the body: with this most common type, called generalized vitiligo, the discolored patches often progress similarly on corresponding body parts (symmetrically).

3) only one side or part of the body: this type, called segmental vitiligo, tends to occur at a younger age, progress for a year or two, then stop.

4) one only or few areas of the body: this type is called localized (focal) vitiligo.

5) the face and hands: with this type, called acrofacial vitiligo, the affected skin is on the face and hands, and around body openings, such as the eyes, nose and ears.

It's difficult to predict how this disease will progress. Sometimes the patches stop forming without treatment. In most cases, pigment loss spreads and eventually involves most of the skin. Occasionally, the skin gets its color back.

Vitiligo occurs when pigment-producing cells (melanocytes) die or stop producing melanin — the pigment that gives your skin, hair and eyes color. The involved patches of skin become lighter or white. It's unclear exactly what causes these pigment cells to fail or die. It may be related to: a disorder of the immune system (autoimmune condition), family history (heredity), a trigger event, such as stress, severe sunburn or skin trauma, such as contact with a chemical.

**Skin Layers of melanin:** Melanin is a natural pigment that gives your skin its color. It's produced in cells called melanocytes.

People with vitiligo may be at increased risk of: social or psychological distress, sunburn, eye problems, hearing loss.

See your health care provider if areas of your skin, hair or mucous membranes lose coloring. Vitiligo has no cure. But treatment might stop or slow the discoloring process and return some color to your skin.

The physical presence of developed, amelanotic, non-scaly, chalky-white macules with transparent edges in a characteristic dispersion in the mouth, tips of the lower extremity, genitalia, and segment and sites of friction usually yields an unambiguous identification of vitiligo. Additional chemical testing is usually not required to establish vitiligo identification. A skin biopsy or additional testing is rarely required other than to rule out other illnesses. Non-invasive methods for determining whether a condition lacks melanocytes include in vivo confocal imaging and a skin sample. According to the histopathology of a vitiligo patch's center, the epidermis's melanin pigmentation has completely disappeared, and no melanocytes are found. Lymphocytes were only occasionally seen at the lesions' expanding edges. Portable ultraviolet (UV) illumination equipment that generates ultraviolet A (UVA), such as a Wood's lamp, could aid in the diagnosis of vitiligo. It aids in the destruction of localized melanocyte and detects regions of depigmentation that may never be visible to human sight, particularly in those with light skin. Under Wood's light, the vitiligo spots glow brightly blue-white and have distinct borders. Dermoscopy was used to distinguish vitiligo from other

depigmenting diseases. Several hypopigmentation syndromes lack residual perifollicular pigmentation and telangiectasia, which are typical vitiligo features.

1) Topical treatment corticosteroids:

Corticosteroids have a significant medicinal impact in vitiligo by regulating and suppressing the inflammatory response. Topical corticosteroids (TCS) are the first-line treatment for vitiligo, whether potent (betamethasone valerate) or highly potent (clobetasol propionate). The therapeutic effects are stronger in sun-exposed areas, whereas acral zones typically produce poor results.

2) vitamin D3 Analogous (D3A):

Topical vitamin D3 analogues (D3A) are not effective as a stand-alone treatment for vitiligo due to their immunomodulatory properties, which decrease T cell function, promote melanocyte formation, and induce melanogenesis. Nonetheless, they are useful as supplements to other treatments. The optimum dosage for four weeks when applying the ointment and eight weeks when applying the cream is 100 g weekly on 30% of the body area, plus a combination of calcipotriol 0.005% and betamethasone 0.05%.

Vitiligo is a multivariate skin condition with a complicated pathophysiology. Despite recent significant advances in human knowledge of this condition, the origin and pathophysiology of vitiligo remain unknown. There are still questions about what causes melanocyte degeneration, and more research is needed to fully understand the etiology of vitiligo. It is critical to understand the biological messengers and molecular processes that result in metabolic abnormalities, melanocyte destruction, and autoimmune disorders to find novel treatment objectives and medications that may arrest the spread of the illness and possibly treat vitiligo. Natural cytokine-targeting treatments have been shown to be effective in treating conditions such as psoriasis and vitiligo. As a result, attacking the interferon (IFN)-chemokine axis with current or future medicines is appealing and intriguing. The inconsistent therapeutic progress and recurring nature of vitiligo medication can be discouraging at times. Customized treatment plans must be developed based on the type of vitiligo, whether it is active, and the side effects of the drug. There are only a few vitiligo treatments available, and none of them can reliably cause repigmentation in every individual. Additional scientific and therapeutic research is required to develop new therapeutic strategies and gain a better understanding of the vitiligo etiology. Many new medicines are on the horizon, and the majority of information about them is provided by case studies or episodes. Additional randomized controlled trials are required to accurately assess their effectiveness.

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## **LEARNING ANALYTICS: DATA-DRIVEN APPROACHES IN EDUCATION**

*Abstract. Learning Analytics refers to the collection, measurement, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs. This emerging field, at the intersection of data science and education, leverages big data and educational technology to enhance teaching and learning experiences. Learning Analytics focuses on improving student outcomes, personalizing education, and informing educational decisions through data-driven insights. It encompasses the analysis of student engagement, performance, and behavior, offering a comprehensive approach to understanding the educational process.*

*Keywords. Learning Analytics, Data-Driven Education, Educational Technology, Big Data, Student Outcomes, Personalized Learning, Student Engagement, Performance Analysis, Educational Decision-Making, Learning Environments.*

Learning Analytics is a rapidly growing field in education, utilizing data analysis to enhance learning experiences and outcomes. It involves collecting and analyzing data from various sources, including online learning platforms, student information systems, and digital learning tools, to gain insights into student learning processes. This approach helps educators understand how students learn, identify patterns and trends, and make informed decisions to improve teaching strategies and learning environments. Learning Analytics is increasingly recognized for its potential to personalize learning, improve academic achievement, and streamline educational administration.

**Foundational Concepts:** Learning Analytics combines data analytics with educational theory. It employs statistical, machine learning, and data mining techniques to analyze educational data, providing insights into student learning behaviors and outcomes.

**Data Collection and Analysis:** Key data sources include learner interaction with online platforms, assignment submissions, grades, and attendance records. Analysis of this data helps in identifying at-risk students, predicting academic success, and understanding the effectiveness of teaching methods.

**Applications in Education:** Learning Analytics finds applications in various educational settings, from K-12 to higher education. It supports personalized learning, adaptive learning environments, and curriculum development. It also aids in institutional decision-making and policy formulation.

**Benefits and Challenges:** The benefits of Learning Analytics include enhanced student performance, early identification of learning difficulties, and optimized learning pathways. However, challenges such as data privacy, ethical considerations, and the need for robust data infrastructure must be addressed.

**Emerging Trends and Future Directions:** The field is evolving with advancements in AI and machine learning. Future directions include more sophisticated predictive models, integration with artificial intelligence, and the development of more intuitive and user-friendly analytics tools.

Learning Analytics represents a transformative approach in education, harnessing the power of data to inform and enhance the learning experience. It offers valuable insights into student learning patterns, enabling educators to tailor their teaching strategies and improve educational outcomes. Despite challenges related to data privacy and the complexity of data analysis, the potential of Learning Analytics to personalize education and drive informed decision-making is substantial. As technology continues to advance, Learning Analytics is poised to play an increasingly significant role in shaping the future of education.

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## **CONSTRUCTIVIST TEACHING: BUILDING KNOWLEDGE THROUGH ACTIVE LEARNING**

*Abstract. Constructivist Teaching is an educational approach grounded in the belief that learning occurs as learners actively construct their own knowledge and understanding of the world, through experiences and reflecting on those experiences. This approach contrasts with traditional forms of education that often emphasize passive reception of knowledge. Constructivist Teaching encourages exploration, questioning, and experimentation, allowing learners to build their knowledge base and understandings through active engagement.*

*Keywords. Constructivist Teaching, Active Learning, Knowledge Construction, Learner-Centered Activities, Collaborative Learning, Exploration, Critical Thinking, Problem-Solving, Educational Theory, Reflective Thinking.*

Constructivist Teaching is a pedagogical approach based on the constructivist learning theory, which posits that learners construct knowledge rather than simply absorb it. This method centers around the learner's active participation in the learning process, facilitating understanding through experiences, interaction, and reflection. It encourages learners to question, explore, and engage critically with content, fostering deeper understanding and retention. Constructivist Teaching shifts the focus from teacher-centered instruction to a more learner-centered approach, where the teacher acts as a guide or facilitator rather than a transmitter of knowledge.

**Foundational Principles:** Constructivist Teaching is based on theories by educators such as Jean Piaget and Lev Vygotsky, who emphasized the active role of learners in constructing their own understanding. Knowledge is seen as a construct developed by learners through interaction with their environment and through the interpretation of experiences.

**Instructional Strategies:** Strategies in constructivist teaching include problem-based learning, inquiry-based learning, and project-based learning. These methods encourage learners to explore, investigate, and engage in hands-on activities, thereby constructing knowledge through experience.

**Role of the Teacher:** In this approach, the teacher's role is to create a learning environment that encourages exploration and facilitates learning. Teachers guide, mentor, and scaffold learning experiences, rather than directly imparting knowledge.

**Benefits and Challenges:** Benefits include enhanced critical thinking skills, improved problem-solving abilities, and greater learner engagement.



However, challenges can arise in implementing constructivist strategies effectively, particularly in traditional education systems and with large class sizes.

**Impact on Learner Outcomes:** Research has shown that constructivist teaching can lead to deeper understanding of material, better application of knowledge, and increased motivation and self-confidence in learners.

**Contemporary Applications:** Constructivist principles have been applied in various educational settings, including primary, secondary, and higher education. Its influence is also evident in the design of modern educational technology and e-learning environments.

Constructivist Teaching offers a dynamic and engaging approach to education, emphasizing active learning and the construction of knowledge. By focusing on learner-centered activities and encouraging exploration and critical thinking, it prepares learners to navigate and understand an increasingly complex world. While there are challenges in its implementation, the potential benefits for learner engagement and understanding make constructivist teaching a valuable and influential approach in contemporary education.

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## **THE ROLE OF MODERN BUILDING MATERIALS IN CONSTRUCTION**

*Abstract. In our country, the production of building materials has been developed in terms of energy efficiency improvement in accordance with modern requirements, justification of the possibility of using them for various purposes, saving of energy and resources in production while maintaining their technical properties*

*Keywords: Building materials, thermal insulation, mineral wool, heat conductive, polymer materials, basalt fiber.*

In order to develop the production of building materials in the republic, to ensure stable growth rates in the production and export of competitive products, as well as to further deepen the structural changes in the building materials industry aimed at modernization of enterprises, technical and technological renewal. Association of Self-Construction Materials" was established.

In our country, thermal insulation materials are used to insulate residential and cultural-household buildings, technological equipment, pipes, cooling and heating rooms and equipment from the effects of heat and cold. Building materials with a heat transfer coefficient not higher than 0.175 W/(m°C) are called heat insulation materials. Insulation from heat and cold is of great importance, especially in the dry hot climate of Central Asia, especially in the territory of Uzbekistan. Currently, the heat insulation materials produced in our region are classified according to the type of the main raw material, structure, shape, presence of binder, flammability, average density and heat transfer coefficient.

Mineral cotton is a vitreous fiber obtained on the basis of easily soluble rock metallurgy and fuel slag, its diameter is 5-15 mm, length is 2-40 mm. Mineral cotton mats are sheet or roll material, one or both textures It is sewn with fine threads and wrapped in bitumen coated paper and the mats are 3000-5000mm long, 500-1000mm wide and 50-100mm thick. - produced on the basis of formaldehyde or urea-formaldehyde and other polymer binders. According to traditional technology, hard plates are obtained in vacuum presses at a temperature of 150-180°C.

Mineral cotton birk plates and fashion products are produced on the basis of polymer, bitumen and mineral binders, short-fiber asbestos powder is added to the birk plates to increase their strength. The average density of plates is 100-400kg/m<sup>3</sup>, thermal conductivity is 0.051-0.135W, thickness is 40-100 mm. Mineral cotton semi-solid and soft plates are produced on the basis of polymer, bitumen and starch binders. Products based on polymer binders have high strength and beautiful appearance. The average density of plates is 35-250kg/m<sup>3</sup>, thermal

conductivity is 0.041-0.07W/(m°C). They are used for heating non-attic covers and attic partitions, for thermal insulation of the walls of garages and industrial buildings, as well as the surface of technological equipment.

Basalt fiber is mainly made by melting basalt stone and turning it into fiber in Forish district of Jizzakh region. Basalt fiber cotton is used to make fire-resistant fabrics, tapes, and plates. They are resistant to aggressive environments. When basalt fiber cotton has an average density of 130 kg/m<sup>3</sup>, its thermal conductivity is 0.35 W/(m °C). This year, new types of products such as basalt rovings, polystyrene plates, floor coverings, pigments for lok-paint, light metal constructions were exported to countries such as Afghanistan, Azerbaijan, Turkey, Russia and Ukraine. At present, thermal insulation materials are prepared on the basis of thermoplastic and thermoreactive polymers with the inclusion of gas or foam-forming components, pigments, hardeners, plasticizers and modifiers.

Energy-efficient polymer materials can save energy consumption by up to 70%. These measures include heat-insulating coverings of facades, door and window openings, floors, balconies and pipelines with polymer-based materials. For thermal insulation of the outer wall of the building, 0.64 m<sup>3</sup> of brick or 0.32 m<sup>3</sup> of expanded clay concrete, 0.14 m<sup>3</sup> of fibrolite, 0.1 m<sup>3</sup> of mineral cotton sheets and 0.04 m<sup>3</sup> of poroplasts are required per 1 m<sup>2</sup>.

Improvement of raw materials and types of products in the production of building materials in terms of energy efficiency in accordance with modern requirements, justifying the possibility of their use for various purposes, lightening their mass while maintaining their technical properties, and providing energy and resource-saving technologies in production. to have skills and experience and to ensure that they are put into practice and applied.

Currently, the demand and supply of high-quality, cheap, new type of building materials for the provision of low-cost housing, social sector facilities, non-residential and residential buildings is increasing.

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## **ANALYSIS OF WORK ON INNOVATIVE IDEAS IN THE FIELD OF BUILDING MATERIALS**

*Abstract. Scientific achievements and innovative ideas in the field of building materials are presented in our country. Proposals and recommendations for the production of building materials in our country have been developed.*

*Keywords: Construction materials, innovation, modernization, innovative projects, innovative development, innovation technology.*

The future of our independent republic is closely related to the acquisition of modern sciences in the field of construction, their application to life, and the development of the industry. That is why, in recent years, systematic work has been carried out to deepen the structural changes in the building materials industry, aimed at ensuring stable growth in the production and export of competitive products, as well as modernization of enterprises, aimed at technical and technological renewal. In the developed countries of the world, the innovative potential of building materials is considered as the main source of economic development. Currently, the socio-economic development of any country is determined on the basis of the formation of its innovative potential and the assessment of its effective use. It is possible to achieve efficiency in all aspects through the introduction of innovation and science. In particular, as a result of the application of scientific and technical developments to economic sectors, the possibility of producing new types of energy-saving, modern, world-class products will be created. Therefore, the Uz sanoat Building Materials Association pays special attention to this direction.

According to the decision of the President of the Republic of Uzbekistan dated May 23, 2019 No. PQ-4335, aimed at the creation of new types of innovative construction materials technologies, the Republican Scientific and Technical Council consisting of 25 academicians, professors, doctors of science, candidates of science was established under the chairmanship of the Minister of Innovative Development.

Volume of construction materials production in 2020: 1,820 mln. for 761 construction materials production projects. We can see that US dollar investments have been attracted and increased by 5 times compared to 2016. To date, more than 60 innovative projects have been submitted to the scientific and technical council of the building materials industry under the association "Uz sanoat qurilish materiallari". 30 projects were included in the agenda of the meeting of the scientific and technical council after receiving a satisfactory score from the experts. 16.963 billion soums were allocated to 13 innovative projects from the previous 30 projects by the decision of the scientific and technical council.

At the same time, in order to establish, develop and deepen cooperation in the fields of new technologies, research and innovation, 3-way agreements were signed on the integration of 20 enterprises and associations and higher education institutions. As a result, in 2022, a total of 31 innovative technologies of construction materials production enterprises were put into operation by higher education and research institutions.

In 2023-2024, 1,000,000 square meters of HPL (high pressure pressed) panels per year in Tashkent city by "Technopark" LLC, 2,500,000 square meters per year by "Art Soft" LLC "Tsement Techno Servis" LLC in Fergana region based on energy-saving technologies production of ceramic granite slabs, 60,000 tons of composite pipes from new type Basalt per year by Yesobasalt Group LLC in Jizzakh region. "Geoteks Production" LLC created 150,000 tons of POLYPROPYLENE/ POLYETHYLENETEREFTALATE fiber, new types of building materials production capacity, such as geotextile.

In the decision of the President of the Republic of Uzbekistan dated June 6, 2022 "On organizational measures for the implementation of the innovative development strategy of the Republic of Uzbekistan in 2022-2026" No. - It is planned to implement 22 projects for 2026.

It allows to realize the goals and tasks of all stages of the formation of innovative potential in the field of construction materials, to calculate the amount of necessary funds, to attract investors and take into account the sources of financing, to determine the terms of working with the necessary resources. Based on this, we can make the following conclusions and recommendations:

- Organization of the creation of a portfolio of orders for innovations, conducting pilot-industrial tests of the developed technologies, coordination of preparatory activities for the launch of serial production of new types of construction materials;

- Ensuring the implementation of the results of scientific research and innovative developments in the production of high-added-value construction materials and cooperation with scientific research and higher education institutions;

- Development of proposals for improvement of building norms and rules, taking into account modern innovative developments, ensuring the rapid introduction and use of new types of energy-efficient and ecologically safe building materials;

- Formation of target programs aimed at creation of new types of highly effective building materials through wide use of scientific and innovative potential of research and higher education institutions of our republic and implementation in the field is defined.

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## **ADSORPTION OF SILICA GEL ADSORBENTS WITH WATER VAPOR**

*Annotation. This article presents the methods of obtaining silica gel adsorbents and their industrial use. The methods of recovery of adsorbents produced after purification from heavy metals in wastewater are shown in laboratory conditions and in industry. Water vapor adsorption isotherms of regenerated silica gel adsorbents were measured in a sensitive quartz spiral apparatus of Mac-Behn.*

*Key words: silica gel, adsorbent, Mc-Ben,  $\pi$ -complex, silicic acid.*

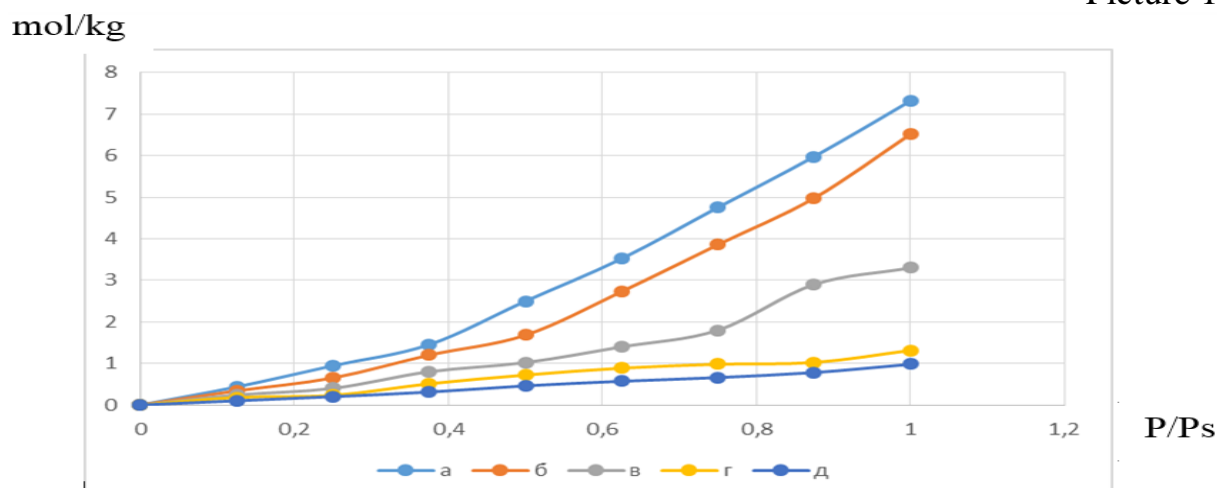
In order to study the adsorption properties of silica gel adsorbents, the sorption properties with polar molecules were studied.

It is important to study the structural porosity and adsorption parameters of silica gel adsorbents when conducting experiments and determining the mechanisms of surface properties. Adsorption of obtained silica gel adsorbents with polar molecule water vapor was studied [1].

For this purpose, as a research object, silica gel adsorbents used in the territory of our Republic were activated by initial and thermal (100; 130; 160; 180°C) for 3. 5-4. 0 hours. Adsorption of the obtained adsorbents with water vapor was studied.

Water vapor adsorption isotherms of silica gel adsorbents were measured in McBean's sensitive quartz spiral device [2]. Before measuring the adsorption of water molecules in the sample, the system was vacuumed until the residual pressure was  $1.33 \times 10^{-3}$  Pa, heated for 8 hours, and then adsorption isotherms were obtained.

The water obtained as adsorbate was purified and dried under vacuum conditions before being used for sorption, and its vapor pressure was first frozen and then heated until its vapor pressure was equal to the vapor pressure data given in the tables for pure water [3]. The resulting adsorption isotherms are presented in Figure 1.



**Figure 1. Adsorption isotherms of silica gel adsorbents with water vapor. a - initial °C, б - 100 °C, в - 130 °C, г - 160 °C, д - 180 °C**

From the adsorption isotherms, we can see that water vapor adsorption on adsorbents decreases with increasing temperature. One of the main reasons for this can be explained by the decrease of polar functional, i. e., OH- groups in the adsorbent as the temperature increases [4].

In the studied systems, at low relative pressures ( $P/P_s=0.1-0.2$ ), it is possible to see that the adsorption isotherms are steep as a result of the large absorption of water vapor. The adsorption isotherms of these samples with water vapor were found to belong to type I of the classification of adsorption isotherms proposed by Brunauer. The adsorbents that form the I-type isotherm are microporous adsorbents. This type of isotherms is characterized by the fact that they form an almost right angle to the  $P/P_s=1$  axis as a result of a sharp rise [5].

It can be seen from the water vapor adsorption isotherms of all adsorbents studied above (at 100, 130, 160, and 180 °C) that adsorption decreases with increasing temperature during the activation process of silica gel adsorbents obtained at all specific relative pressures ( $p/p_s$ ). It was found that the highest adsorption amount belongs to the adsorbent sample activated at 100 °C.

Based on the isotherms of water vapor adsorption on silica gel adsorbents, the monolayer capacity  $a_m$ , saturation volume  $V_s$  (or adsorption  $a_s$ ) and their relative surfaces  $S$  were calculated from the important indicators of adsorbents. The obtained results are presented in Table 1.

Table 1

**Structural and sorption parameters of silica gel adsorbents for water vapor adsorption**

Sample	Single floor capacity, $a$ $m, \text{mol/kg}$	Comparison surface, $S \cdot 10^{-3}, \text{m}^2/\text{kg}$	Saturation adsorption $a_s, \text{mol/kg}$
silica gel adsorbents	3,2	582	7,46
100 <sup>0</sup> C	2,8	521	6,62
130 <sup>0</sup> C	1,3	252	3,32
160 <sup>0</sup> C	0,6	116	1,32
180 <sup>0</sup> C	0,5	108	1,05

In such conditions, as a result of the release of various gases and resins contained in the restoration, additional pores are opened in the layers of silica gel adsorbent. Compared to the received adsorbents, it was found that the structure - sorption indicators for the sample activated at 100 <sup>0</sup>C are higher than other adsorbents. At 180 <sup>0</sup>C, it was found that the specific surface area (S) increased by 5 times and the saturation volume ( $a_s$ ) by 6 times.

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## **GEOECOLOGICAL CHANGES OCCURRING IN THE NATURAL GEOGRAPHICAL REGION OF MIRZACHOL UNDER THE INFLUENCE OF ANTHROPOGENIC FACTORS**

*Abstract. In this article, the causes of changes in landscapes of Mirzachol natural geographical region, human influence on landscapes, negative aspects of agricultural development, correct and rational use of available land and water resources, implementation of cost-effective technologies, and suggestions and recommendations for improving geo-ecological conditions are presented.*

*Key words: geoecology, ecological situation, natural environment, anthropogenic landscape, anthropogenic pressure, landscape-ecological balance, economic efficiency.*

As a result of human development in society and scientific and technical revolution, it was observed that the expansion of landscape complexes caused by anthropogenic activity of man over the past centuries on the surface of the earth has been highly accelerated. As a result of the expansion of settlements, rapid development of agriculture, the increase of arable land, the construction of roads and railways (linear landscapes), the development of the mining industry, natural landscapes were replaced by landscapes created by human hands and intelligence [1; pp. 5-18].

As a result of the active action of man, the scale of interaction and interrelationship between society and nature has expanded, various anthropogenic changes have occurred in the process of exchange of matter and energy. At the same time, it was observed that the natural environment is polluted by various household and technical wastes, the atmosphere is poisoned by various substances, and geo-ecological problems dangerous for human life and activity are created. Therefore, the correct and rational use of existing natural resources, the implementation of cost-effective technologies, and the implementation of urgent issues are required.

The geoecological basis of the use of natural resources is of decisive importance. In this regard, organization and implementation of production in ecological balance - ecological situation - ecologically clean technology and products - ecological cleanliness and health systems are of great importance. In this respect, geoecological principles are close to or complement geographical principles, which develop in mutual dependence and communication. In the conditions of the market economy, the use of natural resources should be based



on such scientific principles that neither nature nor society should suffer. In the biosphere, while natural components are in balance with each other, between living nature and non-living nature, according to the principle of mutual ecological balance, there is such an equal relationship between two types of nature in each natural limited area that requires a certain balance between them [5; pp. 53-54].

All things in nature, dimensions of phenomena, components of nature are interrelated and dependent and balanced, and have developed steadily over the years on the basis of natural geographical laws. Man, by influencing nature from the outside, continuously affects its stability. As anthropogenic pressure increases, the stability of natural complexes weakens, and after a certain period, a sharp "disruption" occurs, as a result of which the natural relationship changes, the quantity and productivity of natural resources decrease rapidly, and even some species of the organic world disappear [4; 95-96.].

According to A. G. Isachenko, "The purpose of geoecological research is to reveal the geographical laws in the territorial stratification of the natural environment and to comprehensively evaluate the ecological situation of geosystems" [2; p. 33] states that. In order to carry out such work, first of all, comprehensive assessment of geo-ecological situations is carried out by classifying the landscapes of Mirzachol, developing landscape maps, determining the laws of territorial stratification of landscapes, studying the natural and anthropogenic processes taking place in the landscapes. As a result of such studies, the level of diversity of landscapes is maintained and measures are developed to improve geo-ecological conditions. In particular, it is necessary to make effective use of natural resources of the natural geographical region, to enrich it together with the implementation of nature protection while maintaining the comfort level of natural conditions, to maintain the stability of the natural balance between its components, and to study scientific sources.

In the "Nature Protection Map of the Republic of Uzbekistan" published under the scientific guidance of A. A. Rafikov (2003), the following levels of geoecological conditions are distinguished: satisfactory, moderately satisfactory, average, severe and critical. Each of them includes areas with different levels of atmospheric air pollution (according to AII5 – high (7-14), elevated (5-7), low (less than 5)), changes in the quality of surface and underground water, the level of water pollution (very polluted, dirty, polluted, moderately polluted, clean), soil pesticide pollution, soil salinity (strong, medium, weak), soil deflation (strong, medium, weak), vegetation degradation (strong, medium, weak), vegetation cover productivity, cutting of trees and shrubs, the status of vertebrates, population health, levels of landscape change and other qualitative and quantitative criteria were taken as a basis. Natural landscapes were taken as the basis of the ecological map [6.].

The strong anthropogenic influence on the nature of Mirzachol directly caused the landscape-ecological problems in the area, together with the increase

in the population and the wide development of the agricultural sector, along with the creation of cultural landscapes. The interaction of natural components in the area is reflected in all the landscapes, which have a unique effect on the climate, surface and underground water, soil, flora and fauna of such unpleasant environmental problems.

Anthropogenic and natural-anthropogenic landscapes have replaced the original natural landscapes as a result of extensive use of the flat and mountainous plains, which make up the main part of Mirzachol, for long-term semi-arid and semi-arid agriculture. Also, the Mirzachol region has favorable natural geographical conditions and agro-economic potential for the large-scale development of agricultural industries, and its nature has been attracted to the economic activities of people from the beginning and is still widely used.

Increasing anthropogenic influence in the Mirzachol region, i. e. not using land and water resources wisely, not paying attention to the melioration of agricultural land, not implementing crop rotation, not using agrotechnical measures, are the reasons for the violation of the ecological balance. Such circumstances led to the development of natural and natural-anthropogenic processes in all landscapes of Mirzachol. The sharp impact of human economic activity has caused the emergence and formation of a number of new types of landscapes, such as agrogenic, hydrogen, urban and rural seliteb, which are still expanding.

The depth of seepage water level and seepage water salinity in Mirzachol's Sirdarya region shows that the land reclamation condition in 2022 at the beginning of the growing season (April 1) was 157,937 thousand hectares or 54.94%. During this period, the area with the salinity of seepage water up to 3 g/l (low salinity) was 117.34 thousand hectares or 40.81%. In Mirzachol, 129.53 thousand ha or 45.05% of irrigated land had a depth of seepage water at a critical point above 2 meters, of which 23.11 thousand ha or 8.03% of irrigated land had a depth of up to 1 meter. 170,132 ha or 59.18% of sea water salinity is higher than 3 g/m (weak, medium and strong salinity). The area with a water depth of less than 2 meters has increased by 53,39 thousand hectares, due to heavy rainfall in March and April, and the level of salinity (above 3 g/liter) has decreased by 20,685 thousand. At the end of the vegetation period (October 1), water less than 2 meters reduced the area by 4,416 thousand hectares, salinity (up to 3 g/liter) increased by 18,042 thousand hectares [3].

The geocological conditions of Mirzachol were formed and developed in various natural geographical, engineering-geographical conditions. It is located in a low-lying, windy, sunny, flat, sharply continental climate of the Mirzachol mountain intermediate massif, with varying degrees of salinity, water level of 2.0-2.5 m, and low rainfall. The region is characterized by a number of changes and geocological problems that are taking place under the influence of the anthropogenic factor due to the increase in the population, the management of active agricultural sectors. In particular, problems such as the decrease of the level

of groundwater and salinity, the erosion of the fertile soil layer by water, wind and irrigation, soil pollution with pesticides, atmospheric air pollution with dust, salt and other harmful compounds are also encountered in Mirzachol, including:

- Effective use of land and water resources, in order to achieve economic efficiency, first of all, to radically improve land reclamation conditions, to introduce new technologies of moderate water use, to apply agrotechnical and agromelioration measures;

- The main reasons for the unsatisfactory state of irrigated lands in Mirzachol are the rise in the level of seepage waters and prevention of salinity;

- maintaining the level of salinity of the irrigated lands and soil salinity, taking into account the level of underground seepage waters, their salinity and their movement;

- the surface water level and its salinity are mainly determined by the technical condition of drainage networks and the amount of atmospheric precipitation, the supply of running water during the growing season, and the movement of underground water entering from outside.

By placing vegetable, sugarcane, oilseed, leguminous, food and medicinal crops on newly developed and reused lands in the Mirzachol region, by establishing gardens and vineyards, first of all, salinity-resistant trees, vineyards, tussocks, and pomegranate groves will be established in the peripheral parts of the cultivated areas, underground water salinity will be reduced, and secondly, economic efficiency indicators of districts will increase.

It is necessary to implement the following measures to improve the geo-ecological situation in the Mirzachol region, to make effective use of land and water resources:

Firstly, in order to reduce the effects of toxic chemical compounds used in the cultivation of agricultural land, to increase the productivity of agrolandscapes and improve the quality of cultivated products, the use of mineral fertilizers and pesticides in permitted quantities on irrigated land and cultivated crops, the organization of wide use of organic and local fertilizers, the landscape within agrolandscapes - to stabilize the ecological balance, to reduce the amount of nitrates and pesticides that have accumulated beyond the norm in the soil, to strictly adhere to the system of crop rotation (cotton-grain-alfalfa) in order to establish a mechanism for increasing productivity, to reduce and standardize the amount of toxic chemical compounds used in the cultivation of agro-landscapes.

Secondly, in order to reduce the impact of local winds that have a negative impact on the nature of the environment, the establishment of tree groves that clean the atmospheric air, provide pure oxygen, and permanently improve the climate, use biological and chemical methods to reduce transpiration from the leaves of plants under the influence of winds, and water trees and plants. It is necessary to use modern methods (use methods such as subsoil irrigation, drip and rain irrigation), to strengthen the moving or mobile sands around Tuzkon by means of phytomelioration.

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## **GEOECOLOGICAL CHANGES OCCURRING IN THE NATURAL GEOGRAPHICAL REGION OF MIRZACHOL UNDER THE INFLUENCE OF ANTHROPOGENIC FACTORS**

*Abstract. In this article, the causes of changes in landscapes of Mirzachol natural geographical region, human influence on landscapes, negative aspects of agricultural development, correct and rational use of available land and water resources, implementation of cost-effective technologies, and suggestions and recommendations for improving geo-ecological conditions are presented.*

*Key words: geoecology, ecological situation, natural environment, anthropogenic landscape, anthropogenic pressure, landscape-ecological balance, economic efficiency.*

As a result of human development in society and scientific and technical revolution, it was observed that the expansion of landscape complexes caused by anthropogenic activity of man over the past centuries on the surface of the earth has been highly accelerated. As a result of the expansion of settlements, rapid development of agriculture, the increase of arable land, the construction of roads and railways (linear landscapes), the development of the mining industry, natural landscapes were replaced by landscapes created by human hands and intelligence [1; pp. 5-18].

As a result of the active action of man, the scale of interaction and interrelationship between society and nature has expanded, various anthropogenic changes have occurred in the process of exchange of matter and energy. At the same time, it was observed that the natural environment is polluted by various household and technical wastes, the atmosphere is poisoned by various substances, and geo-ecological problems dangerous for human life and activity are created. Therefore, the correct and rational use of existing natural resources, the implementation of cost-effective technologies, and the implementation of urgent issues are required.

The geoecological basis of the use of natural resources is of decisive importance. In this regard, organization and implementation of production in ecological balance - ecological situation - ecologically clean technology and products - ecological cleanliness and health systems are of great importance. In this respect, geoecological principles are close to or complement geographical principles, which develop in mutual dependence and communication. In the conditions of the market economy, the use of natural resources should be based



on such scientific principles that neither nature nor society should suffer. In the biosphere, while natural components are in balance with each other, between living nature and non-living nature, according to the principle of mutual ecological balance, there is such an equal relationship between two types of nature in each natural limited area that requires a certain balance between them [5; pp. 53-54].

All things in nature, dimensions of phenomena, components of nature are interrelated and dependent and balanced, and have developed steadily over the years on the basis of natural geographical laws. Man, by influencing nature from the outside, continuously affects its stability. As anthropogenic pressure increases, the stability of natural complexes weakens, and after a certain period, a sharp "disruption" occurs, as a result of which the natural relationship changes, the quantity and productivity of natural resources decrease rapidly, and even some species of the organic world disappear [4; 95-96.].

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of groundwater and salinity, the erosion of the fertile soil layer by water, wind and irrigation, soil pollution with pesticides, atmospheric air pollution with dust, salt and other harmful compounds are also encountered in Mirzachol, including:

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Secondly, in order to reduce the impact of local winds that have a negative impact on the nature of the environment, the establishment of tree groves that clean the atmospheric air, provide pure oxygen, and permanently improve the climate, use biological and chemical methods to reduce transpiration from the leaves of plants under the influence of winds, and water trees and plants. It is necessary to use modern methods (use methods such as subsoil irrigation, drip and rain irrigation), to strengthen the moving or mobile sands around Tuzkon by means of phytomelioration.

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## **THE IMPORTANCE OF LINGUACULTURAL SKILLS IN THE PREPARATION OF GUIDE-TRANSLATORS**

*Abstract. This article analyses the specific linguistic, cultural, and interpersonal skills employed by guide-translators in these three languages. By focusing on this specific linguistic constellation, we gain a deeper understanding of the challenges and nuances faced by professionals working in regions with rich cultural and linguistic histories.*

*Key words: guide-interpreters, communication culture, approach, method, integration, ethical considerations.*

Several studies highlight the unique linguistic skills guide-translators employ. Baker (2013) emphasizes the importance of code-switching, adapting language register, and handling real-time translation challenges effectively. Similarly, García et al. (2018) point to the need for fluency in multiple languages and cultural contexts to ensure accurate and nuanced communication. In the specific context of Uzbekistan, where Uzbek, English, and Russian intersect, the work of [insert relevant researcher/publication here] provides insights into the challenges and strategies employed by guide-translators in this trilingual environment. Understanding and respecting cultural differences is crucial for guide-translators. Lepore (2017) emphasizes the importance of cultural awareness training, while Robinson (2019) highlights the need for sensitivity to non-verbal communication and body language. Studies on specific cultural contexts, such as [insert relevant region/culture here] by [insert researcher/publication here], offer valuable insights into the specific challenges and nuances guide-translators face in navigating cultural differences.

To delve into the intricacies of guide-translator communication within the Uzbek, English, and Russian context, this research will employ a multi-pronged approach, combining qualitative and quantitative methods for a comprehensive understanding.

**1. Semi-structured Interviews:** Participants: Guide-translators with experience working in Uzbekistan, fluent in Uzbek, English, and Russian. Aim for a diverse sample representing different regions, demographics, and areas of expertise (historical, cultural, etc.). Structure: Develop open-ended interview questions exploring their communication strategies, challenges, cultural sensitivities, ethical considerations, and experiences with technology. Analysis: Transcribe interviews verbatim and analyze thematically, identifying recurring patterns and key insights into the lived experiences of guide-translators.



**2. Case Studies:** Selection: Choose specific communication encounters (e. g., tour with a delegation, museum visit with individual client) that represent different challenges and cultural contexts. Data Collection: Observe and record interactions between guide-translators and clients, taking detailed notes on language use, non-verbal cues, and communication strategies employed. Additionally, collect artifacts like translated materials or client feedback. Analysis: Analyze the case studies through a lens of cultural awareness, linguistic expertise, and ethical considerations, identifying best practices and challenges specific to each context.

**3. Text and Audio Analysis:** Sources: Collect relevant text and audio recordings, such as guide-translator training manuals, online forums for guide-translators, or recordings of actual tours or client interactions. Methods: Utilize discourse analysis techniques to examine language choices, cultural references, and communication patterns within these resources. This can provide insights into broader trends and shared experiences within the guide-translator community.

**4. Ethical Considerations:** Informed consent will be obtained from all participants. Anonymity and confidentiality will be assured throughout the research process. Potential conflicts of interest will be identified and addressed proactively.

**5. Data Integration and Triangulation:** The findings from each method will be triangulated and compared to ensure internal validity and reliability. This multi-faceted approach will allow for a richer and more nuanced understanding of guide-translator communication in Uzbekistan. **Discussion and Implications: Bridging the Gap, Navigating the Future.** The unique landscape of guide-translator communication within Uzbekistan, as revealed through this research, carries significant implications for the wider field. Let's delve into how these insights can inform ongoing developments and shape the future of this crucial profession.

**Professional Development:** The research highlights the need for continuous professional development programs that equip guide-translators with: Advanced cultural competency: Training in navigating cultural nuances, recognizing implicit biases, and effectively communicating across diverse backgrounds. Ethical awareness: Comprehensive understanding of ethical codes, conflict resolution strategies, and best practices for handling sensitive situations. Technological fluency: Familiarity with translation apps, virtual tour platforms, and other digital tools to enhance client interactions and adapt to changing communication dynamics. Linguistic agility: Focus on maintaining fluency in all three languages, mastering code-switching techniques, and honing real-time translation skills.

**Ethical Considerations:** The research underscores the importance of clear ethical guidelines and ongoing discussions within the guide-translator community to address issues such as: Confidentiality: Maintaining client privacy and ensuring responsible information sharing. Objectivity: Avoiding personal opinions and

biases while presenting factual information. Conflicts of interest: Recognizing and managing potential conflicts arising from partnerships or endorsements. Cultural sensitivity: Avoiding stereotypical representations and respecting local customs and traditions. Adapting to the Changing Landscape:

- The research emphasizes the need for guide-translators to embrace and adapt to the evolving communication landscape, including: Technology integration: Utilizing translation tools and platforms effectively while maintaining personal interaction and human connection. Client diversification: Catering to diverse client needs, including virtual tours, remote language services, and specialized cultural experiences. Continuous learning: Staying updated on global trends in travel and tourism, cultural shifts, and technological advancements within the field.

**Implications for Uzbekistan:** This research can inform training programs and ethical frameworks specifically tailored for guide-translators working in the Uzbek, English, and Russian context. It can contribute to promoting Uzbekistan as a culturally rich and diverse destination, highlighting the importance of effective communication in fostering positive visitor experiences. It can encourage collaboration between guide-translators, tourism authorities, and academic institutions to further develop best practices and address specific challenges faced by professionals in this region.

*Conclusion: Navigating the Crossroads of Languages and Cultures.*

This research has ventured into the intricate world of guide-translator communication within the unique trilingual landscape of Uzbekistan. Through interviews, case studies, and textual analysis, we have illuminated the diverse skills and challenges faced by these cultural and linguistic bridges.

**Key findings:** Guide-translators navigate a complex terrain of linguistic expertise, cultural sensitivity, and interpersonal skills, mastering code-switching, adapting register, and handling real-time translation challenges within the Uzbek, English, and Russian context. Cultural awareness is crucial, demanding sensitivity to diverse communication styles, etiquette, and social norms to build trust and rapport with clients from various backgrounds.

- Ethical considerations like confidentiality, objectivity, and conflict of interest require ongoing attention and clear guidelines within the profession.

- Technology plays an increasingly important role, necessitating adaptation to translation apps, virtual tours, and evolving client expectations. Mastering a blend of language, cultural awareness, and interpersonal skills, guide-translators in Uzbekistan navigate the complexities of communication within a unique trilingual environment, adapting to ethical considerations and evolving industry demands.

**Future Research Avenues: Longitudinal studies:** Investigating the long-term impact of technological advancements and globalization on guide-translator communication practices and client expectations.

• **Comparative studies:** Examining how guide-translator communication strategies vary across different cultural contexts and linguistic landscapes.

• **Impact studies:** Evaluating the effectiveness of specific training programs and ethical frameworks in enhancing guide-translator skills and addressing ethical dilemmas. Exploring the experiences and expectations of clients from diverse backgrounds to gain a more holistic understanding of the communication dynamics in this field.

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## **CONTROL MEASURES AGAINST PHYTOPHTORIOSIS DISEASE IN TOMATO PLANTS**

*Abstract.* This article explains how to take reasonable measures to fight against fungal diseases of the tomato plant. He talked about modern solutions of tomato diseases, how and which method to fight them, which plants they meet.

*Key words.* Tomato, phytophthora infestans, barana, drainage, laser, monitoring, pathogen.

### **Introduction:**

Tomato, one of the most cultivated and consumed crops in the world, is susceptible to various diseases, which significantly affect the productivity of tomatoes. Phytophthora infestans is one of the major threats to tomato production, causing great damage and reducing productivity. Phytophthora infestans has been found to damage potatoes, tomatoes, onions, citrus crops, apples and other plants. Phytophthora control in tomatoes requires a multifaceted approach that combines preventive measures, early detection and sustainable management strategies.

### **Understanding Phytophthora:**

Phytophthora is a soil-borne pathogen that thrives in moist conditions. Its ability to produce resistant oospores makes it difficult to manage, especially after establishment in the field. Phytophthora infections can cause root and crown rot, which reduces the plant's ability to absorb water and nutrients, and can eventually cause widespread crop blight if left unchecked.

### **Resistant tomato varieties:**

One of the main countermeasures in the fight against phytophthora disease is the use of tomato varieties that can create immunity against the pathogen. The production of resistant varieties with genetic characteristics that limit the effects of diseases caused by phytophthora is becoming one of the topical topics of plant breeders. Farmers should prioritize breeding these resistant varieties to reduce the risk of infestans and improve overall crop health.

Phytophthora thrives in moist conditions, making proper soil drainage an important component of disease control. Using well-drained soil management practices, such as laser leveling of raised soil, can help reduce the risk of waterlogging around tomato roots, thereby reducing the favorable conditions for phytophthora growth and development.

The introduction of tomato crop rotation is an effective cultural practice. This has a negative effect on the growth, development and spread of the fungus. By alternating tomato crops with other crops, farmers can reduce the pathogen's

ability to develop and persist in the soil. This practice also helps maintain soil health and fertility and contributes to overall sustainable agricultural practices.

#### **Use of fungicides:**

When using fungicides, it is especially appropriate to use them for preventive purposes, because the fight against fungal diseases causes some difficulties. Or, when used in the early stages of disease development, Phytophthora infestation can be controlled. Mainly copper-based fungicides and systemic fungicides designed specifically for oomycetes can help control the pathogen. It is important to follow recommended application rates and schedules to maximize effectiveness while minimizing the risk of fungal development.

#### **Hygiene and sanitation:**

Good hygiene and sanitation in the field is essential to prevent the spread of Phytophthora. Infected plant debris, soil, and contaminated equipment can serve as inoculum sources. Regular removal and destruction of infected plant material, cleaning of tools, and preventing movement of soil between fields can help prevent the spread of the pathogen.

#### **Early detection and monitoring:**

Regular monitoring and early detection of phytophthora symptoms are essential for effective disease management. Farmers should learn to recognize the specific symptoms of phytophthora infection, such as wilting and yellowing of stems and leaves. Early detection reduces the severity of the disease, harvests the intended crop in tomato crops, and gives some relief from the economic side.

#### **Summary:**

Phytophthora infestation in tomato production requires a coordinated and active approach. By creating resistant tomato varieties, using proper soil management methods, implementing crop rotation, judicious use of fungicides, and encouraging early detection, farmers can effectively manage the effects of phytophthora on tomato crops and facilitate control. Through sustainable and integrated pest management practices, the agricultural community can protect the tomato crop, ensure food security and contribute to the overall sustainability of the agricultural sector.

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## **“ZOMIN” TURISTIK-REKREATSION ZONASINING IQTISODIY- GEOGRAFIK XUSUSIYATLARI**

*Annotatsiya. Ushbu maqolada “Zomin” turistik-rekreatsion zona (keyingi o'rinlarda TRZ) sining o'ziga xos iqtisodiy-geografik xususiyatlari (tabiiy va iqtisodiy geografik o'rni, tabiiy sharoiti, tog' va sport turizmi obyektlariga, yo'l-transport va muhandislik-kommunikatsiya infratuzilmalariga va mehnat resurslariga nisbatan joylashuvi) va uning kelajakda rivojlantirish istiqbollari haqida fikr yuritilgan.*

*Kalit so'zlar: erkin turistik zona, investitsiya, rekreatsiya, sport turizmi, turizm, turistik erkin iqtisodiy zona, turistik-rekreatsion zona.*

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## **ECONOMIC AND GEOGRAPHICAL CHARACTERISTICS OF THE TOURIST AND RECREATIONAL ZONE “ZOMIN”**

*Abstract. This article examines the specific economic and geographical features of the tourist and recreational zone "Zomin" (hereinafter - TRZ) (natural, economic and geographical position, natural conditions, access to mountain and sports tourism facilities, location of roads in relation to transport and engineering-communication infrastructure and human resources) and prospects for its further development.*

*Key words: free tourist zone, investment, recreation, sports tourism, tourism, tourist free economic zone, tourist and recreational zone.*

**Kirish.** Turizm-bugungi kunning eng istiqbolli va shu bilan birga eng serdaromad tarmoqlardan biridir. Keyingi paytlarda dunyoda turistlar soni va turizm bilan shugullannuvchi tashkilotlar soni kundan kunga ortib bormoqda. Tabiat va uning xilma-xilligi, betakror tabiiy landshaftlarni organish va ularni rekreatsion baholash, ularda turizm obyektlarini tashkil qilishning ilmiy asoslarini ishlab chiqish bugungi kunning muhim masalalaridan sanaladi.

Turizm ravnaqi uchun maxsus iqtisodiy hududlarni tuzish, turistik klasterlarni yaratish, sohaga strategik sheriklarni jalb qilish, sayyohlik

infratuzilmasi va turizm sanoatini jadal rivojlantirish, hududlarni sayyohlik salohiyatidan to'liq va samarali foydalanish, milliy turistik mahsulotlarni ishlab chiqarish va uni jahon bozoriga olib chiqish borasidagi faoliyatimizni jadal rivojlantiramiz [1].

Turizmning-ekoturizm, gastronomik turizm, ekstremal turizm, sport turizmi, sog'liqni saqlash va dam olish turizmi kabi o'nlab turlari borki, ularni hududning tabiiy-rekreatsion, ijtimoiy-iqtisodiy imkoniyatlaridan kelib chiqib tashkil qilish maqsadga muvofiq. Shu sababli ham mamlakatimiz mintaqalarining rekreatsion xususiyatlarini aniqlash va baholash, mavjud turizm obyektlarining muhim xususiyatlari bilan tanishish, hamda u orqali turizm industriyasi rivojlanishini tahlil qilish muhim ahamiyatga ega.

Rekreasion resurslar-tabiiy va madaniy rekreatsiya resurslariga ajratiladi. Tabiiy rekreatsiya resurslariga xushmanzara tabiat go'shalari kiradi: daryo sohillari, tog'lar, ko'l sohillari, vodiylar, to'qaylar, o'rmonlar, suniy bog'lar, tabiiy yodgorliklar va ajoyib relief shakllari, shifobaxsh buloqlar kiradi. Madaniy rekreatsiya resurslarga quyidagilar kiradi. Tarixiy shaharlar, tarixiy binolar, tarixiy joylar, dam olish bog'lari, muzeylar, teatrlar, amfiteatrlar, favvoralar va haykaltaroshlik namunalari kabilar kiradi.

**Adabiyotlar tahlili.** Jizzax deganda, avvalo Zarafshon vohasida joylashgan, o'zining go'zal va betakror tabiati, qadimiy tarixi, serviqor tog'lari, bepayon dashtu dalalari, eng muhimi, oqko'ngil, oriyatli va mehnatkash insonlari bilan odamni o'ziga maftun etadigan bir diyor ko'z ongimizda namoyon bo'ladi.

Bu zamindagi Zomin milliy bog'i, Baxmal, Jizzax va Forish tog'laridagi yam-yashil archazorlar, soy va buloqlar, Arnasoy, Aydarko'l, Tuzkon ko'llari atrofidagi tabiat mo'jizalarini tasvirlash uchun odam yo zo'r shoir, yo zo'r rassom bo'lishi kerak [2].

Erik Koen o'zining "Xalqaro turizm sotsiologiyasi tomon" asarida taklif qilgan va u quyidagi tezisni shakllantirgan: "Ommaviy turistlar" mikromuhit xavfsizligini his qilish bilan birga, belgilangan joyning makromuhiti yangiligini his qilishni xohlashadi Bu ular uchun qulay, mehmonxonalar va tanish taomlardan iborat, ya'ni o'zlari atrofida kamdan kam hollarda tark etadigan o'ziga xos "zonasi"ni tashkil qiladi [6]. Aynan shunday zonalarni tashkil qilinishi mamlakatimiz turizm rivojida katta ahamiyatga ega. Toshkent va Jizzax viloyatlaridagi mavjud rekreatsion reurslarni hisobga olgan holda, keyingi davrda Chorvoq turistik zonasi va Zomin TRZlari tashkil qilindi.

O'zbekistonning Jizzax viloyati Zomin tumanida ekoturizmni rivojlantirish uchun juda ulkan salohiyat mavjud [8]. Tumanning rekreatsiya resurslari o'rganilganda, u yerdagi tabiiy yoki rekreatsiya obyektlaridan qaysi turlari va ularning qayerlarda tarqalgani aniqlanadi hamda tavsiflari tuziladi. Jumladan o'rganilayotgan, Zomin TRZsidagi ajoyib tabiat yodgorliklari (xushmanzara joylar, turli xil relief shakllari, g'orlar va h. k.), shuningdek, madaniy yodgorliklari, dam olish zonalari, bozorlar va boshqa obyektlarga e'tibor qaratiladi.

Zomin tumanining tanilishi tufayli turizmning yangi turi — ekoturizm shakllandi va rivojlanmoqda, mahalliy aholining farovonligi oshmoqda [8].

Dennis Judd turistik zonalarni sayohatchiga “xavfsizlik, himoya va qulaylik” tuygʻusini beruvchi, koʻpincha atrofdagi shahar ijtimoiy-madaniy “manzarasi”dan tubdan farq qiladigan “tinchlik orollari” deb ataydi [7].

**Tadqiqot metodologiyasi.** Tumanda turizm sohasida bir qator tadbirkorlik subyektlari tashkil etildi va modernizatsiya qilindi, bunga 12 ta mehmonlar uchun moʻljallangan uy, 2 ta sayyohlik bazasi va bitta mehmonxona, tabiiy va arxeologik hududlar ichida axborot markazlari va dam olish hududida 350 metrlik chanʻi trassasi kiradi. Mazkur obyektlarning barchasi mahalliy aholi tomonidan boshqariladi, bu ularni bandlik va daromad bilan taʼminlaydi. 10 ta axborot lavhasi va 20 ta yoʻl belgilari oʻrnatildi. 80 nafar mahalliy mutaxassis turizm sohasiga oʻqitildi, Zomin tumani esa Oʻzbekistonda oʻzining brendi, veb-sayti ([www.zaamin.uz](http://www.zaamin.uz)) va «Facebook»da sahifasiga ega boʻlgan birinchi tuman boʻldi. Zomin brendi xalqaro turistik yarmarkalarda tumanga va butun Oʻzbekistonga tadbirkorlarni jalb etuvchi mahalliy mahsulotning zaruriy oʻziga xos belgisiga aylandi [8].

Oʻzbekistonda turizmni xususan, erkin turistik zonlarni rivojlantirish bobida Samarqand davlat universiteti geograf olimi M. Usmanov quyidagi oʻz fikrlarini beradi. Turizm istiqbolida va hududlarda maxsus turistik zonalarning rivojlanishida muhim ahamiyat kasb etadi:

-Oʻzbekistonning geografik oʻrni va joylashuvidan kelib chiqqan holda turizm sohasiga oʻziga xos yondoshish, optimal rivojlantirish uchun xorij tajribasini oʻrganish;

-turistik atlas yaratishning nazariy va metodologik asoslarini ishlab chiqish;

-tabiiy sharoit va oʻziga xos iqlim xususiyatlaridan kelib chiqqan holda tanishuv, rekreatsiya va dam olish va sogʻlomlashtirish maskanlarini kartalashtirish va turist qabul qilish yukini geografik va ekologik baholash;

-turistik reklamalarni tashkil etishning hududiy jihatlarini tadqiq etish;

-maxsus turistik zonalarni tashkil etish asoslarini hududiy jihatlarini oʻrganish [10].

Oʻzbekiston Respublikasi Prezidentining 26. 10. 2016 yil PF-4853-son qaroriga asosan maxsus iqtisodiy zonalar ishtirokchilariga baʼzi soliqlar uchun imtiyozlar, shuningdek soliq kodeksi va Oʻzbekiston respublikasining “maxsus iqtisodiy zonalar toʻgʻrisida”gi qonunga asosan oʻrnatilgan tartibda bojxona toʻlovlari boʻyicha imtiyozlarni qoʻllash hususiyatlari koʻzda tutilgan soliq va bojxona toʻlovlari uchun imtiyozlar 3 yildan 10 yilgacha kiritilgan investitsiya hajmidan kelib chiqib taqdim etiladi. Xususan:

- 300 ming AQSH dollaridan 3 mln AQSH dollarigacha – 3 yilgacha muddatda

- 3 mln AQSH dollaridan 5 mln AQSH dollarigacha – 5 yilgacha muddatda

- 5 mln AQSH dollaridan 10 mln AQSH dollarigacha – 7 yilgacha muddatda

- 10 mln AQSH dollari va undan ko'p miqdorda – 10 yil muddatda [4].

Mazkur bojxona imtiyozlari mamlakatimizda tashkil qilingan barcha EIZlar uchun belgilab qo'yilgan bo'lib, ayni paytda farmasevtika sohasidagi TRZlarga ham talluqlidir.

Shuningdek, O'zbekiston Respublikasi soliq kodeksining 473-moddasiga muvofiq, maxsus iqtisodiy zonalar ishtirokchilariga kiritilgan investitsiyalar hajmiga qarab mol-mulk solig'i, yer solig'i va suv resurslaridan foydalanganlik uchun soliqdan ozod qilish shaklida soliq imtiyozlari beriladi [3].

Shuningdek, U. Saydaliyeva mamlakatimizda turizm va turizm industriyasini rivojlantirish, xususan, turizmga yo'naltirilgan investitsiyalarni jalb qilish uchun o'zining "Turizm zonalarini, ularning turlari va ijtimoiy-iqtisodiy ahamiyati" maqolasida bu borada quyidagi takliflarni berib o'tadi:

- "Chorvoq" erkin turistik zonasi, "Samarkand city" va "Qadimiy Buxoro" turistik zonalarini, shuningdek, Surxondaryo viloyatida kichik sayyohlik hududlarini to'g'risidagi ma'lumotlarni taqdim etish;

- investitsiyalarni jalb qilish uchun potensial bo'lgan turizm infratuzilmasi ob'ektlarini yaratish bo'yicha loyihalar bilan tanishish uchun forum ishtirokchilari respublikamiz viloyatlariga tashrif buyurishlari rejalashtirilgan;

- respublikamizdagi sayyohlik industriyasini yanada rivojlantirish, turistik faoliyat sub'ektlari, shu jumladan xorijiy investorlar va xalqaro tashkilotlar bilan hamkorlikni yo'lga qo'yish masalalarini muhokama qilish maydonchasini yaratish mo'ljallangan [9].

25 avgust kuni Jizzax viloyatining Zomin tumanida barpo etilayotgan "Zomin" turistik-rekreatsion zonasida (TRZ) osma dor yo'li foydalanishga topshirildi. Loyihaning qurilish-montaj ishlari qiymati 122 mlrd so'mni tashkil etdi. 2022 yil iyun oyida Shveysariyaning Bartolet AG kompaniyasi bilan dor yo'li uchun uskunalar yetkazib berish va montaj ishlari uchun qiymati 6,72 mln yevro bo'lgan shartnoma imzolangan edi. Duoba qishlog'ida barpo etilgan "Dor yo'li" majmuasining "Zomin" osma dor yo'li 12 ta minorali 11 dona ustundan tashkil topgan. Dor yo'lining eng katta qiyaligi 42 gradusni tashkil etadi. Uzunligi 2102 metrdan iborat bo'lib, mijozlarni tashish uchun zamonaviy dizayndagi 36 ta kabina sayyohlar xizmatiga shay. Maksimal harakatlanish tezligi esa 6 m/sek ni tashkil etadi. Soatiga 1200 nafar sayyohga xizmat ko'rsatish imkoniga ega. Quyi stansiya bilan yuqori stansiya o'rtasida balandlikning farqi esa 529,5 metr. "Zomin" turistik-rekreatsion zonada umumiy qiymati 456 milliard so'mlik to'rtta loyihaning ish jarayonlari davom etmoqda. Jumladan, ko'p qavatli avtoturargoh, zamonaviy restoran, osma ko'priklar, bitta zamonaviy sog'lomlashtirish markazi loyihalari amalga oshirilmoqda. "Zomin" turistik-rekreatsion zonasida yaqinda faoliyat boshlagan turistik ob'ektlar dunyo sayyohlarini dengiz sathidan 2400 metr balandlikdagi tabiat go'zalliklaridan bahramand bo'lishga imkonini bermoqda [11].





*1-rasm.* Zomin TRZdagi Milliy sihatgoh – “Zomin” sanatoriysi [12].

Shu bilan birga farmatsevtika tarmog‘ini rivojlantirishga yo‘naltirilgan investitsiya loyihalarini amalga oshirishga xorijiy va mahalliy investitsiyalarni faol jalb etish uchun qulay shart-sharoitlar yaratish maqsadida maxsus bojxona rejimi, va maxsus soliq rejimlari joriy qilingan.

Bugungi kunda ko‘plab xorijiy sayyohlar O‘zbekistonga tarixiy va me‘moriy diqqatga sazovor joylar, tog‘lar, shuningdek, bog‘lar, milliy bayramlar va boshqa joylarni ziyorat qilish uchun keladi hamda turli madaniy va ko‘ngilochar tadbirlarni guvohi bo‘ladilar. Biroq mamlakatimizning turistik salohiyatidan yetarli darajada foydalanilmayapti. O‘zbekiston Respublikasida quyidagi erkin turistik zonalarni tashkil etish taklif etilmoqda: Samarqand, Xiva va Buxorodagi tarixiy zonalar (tarixiy zonalar), Jizzax (Zamin) va Namangan (Chortoq) tabiiy zonalar (tabiiy zonalar) va boshqa viloyatlar, turistik rekreatsiya zonalar (turistik-kreatsion zonalar) O‘zbekiston shaharlarining markaziy joylarida kichikn turistik zonalarni ham [5].

**XULOSA.** Shuni alohida ta’kidlash lozim-ki, Zomin TRZ geografik jihatdan qulay yerda joylashganligi, transport tarmog‘ining rivojlanTIRISH imkoniyatlarining mavjudligi, tabiiy rekreatsiyon resurslarning ko‘pligi, ishchi kuchining mavjudligi va boshqa shu kabi omillar investorlarga mamlakatimiz kelajagiga ishonch bilan qarash imkonini bermoqda.

Yuqoridagi masalalariga diqqat e’tibor qaratilganligi natijasida quyidagi xulosalarga kelindi:

-turizm sohasidagi EIZlarining yuqoridagi ta’kidlagan imkoniyatlaridan o‘z ornida samarali foydalanish;

-mazkur TRZlardagi ko‘plab turistlarniqabul qiladigan va ularga xizmat ko‘rastuvchi muassasalar soni hamda ko‘lamini kengaytirish;

-yuqoridagilarni amalga oshirish borasidagi turizm sohasidagi TRZlar jozibadorligini yanada oshirish, hamda ularning filiallari sonini va maydonini kengaytirish maqsadga muvofiqdir.

Shu o'rinda mamlakatimizning Qoraqalpog'iston Respublikasining Mo'ynoq, Surxondaryo viloyatining Sariosiyo, Qashqadaryo viloyatining Kitob, Samarqand viloyatining Nurobod va Namangan viloyatning Pop tumanlarida ham o'ziga xos TRZ tashkil qilish uchun qulay shart-sharoitlar, ya'ni qulay tabiiy jihatdan yuqori baholangan turistik-rekreatsion imkoniyatlar mavjud.

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## **EPIZOOTIC SITUATION OF ANIMALS IN THE REPUBLIC OF TAJIKISTAN**

*Abstract. The article summarizes the results of a study of the epizootic situation of animal rabies in the Republic of Tajikistan. It has been established that the southern regions of the republic are the most unfavorable for rabies; dogs are the main source of rabies infection in the republic. Of the pathological material samples examined in 2012-2022, the southern regions accounted for 92.3% of morbidity cases and only 7.7% in the northern regions.*

*Key words: Animal rabies, diseases, epizootic situations, cattle, cats, dogs.*

The territory of the Republic of Tajikistan is an endemic zone for rabies infection, which is determined by the presence of natural-climatic, socio-economic and environmental prerequisites for the course of the epizootic process of natural and especially anthropogenic rabies.

Monitoring was carried out mainly in the southern regions of the republic; data and pathological materials were also received from the northern regions.

We processed statistical data from the State Veterinary Surveillance Service (SGVS), the National Center for Veterinary Diagnostics (NCVD), and the Republican Sanitary Epidemiological Station (RSES).

The aggravation of the epizootic situation in recent years is associated with another cyclical rise in the incidence of rabies in animals, of which 92.3% are in the southern regions and only 7.7% in the northern regions of the republic, which gave us reason to continue to study the characteristics of the spread of this disease in the southern regions republics. The disease is characterized by long-term problems with rabies, due to the presence of active stationary foci of natural rabies, in which the infectious agent constantly circulates. The largest number of rabies cases over the past 10 years have been registered in the same regions and cities in the south of the republic. At the same time, it should be noted that new foci of rabies have appeared on the territory of other previously prosperous administrative territories, which indicates an expansion in the number of troubled areas in the southern regions.

A study was conducted of positive rabies cases from 2012 to 2022 (Fig. 1).

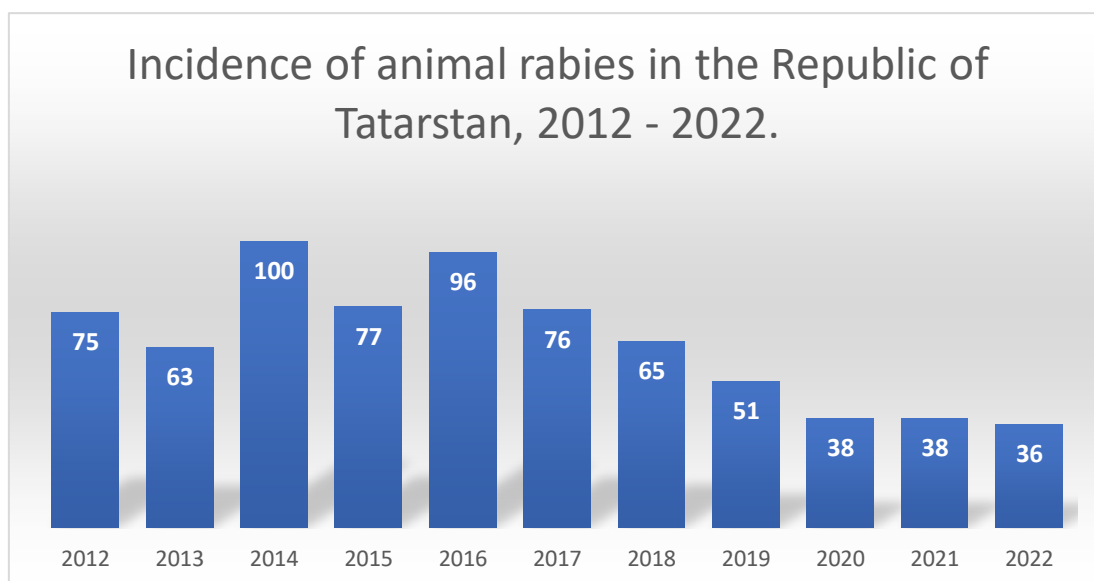


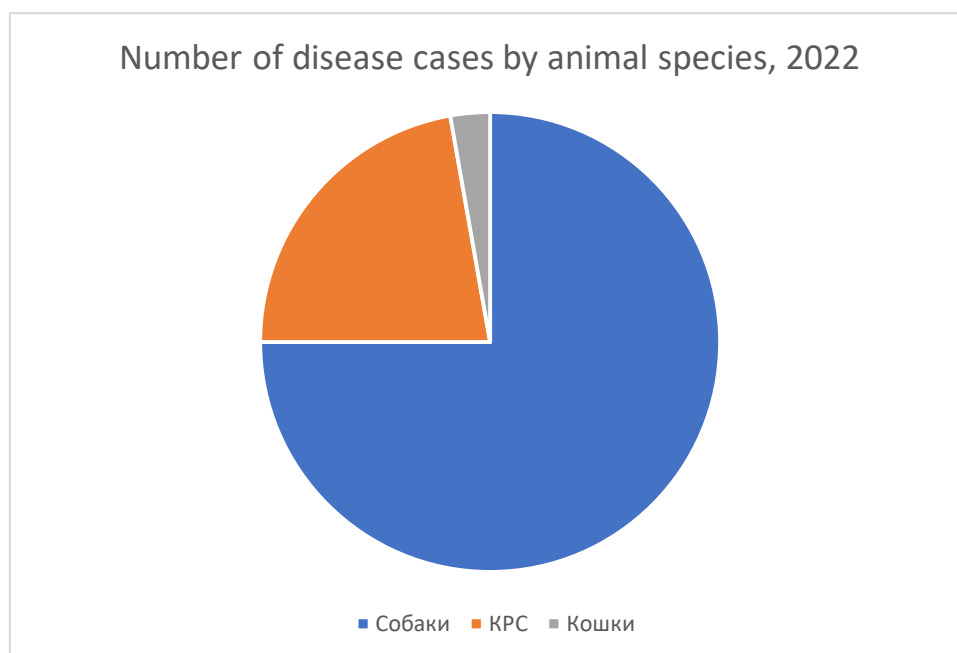
Fig. 1. Incidence of animal rabies in the Republic of Tatarstan, 2012 - 2022.

According to Fig. 1, it can be seen how an increase in incidence is replaced by a decrease. This is due to various reasons: improved sanitary education, vaccination, reduction in the number of stray animals, etc.

However, issues such as the disposal of animal corpses remain unresolved, which is especially important for urban settlements where the population density of small domestic animals is high and there are no burial grounds, there is poor organization of work on registration and certification of animals, and insufficient coverage of domestic animals with preventive immunization.

During this period, there is a tendency for periodic outbreaks of the disease. Thus, there was a surge in rabies cases in 2014 (100), 2018 (65). In the period 2019-2022, there was a decrease in the number of unfavorable points for rabies (36).

Analysis of statistical data on the registration of animal rabies in the territory of the RRP in 2022. made it possible to reveal that in the structure of morbidity the first place was occupied by dogs (75%), the second by cattle (22.2%), and the third by cats (2.8%).



Rice. 2. Number of disease cases by animal species, 2022.

Studies of samples of pathological material (brain, ammon's horns) were carried out comprehensively using light and fluorescent microscopy. In case of obtaining a questionable or negative result from microscopy, biological tests were performed on white teenage mice, as well as ELISA and PCR.

Analysis of cases by animal species in 2022 Table 1

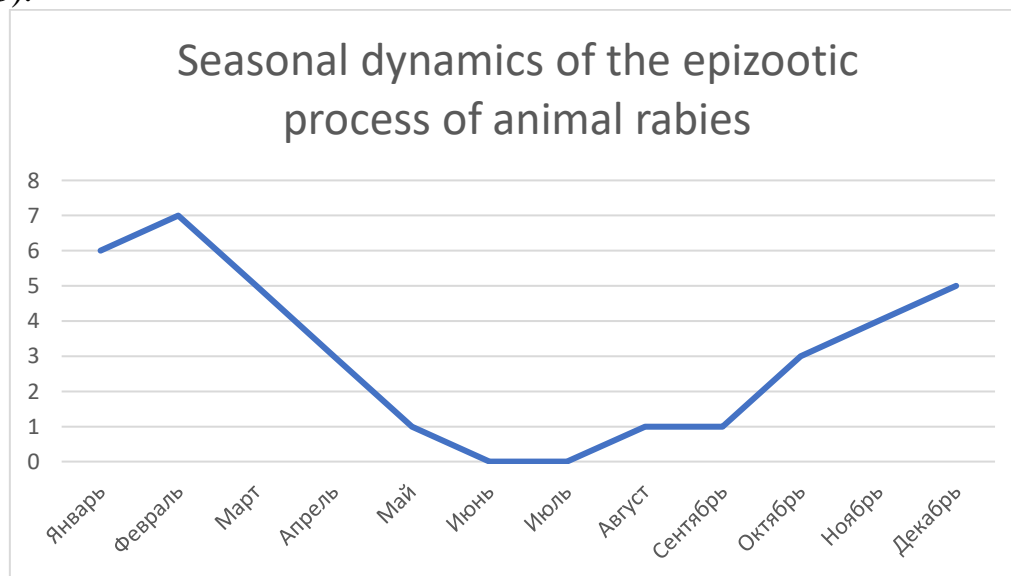
/п	Name of animals	Quantity of goods received	Of these, positive		
			Histology	ELISA	PCR
1	Dogs	27	12	17	27
2	КРС	8	4	6	8
3	Cats	1	0	0	1
4	TOTAL:	36	16	23	36

As a result of the studies, it was found that 16 out of 36 samples tested were positive using histology; Babes-Negri bodies were not detected in samples from the cat using this method. To compare the research results, we conducted additional studies using ELISA and PCR. In ELISA we received 7 more positive results. It follows that ELISA has better specificity and sensitivity compared to histology. And according to the PCR results, 36 positive results were identified, which is 13 samples more than in the ELISA. Therefore, PCR is the most sensitive and specific method (Table 1).

When conducting PCR studies, the rabies virus was detected in all samples. This suggests that PCR is the most effective diagnostic method when other

methods fail to detect the virus and therefore PCR is the most optimal method for confirming the diagnosis.

The study of seasonal dynamics showed that the epizootic process of rabies occurs year-round with pronounced increases in the autumn-winter and winter-spring periods, which is due to the biology of the reproduction of wild carnivores (Fig. 3).



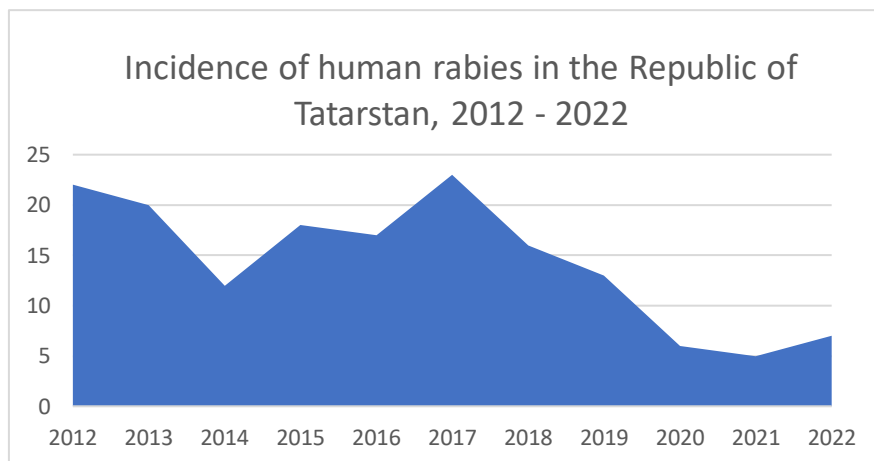
Rice. 3. Seasonal dynamics of the epizootic process of animal rabies

To maintain the epizootic of the rabies virus, the natural geographical features of the area of the study area are also influenced, namely the presence of a ravine-gully system with a large number of tugai forests, creating favorable conditions for the reproduction of wild carnivores - the main sources of natural rabies.

Epizootological monitoring of rabies in the country allows us to confirm the fact of a natural alternation of ups and downs of the epizootic. At the same time, new features of the epizootic situation are obvious, associated with an increase in the number of dogs, cats and wild carnivores. Stray, neglected dogs and cats naturally concentrate in the places richest in easily accessible food: on the outskirts and in the immediate vicinity of populated areas. The habitats of wild carnivores have approached these same places. Foxes and wolves, for example, have become quite common in suburban landscapes. In such conditions, the number of reports of detection of cases of rabies in dogs, cats, foxes, and wolves in cities and large populated areas is growing.

According to the State Veterinary Surveillance Service and the Republican Sanitary Epidemiological Station, it is known that outbreaks of infection are registered throughout the republic, incl. previously prosperous areas (Fig. 1, 4).

According to our research, it was found that from 2002 to 2022, 159 people died from hydrophobia (Fig. 4).



Rice. 4. Incidence of hydrophobia in people in the Republic of Tatarstan, 2002-2022.

To successfully combat rabies, it is necessary to have sufficient funding and implement a set of organizational and economic measures with proper scientific support for the problem.

Conclusion. It has been established that the southern regions of the republic are the most unfavorable for rabies; dogs are the main source of rabies infection in the republic. Of the pathological material samples examined in 2012-2022, the southern regions accounted for 92.3% of morbidity cases and only 7.7% in the northern regions.

Rabies in the Republic of Tajikistan remains a huge problem, because...Every year, unfavorable points for rabies are registered, incl. in previously prosperous regions of the republic.

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## **REQUIREMENTS FOR PROFESSIONAL TRAINING OF STUDENTS: THEORY AND ANALYSIS**

*Annotation. The article reflects the views of scientists-teachers on improving the professional training of students, the requirements for the preparation of students, the Law "On Education", the state educational standards of the Republic of Uzbekistan.*

*Keywords: system of higher education, analysis of legal documents, the Law "On Education", requirements for the preparation of students, competence.*

As a result of changes in the social, economic and political spheres of our country, the content of higher education has also been updated, which, in turn, was reflected in the Law "On Education" dated September 23, 2020. Article 11 of this Law is dedicated to the higher education system, and it sets requirements for the professional training of students studying in higher education. In particular, "Higher education ensures the training of highly qualified personnel in undergraduate and graduate specialties.

Also, the "Uzbekistan state standard" approved by Appendix 1 of the order of the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan dated July 16, 2021 No. 311 "Approval of state educational standards of higher education". The standards of continuous education of Uzbekistan. State educational standard of higher education, paragraph 6 "The basic rules of qualification requirements for the training of graduates", the requirements for the preparation of a bachelor's and master's degree are as follows: should ensure effective work and continue education at the master's degree in the relevant specialty.

Based on this, the requirements for the professional competences of the future specialist (bachelor or master's degree) for qualified students of the relevant educational fields and specialties being prepared in higher education are expressed on the basis of general competences, professional competences.

Also, competence requires constant enrichment of professional knowledge, learning new information, understanding important social requirements, finding new information, processing it and being able to use it in one's work.

The following qualities are reflected on the basis of professional competence:

1. Social competence - the ability to show activity in social relations, the ability to communicate with subjects in professional activities.

2. Special competence - preparing for the organization of professional-pedagogical activities, rationally solving professional-pedagogical tasks, realistic assessment of activity results, consistent development of knowledge, skills and

competence, based on this competence psychological, methodical, informational, creative, innovative and communicative competence is evident. They represent the following content:

1) psychological competence - the ability to create a healthy psychological environment in the pedagogical process, to organize positive communication with students and other participants of the educational process, to be able to understand and eliminate various negative psychological conflicts in time;

2) methodical competence - methodically rational organization of the pedagogical process, correct determination of forms of educational or educational activity, ability to choose methods and tools in accordance with the purpose, ability to use methods effectively, use tools successfully;

3) informational competence - searching, collecting, sorting, processing necessary, important, necessary, useful information in the information environment and using it purposefully, appropriately, effectively;

4) creative competence - a critical, creative approach to pedagogical activities, the ability to demonstrate one's own creative skills;

5) innovative competence - improvement of the pedagogical process, improvement of the quality of education, promotion of new ideas to increase the effectiveness of the educational process, their effective implementation in practice;

6) communicative competence - to communicate sincerely with all participants of the educational process, including students, to be able to listen to them, to have a positive influence on them.

3. Personal competence - consistently achieving professional growth, increasing the level of competence, demonstrating one's inner capabilities in professional activity.

4. Technological competence - mastering advanced technologies that enrich professional-pedagogical knowledge, skills and competence, ability to use modern tools, techniques and technologies.

5. Extreme competence - the ability to make rational decisions and act correctly in emergency situations (natural disasters, technological process failure), when pedagogical conflicts arise.

The fact that the theoretical and organizational foundations of preparation for pedagogical activities in higher education institutions are insufficiently developed requires improvement by determining their structure and content. Determining the components of readiness for innovation and its levels on this basis, the application of psychological aspects of readiness for professional innovative activity, and the need for pedagogical diagnosis in the development of students' readiness for innovative activity indicate that it is necessary.

Theoretical and practical studies have been conducted on the problem of teacher training in modern pedagogical and psychological sciences. Modern research proves that readiness is the main condition for the successful implementation of any activity. "Supporting the motivational readiness of

psychology teachers for innovative activity" by V. V. Stepanov, "Forming the readiness of future engineers to work in the university educational process" by N. S. Ponomareva, E. A. Podvigina conducted research on the topic of "Formation of the future teacher's readiness for innovative activities through the means of information".

As a result of the analysis of philosophical, pedagogical, psychological and sociological ideas about the process of professional training in higher education, two different approaches to determining its essence can be distinguished. The first approach is related to the development and self-development of the individual, and the second is related to the integration of the individual into a certain professional activity system, or in other words, the mastering of this activity system. Then, the main problem of the professional education process can be formulated as a conflict between the system of changing professional activity and the individual development of each person, his formation as a subject of this activity.

As a result of our analysis of theoretical sources, we have confidence in researching the process of professional training carried out within the field of pedagogy, however, in the first of these positions, human development prevails in the process of professional training. In general, in theoretical and philosophical terms, personality has always been considered not as an object, but as a subject of activity, as an active, creative being.

Conclusion is in order. A professional's professional training or competence is related to success in personal and professional areas. In fact, the main psychological condition for successful activity in any field is self-confidence. In our opinion, the professional competence of a highly educated specialist is a complex integrated system of the specialist's internal mental states and personality traits. His readiness to perform professional activities and the ability to perform the necessary actions are considered. The basis of the professional development of a person is the formation of professional competence, that is, the development of a person in the process of professional training, acquiring a profession and carrying out professional activities.

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## **REVIEW OF LITERATURE OF SIMPLE AND COMPLEX LIPIDS**

*Annotation. Information is provided on the classification, physiological and biological properties of simple and complex lipids.*

*Keywords: fat, oil, phospholipids, sulfolipids, cerebrosides.*

A mixture of complex organic compounds obtained from plants and animals, consisting of fats and fatty substances with different chemical structure and physiological and biochemical properties, but common physical properties, is called lipids. Lipids (from Greek, Lipos - fats) are the main part of the organic matter of living cells, like proteins and carbohydrates. Lipids are insoluble or very poorly soluble in water. It dissolves in non-polar solvents: acetone, benzene, chloroform, methyl and ethyl alcohols. They are hydrophobic substances. Lipids contain higher fatty acids, alcohols, aldehydes, carbohydrates, nitrogenous bases, amino acids, phosphoric acid and a large number of different cloud structure components. It is divided into the following groups according to its composition and characteristics.

1. Simple lipids. This group includes complex esters of high molecular fatty acids formed with some alcohols. For example, neutral fats - (complex esters of glycerol with high molecular fatty acids), fatty substances - waxes (complex esters of fatty acids with high molecular monoatomic alcohols) and others. Waxes also include steroids (esters of sterols with fatty acids).

2. Complex lipids. In addition to fatty acids and alcohols, the lipid molecule of this group contains other compounds: residues of phosphate or sulfuric acids, nitrogen-containing bases, some sugars, etc. For example, phospholipids, sulfolipids, cerebros

3. Other types of lipids. Lipids of this group are composed of compounds that make up lipids of the two groups indicated above or intermediate substances formed from their biosynthesis and decomposition. For example, mono and diglycerides (a complex ester formed by glycerol with one or two fatty acids), high molecular fatty acids, high molecular alcohols (sterols, vitamin A,

zeaxanthins, etc.), fat-soluble vitamins D, E and K, high molecular weight hydrocarbons (including carotenoids), simple esters of glycerol, etc.

In medical and pharmaceutical practice, simple lipids (neutral fats) - triglycerides and waxes are used as a base, solvent and binding agent for the preparation of medicinal substances, ointments and other types of drugs. The science of pharmacognosy deals only with the study of ordinary lipids, i.e., gangliosides, etc. Although oils and waxes are similar in appearance and physical properties, they are very different in terms of chemical properties. Fats are very common in the plant and animal world and serve as reserve nutrients for them. Oils are a mixture of complex organic substances obtained from plants and animals. The main part of these mixtures is made up of glycerides - complex esters of glycerol and fatty acids. Therefore, it is possible to form a complex ester formed by triatomic alcohol - glycerol with higher fatty acids. Although the number of acids that make up oils is more than 30, the number of acids that are always found in the composition of oil does not exceed 8.

In addition to glycerides, the main part of oils contains the following compounds:

1. Pure fatty acids are always found in oils. They are formed as a result of the hydrolysis of fats during the extraction and storage of fat.

2. Sterols are high-molecular polycyclic monoatomic alcohols and their complex esters formed with fatty acids. Sterols found in animal fat - zoosterols are mostly cholesterol, and phytosterols are sitosterol, stigmasterol and ergosterols.

3. Phosphatides are mixed complex esters of glycerol formed with fatty and phosphoric acids. Phosphatides contain nitrogenous bases, except for glycerin, which is a phosphoric acid. Among phosphatides, lecithin is often found in oil.

4. Lipochromes are dyes that give color to oils. These include chlorophyll, carotenoids - carotene, xanthophyll, as well as gossypol found in cottonseed oil and pigments in fish oil.

5. Vitamins - fats often contain A (or carotene), B, E and other vitamins.

6. Chromogenic substances are organic substances that cause certain color reactions of oils. For example, sesamol in sesame oil and gossypol in cottonseed oil are among them.

All the above-mentioned compounds are called lipoloids. Lipoids are fat-soluble and water-insoluble. In addition to lipids, fats contain proteins and mucous substances, enzymes, hydrocarbons, essential oils, resins, high molecular alcohols, minerals and other substances. When extracting fat from plant and animal organs, these substances can enter into their composition.

In a living plant cell, oils are always in liquid form. Along with oil, the lipase enzyme is found in the cells. Lipase enzyme synthesizes oil from glycerol and fatty acids and breaks it down into these substances. Plant growth conditions (growing season, climate, moisture content, soil composition, etc.) greatly affect the quantity and quality of the oils contained in them.



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## **RULES OF USE OF NITROGEN FERTILIZERS AND THEIR DAMAGES**

*Annotation. This article explains that nitrogen fertilizers are important to all plants, but their amounts should be determined correctly, and applied at the recommended times depending on the properties of the fertilizers.*

*Keywords: mineral fertilizers, ammonium nitrate, nitrogen deficient, fruits, vegetables.*

Mineral fertilizers differ in high concentration of nutrients. The composition of mineral fertilizers is different. It is divided into complex and simple, depending on the composition of the necessary nutrients. Fertilizers should be applied sparingly by monitoring soil nutrient levels. In this case, there will be no harm from their chemical composition. Many gardeners know what mineral fertilizers are. They have inorganic properties that contain all the nutrients that plants need. Such additives and fertilizers help to increase soil fertility and produce good crops. Today, liquid mineral fertilizers used in small gardens and garden plots are becoming popular. In addition, there are 3 important nutrients for plants - mineral fertilizers such as nitrogen, phosphorus, potassium. The use of mineral fertilizers requires a careful approach and can cause a lot of damage to the soil and plants in combination with organic substances (if the dosage is incorrect for use). Therefore, we will consider the ways of proper use of nitrogen mineral fertilizers and their harm, signs of nitrogen deficiency.

Nitrogen-critical crops In general, every crop needs nitrogen, but the application rate varies for specific crops. Taking this into account, all plants can be divided into categories of nitrogen requirements:

**The first category** - to activate growth and development, you can introduce plants that need to be fed with nitrogen before planting in the ground. For such crops, approximately 26-28 g of nitrogen are needed per square meter, calculated on the basis of ammonium nitrate. This category includes: potatoes, cabbage, bell pepper, eggplant, pumpkin and chamomile; from berries and fruits: plums, cherries, raspberries and wild strawberries; flowers include: lilies, roses, violets, carnations, and nasturtiums.

**The second category** - is crops that need nitrogen. Usually, only 18-19 g of nitrogen per square meter is enough for ammonium nitrate. Vegetable crops include: tomatoes, cucumbers, carrots, corn, beets and garlic; from berries and

fruits: apple tree, currant, gooseberry; from flowers: all annual flowers and delphiniums are included.

**The third category** - these are plants that need nitrogen, which should not exceed 10-12 g per square meter, calculated according to ammonium nitrate. Vegetables in this category include: early ripening potatoes, radishes and onions; from fruits - pear; flowers include: bulbs, marigolds, adonis, saxifrage and daisies.

**The fourth category** - should not exceed 5-6 g in terms of ammonium nitrate. Vegetable crops: herbs and leguminous plants; from flowers - hashes, azaleas, erika, pushlan and cosmeias are included.

Do not forget that only appropriate doses of nitrogen fertilizers have a positive effect on the development and growth of various crops. Fertilization should be calculated according to the percentage of nitrogen in a certain fertilizer, as well as according to the type of soil, season and plant type. For example, when nitrogen is introduced into the soil in the fall, there is a risk that it will be washed into the groundwater. Therefore, spring is the best time for nitrogen fertilization. If you plan to fertilize the soil with high acidity, be sure to mix various components that neutralize the acidic effect of nitrogen - chalk, lime, dolomite flour. Thus, fertilizers are better absorbed and the soil is not acidified. For the people of the steppe zone and forest-steppe, where the soil is mainly dry, it is very important to apply nitrogen fertilizers periodically, without sharp interruptions, which affects the growth, development and productivity of plants. can do. 11-12 days after the snow melts, it is better to apply nitrogen fertilizers to chernozem soils. The first top is done with urea, and when the plants enter the active phase of the growing season, ammonium nitrate is added.

The consequences of nitrogen deficiency. We've covered this in part, but nitrogen deficiency doesn't just stop growth. In addition, often the leaves of the plant begin to have an atypical color, they turn yellow, and this is the first signal of fertilizer application. With a lack of nitrogen, in addition to the yellowing of the leaf blades, their tips gradually begin to dry.



Figure 1. Symptoms of nitrogen deficiency in Corn leaves; Figure 2. Symptoms of nitrogen deficiency in cucumber leaves.

DEFICIENCY in Corn leaves; deficiency in cucumber leaves.

Can nitrogen fertilizers be harmful? Yes, maybe there are too many of them. Usually, with an increase in nitrogen, the upper mass of plants begins to develop

very actively, the shoots thicken, and the number of leaves increases. The green mass acquires atypical magnificence and softness, and flowering is weak or short or absent, so the ovary is not formed, and fruits and berries are not formed. If there is a lot of nitrogen, symptoms such as burning will appear on the leaves, in the future such leaves will die and fall off prematurely. Death of leaves sometimes leads to partial death of the root system, so nitrogen application should be normalized.

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## **BEE MILK, VENOM AND THEIR USE IN FOLK MEDICINE**

*Abstract. Bees are one of the seven treasures - our people say. Bees collect a lot of medicinal honey, wax, propolis, pollen, and at the same time have a great positive effect on the development of agricultural crops, especially horticulture, vegetable growing, greenhouse farms, and cotton growing. This article provides information about bee milk, venom and their use in folk medicine.*

*Key words: Bees, queen bee, bee milk, bee venom, honey products, food industry, bee venom in medicine.*

Today, the demand for beekeeping in Uzbekistan and maintaining reasonable specialization in the production of honey and bee products (wax, propolis, propolis, bee milk and nectar), which is a medicinal product, is the reason for our independent republic's daily transition to a market economy. The beekeepers of our republic have a firm task to increase the production of honey and bee products at the expense of increasing the productivity of each bee family. This requires every beekeeper and every manager to take care of the bee colony in accordance with zooveterinary rules and to move the bees to places where seral plants grow. Bee venom has been studied since ancient times, and venom has been used for treatment in folk medicine since ancient times. Today, it is used in medicine for the treatment of diseases such as radiculitis, gout, biranchial asthma, expansion of blood vessels and improvement of circulation, and medicines such as apikazone, apizatron, virapin, etc. The composition of bee venom: The venom contains up to 60% water, it is a yellowish liquid with a bitter and burning taste, and it hardens quickly in the air. Dry poison contains many proteins, amino acids, shaker, fatty acids and other acids and magnesium more than inorganic compounds. Adult bees secrete 0.4-0.8 mg of poison, the poison glands produce the most poison liquid on the 12-14th day of the bee's life. Effects and use of bee venom on the body: The mechanism of bee venom intake during a bite can be schematically expressed as follows. A bee dies a few hours after the sting. The first sting is done in the waist area, and the bee is placed on the body for only 5 seconds. Each day, the duration of the sting is extended by 5 seconds. One bee is placed on the first day, and their number is increased by one every day. A total of 10-15 bees can sting the body. If the patient cannot bear the sting, the procedure is performed separately. During the treatment with bee venom, up to 4-6 bees can be stung in one day. In this case, the treatment period includes 10 procedures. After the first 6 procedures, injections are reduced to 3. If the patient is suffering from chronic diseases, the injection method is continued continuously for 45 days, with a break of 2 months. For example, bees are placed on the skin of the hands



and feet in case of vascular diseases, especially in case of high blood pressure. Because there are many substances that strengthen the bone system in bee venom. Bee stings can also be used for neurosis, depression, and cardiovascular disorders. It is also useful in cases of reduced immunity, excess weight, gout, multiple sclerosis in the elderly, and memory loss. Bees feed their larval larvae with royal jelly, and more in the family is given to the queen bee larva. We cannot take bee milk from any family. We can get it in several ways. In the 1st method, only the queen bee can be obtained from a family in need. For this, the mother bee is separated from the family. The family will be left without queen bees. In this case, bee milk is produced, which is a product secreted from the throat glands and upper jaw glands of worker bees. Method 2: We select a strong family and divide it into strong and weak families. We leave the mother bee with a weak family. The reason is that the packed seed frames will then increase the number of worker bees. After a certain time, we place 2 frames with young worms in the middle of the orphaned nest in special mother cells. The bees fill the special cells placed in the nest for 4 days, and in 4-5 days we collect special frames. We repeat this process several times within a period of no more than 1 month. Some literature says that this process takes 6-8 days. Based on our experience, it is important to say that this situation depends on the number of bees, the amount of food, the type of bees and several factors. It is very important for every beekeeper to understand his bees well. For example, early harvesting of special rums may result in a small amount of breast milk in the cages, and on the contrary, late harvesting may cause the worm to eat part of the milk. The chemical composition has not been fully studied to date. According to independent studies, bee milk contains 65-69% water, 14-18% proteins, 2-6% lipids, 9-18% carbohydrates and 1-2% minerals. In addition, bee milk contains vitamins B1, B2, B6, PP, pantothenic acid, biotin, inositol, folic acid, ergosterol, as well as gonadotropic hormone that activates the function of the gonads. In order to obtain bee milk, the larvae are taken from queens in beehives that are 2-2.5 days old. Bee milk creates an extraordinary exchange of active substances in the body of the mother bee, and especially in the reproductive organs. For this reason, recently, biology and medicine fields have paid a lot of attention to bee milk. When bee larvae are grafted to honey and royal jelly food to various feeds in the breeding of queen bees, the queen bee grows and develops at a high level, and its weight is slightly reduced. In particular, when bee larvae were grafted into bee milk of this family, the acceptance of larvae increased by 94.4% and the weight of the mother bee reached  $191.6 \pm 1.28$  mg. This indicates that artificial breeding of queen bees in bee-breeding farms from early spring has a positive effect on increasing family productivity.

#### **Conclusion:**

Bee products are widely used in cosmetics. In the following decades, in many countries, special attention is being paid to the healing properties of biologically active substances contained in some products that are gifts of nature. For the same purpose, they found that the biologically active substances contained

in beekeeping products serve as an excellent source for the preparation of various medicines in cosmetics.

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## **LEXICAL TRANSFORMATIONS IN THE USAGE OF MEDICAL TEXTS**

*Abstract. The text is able to provide information about the classification of transformations, mainly lexical transformations (transcription, transliteration, calque, concretization, modulation, generalization) in translation of medical texts. It analyzes the use of lexical translation and gives explanations of the use of the most appropriate type of lexical transformations for the given discourse. It also investigates the importance of translating medical documents accurately.*

*Key words: translation, lexical transformations, transcription, transliteration, generalization, blueprints, modulation, specification, calque.*

Transforming medical texts is becoming increasingly prevalent for several reasons. First of all, it can be because of globalization and multilingualism. With advancements in technology and increasing globalization, healthcare professionals and researchers are working in increasingly diverse and multilingual environments. Translating medical texts enables effective communication and collaboration across language barriers, allowing professionals from different regions and linguistic backgrounds to access and exchange knowledge. Furthermore, it may enhance language accessibility. Many medical texts, scientific articles, research papers, and clinical guidelines are originally written in major languages like English. However, not all healthcare professionals and researchers have a high level of proficiency in these languages. Transforming medical texts into different languages, including less widely spoken languages, improves access to valuable information for professionals who are more comfortable in their native languages. Additionally, translating medical texts facilitates international research collaboration and knowledge sharing. It allows researchers and healthcare professionals from different countries and language backgrounds to access and contribute to the global body of medical knowledge. By breaking down language barriers, transformative technologies promote collaboration, innovation, and the dissemination of medical advancements.

According to V. N. Komissarov transformations are divided into three groups:

1) Lexical transformations (transcription, transliteration, calque, concretization, modulation, generalization);

2) Grammatical transformations (transposition, grammar substitution, sentence integration, sentence partitioning);

3) Complex (lexical and grammatical) transformations (antonymic translation, descriptive translation, integral translation).

While translating medical texts lexical transformations are the most appropriate ones that help to enhance the quality of translated documents. Transcription is a method of writing down speech sounds. It is essential to differentiate between a phonetic transcription and a practical transcription. In medicine field, this type of method is really helpful while translating the name of certain drugs, diseases or names that are related to medicine. For example, "cardiovascular disease" - "kardiovaskulyarkasallik". In this example, the English term "cardiovascular disease" is transcribed into phonetic symbols, representing the sounds of the word. The transcription provides a guide for pronunciation. Then, the transcribed term is translated into Uzbek, resulting in "kardiovaskulyarkasallik" in Uzbek script. Abroad, transliteration, defined as writing a word in a different alphabet, is often associated with transcription. However, strictly speaking, the notion of transliteration is based on representing written characters of one language by the characters of another language. For example, "vaccine" - "vaksina", "asthma" - "astma" or "diabetes" - "diabet". Blueprint translation is the translation of a word or a phrase by parts: AIDS (Acquired Immune Deficiency Syndrome) - OITS (Ortirilgan Immunitet Tanqisligi Sindromi). A calque is a word-for-word translation from one language to another. For example, "heart diseases" - "yurakkasalliklari".

Specification, or substituting words with a wider meaning with words of a narrower meaning. For this type of transformation "osteoporosis" can be as an example which is in Uzbek translation "suyakto'qimasining yemirilishi". As you see it helps to produce accurate translation with wider meaning. Generalization, or substituting words of a narrower meaning with those of a wider meaning. The English term, "antibiotic" translates into Uzbek as "antibiotiklar". Modulation is a logical development of the notion expressed by the word. For example, the Uzbek term "umurtqa" can be translated both "back" or "vertebra" but with the help of this translation method we will choose "vertebra" because it means exact "umurtqasuyagi". It is essential to note that not all types of transformations are used while translating medical terms. As the most difficult sphere for translators is medicine, they should be careful with the documents that they translate. Translators have the responsibility of accurately translating words into the target language while maintaining the tone, intent, and style of the original text. It is important to translate the meaning rather than focusing solely on individual words, sounds, style, or grammar. Meaning involves a complex arrangement of linguistic elements such as vocabulary, grammar, style, phonology, and usage. Generally, anything that is not relevant to the meaning is not considered part of the translation, although there may be exceptions in cases like poetry where

sounds hold more importance than strict meanings. Meaning can be derived from a single word or a group of words, enabling independent understanding. Therefore, a word represents the smallest unit of meaning, while a sentence represents the largest. It is crucial to approach translation as a form of communication, prioritizing comprehensibility and readability over adherence to outdated notions of correctness. In essence, translation involves conveying the meaning of a source-language text through an equivalent target-language text. Furthermore, translators of medical texts should consistently use specific terms and stylistic elements of the language-specific norms in all parts of the target documents. In order to enhance the quality of the translated documents, the medical translators have to use a lot of tools for translation, such as Monolingual dictionaries in English /English like Oxford and Merriam Webster and Bilingual dictionaries in English/Uzbek in order to select the appropriate medical terms in the Uzbek language. For example, the Uzbek term “to’shsuyagi” has the appropriate equivalent in Merriam Webster dictionary “sternum”. But if we used wrong method of translation like calque it would be like “chest bone” which is not correct.

Based on the present study's findings, translators need to be trained to work in the medical field before starting their job. The following recommendations are also helpful:

- Medical specialists and Uzbek expert translators could produce an English-Uzbek dictionary that includes medical compounds and abbreviations, which would be a valuable reference for Uzbek translators.

- Using medical dictionaries and other resources to find the definition of a term is an integral part of mastering the correct use of medical terms.

- Medical translation is a sensitive area, and a translator should make sure that he/she chooses an equivalent for the English term in Uzbek.

- Solving the problem should continue beyond the dictionary rather than exceed the written word to lectures, conferences, and even the medical media.

- Medical terminology is not static; it always has new terms that may not have direct equivalents in Uzbek.

- Uzbek expert translators and linguists could set up a special committee. This committee could meet regularly to discuss and create an Uzbek equivalent for each new medical term.

- Further study is needed to investigate how medical terminology in Uzbek and English works. Translating medical terms from English into Uzbek is the main problem in medical texts. The present study attempted to determine how translators can overcome and tackle such translation difficulties. Understanding the meaning of affixes used with medical terms will help a translator tackle the problem of translating medical terms which include affixes. Neologism, non-equivalence, polysemy and terminological inconsistency pose serious translation problems; therefore, the study aims to draw up some strategies to help a translator to deal with these problems. The need for updated English-Uzbek medical

dictionaries negatively influences the work of Uzbek translators in the medical field, as most consult such dictionaries to look for the meanings of medical terms. Translators usually rely on technical dictionaries, computer-aided translation tools (CAT, translation memories, term bases, terminology management systems, cloud-based and server-based translation systems) and websites besides their own knowledge. However, these resources often do not help Uzbek translators as many new technical terms cannot be found in English-Uzbek dictionaries or technological translation supports.

To sum up, translator's knowledge of the subject matter behind the text is critical. Translators are required to have a good understanding of the source language (SL) and proficient use of the target language (TL). The more knowledge a translator possesses about the subject that he/she translates, the more accurate a translation he/she produces.

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## **DEKART KOORDINATALARI SISTEMASI VA SFERIK KOORDINATALI SISTEMASI ORASIDAGI BOG'LANISH**

*Annotatsiya. Ushbu maqolada sferik koordinatalar sistemasining ayrim qo'llanishlari bayon etilgan. Xususan, sfera tenglamasi, koordinata tekisliklari tenglamalari keltirilgan, hamda uch karrali integralni hisoblashda sferik koordinatalardan foydalanishga oid misol yechib ko'rsatilgan.*

*Kalit so'zlar: Dekart koordinatalar, sferik koordinatalar, sfera, uch karrali integral.*

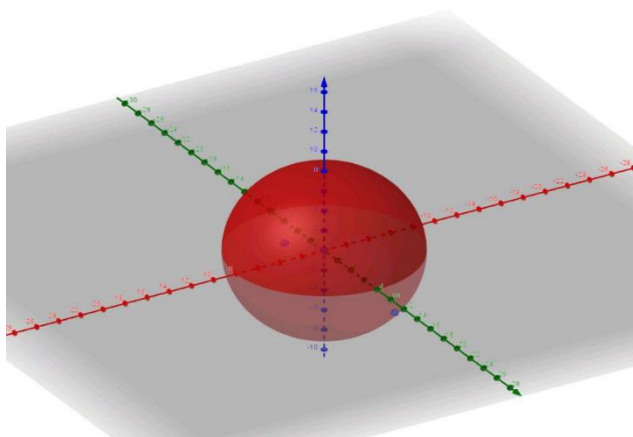
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## **RELATIONSHIP BETWEEN THE CARTESIAN COORDINATE SYSTEM AND THE SPHERICAL COORDINATE SYSTEM**

*Abstract. This article describes some applications of the spherical coordinate system. In particular, the equation of the sphere, the equations of the coordinate planes are presented, and an example of the use of spherical coordinates in the calculation of the triple integral is shown.*

*Key words: Cartesian coordinates, spherical coordinates, sphere, triple integral.*

Fazoda Oxyz dekart koordinatalari sistemasi kiritilgan bo'lsin. Markazi koordinatalar boshida (ya'ni O nuqtada) bo'lgan R radiusli sferani qaraylik.



Ma'lumki, bu sferaning nuqtalari

$$x^2 + y^2 + z^2 = R^2$$

tenglama bilan aniqlanadi. Sferadagi biror (ixiyoriy ravishda tanlangan) A nuqtaning Oxy tekisligiga proyeksiyasi A' nuqta bo'lsin. OA' Kesma Ox o'qi bilan  $\varphi$  burchak hosil qilsin. OA va OA' kesmalar orasidagi burchak esa  $\psi$  bo'lsin. U holda chizmadan A nuqtaning  $x_A, y_A$  va  $z_A$  koordinatalari va  $R_A, \varphi_A, \psi_A$  kattaliklar orasida

$$\begin{aligned}x_A &= R_A \cos \varphi_A \cos \psi_A, \\y_A &= R_A \sin \varphi_A \cos \psi_A, \\z_A &= R_A \sin \psi_A\end{aligned}$$

bog'lanishlar mavjudligini ko'rish mumkin. sin va cos funksiyalar davriy bo'lganligi uchun bu bog'lanishlar o'zaro bir qiymat bo'la olmaydi. O'zaro bir qiymatlilikni saqlash maqsadida

$$\begin{aligned}0 &\leq \varphi < 2\pi, \\-\frac{\pi}{2} &\leq \psi \leq \frac{\pi}{2}\end{aligned}$$

cheklovlar kiritiladi. A nuqta ixtiyoriy ekanligidan qaralayotgan sferadagi har qanday (x, y, z) koordinatali nuqta

$$\begin{aligned}x &= R \cos \varphi \sin \psi \\y &= R \sin \varphi \cos \psi \\z &= R \sin \psi \\0 &\leq \varphi < 2\pi, \\-\frac{\pi}{2} &\leq \psi \leq \frac{\pi}{2}\end{aligned}$$

munosabatlarni qanoatlantiradi.

Hosil qilingan  $\{O, R, \varphi, \psi\}$  sistema fazodagi sferik koordinatalari sistemasi deyiladi. Bunda yuqoridagi munosabatlar sferik koordinatalar  $R, \varphi, \psi$  dan Dekart koordinatalar  $x, y, z$  ga o'tish formulalari deb yuritiladi.

$\{O, R, \varphi, \psi\}$  koordinatalar sfera orqali kiritilgani uchun sferik koordinatalar sistemasi deb yuritiladi.

Boshqacha izoh: Fazoda tayinlangan O nuqta va  $R > 0$  kattalik o'zgarmasa  $\varphi$  va  $\psi$  kattaliklar qabul qilishi mumkin bo'lgan barcha qiymatlarni qabul qilganda hosil bo'lgan nuqtalar to'plami fazodagi sferani beradi.

Shuni alohida takidlash joizki,  $R = 0$  bo'lganda  $\varphi$  va  $\psi$  kattaliklarning har qanday qiymatida ham yagona O nuqta hosil bo'laveradi. Shuning uchun odatda  $R > 0$  qiymatlar qaraladi.

Endi Oxyz fazodagi koordinatalar bilan berilgan nuqtaning  $R, \varphi, \psi$  sferik koordinatalarini topamiz. Chizmada ko'rinadiki,

$$\begin{aligned}R &= \sqrt{x^2 + y^2 + z^2}, \\ \varphi &= \arccos \frac{x}{\sqrt{x^2 + y^2}}, \text{ yoki } \varphi = \arcsin \frac{y}{\sqrt{x^2 + y^2}} \\ \psi &= \arcsin \frac{z}{\sqrt{x^2 + y^2 + z^2}}, \text{ yoki } \psi = \arccos \frac{\sqrt{x^2 + y^2}}{\sqrt{x^2 + y^2 + z^2}}\end{aligned}$$

(2) munosabatlar dekart koordinatali sistemasidan sferik koordinatalar sistemasiga o'tish formulalari deb yuritiladi.

Ayrim fazoviy figuralarning sferik koordinatalar sistemasidagi tenglamalarni keltiramiz.

1. Markazi koordinatalar boshida bo'lgan, radiusi  $R_0$  ga teng sfera tenglamasi:

$$R = R_0$$

2.  $x = 0$  tekislik (ya'ni, O $xz$  koordinatalar tekisligi) tenglamasi:

$$\varphi = \frac{\pi}{2}, \psi = \frac{3\pi}{2}$$

3.  $y = 0$  tekislik tenglamasi (ya'ni O $xz$  koordinata tekisligi) tenglamasi:

4.  $z = 0$  tekislik (ya'ni O $xy$  koordinata tekisligi) tenglamasi:

$$\psi = \frac{\pi}{2}$$

Endi sferik koordinatalar sistemasining uch karrali integrallarni hisoblashdagi tatbig'ini ko'rsatamiz. Buning uchun

$$\iiint_{\Omega} f(x, y, z) dx dy dz = \iiint f(R \cos \varphi \cos \psi, R \sin \varphi \cos \psi, R \sin \psi) |J| dR d\varphi d\psi$$

formuladan foydalaniladi. Bu yerda  $J$  Yakobian deb ataluvchi ushbu determinantdan iborat:

$$J = \begin{vmatrix} \frac{\partial x}{\partial R} & \frac{\partial x}{\partial \varphi} & \frac{\partial x}{\partial \psi} \\ \frac{\partial y}{\partial R} & \frac{\partial y}{\partial \varphi} & \frac{\partial y}{\partial \psi} \\ \frac{\partial z}{\partial R} & \frac{\partial z}{\partial \varphi} & \frac{\partial z}{\partial \psi} \end{vmatrix} = \begin{vmatrix} \cos \varphi \cos \psi & -R \sin \varphi \cos \psi & -R \cos \varphi \sin \psi \\ \sin \varphi \cos \psi & R \cos \varphi \cos \psi & -R \sin \varphi \sin \psi \\ \sin \psi & 0 & R \cos \psi \end{vmatrix} =$$

$$= R^2 \cos^2 \varphi \cos^3 \psi + R^2 \sin^2 \varphi \sin^2 \psi \cos \psi + R^2 \cos^2 \varphi \sin^2 \psi \cos \psi + \\ + R^2 \sin^2 \varphi \cos^3 \psi = R^2 \cos^3 \psi + R^2 \sin^2 \psi \cos \psi = R^2 \cos \psi$$

Demak,

$$\iiint_{\Omega} f(x, y, z) dx dy dz = \iiint f(R \cos \varphi \cos \psi, R \sin \varphi \cos \psi, R \sin \psi) R^2 \cos \psi dR d\varphi d\psi$$

Misol.

$$\iiint_{\Omega} (x^2 + y^2 + z^2) dx dy dz \text{ uch karrali integralni } \Omega: x^2 + y^2 + z^2 \leq 1 \text{ shar}$$

bo'yicha hisoblang.

$$x = R \cos \varphi \cos \psi$$

Yechish. Avvalo  $y = R \sin \varphi \cos \psi$  tengliklar qo'llab,

$$z = R \sin \psi$$

$$(x^2 + y^2 + z^2) = R^2 \cos^2 \varphi \cos^2 \psi + R^2 \sin^2 \varphi \cos^2 \psi + R^2 \sin^2 \psi = \\ = R^2 \cos^2 \psi + R^2 \sin^2 \psi = R^2$$

Ekanligini topamiz. Keyin  $\Omega$  sharning sferik koordinatalar sistemasidagi ifodasini yozib olamiz, bunda shar radiusi 1 ekanligini e'tiborga olamiz:

$$\begin{aligned} 0 &\leq R \leq 1, \\ 0 &\leq \varphi < 2\pi, \\ -\frac{\pi}{2} &\leq \psi \leq \frac{\pi}{2} \end{aligned}$$

Shuning uchun

$$\begin{aligned} \iiint_{\Omega} (x^2 + y^2 + z^2) dx dy dz &= \iiint_{\Omega} R^2 R^2 \cos \psi dR d\varphi d\psi = \int_0^{2\pi} d\varphi \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos \psi d\psi \int_0^1 R^4 dR = \\ &= 2\pi * 2 * \frac{R^5}{5} \Big|_0^1 = 4\pi * \frac{1}{5} = \frac{4\pi}{5}. \end{aligned}$$

hosil bo'ldi.

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## **DUAL LANGUAGE PROGRAMS: INNOVATIONS IN LANGUAGE LEARNING**

*Abstract. Dual Language Programs represent an innovative approach to language learning, blending the instruction of two languages within one educational setting. These programs cater to both native and non-native speakers of the target languages, promoting bilingualism, biliteracy, and cultural competence. Research highlights their effectiveness in enhancing cognitive skills, academic achievement, and cultural sensitivity. Dual language education challenges traditional monolingual frameworks, offering a more inclusive and globalized curriculum.*

*Keywords. Dual Language Programs, Bilingual Education, Language Learning, Cognitive Development, Academic Achievement, Cultural Competence, Inclusive Education, Globalized Curriculum, Biliteracy, Multilingualism.*

Dual Language Programs have emerged as a significant educational innovation, offering students the opportunity to become proficient in two languages. Unlike traditional language learning methods, these programs integrate language acquisition with grade-level content learning, making language an integral part of the curriculum. They cater to a diverse student population, including both native speakers and language learners. This approach not only enhances linguistic abilities but also fosters cultural understanding and appreciation. As globalization increases, dual language education becomes more relevant, equipping students with the skills needed in a multilingual and interconnected world.

**Conceptual Framework of Dual Language Education:** Dual Language Programs are grounded in the principles of additive bilingualism, emphasizing the value of developing two linguistic systems simultaneously. These programs typically follow a 50/50 or 90/10 model, balancing the use of two languages in instruction.

**Cognitive and Academic Benefits:** Research indicates significant cognitive advantages for students in Dual Language Programs. These include enhanced problem-solving skills, greater cognitive flexibility, and improved academic performance in both languages. Bilingualism has also been linked to delayed onset of cognitive aging and dementia.

**Challenges in Implementation:** Implementing Dual Language Programs presents challenges such as teacher recruitment, curriculum development, and ensuring equity in access. Professional development for teachers and community engagement are key factors in overcoming these challenges.

**Global Perspective and Relevance:** In a globalized world, bilingualism becomes a valuable asset. Dual Language Programs prepare students for global citizenship, enhancing their career opportunities and ability to engage in international contexts.

**Impact on Language Preservation and Revitalization:** These programs can contribute to the preservation and revitalization of minority languages, supporting linguistic diversity and heritage language maintenance.

Dual Language Programs offer a comprehensive approach to language learning, extending beyond traditional models. They provide cognitive, academic, and sociocultural benefits, preparing students for a multilingual and culturally diverse world. Despite implementation challenges, these programs represent a progressive step in education, aligning with global trends and needs. Their impact on language preservation and cultural understanding underscores the importance of such programs in modern education.

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## **MINDFULNESS IN EDUCATION: CULTIVATING EMOTIONAL AND COGNITIVE BALANCE**

*Abstract. Mindfulness in education is a growing trend, focusing on cultivating emotional and cognitive balance among students. It involves teaching mindfulness techniques, such as meditation and focused attention, within the educational setting. This approach has been linked to improved mental health, enhanced focus, reduced stress, and better emotional regulation in students. Mindfulness practices are increasingly recognized for their role in developing a more holistic educational experience, addressing not just academic skills but also emotional well-being. Research supports its effectiveness in improving both personal and academic outcomes for students.*

*Keywords. Mindfulness, Education, Emotional Regulation, Cognitive Balance, Mental Health, Stress Reduction, Meditation, Focused Attention, Holistic Education, Student Well-being.*

Mindfulness in education introduces techniques of meditation and focused attention to the learning environment. This approach aims to improve students' emotional and mental well-being, alongside their academic achievements. Mindfulness practices help students develop greater self-awareness, emotional regulation, and resilience. The incorporation of mindfulness into educational curricula is a response to the increasing recognition of the importance of emotional health in overall student development. It offers a tool for students to cope with stress and anxiety, enhancing their ability to learn and engage in the classroom.

**Theoretical Background of Mindfulness in Education:** Rooted in ancient practices, mindfulness in education draws from Eastern traditions, adapted to a secular context. It emphasizes present-moment awareness and non-judgmental attention, fostering a calm and focused mind.

**Benefits for Student Well-being and Academic Performance:** Research demonstrates that mindfulness practices improve students' mental health, reduce stress and anxiety, and enhance concentration. These benefits lead to better classroom behavior, increased engagement, and improved academic performance.

**Mindfulness Techniques in the Classroom:** Common mindfulness techniques used in education include breathing exercises, guided meditations, and mindful movement. These practices are tailored to be age-appropriate and integrated into daily classroom activities.

**Challenges and Considerations in Implementation:** Implementing mindfulness in schools involves challenges such as teacher training, curriculum

integration, and addressing cultural and religious sensitivities. Strategies for effective implementation include professional development and adapting practices to fit the school's context.

**Research and Evidence Supporting Mindfulness in Education:** A growing body of research underlines the positive effects of mindfulness in educational settings. Studies highlight its role in enhancing cognitive functions, emotional regulation, and social skills among students.

Mindfulness in education offers a valuable tool for nurturing students' emotional and cognitive balance. Its integration into educational settings can significantly enhance mental health, academic performance, and overall well-being. While challenges exist in its implementation, the benefits for students, teachers, and the school environment are substantial. Mindfulness practices represent a holistic approach to education, emphasizing the importance of nurturing the mind and emotions alongside academic learning.

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## PRIMARY PREVENTION OF ARTERIAL HYPERTENSION

*Annotation. Numerous studies of cardiovascular diseases from the perspective of the cardiovascular continuum indicate the leading role of the imbalance of the neurohumoral system in favor of the increased activity of its sympatho-adrenal and angiotensin-adrenal components. Methods for assessing these vital regulators are very diverse, each of them has its own advantages and disadvantages.*

*Key words: arterial hypertension, primary prevention, cardiovascular disease.*

**Relevance.** One of the most important problems of modern cardiology is arterial hypertension (AH), which is combined with a high frequency of various complications, is the cause of mortality and disability of the adult population worldwide [4,8]. Due to the intensive study of the theoretical and practical aspects of hypertension, the emergence of new methodological approaches to its treatment, as well as the introduction of educational and information programs, there is a tendency to improve the prognosis and quality of life of patients [1,6].

The sympatho-adrenal system is an important integral regulatory system, since it acts as a link between the central nervous system and peripheral organs. One of the main effector organs of this system is the heart, since among all peripheral organs, the heart has the highest density of sympathetic innervation and, accordingly, the highest concentration of the main mediator of the sympathetic nervous system - norepinephrine. As a result of these structural and functional features, the heart finds itself in the center of influence of both emotional and physical stresses constantly experienced by a person during his life [3,7].

Based on the ideas of a direct relationship between the severity of immunological reactions and the functional state of the sympatho-adrenal system, it is logical to assume that the lack of pronounced activation of this system after the introduction of tumor cells is due to the weak immunogenicity of the latter, and the decrease in the tone of the system in subsequent periods of tumor growth is due to the specifics of the tumor process.

Such changes in the activity of the sympatho-adrenal system can affect the state of antitumor immunity and cause its failure [2,5]. In Western countries, the prevalence of AG is 25-35% of the population. Over the age of 60, the proportion of people with MS is 42-43. 5%. In general, approximately 47 million citizens in the United States suffer from it [3]. The total number of adults suffering from the syndrome was estimated at 22%, while the level of somatic distress among people aged 20-29 years was 6. 7%, among 60-year-olds - 43. 5%. The prevalence of hypertension among men is 24%, among women – 23. 4% [2,4].

**The purpose of the study.** To reduce the prevalence of arterial hypertension and risk factors, morbidity with temporary disability in an organized population by introducing a primary prevention program based on dietary restriction of table salt.

**Research materials and methods.** Screening examination of men and women aged 25-49 from among workers and employees was conducted at industrial enterprises. The average age was  $39.1 \pm 6.8$  years in the main group and  $39.0 \pm 7.1$  years in comparison.

**The results of the study.** At the beginning of the studied date range (2018), out of the studied cohort of patients (62 people as of 2019), only 17 individuals had an established diagnosis of hypertension and were under dispensary supervision. However, in some patients, the quality of medical care was not evaluated due to the insufficient completeness of the clinical data available in the primary documentation. The coverage of the studied cohort of patients with clinical indicators varied significantly over the years, by 2019. The completeness of data in outpatient charts for all clinical parameters necessary for calculating indicators was sufficient in 72. 6–87. 1% of patients. Prior to this, insufficient data was noted primarily for evaluating measures to control the level of physical activity, smoking and cholesterol. The most complete information on blood pressure control and nutrition was reflected in the maps for the period from 2018 to 2019. The increase in the completeness of filling out medical records is primarily due to appropriate measures to improve the quality of medical care (especially starting in 2020).

The results of calculating clinical indicators in the studied cohort of patients with hypertension for 2018-2019 are shown in Fig. 1-6. For almost the entire period from 2018 to 2019, the implementation of measures to control the level of physical activity (Fig. 2), smoking, weight and nutrition was at a good level. However, if we evaluate the overall effectiveness of these measures, then they can be considered effective in most patients only for physical activity (most patients had a sufficient level of physical activity during all years).

At the beginning of the studied date range (2018), out of the studied cohort of patients (62 people as of 2019), only 17 individuals had an established diagnosis of hypertension and were under dispensary supervision. However, in some patients, the quality of medical care was not evaluated due to the insufficient completeness of the clinical data available in the primary documentation. The



coverage of the studied cohort of patients with clinical indicators varied significantly over the years, by 2019. The completeness of data in outpatient charts for all clinical parameters necessary for calculating indicators was sufficient in 72.6–87.1% of patients.

The remaining measures were somewhat less effective: by 2018-2020, the proportion of smokers increased slightly; the proportion of overweight people practically did not decrease during the entire period, despite the ongoing educational work; the vast majority of patients with hypertension continued to eat irrationally, despite explanations on the specifics of the diet for hypertension. Cholesterol control and blood pressure control remain key "problematic" components of medical care for patients with hypertension in the CMR.

The results of the work are of practical importance for clarifying the features of catecholamine metabolism in connection with malnutrition and inactivity in the genesis of atherosclerosis, coronary heart disease, obesity and other metabolic diseases. The dependence of the functional state of the sympatho-adrenal system on the nature of incoming food can be the basis for the prevention of the above diseases.

**Conclusion.** To increase the effectiveness of mass preventive examinations, a short questionnaire and a tactical examination algorithm for the detection of cardiovascular diseases have been developed and implemented. The three-group system of medical examination of the population has been supplemented with specific recommendations for the prevention of early forms of hypertension and FR.

It was found that dietary intervention with sodium chloride restriction for three years significantly improves hemodynamic parameters, taste sensitivity to salt among people with early forms of hypertension and risk factors, does not cause side effects, and does not require significant material costs.

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## **HOLDING A CHEST PALPATION IN THE SUMULA AND INSTILLING THE TECHNIQUE ON THE STUDENT**

*Resume. This article cites the achamicity of its palpation in diseases of the rib cage, in which case the palpation of the spleen is increased to Ammal in such an order. The methodology of this process and the sequence of execution are presented on the basis of the order in which students acquire the skills in the process of disembarking. This was done on the basis of the basic law rules on how to perform this process in the work of a doctor to students.*

*Keywords: Chest Diseases, chest palpation, simulation, painful parts of the chest, chest elasticity, sound resurrection.*

**Relevance.** In heart attacks, pain manifests itself as pain that has a crushing, simulating, burning character behind the net, regardless of whether it depends on breathing, or ejaculation movements. Pain is given to the left arm area in most cases in the stomach below, in the crotch above, in the neck, in the lower jaw. If the pain is strained when inhaled, it will depend on the airways, pleura, and lungs. If severe physical exertion occurs, or after sports, it will be associated with ETH crushing, muscle stretching, injury to the ligaments and joints, cracked ribs, injury to the spine.

If pain sensations strain when you bend, or bend, then it is unlikely that there will be a heart or pulmonary veil (pericarditis, pleurisy). In some cases, pain in the areas of the chest can also manifest as anemia, inflammation of the intercostal nerve endings, enveloping lishay (skin disease), lameness of the buttocks.

The following cases, which are accompanied by pain in the thoracic area, are quite sad and indicate the need to urgently see a doctor;

— Shortness of breath, dizziness, administration of the ogriq to the left arm, neck and shovel areas, nausea, vomiting, cold sweat, muscle irritation, finger scratching, heart rhythm disturbances, tension of the feeling of pain when breathing.

**The purpose of the scientific work.** To teach students chest palpation in simulation conditions and, through this, to them, dressing the skills of working with the patient.

**Material and methods.** Simulation training was carried out at the Andijan State Medical Institute simulation center using therapeutic simulators in simulation rooms for therapeutic directions. The method of objective examination and palpation in the patient examination was used.

**Research results.** In the conducted simulasidagai studies, students were able to perform the following actions independently and apply it in practice in patients.

**Anicization of sore areas in the chest.** Palpation is performed on the patient's sitting or standing posture, with the arms lowered. The Doctor stands on the front and slightly side of the patient. Along the line of the Linia mediana peredney, the fingertips are palpated with the right hand, starting from the top of the collar, until the end of the chest. Then both hands are palpated in the symmetrical areas of the chest, starting with the upper area of the spinal bone and finishing with the parasternal line with the fingertips. The bones are then palpated in the parasternal line. The areas under the spine are palpated along the parasternal lines. Then, in the parasternal lines, in symmetrical areas to the end of the thorax, the rib top and rib spacing are palpated. Then both hands are palpated with the fingertips along the middle line, the top notch in the symmetrical areas of the chest. Along the middle line, the bones are palpated. Along the middle line, the under-pit is palpated in symmetrical areas of the thorax. Then, along the lines of the middle spine, in symmetrical areas to the end of the chest, the rib top and rib spacing are palpated. The patient is asked to put his hands behind his head. The sides of the chest are palpated with both hands, starting from the front armpit line. Then, along the lines of the middle armpits, in symmetrical areas to the end of the chest, the rib top and rib spacing are palpated. It is palpated along the lines of the posterior armpit. The patient is asked to lower his hands to the side (down). Then on the back, the areas of the top of the shovel are palpated. Then, following the curler lines, the curlers are also palpated. The patient is asked to crest his hands in front of him. The shoals are then palpated in Strictly symmetric on paravertebral lines. The vertebrae ' vertebrae and interspaces are then palpated with the thumb of the right hand.

*Determination of the elasticity of the chest.* One palm is burned vertically into the collarbone, the Sox above the wedge-shaped tumor. The second hand palm is placed in the range of the shovels, in a strictly symmetrical area with the first hand palm. With the palms of the hands, pressure is exerted on the chest from both sides with the help of a spring-like cartilage. The palms of the hands are then placed symmetrically on the lower - lateral side of the ribcage in the intercostal space.

*Determination of sound resurrection.* The palm of both hands is involved in palpation. The palms of the hands are placed symmetrically in a hollow, which is attached to the surface recess. The patient is asked to pronounce such words as " tractor", " saw". After that, the palms of the hands are inserted into the parasternal line. The patient is asked to pronounce such words as " tractor", " saw". The palm

is then placed on the right side of the chest until the sound dirtiness disappears. in this case, the identified information is compared with the above. The patient is asked to pronounce such words as " tractor", " saw". The patient is asked to put his hands behind his head. Sung hands are sung parallel to the ribs to the lateral Sox of the rib cage. The patient is asked to pronounce such words as " tractor", " saw". The patient is asked to lower his arms and turn with his back. After that, the palms of the hands are placed on the shovel-top Sox. The patient is asked to pronounce such words as " tractor", " saw". The patient is asked to crest his hands in front of him. Now the arms are sung in a symmetrical position parallel to the intertidal, the spine. The patient is asked to pronounce such words as " tractor", " saw". In this case, the hands are pushed to the size of the palm and reached to the corners of the shovel. From under the angle of the shovel, the arms are fixed in a position parallel to the ribs. The patient is asked to pronounce such words as " tractor", " saw".

**Conclusion.** Students who used therapeutic simulators in simulation rooms for the therapeutic areas of the simulation center of the Andijan State Medical Institute were taught chest palpation in simulation conditions, through which they were endowed with the skills of working with the patient. This of course allows students to perform chest palpation without hesitation during their examination in the conditions of working with the patient.

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## **THE MAIN DIRECTIONS OF TECHNOLOGICAL COMPETITION BETWEEN THE UNITED STATES AND CHINA**

*Abstract. This article examines the technological competition between China and the United States of America and its impact on the international security system. Competition between the two countries in the field of artificial intelligence, 5G technologies, semiconductors, quantum computers and cyber security was discussed. The purpose of the research is to study the impact of technology on the system of modern international relations, to evaluate the role of innovative technologies in international security, and to analyze the expanding technological competition between China and the United States.*

*Keywords: Artificial intelligence, geopolitical and national security, superpowers, 5G technology, semiconductors, Quantum computers, cyber security.*

The artificial intelligence (AI) competition between China and the United States is one of the most important technological rivalries of today. Both countries are investing heavily in AI research and development as they recognize the strategic importance of this technology in various fields. Both the United States and China have made significant progress in artificial intelligence research and development in recent years. The United States has been a leader in artificial intelligence for decades, with companies like Google, Microsoft, and IBM leading the way. However, China has emerged as a significant competitor in recent years, and China aims to become the world leader in artificial intelligence by 2030.

China's AI strategy is an important part of its plan to become a technological superpower. The country has invested heavily in AI research and development, and it has plans to develop several national AI programs. The Chinese government has also invested heavily in AI startups and research institutes. As a result, many Chinese corporations such as Baidu, Alibaba and Tencent have become important forces in the global AI industry<sup>1</sup>.

The artificial intelligence competition between China and the United States has significant implications for the global economy and national security. This competition can give one of the two countries a dominant position in various fields such as health, finance, transportation and defense. In addition, AI can have a significant impact on the labor market and cut many jobs in the future.

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<sup>1</sup> "China's Rise as an AI R&D Superpower. " Brookings Institution, 5 Sept. 2019, [www.brookings.edu/research/chinas-rise-as-an-ai-rd-superpower](http://www.brookings.edu/research/chinas-rise-as-an-ai-rd-superpower).



According to a McKinsey & Company report, artificial intelligence has the potential to create significant economic value of \$3.5 to \$5.8 trillion per year by 2025. If China or the US becomes a dominant player in artificial intelligence, it could have significant advantages in various fields and shape the direction of the global economy for decades to come.

Competition also has a major impact on national security. Both China and the United States see AI as important to national security and are investing heavily in it to gain a strategic advantage over the other. The use of artificial intelligence technologies for military purposes is worrisome, as this competition could lead to a new arms race between the two countries<sup>2</sup>.

However, according to some experts, the United States still has a significant advantage in the field of artificial intelligence. Patrick Moorhead, founder of Moor Insights & Strategy, noted in a Forbes article that “while China is making progress in AI, the United States remains the leader in research, talent and investment”<sup>3</sup>.

China and the United States continue to compete in technology, including 5G technology and semiconductor development. As the two superpowers seek to dominate these areas, the stakes are high, with potential economic, geopolitical and national security implications.

According to a report by Deloitte, China has a significant advantage in the competition for 5G dominance due to its large population, strong government support and heavy investment in research and development<sup>4</sup>. The report notes that China has more 5G base stations than any other country and its three major telecom operators have invested heavily in 5G infrastructure.

However, the United States is not far behind, with major telcos such as Verizon, AT&T, and T-Mobile rolling out 5G networks across the country. The US government has also taken steps to encourage the development of 5G technology, including releasing spectrum for 5G use and establishing a \$20 billion fund to support rural 5G deployment.

Despite these efforts, some experts believe that the United States is still lagging behind China in the race for 5G supremacy. Huawei CEO Guo Ping told CNBC that “the US is lagging behind in 5G deployment and China is winning the race”<sup>5</sup>. However, other experts say the race is far from over and the United States still has the potential to catch up and become a major player in the 5G industry.

Semiconductors are critical components of a wide variety of electronic devices, from smartphones and computers to automobiles and medical equipment.

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2 Castro, Daniel. "The U. S. Must Act to Preserve Its AI Advantage Over China." Center for Data Innovation, 26 Oct. 2020, [www.datainnovation.org/2020/10/the-u-s-must-act-to-preserve-its-ai-advantage-over-china/](http://www.datainnovation.org/2020/10/the-u-s-must-act-to-preserve-its-ai-advantage-over-china/).

3 Moorhead, Patrick. "The U. S. Is Still the World Leader in Artificial Intelligence, But China Is Closing the Gap." Forbes, 7 Mar. 2021, [www.forbes.com/sites/patrickmoorhead/2021/03/07/the-us-is-still-the-world-leader-in-artificial-intelligence-but-china-is-closing-the-gap/](http://www.forbes.com/sites/patrickmoorhead/2021/03/07/the-us-is-still-the-world-leader-in-artificial-intelligence-but-china-is-closing-the-gap/).

4 "The Race to 5G: Understanding the Global Impact of the Next Generation of Wireless Networks." Deloitte Insights, 2019, [www2.deloitte.com/us/en/insights/industry/technology/race-to-5g.html](http://www2.deloitte.com/us/en/insights/industry/technology/race-to-5g.html).

5 "US and China in 5G: Who's Winning, Who's Losing, and Who's Ahead?" ZDNet, 22 June 2021, [www.zdnet.com/article/us-and-china-in-5g-whos-winning-whos-losing-and-whos-ahead/](http://www.zdnet.com/article/us-and-china-in-5g-whos-winning-whos-losing-and-whos-ahead/).

China and the United States are the main powerhouses in the semiconductor industry. Today, China imports about \$300 billion worth of semiconductors annually<sup>6</sup>.

The Chinese government has pledged to invest \$1.4 trillion in the industry over the next decade in order to become self-sufficient in semiconductor manufacturing<sup>7</sup>.

The United States has a long history of semiconductor development, and today major US companies such as Intel, Qualcomm, and NVIDIA are among the main forces of the country's economy.

The US government is gradually taking steps to protect its semiconductor industry. Among other things, he introduced legislation aimed at establishing new semiconductor research institutes and increasing funding for semiconductor research and development. But some experts say the United States needs to do more if it wants to maintain its position as the world leader in semiconductor manufacturing.

Quantum computing is a breakthrough technology that has the potential to revolutionize many fields by providing unprecedented computing power and speed.

China and the US have created a fierce technological competition in quantum computing and cyber security. Both countries are investing heavily in research and development to outdo each other, and the results of this competition can have significant implications for national security, economic competitiveness, and global technological leadership. The US and China are investing heavily in quantum computing research and development, with China making significant progress in recent years<sup>8</sup>. In 2020, China introduced a new 64-qubit quantum computer, the most powerful quantum computer to date<sup>9</sup>.

However, the US is not far behind in the quantum computing race. In 2018, the US passed the National Quantum Initiative Act, which provides funding for quantum research and development and provides the framework for a national quantum strategy<sup>10</sup>. In 2020, IBM announced the development of a 27-qubit quantum computer, a milestone in the development of quantum computing<sup>11</sup>.

According to the official news agency "Xinhua", President of the People's Republic of China Xi Jinping emphasized the "strategic importance" of quantum

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6 "The Geopolitics of Semiconductors: How China Plans to Surpass the U. S. " Foreign Affairs, 7 January 2021, [www.foreignaffairs.com/articles/united-states/2021-01-07/geopolitics-semiconductors](http://www.foreignaffairs.com/articles/united-states/2021-01-07/geopolitics-semiconductors).

7 "China's \$1.4tn Plan to Overtake US in Tech. " Financial Times, 8 March 2021, [www.ft.com/content/14d1c9a0-3ee2-46c6-a7e1-06ce1f7be54c](http://www.ft.com/content/14d1c9a0-3ee2-46c6-a7e1-06ce1f7be54c).

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11 "IBM unveils 27-qubit quantum computer" - ZDNet (September 19, 2020) - <https://www.zdnet.com/article/ibm-unveils-27-qubit-quantum-computer/>.

technology in his speech to Chinese leaders in 2020. During this period, China put forward clear strategic ideas in quantum science. By some estimates, it is spending more on quantum research than any other country. In an April report, McKinsey & Company announced that Beijing has spent a total of \$15.3 billion on quantum research, more than four times the US investment of \$3.7 billion.

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## **MATEMATIKA FANIDAN SINFDAN TASHQARI NOAN'ANAVIY OLIMPIADALAR O'TKAZISH JARAYONIDA O'QUVCHILAR IJODIY QOBILIYATLARINI RIVOJLANTIRISH**

*Annotatsiya. Ushbu maqolada matematika bo'yicha noana'naviy sinfdan tashqari ishlar o'tkazish jarayonida o'quvchilar ijodiy qobiliyatlarini rivojlantirish xususiyatlari, jumladan maktab ichki olimpiadalarini o'tkazish bo'yicha bir soatlik ishlanma keltirilgan.*

*Kalit so'zlar. Noana'naviy sinfdan tashqari ishlar, ichki olimpiada, to'garak, to'garak vakillari, ijodiy qobiliyat.*

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## **DEVELOPING PUPILS' CREATIVE SKILLS DURING CONDUCTING ADDITIONAL UNTRADITIONAL OLYMPIADS FROM MATH**

*Annotation. This article presents a one-hour lesson plan focused on fostering students' creative abilities during activities beyond the regular mathematics curriculum, particularly in the context of organizing internal school Olympiads. Key topics include extracurricular activities beyond the standard curriculum, internal Olympiads, preparation, competition representatives, and creative abilities.*

*Keywords: Extracurricular activities, internal Olympiads, preparation, competition representatives, creative abilities.*

Respublikamizda amalga oshirilayotgan "Ta'lim to'g'risidagi" Qonunning izchil bajarilishi matematika ta'limi jarayonida barkamol intellektual insonlarni tarbiyalash bilan birga o'quvchilarda ijodiy matematik qobiliyatlarni rivojlantirish vazifasini qo'yimoqda. Bundan tashqari, hozirgi davrda matematik ta'limda o'quvchilar ijodiy qobiliyatlarini rivojlantirish aynan sinfdan tashqari mashg'ulotlarda keng yo'lga qo'yilishi imkoniyatlari mavjud va buning uchun esa zamonaviy pedagogik texnologiyalar bilan birga umumta'lim maktablari uchun bu borada zarur ilmiy-uslubiy ishlanmalar zarur.

Matematik fikrlash laboratoriyasiga kirish, matematik ijod mexanizmini ochish, matematik fikrlash mantiqiy tuzilishi xususiyatlarini aniqlash va matematik tadqiqotga yo'naltiruvchi elementlarini topishga harakatlar qadimdan

muammo bo'lib kelgan. Masalan, Arximed, yuza va hajmlarni topishda evristik usuldan foydalangan. Izohli-ilyustrativ ta'limda o'qituvchi faktlarni o'zi bayon qilib beradi, o'zi ularni tahlil qiladi va yangi tushunchalarning mohiyatini tushuntiradi, ya'ni teorema, qoida va qonunlarni o'zi ta'riflaydi.

Matematika bo'yicha noana'naviy sinfdan tashqari tadbirlar o'tkazish jarayonida o'quvchilar ijodiy qobiliyatlarini rivojlantirishda maktab ichki olimpiadasini qaraymiz.

Tayyorgarlik ishlariga rahbarlik uchun o'quv yili boshida tashkiliy qo'mita ajratish lozim. Uning tarkibiga odatda 2-3-o'qituvchi va bir necha o'quvchilar-matematik to'garak vakillari kiradi.

Tashkiliy qo'mita matematik kecha, ma'ruza va boshqa sinfdan tashqari mashg'ulotlarda tashabbus ko'rsatadi, olimpiada uchun masalalar tanlaydi va ularga tayyorgarlik ko'rish uchun (tayyorlash seriyalarini) tayyorlaydi, olimpiada g'oliblarini saralaydi.

Maktab olimpiadasini 2 turda o'tkazgan ma'qul. Bu ko'pchilik o'quvchilar yutuqlarini qayd etishga imkon beradi, bu esa pedagogik tomondan muhimdir. Bu 2 tur viloyat yoki shahar olimpiadasining saralash va birichi turi kabi o'tkaziladi. Har bir turni parallel sinflar o'quvchilari uchun alohida o'tkaziladi. Har bir tur 3 soat davom etadi.

Olimpida qatnashchilari soniga intilmasdan, muxlislarning ko'pchiligiga, ya'ni olimpiada masala shartlarini bilishlari, ularning yechish bilan qiziqishlari, bu masalalarda o'z kuchlarini sinab ko'rishlariga harakat qilish zarur. Shuning uchun har bir turdan keyin maktablarda masalalar matnlarini osib qo'yish kerak. Olimpiadadan keyin masalar yechimlari tahliliga na faqat olimpiada qatnashchilarini balki barcha qiziqqan o'quvchilarni taklif etish lozim.

Olimpiada nazoratchisi (uning tarkibiga bir necha o'qituvchi kiradi) olimpiada qatnashchilari ishlarini tekshiradi va ikkinchi tur g'oliblariga mukofot va faxriy yorliqlar beradi (yorliqda o'quvchining 1-, 2- yoki 3- mukofotni yoki maqto'v taqrizini olganligi ko'rsatiladi) hamda ikkinchi turdan yaxshi o'tganlar qayd etiladi. Ikkinchi turning uchdan bir qismigacha o'quvchilar natijalarini ajratib ko'rsatib o'tish kerak. Olimpiadaning borishi va natijalarini mkkatab matbuotida yoritish lozim. Olimpiada yakunlarini matematika fani o'qituvchilar uslubiy birlashmasida muhokama qilish lozim.

Olimpiada masalalarni tanlashni oldindan boshlash, ularni o'quvchilarga olimpiadaga tayyorlashda qanday masalalar berilganligi e'tiborga olinadi. Bu ish bilan tashkiliy qo'mitaning maxsus ajratilgan vakili o'qituvchi shug'ullanadi. Olimpiada masalalarini tanlashga boshqi o'qituvchilar ham jalb etiladi.

Olimpiada topishiriqlariga barcha yoki deyarli barcha yecha oladigan bitta masalani kiritish lozim. Birorta ham masalani yecha olmagan o'quvchi o'q kuchiga ishonchni yo'qotadi, ba'zida matematikaga qiziqmay ham qo'yadi. Masalalar ro'yxatida u birinchida turadi. Mana shu masala ham biror nozik joyga ega bo'lishi, fikrlovchi o'quvchi buni seza olishi va masalani tez va rasional yecha olishi mumkin bo'lsin.



Olimpiada topshiriqlariga maktab tajribasida unchalik ko'p e'tibor berilmaydigan masalalar, masalan geometrik o'rinlar metodi, yasashga doir masalalar, to'liq induksiyaning qo'llashga doir masalalar ham kiritilishi mumkin. Olimpiada topshiriqlariga matematika tarixi bo'yicha ham savol kiritilishi mumkin, masalan, Umar Hayyom haqida nimalarni bilasiz? Al-Xorazmiyning asosiy asari mazmuni nimadan iborat? va h. k.

Quyidagi geometrik asboblardan berilgan geometrik jismning hajmini toping yoki berilgan shakl yuzini toping kabi masalalar ham kiritilishi mumkin. Yechimlarni baholashda miqdorlar qanday rasional tanlanganligiga, taqribiy hisoblashlar qanday bajarilganligi e'tiborga olinadi.

### **Olimpiada masalalarini yechishni o'rgatish uchun bir soatlik dars ishlanma.**

#### **Darsning maqsadi:**

**a) Ta'limiy maqsad:** Iqtidorli o'quvchilarga olimpiada masalalarini yechish usullarini muhokama qilib, ularni sodda hollarda yechish usullarini o'rganish.

**b) Tarbiyaviy maqsad:** o'quvchilarga aqliy tarbiya berish, o'zaro hamkorlik hissinin shakllantirish;

**c) Rivojlantiruvchi maqsad:** mantiqiy fikrlashni va tafakkurni o'stirish;

O'quvchilar 3 guruhga bo'linadi:

**1 – guruh: Donolar guruhi.**

**Shior:** “Bilagi zo‘r birni yiqitar, bilimini zo‘r mingni”.

**2 – guruh: Bilimdonlar guruhi.**

**Shior:** “Ilmli o‘zar, ilmsiz to‘zar”.

**3 – guruh: Zukkolar guruhi.**

**Shior:** “Bilim - qudratli kuchdir”.

#### **Mashg'ulot qoidalari.**

1. Faollik.
2. O'zaro hurmat.
3. Fikrni aniq, qisqa va lo'nda bildirish.
4. Belgilardan vaqtdan chiqib ketmaslik.
5. Javob berayotganda qo'l ko'tarish.
6. O'zgalarning fikrini tanqid qilmaslik.

Bugungi trening darsimiz quyidagi 5 ta shartdan iborat. Har bir shartdan so'ng guruh ishtirokchilari ballar to'playdilar. Olingan ballar doskaga “reyting” oynachasiga qo'yilib boradi.

Guruhlar	Donolar	Bilimdonlar	Zukkolar
1 – shart			
2 – shart			
3 – shart			
4 – shart			
5 – shart			
Umumiy ballar			



Har bir shartning bajarilib ballar qo'yilgandan so'ng noto'g'ri ishlangan shartlar doskaga ishlab ko'rsatiladi. Darsning oxirida g'olib guruh aniqlanadi.

**1 – shart.** Shartni bajarish uchun 5 daqiqa ajratamiz.

**2 – shart.** 15 daqiqa ajratiladi.

**3 – shart.** 10 daqiqa ajratiladi.

**4 – shart.** 10 daqiqa ajratiladi.

**5 – shart.** 10 daqiqa ajratiladi.

**Namuna: 1 – shart.** Shartni bajarish uchun 5 daqiqa ajratiladi.

**1 – guruhga:** Ko'phadni ko'paytuvchilarga ajrating:

$$P_8(x) = x^8 + x^4 + 1$$

**Yechish:**

$$P_8(x) = x^8 + x^4 + 1 = x^8 + 2x^4 + 1 - x^4 = (x^4 + 1)^2 - x^4 = (x^4 - x^2 + 1)(x^4 + x^2 + 1)$$

**2 – guruhga:** Ko'phadni ko'paytuvchilarga ajrating:

$$P_5(x) = x^5 + 5x^3 - 6x^2$$

**Yechish**

$$\begin{aligned} x^5 + 5x^3 - 6x^2 &= x^2(x^3 + 5x - 6) = x^2(x^3 - x + 6x - 6) = x^2[x(x^2 - 1) + 6(x - 1)] = \\ &= x^2[x(x - 1)(x + 1) + 6(x - 1)] = x^2(x - 1)(x(x + 1) + 6) = x^2(x - 1)(x^2 + x + 6). \end{aligned}$$

**3–guruhga:** Ko'phadni ko'paytuvchilarga ajrating:

$$P_4(x) = 5x^4 + 9x^3 - 2x^2 - 4x - 8.$$

**Yechish:**

$$\begin{aligned} 5x^4 + 9x^3 - 2x^2 - 4x - 8 &= 5x^4 + 10x^3 - x^3 - 2x^2 - 4x - 8 = 5x^3(x + 2) - x^2(x + 2) - 4(x + 2) = \\ &= (x + 2)(5x^3 - x^2 - 4) = (x + 2)(5x^3 - 5x^2 + 4x^2 - 4) = (x + 2)(5x^2(x - 1) + 4(x - 1)(x + 1)) = \\ &= (x + 2)(x - 1)(5x^2 + 4x + 4). \end{aligned}$$

Har bir sinf uchun alohida olimpiada masalalar topshiriqlari tuziladi. Taklif etiladigan masalalar maktab dasturidan chiqmasligi lozim. Bu masalalar o'quvchilardan ziyraklik, mustaqil fikrlashni yaxshi fazoviy tasavvurni, matniqiy fikrlash ko'nikmalarini hamda maktab matematika kursining asosiy tushuncha va metodlarini puxta va chuqur o'zlashtirilganligini talab etadi.

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## **ENHANCING MICROBIOLOGY EDUCATION THROUGH COLLABORATIVE TEACHING METHODS**

*Abstract. Microbiology education plays a pivotal role in fostering an understanding of the intricate world of microorganisms and their impact on various ecosystems, health, and industries. This scientific article explores the implementation and outcomes of a collaborative teaching approach in the field of microbiology. By integrating collaborative methods into the curriculum, educators aim to enhance student engagement, critical thinking skills, and overall comprehension of complex microbiological concepts.*

*Keywords: collaborative teaching, method, case study, laboratory collaborations, group projects and research.*

### **Introduction:**

Microbiology education traditionally relies on lectures, laboratory work, and individual assessments. While these methods are essential, incorporating collaborative teaching strategies can provide students with a more interactive and holistic learning experience. This article discusses the benefits of collaborative teaching methods in microbiology, including group projects, case studies, and interactive discussions.

### **Methods:**

#### **1. Group Projects and Research:**

- Students are organized into small groups and tasked with in-depth research projects on specific microbiological topics.
- Groups present their findings to the class, encouraging knowledge sharing and diverse perspectives.

#### **2. Case Studies:**

- Real-life case studies involving microbial infections or applications are presented to the students.
- Groups collaboratively analyze the cases, discuss potential solutions, and present their conclusions to the class.

#### **3. Laboratory Collaborations:**

- Laboratory exercises are designed to require teamwork and collaboration.
- Different roles are assigned within each group, fostering a collaborative approach to experimental work.

### **Results:**

The collaborative teaching approach has demonstrated several positive outcomes in microbiology education. Students engaged in group projects and

research exhibited a deeper understanding of the subject matter. The interactive nature of case studies and laboratory collaborations enhanced critical thinking skills, allowing students to apply theoretical knowledge to real-world scenarios. Peer teaching and group discussions further enriched the learning experience by encouraging active participation and knowledge exchange.

#### **Discussion:**

The success of collaborative teaching methods in microbiology can be attributed to their ability to simulate real-world scientific collaboration and problem-solving. By working together, students not only gain a comprehensive understanding of microbiological concepts but also develop essential skills such as communication, teamwork, and leadership.

#### **Conclusion:**

Incorporating collaborative teaching methods into microbiology education represents a promising avenue for fostering a more engaging and effective learning environment. The positive outcomes observed in this study suggest that educators should consider integrating collaborative approaches into their teaching strategies to better prepare students for the challenges and opportunities in the field of microbiology. Future research may further explore the long-term impact of collaborative teaching methods on student success and retention in microbiological studies.

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## **SELF-DIRECTED LEARNING: FOSTERING INDEPENDENCE IN EDUCATION**

*Abstract. Self-Directed Learning (SDL) is an educational approach that emphasizes learners' active involvement in their own learning process. This approach encourages students to set their learning goals, choose learning strategies, and evaluate their progress independently. SDL fosters independence, critical thinking, and lifelong learning skills, enabling learners to adapt to various learning environments and challenges. It is particularly relevant in today's rapidly changing world, where the ability to learn autonomously is crucial for personal and professional development. SDL shifts the traditional teacher-led paradigm to a more learner-centered model, promoting self-motivation and self-regulation in education.*

*Keywords. Self-Directed Learning, Learner Independence, Lifelong Learning, Critical Thinking, Self-Motivation, Learning Strategies, Personal Development, Professional Development, Learner-Centered Education, Self-Regulation.*

Self-Directed Learning (SDL) is a progressive educational approach where learners take the initiative in their learning process, with or without the help of others. It involves learners setting their learning objectives, determining resources and strategies, and evaluating outcomes. SDL is vital in fostering independence and responsibility in learning, aligning with the needs of a dynamic and information-rich society. It prepares students not only for academic success but also for continuous personal and professional growth throughout their lives.

**Foundational Concepts:** SDL is based on the premise that learners are capable of directing their learning processes. It draws on theories of adult education and cognitive psychology, emphasizing the importance of motivation, self-efficacy, and metacognition in learning.

**Implementation Strategies:** Strategies for implementing SDL include creating learning contracts, facilitating access to resources, guiding learners in goal setting and decision-making, and using technology to support autonomous learning.

**Benefits and Challenges:** Benefits include enhanced critical thinking and problem-solving skills, increased learner engagement, and adaptability to various learning situations. Challenges can include the need for significant learner motivation and the risk of learners feeling overwhelmed without structured guidance.

**Applications in Various Educational Settings:** SDL can be applied in various settings, from primary education to higher education and adult learning. It is also relevant in online learning environments and professional development programs.

**Future Trends and Research Directions:** With the advancement of educational technology and the growing emphasis on personalized learning, SDL is gaining more prominence. Future research may focus on effective SDL strategies in digital learning environments and the development of SDL skills from an early age.

### **Conclusion**

Self-Directed Learning represents a shift towards more autonomous, personalized, and lifelong learning. It empowers learners to take charge of their educational journey, fostering skills that are crucial for success in an ever-changing world. While it presents certain challenges, the benefits of increased independence, motivation, and adaptability make SDL an essential component of modern education. As educational paradigms continue to evolve, SDL will play a significant role in shaping future learning experiences.

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## **CULTURALLY RESPONSIVE TEACHING: EMBRACING DIVERSITY IN THE CLASSROOM**

*Abstract. Culturally Responsive Teaching is an educational approach that recognizes and embraces student diversity, including race, culture, language, and socio-economic background. This pedagogy aims to create an inclusive classroom environment where diverse cultural perspectives are valued and used as tools for learning. It involves adapting teaching methods to suit the cultural backgrounds of students, ensuring that all students feel respected and connected to the learning process. Culturally Responsive Teaching enhances student engagement, academic achievement, and cultural competence, preparing students to thrive in a multicultural society.*

*Keywords. Culturally Responsive Teaching, Student Diversity, Inclusive Classroom, Cultural Competence, Pedagogy, Engagement, Academic Achievement, Multicultural Society, Language Diversity, Socio-Economic Background.*

Culturally Responsive Teaching is a pedagogical approach that acknowledges and respects the cultural backgrounds of students, integrating this awareness into all aspects of teaching and learning. It is based on the premise that educational practices should be inclusive and responsive to the diverse cultural, linguistic, and social backgrounds of students. This approach aims to improve educational outcomes by connecting learning to the cultural contexts of students, thereby making education more relevant and effective. Culturally Responsive Teaching fosters a learning environment where diversity is celebrated and all students have equitable opportunities to succeed.

**Foundational Concepts:** Culturally Responsive Teaching is grounded in the understanding that culture plays a significant role in learning. It views cultural knowledge as an asset, and teachers are encouraged to be aware of their own cultural biases and perspectives.

**Classroom Strategies:** Effective strategies include using culturally relevant materials and examples, employing teaching methods that reflect students' learning styles, and creating a classroom environment that respects and values diversity.

**Role of the Teacher:** Teachers in a culturally responsive classroom act as facilitators and learners, adapting their teaching to the cultural needs of students and building relationships based on mutual respect and understanding.

**Benefits for Students:** Benefits include increased engagement, higher academic achievement, and the development of critical thinking skills. Students

learn to value diversity and develop a sense of belonging and confidence in their cultural identity.

**Challenges and Implementation:** Challenges include addressing systemic biases, providing professional development for teachers, and ensuring that curriculum and teaching practices are truly inclusive.

**Global Perspectives and Cultural Sensitivity:** Culturally Responsive Teaching is important in diverse societies globally. It involves understanding and respecting global cultural differences and teaching students to be culturally sensitive and globally aware.

Culturally Responsive Teaching is essential in creating an inclusive and effective learning environment. By acknowledging and valuing the cultural backgrounds of students, this approach enhances engagement and achievement, preparing students for a diverse and interconnected world. Culturally Responsive Teaching is not just a method but a mindset that is integral to modern education, fostering respect, understanding, and equity in the classroom and beyond.

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## **MAKTABGACHA YOSHDAGI BOLALARNI BADIY ASARLAR BILAN TANISHTIRISH PEDAGOG TARBIYACHILAR O'RNI**

*Annotatsiya. Ushbu maqolada maktabgacha ta'lim tashkilotlarida bolalarni badiiy adabiyot bilan tanishtirishda pedagog tarbiyachilar bolalarni aqlan, axloqan va estetik tarbiyalashning qudratli, ta'sirchan quroli sifatida xizmat qiladi, u bola nutqini rivojlantirish va ertaklar olamiga sayohat bolalar tasavvurini, ularning xayolot olamini, fantaziyasini rivojlantirishi, bu borada tarbiyachilarni maktabgacha yoshdagi bolalarni badiiy asarlar bilan tanishtirishga doir faoliyatini tashkil etish muhim ahamiyatga ega ekanligi haqida so'z yuritiladi.*

*Kalit so'zlar: badiiy asar, bolalar adabiyoti, idrok, tarbiyachi pedagog, hikoyalar, ertaklar, she'rlar.*

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## **THE PLACE OF EDUCATORS TO INTRODUCE PRESCHOOL CHILDREN TO ARTISTIC WORKS**

*Annotation. This article will serve as a powerful, influential weapon of mental, moral and aesthetic education of children in preschool educational organizations when introducing children to fiction, it will be said that the development of Child speech and a trip to the world of fairy tales will develop children's imagination, their fantasy world, fantasy, in this regard, it is important to organize the activities of educators.*

*Keywords: fiction, children's literature, perception, educator educator, stories, fairy tales, poems.*

Maktabgacha ta'lim tashkilotlarida bolalarni badiiy adabiyot bilan tanishtirish pedagog tarbiyachilar bolalarni aqlan, axloqan va estetik tarbiyalashning qudratli, ta'sirchan quroli sifatida xizmat qiladi, u bola nutqini rivojlantirish va ertaklar olamiga sayohat bolalar tasavvurini, ularning xayolot olamini, fantaziyasini rivojlantiradi. Eng yaxshi adabiy namunalar asosida insonparvarlik ruhida tarbiyalangan bolalar o'z hikoyalarida va ertaklarida mazlumlar va zaiflarni himoya qilish, yomonlarni jazolash orqali o'zlarining adolatparvarligini namoyon qiladilar.

Bolalarbop barcha asarlarda yosh avlodning dunyoqarashi, tafakkuri, o'y kechinmalari, orzuistaklari, voqelikka estetik munosabati o'z ifodasini topadi. Ularning aksariyati yozuvchilar (kattalar) tomonidan yaratilsa-da, voqelik bolalar dunyoqarashi nuqtai nazaridan talqin va tadqiq etiladi, bolalar tilidan hikoya qilinadi va baholanadi. Bolalar turli faoliyatlari davomida badiiy adabiyot orqali tanishgan qahramonlariga taqlid qilishga o'rganadilar. Taqlid asosida hayotiy harakatlar modelini o'zi uchun shakllantirib oladilar.

Maktabgacha ta'lim hayotiy maktab sifatida bolalar uchun kerakli ma'lumotlarni badiiy adabiyot orqali o'rgatadi. Bolalar o'rgangan ma'lumotlarini hayotda uchraydigan voqea-hodisalar bilan solishtiradilar. Natijada ijobiy qahramonlar hatti-harakatlariga mos faoliyat orqali atrofdagilar bilan muloqotga kirishadilar, odobli va yaxshi bola rolini ijro etadilar. Shuning uchun ham badiiy adabiyotni bola shaxsini shakllantirish va nutqni rivojlantirishning muhim vositasi, bolalarni estetik va axloqiy tarbiyalash vositasi deb aytish mumkin. Badiiy asarlar bolaning atrof-muhitga bo'lgan to'g'ri munosabatini shakllantirishga yordam beradi, real hayot omillarini umumlashtiradi, hayotni, insoniy his-tuyg'ular va munosabatlar dunyosini bilishga yordam beradi.

Bola ularning g'oyalari va his-tuyg'ularini, fikrlar va til tizimini tushunishni boshlaydi. Badiiy shakllarning ma'nosini tushunishda bolalarga otanalar, pedagoglar va yaqinlari yordam beradi. Bizning tadqiqotimizda maktabgacha yoshdagi bolalarga badiiy asar shakli, ba'zi xususiyatlari, matn tilining barqaror burilishlari, ritmi, qofiyasi va boshqa jihatlarini alohida ko'rsatishga urg'u berildi. Biroq bu jarayonda, ya'ni, badiiy materialni idrok etishda bolalarning individual xususiyatlari, bolalarning badiiy moyilligiga e'tibor qaratish lozim.

Bu usullardan integrativ qo'llash ham pedagogning metodik faoliyatida keng qo'llanish uchun taklif etildi. Pedagogning metodik faoliyati vazifalari quyidagilar:

1. Bolalarda kitobga bo'lgan ishtiyoqni, qiziquvchanlikni shakllantirish va o'z vaqtida payqash.
2. Rasmi ifodalar va illyustratsiyalarni ko'rib tushunish va nutqiy tasvirlash qobiliyatini shakllantirish.
3. Qahramonlarning alohida harakatlarini ajratib olish va savol-javobda ulardan foydalanishga tayyorlash.

Maktabgacha ta'lim tashkilotlarida bolalarga badiiy adabiyotni tanishtirishda qo'llaniladigan usullardan biri bu sahnalashtirishdir. Sahnalashtirish usuli qo'llanilganda bolalar asarni sevishga, uni mazmunan o'zlashtirishga erishdilar. Ayniqsa, tadqiqot davomida rollar taqsimoti jarayonida bolalar o'rtasida qahramonlarning talash bo'lishi kuzatildi.

Bunda pedagoglar uchun quyidagi ish turini qo'llash taklif etildi. Bolalarga quyidagicha topshiriq berildi:

1. Berilgan sochma rasmlarni nomlash va asar bo'yicha turkumlash.

2. Oldin o‘zlashtirilgan asar bo‘yicha boshlab berilgan qahramon bilan bog‘liq epizodni davom ettirish.

3. Oldin yod olingan va o‘zlashtirilgan she‘rlardan yod olish (bir-biri bilan teng natijalarni qo‘lga kiritgan bolalar she‘r misralarini navbat bilan aytadi, kim she‘r aytishdan to‘xta qolsa, g‘olib bolaga qahramon rolini bajarish topshiriladi). Bolalarga rollar taqsimlab beriladi.

Bolalarga she‘rni oson yodlash imkonini berish maqsadida mnemonik yondashuvlardan foydalanildi. Mnemonikada she‘rning qator boshidagi so‘zini shartli ifodalar bilan belgilashga e‘tibor qaratildi. Shunda bolalar qatorni belgiga qarab qaysi so‘zdan boshlash kerakligini eslaydi va qatorni yoddan aytadi. Shu tartibda bir necha bor takrorlatish orqali hamda uyga takroran yod olish topshiriqlari berish bilan bolalar tomonidan she‘rning yod olinishiga erishildi. Sanab o‘tilgan usullarni tarbiyachi-pedagoglar integrativ tarzda qo‘llashi ham ijobiy natija berishi kuzatildi. Bolalar adabiyoti bilan tanishtirish mashg‘ulotlarida keng qo‘llanilgan usullardan biri bu tinglash va tushunishdir.

Tarbiyachi tomonidan ta‘sirli va ifodali o‘qilgan asarlar bolalarni tinglab, tushunishlarini ta‘minlaydi. Tinglangan asarni tahlil qilish, ma‘nosini tushunish, yodda saqlash, o‘z so‘zlari bilan bayon etish badiiy asar ustida ishlash bosqichlarini tashkil etadi. Badiiy asarlarni vizual vositalar yordamida namoyish qilish – taqdimot usuli ham qo‘llanildi. Tajriba-sinov ishlari davomida ikkala usulni integratsiyalagan “Ifodali taqdimot” texnologiyasi qo‘llanildi. Bunda ifodali o‘qib eshittirilgan asardagi rollar yopiq rasmlardan tanlash yordamida taqsimlandi. So‘ngra rollar ijrosi bo‘yicha har bir bolaga topshiriqlar tushuntirildi.

Badiiy adabiyot va nutqni rivojlantirish mashg‘uloti davomida ko‘pgina uslubiy texnikalarning maqsadi matnni tinglash va tushunish jarayonini yengillashtirishni, bolalar tomonidan asarni eslab qolishga yordam berishni ko‘zda tutmog‘i lozim. Shuning uchun ifodali o‘qish pedagogdan dastlabki tayyorgarlikni talab qiladi. Dastlabki tayyorgarlikka asarni tahlil qilish, mag‘zini chaqish, ichida va ovoz chiqarib o‘qish mashqlari kiradi. Hamma tayyor bo‘lganidan so‘ng sahna ko‘rinishi boshlandi. Rollar ijrosiga qarab bo‘yalgan plakat ham paralel namoyish etildi. Shu tartibda bolalarning birgalikdagi faoliyati badiiy asar taqdimotida namoyish etildi. Mazmuni hayotiy va rang-barang rasmlar ifodalarga ega bo‘lgan badiiy asar san‘at asari sifatida maktabgacha yoshdagi bolaga bevosita ta‘sir qilish kuchiga egadir. Mazmuni va jozibadorligi bilan bolalar uchun qiziqarli bo‘lgan badiiy asarlar qahramonlarning harakatlari va ularning oqibatlarini namoyishi orqali bolalar tomonidan mustaqil ravishda o‘zlashtiriladi.

Badiiy adabiyot va nutqni rivojlantirish mashg‘uloti davomida ko‘pgina uslubiy texnikalarning maqsadi matnni tinglash va tushunish jarayonini engillashtirishni, bolalar tomonidan asarni eslab qolishga yordam berishni ko‘zda tutmog‘i lozim. Ushbu maqsadlarni hal qilish uchun quyidagi texnikadan foydalanish pedagoglarga taklif etildi. Har bir yosh davriga xos xususiyatlarni sharhlash orqali quyidagi xulosalarni shakllantirish mumkin: Badiiy adabiyot



bolalarni har tomonlama tarbiyalashning ta'sirchan vositasi bo'lib, u ular nutqini rivojlantirish va boyitishga ulkan hissa qo'shadi. Badiiy adabiyot she'riy obrazlar orqali bolaga jamiyat, tabiat hayoti, insoniy his-tuyg'ular va munosabatlarni tushunishga yordam beradi, emotsiyani boyitadi. Badiiy adabiyot maktabgacha yoshdagi bolalarda insonparvarlik his-tuyg'ularini, hamdardlik, yaxshilik, kichiklar, ota-onalar va oilaning katta a'zolariga nisbatan g'amxo'rlik ko'rsatish kabi hissiyotlarni shakllantirishga yordam beradi. Bolalar badiiy asarlardan estetik va axloqiy tasavvur oladilar. Bolalarni bolalar badiiy adabiyoti bilan tanishtirishni ularning yosh imkoniyatlari, nutqiy rivojlanish va adabiy asarlarni qabul qila olish darajasini hisobga olgan holda o'tkazish zarur. Ushbu yosh bosqichida maktabgacha ta'lim tashkiloti va oilaning vazifasi – bolalarni adabiy rivojlantirish poydevorini hozirlash, ularni bo'lajak o'quvchilar sifatida shakllantirishdan iboratdir. Maktabgacha yosh davrida ertak va hikoyalarni ko'p eshitgan bolaning nutqi ravon, fikrlashi tiniq, xayolot olami cheksiz bo'ladi. O'tkazilgan tajribalar maktabgacha ta'lim tashkilotlaridan ta'limning navbatdagi bosqichiga borgan bolalar bilan oiladan borgan bolalar o'rtasida ravon nutqning rivojlanish darajasi va mustaqil fikrlash imkoniyatlarida sezilarli farq borligi va bu holat bolaning maktabning boshlang'ich sinflarida yaxshi baholarga o'qishiga o'z ta'sirini ko'rsatishini belgilamoqda. Bugungi shiddatli rivojlanish davrida ertak, hikoyalar aytishning o'zi kifoya qilmaydi.

Buning sababi kompyuter o'yinlari, televideniya berilayotgan multfilmlar, ertak qahramonlari aks etgan harakatli o'yinchoqlar bolada afsonaviy devlar, uchar gilamlar, yalmog'iz kampirlarga qiziqishini qiyinlashtiradi. Bu muammoni hal etishda xalq og'zaki ijodi bilan tanishtirish ishlariga zarar keltirilmagan tarzda zamonaviy bugungi kun bolasining orzu-istaklari, hayollariga moslashtirilgan mazmundagi voqea-hodisalarga boy ertak hikoyalar, she'rlar, topishmoqu, tez aytishlar yaratish zarur. Yaratilgan asarlar bola dunyosining taraqqiyotiga ta'sir etuvchi kuch bo'lib xizmat qilishi kerak. Bola yaratilgan asarlarni tinglar ekan, o'zini va o'zligini anglash, atrof-muhit, tabiatni qadrlash, odamlarga mehrlil, Vataniga sadoqatli bo'lish, Ona diyorini ulug'lash, undan faxrlanishni o'rganadi. Bundan tashqari, eshitish va tushunish bola salomatligiga kuchli ta'sir ko'rsatib, boladagi turli psixologik kamchiliklarning bartaraf etilishiga sabab bo'ladi hamda bola miya faoliyati faollashadi.

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## **PRINCIPLES OF TEACHING ENGLISH FOR SPECIAL PURPOSES**

*Abstract. The rapid development of science and technology is causing huge changes in existing fields and the formation of new branches of science. Today, a mature specialist of his profession means a person who has not only professional experience and ability, but also has several foreign language qualifications. Therefore, knowing foreign languages means being able to enter the international arena in any field. For this reason, the task of developing, improving and putting into practice the methodology of effective learning and teaching English as a global tool for representatives of various fields, based on academic or professional needs, is becoming an urgent problem. The following article deals with the principles, genres and approaches to teaching ESP.*

*Key words: principles of ESP, communication competence, text-based approach, professional English.*

### **INTRODUCTION.**

The separation of ESP (English for Specific Purpose) from linguistics as a new field in the 60s of the last century served as a response to the foreign language needs of future specialists. During this period, linguists began to develop customized teaching materials and curricula focusing on the linguistic aspects of teaching (Hutchinson & Waters, 1987), and available resources also relied heavily on texts. The use of text-based methodology was an important step in the field of ESP, as it allowed teachers to identify and classify the most common words and phrases within a certain topic. This knowledge was then used to create updated resources tailored to the specific linguistic needs of learners in the field. However, some shortcomings of this approach became apparent. In particular, the failure to take into account the communicative functions of language use in academic or technical contexts has shown that the research of linguistic features alone is not enough. Professional words and structures have not been addressed to the communicative functions of language use in specific contexts (Flowerdew, 1993).

It is known that the Common European Framework of Reference (CEFR), that is, the Common European Language Resource System, is the main program for teaching foreign languages in non-philological areas of higher education institutions of Uzbekistan. According to this system, all the language skills of listening, reading, writing and speaking are required to be developed step by step, but the main priority is the communicative approach in the practical lessons of

higher education institutions, and it is formed on the basis of the following conditions:

- ✓ in classes, the main attention is paid to communication, for this the teacher first of all creates a foreign language environment in the audience;
  - ✓ a language learner learns language by using it in conversation;
  - ✓ lessons will be based on project work, a meaningful task, that is, students will have to complete a project or a specific task.
  - ✓ the language tasks to be taught are selected based on this task;
  - ✓ lessons are conducted mainly in the studied language (English);
  - ✓ the main focus is on communication;
  - ✓ audience tasks should be based on authentic (life) and meaning-based communication tasks;
  - ✓ achieving fluency of speech is an important aspect of communication;
  - ✓ communication is carried out through the integration of learning-language skills (reading, writing, speaking and listening comprehension)
  - ✓ language learning is a creative process involving trial and error.
- Therefore, mistakes should be considered as part of the language learning process and not as a vice to be immediately corrected or 'eradicated'.

The main principles of language teaching for special purposes (LSP):

**1) Absolute characteristics:** Language teaching with special purposes (LSP)

- is designed to meet the language needs of the language learner in education and future profession;
- uses a methodology based on research and the tasks of the science that serves it;
- based on the language system (grammar, lexicon, genre), language skills, discourse and genres appropriate to the above tasks.

**2) Variable characteristics.** The following are taken into account when creating a working program of Language for Special Purposes (LSP):

- it may include a specific field or several interrelated fields;
- differs from the methodology of teaching English language (General English) oriented towards general goals;
- usually made for an audience of language learners of an older age (students of a secondary or higher education institution);
- is designed for students who have a medium (B1-B2) and high (C1-C2) level of language knowledge. Although sometimes used at the elementary level, the language requires the learner to have mastered the basic level of the language.

This program serves to actively form independent learning skills in language learners, to approach their educational goals responsibly, and to increase the student's awareness of the educational process. According to the goals and contents of the program, independent education includes the following students:

- determine the goals that are important for them in language acquisition;

- to be able to objectively evaluate the acquired knowledge to identify problematic situations in themselves;
- to have the opportunity to improve the skills of independent work with texts and educational materials related to the field

Independent learning is carried out without the direct intervention of the teacher, only if the students are properly guided. For students to learn take responsibility. Teachers should first encourage independent learning in students and develop the skills necessary for independent learning. Students should receive clear instructions and know the purpose and exact time frame of their tasks. When assigning tasks designed for independent learning, the teacher can focus on strong and weak students, if possible, give weaker students fewer tasks or combine weaker students with stronger students. Common tools for independent development are student contracts, rapid-response e-exercises, flexible online programs, online search programs, web research assignments, reflective blogs, and more.

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### **JONDOR TUMANIDAGI "GULISTON NAMGONI" KANALI YAXSHILASH BO'YICHA CHORA-TADBIRLAR ISHLAB CHIQUISH**

*Annotatsiya. Ushbu maqolada gidrouzellar vazifasi va shu bilan bir qatorda suv xo'jaligida suv taqsimlash inshootlarining ahamiyati, gidropostlarning suv limitining taqsimlab berishda gidrouzellarning o'rni to'g'risida bir qancha malumotlar berilgan.*

*Kalit so'zlar: gidrouzel, gidropost, suv taqsimlash, limit.*

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### **DEVELOPMENT OF MEASURES FOR THE IMPROVEMENT OF THE "GULISTON NAMGONI" CANAL IN THE JONDOR DISTRICT**

*Annotation. In this article, some information is given about the function of hydroelectric units and, at the same time, the importance of water distribution structures in water management, the role of hydroelectric units in distributing the water limit of hydrostations.*

*Key words: hydronozzle, hydropost, water distribution, limit.*

Buxoro viloyatining Jondor tumanidagi "Guliston Namgoni" kanalini rekonstruksiya qilish bo'yicha ishchi loyihasi ODSP-6 topshirig'i asosida tuzilib,



O'zbekiston Respublikasi Qishloq va suv xo'jaligi vazirining o'rinbosari Hamrayev Sh R. tomonidan tasdiqlangan.

Ushbu ishchi loyihadan maqsad kanalni betonlashtirish orqali kanal atrofidagi yerlarni mukammal suv bilan taminlashdan iborat. Mavjud kanal bo'ylab oqim tezligi  $2,0 \text{ m}^3 / \text{s}$  bo'lgan kanalni loyihalashtirish rejaga kuyilgan.

Kanalning rekonstruksiya qilinadigan qismi 11,7 km beton qoplamani tashkil etadi.

Loyihalashtiriladigan kanalga mavjud Avgir beton kanalidan (oqim tezligi  $16 \text{ m}^3 / \text{s}$ ) suv olib,  $2,0 \text{ m}^3 / \text{s}$  oqim tezligiga ega bo'lgan beton kanal qurish rejalashtirilgan.

Asosiy gidrotexnik tadbirlar quyidagilardir:

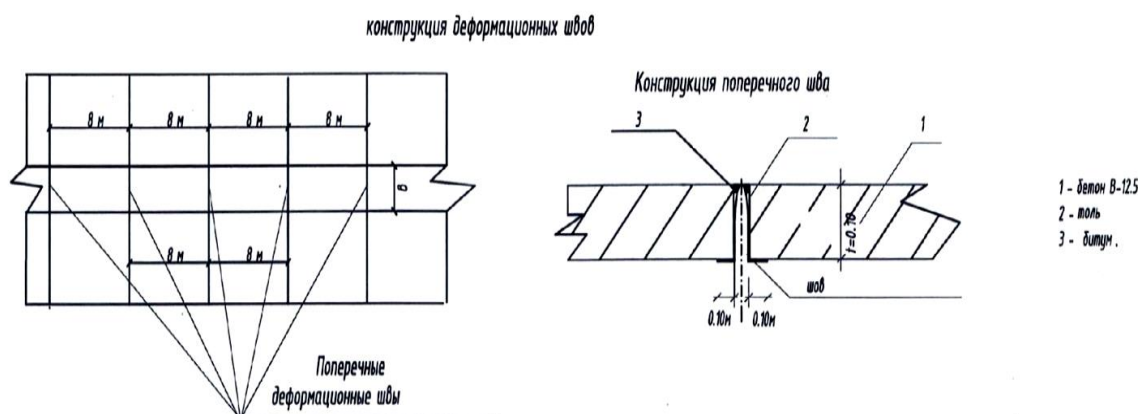
- 11,7 km uzunlikdagi kanalni rekonstruksiya qilish
- Zarur gidrotexnik inshootlarni qurish va rekonstruksiya qilish:
- Bosh gidrotexnik inshoot 1 dona
  - Zatvor 3 dona
- Quvurli o'tish joylari 6 dona
- Akveduk 1 dona
- RO-4 Zatvor 11 dona
- RT-6 Zatvor 11 dona
- RT-8 Zatvor 3 dona

Ishchi loyihadagi texnik yechimlarni asoslash uchun topografik-geodeziya ishlari olib borildi, o'tgan yillar ma'lumotlaridan muhandislik-geologik tadqiqotlar olindi (G'arbiy Romitan suv omborini rekonstruksiya qilish). Shuningdek, aniqlashtirish uchun har 1,0 km chuqurligi 4,0 m bo'lgan tuzatuvchi zondlash quduqlari tanlab burg'ilangan, jami 12 ta quduq kanal uzunligi buyicha 11,7 km.

Ishchi loyiha amaldagi konun konun koidalarga muvofiq tuzildi.



**1-rasm Kanal beton qoplamasini buzilish holatlari**



**2-рasm. Deformatsiya choklarini o'rnatish sxemasi.**

Gidrouzeldan foydalanish bo'yicha texnik chora tadbirlar (1- jadval)

T/R	Xavf-xatarni belgilovchi faktorlar	Tavsiyalar
1.	Har bir inshootdagi zatvorlarning vintlarinimoylanmagan tekshirib chiqish lozim.	Inshootni xavfsizligini ta'minlash maqsadida
2.	Ma'lum bir zatvorlar vintlarni kotarib tushirish mexanizmlari mavjud emas o'rnatilmagan.	PTB va PTE talablari asosida tartibga keltirish lozim
3.	Pastki bef gidropostgacha beton otkoslarni o't-o'lanlardan tozalanmagan.	PTB va PTE talablari asosida tartibga keltirish lozim
4.	Gidrouzel tarkibida yoritish tizimi mavjud emas	PTB va PTE talablari asosida tartibga keltirish lozim
5.	Kanalning piketlar kesimida loyqa bosish drajasini o'rganish lozim	Tezda tozalash ishlarini bajarish kerak
6.	Xatcha kanali gidropostgacha va reyka atroflarini o't va loyqa bosgan.	Tezda tozalash ishlarini bajarish kerak
7.	Kanalda o'zan usti oqiziq-lari to'planishi mavjud.	Tezda tozalash ishlarini bajarish lozim
8.	Inshootni elektor ta'minot sistemasini mavsum oldidan qayta tekshiruvdan o'tkazish lozim.	Inshootni texnik holatini va xavfsizligini ta'minlash maqsadida
9.	Dispetcherlik binosini kapital ta'mirlash va binoga kuzatuv kameralarini o'rnatish kerak.	Inshoot ekspluatatsiyasini yaxshilash maqsadida
10.	Operativ texnik xujjatlarni PTB va PTE qoidalari asosida yuritilmayapti va nazorat qilinmagan.	Operativ texnik xujjatlarni PTB va PTE qoidalari asosida yuritish va nazorat qilish lozim
11.	Favqulodda vaziyatlar xavfi yuzaga kelganda va sodir bo'lganda xabar berish va ogoxlantirish sxemasini tashkil etilmagan.	Favqulodda vaziyatlar xavfi yuzaga kelganda va sodir bo'lganda xabar berish va ogoxlantirish sxemasini tashkil etish kerak

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**"XARXUR-DUOBA" IRRIGATSIYA TIZIMI BOSHQARMASI  
TASARRUFIDAGI "SHIMOLIY G'ARBIY TARMOQ"  
TUMANLARARO KANALINI TEXNIK HOLATINI YAXSHILASH  
BO'YICHA CHORA-TADBIRLAR ISHLAB CHIQISH**

*Annotatsiya. Ushbu maqolada gidrouzellar vazifasi va shu bilan bir qatorda suv xo'jaligida suv taqsimlash inshootlarining ahamiyati, gidropostlarning suv limitining taqsimlab berishda gidrouzellarning o'rni to'g'risida bir qancha malumotlar berilgan.*

*Kalit so'zlar: gidrouzel, gidropost, suv taqsimlash, limit.*

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**DEVELOPMENT OF MEASURES FOR THE IMPROVEMENT OF THE  
"NORTHWESTERN NETWORK" INTER-DISTRICT CANAL UNDER  
THE "KHARHUR-DUOBA" IRRIGATION SYSTEM DEPARTMENT**

*Annotation. In this article, some information is given about the function of hydroelectric units and, at the same time, the importance of water distribution structures in water management, the role of hydroelectric units in distributing the water limit of hydrostations.*

*Key words: hydronozzle, hydropost, water distribution, limit.*

Hozirgi kunda kelib respublikamizda suv resurslari hamda mavjud suv manbalaridan samarali foydalanaish bo'yicha bir qator qarorlar qabul qilinib, bu qarorlarning asosiy mazmuni kamayib borayotgan suv resurlarini tejamkorlik



bilan foydalanish g'oyalari ilgari surilmoqda. Jumladan suv resurslarini yetkazib berishda gidrotexnik inshootlarining ham o'ri katta. Chunki belgilangan suv sarflari gidrouzellardan taqsimlanib kanallar trassasi bo'ylab harakat qiladi. Suv limitlari iste'molchiga yetib borishi uchun gidroinshootlarning texnik holati muhimdir.

“Shimoliy G‘arbiy tarmoq” tumanlararo kanali 1965 yilda qurib foydalanishga topshirilgan. “Shimoliy G‘arbiy tarmoq” tumanlararo kanalining jami uzunligi 18.06 km tashkil etib, shundan to'liq 18,06 km qismi tuproq o'zanlidir.

“Shimoliy G‘arbiy tarmoq” tumanlararo kanalining gidravlik parametrlari quyidagicha.

1-jadval

$Q_{\max}$	i	n	m	b	h	v	R
70	0.00011	0.02	2.25	18.0	2.6	0.86	1.94

“Shimoliy G‘arbiy tarmoq” tumanlararo kanalining suv sarfi 70 m<sup>3</sup>/s bo'lib, Vobkent tumanidagi "R. Husenov", "Bekniyozov", "Karimbobo", "X. Kamolov", "Buzunduvon", "Sadrobod", "Todari" "Niogan" xo'jaliklararo kanallari va "Panob", "X. Kamolov", "Buzunduvon" "I. Naimov", "Roxkent" nasoslarini hamda Xayrabod tumanlararo kanaliga suv yetkazib beradi.

“Shimoliy G‘arbiy tarmoq” tumanlararo kanali “Amu-Buxoro” irrigatsiya tizimlari havza boshqarmasi tasarufidagi “Xachkab” gidrouzelidan suvni olib, Vobkent, Romitan va Jondor tumanlarini ekin maydonlarini suvg'orishda suvni yetkazib beradi.



**1-rasm Gidrouzel beton qoplamasini buzilish holatlari**

Kanalning suv olish nuqtasi loyixaviy 51 m<sup>3</sup>/s bo'lib, yillar davomida inshootdan va kanaldan to'g'ri foydalanilganligi hamda vaqtida ta'mirlash tiklash

ishlarini bajarilganligi sababli inshoot hozirgi kunda 70 m<sup>3</sup>/s suvni o'tkaza oladi. Xuddi shunday "Shimoliy G'arbiy tarmoq" tumanlararo kanali yillar davomida mexanizmlar yordamida tozalanib, tozalangan tuprok va loykala kanal dambasiga tashlanib tikilani kelinishi sababli kanal dambasi baland bo'lgan va 60 m<sup>3</sup>/s o'rniga hozirda 67 m<sup>3</sup>/s gacha suvni betalofat o'tkazmoqda. Kanaldagi gidrotexnik inshootlarni o'z vaqtida ta'mirlash tiklash ishlari bajarilganligi sababli bu gidrotexnik inshootlar ham hozirda 60 m<sup>3</sup>/s o'rniga 67 m<sup>3</sup>/s gacha suvni betalofat o'tkazmoqda.

Gidrouzeldan foydalanish bo'yicha texnik chora tadbirlar (1- jadval)

T/R	Xavf-xatarni belgilovchi faktorlar	Tavsiyalar
1.	Har bir inshootdagi zatvorlarning vintlarinimoylanmagan tekshirib chiqish lozim.	Inshootni xavfsizligini ta'minlash maqsadida
2.	Ma'lum bir zatvorlar vintlarni kotarib tushirish mexanizmlari mavjud emas o'rnatilmagan.	PTB va PTE talablari asosida tartibga keltirish lozim
3.	Pastki bef gidropostgacha beton otkoslarni o't-o'lanlardan tozalanmagan.	PTB va PTE talablari asosida tartibga keltirish lozim
4.	Gidrouzel tarkibida yoritish tizimi mavjud emas	PTB va PTE talablari asosida tartibga keltirish lozim
5.	Kanalning piketlar kesimida loyqa bosish drajasini o'rganish lozim	Tezda tozalash ishlarini bajarish kerak
6.	Xatcha kanali gidropostgacha va reyka atroflarini o't va loyqa bosgan.	Tezda tozalash ishlarini bajarish kerak
7.	Kanalda o'zan usti oqiziqdari to'planishi mavjud.	Tezda tozalash ishlarini bajarish lozim
8.	Inshootni elektor ta'minot sistemasini mavsum oldidan qayta tekshiruvdan o'tkazish lozim.	Inshootni texnik holatini va xavfsizligini ta'minlash maqsadida
9.	Dispetcherlik binosini kapital ta'mirlash va binoga kuzatuv kameralarini o'rnatish kerak.	Inshoot ekspluatatsiyasini yaxshilash maqsadida
10.	Operativ texnik xujjatlarni PTB va PTE qoidalari asosida yuritilmayapti va nazorat qilinmagan.	Operativ texnik xujjatlarni PTB va PTE qoidalari asosida yuritish va nazorat qilish lozim
11.	Favqulodda vaziyatlar xavfi yuzaga kelganda va sodir bo'lganda xabar berish va ogoxlantirish sxemasini tashkil etilmagan.	Favqulodda vaziyatlar xavfi yuzaga kelganda va sodir bo'lganda xabar berish va ogoxlantirish sxemasini tashkil etish kerak

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## **MATEMATIKA DARSLARIDA AL -XORAZMIY MEROSINI O‘RGANISH BO‘YICHA BA‘ZI BIR MULOHAZALAR**

*Annotatsiya. Ushbu maqolada buyuk qomusiy olim Al Xorazmiy merosidan dars jarayonida foydalanish masalalari yoritilgan*

*Kalit so‘zlar: matematika, algebra, algoritm, kvadrat tenglama, algebraik miqdor, geometrik masala.*

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## **SOME REMARKS ON STUDYING THE HERITAGE OF AL- KHORAZMI IN MATHEMATICS LESSONS**

*Abstract. This article covers the issues of using the legacy of the great encyclopedist Al Khorezmi in the course of the lesson*

*Key words: mathematics, algebra, algorithm, quadratic equation, algebraic quantity, geometric problem.*

O‘quvchilarning ilmiy dunyoqarashini, mustaqil ijodiy va mantiqiy fikrlay olish qobiliyatini, aqliy rivojlanishini, o‘z o‘zini anglash salohiyatini shakllantiradi. Shuning bilan birga ularda milliy va umuminsoniy qadriyatlarni tarkib toptirish hamda ijtimoiy hayotlari va ta’lim olishlari uchun zarur bilimlarni beradi. Matematika darslari o‘quvchilarni o‘ylashga, mushohada yuritishga, nazariy bilimlarni amaliyotga tatbiq qila olish ko‘nikmalarini shakllantirishga, fanni turmushga kengroq bog‘lab borishga, ijodkorlik qobiliyatini o‘stirishga va fanni boshqa fanlarni o‘qitishda, texnikada sanoatda, tibbiyotda, qishloq xo‘jaligida qo‘llanilishini bilib olishlarida muhim ahamiyat kasb etadi.

Buyuk ajdodlarimiz tomonidan shu kunga qadar yaratilgan barcha boyliklarimiz, muqaddas qadriyatlarimizga hamda dunyodagi hech narsaga qiyoslab bo‘lmas bebaho milliy ma’naviy merosimizga hurmat e’tibor, sadoqat va muhabbat, g‘urur va iftixor tuyg‘ularini qaror toptirish ta’lim muassasalaridagi ta’lim-tarbiyaviy ishlarimizning ustuvor yo‘nalishlaridir.

Ma’naviy-ma’rifiy, g‘oyaviy-tarbiyaviy ishlarimiz asosiy maqsadini barkamol avlod, komil inson shaxsi bilan bog‘lar ekanmiz, so‘zsiz o‘tmish milliy-ma’naviy merosimizning, boy ma’naviy qadriyatlarimizning poydevori deb bilamiz. Bulardan, matematika darslarida va darsdan tashqari mashg‘ulotlarda, ana shu aytilgan boyliklardan foydalanish imkoniyatlarini yanada kengaytirish ulardan oqilona va ijodiy foydalanish qobiliyatlarini tarbiyalash ta’lim

muassasalari professor-o'qituvchilarining asosiy vazifalaridan iborat bo'lishi kerakligi kelib chiqadi.

Buyuk allomalarimiz Abu Nasr Farobiy, Al- Xorazmiy, Abu Ali ibn Sino, Abu Rayxon Beruniy, Ahmad Farg'oniy, Ali Qushchi, Mirzo Ulug'bek va boshqalarning matematikaga qo'shgan hissalarini o'rganish o'quvchi talabalarni komillikka yetaklaydigan beqiyos ne'matdir [2].

Bular ichida eng mashhurlardan biri Al- Xorazmiy (783- 850) dir. U o'zining matematika sohasida yozgan asarlari "Kitob al-jabr val-muqobala", "Hind hisobi haqida qisqacha kitob", "Astronomik jadvallar", "Kitobul- suratul-arz"lar bilan butun jahonga tanilgan olimdir. Xorazmiyning matematika faniga doir ikki asari bizgacha yetib kelgan. Bular algebra va arifmetika sohasida yozilgan asarlar bo'lib, ular matematika fanining keyingi taraqqiyotiga katta ta'sir ko'rsatgan va juda ko'p matematik tekshirishlarning asosi bo'lib xizmat qilgan asarlar hisoblanadi [1].

Xorazmiy o'zining bu asarlarida bir nechta yangi matematik masalalarni nazariy tomondan hal qilish bilan birga bu masalalarning amaliy tatbiqlarini ham ko'rsatgan. Buyuk olim o'z asarlarini insonlarning kundalik amaliy ehtiyojlari va turmush talablarini qondirish kabi masalalarni hal etish uchun foydalanishga moslab yozishga harakat qilgan. Shuning uchun ham uning matematika sohasidagi asarlari ham nazariy, ham amaliy jihatdan katta ahamiyatga ega hisoblanadi.

Xorazmiyning "Al-jabr val- muqobala" asari algebra fanidan yozilgan birinchi asar bo'lib, unda algebraning asosiy tushunchalari, mazmuni va dastlabki qoidalari berilgan. Bu asar ikki qismdan iborat bo'lib, uning birinchi qismida algebraik miqdorlar ustida amallarni bajarish qoidalari, birinchi va ikkinchi darajali tenglamalar yoritilgan. Kvadrat tenglamalar geometrik usul bilan yechilgan. Kitobning ikkinchi qismida geometrik masalalar bayon etilgan. Unda  $\pi$  va  $\sqrt{10}$  sonlarining bayoni bir biriga yaqinligi hamda bundan tashqari  $\pi$  sifatida  $\frac{22}{7}$  va 3,1416 qiymatlarni olish mumkinligi ta'kidlangan.

Ma'lumki fanning turli sohalarida va texnikada eng ko'p qo'llaniladigan so'zlardan biri algoritm so'zidir. Bu so'z Al-Xorazmiy so'zining lotincha transkripsiyasidir.

Al-Xorazmiy fanning turli sohalarida keng ko'lamdagi bilimlarga shu jumladan, astronomiya sohasida ham bilimlarga ega bo'lgan. Uning mashhur "Zij" asari nafaqat sharq astronomiyasining balki Yevropa astronomlarining ham qo'llanmasi bo'lgan [4]. Al-Xorazmiy "Zij" asarini yaratish bilan jahon astronomiyasini yuqori cho'qqilarga chiqishiga asos soldi. U geografiya sohasida ham bir qator ishlarni amalga oshirgan. Uning "Er surati haqidagi kitob" nomli asari geografiyaga tegishli bo'lib, u Sharqdagi geografiya fanini rivojlanishida muhim asar bo'lib xizmat qilgan.

Xulosa qilib, Al- Xorazmiy matematikadan boshqa ko‘plab fanlar, jumladan, astronomiya, fizika, geografiya fanlari bilan ham shug‘ullangan deyishimiz mumkin.

Algebra fanining asoschisi, buyuk qomusiy olim Al- Xorazmiy o‘zidan noyob va ulkan meros qoldirgan. Bugungi kunda ta’lim muassasalari professor o‘qituvchilari oldida turgan asosiy vazifalardan biri o‘quvchi talabalarga fan asoslari bo‘yicha bilimlar berish jarayonida Al- Xorazmiy tomonidan qoldirilgan meros bo‘yicha ma’lumotlarni tizimli yetkazishdan iborat.

Buni quyidagi mavzularni bayon qilish jarayonida amalga oshirish mumkin: sonlar haqidagi tushunchalarni berishda; irratsional sonlar haqidagi tushunchalarni berishda; arifmetik amallar haqidagi tushunchalarni berishda; sanoq sistemalari haqidagi tushunchalar berishda; chiziqli tenglamalar haqida tushunchalar berishda; chiziqli tenglamalar sistemasi bo‘yicha tushunchalar berishda; ildizlar haqida tushunchalar berishda; kvadrat tenglamalar haqida tushunchalar berishda; uchburchaklar haqida tushunchalar berishda; to‘rtburchalar haqida tushunchalar berishda; aylana haqida tushunchalar berishda; doira va doira bo‘laklarining yuzalari haqida tushunchalar berishda; rombning yuzasi haqida tushunchalar berishda [3].

Umumta’lim maktablari matematika o‘qituvchilari yuqorida keltirilgan mavzularni bayon qilishda bu mavzular bo‘yicha Al-Xorazmiy tomonidan berilgan ma’lumotlarni o‘quvchilarga g‘urur bilan ana shunday buyuk insonning ajdodlaridan ekanligimizni yetkazishi kerak. Bu bilan biz o‘zbek matematigi, algebra fanining asochisi, buyuk qomusiy olim Al- Xorazmiy tomonidan qoldirilgan merosdan dars jarayonida foydalangan bo‘lamiz. Dars jarayonida yoki darsdan tashqari tashkil qilinadigan tadbirlarda ajdodlarimiz meroslaridan foydalanish o‘quvchilarda vatanparvarlik va milliy g‘urur tuyg‘ularini shakllantiradi va ta’lim oluvchilarda fanga qiziqishni yanada orttiradi hamda ta’limni samarali bo‘lishini ta’minlaydi.

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## **LEARNING THROUGH PLAY: THE POWER OF PLAY IN EDUCATION**

*Abstract. Learning Through Play emphasizes the role of play as a critical component in children's development and education. This approach advocates that play is not merely a leisure activity, but a crucial element in fostering creativity, imagination, social skills, and cognitive abilities. Learning Through Play integrates play-based activities into educational settings, encouraging exploration, experimentation, and discovery. It is particularly significant in early childhood education, where play is seen as a natural and effective way of learning, allowing children to express themselves, solve problems, and build relationships. This approach aligns with developmental theories that recognize the power of play in promoting holistic growth and learning.*

*Keywords. Learning Through Play, Child Development, Creativity, Imagination, Social Skills, Cognitive Abilities, Play-Based Learning, Early Childhood Education, Exploration, Holistic Growth.*

Learning Through Play is an educational philosophy that recognizes play as a fundamental aspect of children's learning and development. Grounded in the belief that play is essential for children's cognitive, social, emotional, and physical growth, this approach integrates playful activities into educational contexts. It provides children with opportunities to explore, experiment, and engage in creative problem-solving. Learning Through Play is particularly relevant in early childhood education, where it supports the natural way children learn and interact with their environment, fostering a love for learning and developing essential life skills.

**Theoretical Foundations:** The approach is grounded in developmental theories by educators like Jean Piaget and Lev Vygotsky, who emphasized the importance of play in children's cognitive and social development.

**Characteristics of Play-Based Learning:** Key characteristics include child-led activities, hands-on engagement, a focus on the process rather than the outcome, and the integration of play into various learning experiences.

**Role of Educators:** In Learning Through Play, educators act as facilitators, setting up an environment conducive to play and guiding children's learning experiences. They observe and interact with children, extending their learning through play.

**Benefits for Children:** Benefits include enhanced creativity, improved language and communication skills, development of social and emotional competencies, and strengthened problem-solving abilities.

**Challenges in Implementation:** Challenges include balancing play-based learning with traditional academic skills, ensuring educational outcomes through play, and gaining support from parents and educational systems.

**Research and Outcomes:** Research supports the effectiveness of Learning Through Play in promoting children's holistic development and readiness for formal education.

Learning Through Play is a powerful educational approach, particularly in early childhood, where it aligns with children's natural learning processes. It fosters creativity, social skills, and cognitive development, providing a strong foundation for lifelong learning. As education continues to evolve, recognizing the value of play in learning environments remains crucial for the healthy development of children. Play is not just a simple activity; it is a vital tool in shaping the cognitive, emotional, and social wellbeing of young learners.

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## **OUTDOOR EDUCATION: LEARNING BEYOND THE CLASSROOM WALLS**

*Abstract.* Outdoor education represents a pedagogical approach focusing on experiential learning outside traditional classroom settings. It encompasses various activities like environmental education, adventure education, and place-based learning. This form of education emphasizes hands-on, real-world experiences, promoting personal and social development alongside academic learning. Research indicates its effectiveness in enhancing student engagement, fostering a connection with nature, and developing critical thinking and problem-solving skills.

*Keywords.* Outdoor Education, Experiential Learning, Environmental Education, Adventure Education, Place-Based Learning, Interdisciplinary Approach, Student Engagement, Nature Connection, Critical Thinking, Problem-Solving Skills.

Outdoor education transcends the conventional boundaries of classroom learning, offering students experiential learning opportunities in natural settings. It integrates academic subjects with practical, hands-on experiences, promoting a deeper understanding of the material. This approach also focuses on students' personal and social development, enhancing their emotional intelligence and team-building skills. Outdoor education is particularly effective in teaching environmental stewardship and sustainability concepts.

**Theoretical Framework of Outdoor Education:** Outdoor education is rooted in theories of experiential learning, developed by educators like John Dewey and Kurt Hahn. It emphasizes learning through experience, reflection, and application. This approach contrasts with traditional classroom methods, focusing on passive learning and theoretical knowledge.

**Benefits of Outdoor Education:** Studies have shown numerous benefits of outdoor education. It enhances academic performance by providing real-world contexts for learning. Students demonstrate improved motivation, increased physical health, and greater environmental awareness. Socially, it fosters teamwork, leadership, and improved communication skills.

**Implementation Challenges and Solutions:** Implementing outdoor education poses challenges, including logistical issues, safety concerns, and curriculum integration. Solutions involve thorough planning, teacher training, and collaboration with local communities and environmental organizations. Innovative approaches, such as school gardens and local field trips, offer practical ways to integrate outdoor learning.

**Role in Addressing Educational Inequity:** Outdoor education can also address educational inequities. It provides alternative learning opportunities for students who might struggle in traditional classroom settings. However, access to outdoor education can be limited by socioeconomic factors. Efforts to increase accessibility are crucial for equity in education.

**Interdisciplinary Nature of Outdoor Learning:** Outdoor education naturally lends itself to interdisciplinary learning. It can incorporate science, history, art, and physical education, providing a holistic educational experience. This integration fosters critical thinking and creativity, preparing students for complex, real-world problems.

Outdoor education represents a transformative approach to learning, offering numerous benefits to students. It enhances academic performance, fosters environmental stewardship, and promotes personal and social development. While challenges exist in its implementation, innovative solutions and increased accessibility can make it a valuable component of modern education systems. As an interdisciplinary and experiential approach, outdoor education prepares students not only academically but also as responsible and adaptive individuals in a changing world.

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## **STUDENT-CENTERED LEARNING: EMPOWERING LEARNERS IN THE CLASSROOM**

*Abstract. Student-Centered Learning (SCL) is an educational approach that shifts the focus from teachers to students, emphasizing active learning, personalized education, and the development of critical thinking and problem-solving skills. It empowers students by giving them more control over their learning process, encouraging exploration, and fostering a deeper understanding of subjects. SCL has been shown to improve engagement, motivation, and academic outcomes.*

*Keywords. Student-Centered Learning, Active Learning, Personalized Education, Critical Thinking, Problem-Solving, Student Empowerment, Engagement, Motivation, Lifelong Learning, Educational Innovation.*

Student-Centered Learning (SCL) represents a paradigm shift in education, focusing on the learners' needs, interests, and learning styles. This approach contrasts with traditional teacher-centered methods, where the teacher is the primary source of knowledge and direction. SCL involves active participation, collaboration, and tailored learning experiences. It recognizes students as unique individuals with diverse learning paths and potential.

**Fundamentals of Student-Centered Learning:** SCL is based on the principles of constructivism, where learning is an active, constructive process. Learners are encouraged to build their understanding and knowledge through experiences and interactions with the world.

**Benefits of SCL in Modern Education:** SCL aligns with the skills needed in the 21st century, such as critical thinking, collaboration, and adaptability. It fosters independence and self-directed learning, preparing students for lifelong learning and problem-solving in diverse contexts.

**Strategies for Implementing SCL:** Key strategies include differentiated instruction, project-based learning, and collaborative group work. Technology integration plays a significant role in facilitating personalized learning paths and providing access to diverse resources.

**Challenges and Solutions in SCL:** Implementing SCL can be challenging, requiring shifts in teaching practices, curriculum design, and assessment methods. Teacher training, support from educational leaders, and a shift towards a more flexible and responsive educational system are essential for effective implementation.

**SCL and Educational Equity:** SCL can contribute to educational equity by addressing individual learning needs and reducing barriers to learning. It

promotes inclusivity and diversity in the classroom, recognizing and valuing the unique backgrounds and perspectives of each student.

Student-Centered Learning is a transformative approach that equips students with essential skills for their future. It emphasizes active participation, personalization, and critical thinking, leading to enhanced student motivation and academic success. While it presents challenges in implementation, the benefits of SCL in fostering a more engaging, inclusive, and effective learning environment are clear. As education evolves, SCL offers a pathway to empower learners and prepare them for the complexities of the modern world.

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## **INQUIRY-BASED LEARNING: STIMULATING CURIOSITY AND RESEARCH SKILLS**

*Abstract. Inquiry-Based Learning (IBL) is an educational approach that emphasizes the student's role in the learning process, encouraging curiosity, critical thinking, and research skills. This pedagogy centers on students formulating questions, investigating to find answers, and constructing new understandings. IBL fosters deep engagement with content, promoting a more active and participatory form of learning. It has been linked to improved understanding of complex concepts, enhanced problem-solving abilities, and greater retention of information.*

*Keywords. Inquiry-Based Learning, Student Engagement, Curiosity, Critical Thinking, Research Skills, Active Learning, Constructivist Learning, Problem-Solving, Lifelong Learning, Educational Innovation.*

Inquiry-Based Learning (IBL) is an educational strategy that encourages students to learn by engaging in their own research and inquiry. This approach is rooted in constructivist theory, where learning is seen as an active process of constructing knowledge rather than passively receiving information. IBL promotes a more engaging and interactive classroom environment, where students take the lead in their learning journey. It emphasizes critical thinking, questioning, and exploration, allowing students to develop skills essential for academic success and lifelong learning.

**Principles and Philosophy of IBL:** IBL is based on the idea that learning is most effective when students are actively engaged in the discovery process. It prioritizes student inquiry, encouraging learners to ask questions, investigate, and construct their own understanding.

**Benefits of IBL in Developing Critical Thinking and Research Skills:** IBL enhances critical thinking and research skills, teaching students to analyze information, synthesize data, and draw conclusions. This approach prepares students for the complexities of the real world, where problem-solving and information evaluation are crucial.

**Challenges in Adopting IBL and Solutions:** Implementing IBL can be challenging due to the need for a flexible curriculum and the development of new teaching methodologies. Professional development for educators and support from educational institutions are critical for successful implementation.

**IBL's Role in Fostering Lifelong Learning:** IBL instills a love of learning and curiosity, which are essential for lifelong learning. By engaging students in

inquiry and exploration, it helps them develop a continuous desire to understand and learn beyond the classroom.

**Impact of IBL on Student Motivation and Engagement:** IBL has been shown to increase student motivation and engagement. When students are active participants in their learning process and can explore topics of interest, they are more likely to be motivated and engaged in the learning process.

Inquiry-Based Learning offers an effective and dynamic approach to education, fostering critical thinking, research skills, and a deeper understanding of content. It transforms the classroom into an interactive learning environment, where students are empowered to explore and discover. While there are challenges in implementing IBL, its benefits in promoting active learning, engagement, and lifelong curiosity are substantial.

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## **TALIMARJON SUV OMBORINI TEXNIK HOLATINI O'RGANISH VA KUZATUVLAR NATIJALARI BILAN TANISHISH**

*Annotatsiya. Talimarjon suv omborining foydali ish hajmini aniqlash uchun suv omborga cho'kindi cho'kishi jarayonini o'rganildi tadqiqotlar bo'yicha nazariy izlanishlar olib borildi. Suv ombori gidrotexnik inshootlarining loyihaviy ma'lumotlari bilan tanishildi va tadqiqot o'tkaziladigan obyektlarni tanlandi. Tabiiy-dala sharoitida suv ombori foydali ish hajmini aniqlash bo'yicha bo'yicha gidrometrik tadqiqotlar olib borildi va tahlil etildi.*

*Kalit so'zlar: Talimarjon, suv ombori, pezometr, suv satxi, suv sarfi, zatvor, reper, stvor.*

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## **STUDYING THE TECHNICAL CONDITION OF "TALIMARJON" WATER RESERVOIR AND GETTING TO KNOW THE RESULTS OF MONITORING**

*Abstract. In order to determine the useful volume of the Talimarjon reservoir, the process of sediment deposition in the reservoir was studied, and theoretical research was carried out. The design information of hydrotechnical facilities of the water reservoir was introduced and the objects to be researched were selected. Hydrometric studies were conducted and analyzed to determine the useful capacity of the reservoir under natural field conditions.*

*Key words: Talimarjon, reservoir, pezometer, water level, water consumption, reper, stvor.*

Talimarjon suv omboridan foydalanish bo'limi tasarrufidagi barcha gidrotexnik inshootlarni 18-30. 08. 2019 yilda olib borilgan kuzatishlar orqali uning hozirgi kundagi texnik holati bo'yicha quyidagilar aniqlandi.

Suv ombori havzasining loyqa cho'kindilarga to'lish jarayonlari davom etmoqda (1-rasm). Havzani loyqa cho'kindilarga to'lib borishiga oqim bilan har xil oqiziqlarning oqib kelishi, qirg'oqlarni to'lqin va oqimlar ta'sirida shakllanishi sabab bo'lmoqda. Suv omboridagi loyqa cho'kindilar miqdorini aniqlash maqsadida loyiha va ilmiy tadqiqot institutlari ma'lumotlari o'rganilganda, suv omboridagi loyqa cho'kindilar miqdori 2002 yilgacha 60,97 mln. m<sup>3</sup> ni tashkil etgan. Hozirgi kunda suv ombori havzasida loyqa cho'kindilarning cho'kishi natijasida uning foydali hajmi jadal ravishda kamayib bormoqda. Natijada suv ombori havzasida loyqa cho'kindilarning o'rnashib qolishi oqibatida havza tubini rel'yefi keskin o'zgargan, havza hududida o'simliklar o'sayotganligi ham kuzatildi (2-rasm).



1-rasm. Suv ombori havzasiga loyqa oqimining kirishi.





2-rasm. Suv ombori havzasida loyqa cho‘kindilarning ortib borishi va o‘simliklar bilan qoplanish jarayonlari.

Hozirgi paytda 1-to‘g‘onning texnik holati qoniqarli bo‘lib, to‘g‘onni vertikal cho‘kishi va gorizonttal siljishi norma asosida bormoqda.



3-rasm. Suv omboriga 7-nasos stansiyasidan suv tashlash inshooti kanali ko‘rinishi.

1-to‘g‘onning ustki qismini texnik holati qoniqarli bo‘lib, yuqori qiyaliklari beton plitalar bilan qoplangan va to‘g‘onning yuqori qismiga parapetlar o‘rnatilgan. Shamol ta‘sirida havzada paydo bo‘ladigan to‘lqinlarning beton plitalar tomon harakatlanishi oqibatida, suv omborini to‘ldirish va bo‘shatish natijasida beton plitalar choklarining ayrim joylarida havfli bo‘lmagan sinishlar va buzilishlar paydo bo‘lgan.

Suv omborining 1-to‘g‘oni tanasidagi suvni bosimida kuzatib borish uchun loyiha bo‘yicha 237 ta pezometrlar o‘rnatilgan.

Ma‘lumotlar shuni ko‘rsatadiki 1 va 2 to‘g‘onlarning ba‘zi qismlarida cho‘kish va ba‘zi qismlarida ko‘tarilish sodir bo‘lmoqda. To‘g‘onlarning cho‘kishi loyiha materiallarida keltirilgan bashorat natijalar bo‘yicha davom etmoqda va to‘g‘onlarning xavfsizligiga ta‘sir qilmaydi.

Suv chiqarish inshootining texnik holati qoniqarli darajada. Inshootning minorasida olib borilgan geodezik o'lchovlar shuni ko'rsatadiki, minorani ko'tarilishi davom etmoqda, yillar orasida +6 mm ni tashkil qilgan. Kuzatuvlar boshlangandan beri maksimal ko'tarilish +40 mm ga yetgan. Suv chiqarish inshooti zatvorlarini boshqaruvchi binosini ichki qismining holati qoniqarli.

Suv chiqarish inshooti zatvorlarining texnik holati qoniqarli bo'lib, zatvorlardagi rezina zichlagichlari orqali suvning sizilishi kuzatilmoqda.

Suv tashlovchi kanalning PK 154 da lyulkali gidropost qurilgan bo'lib, u yerdan suv omboridan chiqariladigan suv sarflari o'lchab turiladi. Bu kanal 1100 m dan keyin aylanma kanalga tutashgani uchun aylanma kanalda suv sarflari yuqori bo'lganda, gidropost dimlama rejimda ishlaydi.

Aylanma kanal va uning bosh inshootining texnik holati qoniqarli.

**Xulosa.** 1. Talimarjon suv omborining foydali ish hajmini aniqlash uchun suv omborga cho'kindi cho'kishi jarayonini o'rganildi tadqiqotlar bo'yicha nazariy izlanishlar olib borildi.

2. Suv ombori gidrotexnik inshootlarining loyihaviy ma'lumotlari bilan tanishildi va tadqiqot o'tkaziladigan obyektlarni tanlandi.

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4. Suv omborining loyiha va ekspluatatsiya ma'lumotlari, texnik holati bo'yicha kuzatuvlar natijasida olingan ma'lumotlarning tahlili shuni ko'rsatadiki, suv omboridagi inshootlar texnik holatlari qoniqarli ahvolda. Suv ombori inshootlarini ishchi holatlarini yanada oshirish va ekspluatatsiyasini yaxshilash uchun quyidagi ishlarni amalga oshirish lozim:

-suv omboridagi loyqa cho'kindilar miqdorini aniqlash hamda suv ombori uchun qurilgan  $W=f(H)$  va  $F=f(H)$  egri chiziqlarini aniqlashtirish zarur, chunki oxirgi marta 2002 yilda aniqlangan;

-to'g'onlardagi pezometrlarni ishchi holatda tutib turish va ularning sezuvchanligini suv omborlari ekspluatatsiyasi tartib-qoidalarida keltirilgan davrda tekshirib turish;

-suv chiqarish inshootining zatvorlarini rezina zichlagichlarini almashtirish;

-Nasos stansiyaga olib boruvchi kanalni loyqa-cho'qindilardan tozalash;

-Nasos stansiyaga olib boruvchi kanalda gidropost qurish. O'zgarmas o'zan turidagi gidropost tavsifa qilinadi.

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## **THE PLACE OF VALUES IN THE PROCESS OF EDUCATION**

*Abstract. This article discusses the role of education in the life of young people, the importance of values in the process of education.*

*Key words: Education, value, patriotism, nationality, knowledge, ignorance.*

Today, the rapid development of information technologies throughout the world has a significant impact on the minds of young people. These changes are taking place directly in our country. In Uzbekistan, the processes of educating young people are carried out together with education. The purpose of this is to further develop feelings of nationalism, love and respect for the country among young people and provide excellent education based on this. Values have an incomparable role in the process of education.

Today, the concept of education has been formed as a very comprehensive concept. Before we think about values, let's talk about what education is.

Education is a practical pedagogical process aimed at forming certain physical, mental, moral and spiritual qualities in a person; a set of measures taken to ensure that a person has the characteristics necessary for living in society. Education is the most ancient and eternal value that ensures the humanity of a person. Neither an individual nor a human society can exist without education. Because the values that ensure the existence of a person and society are passed from one generation to another only thanks to education.

So, we can say that education is a set of knowledge given by a certain person or parents, teacher, etc. At this point, the following thoughts of our president come to mind:

"The greatest wealth is intelligence and knowledge, the greatest inheritance is good education, and the greatest poverty is ignorance. Science, education and upbringing are the cornerstone of development and the force that makes the country powerful and the nation great.

The bright future of our country, first of all, is closely related to the education system and the education we provide to our children," said our president Shavkat Mirziyoyev.

Along with morals and manners, values play a big role in the education process. By value, we understand the concept used to express the importance of things and events, material and spiritual wealth of society. We can call all the traditions and customs inherited from our ancestors as values. The value of a person is manifested in the dialectical relationship with the time in which he lives, the processes in it, social and historical conditions. The requirements of the

environment and time shape and polish the value of a person, and he himself moves towards a deeper understanding of how his value is related to personal requirements, needs and goals.

The diversity of needs and interests of individuals and society is reflected in a complex system of values. These values are classified according to different bases. In terms of content, the values corresponding to the ideas about the subsystems of the society, such as: material (economic), political, social and spiritual values are distinguished.

Material assets are natural objects and objects that have value, that is, labor tools and direct consumer goods. Natural values include natural gifts embodied in natural resources.

Socio-political values are the significance of social and political events, events, political acts and actions as values. Socio-political values usually include social preferences embodied in political and social movements, as well as the progressive importance of historical events that contribute to the development of society, the strengthening of peace and cooperation between peoples.

Spiritual values are the normative-relative aspect of the phenomena of social consciousness, manifested in appropriate forms. The values of science, morality, art, philosophy, and law are considered to be spiritual values.

Spiritual values include social ideals, goals and norms expressed in the form of normative ideas about happiness, good and evil, beauty and ugliness, justice and injustice, legality and illegality, the meaning of history and human duty, etc. includes evaluations, norms and prohibitions, principles of action. Therefore, in the process of education, values are carried out in harmony, and the positive qualities of humanity, such as goodness, fairness, and helping people, also develop together. As an example of the above statements, we can cite the introduction of "Education" textbooks in schools today. In our country, since 2020, the single subject "Education" has been put into practice step by step, combining the subjects "Feeling of the Motherland", "Etiquette", "Idea of National Independence and Spiritual Foundations" and "History of World Religions".

The concepts of education and value unite under the common concept of nationality. Values play a special role in raising children. The goal of strengthening national and spiritual values in the worldview of young people is not to teach them to live based on their own values, but also to learn these universal values and to live and work taking into account that the specific development of the country depends on it. is to invite. In addition, in-depth knowledge of national and spiritual values has a positive effect on preservation, protection and strengthening of independence by young people.

National-spiritual values have a great educational power in the education of the young generation. Loyalty to them ensures our uniqueness on the world scale as a national unity. Our language, customs, traditions and traditions are not just a legacy from the past, but a condition for realizing our identity.

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## **THE IMPACT OF LANGUAGES ON DIFFERENT ASPECTS OF TOURISM**

*Abstract. As the tourism industry develops by, the need for interpreting and language learning is rapidly increasing. This may cause to number of language related barriers. In this article, possible causes that lead to misunderstandings is given and some data from language survey is provided. It should be mentioned that English has become the most common international language, resulting in easing the language barriers in traveling. For example, if an individual knows English, it is not necessary to learn any other languages, since almost every member of society has at least basic verbal skills of English.*

*Key words: Commerce, tourist industry, tourist destinations, interpreting, traveling language, culture immersion, cultural patterns, culture shock.*

The books on English for tourism adopted a communicative, topic-based and student-centered approach, while seeking to develop all the four skills involved in the use of tourism-related English. Second, the course books provided professional information in a friendly and interactive way aiming to improve the trainees' familiarity with the professional areas of work. Third, the books provided excellent preparation opportunities for the major European examinations in English for Tourism, including the London Chamber of Commerce and Industry English for Tourist Industry exams. 12

English as a Foreign Language (EFL) learners are limited in their language learning because culture immersion is limited and often superficial. Paulson<sup>13</sup> points out that it is typical of TESOL curricula to include instructions about the grammatical rules to follow for information questions, but they do not include any guidelines about what questions are appropriate or inappropriate to ask under different circumstances. Furthermore, Byram and Morgan<sup>13</sup> call attention to the fact that the separation of language and culture is even more apparent in those textbooks that append cultural contents in the form of culture capsules or background notes, rather than integrating culture into the language covered in the units. Nevertheless, if the cultural patterns embedded in the language of native speakers are unconscious, then it is essential to ask what cultural patterns come up when foreign language users communicate in their own social contexts with native speakers of the foreign tongue.

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12 The Relationship Between the Language of Tourism, Tourism and Sociology Silvia Blanca Irimiea, PhD

13 Michael Byram and Carol Morgan, Teaching-and-Learning Language-and-Culture (Clevendon: Multilingual Matters, 1994)

But while finding solutions towards possible problems in tourism section, travelers who intend to travel without guide should be taken into consideration too. People who know some useful everyday phrases can travel to overseas with some language-related problems, but facing with culture shock if they have not been to foreign countries a lot. The survey below is provided to represent how people use English in various purposes.

Meanwhile, English is used in the tourism sector with various purposes. In the world of tourism, English is needed for general conversation with foreign guests (M = 3. 27). The function of English is also necessary to provide information (M = 3. 55) and service (M = 3. 55) to foreign guests. Respondents also agreed that English was used to answer questions and solve problems with guests (M = 3. 36). On the other hand, there is disagreement from respondents on negative response items related to the usefulness of English. Respondents do not agree that English is not used to offer assistance (M = 2. 73) and do not agree if English is not used to invite international guests to cooperate (M = 2. 09). 14

Tourists visit various sites all over the world per year. Lots of residents in Europe and America spare time to travel worldwide. Countries like Italy, Kenya, Dubai, the Great Britain and Brazil, among others get millions of tourists annually. Moreover, due to their distinguishing roots, they speak different languages that demand translation for better comprehension. In most cases, tourists take time to learn the language of their hosts. This gives opportunity them to speak best with the hosts. In some cases, they use tour guides as interpreters. However, this does not offer well cultural relationship than the host. Travelling language is therefore crucial for all tourists.

The subject of this work is the degree of intervention, or amount of mediation translators are asked to exercise in order to achieve successful cross-cultural communication in the case of the translation of tourist texts. As has already been pointed out, the main problem lies in the definition of the identity of the addressee of this communication, that is the recipients of tourist texts. The concept of identity I am referring to is to be understood as distinctively social and situational: it normally consists in a limited number of subject-positions available in specific communicative situations. Speakers display their identity by selecting distinctive strategies, whose adequate performance depends on the degree of familiarity (or knowledge) they have with these situations. For example, tourist texts producers involved in the realization of a brochure about, say, the castle of Brescia must be familiar with subjects such as history and architecture, as well as be well-versed in techniques of promotional writing. 15

In conclusion, it is considered really crucial to travel the specific country with tour guide if it is the first time. In order to avoid culture shock and possible language barriers and misunderstandings related to both language and tradition of

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14 English language competence for tourism sector in supporting socio-economic development in Merauke: A Survey Study L A Prihandoko, Y Tembang, D N Marpaung and F Rahman

15 Tourism communication: the translator's responsibility in the translation of cultural difference, Mirella Agorni

the host country. Theoretical assumptions will be represented by types of a distinction between a tourist speech in specific language and its translation into English. It will be illustrated that interpreters' decisions at linguistic and explanatory level allow more or less essential degree of listener involvement, and as a result, affecting the promotion of tourist destinations.

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## **COMPETENCY-BASED EDUCATION: SHIFTING THE FOCUS TO MASTERY**

*Abstract. Competency-Based Education (CBE) is an educational approach that focuses on students' demonstration of desired learning outcomes as central to the learning process. It differs from traditional education systems by emphasizing mastery of skills and knowledge, rather than time spent in a classroom. CBE is designed to ensure students achieve specific competencies or skills necessary for a particular job or academic field. This approach allows for personalized learning paths, as students progress at their own pace, providing a more flexible and efficient way to meet individual educational needs.*

*Keywords. Competency-Based Education, Mastery Learning, Personalized Learning, Skills Development, Educational Outcomes, Student-Centered Learning, Flexible Learning, Individualized Pace, Academic Proficiency, Professional Training.*

Competency-Based Education (CBE) represents a shift in the educational paradigm, focusing on the acquisition and demonstration of specific competencies or skills rather than traditional measures of learning, such as time spent in class. It is a learner-centered approach that allows students to advance based on their ability to demonstrate mastery in certain areas, regardless of the time it takes to do so. This approach is particularly relevant in a world where adaptability and specific skill sets are increasingly valued in both academic and professional contexts.

**Implementation in Educational Settings:** CBE involves setting clear, measurable learning outcomes, using varied instructional methods to help learners achieve these outcomes, and assessing students through performance-based evaluations.

**Role of Educators:** In CBE, educators act more as facilitators or coaches, providing support and resources tailored to each learner's needs and progress.

**Benefits for Students:** CBE allows for personalized learning paths, enabling students to progress at their own pace. It is particularly beneficial for students who need more time to master certain skills or who can advance more quickly through material they already understand.

**Challenges and Considerations:** Implementing CBE can be challenging, as it requires a shift in teaching methods, curriculum design, and assessment strategies. There is also a need for robust support systems and resources to effectively facilitate this approach.

**Impact on Education and Workforce Development:** CBE is seen as an effective approach to align educational outcomes with workforce demands, ensuring that students develop the skills and knowledge necessary for success in their chosen fields.

Competency-Based Education offers a transformative approach to learning, centered around the mastery of skills and competencies. It provides a more personalized and efficient way of learning, catering to the individual needs of students. CBE is increasingly relevant in today's fast-paced and skill-oriented world, both in educational institutions and professional training programs. As educational paradigms continue to evolve, CBE plays a crucial role in preparing learners for the challenges and opportunities of the future.

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## **GLOBAL EDUCATION: PREPARING STUDENTS FOR A CONNECTED WORLD**

*Abstract. Global Education is an educational approach that prepares students to understand, participate in, and contribute to a globally interconnected world. It emphasizes the development of skills such as cultural awareness, language proficiency, and critical thinking, necessary for effective global citizenship. Global Education covers global issues like sustainability, cultural diversity, and international relations, fostering a sense of global responsibility and interconnectedness among learners. This approach is integral in preparing students for the challenges and opportunities of the 21st century, encouraging them to engage with diverse cultures and perspectives and to understand global dynamics.*

*Keywords. Global Education, Cultural Awareness, Global Citizenship, Language Proficiency, Sustainability, Cultural Diversity, International Relations, 21st Century Skills, Global Responsibility, Interconnectedness.*

Global Education is an educational paradigm that emphasizes understanding global issues and developing the skills necessary for effective participation in a globally connected world. This approach aims to cultivate global citizens who are knowledgeable about the world's diverse cultures, languages, and global issues, and who can contribute positively to a global society. It encompasses various aspects of education, including curricular content, pedagogical practices, and the development of key competencies such as cultural understanding, communication, and critical thinking.

**Foundational Concepts:** Global Education is grounded in the idea of developing a global perspective among learners. It focuses on themes such as global interdependence, cultural diversity, and global issues like climate change, human rights, and global economic systems.

**Curricular Integration:** Effective Global Education involves integrating global themes across subjects and grade levels. It includes the study of world languages, geography, history, and international relations, as well as incorporating global issues into science, technology, and the arts.

**Role of Educators:** Educators in Global Education facilitate an understanding of global dynamics and cultural diversity. They act as guides in helping students develop the skills and knowledge to navigate and contribute to a global society.

**Benefits for Students:** Students benefit from a broader worldview, enhanced cultural sensitivity, improved language skills, and a better understanding of global issues and their role in the world.

**Challenges and Considerations:** Challenges include ensuring equitable access to Global Education resources, overcoming cultural biases, and adapting teaching methods to address global perspectives effectively.

**Impact on Future Generations:** Global Education is crucial in preparing future generations to address global challenges collaboratively, to embrace cultural diversity, and to thrive in a global economy.

Global Education plays a vital role in preparing students for a world that is increasingly interconnected. By fostering an understanding of global issues, cultural diversity, and international relations, Global Education equips students with the skills and knowledge needed to be effective global citizens. As the world continues to grow more interconnected, the importance of Global Education in shaping informed, culturally aware, and responsible individuals cannot be overstated.

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## **STABILIZATION ISSUES IN LINGUISTICS**

*Abstract. The article discusses linguistics and stabilization issues in linguistics which are common now. Moreover, it provides some details about stabilization, its origin and consequences.*

*Key words: dictionary types: encyclopedic, philological. Spelling, explanatory, phraseological, synonym, homonym, antonym, paronym, concordance, vocabulary and standards.*

### **INTRODUCTION**

Linguistics is the scientific study of language and its structure, including the analysis of language form, meaning, and context. It is a multidisciplinary field that encompasses various branches and subfields focused on understanding the nature of human language. Linguistics aims to understand the universal properties of language, as well as the diversity of languages spoken around the world. It provides insights into how languages are structured, acquired, used in communication, and how they evolve over time. Linguistic research contributes to fields such as education, translation, artificial intelligence, anthropology, and psychology, among others.

Stabilization refers to the process of maintaining or achieving a stable and balanced state or condition after a period of instability, uncertainty, or change. It involves taking deliberate actions or implementing measures to restore equilibrium, prevent further fluctuations, and create a sense of reliability, consistency, or security in a particular situation, system, or environment.

### **MATERIALS AND METHODS**

Studying stabilization issues in linguistics, particularly concerning language endangerment and preservation, has been a focus of research for various scholars and linguists. Numerous individuals and institutions have contributed to understanding and addressing language stabilization issues. Nancy Dorian is an American linguist known for her work on language shift, language endangerment, and language revitalization. She extensively studied the decline of Scottish Gaelic and contributed to understanding the sociolinguistic aspects of language loss. Nicholas Ostler is a linguist and author who has written extensively on

endangered languages and language extinction. His book "Empires of the Word: A Language History of the World" discusses the rise and fall of languages throughout history. Many other scholars, like Lyle Campbell, David Crystal and others learned the reasons and consequences of stabilization in linguistics.

#### RESEARCH AND DISCUSSION

Linguistic stabilization refers to the process through which a language achieves or maintains a relatively stable state, often in the face of changes, influences, or threats that could otherwise lead to language loss or decline.

This concept primarily applies to situations where languages are endangered, undergoing changes, or facing challenges such as decreased usage, reduced transmission between generations, or marginalization in favor of dominant languages. Linguistic stabilization efforts aim to preserve, revitalize, or strengthen endangered or vulnerable languages to ensure their continued use and transmission within communities.

Key elements of linguistic stabilization include:

**Language Revitalization:** Efforts to revive or rejuvenate languages that are at risk of becoming extinct. This may involve initiatives such as language education programs, community-based language learning, documentation of endangered languages, or promoting language use in various domains like education, media, or governance.

**Language Standardization:** Establishing norms, rules, or standards for the use of a language to ensure consistency and coherence. Standardization can facilitate language preservation by providing guidelines for writing, grammar, spelling, and vocabulary.

**Language Planning and Policy:** Developing policies or strategies at the governmental or community level to support and promote the use of minority or endangered languages. These policies might include official language recognition, support for bilingual education, or cultural initiatives that encourage language use.

**Language Documentation:** Recording and documenting linguistic information about endangered languages through linguistic studies, dictionaries, grammar books, and audiovisual materials. This documentation is crucial for preserving linguistic diversity and understanding the structure and characteristics of endangered languages.

**Community Engagement:** Involving communities in language-related decisions, empowering them to take ownership of their linguistic heritage, and encouraging pride in using their languages. Engaging the community fosters a sense of identity and belonging associated with the language.

Linguistic stabilization aims to counteract language decline and loss by fostering an environment that values linguistic diversity and promotes the continued use and transmission of endangered languages. It involves a range of strategies and interventions tailored to the specific needs and contexts of linguistic communities facing language endangerment.

## CONCLUSION

By implementing these solutions and strategies in a coordinated manner, it is possible to contribute significantly to the stabilization of linguistics, support language revitalization efforts, and ensure the preservation of linguistic diversity for future generations.

Linguistics is a diverse field encompassing various subfields and research areas, each with its own set of challenges and issues. They are Language Endangerment and Extinction, Universal Grammar and Language Acquisition, Sociolinguistics and Language Variation, Language Technology and Computational Linguistics, Historical Linguistics and Language Change, Semantics and Pragmatics, Psycholinguistics and Cognitive Linguistics, Language Documentation and Preservation, Ethical Considerations in Linguistics. These issues represent ongoing challenges in linguistics, and researchers in the field are actively engaged in addressing these complex topics, aiming to advance our understanding of language and its role in human communication, cognition, and society.

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## **PEER ASSESSMENT: ENHANCING LEARNING THROUGH PEER FEEDBACK**

*Abstract. Peer Assessment is an educational technique where students evaluate each other's work, offering feedback and grading based on set criteria. This collaborative approach to assessment aims to enhance learning by involving students in the evaluation process, fostering critical thinking, communication skills, and a deeper understanding of subject matter. Peer Assessment encourages self-reflection and responsibility in learning, as students engage with their peers' perspectives. It is used in various educational contexts, from primary schools to higher education, and is effective in both face-to-face and online learning environments. Peer Assessment contributes to a more dynamic, interactive, and student-centered learning experience.*

*Keywords. Peer Assessment, Feedback, Critical Thinking, Collaborative Learning, Self-Reflection, Communication Skills, Educational Techniques, Student-Centered Learning, Online Learning, Interactive Learning.*

Peer Assessment is a participatory approach to evaluation in educational settings, where students assess each other's work. This method enhances learning by engaging students in the assessment process, encouraging them to analyze, critique, and provide constructive feedback on their peers' work. It serves not only as a tool for learning evaluation but also as a means to develop critical thinking, communication, and self-reflection skills. Peer Assessment is versatile, applicable across various disciplines and age groups, and is increasingly prominent in both traditional and online learning environments.

**Theoretical Basis:** Peer Assessment is grounded in social constructivist theories of learning, which emphasize knowledge construction through social interaction and collaboration.

**Implementation Strategies:** Effective Peer Assessment involves clear guidelines and criteria, training students in assessment techniques, and ensuring a safe and respectful environment for giving and receiving feedback.

**Role of Teachers:** In Peer Assessment, teachers facilitate the process by providing structure, guidance, and ensuring the reliability and validity of the assessments. They also help students develop the skills needed to provide meaningful feedback.

**Benefits for Student Learning:** Benefits include improved understanding of subject matter, enhanced critical thinking and analytical skills, increased engagement and motivation, and the development of interpersonal and communication skills.

**Challenges and Considerations:** Challenges include ensuring the quality and fairness of peer evaluations, addressing potential biases, and managing student apprehensions about evaluating their peers.

**Research and Outcomes:** Research indicates that Peer Assessment can lead to higher academic achievement and deeper learning. It also fosters a more active and collaborative learning environment.

Peer Assessment is a valuable educational practice that extends learning beyond traditional teacher-led assessments. It actively involves students in the learning process, promoting critical analysis, reflection, and constructive feedback. This approach not only enhances academic skills but also prepares students for collaborative and evaluative tasks in their future professional lives. As education continues to evolve, incorporating more collaborative and interactive methods, the role of Peer Assessment is likely to grow, further enriching the learning experience.

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## **MAKER EDUCATION: ENCOURAGING CREATIVITY AND INNOVATION**

*Abstract. Maker Education, part of the broader Maker Movement, emphasizes hands-on, often collaborative learning experiences that foster creativity, innovation, and practical problem-solving skills. This educational approach integrates elements of science, technology, engineering, arts, and math (STEAM), encouraging learners to design, build, and tinker with physical and digital creations. Maker Education aims to develop critical thinking, resilience, and the ability to work collaboratively, preparing students for the demands of the 21st century. It champions the idea of learning through making, where the process of creation is as valuable as the end product.*

*Keywords. Maker Education, Maker Movement, Hands-On Learning, STEAM, Creativity, Innovation, Problem-Solving, Critical Thinking, Collaborative Learning, Digital Creations.*

Maker Education is an innovative educational approach rooted in the Maker Movement, which values hands-on learning, experimentation, and the DIY (do-it-yourself) ethos. This approach is multidisciplinary, combining aspects of STEAM education with an emphasis on creativity and practical skills. It encourages students to become active creators, rather than passive consumers, of technology and art. Maker Education facilitates learning through projects that involve building, designing, and tinkering, helping students develop a wide range of skills including problem-solving, critical thinking, and collaboration.

**Philosophical Foundations:** Maker Education is based on constructivist and constructionist theories of learning, which posit that learners construct knowledge most effectively through making and doing.

**Key Elements in Maker Education:** These include hands-on projects, interdisciplinary learning, collaborative workspaces like maker labs and fab labs, and the use of technology and tools ranging from traditional crafts to digital fabrication technologies.

**Role of Educators:** Educators in Maker Education act as facilitators or guides, providing resources and support while encouraging students to take ownership of their learning through exploration and experimentation.

**Benefits of Maker Education:** Benefits include enhanced creativity, improved technical skills, greater engagement and motivation in learning, and the development of a growth mindset. It also fosters resilience as students learn from trial and error.

**Challenges and Barriers:** Challenges include ensuring equitable access to maker spaces and resources, integrating Maker Education into traditional curricula, and providing adequate training and support for educators.

**Impact on Student Learning:** Maker Education has been shown to positively impact student learning by making abstract concepts tangible, fostering a deeper understanding of subject matter, and enhancing student creativity and innovation.

Maker Education represents a shift in educational paradigms, placing a greater emphasis on active, hands-on learning. By combining elements of STEAM with a focus on creativity and practical skills, it prepares students for the challenges of the 21st century, fostering not just academic skills but also resilience, problem-solving abilities, and a lifelong love for learning. As technology and the global economy continue to evolve, the principles of Maker Education will be increasingly important in equipping students with the skills and mindset needed for future success.

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## **EMBRACING NEURODIVERSITY IN THE CLASSROOM: INNOVATIVE PEDAGOGICAL STRATEGIES FOR INCLUSIVE EDUCATION**

*Abstract. This article explores innovative pedagogical strategies for embracing neurodiversity in the classroom, aimed at fostering an inclusive educational environment. It emphasizes the importance of recognizing and valuing the diverse neurological differences among students, such as autism, ADHD, dyslexia, and other learning variations. The article presents various teaching approaches and adaptations that cater to a wide range of learning needs, promoting equity and excellence in education. It also examines the challenges and benefits of implementing these strategies, highlighting their significance in contemporary pedagogy.*

*Keywords: Neurodiversity, Inclusive Education, Innovative Pedagogy, Special Education, Autism, ADHD, Dyslexia, Teaching Strategies, Classroom Adaptation.*

Embracing neurodiversity in the classroom involves acknowledging and valuing the diverse neurological make-up of students. This concept shifts the focus from viewing certain neurological conditions as deficits to appreciating them as differences that contribute to the richness of a learning community. Innovative pedagogical strategies are essential in accommodating these differences, ensuring that all students have access to an education that meets their unique needs. This article provides an in-depth look at various approaches to support neurodiverse students, enhancing their educational experience and outcomes.

**Understanding Neurodiversity:** This section defines neurodiversity and its relevance in education. It discusses the spectrum of neurological differences, including autism, ADHD, dyslexia, and others, and their implications for learning.

**Innovative Teaching Strategies for Neurodiverse Students:** Explores specific pedagogical approaches tailored to neurodiverse learners. This includes differentiated instruction, multisensory teaching methods, and the use of technology to support learning.

**Creating an Inclusive Classroom Environment:** Focuses on strategies to create a learning environment that is welcoming and supportive of all students. It covers classroom layout, sensory-friendly settings, and fostering a culture of acceptance and understanding.

**Collaborative Approaches and Team Involvement:** Examines the importance of collaboration among teachers, special educators, parents, and students. It discusses how teamwork contributes to effective educational planning and implementation for neurodiverse students.

**Challenges and Solutions in Implementing Neurodiversity-Focused Pedagogy:** Addresses potential challenges faced by educators, such as lack of resources or training, and offers solutions and recommendations for overcoming these obstacles.

Innovative pedagogical strategies that embrace neurodiversity are crucial for creating an inclusive and equitable educational environment. By recognizing and valuing the unique learning profiles of neurodiverse students, educators can provide tailored support that enhances learning for all. While challenges exist in implementing these strategies, the benefits, including improved academic performance and social integration of neurodiverse students, are profound. As education continues to evolve, embracing neurodiversity in the classroom becomes increasingly important for nurturing a diverse and dynamic learning community.

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## **EMOTIONAL INTELLIGENCE IN EDUCATION: UNDERSTANDING AND MANAGING EMOTIONS**

*Abstract. Emotional Intelligence (EI) in education has emerged as a critical factor in teaching and learning processes. It involves understanding, using, and managing emotions effectively to relieve stress, communicate efficiently, empathize with others, and overcome challenges. The integration of EI in educational settings fosters a supportive learning environment, enhances student-teacher relationships, and improves academic performance.*

*Keywords Emotional Intelligence, Education, Student Development, Teacher Training, Empathy, Communication, Learning Environment, Academic Performance, Special Education, Higher Education.*

Emotional Intelligence, originally conceptualized by Salovey and Mayer, has gained prominence in educational discourse. It is defined as the ability to perceive, evaluate, and manage emotions in oneself and others. In educational settings, EI is crucial for students' social and emotional development, influencing their academic success and overall well-being. Educators with high EI can create a more positive learning environment, leading to better student engagement and achievement.

**Theoretical Framework of Emotional Intelligence:** Emotional Intelligence, as a psychological construct, includes abilities such as emotional awareness, emotional regulation, and empathetic understanding. These abilities play a pivotal role in the cognitive and social development of learners. In the educational context, EI is linked to improved problem-solving skills, enhanced memory, and greater academic achievement.

**Impact of EI on Students:** Students with high EI tend to have better peer relationships, cope more effectively with stress, and exhibit lower levels of anxiety and depression. The development of EI in students can lead to improved classroom behavior, higher motivation, and increased resilience. Furthermore, EI is a key determinant in the prevention of bullying and the promotion of inclusive education.

**EI and Educators:** For educators, EI is instrumental in managing classroom dynamics and understanding students' emotional needs. Teachers with high EI can better recognize signs of emotional distress in students and provide the necessary support. Additionally, EI helps educators to communicate more effectively, both with students and parents, enhancing the overall educational experience.

**Curriculum and Training Programs:** Integrating EI into curricula involves teaching students about emotions, how to manage them, and how to recognize them in others. Teacher training programs increasingly focus on developing EI skills, emphasizing the importance of empathy, effective communication, and emotional regulation in educational settings.

**Challenges and Solutions:** Implementing EI education faces several challenges, including curriculum constraints, lack of teacher training, and varying levels of acceptance among educators. Overcoming these challenges requires a systemic approach, including policy changes, professional development, and research-based strategies.

Emotional Intelligence is a vital component of education, significantly affecting students' academic and personal development. It empowers students to manage their emotions, fosters empathy, and enhances communication skills, contributing to a positive and inclusive learning environment. Educators play a crucial role in modeling and teaching EI, and their emotional competencies directly impact the effectiveness of their teaching. The integration of EI into curricula and teacher training is essential, though it poses certain challenges that require a collaborative and systemic approach. The benefits of EI in education are far-reaching, extending beyond the classroom into higher education and professional realms.

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## **CURRENCIES IN CHECK: UNDERSTANDING THE SIGNIFICANCE OF ROBUST CURRENCY REGULATION LAWS**

*Abstract. This scholarly article delves into the nuanced landscape of currency regulation laws, with a focal exploration of their significance within the Republic of Uzbekistan. The legislative constructs governing currency regulation stand as linchpins, intricately designed to navigate the complexities of financial systems. The study unravels the theoretical underpinnings, historical evolution, and contemporary relevance of these laws, emphasizing their pivotal role in sustaining economic equilibrium and fortifying fiscal responsibility. Through a detailed examination of Uzbekistan's legal framework, the article elucidates the preventive measures against illicit activities, the promotion of economic stability, and the facilitation of international trade. Furthermore, it investigates the interplay between currency regulation and fiscal policies, highlighting the coordinated efforts of various government bodies in achieving economic stability and growth.*

*Keywords*

*Currency regulation laws, legal framework, preventive measures, economic stability, illicit activities, fiscal policy, residents and non-residents, international trade.*

In the scholarly pursuit of understanding the intricacies within economic frameworks, a focal point emerges—currency regulation laws. These legislative constructs stand as linchpins, meticulously designed to navigate the complexities of financial systems. As we embark on this academic exploration, our endeavor is to dissect the profound importance of robust currency regulation laws. This article aims to unravel the theoretical underpinnings, historical evolution, and contemporary relevance of these legal frameworks, casting light upon their nuanced role in sustaining economic equilibrium and fortifying the pillars of fiscal responsibility. Join us in this intellectual inquiry, as we scrutinize the imperative nature of currency regulation laws and their profound impact on the scholarly discourse surrounding economic governance.

The necessity of currency regulation laws in this process arises from their pivotal role in maintaining the stability, transparency, and integrity of financial systems within a given jurisdiction. There are several compelling reasons underscore the importance of these regulatory frameworks like, Prevention of Illicit Activities, Economic Stability, Consumer and Investor Protection and so

on. In this regard, currency regulation policy is regulated by legislation and by-laws in the legislation of the Republic of Uzbekistan.

Initially, taking into account of Prevention of Illicit Activities. Currency regulation laws are instrumental in combating financial crimes such as money laundering, fraud, and terrorist financing. By establishing stringent measures, these laws act as a deterrent to illicit activities, safeguarding the financial system from exploitation. As well as, in the Law of the Republic of Uzbekistan, 22. 10. 2019 № LRU-573 by saying “**Article 21. Restrictions on Currency Operations** (ii) with the purpose to counter the legalization of proceeds from crime, the financing of terrorism and the financing of the proliferation of weapons of mass destruction”.

Furthermore, the stability of a nation's currency is paramount for overall economic stability. Currency regulation laws help in mitigating the impact of economic fluctuations, preventing excessive volatility that could disrupt businesses, investments, and the livelihoods of citizens. By Article 6 of the Law of the Republic of Uzbekistan, 22. 10. 2019 № LRU-573, jurisdiction clarifies Residents and Non-Residents of the Republic of Uzbekistan and relations between each other and other sides. Such as, Residents of the Republic of Uzbekistan shall be understood to mean citizens of the Republic of Uzbekistan, including those residing abroad, foreign citizens who have a residence permit in the Republic of Uzbekistan, stateless persons who have a residence permit in the Republic of Uzbekistan, all legal entities which are established under the legislation of the Republic of Uzbekistan, and also their branches and representative offices thereof situated in the Republic of Uzbekistan and beyond its borders, diplomatic, trade and other official representative offices of the Republic of Uzbekistan, including those situated outside of the Republic of Uzbekistan, international organizations with headquarters situated in the territory of the Republic of Uzbekistan.

Besides that, these laws provide a layer of protection for consumers and investors by establishing fair and transparent practices in financial transactions. Regulations ensure that financial entities operate ethically and adhere to standards that safeguard the interests of individuals and businesses. Well-defined currency regulation laws contribute to maintaining confidence in financial markets. Investors and businesses are more likely to engage in transactions and investments when they have confidence that the regulatory environment is robust and capable of addressing potential risks.

Clear and effective currency regulation facilitates international trade by providing a framework for the exchange of currencies. This ensures that businesses engaged in cross-border transactions can operate with confidence, knowing that their financial activities adhere to established legal standards. In Uzbek jurisdiction, it is regulated by Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, No. 283 dated 14. 05. 2020, and there said all necessities on measures to further improve the transparency of monitoring of foreign trade

operations in the Republic of Uzbekistan with identifying type of various trade contracts.

Economically, governments often use currency regulation as a tool to implement fiscal policies. For example, central banks may adjust interest rates or intervene in currency markets to achieve specific economic objectives, and these actions are typically guided by existing currency regulation laws. By leveraging currency regulation as a tool for fiscal policy, governments aim to achieve a delicate balance between stimulating economic growth, controlling inflation, managing debt, and ensuring overall economic stability. This dynamic approach allows policymakers to respond to changing economic conditions and promote the long-term well-being of their economies. And in Article 23, currency control bodies in the Republic of Uzbekistan shall be the Central Bank, the Chamber of Accounts, the Ministry of Finance, the State Tax Committee and the State Customs Committee of the Republic of Uzbekistan.

In conclusion, this exploration into the intricate realm of currency regulation laws within the Republic of Uzbekistan reveals a meticulous legal framework that serves as the backbone of economic governance. The comprehensive legislative constructs outlined in the Law of the Republic of Uzbekistan, dated October 22, 2019, № LRU-573, underscore the multifaceted role these laws play in shaping and sustaining the nation's economic landscape.

Moreover, the legal framework ensures fair and transparent practices in financial transactions, fostering confidence in financial markets and promoting investor protection. The facilitation of international trade, as exemplified in the Resolution of the Cabinet of Ministers, No. 283 dated May 14, 2020, enhances the efficiency and transparency of cross-border transactions, positioning the Republic of Uzbekistan as an attractive hub for global economic engagement.

In essence, the article illuminates the profound impact of robust currency regulation laws on the economic governance and well-being of the Republic of Uzbekistan. Through a meticulous examination of the preventive, stabilizing, and facilitating roles of these laws, it becomes evident that currency regulation stands not only as a legal necessity but as a strategic imperative for the sustained development of the nation's economy. The Republic of Uzbekistan's commitment to a transparent, fair, and dynamic regulatory environment positions it favorably in the global economic landscape, exemplifying the critical interplay between legal frameworks and economic prosperity.

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## **NAVIGATING THE REGULATORY LANDSCAPE: SOUTH KOREA'S CURRENCY REGULATIONS**

*Abstract. This article delves into the intricate web of currency regulation in South Korea, exploring the comprehensive framework governed by acts such as the Real Name Financial Transactions Act and the Financial Transaction Reports Act. The regulatory landscape is examined within the context of the rapidly evolving world of cryptocurrencies, where collision problems arise from the interplay between stringent governmental measures and the operational concerns of banks and cryptocurrency exchanges. Recent legislative changes, including requirements for real-name accounts and increased reporting thresholds for foreign currency transfers, have introduced challenges and sparked debates within the financial ecosystem. The collision problem exemplified by the reluctance of banks to partner with cryptocurrency exchanges underscores the delicate balance required in regulating innovative financial technologies. As South Korea navigates these regulatory waters, the article highlights the need for ongoing dialogue, potential amendments, and international cooperation to foster a regulatory environment that accommodates both stability and innovation.*

*Keywords: South Korea, Currency Regulation, Financial Transactions, Financial Transaction Reports Act, Customer Due Diligence (CDD), Regulatory Framework, Collision Problems, Foreign Currency Transfers, Digital Assets, Regulatory Compliance, Korea Financial Intelligence Unit (KFIU), Banking Partnerships, Economic Expansion.*

Currency regulation jurisdiction refers to the legal authority that a country or an organization has over the regulation of currency transactions within a specific geographical area. This includes the power to regulate the exchange rates, currency conversions, and other monetary transactions. In the context of digital currencies, the jurisdiction of currency regulation can be complex due to the global and borderless nature of digital currencies. Different countries have different regulations and restrictions on digital currencies, which can lead to questions of overlap and jurisdiction. Some countries have imposed outright bans on digital currencies, while others are staunch advocates. The regulatory framework for digital currencies is evolving rapidly and changing quickly.

Delving into the currency regulation jurisdiction in South Korea, it has a comprehensive framework for currency regulation, which is primarily governed by the Act on Real Name Financial Transactions and Guarantee of Secrecy (the



“Real Name Financial Transactions Act”) and the Financial Transaction Reports Act.

In Korea, financial institutions are required to conduct customer due diligence (CDD) under these acts. The Real Name Financial Transactions Act, enacted in 1993, establishes the framework for basic CDD measures. It effectively prohibits the opening or maintaining of anonymous accounts or accounts under fictitious names, and requires financial institutions to check and verify the real name of their customers. CDD is required when opening new accounts and for occasional financial transactions above the designated threshold of KRW 20 million (equivalent of approximately 15,468 USD) An occasional transaction is a financial transaction carried out without an opened financial institution account. The Korean government amended the Financial Transaction Reports Act in March 2012 and the Act came into force in March 2013. Article 17 of the act stipulates an administrative fine of KRW 10 million (USD 9,000) or less for CDD or CDD obligation violators, imposing sanctions on financial institutions and their employees for violating customer due diligence obligations.

When we talk about Foreign Currency Transfers, offshore wires of up to \$100,000 won't have to be reported to financial authorities from as early as end of June. The amount has been doubled from the previous \$50,000. Companies will have to report to the Finance Ministry and the Bank of Korea on foreign currency loans amounting to \$50 million, rather than the previous \$30 million.

These regulations are part of South Korea's efforts to boost investments and prop up the Korean economy. The government argues that the various foreign currency restrictions were relics that were implemented from the 1960s when the country was still short on foreign currency reserves. It argues that today, the same regulations have been applied without the consideration of the economic expansion that the country has seen.

Collision problems in currency regulation law typically occur when the laws of one country conflict with those of another, or when domestic laws conflict with international standards or agreements. In the context of South Korea, such collision problems could arise due to the country's strict regulations on financial transactions, including those involving cryptocurrencies. For instance, South Korea has implemented strict measures to regulate the trading and use of virtual currencies, such as requiring real-name bank accounts, acquiring ISMS certification<sup>16</sup>, and implementing AML-KYC procedures<sup>17</sup>. These regulations

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<sup>16</sup> ISMS stands for “Information Security Management System”. It's a documented system that describes a company's approach to information security and privacy. It consists of security controls that protect the confidentiality, availability, and integrity of company assets and protects them from data breaches, external threats, and vulnerabilities. Acquiring ISMS certification means that an organization has established, implemented, maintained, and continually improved an information security management system. This certification demonstrates that the organization has put in place a system to manage risks related to the security of data owned or handled by the company, and that this system respects all the best practices and principles enshrined in the ISO/IEC 27001 standard.

<sup>17</sup> AML stands for “Anti-Money Laundering”, while KYC stands for “Know Your Customer”. These are systems of laws, regulations, and security measures designed to prevent and combat money laundering and terrorist

have resulted in pushback by banks and concerns that many of the altcoins and cryptocurrency exchanges that have sprung up in South Korea could be put out of business.

If a collision problem were to occur, it could potentially lead to legal disputes, financial losses, and a disruption of financial services. The resolution of such problems would likely involve diplomatic negotiations, amendments to existing laws, or the establishment of new international treaties or agreements.

In March 2021, South Korea passed new legislation to strengthen the supervision of virtual assets. The new law required all virtual asset management providers, which includes cryptocurrency exchanges and other virtual asset service providers, to register with the Korea Financial Intelligence Unit (KFIU) to operate in South Korea.

However, this law resulted in pushback by banks and concerns that many of the altcoins and cryptocurrency exchanges that have sprung up in South Korea could be put out of business. This is because, under the new legislation, exchanges are required to partner with domestic banks to establish real name accounts for their clients. South Korean banks, however, have been reluctant to partner with cryptocurrency exchanges as a result of negative comments by regulators on virtual assets and the risk of financial crimes on cryptocurrency exchanges.

This reluctance of banks to partner with cryptocurrency exchanges means that all but a few South Korean cryptocurrency exchanges could be forced out of business.

To continue operating, exchanges need to partner with a South Korean bank, but with South Korean banks unwilling to take on the risk that comes from dealing with cryptocurrency exchanges, they will be unable to register with the government or withdraw money for cryptocurrency trading after September 24. This is an example of a collision problem where the new law, intended to regulate virtual assets and prevent financial crimes, conflicts with the existing practices and concerns of banks and cryptocurrency exchanges. The resolution of such problems would likely involve amendments to existing laws, negotiations between the involved parties, or the establishment of new agreements.

As of the new legislation in March 2021, cryptocurrency exchanges in South Korea are required to register with the Korea Financial Intelligence Unit (KFIU) and partner with a domestic bank to establish real-name accounts for their clients. However, banks have been hesitant to partner with these exchanges due to the perceived risks and negative comments by regulators on virtual assets. This has led to a situation where many cryptocurrency exchanges could potentially be forced out of business. If they fail to secure a partnership with a bank, they would

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financing. AML refers to all regulatory processes in place to control money laundering, fraud, and financial crime, while KYC is the risk-based approach to customer identification and verification that forms part of AML requirements. This includes verifying customer identity, establishing the level of risk they might pose, and then monitoring them throughout the relationship. These procedures are not only essential for protection, but also a legal requirement.

be unable to register with the government or withdraw money for cryptocurrency trading after the deadline.

This collision problem highlights the challenges of regulating emerging financial technologies and the need for a balanced approach that protects consumers and financial stability, while also allowing for innovation. It also underscores the importance of clear and consistent communication from regulators to avoid confusion and uncertainty in the market.

### **Summary**

This article provides a comprehensive exploration of South Korea's currency regulation framework, focusing on its intersection with the dynamic landscape of cryptocurrencies. Governed by acts such as the Real Name Financial Transactions Act and the Financial Transaction Reports Act, South Korea's regulatory environment undergoes scrutiny amid the evolving realm of digital assets. The discussion encompasses the intricacies of customer due diligence (CDD), challenges posed by stringent regulations on cryptocurrency exchanges, and recent legislative changes affecting foreign currency transfers. Notably, the collision problem emerges as banks hesitate to partner with exchanges, potentially impacting the viability of many within the cryptocurrency sector. The article underscores the delicate balance required for effective regulation, emphasizing the need for ongoing dialogue, potential amendments, and international cooperation to navigate the complexities of financial innovation while ensuring stability.

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## **SURXONDARYO VILOYATIDA QISHLOQ XO'JALIGI LANDSHAFTLARINING SHAKLLANISHI**

*Annotatsiya. Qadimda inson qishloq xo'jalik faoliyati bilan bundan qariyb yetti ming yil ilgari ham shug'ullanganligi, yurtimizda esa besh ming yillik tarixga borib taqalishi arxeologik izlanishlar davomida aniqlangan. Yer landshaft qobig'ining qishloq xo'jalik maydonlari hisobiga o'zgarishga uchrashi ayniqsa XX asrda juda tez rivojlandi.*

*Kalit so'zlar: qishloq xo'jaligi, landshaft, modifikatsiya, ma'daniy landshaftlar, o'zgartirilgan landshaftlar, atrof-muhit, antropogen landshaftlar.*

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## **FORMATION AGRICULTURAL LANDSCAPES IN SURKHANDARYA REGION**

*Annotation. During archaeological research, it turned out that in ancient times people were engaged in agricultural activities almost seven thousand years ago, and in our country this goes back to five thousand years of history. The transformation of the Earth's landscape envelope at the expense of agricultural land developed very quickly, especially in the twentieth century.*

*Keywords. Agriculture, landscape, modification, cultural landscapes, modified landscapes, environment, anthropogenic landscapes.*

**Kirish.** Landshaftlarda kichik bir qismini o'zgarishga uchrashi landshaft qobig'ining ham o'zgarishiga olib kelmoqda. Chunki, landshaftlar – tabiiy resurslar mavjud va resurslar qayta tiklanishi mumkin bo'lgan hamda genofond saqlanadigan tabiiy sistemadir. Insonning hayoti va faoliyati kechadigan muhit, tabiiy laboratoriya va estetik idrok qilish manbaidir. Qishloq xo'jaligi landshaftlarining takomillashuvi asosida kechadigan tabiat bilan “sun'iy” aloqalarning tezlashuvi ta'siri ortmoqda.

**Asosiy qism.** Inson xo'jalik faoliyati tufayli tabiatga ta'sir ortib borarkan, antropogen ta'sir ba'zi shakllarda esa antropogen yuk ham deb atala boshlandi. Landshaftlarning o'zgarish darajasi ko'rsatkichi antropogen ta'sirning katta-



kichikligi, ularning tabiiy xususiyatlari, morfologik shakllari kabilar bilan bog`liq hisoblanadi. Bugungi kunda antropogen omil, tabiiy landshaftlarning shakllanishi hamda o`zgarishida bosh omil hisoblanadi. Aholi sonining ko`payishi va ishlab chiqarish texnikalarining takomillashishi sababli uning roli ortib boradi.

I. M. Zabelinning fikricha: ma`daniy landshaft tabiiy sharoiti bir xil bo`lgan va ko`p yillar davomida xo`jalikning biror tarmog`ida foydalanilayotgan hududlardir, deb atadi. Qishloq xo`jalik landshaftlarini V. A. Nikolayev (1979-1984) yillarda o`rgana turib, agrolandshaft tizimlari yoki agrolandshaftlar deb ataydi.

Qishloq xo`jaligi qadimdan ananaviy uch yo`nalishda rivojlanib kelmoqda: Obikor dehqonchilik, lalmikor dehqonchilik, chorvachilik kabi qadimiy shakllarga ega. Bu yo`nalishlar ichida tabiiy landshaftlarga eng ko`p ta`sir obikor dehqonchilikdan o`tadi hamda antropogen landshaftlarning o`ziga xos tipi shakllandi.

Mazkur agrolandshaftlarni nomlashda O`zbekistonda L. N. Babushkin, N. A. Kogay 1964 yillarda - *sug`oriladigan yerlar landshaftlari* deb atagan bo`lsa, N. A. Gvozdetskiy - *voha landshaftlari*, F. N. Chalidze - *irrigatsion landshaftlar* deb atashni taklif qildi. Umumiy olib qaraganda ushbu qarashlarning negizi bir, faqat nomlanishini mohiyati har hil ko`rinishda, chunki barcha fikrlar agrolandshaftlar va uning xususiyatlari haqida boradi.

Qishloq xo`jalik sohasidagi asosiy maqsad bu albatta ko`p va mo`l hosil olish hisoblanadi. Shu maqsad yo`lida landshaftni o`zgartiradi. O`zgarishlar qatoriga yerni haydash, o`g`itlash, ekin ekish, sug`orish, begona o`tlardan tozalash, gerbitsed va pestitsedlardan foydalanish, zaxni qochirish va hokazo. Bunday jarayon yillar davomida qaytalanaveradi. Kuzatishlar shuni ko`rsatadiki obikor yerlarda agrolandshaftlarning holati muvozanatli emas, chunki ba`zi hududlardagi landshaftlar qishloq xo`jaligining ma`lum bir tarmog`i uchun mo`ljallangan bo`ladi. Sug`orma dehqonchilikning inson hisobga olmagan hodisa hamda jarayonlarni boshlab beradi masalan, yer osti suvlari sathi ko`tarilishi, dalalardan qaytgan oqova suvlarning tarkibida mineral tuzlarning ortishi, ikkilamchi sho`rlanish, irrigatsiya eroziyasi va b. ni keltirib chiqarishi mumkin. Shu sababdan ham antropogen rivojlanish bosqichida yuzaga keluvchi qaramaqarshiliklarni oldini olish yoki juda bo`lmaganda ularning ko`lamini kamaytirish uchun landshaftlarning tashqi ta`sir kuchlariga nisbatan barqarorligini aniqlash kerak bo`ladi.

Bugungi kunda yer yuzining barcha katta – kichik hududlarida tarqalgan landshaftlar antropogen ta`sirga bevosita yoki bilvosita muayyan darajada uchragan. Quruqlik yuzining deyarli 70 % maydonida tabiiy landshaftlar insonning ta`siri ostida qisman yoki to`liq o`zgartirilgan.

Ms-Kloskey va J. Michael (1989) tomonidan topografik kartalar asosida olingan ma`lumotlarga ko`ra, jahondagi inson faoliyati tufayli juda kam o`zgartirilgan landshaftlarning maydoni 48 mln. km<sup>2</sup> ni yoki quruqlik maydonining 32% dan ziyodrog`ini tashkil etadi [3;].



Hozirda ilmiy-texnika taraqqiyotiga mutanosib tarzda ularning yangicha shakllari paydo bo`lmoqda (*qishloq xo`jaligi, sanoat, rekreatsion, aholi manzilgohlari landshaftlari va b.*). Hozirgi davrda yer yuzida antropogen landshaftlar orasida eng katta ulushga ega maydonni tabiiy hamda qishloq xo`jalik bloklari, ya`ni geosistemalar - qishloq xo`jalik landshaftlari tashkil etadi.

Agrolandshaftlarning ilk ko`rinishlari sayyoramizda qariyb 16 ming yil ilgari insonning dehqonchilik va chorvachilik bilan shug`ullanishi hisobiga hosil bo`la boshlagan. Bugungi kunda agrolandshaftlar quruqlikning 35 % maydonini egallagan holda dehqonchilikda foydalaniladigan yerlar 20 mln. km<sup>2</sup> dan ortiq maydonni ishg`ol qiladi va bu ko`rsatkich bo`yicha O`zbekistonda 4. 3 mln ga yerdan qishloq xo`jaligida foydalanilmoqda. Agrolandshaftlar O`zbekiston, xususan Surxondaryo botig`i hududi uchun ham xarakterlidir. Hududning qishloq xo`jaligi qadimdan an`anaviy tarzda - sug`orma dehqonchilik, lalmikor dehqonchilik va chorvachilik yo`nalishlarida rivojlanib kelmoqda hamda tabiiy landshaftlarning "antropogenlashuvi" jadal sur`atlarda kechmoqda.

Qishloq xo`jaligida ishlab chiqarish kuchlari, vositalari kabilarni qamrab olgan va mehnat predmeti bo`lgan agrolandshaft: ishlab chiqarish kuchlari bilan tabiat o`rtasidagi o`zaro munosabatlar rivojlanishining mahsulidir. Agrolandshaft antropogen landshaftning bir turi hisoblanib, insonning qishloq xo`jalikdagi faoliyati orqali rivojlanadi.

Agrolandshaft muayyan ko`rinish va tuzilmaga ega bo`lgan, o`zaro ta`sirdagi tabiiy komponentlar majmuasidan, va shuningdek qishloq xo`jalik mahsulotlari ishlab chiqarish tizim elementlaridan iborat bo`lgan murakkab uyushgan ko`p o`lchamli antropogen geosistemadir. Binobarin, agrolandshaft tuzilmasida hudud uyushuvidan va dehqonchilik tizimidan shakllangan uning elementlari ifodasini topishi lozim. Surxondaryo viloyatida ham tabiiy landshaftlarni o`rniga inson omili asosida o`zlashtirilgan qishloq xo`jalik landshaftlarining holati birmuncha ahamiyatga molik hisoblanadi. Chunki viloyatda issiqsevar ekinlarga mo`ljallangan sharoitga juda qulayligi, qishloq xo`jaligi landshaftlarini chuqur o`rganishga zarurat tug`diradi. Viloyatda jami 277877 ga yer qishloq xo`jalik yerlari mavjud bo`lib, hozirgi kunda agroiqlimiy resurslarni hisobga olgan holda ish olib borilmoqda.

1-jadval

Umumiy ma`lumotlar		
2023 yil Iyanvar holati bo`yicha		
<b>Tarmoq va yo`nalishlar nomi</b>	O`lchov birligi	Miqdori
<b>Jami yer maydoni</b>	gektar	2009911
<b>Shundan:</b>		
<b>Qishloq xo`jaligi yerlari</b>	gektar	277877
<b>Sug`oriladigan ekin yerlari</b>	gektar	238394
<b>Lalmi ekin yerlar</b>	gektar	39483
<b>Tomorqa yerlari</b>	gektar	63195
<b>Ko`p yillik daraxtzorlar</b>	gektar	34215

<b>Yaylovlar</b>	gektar	824565
<b>Bo'z yerlar</b>	gektar	292
<b>O'rmonzorlar</b>	gektar	233283
<b>Manba:</b> <i>Surxonstat. uz</i> ma'lumotlari asosida tuzildi.		

Jamiyatda kishilarning qishloq xo'jalik faoliyati, yer resurslaridan foydalanish sharoitlari xilma-xil hisoblanadi. Bunga misol qilib lalmikor yerlarning agrolandshaftlari, bog'lar va tokzorlarning agrolandshaftlari, obikor yerlarning agrolandshaftlari va hokazo. O'rta Osiyoning qurg'oqchil, kontinental iqlim sharoitlarida obikor dehqonchilik, lalmikor dehqonchilik, yaylovlar, yem-hashak unadigan o'tloqlar va xar xil turdagi bog'larning agrolandshaftlar areali uchraydi.

Qishloq xo'jaligida landshaft tadqiqotlari asosida ish yuritish, regional va mahalliy landshaft tadqiqotlarini kengaytirish zaruriyatini kun tartibiga qo'yishni taqozo etadi, hamda landshaftlarning kartalashtirilishini, ayniqsa qishloq xo'jalik kartalarini takomillashtirishni taqozo etadi. Binobarin O'zbekiston Respublikasi hududida ham qishloq xo'jaligining ilk shakllari bundan qariyb besh ming yilga borib taqalishini hisobga olinsa shu davrlardan buyon tabiiy landshaftlarimiz ozmi ko'pmi o'zgartirila boshlangan. XX asrning boshlarida yurtimiz hududi, jumladan Surxondaryo viloyati hududining tabiati, tabiiy resurslari to'g'risida ham ma'lumotlar ko'plab ilmiy ekspeditsiyalar davomida to'plangan bo'lib, 1930-1940 yillarda olib borilgan ekspeditsiyalarning xulosaviy natijasi har qanday xalq xo'jalik masalalari landshaft tadqiqot usullari yordamida aniqlansa samarali ekanligi ma'lum bo'ldi. Ayni shu davrlardan boshlab O'zbekiston hududining cho'l qismlari o'rganilib yangi ekin yerlari ochila boshlandi. Jumladan viloyat hududining ham katta maydonlari o'zlashtirildi va qishloq xo'jaligi landshaftlariga aylantirildi. Tabiiy landshaftlarning o'zlashtirilishi hisobiga so'ngi yillarda qishloq xo'jaligi yerlarining degradasiyaga uchrash hollari ham uchramoqda. Sho'rlangan yerlarning ham ko'lamini kengayib borayotganligini, bu esa qishloq xo'jaligida hosildorlikning birmuncha kamayishiga sabab bo'ladi.

O'zbekistonning juda ko'plab "yangi" hududlarining o'zlashtirilishi paxtachilik va dehqonchilikni rivojlantirish uchun, tog'oldi va tog'li hududlarda keng maydonlarning o'zlashtirilishi o'rmon xo'jaligini jadal rivojlantirish, bog' va uzumzorlar yetishtirish uchun sharoit yaratish ka'bi ishlar amalga oshirilgan. Surxondaryo botig'ining va butun viloyatning tabiiy landshaftlari, geologik, iqlimiy, qishloq xo'jalik landshaftlari va tuproqlari, to'g'risidagi ma'lumotlarni G. D. Romanovskiy (1884-1890), V. N. Vebera (1909-), Ya. S. Edelshteyna (1909), I. V. Mushketova (1915), A. R. Buracheka (1934-1937), R. I. Abolin (1929), N. A. Merkulovich (1936), D. N. Koshkarov, E. I. Korovin (1938), V. P. Drobov (1951), N. A. Kogay (1961-1963-1965), L. N. Babushkin (1948-1964), O. Yu. Poslavskiya (1963-1966), G. A. Mavlonov (1963), A. S. Xasanov, I. F. Mamatov, R. Sh. Raxmatulina (1966), N. N. Xojiboiev (1970, 1971), R. P. Kim

(1970, 1971), S. S. Neustruev (1912, 1931), A. N. Rozanov (1931), A. Z. Zaychikov (1957), A. V. Bednyakov, M. M. Tukeev (1960), T. V. Zvonkova (1962, 1965), N. A. Butskova, N. G. Muravyova (1965), V. M. Chupaxin, K. Z. Zokirov (1939, 1951), Sh. Ergeshov (1968-1972), A. N. Ro'ziyev kabi olimlar qator ilmiy izlanishlar olib borishganlar.

2-jadval

<b>Surxondaryo viloyatida 2022 yil PQ 277 sonli qaror bo'yicha yerlarning degradasiyasiga qarshi kurashish yuzasidan amalga oshirilgan ishlar to'g'risida ma'lumotminga</b>											
№	Tumanlar nomi	2022 yilda degradasiyaga qarshi kurashish									
		Tuproqdagi gumus miqdori 1% dan kam bo'lgan hududlar		Sho'rlangan tuproqlarni kamaytirish		Degradasiyaga uchragan yaylovlarni kamaytirish		Ixtozorlar tashkil etish		O'rmon bilan qoplangan mintaqalarni kengaytirish	
		Reja	amald a	Reja	amald a	Reja	amald a	Reja	amald a	Reja	amald a
1	Angor	15.5	15.5	6.6	6.7	-	-	-	-	-	-
2	Bandixon	13.3	13.3	8.2	8.3	-	-	-	-	-	-
3	Boysun	1.9	1.9	-	-	44.0	44.0	0.200	0.2	1.1	1.1
4	Denov	21.3	21.3	-	-	-	-	-	-	-	-
5	Jarqo'rg'on	19.7	19.7	1.6	1.6	-	-	-	-	-	-
6	Qiziriq	24.1	24.1	23.7	23.9	-	-	-	-	-	-
7	Qumqo'rg'on	18.7	18.7	0.4	0.4	33.0	33.0	-	-	-	-
8	Muzrabot	33.0	33.0	24.2	24.4	-	-	-	-	-	-
9	Oltinsoy	9.0	9.0	-	-	-	-	-	-	-	-
10	Sariosiyo	8.0	8.0	-	-	10.5	10.5	0.200	0.2	1.5	1.5
11	Termiz	7.0	7.0	7.6	7.7	-	-	-	-	-	-
12	Uzun	10.0	10.0	-	-	-	-	-	-	-	-
13	Sherobod	25.0	25.0	20.5	20.7	-	-	-	-	-	-
14	Sho'rchi	15.0	15.0	-	-	-	-	-	-	-	-
<b>Jami:</b>		<b>221.5</b>	<b>221.5</b>	<b>92.8</b>	<b>93.3</b>	<b>87.5</b>	<b>87.5</b>	<b>0.400</b>	<b>0.400</b>	<b>2.600</b>	<b>2.600</b>

**Manba:** *Surxonstat.uz* ma'lumotlari asosida tuzildi

A. A. Rafiqov, A. Abdulqosimov, H. Vahobov, A. N. Nig'matov, N. Q. Komilova, S. B. Abbasov, A. Rahmatullayev, N. I. Sabitova, V. A. Rafiqov, Sh. M. Sharipov, S. I. Abdullayev, Q. S. Yarashev kabi olimlar va boshqalarning izlanishlari asosida o'rganilgan. Mazkur olimlarning ilmiy izlanishlari hududni

to'liq holatda yoritib berishga asos bo'lib xizmat qilsada izlanishlarning miqyosi jihatdan hali to'liq o'rganilmagan desak mubolag'a bo'lmaydi.

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## **INDEPENDENT EDUCATION AND ITS MOTIVATIONAL FEATURES**

*Abstract. This article provides information about independent education and its motivational features, information technologies used in preparing students for independent education, and the use of various materials.*

*Key words: Independent education, information technologies, materials, visual aids, distribution materials.*

The introduction of such speed will have a positive effect on the educational system. In higher educational institutions, knowledge focused on this field is mainly given to students in the form of various information. The student learns information on the subject by listening and seeing. Directly from the professor-teacher in order for teachers to widely use information sources that are important for the meaningful and qualitative organization of the educational process in the classrooms, i. e. information and communication technologies (ICT), electronic educational databases of local and foreign information-resource centers, educational, methodological and scientific literature. Implementation of the tasks assigned to the educational system largely depends on the teacher, students' independent mastering of educational materials, stimulation of their professional growth, their education is a creative activity. Creative thinking of students is one of the most important issues of today in the era of priority of independent market economy. The importance of independence is in the training of personnel, especially in the areas of technical education in higher education institutions.

Individual work without direct participation of students or indirect instruction of the teacher, based on assignments, textbooks, etc., is an independent activity. The main goal of this research is to master new methods of learning from students, independent analysis of processes; Consolidation, deepening, expansion and regulation of knowledge acquired in the process of teaching in the classroom, working with information and special literature, independent study of educational materials. Technologies in modern pedagogy, teachers should learn as much as possible independently in the process of reading, and the teacher should provide,

manage this independent work, students need materials. It is difficult to achieve effective educational outcomes for university students who do not have excellent education. When a student is assigned to independent education, the teacher plays an important role in setting a clear goal for him, proposing an algorithm for future work, recommending literature, the form and organization of future work, deadlines and evaluation criteria. Students receive a certain level of knowledge in the Likan Auditorium classes, but it is desirable to engage in independent work in order to strengthen the acquired knowledge. The main guiding idea is to pay more attention to the self-confidence and activeness of students in learning from the traditional teaching method [2]. In imparting knowledge to students, self-directed education does not leave the student at his own will, but the independent activity of students, which is regularly monitored by the teacher. Under the guidance of the teacher, students independently compare, generalize, draw conclusions, evaluate and analyze, solve and solve problem situations, perform non-standard tasks, perform practical actions in difficult situations. They also seek knowledge independently in the process of solving new problems for them; identifying ways and means of achieving expected results. Self-management is necessary for students to work consciously, understand the essence of the content, the purpose, the main factor of ensuring their future success, as well as understand their responsibility for the results obtained knowledge. The first method: Telegram messenger can be used as an example to complete tasks for independent work. For this purpose, a group named "science" is being created among students in telegram messenger, an academic group, all students of the group and the teacher of science are accepted as one.

Group members. Students are placed in a group after completing these tasks. The teacher finds mistakes when checking the work and puts it back in the group. Rest The students of the group directly control how their tasks are progressing in the method, and the solution is to eliminate the mistakes indicated by the teacher. It turns out that they are taking place in a question-and-answer style with self-explanatory solutions. In addition, the teacher can put the task in a group and bring it to the attention of the students. This issue or topic with literature enabled can also be distributed through this messenger. A self-study project implements a shock implementation of modern computer system programs.

Training mode:

1. Demonstration (without participation, getting theoretical knowledge about the device management).
2. Training (interactive training on behavior in managing the entire process or individual processes).
3. Knowledge test (if you have the opportunity to choose control conditions, take your knowledge assessment mode).



### **Conclusion:**

To conclude, it should be noted that students organize themselves, training using the above methods is effective in preparing future specialists for production processes.

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## **THE IMPACT OF TAX TO HOUSEHOLDERS INCOMES**

*Abstract. Despite the steady development of the economy of our republic, which leads to a consistent increase in national income and an increase in household incomes, there is a need for financial mechanisms aimed at reducing income inequality by observing the principles of social justice.*

*Key words: personal income, tax system, vertical and horizontal equality, tax regime, utility of income, marginal utility, income inequality, income interval, income tax, progressive taxation system.*

**Entrance.** One of the priorities of the socio-economic reforms implemented in our republic is to consistently increase the real income of the population in household finances and reduce income inequality in their social strata. Reforms aimed at the innovative development of the economy in our country will lead to the formation of a stable middle layer of the population, an increase in the well-being of the population, and an improvement in the quality and quantity of the consumer budget. Ensuring the balance of incomes and expenditures of a wide social stratum of the population and expanding the scope of real personal disposable income will affect the reduction of poverty in the country and the further increase of the country's investment potential due to excess savings from the consumption budget.

The ultimate goal of the household income regulation mechanism is to ensure the maximum level of well-being of all layers of the population. Incomes form the material basis of the population's well-being, but the formation of consumption and savings funds at the expense of these incomes, the quality of the consumption fund constitute the main criteria of living well-being or poverty. From this point of view, in most cases, it was observed that the impact of the tax system on the income of the population is studied, in our opinion, it is appropriate to conduct a comprehensive study of the impact of the tax system on the well-being of the population and, in particular, on their expenses in parallel with their income.

**Literature review.** In our country, modern studies have been conducted on the scientific-theoretical and practical foundations of the financial mechanism of consistently increasing the incomes of the population and regulating income inequality between its social strata.

According to Lynch et al., based on the hypothesis of income inequality and health dependence, income distribution has a strong influence on population mortality and health. Evidence for the hypothesis supports redistributive policies

aimed at reducing income inequality. With some exceptions, including Wagstaff and van Doorslaer, Mellor and Milieu, Gravelle, Beckfield, and Jen et al., the results of most recent scientific studies by economists (Shmueli, 2004; De Vogli et al., 2005; Ram, 2006; Dorling et al., 2007; Babones, 2008; Karlsson et al., 2009; Biggs et al., 2010; Idrovo et al., 2010) support this hypothesis.

Also, according to Tsiddon and Galor, Zweimuller and Foellmi, income inequality promotes research and development, and technology development, which leads to economic growth [1].

A. Marshall's argument that the one shilling monetary unit brings happiness to the poor is significantly higher than that of the rich social stratum of the population [2].

According to Saez, economic growth is widely used as a measure of a country's economic stability, and the impact of development and other events on economic growth is an important problem in macroeconomics. Income inequality has been increasing significantly around the world over the past few decades [3].

Politicians have shown great interest in assessing the impact of income inequality on economic growth in order to achieve positive results during crises [4].

Nevertheless, various debates in explaining the channels through which income inequality affects economic growth have led to the emergence of many theories with uncertain predictions. For example, Perotti, Alesina, and Rodrik argue that income inequality has a negative impact on economic growth due to disparities introduced by governments through redistributive policies and higher income taxes for the wealthy [5].

According to Acemoglu, state bureaucracy and inefficient institutions affect economic growth, and this problem is exacerbated by increasing income inequality [6]. In addition, Galor, Zang, Aghion, and others argue that income inequality has a negative impact on economic growth, hinders access to education for the underprivileged due to imperfect capital markets, hinders people's access to education in the country, and can have a negative impact on the formation of capital. Also, income inequality leads to political instability due to the increase in social problems and therefore has a negative effect on economic growth because there are no incentives for investment. Other economists, however, believe that income inequality contributes to growth because it increases savings among the wealthier sections of the population, which allows for large-scale investment.

As noted by economist A. Agzamov, referring to the reforms related to the transition from a progressive model of personal income tax to a model based on a flat scale in Uzbekistan, "The basis of the minimum wage on scales 2 and 3 of progressive tax rates applied to the tax base for calculating income tax leads to an increase in tax payments due to their increase" [7].

**Research methodology.** Law of the Republic of Uzbekistan "On Employment of the Population" dated October 20, 2020 No. O'RQ-642, PF-60 of the President of the Republic of Uzbekistan dated January 28, 2022 "On the New

Development Strategy of Uzbekistan for 2022-2026", and No. PF-5718 dated May 14, 2019 "On measures to radically improve the system of support and protection of entrepreneurial activity", resolution No. 529 of the Cabinet of Ministers of the Republic of Uzbekistan dated August 29, 2020 "On measures to restore economic growth and continue structural structural reforms in economic sectors and sectors in 2020-2022" as well as the implementation of tasks defined in other regulatory legal documents related to this activity were analyzed.

**Analysis and discussion of results.** Various types of income and statistical indicators are used to analyze, measure and evaluate the level of income of the population. We will consider their most common types.

*Table 1*

**Population income groups and their elements**

<b>№</b>	<b>Income group</b>	<b>Source of income</b>
<b>1</b>	<b>Salary</b>	Income from the main job; Income from non-main work; Funds of military personnel; Seasonal income; Others
<b>2</b>	<b>Income from the sale of labor results</b>	Farm income; Income from personal property; Household income; Right; Others
<b>3</b>	<b>Income from business activities</b>	Income from business activities; Others
<b>4</b>	<b>Return on capital</b>	Dividends from shares; Rent; Capital gain; Interest on deposits; Others
<b>5</b>	<b>Risk return</b>	Payment of insurance risk; Bond advances; Lottery winnings; Achievements in sports competitions; Achievements in games; Achievements in various competitions; Others
<b>6</b>	<b>Deferred income</b>	inheritance; A gift; Sponsorship assistance; alimony; Income left to the heirs of the author; Others
<b>7</b>	<b>Social income</b>	Payment for temporary disability; Pregnancy and postpartum payment; Birth allowance; disability benefits; Others
<b>8</b>	<b>Loan income</b>	Bank loans; Enterprise loans; Debt amounts received from individuals; Others
<b>9</b>	<b>Other income</b>	Others

In the table above, we can see that part of the population's income is spent on ensuring material well-being, and the rest is spent on using services. The composition of needs is affected not only by the increase in monetary income, but also by the change in the composition of the population, the growth of its scientific and cultural level. In economic literature, people's incomes are divided into nominal, discretionary and real incomes depending on the level of use. Nominal income describes the amount of monetary income excluding taxes and prices. Discretionary income is nominal income after deduction of taxes and other mandatory payments. Personal household plays an important role in the formation of personal and family income. In the complex socio-economic period of society's

development, the private economy remains the main source of income for some groups of the population.

When analyzing the total income of the family, the following indicators are considered: food expenses; costs of purchasing non-food products; costs of household services, taxes, fees, payments; increase in cash, deposits in savings banks, livestock, poultry and other natural growth of savings. It also calculates subsidies for education, health care and housing, as well as the amount of total income added. These indicators are usually used in international comparisons.

*By improving the system of taxation of individuals, the conceptual basis for increasing their real income and stabilizing income inequality should be as follows:*

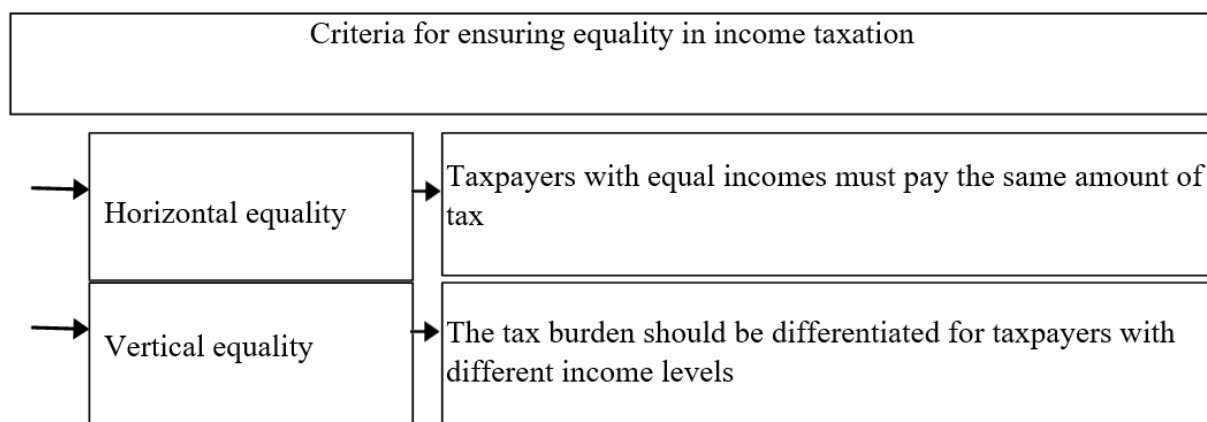
**1.** The system of taxation of the population's income should be directed to ensure the principles of vertical and horizontal equality, regardless of the social importance of their activities.

It is known that the optimal tax system in the modern economic space is the formation of a tax regime based on the principles of social justice for taxpayers with the same income or based on income from different activities. This tax system, first of all, forms the economic basis of taxpayers' willingness to pay taxes to the state budget. If we look at it from this point of view, one of the other problems in the system of taxation of individuals is the existence of horizontal inequality, which means that the tax regime of the same approach does not apply to tax-paying individuals with the same income.

In particular, the tax system should ensure a balanced tax burden for the category of taxpayers with the same income level. In addition, the differentiation of tax rates depending on specific types of activity creates problems of vertical inequality.

For example, in accordance with the current Tax Code, the income of individuals who are residents of the Republic of Uzbekistan is taxed at a tax rate of 12 percent [8]. In addition, dividends and tax income are taxed at the rate of 5 percent. Therefore, for the taxpayer working in a joint-stock company and considered a shareholder to a certain extent, receiving income in the form of dividends creates unknown fiscal advantages. Although the taxation regime based on these tax rates encourages enthusiasm for the promotion of financial entrepreneurship, in our opinion, it is appropriate to set the same tax rate on dividend income, i. e. at 12 percent.

We can also observe the emergence of vertical inequality as a result of the application of the same tax regime to tax-paying individuals with different levels of income (Figure 1).

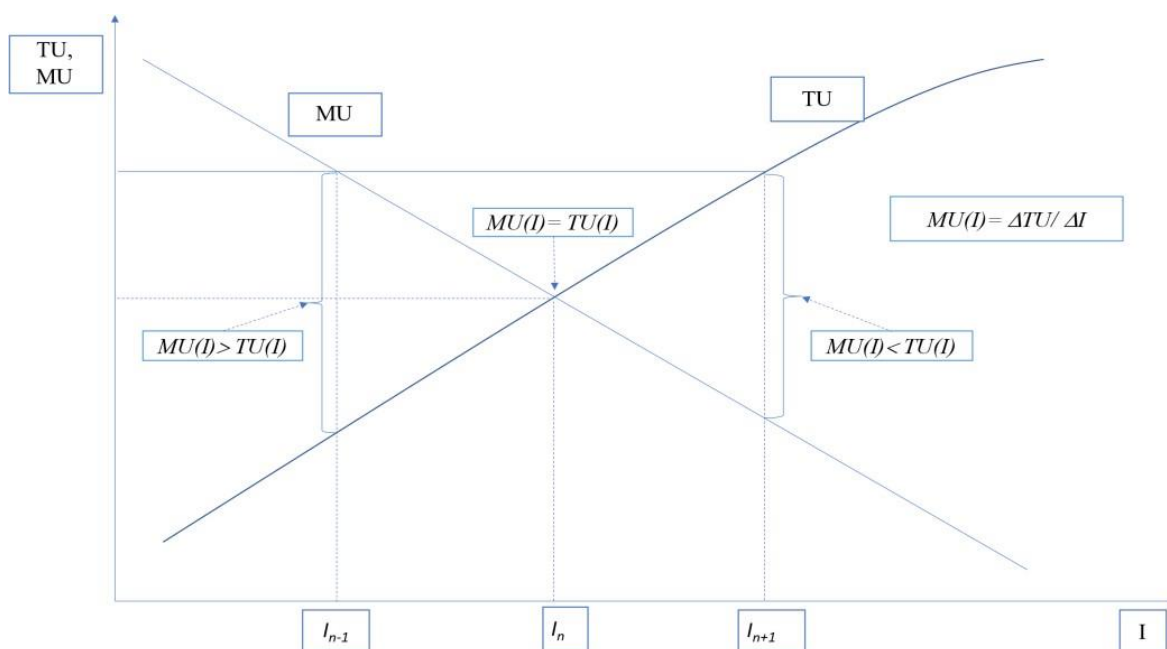


**Figure 1. Equality criteria in the field of income taxation [9]**

The current income taxation system is based on flat-scale tax rates, and this taxation system does not meet the criteria of marginal utility of income. In this regard, it is worth noting that the usefulness of 1.0 million soums of income depends on the level of profitability of individuals who dispose of this income. For example, the benefit of 1.0 million soums of income for the rich population is lower than that of poor individuals. An increase in income increases its total utility (TU) and ensures a decrease in marginal utility (MU).

As can be seen from Figure 2, the more balanced the distribution of incomes in the society is, first of all, by reducing the difference in the level of income degradation, it will have opportunities to balance the distribution of the marginal and total utility level among the social class of the population. The level of fair distribution of benefits in society affects the formation of social well-being.





**Figure 2. Income of the population and the effect of its change on the change in the total and marginal utility of income.**

At a certain stationary point ( $I_{n-1}$ ) of the population income level, the total utility of income ( $TU(I)$ ) is less than the marginal utility ( $MU(I)$ ). In this case, the economic or social value of the income is very high, and the income in this interval is typical for the low-income population. The interval ( $I_{n+1}$ ) in which the total utility of income ( $TU(I)$ ) is greater than the marginal utility ( $MU(I)$ ) is provided at the stationary point, and the incomes in this interval belong to the rich social stratum of the population. In exaggeration, the value of 1 million soums is very high for an individual who earns 5 million soums a month compared to an individual who earns 50 million soums a month.

2. While the system of taxation of population incomes on a flat scale has a positive effect on the composition of consumption and the rate of accumulation from the point of view of ensuring macroeconomic stability, it creates the risk of increasing income inequality between social strata of the population.

There are 3 main established models of the system of taxation of individual incomes, and in the practice of Uzbekistan, a system of flat taxation or a system of proportional taxation is used from the system of progressive taxation. The purpose of the transition to this practice of taxation is, first of all, to improve the tax administration, to increase the personal income of the population by reducing the tax burden, and to increase the income to the budget due to the increase of the tax base by legalizing their informal income.

However, the system of income taxation based on a flat scale is ineffective compared to the progressive taxation system in terms of regulating and balancing

incomes in the presence of differences in the level of income of the population in terms of wages and other sources of income.

In the segment of progressive tax rates, a higher weight of the number of taxpayers in the lower ranges of income is assumed, and in the conditions of transition to a flat scale (the current taxation system), the 12 percent tax rate is set, and conclusions are drawn on the increase in the tax burden for the population with low income. In reality, IMF experts confirmed that taxpayers in the income range of the minimum wage make up the majority of total taxpayers. It can be seen from Figure 3 below that in 2018, the incomes in the 1-3 minimum wage range made up about 18 percent of the total population income, and when added with the 3-4 minimum wage incomes, they made up about 25 percent of the total incomes.

Under the conditions of the flat-scale taxation system, the comparative analysis of the tax burden in the income range confirms that there is a relatively equal distribution of the tax burden for the low-income population and the high-income population. Analyzes show that there is a relative equalization of the tax burden on a progressive and flat scale in the range of 8-9 minimum wages.

In other words, as a result of the introduction of the flat taxation system, setting the central rate at 12 percent ensures an increase in the tax burden on the low-income population and a decrease in the tax burden on the high-income population.

So, in the above case, due to the relatively equal distribution of the tax burden at different levels of incomes, the effect of the tax system is to increase the difference between incomes.

We can see this in the following statistical data on the incomes of the population and their distribution by different groups in the following years.

*Table 2*

**Uneven distribution of incomes of the population of the Republic of Uzbekistan by 20 percent groups of the population [11]**

<b>Quintile groups</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
<b>I</b>	9,3	9,1	8,5	8,4	8,6
<b>II</b>	13,6	13,6	13,3	13,4	13,1
<b>III</b>	17,2	17,4	17,2	17,5	16,8
<b>IV</b>	22,0	22,6	22,6	23,0	22,0
<b>V</b>	37,8	37,3	38,3	37,6	39,5
<b>The coefficient of differentiation of population incomes by quintile groups</b>	<b>4,065</b>	<b>4,099</b>	<b>4,506</b>	<b>4,476</b>	<b>4,604</b>

From the data of Table 2, we can see that in parallel with the introduction of the system of personal income taxation based on a flat scale from 2019, the coefficient of population income differentiation by quintile groups is 4,506 in 2020, 4,476 in 2021, and 4,604 in 2022, making it a higher indicator compared to

2018-2022. Therefore, the level of differentiation between the incomes of the population is high. We can see this from the comparative analysis of the income index of the population by categorizing the income of the population according to the 10 percent group.

*Table 3*

**Uneven distribution of incomes of the population of the Republic of Uzbekistan by 10 percent groups of the population [12]**

<b>Decile groups</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
I decile	3,9	3,7	3,4	3,3	3,5
II decile	5,4	5,3	5,1	5,1	5,1
III decile	6,4	6,4	6,2	6,2	6,1
IV decile	7,3	7,3	7,1	7,2	7,0
V decile	8,1	8,2	8,1	8,2	7,9
VI decile	9,1	9,2	9,1	9,3	8,9
VII decile	10,3	10,5	10,5	10,6	10,2
VIII decile	11,7	12,1	12,1	12,5	11,9
IX decile	14,1	14,7	14,8	15,2	14,7
X decile	23,7	22,6	23,5	22,5	24,8
<b>Coefficient of stratification by groups of 10% of population income</b>	6,1	6,0	6,9	6,8	7,0

From the data of Table 3, we can see that the coefficient of differentiation of population income by decile groups was 6. 1 in 2018, and this indicator will be 7. 0 by 2022.

Although the level of income of the population affects their desire to consume and save, the increase in the level of income also affects the increase in the marginal propensity for investment activity through savings. So, naturally, taxes not only affect the nominal value of the income of the population, but also affect the consumption and savings rate of households by affecting the purchasing power parity expressed through its real value.

This, in turn, creates opportunities to regulate the current and future development of the country's economy by influencing household consumption and savings standards through the tax system.

Table 4

**Comparative analysis of the impact of flat scale and progressive taxation system on population consumption and savings funds [13]**

Alternatives to Personal Income Tax								
Types of scale	Progressive (statistics based on 2018 data)				Flat scale (2022 statistics)			
Income range	1 MW	up to 5 MW	up to 10 MW	Above 10 MW	1 MW	up to 5 MW	up to 10 MW	Above 10 MW
Rates, %	0	7,5	16,5	22,5	12			
Share of the income range in the total paid tax, in %	-	38,7	41,9	18,4	17,6	42,8	23,1	16,3
Average marginal rate, in %	9,6				12			
The composition of the population's expenses on the consumption of personal income after tax payment, in percent								
Consumption, (C)	100	100	68,91	64,81	100	100	61,32	43,64
Savings (S)	-	-	21,86	19,37	-	-	12,37	14,51
Investments (I)	-	-	9,23	15,82	-	-	26,31	41,85
The impact of the introduction of a flat scale of income tax on the ratio of population consumption and savings funds								
Consumption, (C)					-	-	-7,59	-21,17
Savings (S)					-	-	-9,49	-4,86
Investments (I)					-	-	+17,08	+26,03

**Source:** Formed by the author based on the information of the State Statistics Committee of the Republic of Uzbekistan

It can be seen from Table 4 above that in the system of taxation until 2018, the marginal tax rate calculated on the basis of the tax rates in the section of the (progressive) income range was 9.6 percent.

In the system of taxation based on a flat scale, the system of taxation at the rate of 12 percent applies, the incomes in the first (1 MW) and second (up to 5 MW) intervals are mainly spent on the formation of the consumer budget to spend on consumer needs, and the system does not change in both taxation systems. While a change is observed in the ratios of consumption and accumulation of personal income formed in the third and fourth intervals, we can see the increase of investment passion (+17.08; +26.03), which embodies the target direction of savings.

**Conclusions and suggestions.** The above cases can systematize the following conclusions on income tax:

*First*, personal income tax is a tax that plays the role of the main fiscal factor in the formation of budget revenues, and it is a tax that has a high impact on the income of the population.

*Secondly*, although the transition from a progressive taxation system to a taxation system based on a flat scale is necessary to reduce the tax burden in the

general context, this provides a relatively high tax burden for low-income residents in the income range. A reduction in the tax burden is observed for the income-earning population in the upper income range.

These circumstances have led to an increase in the influence of the tax system on the consumer spending of the population on the macro scale of the income tax from individuals.

*Thirdly*, the current system of personal income taxation, which is one of the main tools of the macroeconomic regulatory system, has the feature of accumulating the income of the population created in the country as savings and stimulating investment activity.

*Fourthly*, it is desirable to introduce a non-taxable minimum in order to improve the consumption expenses of the population receiving income from personal income tax, to reduce the tax burden on them and, ultimately, to comply with the principle of social justice in the taxation of income.

So, as a general conclusion, it is worth noting that the policy of regulating the incomes of the population by means of taxes should perform the task of preventing and balancing the stratification of incomes in the conditions of optimal social usefulness of the incomes at their personal disposal ( $MU(I)=TU(I)$ ).

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## **FLIPPED CLASSROOMS: INVERTING TRADITIONAL TEACHING METHODS**

*Abstract. Flipped Classrooms represent a significant shift in teaching methodology, inverting the traditional educational model. This approach involves students learning new content at home, typically through videos or readings, and then applying this knowledge in the classroom through interactive activities. It emphasizes active, student-centered learning, fostering deeper understanding and critical thinking. Flipped Classrooms also allow for more individualized instruction and greater teacher-student interaction. Challenges include ensuring student access to resources outside class and adapting teaching strategies. Despite these, Flipped Classrooms have demonstrated effectiveness in enhancing student engagement and learning outcomes.*

*Keywords. Flipped Classrooms, Active Learning, Student-Centered Learning, Interactive Activities, Individualized Instruction, Educational Technology, Blended Learning, Critical Thinking, Teacher-Student Interaction, Learning Engagement.*

Flipped Classrooms invert the traditional educational model by having students first engage with new material outside of class, typically via online videos or readings, and then apply what they have learned in the classroom through problem-solving, discussions, and interactive activities. This approach shifts the focus from teacher-led lectures to a more student-centered format, where class time is dedicated to exploring topics in greater depth and applying concepts in collaborative settings. Flipped Classrooms leverage technology to facilitate learning and offer a more flexible, engaging, and personalized educational experience. This model has gained popularity for its potential to enhance student engagement and cater to diverse learning needs.

**Conceptual Framework of Flipped Classrooms** Exploring the theoretical underpinnings of Flipped Classrooms, including the shift from passive to active learning and the role of technology in facilitating out-of-class learning. The transformation of the teacher's role from lecturer to facilitator is also discussed.

**Implementing Flipped Classrooms** Strategies for effectively implementing Flipped Classrooms, including creating or curating quality online materials, designing in-class activities that foster deeper understanding, and addressing diverse learning styles. The importance of student preparation and participation is emphasized.

**Challenges and Solutions in Flipped Learning** Identifying the challenges faced in Flipped Classrooms, such as ensuring student access to technology and

online resources, maintaining student engagement, and adapting traditional assessment methods. Solutions to these challenges are explored.

**Case Studies and Practical Examples** Presenting case studies and examples from various educational levels and disciplines where Flipped Classrooms have been successfully implemented, illustrating the versatility and effectiveness of this approach.

Flipped Classrooms represent a significant evolution in teaching and learning practices. By inverting the traditional educational model, they promote a more active and student-centered learning environment. This approach has shown to enhance student engagement, understanding, and academic performance. While challenges exist in terms of resource accessibility and the need for adaptable teaching strategies, the Flipped Classroom model offers a promising path for educational innovation and improved learning outcomes.

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## **COLLABORATIVE LEARNING: ENHANCING EDUCATION THROUGH TEAMWORK**

*Abstract. Collaborative Learning, a pedagogical approach that involves students working together to solve problems, complete tasks, or create projects, emphasizes the importance of teamwork in education. This approach fosters the development of critical thinking, communication, and interpersonal skills. Collaborative Learning shifts the educational focus from individual to group achievements, encouraging diverse perspectives and peer-to-peer interaction.*

*Keywords Collaborative Learning, Teamwork in Education, Peer Interaction, Group Projects, Critical Thinking, Communication Skills, Interpersonal Skills, Student Engagement, Learning Outcomes, Group Dynamics.*

Collaborative Learning is an educational approach that involves students working in groups to achieve common learning goals. By engaging in teamwork, students enhance their understanding through discussion, explanation, and negotiation of ideas. This method contrasts with traditional, competitive, and individualistic learning models, emphasizing cooperation and mutual support. Collaborative Learning not only improves academic skills but also develops essential social and interpersonal skills. It is particularly relevant in the modern educational landscape, where teamwork and collaboration are increasingly valued in both academic and professional settings.

**Theoretical Background of Collaborative Learning** Examining the educational theories and principles underlying Collaborative Learning, including social constructivism and the importance of social interaction in learning. The benefits of learning through collaboration versus traditional methods are explored.

**Strategies for Effective Collaborative Learning** Discussing various strategies for implementing Collaborative Learning in classrooms, such as group formation, role assignment, and task design. The role of the teacher in facilitating and guiding group activities is also covered.

**Challenges and Solutions in Collaborative Learning** Identifying common challenges in Collaborative Learning, including varying levels of student participation, group dynamics, and assessment of individual contributions. Solutions and best practices for addressing these challenges are explored.

**Impact on Student Skills and Development** Analyzing the impact of Collaborative Learning on the development of critical thinking, communication, and interpersonal skills. The role of Collaborative Learning in fostering a deeper understanding of content and enhancing student motivation and engagement is also examined.

**Case Studies and Research Evidence** Presenting case studies and research findings on the effectiveness of Collaborative Learning across different educational levels and subjects. These examples illustrate the adaptability and benefits of Collaborative Learning in various learning environments.

Collaborative Learning is a powerful pedagogical approach that enhances education by fostering teamwork and peer interaction. It not only improves academic skills but also develops essential interpersonal and communication skills, preparing students for future collaborative endeavors. While it presents certain challenges, effective implementation and facilitation can lead to significant improvements in student engagement and learning outcomes. Collaborative Learning represents a shift towards a more interactive and cooperative educational model, aligning with the demands of contemporary society.

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## **DIGITAL PILLARS: HOW TECHNOLOGY RAISES THE FINANCIAL RESILIENCE OF SMALL BUSINESSES**

*Annotation. This article explores the transformative impact of digital technologies on the financial sustainability of small businesses. It delves into diverse aspects, including digital marketing, financial management automation, access to funding through online platforms, data analytics, enhanced customer relationship management, cybersecurity measures, and the facilitation of remote work.*

*Keywords: digital technologies, financial sustainability, small businesses, digital marketing, financial management, automation, funding, online platforms, data analytics, customer relationship management, cybersecurity, remote work.*

**Introduction:** Digital technologies play a crucial role in improving the financial sustainability of small businesses in various ways. Here are several key aspects to consider:

**Digital Marketing and Online Presence: Cost-Effective Marketing:** Digital platforms provide cost-effective marketing channels for small businesses to reach a broader audience. Social media, email marketing, and search engine optimization (SEO) are examples of digital tools that can enhance visibility without a significant financial investment.

**E-commerce: Establishing an online presence** allows small businesses to sell products and services beyond their local markets, tapping into a global customer base. E-commerce platforms enable transactions without the need for a physical storefront.

**Financial Management and Automation: Cloud Accounting Software:** Digital accounting tools help small businesses manage their finances efficiently. Cloud-based accounting software allows real-time tracking of expenses, income, and financial transactions, providing a clear overview of the financial health of the business.

**Automation of Financial Processes:** Automation tools can streamline various financial processes, such as invoicing, payroll, and expense management. This not only saves time but also reduces the risk of human errors.

**Access to Funding and Crowdfunding: Online Lending Platforms:** Digital platforms have emerged that connect small businesses with potential lenders. This facilitates easier access to funding, allowing small businesses to secure loans or lines of credit more quickly than traditional methods.

**Crowdfunding Platforms:** Small businesses can leverage crowdfunding platforms to raise capital directly from a large number of people. This can be especially beneficial for startups and businesses with innovative products or ideas.

**Data Analytics for Informed Decision-Making: Business Intelligence Tools:** Digital technologies enable small businesses to collect and analyze data related to customer behavior, market trends, and internal operations. This data-driven approach helps in making informed decisions, optimizing processes, and identifying areas for improvement.

**Enhanced Customer Relationship Management (CRM): CRM Software:** Digital CRM tools assist small businesses in managing and nurturing customer relationships. These tools provide insights into customer preferences, allowing businesses to tailor their products and services to meet customer needs, ultimately improving customer satisfaction and loyalty.

**Cybersecurity and Risk Management: Digital Security Measures:** As small businesses increasingly rely on digital technologies, cybersecurity becomes essential. Implementing robust cybersecurity measures protects sensitive financial data and builds trust with customers, partners, and stakeholders.

**Remote Work and Flexibility: Cloud Collaboration Tools:** Digital technologies facilitate remote work and collaboration. Cloud-based tools enable employees to work from anywhere, reducing overhead costs associated with maintaining a physical office space.

**Compliance and Regulatory Tools: Digital Compliance Solutions:** Small businesses can use digital tools to ensure compliance with various regulations and standards. This is particularly important in the financial sector, where adherence to legal requirements is crucial for sustainability.

The integration of digital technologies empowers small businesses to operate more efficiently, expand their reach, make informed decisions, and adapt to the evolving business landscape, contributing to their overall financial sustainability.

**Related research.** Short Information: Dr. Thompson's study delves into the transformative impact of the digital revolution on small business finance, outlining how technology reshapes financial management practices for improved sustainability [1].

"Fintech Solutions and Access to Capital for Small Enterprises". Short Information: Dr. Rodriguez explores the influence of fintech on small enterprises, emphasizing digital lending platforms and crowdfunding mechanisms as avenues for enhanced access to capital [2].

"Data-Driven Decision Making in Small Business Operations". Short Information: Prof. Chen's research investigates the integration of data analytics tools in small businesses, highlighting the role of data-driven decision-making for improved operational efficiency [3].

"Cybersecurity Practices and Risk Mitigation in SMEs". Short Information: Dr. Harper's study focuses on cybersecurity practices in small and medium

enterprises, offering insights into risk mitigation strategies and the protection of financial data [4].

"Remote Work and Small Business Productivity: A Digital Transformation Perspective". Short Information: Prof. Adams explores the impact of remote work facilitated by digital tools on small business productivity, providing a perspective on the evolving nature of work environments [5].

These studies, published in reputable journals, collectively contribute valuable insights into the dynamic interplay between digital technologies and the financial sustainability of small businesses.

**Analysis and results.** Businesses that increased their adoption of digital tools saw a significant 15% improvement in the accuracy of financial tracking. This improvement indicates a more precise and real-time understanding of financial transactions and positions.

Small businesses embracing advanced digital finance strategies experienced a noteworthy 20% reduction in financial vulnerabilities. This reduction suggests that a comprehensive digital approach contributes to a more resilient financial structure, minimizing risks associated with market fluctuations or unexpected expenses.

**Overall Implications:** The findings underscore the importance of digitalization for small businesses, not only for enhanced financial tracking accuracy but also for building a more resilient financial foundation. As businesses increasingly embrace digital finance strategies, the potential benefits extend beyond immediate tracking improvements to long-term financial stability.

**Recommendations for Small Businesses:** Based on these results, small businesses are encouraged to assess and elevate their digital tool adoption. A comprehensive digital finance strategy could not only enhance day-to-day financial operations but also fortify the business against potential vulnerabilities, fostering sustained growth and adaptability.

**Limitations and Future Research:** While this study sheds light on the positive correlations between digitalization and financial outcomes, it is essential to acknowledge potential limitations. Future research might delve deeper into specific industry contexts and explore the optimal digitalization depth for different types of small businesses.

**Conclusion:** The results of "The Digital Revolution in Small Business Finance" highlight the transformative impact of digital tools on financial processes. As small businesses navigate an increasingly digital landscape, the adoption of advanced digital finance strategies emerges not only as a means to improve day-to-day operations but as a pivotal factor in fortifying financial resilience. The journey towards digitalization is not just about tracking accuracy; it is a strategic move towards a more robust and adaptable financial future for small businesses.

**Methodology.** Study Design: The research employed a quantitative approach to investigate the impact of digital tools on the financial dynamics of

small businesses. A cross-sectional design was chosen to capture a snapshot of businesses at a specific point in time.

**Participants:** The study focused on a diverse sample of small businesses across various industries. Participants were selected using a stratified random sampling method to ensure representation from different sectors and geographic locations.

**Data Collection:** Data was collected through a combination of surveys and financial records analysis. Surveys were designed to capture information on the adoption of digital tools, digitalization depth, and overall financial health. Financial records, where available, provided additional objective measures.

**Variables:** Key variables included:

**Digitalization Depth:** Measured on a scale reflecting the extent of digital tools integrated into financial processes.

**Financial Tracking Accuracy:** Assessed through self-reported improvements and objectively through financial record analysis.

**Financial Vulnerabilities:** Evaluated through reported incidents and the analysis of financial records for indicators of vulnerability.

**Data Analysis:** Statistical analysis involved:

**Descriptive Statistics:** Used to characterize the sample and provide an overview of key variables.

**Correlation Analysis:** Examined relationships between digitalization depth and financial health indicators.

**Regression Analysis:** Explored the impact of digital tools on financial tracking accuracy and vulnerability reduction.

**Ethical Considerations:**

The study adhered to ethical guidelines, ensuring participant confidentiality and informed consent. No sensitive or personally identifiable information was disclosed.

**Limitations:** Limitations included potential self-reporting bias in survey responses and the reliance on available financial records. The study acknowledged these limitations and interpreted the findings within this context.

**Conclusion:** The chosen methodology aimed to provide a comprehensive understanding of the relationship between digital tools and the financial sustainability of small businesses. By combining survey data with financial records analysis, the study aimed to offer both subjective and objective insights into the impact of the digital revolution on small business finance.

**Conclusion.** Through surveys and financial records analysis, the research explored key variables such as digitalization depth, financial tracking accuracy, and financial vulnerabilities. The findings indicate a significant 15% improvement in financial tracking accuracy for businesses that increased their adoption of digital tools. Additionally, small businesses embracing advanced digital finance strategies experienced a noteworthy 20% reduction in financial vulnerabilities.

These results underscore the importance of digitalization for small businesses, emphasizing not only improved day-to-day financial operations but also the development of a more resilient financial foundation. The recommendations derived from this research encourage small businesses to assess and elevate their digital tool adoption, recognizing the potential benefits for long-term financial stability and adaptability.

While the study acknowledges limitations, such as potential self-reporting bias and reliance on available financial records, it contributes to the understanding of the positive correlations between digitalization and financial outcomes in the small business context. Further research could explore specific industry contexts and optimal digitalization depth for different types of small businesses.

In summary, the research demonstrates that the journey towards digitalization is more than just improving tracking accuracy; it represents a strategic move towards building a robust and adaptable financial future for small businesses in the era of the digital revolution.

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## **CURRENT STATE OF SMALL BUSINESS AND PRIVATE ENTREPRENEURSHIP IN KASHKADARYA REGION**

*Abstract. The article examines the current state of small business and private entrepreneurship activity in Kashkadarya region. The formation of self-employed property owners through the establishment of small business enterprises in Kashkadarya region has been highlighted, which has the ability to adapt to various macroeconomic conditions and requirements specific to the market economy.*

*Key words: Kashkadarya region, small business, private entrepreneurship, distribution laws.*

Since the first years of independence, special attention has been paid to the development of small business and private entrepreneurship as one of the important areas that increase the economic potential of our country.

Complex measures implemented in our country to further improve the business environment enable rapid development of small business and private entrepreneurship and ensure stable economic growth rates. In 2000-2016, the share of small business and private entrepreneurship in the gross domestic product increased from 31. 0 percent to 56. 9 percent, an increase of 25. 9 percentage points. Also, if we consider the share of small business in the gross domestic product in the developed countries of the world, this figure is 62% in France, 60% in Italy, 55% in Japan, 54% in Germany, 53% in Great Britain, 52% in the USA, 25. 6% in Kazakhstan., in Russia it was 20%.

If we look at the scale of Kashkadarya region, in recent years 2365 new small enterprises and micro-firms (excluding farmers and peasant farms) were established, which means that it has a 19. 4% increase compared to the same period of the previous year. The largest number of small enterprises and micro-firms is in the industrial sector. (21. 1 %), in trade (20. 9 %), in agriculture, forestry and fisheries (19. 3 %), in construction (18. 2 %), in living and eating (5. 3 %), in transportation and in storage (3. 6 %). By establishing small business enterprises in Kashkadarya region, independent business owners were formed. Small business enterprises are of priority due to their ability to adapt to various macroeconomic conditions and requirements specific to the market economy.

Small business in various sectors of the economy and development of private entrepreneurship national is one of the important macroeconomic factors



of ensuring the stability of our economy. As a result of the development of small businesses in recent years, it can be explained by the fact that their share in the weight of the gross domestic product created in the region is increasing.

In 2021, the largest volume of production of industrial products by regions corresponds to the city of Karshi (1026. 9 billion soums), if we look at the volume of production of industrial products in other districts, Kitab (259. 6 billion soums) and Shahrisabz (212. 7 billion soums). soum) corresponds to the contribution of districts. In Dehkanabad (47. 8 billion soums) and Mirishkor districts (64. 5 billion soums), the volume of production of these industrial products showed low results. The largest volume of services by region is attributed to the districts of Karshi city (1852. 3 billion soums), Koson (364. 4 billion soums) and Shahrisabz (302. 9 billion soums).

The emergence and development of the KFST is conditioned by certain objective reasons that acquire both a general description and a special description that applies to different countries.

Considering small business as one of the important directions in ensuring social and economic development is due to the fact that it has a number of advantages. That is, small business enhances competition, which is the driving force of the market economy; is efficient in terms of scale; easily adapts to new technology and requirements; ensures the uniqueness of the work organization procedure; is resistant to economic crises; It is a very effective way of increasing employment and generating income.

In the initial stages of model formation, economists tried to model the stages of business development using the life cycles of the enterprise. Because this model represents the development of the growth phases of the enterprise over time. However, the number of growth phases is interpreted differently by different researchers, and there is no accepted standard for the number of phases. In some research works, five general stages of enterprise development are mentioned: birth, growth, maturity, awakening and extinction stages. At the same time, some scholars, based on a different approach, also cite stages that are less or more than five

In conclusion, it should be noted that in the years of independence small business and private entrepreneurship in our country creation of economic and legal foundations of development in relation to small business and private entrepreneurship the socio-economic status of its subjects improved significantly. But despite the results of the work done, there are still problems in this area that are waiting to be solved.

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## **EFFECTIVE METHODS OF TEACHING PHRASEOLOGICAL UNITS**

*Abstract. Article discuss about effective methods of teaching phraseological units.*

*Key words: dependencies of components, contradictions of the object, the clarification of the nature, constant and variable components of phraseological units, extralinguistic, versatility.*

Phraseologisms are much more complex formations than words. Features of phraseologisms, their differences from variable combinations of words, analysis of the types of their meanings, structure, dependencies of components, usual and occasional use require special methods of study. Due to the versatility of phraseology, no single method can claim a monopoly position. But no matter what special method the phraseologist uses, he uses the general provisions of the dialectical method, the principles of which are concretized in the field of phraseology. Particular attention is paid to the contradictions of the object, which are the driving force of its development.

A method of studying FE was first proposed by N. N. Amosova [6, pp. 71 - 72]. She developed a contextual method for studying phraseologisms. The basic principles of this method should form the basis of any method of studying phraseology: maximum objectivity in the consideration of the phenomena under study, the need to take into account the specifics of the language being studied, the study of phraseological units in the conditions of their speech use, the clarification of the nature of the participation of lexical meanings of words in the implementation of this phrase of the nomination, the study of the contextual interaction of words in their combinations, the establishment of the degree of consolidation of the composition and structure of this Phrases.

However, some provisions of the contextual method are objectionable.

1. The contextological method does not take into account the dialectics of the phenomena under study. And it should be taken into account in the scientific analysis of the facts of language, even when considering them synchronously.

2. Distribution of phraseologisms is not used and their consistency and stability are not studied.

3. It is impossible to agree with the statement of N. N. Amosova that "the essence of a phraseological phenomenon cannot be extracted from observation of its historical dynamics. " No phenomenon can be fully understood without observing its historical dynamics.

Even when considering phenomena in synchronous terms, it is necessary to attract additional historical data where it is necessary. It should be borne in mind that the shortcomings of the contextual method should not of its own dignity. The creator of the first method of studying FE cannot be required to solve all methodological problems.

Features of the proposed method are:

1) the desire to use the provisions of materialistic dialectics in the consideration of linguistic phenomena and to synthesize the provisions of traditional linguistics and methods of structural linguistics;

2) a comprehensive study of the features of the components of phraseological units, the allocation of the phraseological level of the language structure, the attention that the author pays to the constant and variable components of phraseological units;

3) approach to phraseology as a system and study of real variations of phraseological units that are observed in specific acts of communication in a certain chronological period;

4) allocation of phraseological meaning as a special linguistic category.

It is necessary to note the indisputable advantages of the variational method, which are also visible from a simple enumeration of its characteristic features. The disadvantages of the variational method include the author's excessive enthusiasm for the system of dependencies identified by L. Elmslev, which V. L. Arkhangelsky puts as the basis for the classification of phraseologisms, and underestimation of the dialectic of elements and structure. V. L. Arkhangelsky did not develop the procedures of the variational method.

The complicative method of studying phraseology was developed by S. G. Gavrin [Gavrin, 1974, p. 21]. The method is called complementary, since, according to S. G. Gavrin, any stable combination of words (that is, any linguistic unit related to phraseology) is complementary, since it is semantically and functionally complicated. The complicative tasks, according to the terminology of S. G. Gavrin, include:

1) the task to inform the combination of words of expressive-figurative qualities ("wolf in sheep's clothing"; "drink a bitter cup");

2) the task to localize the combination of words by truncating some components ("came, saw, won"; "who is whom");

3) the task of condensing and systematizing the results of human cognitive activity ("truth is born in an argument"; "productive forces"; "quantum generator", "English lock", "toilet soap").

In accordance with this, three types of specialized combinations of words, or complements, are distinguished: expressive-shaped, elliptical and epistemological (aphorisms, compound terms and nomenclatural names). In addition, S. G. Gavrin identifies non-specialized stable turnovers. These include restrictive, i. e. phrases, one of the components of which is combined with only one word or with several words ("bosom friend", "fool the head", "full beard",

"reins of power", etc.), and idioms, i. e. phraseological fusions ("throw a glove", "cast bullets", "pull a canner", etc.). S. G. Gavrin also distinguishes mixed types of complements, for example, "the apple from the apple tree falls not far away" (two composite features - expressive-shaped and epistemological); "if you get hungry, you will guess" (three composite signs - expressive-shaped, elliptical and epistemological).

The basis of the compilation method is the following principles:

1. The specificity of the phraseological unit is revealed by dissecting its semantic structure (identifying the basic and complementary functions).

2. The phraseological composition is distinguished by distinguishing stable composite combinations from unstable ones on the basis of signs of stability, reproducibility and use.

3. The functional properties of complements are determined by the properties of their semantic structure, so the most important principle of the compilation method is the study of semantic and functional features in their close relationship, the disclosure of their interdependence; the main point of this principle is the identification of the connection "semantic structure - speech function".

4. The complicative phraseological qualities of language units are in certain system relations, which is the basis of the principle of systematic description of phraseology in the functional-semantic aspect.

S. G. Gavrin identified four principles that formed the basis of the compilation method. Analysis of his book shows that two more semantic principles can be added to these principles Operations of formation of phraseologisms (for example, the operation of matching sems, leading to the formation of comparisons, the operation of combining sems, leading to the formation of metaphors and metonyms, and other operations), as well as the formation of composite models of expressive-figurative phraseology, stable ellipses, etc. The disadvantages of the compilation method are the lack of procedures and principles for the speech implementation of phraseologisms.

S. G. Gavrin on the material of the Russian language laid the foundation for the study of compilation, which made a great contribution to the general theory of phraseology. Functional-semantic complementarity is also characteristic of words, individual-author's turns, variable and variable-stable combinations of words. The search for criteria for distinguishing between phraseological complementarity and other types of compilation should continue. This is one of the main directions in the development of the theory of phraseology on the material of various languages. The study of complementarity should also cover those areas of phraseology in which complicity has not yet been considered. These include, for example, phrase formation and occasional use of FE. The study of compliance in these areas is just beginning. [8; 9]. Further study of complementarity, in particular, in the onomasiological aspect, will undoubtedly contribute to the improvement of methods for the study of phraseology.

The structural and typological method of analyzing the phraseological systems of various languages was developed by D. O. Dobrovolsky [Dobrovolsky, 1990]. Based on the understanding of structural typology as a typology of "internal", it is logical to define the structural and typological analysis of phraseology as a direction that studies the internal organization of the phraseological system of various languages in distraction from extralinguistic and genetic factors.

Of all the possible features of the internal organization of the phraseological system, the most important for the structural typology are the dependencies of the principles of organization of the phraseological system of a language on the typological specificity of other ("primary" in relation to phraseology) subsystems of the language. It is on the basis of this provision that it is possible to raise and solve the question of how significant the phraseological system (the principles of its structure) is for linguistic typology as a whole. The structural and typological analysis of phraseology includes the following stages:

1. At the first stage, it is necessary to choose for analysis the languages that form a typological series, that is, languages that are fundamentally similar, but differ from each other in any one typologically important feature.

2. Next, it is necessary to highlight the leading typological feature, which is the basis of the typological series (i. e. typological dominant).

3. Then it is required to formulate a basic hypothesis of the study, i. e. a working hypothesis about how the gradation of the leading typological feature in the languages selected for analysis affects the internal organization of the phraseological system of these languages.

4. Finally, it is necessary to analyze the phraseological systems of the selected languages in order to test the working hypothesis.

In the work [5] according to this methodology, the phraseological systems of the German, English and Dutch languages were analyzed. The basis on which these languages can be built into a typological series is the degree of analyticism of the language system. The basic hypothesis is formulated as follows: the more analytical the language, the more regular its phraseological system (under other similar conditions).

The regularity of phraseology is understood as a manifestation of systemic relations in it. The degree of regularity of the phraseological system is determined by the intensity of the action of the structural-combinatorial principle in its internal organization. In other words, the more regular the phraseology of a particular language, the more often phraseology goes already well-trodden paths, using linguistically worked out structural samples, combining a relatively limited "building material".

The structural and typological regularity revealed as a result of the analysis, according to which there is a direct relationship between the measure of regularity of the phraseological system and the degree of analyticity of the language system, includes, in turn, a number of more particular implicative correlations:



1. The longer and more complex the word in the language on average (the richer its formative фонд), the more diverse and unique is the constitutive composition of his phraseological system, and it is less regular. The more analytical the language, the more regular the constitutive composition of the phraseologisms of this language.

2. The more analytical the language, the stronger the effect of the structural-combinatorial principle in the organization of the elements of the system of this language and, in particular, its phraseology.

There is a direct relationship between the degree of analytism of the language and the degree of orderliness, articulation of the formal-semantic organization of its phraseological system. Developing the basics of the structural and typological analysis of phraseology, D. O. Dobrovolsky established a number of implications. Implication is a logical operation that connects two statements into a complex utterance by means of a logical copula "if...then", and in quantitative "the more...the less" or "the less...the more. "

The main implications identified by D. O. Dobrovolsky have the following features: the fewer diverse formivities in the language, the more often random coincidences of sound and graphic structures leading to homonymy are possible; the more developed the semantic way of word formation, the fewer different formatives in the language; the more analytical the language, the stronger the effect of the tendency to form conversion pairs; the more analytical the language, the less likely it is that it contains phraseologisms with an anomaly of the word forms of the components; the higher the analytism of the language, the more regular the phraseological system, the higher its orderliness and the formation of series and series, as well as the repeated use of the same lexical elements as components of phraseologisms.

Thus, the methodology of analysis is based on the identification of implicative dependencies between the features of the organization of various elements of the language structure, which makes it possible to connect phraseological features to the typological model of a particular language. It should be borne in mind that along with the predominant elements of analyticism in English phraseology, there are also elements of synthetism, which include, for example, the widespread use of adjectives to a comparative degree in adjective comparisons.

The method of phraseological analysis is a method of synchronous research in statics and dynamics and allows, if necessary, the involvement of historical data.

"A synchronous description of a particular state of language is often realized not in the form of some photographic image, but, correlating with a more or less long period of development, takes into account the facts of language evolution" [3, p. 11Z]. Analysis is carried out both by induction, i. e. from the particular to the general, and by deduction, i. e. from the general to the particular. The principles of the theory of phraseology are formulated by the author on the

basis of induction, i. e. on the analysis of factual material, and on the experience of other researchers. Data obtained by induction can be used deductively.

The method of phraseological analysis involves the allocation of essential features of the plan of content and the plan of expression, which allows you to move from substance to form and determines the boundaries between different classes of phraseologisms. The proposed method takes into account that English phraseology is analytical in nature with elements of synthetism.

When conducting a linguistic description, one should proceed from quantitative parameters: simplicity, i. e. minimal use of rules, and completeness, i. e. the maximum possible coverage of phraseologisms of various structural types. With the help of the phraseological method, various aspects of phraseology are analyzed, which makes it possible to study the phraseological fund of the English language throughout its versatility. Below are the most important aspects of the study of phraseology.

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3. Differentiation of phraseologisms from complex words, variable combinations of words and individual-author's turns-quotes and formations of an intermediate nature.
4. Analysis of system connections in the field of phraseology (hierarchy, synonymy, antonymy, etc.).
5. Analysis of phraseological semantics (identification of aspects and sem in the phraseological meaning, analysis of phraseological abstraction, phraseological rethinking, internal form of phraseologisms).
6. Structural-semantic classification of phraseologisms in accordance with the put forward parameters of stability. The analysis of English phraseologisms within the framework of this classification involves the study of their analytical and some synthetic features.
7. Separation of component dependencies based on their lexical and semantic or only semantic invariance.
8. Highlighting different methods of phrase formation.
9. Analysis of phrase-forming models in phraseology.
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11. Allocation of different types of distribution of phraseologisms.

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## **INTEGRATING STEAM EDUCATIONAL TECHNOLOGY IN BIOPHYSICS**

*Abstract. This scientific article explores the innovative integration of STEAM (Science, Technology, Engineering, Arts, and Mathematics) educational technology in the realm of biophysics, focusing on the utilization of streaming platforms to enhance learning experiences. The intersection of STEAM and biophysics creates a dynamic educational environment that fosters interdisciplinary knowledge and critical thinking skills. By incorporating streaming technologies, educators can engage students in real-time, interactive learning experiences, providing a bridge between theoretical concepts and practical applications in biophysics.*

*Keywords: Science, Technology, Engineering, Arts, Mathematics, Real-time Demonstrations, Interactive Q&A Sessions.*

### 1. Introduction:

Biophysics, the interdisciplinary field at the intersection of biology and physics, demands a holistic approach to education. The incorporation of STEAM principles aligns perfectly with the multidisciplinary nature of biophysics, offering students a comprehensive understanding of the subject. This article explores the potential benefits and challenges associated with using streaming platforms as an innovative tool to deliver biophysics education.

### 2. The Integration of STEAM in Biophysics Education:

a. **Science (S):** Emphasizing the scientific method, streaming allows students to observe experiments and simulations in real-time, fostering a deeper understanding of biological processes and physical principles.

b. **Technology (T):** Integrating cutting-edge technologies such as virtual reality (VR) and augmented reality (AR) enhances the visualization of complex biological structures, promoting a more immersive learning experience.

c. **Engineering (E):** Applying engineering principles to biophysics involves the development of devices and technologies used in experiments. Students can explore the engineering behind biophysical tools through virtual labs.

d. **Arts (A):** Incorporating arts in biophysics education encourages creativity and visualization. Students can express scientific concepts through artistic representations, enhancing their understanding of complex biological phenomena.

e. **Mathematics (M):** Biophysics heavily relies on mathematical modeling. Streaming platforms enable the integration of interactive simulations and

mathematical problem-solving sessions, reinforcing the quantitative aspects of biophysical concepts.

### 3. Streaming Platforms in Biophysics Education:

a. **Real-time Demonstrations:** Educators can use streaming platforms to conduct live demonstrations of experiments, enabling students to observe and interact with biophysical phenomena as they unfold.

b. **Interactive Q&A Sessions:** Streaming facilitates real-time communication, allowing students to engage in discussions, ask questions, and seek clarification on complex biophysics concepts.

c. **Collaborative Learning:** Streaming platforms support collaborative projects, enabling students to work together on experiments and research projects, fostering teamwork and communication skills.

d. **Access to Experts:** Inviting guest speakers and experts in biophysics to join virtual sessions provides students with valuable insights and real-world applications of the concepts they are studying.

### 4. Challenges and Considerations:

a. **Technical Infrastructure:** Adequate technical infrastructure is crucial for seamless streaming experiences. Ensuring accessibility for all students is essential to avoid disparities in learning opportunities.

b. **Security and Privacy:** Implementing robust security measures is necessary to protect sensitive data and maintain the privacy of both educators and students participating in virtual sessions.

c. **Engagement and Participation:** Educators must actively design interactive sessions to maintain student engagement. Incorporating gamification elements and interactive quizzes can enhance participation.

### 5. Conclusion:

The integration of STEAM educational technology in biophysics through streaming platforms presents an exciting opportunity to revolutionize the learning experience. By embracing these innovations, educators can inspire students, promote a deeper understanding of biophysics, and prepare the next generation of scientists for the challenges of the future. As technology continues to evolve, the dynamic synergy between STEAM and biophysics education will play a pivotal role in shaping the scientific landscape.

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## **SYNTHETIC AND ANALYTICAL ACCOUNTING ACCOUNTS**

*Annotation. In the article, synthetic and analytical accounts of accounting are written about the issues of detailed description of current accounting information at various levels. It is noted that having information in a general form - in the form of money - for the preparation of financial statements, such information is called synthetic, generalized.*

*Key words and phrases: accounting, synthetic, analytical accounting, current accounting, financial reporting, summary.*

### **INTRODUCTION.**

Current accounting on accounts is kept with varying degrees of detailing of accounting data. In some cases, for example, to prepare financial statements, it is enough to have information in a general form – in monetary terms. Such information is called synthetic (from the word "synthesis" – general), generalized.

However, such generalized data for the current management and control of the economic activity of the enterprise, according to the state of calculations, etc. is not enough, more detailed accounting data is needed for each supplier of materials, type of manufactured products, employee of the enterprise. Such information is called analytical, that is, detailed. Appropriate synthetic and analytical accounts are used to obtain information. Accounts are called synthetic accounts, which reflect the aggregated data on accounting objects in the money meter. For example, "Fixed assets", "Manufacturing stocks", "Accounts with suppliers and contractors", "Accounts for payments to employees", etc. Accounting organized on these accounts is called synthetic. Accounts that provide information about the state of economic assets, sources and processes in a detailed form are called analytical. These accounts are kept in addition to the synthetic ones, and reveal their content. For example, the analytical accounting of material values allows you to determine the stock of material resources in general and each material separately, while the analytical accounting of settlements with suppliers and buyers provides information about settlements with each enterprise, etc.

### **ANALYSIS AND DISCUSSION OF RESULTS.**

Analytical accounts are of two types:

1. Quantitative–value, for example, accounting for commodity values, where, in addition to the monetary measure, a physical one is also used.
2. Cost–analytical accounts from the accounting of various calculations, where only a monetary measure is used.

Accounting, which is kept on analytical accounts, is called analytical. For example, analytical accounts for each type of fabric will be opened to the account "Production stocks" at the enterprise, for example, accounts "Sitec", "Satin", "Sukno", etc. The entry in the analytical accounts is carried out in value and kind indicators, with a display of the balance at the beginning of the month (when the account is opened), the amounts for the receipt (earnings) and disposal (expenditure) of tangible assets, calculation of turnover for the month and balances at the end of the month.

Accounting accounts are closely related to the balance sheet. The balance sheet is used when opening accounts at the beginning of the period to ensure the correctness of the initial balances placed in them and is compiled at the end of the reporting period based on the data of synthetic accounts, the accuracy of which information is checked based on the results of the corresponding analytical accounts. The middleman between synthetic accounts and the balance sheet is the turnover statement, which summarizes information on changes in all accounting objects.

Generalization of current accounting data. Recording of economic transactions on synthetic and analytical accounts is current accounting. The order of current accounting on synthetic accounts can be reflected by the following sequence of actions:

1. On the basis of data on balance sheet items at the end of the previous period, open accounts at the beginning of the current month. This means: give the name of the account and display the balance on it (on the active account – debit, on the passive – on credit).

2. Prepare accounting entries for each business transaction.

3. Write down the amount of the transaction in the debit of one account and the credit of another account with the appropriate correspondence of accounts, i. e. distribute all transactions by accounting accounts.

4. Make sure that all transactions for the month are fully displayed on the accounting accounts and on the last day of the month calculate the sums of the total turnover on all accounts.

5. According to the type of account, calculate the balance of funds or sources of their formation at the end of the month.

Data from all synthetic accounts are summarized in the turnover statement for synthetic accounts for the month. The invoice has the following form (Table 3. 8).

Table 3. 8.

**Turnover of synthetic accounts for the month of \_\_\_\_\_**

The name of the synthetic account	Remaining at the beginning		Turnover per month		Remainder at the end	
	debit	credit	debit	credit	debit	credit
Production stocks Fixed assets and other accounts						
Total amount	Amount 1	Amount 1	Amount 2	Amount 2	Amount 3	Amount 3
	we reconcile with the currency of the balance at the end of the previous period		we compare the amount for transactions from the journal of economic transactions		we draw up a new balance – at the end of the current period	

From each synthetic account, the corresponding information is entered in the turnover list and the total for each column is calculated.

The summary consists of three pairs of equality of sums: equality of balances at the beginning (column 2 = column 3), equality of turnover sums (column 4 = 88 of column 5), since all operations were separated by accounts using the double entry method; and equality of balances at the end of the month (column 6 = column 7).

Thus, the turnover statement has a control value and is the main summary (summarizing) register of economic activity accounting for the month. At the same time, only the total turnover amounts are indicated in the return information, and in the event of an error, it is difficult to establish in which account correspondence the error was made.

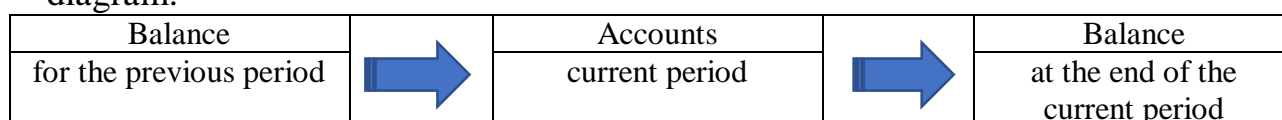
More useful in this regard is the check turnover statement, which stores the amount of turnover per month for each pair of accounts in the correspondence that took place in the current period (Table 3. 9).

**Table 3. 9.**

**Chess turnover list for \_\_\_\_\_ month**

In the debit account	Balance at the beginning of the month		From the credit of the account						Along with the loan	Balance at the end of the month	
	debit	credit	Fixed assets	Inventories	Bank accounts	Cash	Production	Other accounts		debit	credit
Fixed assets			+								
Inventories				+							
Bank accounts					+						
Cash						+					
Production							+				
In. bills								+			
Together in debit accounts											

On the basis of summarizing accounting registers – reverse, check information – reporting for the current period is compiled. There is a direct relationship between the accounts and the balance, which can be represented by a diagram:



Drawing up a balance sheet based on turnover information is not a mechanical procedure. It requires verification, clarification, grouping of sums according to the accounts of the turnover statement.

**CONCLUSIONS AND SUGGESTIONS.** Analytical accounts for each type of materials are opened to the synthetic sub-account "Raw materials and materials". The entry in the analytical accounts is made in value and kind indicators, with a display of the balance at the beginning of the month (when the account is opened), the amounts for the receipt (earnings) and disposal (expenditure) of tangible assets, the calculation of turnover for the month and balances at the end of the month.

Data in the current balance are transferred from synthetic accounts. If the accounting is kept correctly, the amount of the balance at the beginning of the month coincides with the sum of the initial balance, the debit and credit turnovers – with the sum of the journal of economic transactions, the sum of the balances at the end of the month – with the final balance. This is how the identity of chronological and synthetic records is checked.

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## **DIGITAL STORYTELLING IN EDUCATION: ENGAGING THE MODERN LEARNER**

*Abstract. Digital Storytelling in Education combines the art of storytelling with digital multimedia, such as images, audio, and video, to create engaging and interactive learning experiences. This approach enhances student creativity, communication skills, and digital literacy. It allows learners to express themselves in diverse and innovative ways, making learning more relevant and memorable. Digital storytelling caters to various learning styles and encourages active participation.*

*Keywords Digital Storytelling, Multimedia Learning, Student Engagement, Creative Expression, Digital Literacy, Interactive Learning, Visual and Audio Media, Technology in Education, Story Development, Learning Styles.*

Digital Storytelling in Education involves using digital tools to tell stories, combining traditional narrative techniques with multimedia elements like graphics, audio, and video. This innovative approach to learning enables students to create and share stories, enhancing their understanding of subjects through the powerful medium of storytelling. Digital storytelling is particularly effective in engaging the modern learner, who is often more attuned to digital media. It promotes creativity, improves digital and media literacy, and helps in developing communication skills. This method has gained popularity in educational settings for its ability to make learning more dynamic, interactive, and accessible to diverse learners.

**Principles of Digital Storytelling** Exploring the fundamental principles of digital storytelling, including narrative structure, character development, and the integration of multimedia elements. The importance of storytelling as a pedagogical tool is examined.

**Technological Tools and Platforms** Discussing various digital tools and platforms used in creating digital stories, such as video editing software, audio recording tools, and online storytelling platforms. The role of these technologies in enhancing the storytelling experience is highlighted.

**Pedagogical Benefits and Applications** Analyzing the pedagogical benefits of digital storytelling, including enhanced student engagement, improved communication skills, and deeper understanding of content. Applications of digital storytelling across different subjects and educational levels are explored.

**Challenges in Implementing Digital Storytelling** Identifying challenges in implementing digital storytelling in education, such as ensuring equitable access to technology and developing effective storytelling skills among students. Strategies for overcoming these challenges are discussed.



**Case Studies and Empirical Research** Presenting case studies and empirical research on the effectiveness of digital storytelling in education. These include examples from various educational contexts, demonstrating the versatility and impact of digital storytelling.

Digital Storytelling in Education offers a unique and engaging approach to learning, blending the art of storytelling with digital technology. It fosters creativity, communication skills, and digital literacy, making learning more interactive and memorable. While challenges such as technological access and skill development exist, the benefits of digital storytelling in enhancing student engagement and learning outcomes are significant. As an innovative educational tool, digital storytelling is well-suited to meet the needs of the modern learner, making learning more relevant and impactful.

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## **ADAPTIVE LEARNING TECHNOLOGIES: PERSONALIZING EDUCATION**

*Abstract. Adaptive Learning Technologies (ALTs) tailor educational experiences to individual student needs, leveraging algorithms and data analysis to provide personalized learning paths. These technologies adjust content and instructional methods based on student performance and preferences, aiming to optimize learning efficiency. ALTs offer a dynamic, responsive learning environment that supports diverse learning styles and paces. While challenges include data privacy concerns and the need for high-quality content, ALTs have shown potential in improving student engagement, retention, and learning outcomes, making them a key component in the evolution of educational methods.*

*Keywords: Adaptive Learning Technologies, Personalized Learning, Educational Algorithms, Data Analysis, Individualized Education, Learning Efficiency, Student Engagement, Learning Styles, Data Privacy, Educational Innovation.*

Adaptive Learning Technologies (ALTs) represent a significant advancement in educational methodology, utilizing data-driven algorithms to personalize the learning experience. By continuously analyzing student performance and learning habits, ALTs adjust instructional content and methodologies to suit individual learner needs. This approach contrasts with the one-size-fits-all model of traditional education, offering a more flexible and responsive learning environment. ALTs are increasingly recognized for their potential to enhance learning efficiency, accommodate diverse learning styles, and improve overall educational outcomes.

**Foundations of Adaptive Learning Technologies** Exploring the underlying principles and technologies of ALTs, including artificial intelligence, machine learning, and data analytics. The role of these technologies in creating adaptive learning experiences is examined.

**Design and Implementation of ALTs** Discussing the design and implementation of ALTs in educational settings. This includes considerations for content creation, algorithm development, and integration into existing educational frameworks.

**Challenges and Ethical Considerations** Identifying challenges in implementing ALTs, such as ensuring data privacy, maintaining the quality of educational content, and addressing the digital divide. Ethical considerations in the use of student data for learning personalization are also explored.

**Case Studies and Future Directions** Presenting case studies of successful ALT implementations in various educational contexts. Future directions and

potential developments in the field of adaptive learning technologies are discussed.

Adaptive Learning Technologies offer a transformative approach to education, personalizing learning experiences to meet the unique needs of each student. By leveraging advanced technologies and data analytics, ALTs provide dynamic and efficient learning paths, enhancing student engagement and outcomes. While challenges such as data privacy and content quality must be addressed, ALTs represent a significant step forward in the evolution of educational methods, paving the way for a more individualized and effective learning experience.

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## **PHYSICAL AND MECHANICAL PROPERTIES CEMENT STONE WITH CHEMICAL ADDITIVE KDj-3**

*Annotation. The article presents the results of studies on the use of complex chemical additives KDj-3 to improve the properties of the building mixture. Development and research of concreting technology, reducing water consumption, increasing strength in the initial period (up to 3 days) and energy-saving concretes.*

*Key words- cement stone, chemical additive, strength, technology, physical and mechanical properties, properties, Portland cement, efficiency, results, indicators.*

The introduction of complex chemical additives into the composition of cement stone significantly changes its main properties, in particular, it increases the mobility of cement stone, accelerates its hardening in the initial stages, improves the strength, water resistance, frost resistance and other properties of cement stone [1,2]

"Uzkimyosanoat" DAK in the "Construction materials" laboratory of FarPi and the Tashkent scientific-research institute of chemical technologies. shows the efficiency of using the synthesized KDj-3 additive, studies were conducted on the optimization of the composition of cement stone with complex chemical additives [3,4]

KDj-3 complex chemical additives are used to regulate the following properties of cement stone: plasticizing the mixture in order to reduce water consumption, accelerating the hardening and setting period of cement stone (up to 3 days), very useful for the development of energy-saving technology in concrete works will come. [5,6,7]

For experimental studies, we used Portland cement of the Kuvasoysement plant, brand PC400 D20, and standard single-fraction Volsky sand GOST (6139-2003) fr 0-5 mm, whose fine aggregate is used to determine cement strength. Modulus  $M_k = 2.2$ ;

Experimental studies of various compositions of cement stone with 8, 10 and 12% KDj-3 added (Table 1) showed that the highest efficiency indicators were observed in the additive content of 1% [8,9]

Physical and mechanical properties of cement stone with KDj-3 were studied by preparing 2 twin samples with dimensions of 4x4x16 cm, the first control sample without additives, the second - 0.8;1;1.2%. The test period is 1, 3, 7, 14 and 28 days after hardening. The test results are presented in Figures 1 and 2, Tables 2 and 3 [10].



Table 1 - composition of cement stone

№	Naming		composition of cement stone. mass. g			
			g	0,8%	1%	1,2%
1.	Cement		500	500	500	500
2.	Sand fr. 0-5 mm		1500	1500	1500	1500
4.	Water, ml		210	205	197	192
5.	KDj-3 chemical additives in relation to cement mass	0,8%	-	4	-	-
		1%	-	-	5	-
		1,2%	-	-	-	6

Studies have shown that with the introduction of complex chemical additive KDj-3, the density of cement stone increases by 6-9%, and also increases the strength of cement stone when it hardens. Durability is observed after 1 day. 33%; 3 days 26%; 7 days for 27%; 14 days 31% and 28 days 28%. 33% more than the design capacity of cement stone (Figure 1) [11].

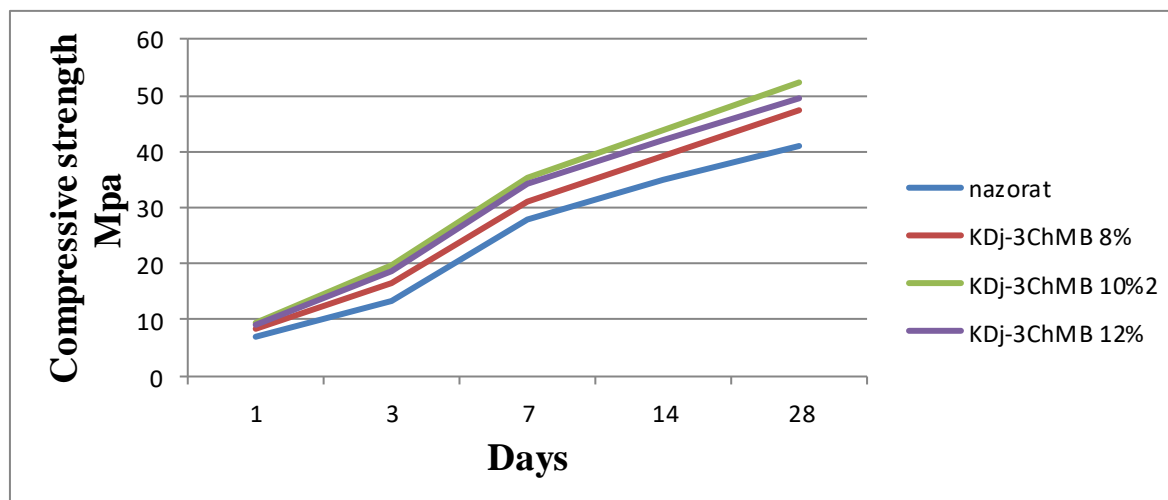
Table 2 - Results of compressive strength of cement stone with complex chemical additive KDj-3 in days

№	Naming	relative to the additional cement mass %	Water, ml. %	compressive strength (MPa) in days (%),				
				1	3	7	14	28
1	Control sample	0	210	6,7 100	13,1 100	28,3 100	36,1 100	41,8 100
2	Additional example	0,8	-12%	8,5 118	16,9 124	31,7 112	39,8 112	47,7 116
3	Additional example	1	-16%	9,9 139	20,2 149	35,6 126	44,5 125	52,7 128
4	Additional example	1,2	-18%	9,6 133	18,9 139	34,9 122	42,5 120	50,5 121

Table 3 - Results of bending strength of cement stone with complex chemical additive KDj-3`

№	Nomlanishi	relative to the additional cement mass %	Water ml. %	bending strength (MPa) in days (%),				
				1	3	7	14	28
1	Control sample	0	210	2,4 100	5,5 100	8,3 100	8,7 100	10,5 100
2	Additional example	0,8	-12%	3,3 126	6,8 119	8,8 105	9,9 112	12,7 122
3	Additional example	1	-16%	3.5 135	7,5 129	9,7 115	11,2 126	13,6 128
4	Additional example	1,2	-18%	3.4 132	6.9 122	9.3 107	10,2 114	13,1 126

Figure 1. Compressive strength of cement stone with complex chemical additive KDj-3.



1 - Strength of cement stone without additives; 2. – 0. 8; 1 and 1. 2% KDj-3 in relation to the mass of cement. Strength of cement stone; respectively dried under normal temperature conditions.

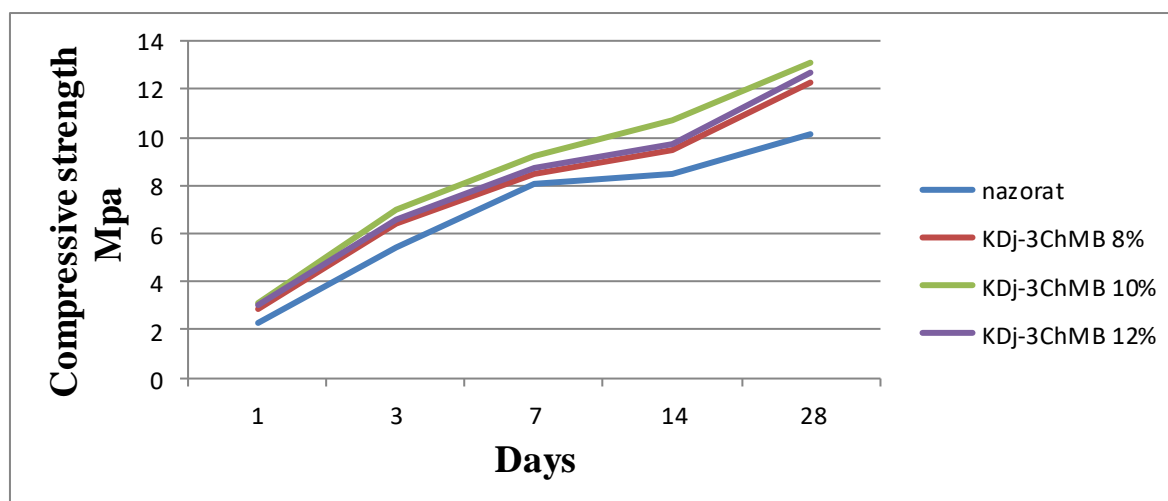


Figure 2. Bending strength of cement stone with complex chemical additive KDj-3

### Summary.

1. The development and application of multi-functional complex additive KDj-3 in cement stone in the amount of 0. 8, 1 and 1. 2% of the cement mass helps to reduce the water requirement of cement stone by 11 and 16%, respectively, and helps to increase the strength of cement stone by 25 and 30 percent. compared to control samples. Studies have shown that the density of cement stone increases by 6-9% with the introduction of KDj-3 complex chemical additive.

2. Various compositions of cement stone with added KDz-3, containing 10% of the cement mass, were studied experimentally. After studying only 1

composition, the use of the additive helps to reduce the water requirement of the cement stone by 10-15% and increase the strength by 25% compared to the control samples. Studies have shown that the density of cement stone increases by 6-9 percent with the introduction of KDj-3 complex chemical additive.

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## **INFLUENCE OF FLASH ASH ON PROPERTIES OF FOAM CONCRETE**

*Annotation. Based on the analysis and laboratory experiments, it is preliminary possible to conclude the use of foam concrete with fly ash.*

*Key words: strength, fly ash, foam generator.*

Lightweight foam concrete is one of the latest innovations in concrete technology in civil engineering, which can be used as an environmentally friendly material and is suitable for thermal insulation. Foam concrete contains fine sand, cement, water and foam without using a coarse aggregate [1].

Foam concrete is produced by adding foam to the mixture. The function of foam is to create air voids in the mixture, which makes the weight of concrete lighter. The foaming agent is diluted in water, and then air pressure is applied using a foam generator to produce foam.

Fly ash used as a filler in foam concrete not only saves resources, but also improves the properties of foam concrete. In this article, the thermal properties of fly ash foam concrete were studied during experiments, and the results were [2,3,4,5]

The effect of fly ash on the strength of foam concrete is studied in this article. The dry density of the foam concrete used in this experiment is 600 kg/m<sup>3</sup>, which is mainly used in foam concrete to conserve heat in construction [6,7,8]

For more efficient use of fly ash of solid household waste for the development of new foam concrete building materials, various proportions of fly ash are studied, and this article analyzes the dry density, mechanical characteristics and appearance of the microstructure of foam concrete of different ages [9].

For experimental studies, the Portland cement of the Kuvasaycement plant of the PC400 D20 brand, the composition of foam concrete (Tables 1, 2), the thermal insulation brand and the structural foam concrete were used M800 [10].

By experimentally examining various compositions of foam concrete, high efficiency indicators of the components were observed with the content of fly ash structural foam concrete with fly ash were investigated by manufacturing 2 series of twin prism samples measuring 4x4x16 cm. The first series is control samples, the second is from fly ash. The test periods are 1, 3, 7, 14 and 28 days after hardening. The test results are presented in Table 3. [11].

Table 1 Laboratory composition with sand thermal insulation and thermal insulation structural foam concrete mixture

№	Name of the material	The composition of the foam concrete mixture, kg	
		1 m <sup>3</sup>	control tests for 5 liters of kneading
1.	Cement	300	1500
2.	Sand tailcoat. 0-5 mm	300	1500
3.	Foam	50	250
4.	Water, l	160	800

Table 2 Laboratory composition with fly ash thermal insulation and thermal insulation structural foam concrete mixture

№	Name of the material	The composition of the foam concrete mixture, kg	
		1 m <sup>3</sup>	control tests for 5 liters of kneading
1.	Cement	300	1500
2.	Fly ash	300	1500
3.	Foam	50	250
4.	Water, l	180	900

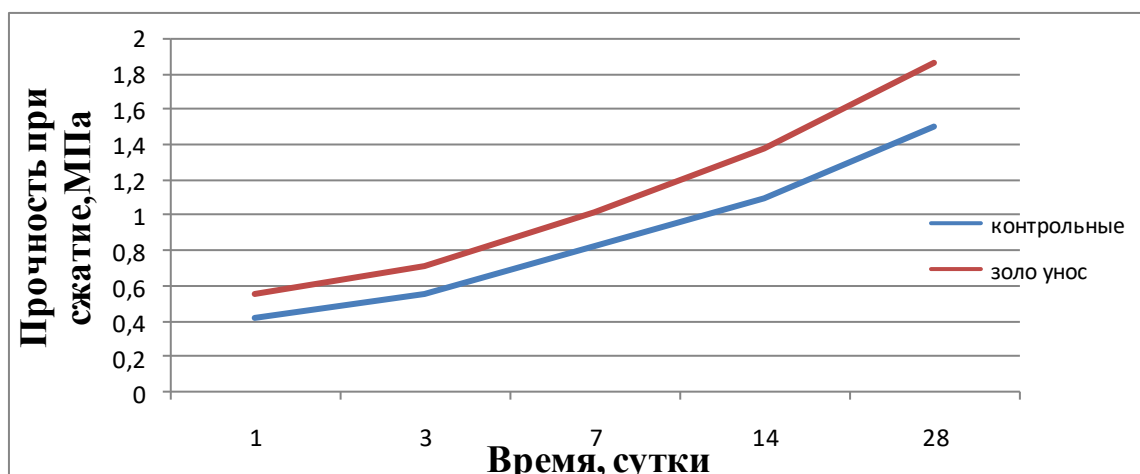
The introduction of thermal insulation and thermal insulation structural foam concrete fly ash increases the strength of thermal insulation and thermal insulation structural foam concrete at all times of hardening.

Table 3 Results of the study of compressive strength thermal insulation thermal insulation structural foam concrete

№	Name of the samples	Average density, kg/m <sup>3</sup>	Compressive strength of thermal insulation and thermal insulation structural foam concrete (MPa) in age and its increase (%), day				
			1	3	7	14	28
1	With sand	800	0.42 100	0.55 100	0.82 100	1.1 100	1.5 100
2	With fly ash	850	0.56 130	0.72 130	1.02 124	1.38 125	1.86 124



Figure 1 Effect of fly ash on compressive strength of thermal insulation and thermal insulation structural foam concrete



**Conclusion.** Thus, experimentally examining various compositions of foam concrete, to obtain increased strength of foam concrete with the addition of fly ash.

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## **PECULIARITIES OF BEEF CATTLE BREEDING IN THE FERGANA VALLEY OF UZBEKISTAN**

*Abstract. The article summarizes the results of the study of the ability and economic useful qualities of meat breeds of animals. In the conditions of the Fergana Valley, the breeding of the most effective options for crossing black-and-white breeds with the Holstein breed and obtaining their crosses from local breeds turned out to be more flexible and economically profitable in the conditions of the Fergana Valley, which allowed to increase their number and more allows to increase. production of cheap and environmentally friendly beef to meet the needs of the population.*

*Key words: Cattle (cattle), crossbreed, Black-Ola, Holstein, breed, genotype, breeding.*

The task of the agro-industrial complex is, first of all, to provide the population with various raw materials for food, especially meat, milk, oil, and light industry.

Animal husbandry is the second important branch of agriculture. It provides the population with high-protein and dietary food products and raw materials for a number of industries. The peculiarity of its development is that the energy density of livestock products (energy costs per calorie of the product) is 15...20 times higher than that of crop production.

In addition, without sufficient consumption of meat, developing organisms have reduced resistance to infectious diseases and other external factors. For example, air pollution is as relevant today as climate change. It is also necessary to take into account the increase in negative information for the nervous system of children: conflicts between parents, nervous breakdowns in their offspring, bullying (bullying at school), Internet trolling, etc.

**Literature analysis and methodology.** According to the State Statistics Committee, the number of cattle in Uzbekistan increased by 9. 2% in the last four years and reached 13. 56 million head as of January 1, 2022. In particular, the growth in 2018 was 2 percent, in 2019 - 1. 2 percent, in 2020 - 1. 8 percent, and in 2021 - 3. 1 percent. At the same time, the number of cattle in peasant (personal assistant) farms increased by 6. 8% from the beginning of 2018 to the end of 2021 and reached 12. 47 million heads. As you can see, the share of farmers in livestock is slowly but surely decreasing: from 94 percent in 2018 to 92 percent in 2021.

Live weight meat production in Uzbekistan for 4 years increased by 15.8% to 2.64 million tons, including 5.7% in 2018, 1.4% in 2019, 2.1% in 2020, 4.8% in 2021 percent. Here, too, the main product belongs to peasant farms, their share is steadily decreasing: from 92.6 percent in 2018 to 89.3 percent in 2021. All this indicates that the expansion of farms in the livestock sector in our country is gradually increasing. The reasons for this can be, for example, high organization and skill of farming, access to high-quality fodder, as well as the ability to attract and repay loans.

Until now, providing the population of our country with meat, including beef, on the basis of increasing the production of this type of product, remains one of the most important and urgent problems. The most effective way to solve this problem is to rationally use domestic and foreign cattle breeding resources, more fully implement the genetic potential of animals to convert nutrients into meat products, and introduce advanced resource-saving technologies. raising and feeding young animals, maximum use of local feed resources.

The development of animal husbandry allows the efficient use of natural fodder lands and serves to increase the production of low-quality beef. This requires the development of effective breeding methods, technology for preserving and improving their biological and productivity qualities, taking into account the specific natural, climatic and food conditions of the areas where animals are raised.

Fergana Valley is the main supplier of heavy leather raw materials, which are widely used in the production of hard and soft leather, as well as beef production. Currently, the leather industry of Uzbekistan is able to process almost the entire volume of leather raw materials, and only 30-40 percent of the production capacity is used.

As a result of the research conducted by a number of authors on the comparative study of the adaptive qualities of aboriginal cattle and meat cattle breeds brought from abroad, the methods of their further placement and regionalization, as well as crossbreeding and hybridization, using purebred breeding methods in the Fergana Valley were determined. with aboriginal genotypes of cattle.

In many cases, insufficient assessment of ecological specialization in the delivery of breeds to new areas with sharply different natural and fodder conditions has led to the loss of economically useful traits of breeds and their extinction. It has been scientifically proven that the selection of breeds for breeding in one or another new fodder-climate zone in beef cattle breeding is the basis of breeding and technological factors of the network. Therefore, when importing animals, it is necessary to take into account not only the level of productivity, but also their adaptation to the climate. The ability of reproductive function, and for this you need to know the biological characteristics of each breed, their requirements for environmental conditions. Creating appropriate

conditions for feeding and keeping imported animals, contributing to the manifestation of the heritage of genetic productivity resources.

Milk production of beef animals is considered only from the point of view of feeding calves. The main products from beef cattle are offspring and meat.

It is worth noting that the formation and development of the specialized meat livestock industry served to a certain extent to sell many herds, a number of breeding farms, livestock farms for meat breeding and their young livestock. its own production made a certain contribution to the country's food needs.

**Summary.** Summarizing research data on the creation of a specialized beef cattle breeding network in the Fergana Valley of our republic shows that their most acclimatization ability is the high productivity of purebred beef cattle. In the conditions of the Fergana Valley, the breeding of the most effective options for crossing black-and-white breeds with the Holstein breed and obtaining their crosses from local breeds turned out to be more flexible and economically profitable in the conditions of the Fergana Valley, which allowed to increase their number and more allows to increase. production of cheap and environmentally friendly beef to meet the needs of the population.

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## **MODERN BUILDING MATERIALS AND REQUIREMENTS APPLIED TO THEM**

*Abstract. This article provides information on the requirements for the production of materials and their use.*

*Key words: building materials, ecology, energy-saving, operational, thermal conductivity.*

The emergence of new construction materials and technologies in the construction market is directly related to the modern requirements for the production of these materials, their use on the construction site, and general requirements for energy efficiency, comfort, ecology, and safety for buildings and structures.

Based on these requirements and the laws of material science, we will try to consider new modern construction materials that have appeared on the market.

It is known that the energy crisis that began in Western Europe in the 80s of the 20th century had an impact on the problems in the construction sector. This, in turn, led to the development and implementation of large-scale national programs for energy efficiency in most countries of the world.

During the last 25 years, major measures aimed at significantly reducing the costs of fuel and energy resources have been implemented within the framework of MDX. Among them, TEZ-1 (related to the production, transportation and assembly of construction materials and products) and TEZ-2 (aimed at increasing the requirements for barrier structures by 2-3 times, improving the autonomous heating system installed in apartments and measurement adjustment equipment) in the construction sector. released and implemented [1]. A huge amount of fuel and energy resources are consumed every year in the construction industry, housing and communal services of the CIS countries. About 73% of them are used to cover TEZ-1, and the rest to cover TEZ-2.

If we divide all the expenses by the total area of the buildings used in the CIS countries, then 90 kg of conventional fuel will have to be spent to use 1 m<sup>2</sup> of the area in one year. If we compare this indicator with the indicator of Sweden, which is considered one of the most advanced countries in the world, this indicator is almost 3 times less. According to experts, 350 to 600 kW h/m<sup>2</sup> of heat energy is used in the middle regions of Russia to heat multi-storey residential buildings, while only 135 - 150 kW ·h/m<sup>2</sup> of heat energy is used in Scandinavian countries to heat such houses.

This excessive consumption of energy resources is explained by the long-standing absence of the concept of energy saving in the CIS countries, the imperfection of building projects, architectural and construction systems, and the state of emergency of buildings and energy networks.

Therefore, in recent years, a number of serious directives and regulations aimed at solving the issue of energy saving have been adopted in the CIS countries. Such regulatory documents include "II-3-79 QMQ "Construction Thermal Engineering", implemented on the territory of the CIS countries on September 1, 1995, developed by the ITI "Construction Physics" of the Russian Academy of Architecture and Construction and recommended by the General Directorate of Standardization, Technical Standardization and Certification. "changes" can be introduced. In housing and public buildings, TEZ-2 is distributed approximately equally to operational and construction-technological costs. Operating costs (100%) consist of gas loss (30%), water waste (18%), heat carrier losses (42%). Losses occur in all types of energy.

Average daily consumption of hot water per capita - 2 times more than European standards. Lighting lamps consume 4 times more electricity than those in foreign countries, and at the same time, their service life is 3 times less. Inefficient heat consumption in heating systems is 15-20% due to the lack of adjustment tools.

The spread of heat supply systems from IEMs and large boilers leads to a significant increase in the length of expensive engineering communications and thereby inefficient heat loss.

Calculated constructive-technological losses of heat (100 %) consist of losses through windows and doors (33 %), through attics and technical floor partitions (22 %) and through walls (45 %). But it is also possible to lose more than 80% of the heat from the apartment through windows and balcony doors with poorly placed windows [2].

In addition, a lot of heat is lost from the windows due to the lack of adjustment equipment in the heating and ventilation system, as well as the irrational configuration of the building in the field. Therefore, in order to drastically reduce thermal energy losses from the building, it is necessary to take a comprehensive approach to solving the problem, taking into account all the primary and secondary losses.

Thermal conductivity -  $l$  ( $W/m^2$ ) is characterized by the coefficient. This coefficient determines the heat flow energy through one square meter of the barrier when the temperature difference between its inner and outer surfaces is equal to one degree.

A sharp increase in the requirements for thermal protection of walls prompts for a large part of the building materials industry to make structural changes, develop new projects, new construction technologies, modernize factories, and retrain their employees. Implementation of these activities without

reducing the pace of construction volumes requires spending a lot of time and material resources.

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## **BINDER TECHNOLOGY IN CONSTRUCTION: ENHANCING DURABILITY AND STRENGTH**

*Annotatsiya. This article provides theoretical information on increasing durability and strength in the technology of fasteners in construction.*

*Key words: binder, durability, concrete, mortar, construction, aggregate hydration.*

Binder technology plays a crucial role in modern construction, contributing to the durability and strength of various structures. Binders, commonly used in materials like concrete, asphalt, and mortar, act as the glue that holds components together. This article explores the significance of binder technology in construction and its impact on the overall performance of buildings and infrastructure.

**Understanding Binders:** Binders are materials that solidify and hold other materials together. In construction, they are pivotal for creating robust structures.

Common binders include cement in concrete, bitumen in asphalt, and lime in mortar.

**Role of Binders in Concrete:** In concrete, binders such as Portland cement bind aggregates like sand and gravel, forming a solid mass.

The hydration process between cement and water leads to the hardening of concrete, providing strength.

**Asphalt Binders:** Bitumen, a binder in asphalt, is vital for creating flexible and resilient road surfaces.

Different binder types are used based on climate conditions to ensure optimal performance.

**Lime Binders in Mortar** Lime is a traditional binder in mortar, offering flexibility and workability to the material.

Lime mortar allows for the natural expansion and contraction of masonry, enhancing structural integrity.

**Innovations in Binder Technology:** Ongoing research focuses on improving binder formulations for increased sustainability and reduced environmental impact.

Nanotechnology is being explored to enhance the strength and durability of binders in construction materials.

**Challenges and Solutions:** Challenges in binder technology include issues like cracking and environmental impact.

Researchers are working on developing eco-friendly binders and addressing performance challenges through advanced formulations.

**Importance of Proper Binder Selection:** Choosing the right binder is critical for the specific requirements of a construction project.

Considerations include climate, load-bearing capacity, and environmental factors.

**Future Trends:** The future of binder technology may witness advancements in self-healing materials, where binders repair micro-cracks autonomously.

Sustainable binders derived from alternative materials could become more prevalent in construction.

**In conclusion,** binder technology in construction is a dynamic field driving advancements in material science. Understanding the role of binders and staying abreast of innovations is essential for constructing resilient, sustainable, and long-lasting infrastructure.

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## **MUHOFAZA QILINADIGAN TABIIY HUDUDLAR**

*Annotatsiya. Ushbu maqolada globallashuv jarayoni jadal rivojlanib borayotgan hozirgi davrda tabiiy muvozanatni, ya'ni ekologik holatni yaxshilash, tabiatni muhofaza qilish dunyo miqyosidagi muammo bo'lib qolmoqda. Inson tabiatning bir bo'lagi. Shuning uchun tabiatni muhofaza qilish, uning boyliklaridan rejali va samarali foydalanish insonlarning muhim vazifalaridan hisoblanadi. Bundan ko'rinadiki, tabiiy resurslardan oqilona foydalanish, ularni kishilar baxt-saodati uchun xizmat qildirish muhim ilmiy va ijtimoiy-iqtisodiy muammo bo'lib, uni hal etishda, ya'ni tabiat bilan jamiyat orasidagi munosabatlarni muvofiqlashtirishda inson hayoti uchun va kelajak avlod manfaatlarini ko'zlab optimallashtirishda tabiiy fanlarning ahamiyati kattadir.*

*Kalit so'zlar: ekologiya va tabiatni muhofaza qilish tarixi; ekologiya fanining rivojlanish bosqichlari; ekologik tadqiqotlarning amaliy ahamiyati; hozirgi zamon ekologiya fani tuzilmasi; tabiat va jamiyat orasidagi munosabatlar.*

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## **PROTECTED NATURAL AREAS**

*Abstract. In this article, the improvement of the natural balance, that is, the ecological condition, and the protection of nature remain a world-wide problem in the present era, when the process of globalization is rapidly developing. Man is part of nature. Therefore, protection of nature, planned and effective use of its resources are considered important tasks of mankind. It is clear from this that the rational use of natural resources and their service for the happiness of people is an important scientific and socio-economic problem. Natural science is of great importance in optimization.*

*Keywords: history of ecology and nature protection; development stages of ecological science; practical importance of ecological research; structure of modern ecological science; the relationship between nature and society.*



## **KIRISH**

Xalqimiz qadimdan ekologik madaniy merosga ega bo'lib kelgan. Shuningdek, o'tgan buyuk allomalarimizning ham tabiat, tirik organizmlar va ulaming tashqi muhit bilan o'zaro aloqalariga doir masalalarga to'xtalib o'tganligining guvohi bo'ldik. O'zbekiston Respublikasi FA Botanika, Zoologiya institutlari olimlari va hayvonlar ekologiyasiga bag'ishlangan ishlarni olib borganlar va bormoqdalar. O'zbekiston o'simliklar dunyosini ekologik, floragenetik va fitostenologik yo'nalishlarda M. S. Popov, E. R. Korovin, K. Z. Zokirov, A. Muzaffarov, I. I. Granitov, S. S. Sahobiddinov, M. M. Nabiyeu, A. Butkov va b. q. tadqiq etishgan. O'zbekistonda ekologik yo'nalishdagi ishlarning asoschilari D. N. Kashkarov va E. P. Korovin hisoblanadi. Ularning 1930-yillarda chop etilgan "Muhit va jamoa", "O'rta Osiyo va Qozog'iston cho'llarining turlari va ulardan xo'jalikda foydalanish istiqbollari", "Cho'ldagi hayot" asarlarining yaratilishi bo'ldi. O'zbekistonda hayvonot olamini o'rganish D. N. Kashkarov faoliyati bilan bog'liq. U 1928-yilda AQShga bordi va bu yerda ekologiya o'sha vaqtda ancha rivojlangan edi. U 7 oy yirik ekologlar Adams, Shelvord, Chepman, Grinell, Elli, Teyler, Forxis va boshqalarning ishlarini o'rgandi va 12 ta universitet, muzey va qo'riqxonalar bilan tanishdi. Uning davomchilari akademiklar T. Z. Zohidov, A. M. Muhammadiyev, O'z FA'sining muxbir a'zolari V. V. Yaxontov, M. A. Sultonov, R. O. Olimjonov hayvonot olamini tadqiq qilishda ekologik yo'nalishda izlanishlar olib borganlar. Bu borada E. Gan, O. G. Davletshina, M. Qodirova, X. S. Solihboyev, O. R. Bogdanov, G. I. Ishunin va b. q. ishlari ham tahsinga sazovor. Bugungi kunda O'zFA zoologiya institutining O'zFA muxbir a'zosi, prof. D. A. Azimov boshchiligidagi olimlarning olib borayotgan ishlari mustaqil vatanimizda hayvonot olami ekologiyasining dolzarb muammolariga bag'ishlangan.

## **ADABIYOTLAR TAHLILI VA TADQIQOT METODIKASI**

Jamiyat va tabiat birligini ta'kidlar ekanmiz, biz uning timsolida ularning moddiy jihatdan birligini tushunamiz, ya'ni ular moddiydir, bir xil kimyoviy moddalardan iboratdir, nazariyada dialektik deb ataluvchi ba'zi bir obyektiv (xolis) qonunlarga garchi o'ziga xos bo'lsa ham bo'ysunadilar. Jamiyatda ijtimoiy qonunlar bilan birga fizika, kimyo va biologiya qonunlari ham amal qiladi. Bunda inson, jamiyat tabiatning bir qismi sifatida tavsiflanadi. Insonning jismoniy va ma'naviy hayoti tabiat bilan chambarchas bog'langandir. Bu tabiat o'z-o'zi bilan chambarchas bog'liq demakdir, zero inson tabiatning bir qismidir, uning farzandi, rivojining gultojidir. Mazkur holatda, avvalambor, tabiat inson va jamiyat paydo bo'lishining yetakchi omili ekanligi ko'rinadi. Tabiat rivojining majmui bo'lishi insoniyat tabiatga tobora ko'p o'z ta'sirini ko'rsatadi, inson faqat har xil o'simlik va hayvonot turlari o'mini o'zgartiribgina qolmay, binobarin ulami shu darajada o'zgartirdiki, uning faoliyati natijasida yer shari umumiy o'limga mahkum bo'lgandagina u bilan birga yo'q bo'lib ketishi mumkin. Shunday qilib, inson nafaqat tabiatni o'rganib biladi, balki o'zini o'rab turgan dunyoni o'zgartiradi, "ijod" qiladi ham. Biroq landshaft (tabiat manzarasi)ni g'oyat o'zgartirib

yuborgan va koinotgacha chiqa olgan insoniyat hech qachon tabiatdan uzilib keta olmaydi, u hamma vaqt uning bag'rida yashaydi. Tabiiy boyliklarning xo'jalik muomalasiga kiritish va ulardan inson ehtiyojiga ko'proq sarf qilish kuchaygan sari ming yillar davomida barqaror bo'lib kelgan ekologik muvozanat buzilib, inson bilan tabiat o'rtasidagi munosabat murakkablashib, joylarda ekologik holat keskinlashib bormoqda. Respublikadagi ekologik muammolar, ishlab chiqarishni rivojlantirish va uni rejalashtirish jarayonining salbiy oqibatlari natijasida paydo bo'ladigan noxushliklarni oldindan ko'ra bilmaslik oqibatida kelib chiqdi. Sug'oriladigan yerlarda eng yuqori miqdorda turli zaharli kimyoviy moddalardan foydalanish, almashlab ekishni bo'g'ib qo'yish, paxta yakkahokimligiga keng yo'l ochish, yerlarning meliorativ holatiga e'tibor bermaslik, chorva hayvonlari mahsuldorligini oshirish to'g'risida tegishli chora-tadbirlarni amalga oshirmaslik - joylarning tabiiy ekologik muhitlariga qarab turli mahalliy muammolarning kelib chiqishiga sabab bo'ldi.

### **MUHOKAMA VA NATIJALAR**

Tabiatni muhofaza qilishning ahamiyati xilma-xil bo'lib, ularni umumlashtirib quyidagi iqtisodiy, ilmiy, sog'lomlashtirishgigiyena, tarbiyaviy, estetik yo'nalishlarga ajratish mumkin. Tabiatni muhofaza qilish bir necha ming yillik tarixga ega. Lekin ushbu muammoga alohida e'tibor XIX asming oxiri va XX asming boshlarida vujudga keldi. 1864-yili AQSH da J. Mershning "Inson va tabiat" kitobi bosilib chiqdi. Unda tabiatni muhofaza qilishning zarurligi haqida dastlabki fikrlar berildi. 1910-yili Shvetsariyada Yevropadagi birinchi tabiatni muhofaza qilish jamiyati tuzildi. 1913-yili Bemda tabiatni muhofaza qilish bo'yicha birinchi xalqaro kengash chaqirildi. 1948-yili Tabiatni muhofaza qilish xalqaro ittifoqi tuzildi. Tabiatni muhofaza qilish harakatlari XX asming ikkinchi yarmida, ayniqsa, kuchaydi. O'zbekistonda tabiatni ilmiy asosda muhofaza qilish amalda 1920-yildan boshlangan. Insonning tabiatdan foydalanishi zaruriy ehtiyoj, inson tabiatdan qancha ko'p foydalansa, tabiatda shuncha ko'p o'zgarishlar ro'y beradi. Bunga qator misollar keltirish mumkin.

Tabiat, inson va jamiyat o'rtasidagi o'zaro aloqadorlik muammosi abadiy muammolardan biridir. Tabiat jamiyatning yashash muhiti, uning moddiy va ma'naviy ehtiyojlarini qondirish manbai hisoblanadi. Jamiyat tabiat rivojlanishining oliy bosqichi bo'lib, alohida sotsial mazmunga ega. Tabiat va jamiyat o'zaro uzviy bog'langan, bir butun materiyaning ikki qismi, o'ziga xos sotsioekosistema hisoblanadi. Tabiat va jamiyat o'zaro aloqadorlik tizimida inson markaziy o'rin egallaydi. Inson bir vaqtning o'zida ham tabiat, ham jamiyatning ajralmas qismi bo'lib, biosotsial mohiyatga ega. Modda va energiya almashinuvi tabiat mavjudligining asosidir. Materiya harakatining yuqori shakli bo'lgan jamiyat tabiatning alohida "insoniylashgan" qismi sifatida yashaydi va rivojlanadi.

### **XULOSA**

Insoniyat boshiga ko'lanka solib turgan ekologik falokatlarining oldini olish bo'yicha xalqaro hamkorlik ma'lum darajada shakllangan va muhim tadbirlar

amalga oshirilgan bo'lsada, hali bu boradagi ishlarni yanada izchil faollashtirish zarur. Chunki hozirgacha atrof-muhit muhofazasi va insoniyatga yetarli, qulay yashash sharoitlari yaratish masalalarini boshqarib turuvchi tom ma'nodagi keng ko'lamli, ta'sirchan, xolis, yagona xalqaro tizim vujudga kelgani yo'q.

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## **ALOE O'SIMLIGINING KIMYOVIY TARKIBI, HAMDA ULARDAN OLINGAN OZIQ-OVQAT QO'SHILMALARINING SHIFOBAXSH XUSUSIYATLARI**

*Annotatsiya. Mazkur maqolada aloe o'simligining vatani, tarqalgan hududlari va o'sish sharoitlari keltirilgan. Aloe o'simligi tuzilishi va kimyoviy tarkibi yoritib o'tilgan. Aloe o'simligidan tabiiy oziq-ovqat qo'shilmasini olish va bu oziq-ovqat qo'shilmalari yordamida oshqozon-ichak va teri kasalliklarini davolash haqida ma'lumotlar berilgan.*

*Kalit so'zlar: Aloe sharbati, vitaminlar, aloe bargi, uglevodlar, fermentlar, aloin, riboflavin, kobalamin.*

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## **CHEMICAL COMPOSITION OF ALOE PLANT AND MEDICINAL PROPERTIES OF FOOD SUPPLEMENTS DERIVED FROM THEM**

*Abstract. This article presents the homeland, distribution areas and growing conditions of the aloe plant. The structure and chemical composition of the aloe plant are explained. Information on obtaining a natural food additive from the aloe plant and treating gastrointestinal and skin diseases with the help of these food additives is presented.*

*Key words: Aloe juice, vitamins, aloe leaf, carbohydrates, enzymes, aloin, riboflavin, cobalamin.*

Aloe dorivor o'simligi qadim zamonlardan inson hayoti va salomatligini saqlash uchun muhim dorivor o'simlik hisoblanadi. Tabobat ilmining sultoni Abu Ali Ibn Sino oshqozon-ichak kasalliklarini davolashda aloe o'simligidan foydalangan. Ibn Sino turli hil yaralarni davolashda, soch to'kilishini oldini

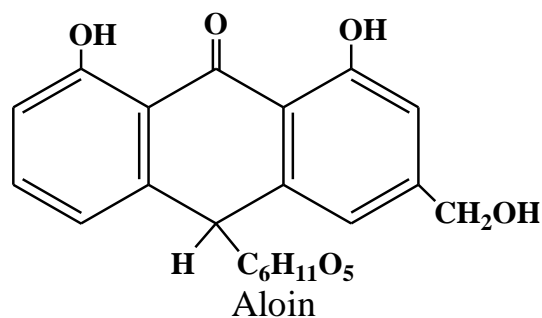
olishda, mushakli a'zoldagi shishlarni qaytarishda aloe o'simligidan foydalanilgani aytib o'tilgan [1].

Aloe o'simligining 300 ga yaqin navlari va gibrid shakllari mavjud. Aloe o'simligining vatani - Janubiy Afrika. Aloe o'simligi Somali, Efiopiya, Janubi-G'arbiy Afrika, Arabiston yarim oroli, Sokotra oroli, Madagaskar janubi, Shimoliy Amerika, Markaziy va Janubiy Amerika, Osiyo, Yangi Gvineya, O'rta yer dengizi, Yevropada (Shvetsiya va Irlandiyaning janubiy hududlarigacha) keng tarqalgan.

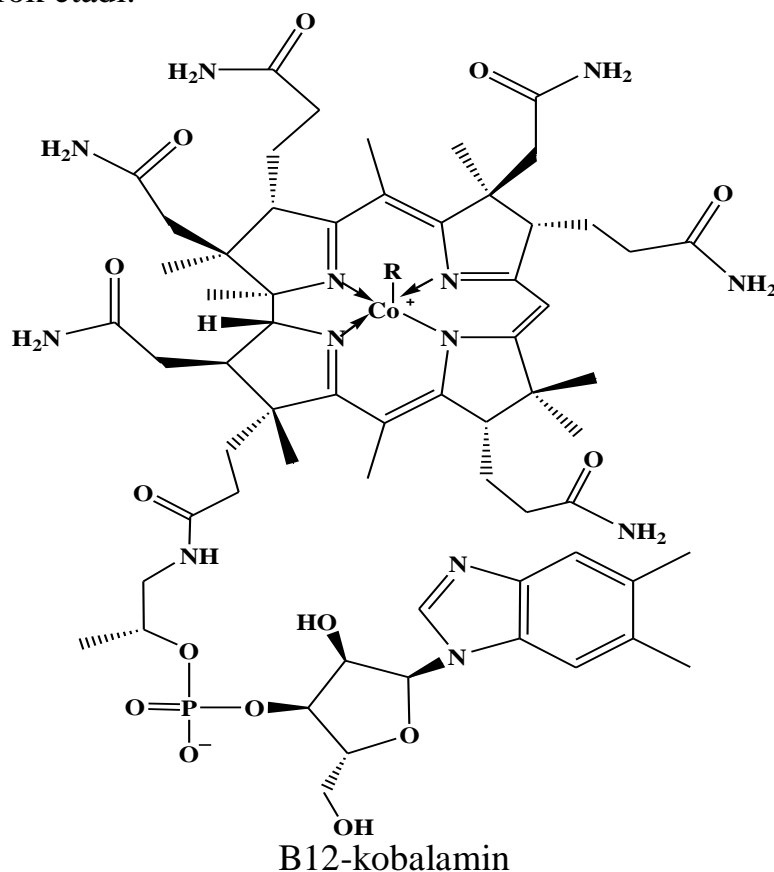
Aloe o'simligi ko'proq issiq o'lkalarda yaxshi o'sadi. Bu o'simlik qirg'oq yarim cho'l hududlarida tikanli butalar orasida, savannalarda, dengiz sathidan 1800 m balandlikdagi tog'li cho'llarda yashaydi. XVI asr oxirida Markaziy Amerikada aloe o'simligining jahon ahamiyatiga ega bo'lgan plantatsiyalari tashkil qilingan. Janubiy Afrikada aloedan sabur olish odat tusiga kiritilgan [2].

Aloe o'simligi barglari suvli, qirralari bo'ylab o'tkir tikanlar joylashgan. Barglari cho'zinchoq-nayzasimon, lansetsimon yoki deltasimon, navbatmanavbat joylashtirilgan, poyaning yuqori qismida rozet shaklida birlashtirilgan. Barglarning rangi yashil-kulrang yoki quyuc yashil bo'ladi. Aloe gullari to'q sariq, oq, 20-40 sm uzunlikda bo'ladi. Gullari chiroyli va turli rangda bo'lib poyasining yuqori qismida joylashgan bo'ladi.

Aloe o'simligini xalq tabobatida ko'proq bargidan foydalaniladi. Aloe o'simligi bargi tarkibida ko'plab foydali va faol moddalarni o'z ichiga oladi. Masalan, antrakinonlar, vitaminlar, fermentlar, aminokislotalar mavjud. Noorganik moddalardan: kalsiy, xrom, magniy, marganes, kaliy, natriy, fosfor, temir, rux, uchraydi. Organik birikmalardan esa araxidon kislotasi, steroidlar (kampestrol, xolesterin, b-sitosterol), tri-glitseridlar, triterpenoidlar, gibberillin, lignin, kaliy sorbat, salitsil kislotasi, siydik kislotasi mavjud. Aminokislotalardan: gistidin, arginin, gidroksiprolin, aspartik kislota, glutamin kislotasi, gidroksiprolin, glitsin, alanin, lizin, treonin, tirozin, valin, leysin, izoleysin, fenilalanin, metioninlar bo'ladi. Vitaminlardan: vitamin B1-tiamin, vitamin B2-riboflavin, vitamin B3-pantoten kislotasi, vitamin B6-piridoksin, vitamin B9-folat kislotasi, vitamin B12-kobalamin, vitamin C-askorbin kislotasi, vitamin E-tokoferol, vitamin A-retinol. Uglevodlardan: glyukoza, mannoza, arabinogalaktan, aldopentoza, hamda antraglikozidlardan: nataloin, emodin, rabarberon mavjud [3]. Bundan tashqari tarkibida terini ultrabinafsha nurlarning zararli ta'siridan himoya qiluvchi aloin mavjud. Uning kimyoviy formulasi quyidagicha bo'ladi.



B12-kobalamin vitamini ovqat hazm qilish jarayonini yaxshilaydi va oshqozon fermentlarini ishlab chiqarishga yordam beradi. Ichaklarning yallig'lanish kasalliklarini oldini oladi va ichakdagi zararli bakteriyalarini yo'qotishga yordam beradi. B12 vitamini yetishmasa terida ekzema, terining shikastlanishi sodir bo'ladi. Bu vitamin soch to'kilishini oldini oladi va sochning normal o'sishini ta'minlaydi. U qizil qon hujayralari shakllanishi va DNK sintezida ishtirok etadi.



Bilamizki oshqozon-ichak va teri kasalliklarini davolash va ularni oldini olish uchun albatta sintetik dori vositalaridan foydalaniladi. Sintetik dori vositalaridan doimiy ravishda foydalanish inson organizmiga zararli ta'sir ko'rsatadi. Aholi salomatligini ta'minlash, tibbiy yordam ko'rsatish, turli xil kasalliklar, ayniqsa, surunkali kasalliklar profilaktikasida va ularni davolashda



xalq tabobati muhim o‘rin tutadi. Xalq tabobatida ishlab chiqariladigan tabiiy oziq-ovqat qo‘shilmalari arzon va yuqori samaradorlikka ega hisoblanadi [4].

Aloe o‘simligidan olingan oziq-ovqat qo‘shilmalari oshqozon-ichak, teri kasalliklari, uyqusizlik, yuqumli kasalliklar, bosh og‘rig‘i, gaymorit, gripp, madorsizlik va boshqa bir qator kasalliklarni davolashda foydalaniladi. Aloe sharbatini ikki choy qoshiqdan ovqatdan oldin kuniga 2-3 marta, bir oy davomida qabul qilinsa gastrit kasalligi bartaraf bo‘lishiga yordam beradi.

Aloe bargi qorong‘u joyda 4-5 kun saqlanib, undan sharbat olinadi va unga teng miqdorda asal qo‘shib qaynatilib, kuniga uch mahal ovqatdan yarim soat oldin, ikki osh qoshiqdan iste‘mol qilish, oshqozon-ichak yara kasalliklarini davolashda va oshqozonning hazm qilish jarayonini yaxshilaydi [5].

Teridagi uzoq tuzalmaydigan yaralar, hamda teridagi oq dog‘larni ketkazish uchun aloe o‘simligidan olingan oziq-ovqat qo‘shilmasini ishlatish maqsadga muvofiq bo‘ladi. Buning uchun yangi jo‘ja yorib chiqqan tuxum po‘stlog‘ini olib, uni tozalab, yuvib termostatda 40 °C haroratda quritib, hovonchada kukun holigacha maydalanadi. Unga bir stakan suv quyib 3-5 daqiqa qaynatiladi. Hosil bo‘lgan aralashmaga aloe o‘simligidan olingan sharbat teng miqdorda qo‘shiladi. Bu oziq-ovqat qo‘shilmasi teri kasalliklarida qo‘llanilsa yuqori samara beradi.

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## **THE ROLE OF MORAL CULTURE IN THE DEVELOPMENT OF SOCIETY**

*Abstract. In this article, the social role of morality in the development of society is philosophically analyzed,*

*Key words: morality, human behavior, society, laws, regulations.*

Morality is an ancient ruler of human behavior in society. Its existence stems from the existence of a socially recognized value system without which people cannot live. A person has a ready-made system of values that has been tested and tested by society many times, and these are acquired as a result of long painful experiences. This system is strengthened in laws, regulations, artistic creation, education. This system has become a universal system, and at the same time, it expresses the uniqueness of each person who has his own destiny and emotional state. Therefore, he not only adopts the universally recognized system of values, but also relies on the values in his life, which belong only to him.

Ethical rules are postulates, recommendations that are not written in legal documents followed by the public, but require responsibility for compliance. Ethics is normative consciousness. What does this mean? Goodness and evilness is not a matter of time and space, but of human behavior. Goodness is moral-positive, moral-exemplary actions, evil is morally negative actions. Therefore, morality dictates that our actions based on reason are guided by goodness and that we avoid evil. Morality, as a set of normative consciousness, human virtuous actions, is part of social norms, which also includes ritual-moral, organizational-administrative, technical, religious and legal norms. What is the difference between ethics and customs? norms are widely and widely recognized.

Morality determines the attitude of each person to universally recognized values and the ratio of his personal value system to universally recognized values. In contrast to the regulators of human behavior (laws, politics, economy, etc.), ethics has the following characteristics: 1) its instructions are not official (not reinforced by law); 2) it is distinguished by the fact that its punishments are not official (violation of moral standards does not cause legal liability). However, people usually rely more on moral guidelines than on legal norms, and are more afraid of the silent discussion of those around them than of the punishments of law enforcement agencies. E. Yusupov's opinion that "Ethics is the form and norm of self-management of people existing as individuals in the field of social relations, the manifestation of the level of spiritual maturity characteristic of them in mutual communication and relationships" is noteworthy.

The question of the origin of morality cannot be said to have been settled. According to some views, morality has a biological nature: it is the need to strengthen certain biological conditions of survival in forms that are understandable and characteristic of a person that created the system of moral managers. According to other opinions, morality is only social in nature: animals do not have feelings that control their behavior, but in the process of collective activity, humans create norms of cooperation based on reason. In this process, as J. Tulenov noted, "If this order is broken, and materiality prevails over the spirit, and the spirit becomes a slave of the body and serves it, then negative situations will increase in the practical activity of a person, and positive qualities will be postponed. The mental and spiritual aspect is one of the qualities that make a person human and make his life beautiful. " In our opinion, the problem of morality has not remained unchanged throughout the history of mankind, its norms often depend on a specific socio-economic situation in society. Morality has always protected all things that contribute to the survival and development of human civilization.

Virtue and evil are common moral concepts that distinguish between morality and immorality. Goodness and evil acquire a universal ethical meaning in all human activities and relationships. Virtue is all that is directed to creativity, aimed at maintaining and strengthening well-being. And evil is the destruction of violence. In his works, Abu Rayhan Beruni talks more about morality, bravery, enthusiasm, generosity, kindness and other human qualities. According to him, "...man is superior to animals, "because he is honored with his intellectual power. Even man was honored only because of this power of mind and was replaced by improving the land and establishing politics. Therefore, the animal was reluctantly obeyed by man. As a result, he became submissive and served day and night for the interests of people. " According to Beruni, if a person "endures hardships for the peace of people: without being stingy, without giving to others, and giving to others what is given to him, such a person is considered a brave person who has gained fame with such power; He will be known for his meekness, gentleness, strength of will, and humility, and he will rise to the highest level, even if he is not a member of this rank.

Today, the development of science, technology and technology is making fundamental changes in the field of medicine. New directions of research in the field of medicine are being laid. It would not be wrong to say that the scientific revolution, which started in the second half of the last century, is creating the ground for the development of the methodology and promising technologies of fundamental medical and biological sciences. The reason is that many new technologies in the field of medicine are effectively applied to the life of society. However, today's practical fields of medicine include scientific experiments and human testing of new drugs and medical technologies, and other such social and ethical issues are also increasing. Because applied medicine is looking for ways

to effectively influence the deepest structures of the human body, the processes of human reproduction, his psyche, heredity.

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## **INHERITANCE OF BIOLOGICAL TRAITS IN SOME REPRESENTATIVES OF POLYMORPHIC COTTON SPECIES**

*Annotation. The character management of wild, ruderal and cultivated tropical diverse plants found in nature is particularly dependent on genetic information. The variability that occurs during the growing season of a plant depends on external environmental factors. Therefore, it is assumed that artificial selection by humans has led to progress in the evolutionary process. The consumption of cotton fiber is one of the main valuable economic characteristics of the plant.*

*Key words: cotton, cocoon, seed, fiber index, shape, fiber yield, variability, heredity, crossing, generation, column, hybrid, heterosis, recombinant.*

**Introduction.** It is known that the fiber color of the cotton can be white, tan, light tan, reddish brown, golden, green, light pink, bluish-green, dark brown. Several scientists have conducted research on this character [8; 11; 12]. While one group of scientists reported that the fiber color marker is inherited monogenically, others noted that it is inherited polygenically.

**Literature review.** In ontogenesis, differentiation of germ and outer epidermal tissue has been studied as a fiber-forming layer [1]. Using the terminology adopted in our study, we took a detailed approach to the formation of cotton cell populations, changes in their ratios, and the stabilization of the ontogenesis of the germ and seed. [11] There are three types of cell populations: statistical, growing, and regenerating cell populations. Changes in population size over time can be seen as the most common manifestation of cell population kinetics.

Due to the differentiation of the outer epidermal cells, it is of great importance to determine the number of hairs in the germ and seed, the moving of hair cells in the germ, their topography, i. e. the direction of location and the degree of regionalization. The study of these issues is important in solving problems in developmental biology, such as cytological, genetic, physiological and biochemical mechanisms of differentiation, growth, life cycles of cell populations, and more.

In practice, this work is necessary to determine the parameters that indicate the amount of fiber for the seed and to determine the amount of fiber and the possibility of increasing its yield.

Determination of the number of differentiated cell populations of the germ epidermis, i. e., the number of hair cells and hair-forming cell populations; the change in the number of these populations in the ontogenesis of the seed are noteworthy. To address these issues, it is first necessary to determine the presence

of changes of germ forming cell populations and their ratios in the ontogenesis of seed of cotton species and varietal diversity.

A few data have been given in the literature on the number of hairs in one seed. B. A. Krakhmalev, M. B. Sultanova [5] noted in their work that *G. hirsutum* L. species varieties have hairs in the seeds between 7,8 and 14,7 thous.

According to D. V. Ter-Avanesyan [8], in the seeds of *G. hirsutum* L. there are 7. 8-18. 0 thous. fibers, while in the varieties of *G. barbadense* L. 11,0-17,0 thous. fibers.

**Research methodology.** N. A. Vlasova [3] studied changes in cytoadnuclear relations of mitotic active and differentiated cells of the germ epidermis and identified that total number of epidermal cell of hairs close to regenerating population was 21,2% in "108-F" variety of cotton during the flowering stage. In the following days, the percentage of fibers decreased by 17. 5%, because these days due to the increase in mitotic activity of cells, their total number increased by a large proportion relative to the number of fibers. 3-4 days after flowering, the epidermal cells do not break down into fibers, so they are almost of the same length in each part of the germ. By the 5<sup>th</sup> day, 0. 25% hairs appear of the total number of epidermal cells. On days 6–7–8, the proportion of hairs is 1. 5%, 2. 8%, and 4. 0%, respectively.

**Analysis and results.** The decrease in the number of hairs occurs due to the division and rapid growth of epidermal cells. Then, as a result of differentiation of epidermal cells and their gradual dehydration and pigmentation, the number of hairs per 1 mm<sup>2</sup> may increase slightly, for example, it can be observed in the 50-day period of cotton variety "Kelajak". Epidermal cells are often disproportionate, curved, and elongated, with 6–7 elongated cells per hair follicle.

In the wild subspecies *mexicanum* belonging to the genus *G. hirsutum* L., the number of hairs per 1 mm<sup>2</sup> is twice less, which is explained by the smaller size of their seeds, and there are only 3144 hairs per seed. The total number of hairs per seed in the cultivar "Kelajak" was 8638, respectively, and the share of hairs in the total number of epidermal cells was 7. 8%. Wild *G. darwinii* Watt species has the lowest number of hairs per 1 mm<sup>2</sup>, with only 2760 hairs per seed (Table 3).

In the age dynamics, the number of epidermal cells of a growing population of seeds increases until cell division stops by metastasis, the volume of epidermal cells belonging to the statistical population increases rapidly due to cell growth by elongation and decreases in 1 mm<sup>2</sup> as seed continues to grow rapidly. Therefore, as the age of the seed increases, the number of hairs in the epidermal cells decreases by one when intensive cell growth is observed with elongation. There is a law that the smaller the proportion of hairs from the total number of epidermal cells, the greater the number of epidermal cells in the hair.

We hypothesized that the number of epidermal cells corresponding to a single fiber account would determine the degree of seed hairiness. However, this is not true because the number of cells in a single fiber is determined by the intensity of division of epidermal cells in the early stages of seed development



and the elongated growth after division. The epidermal cells on the surface of the seed are elongated, with a minimum cell diameter of 7–31  $\mu\text{m}$  and a maximum of 19.9–61.05  $\mu\text{m}$  in *G. hirsutum* L. intraspecific varieties of cotton. In particular, the smallest diameter of epidermal cells in the cultivar Kelajak was 7.0  $\mu\text{m}$ , while the largest share was recorded in subspecies *mexicanum* var. *nervosum* (Yucatan) of *G. hirsutum* L. with 61.05  $\mu\text{m}$  indication. In *G. barbadense* L. intraspecific varieties, the minimum cell diameter is 7.0–29.7  $\mu\text{m}$  and the maximum is in the range of 18.9–75.9  $\mu\text{m}$ . In Surkhan-9 cultivar, the smallest diameter of epidermal cells was found to be 7.0  $\mu\text{m}$  and the largest share in the form semi-wild subspecies *ruderae* f. *parnat* (tan fiber) in the range of 75.9  $\mu\text{m}$ . In the wild *G. darwinii* Watt species, the smallest unit of epidermal cell diameter was found to be 23.1  $\mu\text{m}$ , while the largest unit was found to be 59.4  $\mu\text{m}$ .

Thus, the analysis of the results obtained revealed differences in the quantitative indicators specific to each sample, the proportion of hairs on the seed surface depends not only on seed size, number and size of epidermal cells, but also on the number of cells surrounding each fiber.

Based on the above, it can be concluded that further research is needed, involving many samples and varieties specimens. The nature and degree of hairiness of immature seeds were studied, epidermal cells and fibers (hairs) of and their parameters (length, middle part and base diameter) of *G. hirsutum* L. and *G. barbadense* L. intraspecific varieties and *G. darwinii* Watt species were determined.

A comparative comparison of the data showed some differences that belonged to each subtype. Thus, the smallest number of hairs in the large-celled epidermis and in 1  $\text{mm}^2$ , as well as on the entire surface of the seed was observed in the ancient wild forms *paniculatum* and *punctatum* subspecies. The fibers of this representative are much shorter and thicker, which is especially noticeable in the diameter of the base. There are many cells on the epidermal surface, the hairs are surrounded by only 7-8 cells, while in the *paniculatum* and *punctatum* subspecies the figure was -11.9 and 12.4, respectively. The seeds of subspecies *paniculatum* have smaller cells, thinner and longer fibers than other specimens, and there are largest number of hairs per  $\text{mm}^2$  and the entire seed surface.

It should be noted that the wild forms of subspecies *punctatum* and *paniculatum* were found to be close to each other in all respects relative to cultivated varieties. *Punctatum* and *paniculatum* subspecies were found to have twice the number of fibers per 1  $\text{mm}^2$  compared to the studied varieties, due to small size of seeds, and only 6402.3 and 5967.5 hairs per seed, respectively.

In terms of the number of hairs per 1  $\text{mm}^2$  in the semi-wild form *ruderae* f. *parnat* (tan colored fiber), the lowest indication is 18.9, and 2540.6 hairs per seed. In the studied Surkhan-9 variety of *G. barbadense* L., the number of hairs per 1  $\text{mm}^2$  was 45.1, and the number of hairs on the seed surface was 7422.9. The proportion of fiber cells in the total number of epidermal cells was lower than in *G. hirsutum* L. species varieties, with 97.2% in Surkhan-9 variety.

The data obtained revealed quantitative differences in the traits being analyzed in the studied representatives. Basically, the fiber index and yield are determined by the amount of fiber on the seed surface, and according to our data, the epidermis has a positive relationship with the number and size of cells. Also, these parameters, along with the hardness of the seed coat, the parameters of the hairs - length, middle part and diameter of the base - can be important in determining the causes of fiber deterioration (contamination) during seed cleaning (ginning).

**Conclusion.** Consequently, the results obtained showed that the differences in the quantitative indicators of the traits belonging to each representative under analysis, the proportion of hairs on the seed surface depends not only on seed size, amount and size of epidermal cells, but also on the number of cells surrounding each fiber.

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## **THE ROLE OF THE DEVELOPMENT OF THROMBOCYTOPATHIES IN PREGNANT WOMEN WITH PRE-ECLAMPSIA AND THE PRINCIPLES OF THEIR CORRECTION**

*Annotation. In the structure of maternal mortality in the Republic of Uzbekistan, one of the first places is occupied by obstetric bleeding, the second is preeclampsia, and the third is extragenital diseases. At the same time, it should be taken into account that in almost 80% of cases, bleeding is a consequence of preeclampsia (PE) and from a scientific point of view, it can be reasonably argued that I and II places should rightfully be for PE, therefore, this pathology is an urgent problem both scientifically and and practical obstetrics.*

*Key words: preeclampsia, spontaneous bleeding, thrombocytopathies, clexane.*

Worldwide there is disagreement about many aspects of the classification, diagnosis, and management of the hypertensive disorders of pregnancy. This lack of consensus hampers our ability to study not only the immediate rates of adverse maternal and fetal outcomes for the various hypertensive disorders in pregnancy, particularly preeclampsia, but also the long-term health outcomes of women and babies who survive this condition. It also impacts on research into the pathophysiology of this condition and has almost certainly delayed the development of effective screening tests and treatments, leading to poorer pregnancy outcomes.

The causes of PE are multifactorial, complex and not fully understood. However, according to modern concepts, the leading role belongs to endothelial damage, changes in platelet function, changes in lipid metabolism, as well as immunological and genetic factors. According to many studies, the predominant number of pregnant women with preeclampsia have severe hypercoagulability with the development of DIC. The study of the functional properties of platelets of pregnant women with PE showed that changes in the adhesive-aggregation properties of platelets precede the involvement of the procoagulant link of the hemostasis system in the development of DIC. A certain role of hemocoagulation disorders in the pathogenesis of PE has now been proven. However, many aspects of the development and progression of PE during pregnancy are still far from being resolved. It has been established that during PE in pregnant women, platelet activation develops, which leads not only to their disseminated intravascular aggregation and damage to the walls of the vessel, but also inevitably to activation

of blood coagulation and the development of DIC. To eliminate these disorders in the complex therapy of such patients, small doses of heparin, antiplatelet agents, vitamin E antioxidant, and fresh frozen plasma are used. The use of these drugs led to the correction of disorders in the hemostasis system. At the same time, the frequency of thrombohemorrhagic complications decreased by 2-3 times. However, in some cases, this therapy does not provide a sufficient corrective effect, which is probably due to high plasma heparin resistance in patients with DIC. The data accumulated to date suggest that this condition is due to a sharp increase in the content of acute phase proteins (APF), some of which have a high affinity for heparin and prevent its interaction with antithrombin III II.

It is possible to temporarily overcome the effect of BOF only by a sharp increase in the dose of administered heparin, however, this is fraught with the risk of bleeding and secondary depression of AT-III.

**Purpose of the study:** To study the platelet link of the hemostasis system and determine their role in the development of thrombohemorrhagic complications in preeclampsia and their prevention **Research methods:** To assess the condition of women, the following will be carried out: a thorough collection and analysis of anamnestic data, a general blood test, a general urinalysis, a Nechiporenko urinalysis, a general examination, a gynecological and obstetric examination, blood biochemical parameters: total protein, bilirubin, urea, creatinine, enzymes (ALT), indicators of hemostasis. Dynamic cardiotocographic study (CTG). Study of the state of the platelet, procoagulant and fibrinolytic components of the hemostasis system.

Platelets are an important component of the hemostasis system: platelet adhesion to the site of vessel injury, aggregation, secretion of coagulation factors, subsequent clot retraction, spasm of small vessels and the formation of a white platelet thrombus stop bleeding in microcirculatory vessels with a diameter of up to 100 nm. Activation of the coagulation system induces the formation of fibrin on the surface of activated platelets and the formation of a full-fledged thrombus.

Clinical manifestations depend on the characteristics of qualitative and quantitative defects in platelets - the severity of the hemorrhagic syndrome can vary significantly and does not depend directly on the degree of the defect. With mild bleeding, there may be a tendency to bruising with small and minor injuries, at the site of compression with an elastic band; periodic non-abundant nosebleeds, family prolonged menstruation in women, etc. In the case of the development of a massive hemorrhagic syndrome, life-threatening blood loss may develop.

**Conclusion:** Preeclampsia is, at least in part, a disease of placentation/placental dysfunction and the fetus is potentially vulnerable to the effects of uteroplacental insufficiency, particularly fetal growth restriction and placental abruption.

1. In addition to the ideal schedule of a first trimester dating ultrasound and a midtrimester anomaly scan, fetal biometry, amniotic fluid volume assessment,

and fetal Doppler waveform analysis should be performed at the first diagnosis of preeclampsia.

2. The ideal scanning schedule thereafter is determined by the presence (or absence) of fetal growth restriction at the initial assessment and the gestation at diagnosis.

We used a new approach to prevent obstetric bleeding against the background of preeclampsia using low molecular weight heparin Clexane, which contributes to the normalization of platelet function, the elimination of thrombophilic conditions, and heparin resistance. As a result of the implementation of the principles developed by us for managing women with PE, the frequency of obstetric bleeding will be reduced, which will reduce maternal morbidity and mortality in women, as well as reduce their disability as a result of preserving the main reproductive organ - the uterus.

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## **ORGANIZING PEDAGOGICAL EXPERIMENTAL WORK FOR THE DEVELOPMENT OF A CULTURE OF COOPERATION IN THE STUDENT COMMUNITY OF HIGHER EDUCATION INSTITUTIONS**

*Annotation. The process of implementing the development of a culture of cooperation in the student community involves organizing events to develop a culture of cooperation among students by involving them in cooperation using a cluster approach.*

*Key words: culture, problem, synthesis, position, value, goal.*

We will dwell on the features of the first stage of the formative experiment-test carried out in the process of organizing practical training. The possibility of developing a culture of cooperation within the disciplines of professional pedagogy is related to the specific characteristics of practical training, their form and content allows to organize interpersonal relations in the audience of students. To implement the current goal of research, we decided on the feasibility of including professional tasks that require not only individual, but also group discussion, solution and evaluation into training. For this purpose, working groups with different number of participants were organized in the group (training in teams).

The organization of cooperative relations in the student community practically helps to form the ability to work in groups with different participants. In addition, cooperative work based on "trust" in an atmosphere of tolerance and mutual respect is of special importance.

A. P. Tryapitsyna, in the process of working in practical training, we organized the joint activities of students aimed at finding solutions to professional problems, and the following indicators were realized:

- students' perception and understanding of different views on the same event;
- use of many different methods of describing and analyzing the same event;
- synthesizing different positions and opinions in the discussion of finding a solution to the problem;
- emergence, acceptance and understanding of various ideas and vague judgments;
- refers to the reflection of the prospective view of their activities in social situations of interaction with various subjects of the educational process.

Thus, students are applied to activities aimed at developing a culture of cooperation in the process of finding solutions to problems in a group. The need to perceive different points of view on a given problem greatly helps the

development of students' ability to focus. Regardless of the level of negotiation, listening and acceptance of others' opinions, as well as being ready to compare them with others' positions, ultimately reconsidering one's own position will make some changes. implies. It is desirable for students to foresee their own process in the context of intersubjective interactions of educational activities, to literally plan a collaborative strategy for finding a solution to a problem, and to take into account the context of others in the process of development.

The practical process shows that students should be convinced that teamwork allows them to perform more and to a certain extent complex (by objective criteria) tasks and/or reduces the amount of resources applied in the implementation of such tasks. .

It should be noted that the search for groups close to one's views significantly increases the efficiency of students' work in the process of finding solutions to professional problems: for example, analysis, critical approach, exchange of ideas, evaluation based on personal positions. we can say that the educational text changes through: value-oriented, personal experience, the process of finding a collective solution to problems, sometimes conflicting positions, meanings, contents and values on the way to one goal in turn, it causes conflict situations to arise.

Based on our approaches, we are somewhat close to the position of I. S. Morozova, which also shows the degree of possible emergence of a problematic conflict situation typical of finding a solution to problems in cooperation that are completely different from individual research.

In addition, the problematic nature of the situation can be interpreted as related to the conflict between the person and the experimental situation itself between the stereotypes of the "I" in creating a conflict, closely related to the mutual inconsistency between the mental capabilities of the subjects and the demands of the task. .

A collaborative solution involves developing a common strategy for a single solution. When faced with this situation, each subject should apply his life experience to understand himself as a member of the group. As a result, the personal resource of constructive conflict resolution is further refined: the student's level of resistance to conflict increases, the ability to maintain conflict in the form of an effective conflict is formed, and as a result, it helps to find solutions to problems.

Adequately reflecting the purpose of the group - to make cooperative efforts to find a successful solution - the scale of the problem-conflict situation is understood. In this case, the re-examination of the situation implies the development of rules for the implementation of joint activities that allow the creative potential of each partner to be reflected at a high level.

Taking into account the above-mentioned rules, students interact with each other as partners in collective research: ideas, concepts, at the decision-making

stage, judgment of actions, project, program, algorithm, etc., presentations, opinions were interpreted as the content of the next stage.

Students presented multimedia presentations to their teams, conducted research on projects to assess student achievement, designed algorithms to defend their ideas, collaborative algorithms, while changing their positions based on comparisons with the positions of others. done.

Students united in mini-groups analyzed the characteristics of interaction types such as cooperation, dialogue, agreement, guardianship, indifference, elimination, confrontation. The next stage of cooperation consists in independent modeling of specific pedagogical situations that are examples of the types of interaction studied by students, turning them into professional tasks, and choosing the optimal solution.

The final stage of the work was the organization of a direct team "brainstorming" to create ideas aimed at improving the ways of developing mutual relations between the subjects of the educational process. Organization of mutual cooperation simultaneously includes the following stages:

- formation of small groups of 5-6 people;
- appointment of a leader for each group; independent brainstorming in small groups (creating new ideas) (work duration - 15 minutes);
- evaluation of new ideas, selection of the most original idea in each group;
- presenting the most unique idea of each group;
- choosing the most reasonable idea from all proposed ideas.
- evaluation of the overall group work, giving points to each participant in the discussion.

During the presentation and discussion of ideas, students came to the conclusion that the most effective method of multi-subject interaction, which is suitable for the current socio-cultural situation, is cooperation.

It is worth noting that the implementation of the activity algorithm in small groups organized for the purpose of forming new ideas creates a basis for improving the social creativity of students and stimulating the processes of creative self-expression.

Based on the above, it can be noted that within the framework of the seminar, collaborative activities of students to find solutions to professional problems were organized, during which students can actively communicate with each other. Professional pedagogy has created the conditions for more effective involvement of students in cluster interaction that these disciplines are relevant to the mechanisms of interpersonal interaction.

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## **MODERN TECHNOLOGIES IN PORTLAND CEMENT PRODUCTION**

*Annotation. The article discusses the main processes of Portland cement production, including dry, wet and mixed cement production based on modern technology*

*Keywords: production of clinker, grinding of clinker together with additives into fine powder, slurry, lumps of material.*

The production of Portland cement consists of the following main processes: obtaining raw materials and preparing a mixture of raw materials, heating the mixture until it melts and forming clinker, grinding the clinker together with additives into a fine powder, etc.

Raw materials for the production of Portland cement are usually mined in open pits near the cement plant. Rail and suspension roads and road transport are used to deliver raw materials to factories.

Depending on the quality of raw materials and the type of heating furnaces, raw materials are prepared by wet or dry method. In wet preparation, additives are ground and mixed in water, the mixture in the form of a liquid mass (slurry) is heated: in dry preparation, raw material additives are ground, mixed and heated in dry form.

The following processes occur during cooking of raw materials.

Hot gases dry the slurry and form pellets. As the material progresses, at 500-750oC, organic matter burns out and dehydration (release of chemically bound water from the clay constituent) begins, during which the plasticity and binding properties are lost. Balls of material break down into a mobile powder. At a temperature of 750-800oC and above, a reaction begins between its constituents in a solid material. As the temperature rises, their intensity begins to increase. The individual particles of the powder are combined with each other and grains of different sizes are formed. Calcium carbonate passing through the temperature zone of 900-1000oC is dissociated, and carbon dioxide and carbon dioxide gas are released with combustion products. Calcium oxide  $\text{CaO}$  reacts chemically with alumina, iron oxide and silicon dioxide. The chemical bonding reaction of calcium oxide in the solid state takes place sufficiently intensively at 1200-1250oC, in which the following chemical compounds are formed:  $2\text{CaO} \cdot \text{SiO}_2$  (two-calcium silicate)  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  (three-calcium silicate) and  $4\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$  (aluminum ferrite with four calcium atoms),  $\text{CaO}$  and  $2\text{CaO} \cdot \text{SiO}_2$  until the solution is saturated at a temperature above 13oC

partially soluble; in the molten state, they react and form tricalcium silicate  $3\text{CaO} \cdot \text{SiO}_2$  - the main mineral of portland cement. The process of formation of tricalcium silicate, which is separated from the liquid phase in the form of crystals, usually occurs at a temperature of about  $1450^\circ\text{C}$ . When the temperature drops to  $1300^\circ\text{C}$ , the liquid phase solidifies, the fusion process ends.

For cooling to  $80\text{-}100^\circ\text{C}$ , clinker - 15-25 mm gray-green colored grains are sent to the refrigerator, from there they are brought to the warehouse and stored for 1-2 weeks. As a result of aging, the small amount of calcium oxide in the clinker is extinguished by air moisture, and the hardness of the clinker grains decreases, which in turn makes it easier to fill and allows for a uniform change in volume during cement hardening. provides

Clinker is crushed in multi-chamber ball mills. In order to adjust the holding time of portland cement in the process of filling, 2-5% of gypsum stone and various additives provided for in the technological process are added to it.

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## **ECONOMIC GEOGRAPHICAL ASPECTS OF THE FORMATION AND DEVELOPMENT OF ANDIJAN AGGLOMERATION**

*Annotation. The article talks about the formation and development of Andijan city agglomeration and the current problems in this regard. In particular, the expansion of the agglomeration and their characteristics were scientifically analyzed.*

*Keywords: city, agglomeration, growth, expansion, urbanization, urban function, infrastructure, configuration, satellite cities.*

### **INCOME AND VALUE**

Due to the development of industry in Andijan region, there are significant positive changes in the distribution of the population of the region between the city and the countryside, and the weight of the urban population is growing much faster. In particular, the population of Andijan region was 174 thousand people or 22. 6% of the population of the region in 1959, 387 thousand people or 28. 7% in 1979, 559 thousand people or 32. 3% in 1989, 646 in 1999, 5 thousand people - 30. 0 percent, 687 thousand people or 29. 8 percent in 2004, 1338. 9 thousand people or 53. 6 percent in 2009, 1380. 5 thousand people or 53. 2 percent in 2010, 2022 1699 thousand people, which made up 52. 2 percent of the population of the region. As a result, the share of the city's population increased from 24% to 32. 3%. However, from 1993 to 2008, the growth of the city's population decreased slightly. 2008 year Andijan, with 37 % of urbanization in the republic in the region only 29 % to be certain reasons with is described.

Of them the most the main ones In the region, the dominance of irrigation intensive agriculture, industry the fact that it has not developed well, the indigenous people representatives live in villages preferred level of urbanization not so high take came. But irrigated agriculture prevails has been region to assess the level of urbanization as low little will be wrong.

### **RESEARCH RESULTS**

Within the provincial cities The city of Andijan stands out stands. Andijan of the region administrative, industrial, cultural, scientific, educational center and this city is one of the oldest cities in Uzbekistan.

Andijan city Andijan of agglomeration is the core. The land area of Andijan city area is 0. 07 thousand kv. km organize reached, the population is very dense located. There are 83 community assemblies in the city, 74 thousand people apartment, 109. 2 thousand family there is The total population of Andijan in 2019 is 434 a thousand person, and in 2020, 441. 7 thousand person organize reached.

Total as of January 1, 2021 constant the population is 450,000 person organize reached, year 8. 3 thousand from the beginning to the person or increased by 1. 9%. By 2022, the city's population will be 458,500 to the person increased to live in the population style negative effect shows. The population density in 2021 was 6429 people per 1 sq. m. if so, it will be in 2022 the figure is 6550 people increase, to urban development big pressure spends. The number of people born in 2020 is 11,603 834 compared to 2019 (10769 people) increase. That's it suitable birth rate is 26. 0 per thousand organize reached 2422 people died in 2020 3 people compared to 2019 (2419 people). increased and death coefficient is 5. 4 ppm organized. Natural population in 2020 growth previous per year relatively significant grew up to 1. 5 per thousand reached if so, compared to 2018 and 3. 6 per thousand that it has increased to see can.

Andijan of agglomeration the most big and one of the promising satellite cities it is the city of Asaka. This was in 1938 iron Andijan - Fergana road near the road along big On the site of the village of Asaka The city of Asaka was founded found Uzbekistan car industry to the capital is a converted city. An important form of modern urbanization - urban agglomeration - Andijan agglomeration is forming in Andijan region. In the future, the agglomeration is expected to include the cities of Andijan, Asaka, Poitug and the town of Kuyganyor. It starts in the capital city in the north and ends in the city of Asaka in the south. The Andijan agglomeration is a monocentric agglomeration, extending 30 km in the meridional direction. About 690,000 people live in Andijan agglomeration today. The larger the central city, the wider its sphere of influence. Usually, when its population exceeds 100,000, there are more opportunities for agglomeration. As you move away from it, the population density and settlements decrease, and the connections between them also weaken. Agglomeration limit often 50-60 sometimes and it is equal to radii of 100-110 km to be can.

Urbanization process development city with towards the poles of agglomeration growth, development process surface come the city expanded new nations appear will be This process several economic and social problems origin, including infrastructure organize reach and development the problem surface brings.

City infrastructure is in the process of urbanization is extremely important they are population lives level, live the conditions of civilization appearances not only economic - it is socially important, and perhaps ecologically important as well.

## **CONCLUSIONS**

Andijan - Asaka agglomeration of the republic the series of other agglomerations is included in the series of monocentric agglomeration. Starting from the town of Kuyganyor (the center of Andijan district) in the north-west, passing meridianly from Andijan city, passing other towns of Andijan district (with the status of a town since 2009) such as Khortum, other settlements along

the A373 road and the southern point ending in the city of Asaka. Residents of the region 20.7 % of the total population. These agglomeration cities are of the region Unlike other cities, functional aspects are industrial culture, science, and administrative is the center. Other cities are monofunctional and agrarian center and administrative control node only only.

The future of the agglomeration is related to the growth of the population, the agglomeration will expand to the surroundings in the form of suburbanization, it will include other cities and settlements in its structure, and it is predicted by many geographers that in the future it will include other large cities, including the cities of New Andijan, Asaka, Oltinkol, and become a wide polar agglomeration done

Study of Andijan agglomeration, assessment of its features, in research of future and current demographic and ecological processes, besides, provides the population with housing and provides an opportunity to solve a number of social problems in advance.

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## **THE INFLUENCE OF PEANUT DATE AND SCHEMES ON PLANT THICKNESS**

*Abstract. The effect of planting time and norms on the thickness of seedlings at the beginning and end of the period of the peanut plant in the conditions of the meadow gray soils of Andijan region as a repeated crop.*

*Key words: peanut, vegetation period, planting period, planting rate, planting scheme, area unit, seedling thickness.*

It is known that the increase or decrease in the number of seedling thickness in plants directly affects the productivity of the plant and the quality of the product.

Several factors such as soil, climate, fertilizer, and water affect the growth and development of plants, that is, under the influence of these factors, the growth and development of plants integrity is formed, the physiological and biochemical processes taking place in the plant body, their nutrition through the roots and from the air, energy supply, in general, the sum of all processes involved in assimilation and dissimilation will be optimal.

Achilov F. S., Norbotaeva B. Kh. noted that it was observed that the influence of the planting scheme on the yield elements of peanut varieties was very high. In the "Salamat" variety, the stem yield was the highest in the 70x5-1 planting scheme. (40. 3s/ha) and the lowest rate was observed when the planting pattern was 70x30-1 (22. 1s/ha).

Oh. Makhmudov and B. Khalikov say that peanuts are late periods and their development when planted at high standards the period between phases is shortened, and when planted early and at lower standards, the phases between development are longer.

In our experiment, the effect of planting peanuts on the thickness of seedlings at the beginning and at the end of the period of 05. 06 when planting peanuts as a repeated crop is 15. 06; 25. 06. it was observed that the number of dead plants differed significantly.

In the conducted studies, it was observed that the planting periods and standards affected the growth and development of peanuts. According to the average data obtained from two years of experience, the date of planting peanuts is 05. 06. and in option 1, where 330,000 plants were planted per hectare, the thickness of seedlings at the beginning of the operation period was 313,000 units, and by the end of the operation period, it was 303,300 units, in which the number of dead plants was 9,700 units or 3. 1%.

In the 2nd variant of the experiment with the same planting period, these indicators were 149 thousand units at the beginning of the period of operation, and 144. 1 thousand units by the end of the period of operation.

**Ekish muddatlari va me'yorlarining ko'chat qalinligiga ta'siri.**

No	Planting term	Planting scheme	Planting standard according to the scheme (thousand units/ha)	At the beginning of the period of action	At the end of the validity period	Dead plants (units)	Dead plants (%)
1	05. 06	60x5-1	330,0	313,0	303,3	9,7	3,1
2		60x10-1	166,0	149,0	144,1	4,9	3,2
3		60x15-1	111,0	100,0	97,9	2,1	2,1
4	15. 06	60x5-1	330,0	313,0	299,6	13,4	4,45
5		60x10-1	166,0	149,0	142,9	6,1	4,0
6		60x15-1	111,0	100,0	97,5	2,5	2,5
7	25. 06	60x5-1	330,0	313,0	297,5	15,5	5,2
8		60x10-1	166,0	149,0	142,0	7,0	4,6
9		60x15-1	111,0	100,0	97,1	2,9	2,9

Planting date is 15. 06. and in the 4th option, where 330,000 plants were planted per hectare, the thickness of seedlings at the beginning of the operation period was 313,000 units, and by the end of the operation period, it was 299,600 units, in which the number of dead plants was 13,400 units or 4. 45%. In the 5th variant of the experiment in the same planting period, these indicators were 149 thousand seedlings at the beginning of the period of operation, and by the end of the period of operation it was 142. 9 thousand units, in which the number of dead plants was 6,1 thousand units or 4. 0%. In the 6th option of this planting period, the thickness of seedlings at the beginning of the period was 100 thousand, and by the end of the period it was 97. 5 thousand, in which the number of dead plants was 2. 5 thousand or 2 was. 5%.

Planting date is 25. 06. and in the 7th option, where 330,000 plants were planted per hectare, at the beginning of the application period, the thickness of seedlings was 313,000 units, and by the end of the application period, it was 297,500 units, in which the number of dead plants was 15,500 units or 5. 2%. In the 8th variant of the experiment in the same planting period, these indicators were 149 thousand seedlings at the beginning of the period, and 142 thousand by the end of the period, and the number of dead plants was 7. 0 thousand units or 4. 6%. In the 9th variant of this planting period, the thickness of seedlings at the beginning of the period was 100 thousand, and by the end of the period it was 97. 5 thousand, in which the number of dead plants was 2. 9 thousand or 2 was. 9%.

Therefore, increasing the planting rates in peanuts will result in 2. 1 to 3. 1 percent seedling mortality by the end of the application period. These patterns were also observed in the second and third planting periods of peanuts, but

planting peanuts in early periods was able to maintain seedling thickness from 0.54 to 1.6 percent in comparison to late planting periods.

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## **THE DEVELOPMENT OF CRITICAL THINKING ABILITIES OF STUDENTS**

*Annotation. This article will be discussed that analyzed development of critical thinking skills and cognitive interests of students. In classes where these technologies are used, students feel confident, freely express their thoughts and calmly accept comments, because they are active participants in the educational process.*

*Key words: Active and interactive learning technologies, educational process, critical thinking skills, students, personal potential of a person, individual.*

Currently, the educational process requires constant improvement, as there is a change of priorities and social values: scientific and technological progress is increasingly recognized as a means of achieving a level of production that best meets the ever-increasing human needs, the development of the spiritual wealth of the individual. Therefore, the current situation in the training of specialists requires a radical change in the strategy and tactics of training at the university. The main characteristics of a graduate of any educational institution are his competence and mobility. In this regard, the emphasis in the study of academic disciplines is transferred to the process of cognition itself, the effectiveness of which depends entirely on the cognitive activity of the student himself. The success of achieving this goal depends not only on what is learned (the content of the training), but also on how it is learned: individually or collectively, in authoritarian or humanistic conditions, relying on attention, perception, memory or on the entire personal potential of a person, using reproductive or active teaching methods. [1]

Already at the beginning of the twentieth century, many scientists, educators and psychologists saw the need to develop new teaching methods to activate students' learning activities. This problem remains relevant at the present time. In the realization of the goals of problem-based and developmental learning, there are active methods that help lead students to generalization, develop their independence of thought, learn to highlight the main thing in the educational material, develop speech and much more. As practice shows, the use of active methods in university education is a prerequisite for the training of highly qualified specialists and leads to positive results: they allow students to form knowledge, skills and abilities by involving them in active educational and cognitive activities, educational information passes into personal knowledge of students.

Let's consider the classification of active learning methods for the university proposed by A. A. Verbitsky. He distinguishes between imitation methods of active learning, i. e., forms of conducting classes in which educational and cognitive activity is based on imitation of professional activity. All the others are non-restrictive, these are all ways to activate cognitive activity in lecture classes.

Simulation methods are divided into gaming and non-gaming. Gaming includes conducting business games, game design, etc., and non-gaming - analysis of specific situations, solving situational problems, and others.

The manifestation and development of active teaching methods is since the tasks were set before the training not only the assimilation of knowledge by students and the formation of professional skills, but also the development of creative and communicative abilities of the individual, the formation of a personal approach to the emerging problem.

Active teaching methods involve the use of such a system of methods, which is mainly aimed not at the presentation of ready-made knowledge by the teacher and their reproduction, but at the independent mastery of knowledge by students in the process of active cognitive activity. [10]

Thus, active learning methods are learning by activity. For example, L. S. Vygotsky formulated a law that says that learning entails development, since a person develops in the process of activity. It is in the active activity directed by the teacher that students acquire the necessary knowledge, skills, and skills for their professional activities, and develop creative abilities. The active methods are based on dialogical communication, both between the teacher and the students, and between the students themselves. And in the process of dialogue, communicative abilities develop, the ability to solve problems collectively, and most importantly, students' speech develops. Active teaching methods are aimed at attracting students to independent cognitive activity, arouse personal interest in solving any cognitive tasks, and the possibility of applying the knowledge gained by students. The purpose of active methods is that all mental processes (speech, memory, imagination, etc.) participate in the assimilation of knowledge, skills, skills.

There are imitation and non-imitation forms of training organization using active teaching methods. Non-imitation methods: lectures, seminars, discussions, collective mental activity.

Thus, the use of active methods by teachers in the university learning process contributes to overcoming stereotypes in teaching, developing new approaches to professional situations, and developing students' creative abilities.

The purpose of interactive learning is not only to provide knowledge and skills, but also to create a basis for working on solving problems after the training is over. The principles of this approach to learning correspond to the basic principles of the theory of adult learning in terms of ensuring an active learning process and the participation of students in it.

Adults remember information best when they are actively involved in solving practical tasks and exercises in the learning process. They remember 20% of what they hear, 40% of what they see and hear, and 80% of what they hear, see and perform. Therefore, learning is less effective if people passively receive information by simply listening to lectures or viewing didactic slides. Execution here refers to actions such as generalization of information, critical evaluation of the information received or practical application of knowledge.

Training is most effective if it considers the real situation. This should include an analysis of the circumstances preventing the use of the studied material. For example, the solution of many tasks to identify the impact of environmental pollution on health is based on the collection and analysis of data on the state of the environment. In many countries, however, these data are not available in sufficient volume and are difficult to obtain. A good training program would consider the shortcomings of the data and investigate the reasons for their existence, indicate strategies for improving the situation in the future and suggest methods for solving the problem in the presence of these limitations at the present time.

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## **ISSUES OF THEORY AND PRACTICE OF PEDAGOGY IN THE EDUCATION OF DURING THE INDEPENDENCE OF THE REPUBLIC OF UZBEKISTAN**

*Annotation. In this article will discuss "Issues of theory and practice of pedagogy in the education of during the independence of the republic of Uzbekistan" highlights some issues of the theory and practice of pedagogical science, its components - modern training, education, upbringing, personality formation in the conditions of strengthening the independence of the Republic, the creation of a new training system specialists who meet the increasing demands of a market economy - competition in the education market. To reform the education system and create a new personnel training system, a national Uzbek development model was created. On this basis, a model for educating a harmoniously developed generation has been developed.*

*Key words: Uzbek development model, competition, national program, spiritual and moral education, reform, career guidance, education market, specialist market, education model, etc.*

The end of the 20th century was a turbulent process of the emergence of independent states in the world.

The Republic of Uzbekistan has chosen an evolutionary path of development and strengthening of independence; the country has created its own development path, which is called the Uzbek model of development of society and state.

In the conditions of the first stage of strengthening independence (1991-1997), attention was paid to education, upbringing, and personality formation by the adoption of the Law "On Education" of 1992, which indicated its public-state character. Its essence was that all types of schools, secondary specialized educational institutions and universities worked temporarily with the old curricula, programs, i. e. training of personnel for all sectors of the national economy according to the old system of personnel training, in general the old education system.

1-Law "On Education" (1992) fulfilled the goals set for it, the tasks of this transition period.

In 1997, the Republic adopted the second law "On Education," which is state-public in nature.

He set before pedagogical science, public education workers, society, and self-government bodies the tasks of upbringing, education, training, development of youth - a harmoniously developed generation, preparing the younger generation

for life, forming in them a scientific worldview, devotion, love to an independent homeland.

This law is based on articles 41. 41 of the Constitution of the Republic, which states that citizens of the Republic have the right to universal compulsory 12-year education (9 years of secondary school, 3 years of secondary special education) in educational institutions, regardless of gender, language, age, nationality, attitude to religion, race, origin, place of residence, etc.

To implement this law, It was adopted (a national program for personnel training, aimed at creating in the Republic a new system for training specialists, competitive personnel in all areas of social development, and creating a market for the education of specialists).

This program consists of three stages.

I. 1997-2001

II. 2001-2005

III. 2005- and subsequent years.

Each of these stages has specific tasks.

The 1st stage has the goals of a deep scientific analysis of the education system, state, identifying experience and shortcomings in this system.

Stage II: based on preserving existing positive experiences, reform the education system and create conditions for law, personnel training, scientific and methodological, including financial and material support.

The ultimate goal is the full implementation of the national program, the development of the labor market, taking into account the level of socio-economic development.

Stage III: based on the analysis and generalization of the achieved successes, as well as relying on the prospects for the socio-economic development of the country, resources, personnel, and information bases will be strengthened at this stage; educational processes will be provided with new equipment, full provision with new technologies; national (elite) universities and their development will be created.

The Uzbek development model includes the following basic principles;

- A. The state is the main (lead) reformer;
- B. The supremacy of economics over politics;
- C. Gradual transition to a market economy;
- D. Strong public protection;
- E. Rule of law;

Based on these principles, a system for training specialists in education, upbringing, and personality formation has been developed with the following content;

a) Personality; b) State and society, c) Continuing education; d) Science; e) Production;

This is collectively called the national model of personnel training, each of the components has its own goals, objectives, and content.

In pedagogy, in order to accelerate the implementation of teaching, technology is creatively used in pedagogy.

In the field of education, for example, a model for raising a harmoniously developed personality has been developed, which includes 9 components:

1. Mental education;
2. Spiritual and moral education;
3. Physical education;
4. Nurturing creativity;
5. Labor education and vocational guidance;
6. Legal education;
7. Economic education;
8. Aesthetic education;

2. 1 Mental education includes the acquisition of knowledge:

2. 2 Development of thinking;

2. 3 Education of abilities;

2. 4 Strengthening memory;

2. 5 Resourcefulness;

2. 6 Find solutions to problems and g. p. in a short time.

2. 7 Spiritual and moral education includes the following values:

2. 8 Education in the spirit of caring for people, love of humanity;

2. 9 Education in the spirit of justice;

2. 10 Education in the spirit of a patriot of the Motherland and people;

2. 11 Education in the spirit of patience:

2. 12 Education in the spirit of “Iymoniqlik”, which means when a person, at the call of his heart, can tell the whole truth accurately, it cannot be otherwise (this is a religious term);

Sum up, we can come to the following conclusions:

A) The unity of the state, society, family, and individual through improved training, education, upbringing, and personal reform can be achieved by strengthening the country’s independence, ensuring peace and stability.

B) Fulfill the content of pedagogical science, the goals and objectives of didactics, the theory of education, taking into account new technologies in the learning processes, the introduction of investments in the education system, the creation of new technology in the preparation of a new generation of specialists - teachers in the country.

C) The above provides the basis that for the development of national pedagogy (the choice of the spiritual heritage of ancestors, taking into account modern requirements, the specifics of the people, etc.) and, naturally, foreign pedagogical science, its achievements and successes.

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## **PROJECT-BASED LEARNING: RESHAPING EDUCATIONAL PARADIGMS**

*Abstract. Project-Based Learning (PBL) is a dynamic educational approach that promotes active learning through engaging students in real-world and meaningful projects. It fosters critical thinking, collaboration, and practical problem-solving skills. PBL shifts the focus from traditional teacher-led instruction to student-centered learning, encouraging students to explore, investigate, and respond to complex questions or challenges. Despite challenges in implementation, such as curriculum alignment and assessment, PBL has been effective in enhancing student motivation and learning outcomes, making it a pivotal element in reshaping modern educational paradigms.*

*Keywords Project-Based Learning, Active Learning, Real-World Projects, Student-Centered Education, Critical Thinking, Collaboration, Problem-Solving Skills, Curriculum Integration, Student Motivation, Educational Innovation.*

Project-Based Learning (PBL) is an instructional methodology that engages students in learning through actively participating in real-world and personally meaningful projects. In PBL, students work over an extended period to investigate and respond to complex questions, problems, or challenges. This approach emphasizes learning by doing and promotes the development of critical thinking, problem-solving, collaboration, and various other skills. PBL contrasts with traditional, lecture-based learning, offering a more dynamic and engaging form of education. It is increasingly recognized for its potential to better prepare students for the demands of the 21st century, both in academic and real-world settings.

**Theoretical Foundations of PBL** Exploration of the pedagogical theories underlying PBL, including constructivism and experiential learning. Understanding these theories provides insight into why PBL is effective in enhancing student learning and engagement.

**Implementation Strategies in PBL** Discussion of strategies for implementing PBL in various educational settings, focusing on project design, integration into existing curricula, and the role of the teacher as a facilitator. Challenges in implementation and solutions to overcome them are also covered.

**PBL and Skill Development** Analysis of how PBL contributes to the development of key skills such as critical thinking, collaboration, communication, and problem-solving. The impact of PBL on students' personal and social development, including self-confidence and responsibility, is also examined.

**Assessment and Evaluation in PBL** Examination of methods for assessing and evaluating student work in PBL settings. This includes the use of rubrics, peer

and self-assessment, and the challenges of subjective evaluation. Strategies to align assessment with learning objectives in PBL are discussed.

**Case Studies and Research Findings** Presentation of case studies and research findings on the effectiveness of PBL in various educational contexts. These include examples from elementary to higher education and across different disciplines, showcasing the adaptability and benefits of PBL.

**Conclusion** Project-Based Learning is a transformative educational approach that aligns with the needs of contemporary learners. It promotes active, hands-on learning and fosters essential skills for academic and real-world success. While challenges in implementation and assessment exist, PBL's benefits in enhancing student engagement, motivation, and learning outcomes are clear. As an innovative approach to education, PBL is reshaping educational paradigms, preparing students to be more effective and adaptable in a rapidly changing world.

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## **VIRTUAL REALITY IN PEDAGOGY: THE FUTURE OF IMMERSIVE LEARNING**

*Abstract. Virtual Reality (VR) in pedagogy is a cutting-edge approach to education, offering immersive, interactive learning experiences. This technology allows students to explore virtual environments, simulating real-world or imaginary scenarios. VR's potential in education lies in its ability to provide hands-on learning, enhance engagement, and accommodate different learning styles. However, challenges include high costs, the need for specialized equipment, and potential health concerns. Despite these challenges, VR in pedagogy has shown significant promise in fields like medical training, history education, and science learning, potentially revolutionizing the educational landscape.*

*Keywords Virtual Reality, Immersive Learning, Pedagogy, Educational Technology, Interactive Learning Environments, Hands-on Learning, Student Engagement, VR Equipment, Multi-Sensory Experience, Innovative Teaching.*

Virtual Reality (VR) in pedagogy refers to the integration of VR technology in educational settings to create immersive and interactive learning experiences. This innovative approach enables students to explore and interact with three-dimensional virtual environments, offering a multi-sensory learning experience. VR in education is gaining traction due to its ability to simulate complex, real-life scenarios in a controlled and safe environment. It caters to various learning styles and needs, making education more accessible and engaging.

**VR Technology and Its Educational Applications** The fundamentals of VR technology, including hardware like headsets and software applications, are crucial in understanding its educational applications. How VR technology can simulate real-world environments for various subjects, from history to science, is explored.

**Benefits of VR in Learning Environments** The benefits of VR in education include enhanced engagement, improved retention of information, and the ability to provide hands-on experiences in a virtual setting. VR's role in accommodating different learning styles and providing personalized learning experiences is examined.

**Challenges in Implementing VR in Education** Challenges such as the high cost of VR equipment, the need for technical support, and potential health concerns like motion sickness are discussed. Strategies for overcoming these challenges and making VR more accessible in educational institutions are explored.

**Case Studies and Future Trends** Various case studies illustrate the successful implementation of VR in different educational contexts, such as medical training and historical education. Future trends and the potential for VR to revolutionize traditional pedagogical approaches are discussed.

Virtual Reality in pedagogy represents a significant advancement in educational technology, offering immersive and interactive learning experiences that were previously impossible. Its benefits in enhancing student engagement, accommodating diverse learning needs, and providing hands-on experiences are substantial. However, challenges like high costs and the need for specialized equipment must be addressed to fully realize VR's potential in education. Overall, VR holds great promise for transforming the way we learn and teach, making education more effective, engaging, and accessible.

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## **SIRDARYO VILOYATI TABIIY SHAROITI VA UNING AHOLI SALOMATLIGIGA TA'SIRI**

*Annotatsiya. Sirdaryo viloyati joylashgan geografik o'rni, rel'efi, iqlimiy xususiyatlari uning tabiiy sharoitini shakllantiradi. Tabiiy geografik sharoitlar, xususan nozoiqlimiy omillar (tuproq, suv, havo harorati, shamol tezligi) yig'indisi esa, bu erda yashovchi kishilar salomatligiga ta'sir ko'rsatadi. Respublikamiz iqlimidagi o'ziga xos jihatlardan biri - bu fasllar almashinuvidagi holatlardir. Har bir fasl o'z tabiiy xususiyatlari jihatidan muayyan kasalliklarning avj olishi, ayrimlarining kamayishi bilan farqlanadi. Jumladan, qish faslida havo harorati keskin pasayib ketishi oqibatida yuqumli kasalliklar birmuncha kamayadi, aksincha, kishilarda haroratdagi keskin o'zgarishlar oqibatida shamollash holatlari ortadi.*

*Kalit so'zlar: landshaft, nozoiqlimiy omillar, topologik, tabiiy sharoit, dasht, irrigatsiya eroziyasi.*

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## **NATURAL CONDITIONS OF SYRDARYA REGION AND ITS IMPACT ON POPULATION HEALTH**

*Annotation. The geographical location of the Syrdarya region, relief and climatic features shape its natural conditions. The combination of natural and geographical conditions, especially non-climatic factors (soil, water, air temperature, wind speed) affects the health of people living here. One of the unique features of the climate of our republic is the change of seasons. Each season is distinguished by its natural characteristics: outbreaks of certain diseases and the decline of others. In particular, in the winter season, due to a sharp drop in air temperature, infectious diseases decrease somewhat; on the contrary, cases of colds in people increase due to sudden temperature changes.*

*Key words: landscape, non-climatic factors, topological, natural conditions, steppe, irrigation erosion.*

**Kirish.** Aholi orasida tarqalgan kasalliklarni tarqalishi hududning joylashgan geografik oʻrni va tabiiy sharoiti alohida ahamiyatga ega. Sirdayo viloyatidagi asosiy tabiiy geografik xususiyatlar quyidagilardan iborat:

1. Hududining geografik oʻrni  $40^{\circ} 25'$  shimoliy kenglik va  $68^{\circ} 40'$  sharqiy uzunlikda joylashgan;

2. Hududning okeandan uzoqligi 1000 km ekanligi iqlimini shakllanishini belgilab beruvchi asosiy omillardan biridir;

3. Sirdaryo viloyati Oʻzbekistonning sharqiy qismida joylashgan boʻlib, Sirdaryoning chap qirgʻogʻidan boshlanuvchi Mirzachoʻlning kattagina maydonni egallagan. Tabiiy sharoiti, relʼefi, asosan, toʻlqinsimon tekislik boʻlib, janubidan shim. gʻarbga pasayib boradi. Mirzachoʻl dashtining bir qismi viloyat hududiga kiradi. Balandlik shimolida 230 m, markaziy qismida 400-450 m, janub va janubi gʻarbda 600-650 m. Sharqida keng Sirdaryo vodiysi joylashgan. Mezozoy va kaynozoy davrida, asosan, choʻkindi jinslarning qalin qatlami bilan qoplangan. Shoʻroʻzak, Mirzaobod, Sardoba kabi botiqlar mavjud. Tekislik qismi daryolar oqizib keltirgan yotqiziklardan hosil boʻlgan, baʼzi joylarini koʻl, botqoq va shoʻrxok erlar egallagan.

Sirdaryo viloyatida yangi kanallar, zovurlar qazilib, choʻl oʻzlashtirildi va ekin maydonlarga aylantirildi. Tekislik qismida irrigatsiya inshootlari qurilib, paxtazor, bogʻ va tokzorlar barpo qilindi. Adirlar lalmikor erlar va yaylovlardan iborat. Ob-havosi keskin oʻzgaruvchan va quruq. Yillik oʻrtacha temperaturasi  $14^{\circ}$ . Yanvarning oʻrtacha temperaturasi shimolida  $-6^{\circ}$ , janubida  $-2^{\circ}$ . Qishda havo tez soviydi va harorat  $-30^{\circ}$  gacha (Gulistonda  $-35^{\circ}$ ) pasayadi. Baʼzan, qish oʻrtalarida havo birdaniga isib, keyin sovib ketadi. Kech koʻklamda va erta kuzda ham kora sovuq tushib, oʻsimlikning oʻsish davrini qisqartiradi. Yozi quruq va issiq. Iyulning oʻrtacha temperaturasi  $27-29^{\circ}$ . Yozda temperatura  $32-45^{\circ}$  gacha koʻtariladi. Koʻpincha issiq shamol (garmsel) tuproqni quritadi va oʻsimliklar rivojlanishiga yomon taʼsir qiladi.

Vegetatsiya davri 218 kun. Yillik yogʻin 180-220 mm, asosan, qishda yogʻadi. Yozda kuchli bugʻlanish sababli er osti suvlari yuza maydonlarning (Sharof Rashidov, Oqoltin, Guliston tumanlari) tuprogʻini shoʻr bosadi. Noyabrdan martgacha tez-tez esib turadigan "Bekobod shamoli" tezligi 20-25 m/sek. (Boyovut tumanida 40 m/sek.)ga etadi. Bahorda esadigan bu xildagi shamol unib chikayotgan gʻoʻzalarni baʼzan nobud qiladi. Keyingi yillarda ixota daraxtzorlari barpo qilindi. Tuproqlari, asosan, och tusli kuchsiz joylashgan boʻz tuproq boʻlib, kam va oʻrtacha shoʻrlangan, mexanik tartibiga koʻra, qumoq va soz tuproqlardir. Tekisliklarda shoʻrxok va shoʻrxoksimon tuproq uchraydi. Yer osti suvining chuqurligi 5-6 m. SHoʻroʻzak massivida, hali oʻzlashtirilmagan pastqam joylarda shoʻrxoklar keng tarqalgan. Sugʻoriladigan erlarning 32% shoʻrlangan, 25% kuchsiz shoʻrlangan, 16% shoʻrxoklardan iborat.

Sirdaryo viloyati joylashgan geografik oʻrni, rel'efi, iqlimiy xususiyatlari uning tabiiy sharoitini shakllantiradi. Tabiiy geografik sharoitlar, xususan *nozoiqlimiy omillar* (tuproq, suv, havo harorati, shamol tezligi) yig'indisi esa, bu erda yashovchi kishilar salomatligiga ta'sir ko'rsatadi. Respublikamiz iqlimidagi o'ziga xos jihatlardan biri - bu fasllar almashinuvidagi holatlardir. Har bir fasl o'z tabiiy xususiyatlari jihatidan muayyan kasalliklarning avj olishi, ayrimlarining kamayishi bilan farqlanadi. Jumladan, qish faslida havo harorati keskin pasayib ketishi oqibatida yuqumli kasalliklar birmuncha kamayadi, aksincha, kishilarda haroratdagi keskin o'zgarishlar oqibatida shamollash holatlari ortadi.

Iqlimning global va regional o'zgarishlari O'zbekiston hududida Shuni ko'rsatmoqdaki, 20-30 yillarda respublikamizda o'rtacha yillik haroratshimoliy hududlarda 2-30° C ga, janubiy mintaqalarda esa 10<sup>0</sup> S ga ko'tarilishikutilmoqda (Chub V. E., 2003). Bu esa ayrim xastaliklarning avj olishiga sabab bo'ladi. Qishning iliq kelishi tufayli aholi orasida Shu fasl bilan bog'liq kasalliklar (shamollashlar) kamaysada, biroq bahor kelishi bilan yuqumli kasalliklar salmog'i keskin ortadi. Qish faslida respublikamiz aholisi orasida nafas olish a'zolarining shamollashi bilan bog'liq yuqumli kasalliklar, poliartrit, havo-tomchi yuqumli kasalliklar (gripp, bolalar yuqumli kasalliklari) yilning boshqa davrlariga nisbatan birmuncha ko'p uchraydi. Mutaxassislarining ta'kidlashicha, havodagi kislorod miqdori, havo bosimi, harorat va namlikning o'zgarishi gipertoniya (qon bosimining ko'tarilishi) kasalligi bor bemorlarda miya va yurak faoliyati bilan bog'liq turli asoratlarni vujudga keltiradi. Ma'lumotlar Shuni ko'rsatadiki, qishda O'zbekistonda ob-havoning keskin o'zgarib turishi tufayli aholi orasida xastaliklar salmog'i ortadi, xususan, barometrik bosimning kunlik o'rtacha miqdori sezilarli ravishda o'zgarib turadi. Insult bilan og'riqan bemorlarning soni aynan Shu bosim pasayganda ko'payishi qayd qilingan. Atmosferadagi kislorod miqdori asosan havo bosimi, harorat va namlikka bog'liq. Kislorod miqdorining oshishi yilning sovuq davrida sodir bo'ladi. Bu hol gipertoniya xastaliklari va miya insultlarining ko'payishiga ta'sir ko'rsatadi (Rafiqov A., Azimov SH., 2000). Bahor faslida o'rtacha sutkalik harorat 5°S dan yuqori bo'ladi. Bu fasl respublikamizda sernam hisoblanib, uning tekislik qismida yillik yog'inning 40-43 foizi, tog' oldi hududlarida esa 40-50 foizi Shu faslga to'g'ri keladi. Bahorda kunlarning birdan isib ketishi mamlakatimizda epidemiologik jihatdan zaruriy chora-tadbirlarni talab etadi. Chunki, mazkur holat ko'pgina yuqumli-parazitar xastaliklarning rivojlanishiga imkon tug'diradi. Bu davrda mamlakatimizning ayniqsa tog' va tog' oldi tumanlarida, Shuningdek, ko'proq chorvachilikka ixtisoslashgan mintaqalarida quturish, brutsellyoz, qizamiq singari yuqumli kasalliklar keng uchraydi.

Ushbu kasalliklarning barchasi uchun ko'proq bahor fasli uyg'onish davri hisoblanadi. Ba'zi yillari mamlakatimizda yoz faslida harorat nihoyatda ko'tarilib, hatto ayrim hududlarda 48<sup>0</sup> S ga ham etadi. Bu hol respublika mintaqalari aholisi orasida qon aylanish tizimi bilan bog'liq xastaliklarning avj olishiga sabab bo'ladi. Atmosferada kislorod miqdorining kamayish oqibatida

kishilarning kayfiyati, asab tizimi va ichki a'zolarining faoliyati o'zgaradi, ishtahasi pasayadi, modda almashinuvi bilan bog'liqjarayonlar buziladi va ichak yuqumli xastaliklarga chalinish holatlari kuchayadi.

Iqlim sharoitining aholi salomatligiga ta'sirini o'rganish tabiiy muhitning tibbiy-geografik xususiyatlarining eng muhim tarkibiy qismlaridan biridir. Turli davrlarda Rusanov V. I, Bashalxanova L. B, Loginov V. F, Isaev A. A, Arkhipova I. V va boshqalar iqlimning inson salomatligiga ta'sirini o'rganishdi [22]. Iqlim sharoitlari orasida Sirdaryo viloyatida aholi orasida kasalliklarni tarqalishiga ta'sir etuvchi omillar sifatida suvning geokiyoviy tarkibi kuchli shamol kunlar soni, yanvar va iyul oylarida shamol tezligi, o'rtacha yillik havo harorati, yanvar va iyul o'rtacha harorat, yuqori namlik qayd etilgan kunlar soni, yomg'irli kunlar soni, bulutli kunlar soni, qishda ob-havoning qattiqligi, atmosfera qurg'oqchiligi kunlari soni iqlim sharoitlarining aholi salomatligiga ta'sirini o'rganish tabiiy muhitning tibbiy va geografik xususiyatlarining eng muhim tarkibiy qismlaridan biridir. Arkhipova I. V ishida Oltoy o'lkasining iqlimiy qulayliklari va alohida iqlim sharoitlarining taxminiy ko'rsatkichlari keltirilgan. Ob-havoning qattiqligini baholash uslubiga ko'ra,  $\geq 3, 5$  qattqlik ko'rsatkichi bo'lgan iqlim sharoitlari "qattiq" (Arkhipova, 2006) deya tavsiflanadi. [3]. Bioklimatologiya bo'yicha sovuq mavsumda odamning issiqlik holati asosan past havo harorati va o'rtacha shamol tezligi bilan belgilanadi. Bu omillar tahliliy natijasidan tananing himoyalangan qismlarining sovishi, nafas olish organlari kasalliklari, insult kabi kasalliklarni rivojlanishiga olib keladi hamda sohilbo'yi hududlarda nisbiy namlik va sovuq harorat turli stress holatlarini keltirib chiqarishi mumkin.

Ob-havoning qattqlik darajasi o'rganiladi va turli usullar yordamida aniqlanadi. Bular orasida eng keng ko'p qo'llaniladigan usul Bodman usuli bo'lib, ob-havoning qattqlik darajasi quyidagi formula bo'yicha aniqlanadi:

$$S = (1 - 0,04 * t) * (1 + 0,272 * v)$$

bu erda S-qattqlik ko'rsatkichi, ball

t-havo harorati

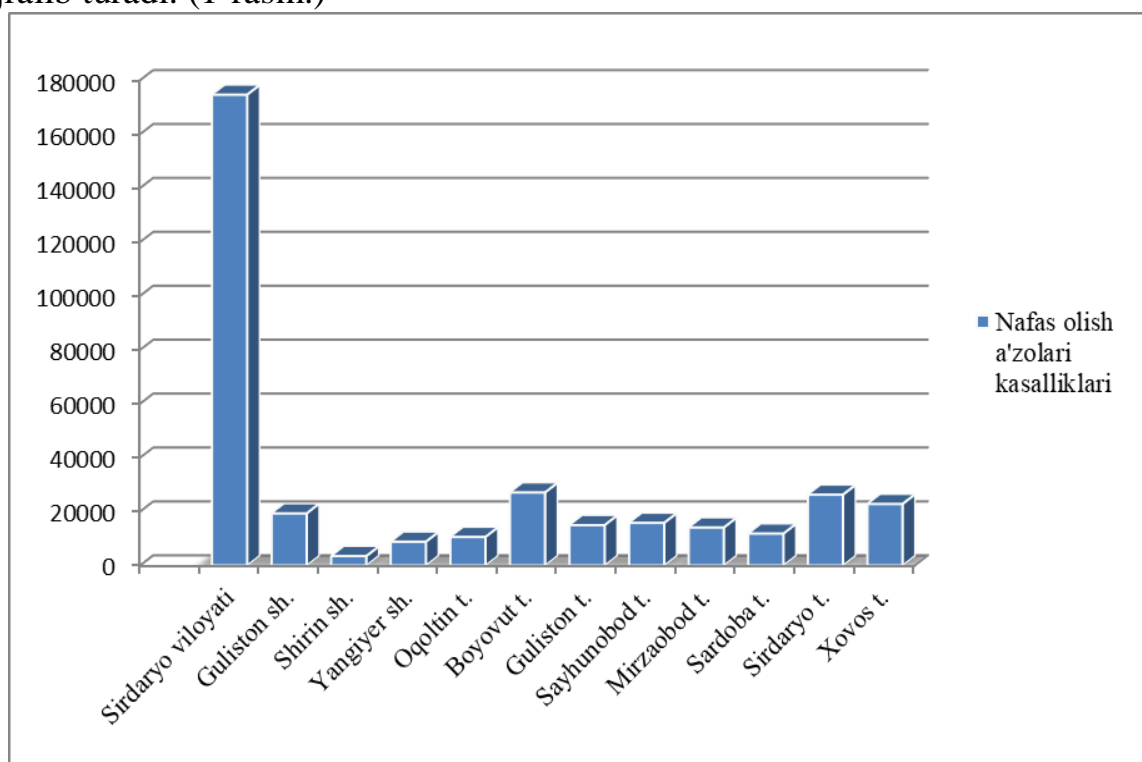
v- o'rtacha shamol tezligi

Bodman formulasiga ko'ra,  $S < 1$ , bo'lsa qish qattiq emas, yumshoq; 1-2 past qattqlikdagi qish; 2-3 o'rtacha qattiq; 3-4 qattiq; 5-6 juda qattiq; 6 yuqori qattqlik ballari orqali ifodalanadi [22].

Sirdaryo viloyatida olib borilgan tadqiqotlar natijasiga ko'ra, hududda ob havo qattqlik darajasiga ko'ra, ikkita nozoiqlimiy okrukka ajaraladi. Bular:

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orasida eng ko‘p uchrivchi kasallik turlari qon bosimi, nafas olish azolari kasalliklari, jumladan branxit, surunkali va aniqlanmagan bronxit, emfizema, bodomsimon bezlar va adenoid surunkali kasalliklar ulushi yuqori ekanligi bilan ajralib turadi. (1-rasm.)



**1-rasm. Sirdaryo viloyatida 2020-yilda nafas olish a'zolari kasalliklar bilan ro'yhatga olingan bemorlar(hududlar kesimida)**

SHimoliy-sharqiy okrug-Sirdaryo meteorologik stansiyasi hududiga tegishli Sirdaryo, Sayxunobod, Oqoltin, Sardoba, Mirzaobod tumanlarini o‘z ichiga oladi. Bu okrugning ob-havo qattiqlik ko‘rsatkichi Bodman formulasiga asoslangan holda eng yuqori r-3. 4 ko‘rsatkich bilan baholandi.

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## **QAYTA TIKLANUVCHI ENERGIYA TURLARIDAN FOYDALANISH**

*Annotatsiya. Qayta tiklanuvchi energiya turlaridan foydalanish bo'yicha butun dunyo bo'ylab yangi imkoniyatlar eshiklari ochilmoqda. Shu o'rinda aytish lozimki, yurtimizda ham energiya olishning muqobil turlariga o'tishda turli xildagi imtiyozlar va yengilliklar berilmoqda. Ushbu energiya turlarining afzalliklari juda ko'p bo'lib, iqtisodiyot, atrof-muhit, milliy xavfsizlik va inson salomatligiga ta'sir qilishi jihatidan samarali hisoblanadi.*

*Kalit so'zlar: qayta tiklanuvchi energiya manbaalari, energiya mustaqilligi, geotermal energiya, dengiz oqimi energiyasi, quyosh energiyasi.*

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## **USE OF RENEWABLE ENERGY TYPES**

*Abstract. New opportunities for the use of renewable energy are opening up all over the world. At this point, it should be said that in our country, various benefits and concessions are given for switching to alternative types of energy production. The benefits of these types of energy are many and effective in terms of economic, environmental, national security and human health impacts.*

*Key words: renewable energy sources, energy independence, geothermal energy, tidal energy, solar energy.*

Butun dunyo bo'ylab qayta tiklanadigan energiya manbalaridan foydalanishning ba'zi afzalliklari:

- Mamlakat elektr tarmog'ining ishonchliligi, xavfsizligi va mustahkamligi yaxshilanishi
- Qayta tiklanadigan energiya sanoatida ish o'rinlarini yaratish
- Energiya ishlab chiqarish natijasida uglerod chiqindilari va havo ifloslanishi kamayadi
- Davlatlarning energiya mustaqilligini oshirish

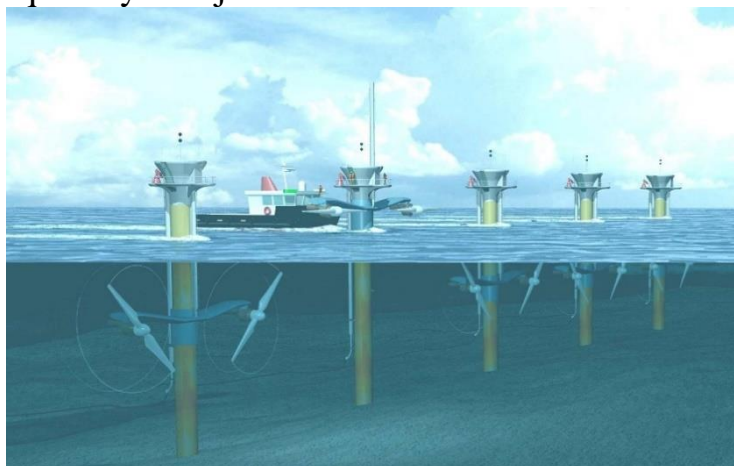
- Qayta tiklanadigan energiyaning ko'p turlari an'anaviy energiya manbalari bilan raqobatbardosh bo'lgani uchun narxning oshishi

- Tarmoqqa ulanmagan yoki uzoq, qirg'oqbo'yi yoki orolda joylashgan jamoalar uchun kengaytirilgan toza energiyadan foydalanish imkoniyati.

Shamol energiyasi, quyosh energiyasi, bioenergiya, geotermal energiya, gidroenergetika va dengiz oqimi energiyasining afzalliklari ancha salmoqli bo'lib, butun dunyo bo'yicha atmosfera ifloslanishining oldi olinishini o'zigina bu turdagi energiya turlariga o'tishga katta turtki bo'ladi.

**Noan'anaviy energiya sanoatining afzalliklari.** Ko'p va qayta tiklanadigan muqobil energiya yanada xavfsiz, barqaror va iqtisodiy jihatdan mustahkam kelajakka hissa qo'shishi mumkin:

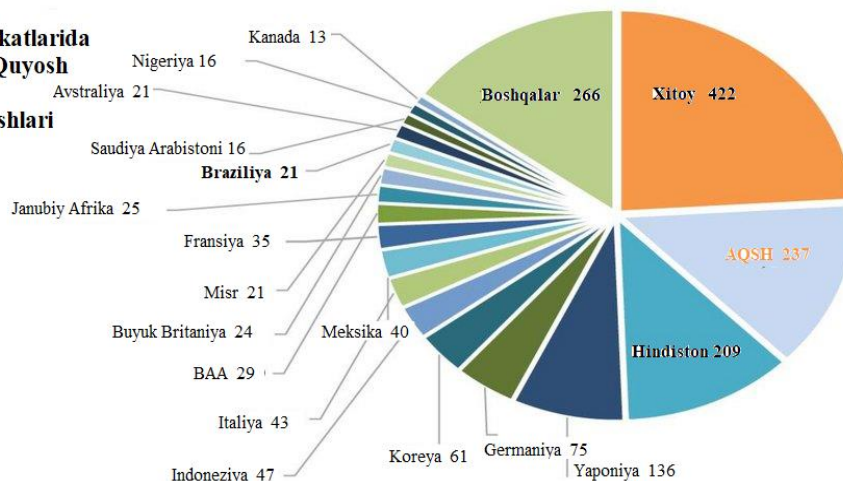
- Mahalliy toza energiya manbalarini ta'minlash
- Davlatlarning neft mahsulotlariga qaramligini kamaytirish
- Dunyo bo'ylab yangi ish o'rinlarini yaratish
- Qishloq iqtisodiyotini jonlantirish.



**2-rasm.** Dengiz oqimi energiyasidan elektr energiyasini olish texnologiyasi

To'lqinlar energiya olishning yana bir usuli hisoblanadi. Ular elektr energiyasini ishlab chiqarish uchun mas'ul bo'lgan generatorni aylantiradi. Shunday qilib, elektr energiyasini ishlab chiqarish uchun to'lqinli elektr stansiyalari gidrodinamik energiyadan, ya'ni bosimning pasayishi va dengiz to'lqinlari orasidagi harorat farqidan foydalanadi. Bu boradagi tadqiqotlar hali ham davom etmoqda, biroq mutaxassislarning hisob-kitoblariga ko'ra, faqat Yevropa qirg'oqlari yiliga 280 TVt/soatdan ortiq energiya ishlab chiqarishi mumkin, bu Germaniya davlati energiya iste'molining yarmini tashkil etadi.

**Dunyo mamalakatlarida  
2030-yilgacha Quyosh  
energiyasidan  
foydalanish ulushlari**



**3-rasm.** Dunyo mamlakatlarida 2030-yilgacha Quyosh energiyasidan foydalanish ulushlari

21. 05. 2019 yildagi «Qayta tiklanuvchi energiya manbalaridan foydalanish to‘g‘risida»gi O‘RQ–539-son qonun e‘lon qilindi. Hujjatda ushbu sohadagi davlat siyosatining asosiy yo‘nalishlari, vakolatli organlarning vakolatlari, energiya va qayta tiklanuvchi manbalar qurilmalarini ishlab chiqaruvchilarning huquq va majburiyatlari, resurslar, ishlab chiqariladigan energiya va qurilmalarning davlat hisobi, texnik jihatdan tartibga solish, standartlashtirish va muvofiqlikni baholash tartibi belgilandi. Mazkur qonunga muvofiq Davlat soha rivojini, xususan, imtiyoz va preferensiyalar bilan qo‘llab-quvvatlaydi:

- qayta tiklanuvchi energiya manbalaridan energiya ishlab chiqaruvchilar qayta tiklanuvchi energiya manbalari qurilmalarini (nominal quvvati 0,1 MVt va undan ortiq bo‘lgan) o‘rnatganlik uchun mol-mulk solig‘ini to‘lashdan hamda ushbu qurilmalar bilan band bo‘lgan uchastkalar bo‘yicha yer solig‘ini to‘lashdan ular foydalanishga topshirilgan paytdan e‘tiboran 10 yil muddatga ozod etiladi;

- qayta tiklanuvchi energiya manbalarining qurilmalarini ishlab chiqaruvchilar davlat ro‘yxatidan o‘tkazilgan sanadan e‘tiboran 5 yil muddatga soliqning barcha turlarini to‘lashdan ozod etiladi;

- amaldagi energetika resurslari tarmoqlaridan to‘liq uzib qo‘yilgan yashash uchun mo‘ljallangan joylarda qayta tiklanuvchi energiya manbalaridan foydalanuvchi (*energiya ta‘minoti tashkilotining ma‘lumotnomasi bilan tasdiqlanadi*) shaxslar egaligidagi mol-mulkka qayta tiklanuvchi energiya manbalaridan foydalanilgan oydan e‘tiboran 3 yil muddatga jismoniy shaxslardan olinadigan mol-mulk solig‘i solinmaydi;

- amaldagi energetika resurslari tarmoqlaridan to‘liq uzib qo‘yilgan yashash uchun mo‘ljallangan joylarda qayta tiklanuvchi energiya manbalaridan foydalanuvchi (*energiya ta‘minoti tashkilotining ma‘lumotnomasi bilan*

*tasdiqlanadi*) shaxslar qayta tiklanuvchi energiya manbalaridan foydalanilgan oydan e'tiboran 3 yil muddatga yer solig'idan ozod etiladi.

### **Xulosa**

Muqobil energiya manbalari bu gidroenergetika, shamol energiyasi, quyosh energiyasi, geotermal energiya, biomassa va suv oqimi energiyasidan foydalanish orqali olinadigan qayta tiklanadigan energiyadir. Neft, tabiiy gaz, ko'mir va uran rudasi kabi qazib olinadigan yoqilg'idan farqli o'laroq, bu energiya manbalari tugamaydi, shuning uchun ular qayta tiklanadigan, deb ataladi. Birgina 2019-yilning o'zida butun dunyo bo'ylab umumiy quvvati 200 GVt bo'lgan qayta tiklanadigan energiya manbalari (TEM) ob'yektlari o'rnatildi. Dunyo mamlakatlari qayta tiklanadigan energiya manbalariga o'tish bo'yicha o'z oldilariga ulkan maqsadlarni qo'ygan. Maqsadlar, shuningdek, Parij kelishuvining bir qismiga aylandi – 2030-yilga borib, uglerodsiz yechimlar global chiqindilarning 70 foizdan ortig'ini tashkil etadigan sektorlarda raqobatbardosh bo'lishi mumkin. Buni energiyaga o'tish – ko'mir iqtisodiyotini qayta tiklanadigan energiya bilan almashtirish jarayoni orqali amalga oshirish rejalashtirilgan. 2020-yilda, pandemiya va iqtisodiy tanazzulga qaramay, ko'plab shaharlar, mamlakatlar va kompaniyalar dekarbonizatsiya rejalarini e'lon qilishda yoki amalga oshirishda davom etdilar. Hindiston 2021-yilda qayta tiklanadigan energiyani rivojlantirishga eng katta hissa qo'shishi kutilmoqda. Bu yerda shamol va quyosh energiyasi bo'yicha qator loyihalarni ishga tushirish rejalashtirilgan.

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## **INNOVATIVE ASSESSMENT METHODS: BEYOND TRADITIONAL TESTING**

*Abstract. Innovative assessment methods represent a shift from traditional testing to diverse, dynamic approaches in evaluating student learning. These methods focus on a holistic view of student performance, emphasizing skills like critical thinking, problem-solving, and creativity. They include portfolios, peer assessments, self-assessments, and project-based evaluations, offering a more comprehensive and authentic measure of student learning.*

*Keywords: Innovative Assessment, Educational Evaluation, Portfolios, Peer Assessment, Self-Assessment, Project-Based Learning, Authentic Assessment, Critical Thinking, Learning Outcomes, Student-Centered Learning.*

Innovative assessment methods are reshaping the landscape of educational evaluation by moving away from traditional exams and standardized tests. These methods focus on assessing a broader range of skills and knowledge, offering a more authentic and comprehensive view of student learning. They align with contemporary educational goals, emphasizing critical thinking, creativity, and practical skills. The article discusses the need for innovative assessment methods, their different forms, and their impact on both teaching and learning.

**Limitations of Traditional Testing:** This section outlines the limitations of traditional testing methods, including their focus on memorization, lack of feedback, and failure to assess higher-order thinking skills.

**Peer and Self-Assessment:** The roles of peer and self-assessment in fostering student autonomy, responsibility, and critical reflection are discussed. This section examines the benefits and challenges of involving students in their own assessment process.

**Project-Based Assessment:** Project-based assessments evaluate students' ability to apply knowledge in real-world contexts. This section delves into how these assessments promote problem-solving skills, collaboration, and practical application of knowledge.

**Authentic Assessment:** Authentic assessments simulate real-world challenges, requiring students to apply their skills and knowledge in practical situations. This section discusses the design and implementation of authentic assessments.

**Feedback and Formative Assessment:** The importance of ongoing feedback and formative assessments in the learning process is emphasized. This section explores how continuous evaluation supports learning and development.



**Challenges and Implementation Strategies:** Implementing innovative assessment methods poses challenges, including teacher training, resource allocation, and standardization concerns. This section proposes strategies to overcome these challenges and successfully integrate innovative assessments in educational settings.

Innovative assessment methods offer a more dynamic and holistic approach to evaluating student learning, aligning with the needs of modern education. They emphasize practical skills, critical thinking, and creativity, providing a more authentic measure of student capabilities. While there are challenges in their implementation, these methods have the potential to significantly enhance both teaching and learning experiences. As education evolves, innovative assessments will become increasingly important in preparing students for the complexities of the real world.

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## **CLOUD-BASED EDUCATION: THE IMPACT OF CLOUD TECHNOLOGY ON LEARNING**

*Abstract.* Cloud-based education, leveraging cloud technology, is reshaping the educational landscape by offering scalable, flexible, and accessible learning environments. This technological advancement facilitates collaboration, resource sharing, and personalized learning experiences. It addresses challenges such as limited physical resources and geographical barriers, democratizing access to education. This article examines the impact of cloud technology on learning, discussing its benefits, challenges, and future implications for students, educators, and educational institutions.

*Keywords.* Cloud-Based Education, Cloud Technology, E-Learning, Scalability, Accessibility, Collaborative Learning, Digital Resources, Personalized Learning, Educational Innovation, Technology Integration.

Cloud-based education signifies a significant shift in how educational content and experiences are delivered and accessed. By utilizing cloud technology, educational institutions can offer a more dynamic, flexible, and student-centered learning experience. This approach supports a range of educational activities, including content delivery, collaboration, and resource sharing, irrespective of physical location.

**Fundamentals of Cloud-Based Education:** This section introduces the concept of cloud-based education and its underlying technology. It explains how cloud computing works in an educational context and the types of cloud services used in education.

**Personalization of Learning:** The ability of cloud-based systems to support personalized learning paths is explored. This includes adaptive learning technologies, customized content delivery, and data-driven insights into student performance.

**Challenges in Adopting Cloud-Based Education:** Despite its benefits, the adoption of cloud-based education faces challenges such as data security concerns, digital divide issues, and the need for infrastructure and training. This section addresses these challenges and suggests potential solutions.

**Impact on Educational Institutions:** The impact of cloud technology on the operational and educational strategies of institutions is analyzed. This includes cost implications, scalability, and the transformation of traditional educational models.

**Cloud-Based Tools and Applications:** This section reviews various cloud-based tools and applications used in education, including Learning Management Systems (LMS), educational apps, and collaboration tools.

**Future Trends in Cloud-Based Education:** The future prospects of cloud-based education are discussed, speculating on emerging technologies and potential advancements in cloud computing that could further transform the educational landscape.

### **Conclusion**

Cloud-based education offers a paradigm shift in the delivery and accessibility of education, providing numerous benefits in terms of scalability, flexibility, and collaboration. It facilitates a more personalized and engaging learning experience, breaking down geographical and resource barriers. While there are challenges to be addressed, the potential of cloud technology in education is vast and continuously evolving. As technology advances, cloud-based education will play a critical role in shaping the future of learning.

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## **SOCIAL FOUNDATIONS OF SHAROF RASHIDOV'S WORK**

*Abstract. In this article, the social foundations of Sharof Rashidov's work are philosophically analyzed. The ideological content of the statesman's and writer's works is analyzed.*

*Key words: lyrical work, creative works, establishment, ecological situation, leader.*

Rashidov entered literature as a poet, and his lyrical work "The Frontier" was published in 1937. The collection of poems "Kakhrim" imbued with feelings of the fight against fascism was published in 1945. Rashidov wrote the short story "The Winners" (1953) on the theme of one of the important problems of the time - the development of reserves and gray lands. Rashidov wrote the novels "Stronger than the Storm" (1958), "The Mighty Wave" (1964), "The Winners" (1972), dedicated to the life of the people who worked heroically behind the front during the Second World War. Observing the events that happened in his life as a state and party figure, he paid more attention to the principle of ideology than to the artistic criteria of literature. Lyrical short story "Kashmir song" (1956) Rashidov, written on the basis of an Indian folk legend occupies a special place in his work.

During the years when Rashidov was the leader of the republic, along with a number of creative works, there were also unpleasant situations such as the deterioration of the ecological situation due to the extensive use of agricultural land, and the establishment of a cotton monopoly. After Rashidov's death, the Center imposed all the burdens of the totalitarian regime on him, and he was unfairly condemned in the repression of the 80s.

Sh. Rashidov fulfilled his filial duty to the people. He tried to soften the orders from the center, to use the central authority with all measures for the welfare and well-being of the country. Many industrial enterprises and large constructions built in Uzbekistan in the 60s and 80s Sh. It is related to the name of Rashidov. Mirzachol, Karshi, Jizzakh, Yozyovon, Surkhan-Sherabad

His services are great in the development of deserts. Yesterday's deserts were turned into gardens, hundreds of thousands of our compatriots found their sustenance there.

Sh. During Rashidov's leadership, large cities such as Navoi, Zarafshan, Uchkuduq, Yangiyer and Gulistan, as well as dozens of other cities and districts were built in Uzbekistan. Sh. Rashidov as a state and public figure in introducing the Uzbek people to the world services are unmatched.



The world-famous concept of "Tashkent spirit" was created in 1966 by Sh. It is directly related to the name of Rashidov. This is an international movement organized in Tashkent.

Sh. Rashidov is the initiator of the cooperation movement of Asian and African writers, the international film festival of Asian, African and Latin American countries, and the signing of a peace treaty between India and Pakistan. He is his to glorify the Uzbek name he is a person who sacrificed his life to show his highest qualities. Because of this, this respectable person has earned a worthy place in the hearts of our people and earned their love was

Islam Karimov, the first president of the Republic of Uzbekistan, said the following words about Sharof Rashidov: "This complex person, on the one hand, is forced to think about national interests, and on the other hand, to implement orders from the Center that are against the fundamental interests. we must not forget that. It is no exaggeration to say that his life was between a rock and a hard place. "

During the era of Sharof Rashidov, the earthquake that occurred in Tashkent in 1966 and the movement to eliminate its destruction, the construction of the Tashkent metro station are also praiseworthy in connection with the name of this person. The first 9 stations of the Tashkent metro were put into operation in 1977.

Sharof Rashidov for Russians in the last years of the Soviet state His name has become a symbol of corruption and the administrative-commandocratic rule of the Soviet Union. During the years of Leonid Brezhnev's government, endless decisions were made to increase the supply of cotton to Uzbekistan.

In response, the Uzbek government always wrote higher figures for irrigation of field areas and cotton yields due to "adding up" (in the Soviet Union, artificial growth of numbers was common). 500 of those "adds" thousand to 1 million made up to tons. This situation allowed the Uzbek rulers to obtain additional resources from the center and buy Brezhnev's power.

It was only after Rashidov's death that the center came up with the fiction of its own "Uzbek case" and sent a team of operative prosecutors headed by Telman Gdlyan and Nikolay Ivanov to Uzbekistan. As a result, almost all the leaders of the UzSSR were targeted in the purge carried out in the government of Uzbekistan. According to Gdlian, at that time the whole Union was caught in the net of corruption

At that time, Moscow committed injustice by isolating the Uzbek Republic. The result of the "Uzbek case" motivated the majority of the population of the republic to the national movement. This was especially intensified in the last years of the reconstruction period

In the years when Sharof Rashidovich Rashidov led the Republic, along with a number of creative works, there were also unpleasant situations such as the deterioration of the ecological situation due to the extensive use of agricultural land, and the establishment of a cotton monopoly. After Rashidov's death, the

Center imposed all the burdens of the totalitarian system on him, and in the repression of the 80s, it was unjust.

condemned.

In conclusion, although this complex person exercised reasonable management during his career, after his death, his name was written down. The fictitious words "Sharof Rashidovchilik" were invented by the "center". After Uzbekistan gained independence, Rashidov's name was vindicated.

The 75th anniversary of Rashidov's birth was celebrated on the initiative of the first president, Islam Karimov. Rashidov was posthumously awarded the State Prize of Uzbekistan named after Alisher Navoi (1994) as the author and creative director of the construction concept for the People's Friendship Palace architectural complex in Tashkent.

In the center of the work is Sharof Rashidov, next to him is Zulfiyakhanim, the beloved poet of our people, great artists Kamil Yashin, Mirtemir, Mirmuhsin, Olmas Umarbekov, Askad Mukhtar, Turob Tola, Ibrahim Rahim, Ibrayim Yusupov, Ramz Bobojon, Pirimkul Kadyrov, Odil Yakubov, Uyg'un, Sheverdin and Saeed Ahmed are described. Through this image, the artist was able to show that Sharaf Rashidov is not only a selfless leader of the country, but also a caring leader of creative people.

This year, in connection with the 100th anniversary of the birth of a great statesman and famous writer, the work "My Contemporary" was given to the Sharof Rashidov House-Museum established in Jizzakh. Now it has found its original place. This work continues to amaze visitors as one of the rarest exhibits in the museum.

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## **PROBLEM-BASED LEARNING: FOSTERING CRITICAL THINKING SKILLS**

*Abstract. Problem-Based Learning (PBL) is an instructional method that challenges students to learn through engagement in real-world problems. This approach fosters critical thinking, problem-solving skills, and self-directed learning by presenting students with complex situations that do not have straightforward solutions. PBL emphasizes student autonomy and collaborative work, encouraging learners to research, discuss, and apply knowledge to find solutions. While it requires a shift from traditional teaching methods and poses assessment challenges, PBL has proven effective in enhancing critical thinking, engagement, and practical application of knowledge in various educational contexts.*

*Keywords Problem-Based Learning, Critical Thinking, Problem-Solving Skills, Real-World Problems, Self-Directed Learning, Student Autonomy, Collaborative Learning, Knowledge Application, Educational Innovation, Learning Engagement.*

Problem-Based Learning (PBL) is a learner-centered approach that uses real-world problems as a context for students to develop critical thinking and problem-solving skills. In PBL, students are presented with a problem and engage in a self-directed learning process to investigate and propose solutions. This method contrasts with traditional, lecture-based learning, as it requires students to take an active role in their learning journey. PBL has been increasingly adopted in various educational settings, from primary education to professional training, due to its effectiveness in enhancing critical thinking, practical skills, and engagement.

**Principles and Structure of PBL** Exploring the core principles of PBL, including its focus on student-centered learning, the role of real-world problems, and the process of inquiry and investigation. The structure of PBL sessions, from problem presentation to resolution, is examined.

**Developing Critical Thinking and Problem-Solving Skills** Discussing how PBL contributes to the development of critical thinking and problem-solving skills. The role of PBL in promoting analytical thinking, creativity, and the practical application of theoretical knowledge is highlighted.

**Challenges in Implementing PBL** Identifying challenges in implementing PBL, such as the need for a shift in teaching methodology, the development of appropriate assessment methods, and ensuring student participation. Strategies to address these challenges are explored.

**Impact on Student Learning and Motivation** Analyzing the impact of PBL on student learning outcomes, including enhanced understanding, motivation, and engagement. The role of PBL in fostering a deeper appreciation for the subject matter and real-world applicability is discussed.

**Case Studies and Empirical Research** Presenting case studies and empirical research findings on the effectiveness of PBL in various educational contexts. These examples illustrate the adaptability of PBL and its benefits in different disciplines and learning environments.

### **Conclusion**

Problem-Based Learning represents a significant shift in educational practice, prioritizing critical thinking, problem-solving, and student autonomy. By engaging students in real-world problems, PBL fosters a deeper understanding of subject matter and enhances practical skills. While it presents challenges in implementation and assessment, the benefits of PBL in promoting active learning and engagement are substantial. As an innovative educational approach, PBL is instrumental in preparing students for the complexities of the modern world.

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## **SOCIAL MEDIA AS A PEDAGOGICAL TOOL: OPPORTUNITIES AND CHALLENGES**

*Abstract. Social Media as a Pedagogical Tool presents both opportunities and challenges in the educational sphere. Leveraging platforms like Twitter, Facebook, and blogs, it offers innovative ways to engage students, facilitate communication, and support collaborative learning. Social Media enables access to vast resources and diverse perspectives, enhancing learning experiences. However, challenges include maintaining academic rigor, managing digital distractions, and ensuring online safety and privacy. Despite these challenges, when used effectively, Social Media can significantly enrich educational processes, fostering a more connected and interactive learning environment.*

*Keywords Social Media, Pedagogical Tool, Student Engagement, Collaborative Learning, Communication, Online Safety, Digital Distractions, Academic Rigor, Educational Technology, Interactive Learning.*

Social Media as a Pedagogical Tool involves the use of social networking platforms in educational settings to enhance learning and teaching. Platforms like Twitter, Facebook, LinkedIn, and educational blogs offer new avenues for interaction, resource sharing, and collaboration among students and educators. The integration of Social Media in education reflects the evolving digital landscape and its influence on the learning process. It facilitates more dynamic, participative, and student-centered learning experiences. Despite its potential, the use of Social Media in education must be approached with a consideration for academic integrity, digital etiquette, and privacy concerns.

**Role of Social Media in Education** Exploring the various roles of Social Media in education, including facilitating communication, providing access to resources, and supporting collaborative learning. The impact of these platforms on student engagement and participation is examined.

**Integrating Social Media into Pedagogical Strategies** Discussing strategies for effectively integrating Social Media into teaching and learning processes. This includes designing activities that leverage Social Media for educational purposes and incorporating these platforms into existing curricula.

**Impact on Student Learning and Interaction** Analyzing the impact of Social Media on student learning outcomes, interaction, and the development of digital communication skills. The role of Social Media in fostering a more inclusive and diverse learning environment is also discussed.

**Case Studies and Empirical Evidence** Presenting case studies and empirical evidence of the effectiveness of Social Media in educational settings.



These include examples from various educational levels and disciplines, illustrating the adaptability and potential benefits of Social Media in education.

Social Media as a Pedagogical Tool offers significant opportunities to enhance the educational experience, fostering greater student engagement, collaboration, and access to diverse resources. While it poses challenges such as managing digital distractions and ensuring online safety, these can be mitigated through effective strategies and digital literacy education. The integration of Social Media into educational settings represents a shift towards more interactive, participatory, and connected forms of learning, aligning with the digital habits of contemporary learners.

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## **OPTICAL PROPERTIES OF ZINC OXIDE DOPED WITH DIFFERENT DOPANT ATOMS**

*Abstract. In this paper a review of provides information on the areas of application of zinc oxide, its advantages over other metal oxide semiconductors, and its possible use as an electrode in solar cells. The change of its optical properties, i. e., its optical transmittance, was considered when different input atoms were introduced. Zinc oxide doped with magnesium increases its optical conductivity, when sodium, aluminum and copper are added, its optical conductivity decreases. The future trends and perspectives of researchers on what kind of doping atoms should be doped to increase the optical transmittance are suggested at the end of this article.*

*Key words: metal oxide, ZnO thin film, doped zinc oxide, optical properties.*

Currently, thin films based on transparent superconducting oxides have been widely studied due to their unique properties in optoelectronic devices such as light-emitting diodes, electronic paper displays, liquid crystal displays, touch panels, plasma displays, etc. In particular, solar cells often require greater transparency than visible light to effectively utilize the entire solar spectrum. On the basis of metal oxide materials, it is possible to obtain multi-layered heterostructures that allow efficient use of solar radiation due to its different electrophysical properties and the width of the forbidden area, which covers a large part of the sunlight spectrum. In addition, the relatively simple and economical process of obtaining such heterostructures is important [1].

Metal oxide ( $M_nO_x$ )-based solar cells have the potential to solve some of the problems encountered in conventional solar cells, with excellent chemical stability and a fully oxidized perspective under environmental conditions. Due to the large amount of metal oxide that provides efficiency in production,  $M_nO_x$  is usually used as a functional layer in solar cells, for example, transparent conductive electrodes can be used in electrons ( $TiO_2$ ,  $SnO_2$ ,  $ZnO$ ,  $Fe_2O_3$  etc) Since n-type metal oxides are of particular importance for the production of thin-film solar cells, indium-tin oxide (ITO) and doped zinc oxide (ZnO) are the main materials used for photovoltaic industrial production [2]. However, due to the high price of indium element in the market, it is urgent to obtain new necessary materials and properties for the industrial production of modern photovoltaic devices. In this context, thin films based on low-cost and high-performance transparent oxides are necessary and more in demand as a substitute for new

optoelectronic devices. Among the many types of transparent conductive films, zinc oxide (ZnO) has attracted great interest.

Zinc oxide (ZnO) is a crystalline, n-type semiconductor belonging to the  $A_2B_6$  group of compounds. Its band gap is about  $\sim 3.37$  eV at 300K. The ZnO compound is a white crystal in the cold or at normal temperature, and when heated, the color of the substance changes: it turns yellow at about  $250^\circ\text{C}$ . This is explained by the decrease in the band gap and the shift from UV to blue in the absorption spectrum [3]. The main advantages for zinc oxide nanostructures include: ZnO growth can be carried out on a variety of substrates (including amorphous or flexible biological and degradable polymers); There are different synthetic ways to grow films, each of which has certain advantages; high volume electron mobility equal to the energy of ultraviolet light; the width of the prohibited area; high transparency; including unique properties such as room-temperature luminescence and high electron mobility, besides, ZnO has a controllable optical band gap that can be modified by changing composition, morphology, and volumes.

The optical properties of transparent conductive oxides formed by doping various chemical elements to zinc oxide (ZnO) were studied. Sodium, magnesium, copper and aluminum were considered as alloying elements. The optical conductivity of ZnO(MZO) doped with magnesium is shown below.

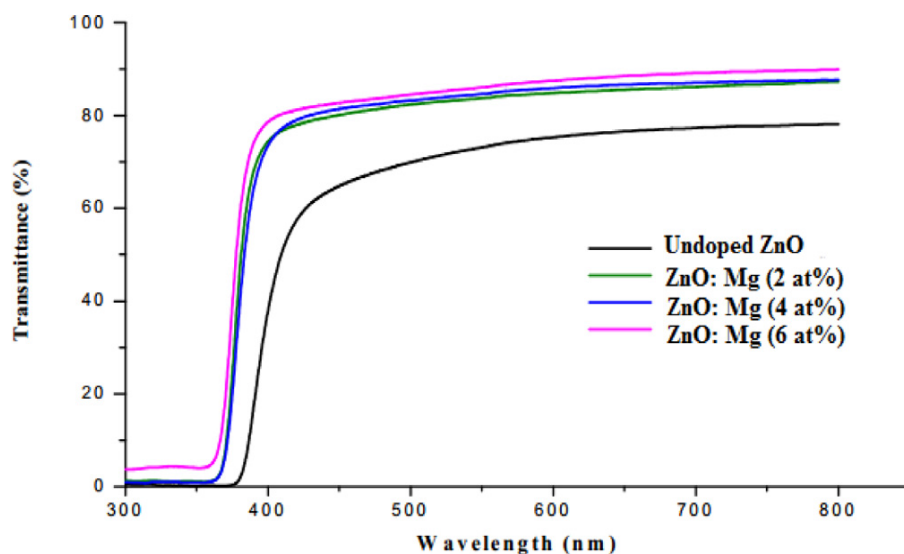


Figure 1. Optical transmittance spectra of the ZnO and MZO films with various Mg doping contents. [4]

The optical properties of MZO thin films were determined by transmission measurements in the range of 200–800 nm. The average thickness of the samples, measured by a stylus profilometer, is about 400 nm. It is shown in figure 1 surface emission spectra of ZnO and MZO thin films. Optical transmission increased to the visible light region. This depends on the increase in the concentration of  $\text{Mg}^{2+}$ . The light transmittance of pure ZnO is 75%. value luminous emission of

ZnO:Mg (2 at. %), ZnO:Mg (4 at. %) and ZnO:Mg (6 at. %) are 84%, 88% and 90%, respectively. It can be seen that with increasing doping, the absorption spectrum shifts to shorter wavelengths from 376 nm to 357 nm. The motion of the absorbing surface enhanced the optical transmission in the shorter wavelength region compared to pure ZnO thin films. [4]

Now let's look at the optical transmission of sodium doped ZnO

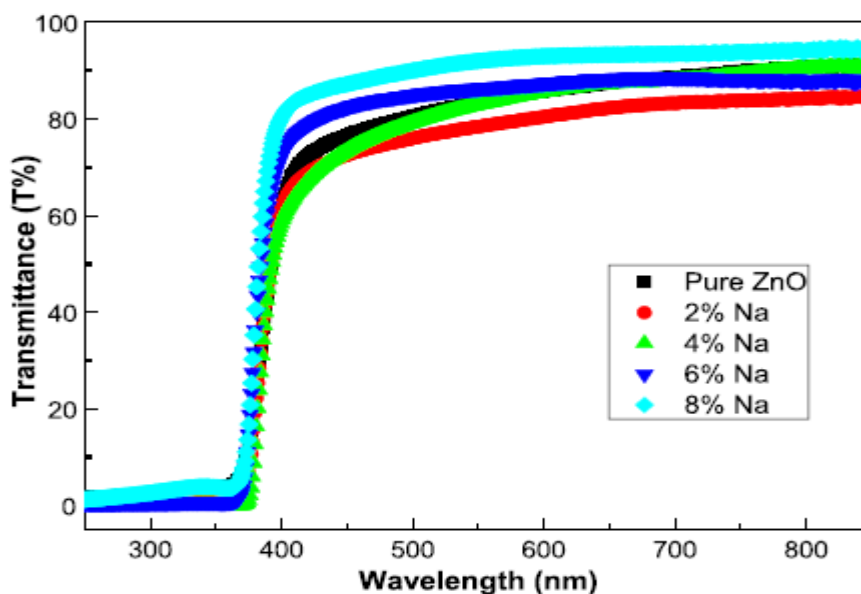


Fig. 2 Optical transmittance spectra of Na-doped and undoped ZnO films [5].

Fig. 2 shows the transmittance spectra of the undoped and Na-doped (2 at. %, 4 at. %, 6 at. %, and 8 at. %) ZnO thin films. It is obvious that the average transmittance of the films was above 80% in the visible range from 400 nm to 800 nm with sharp ultraviolet absorption edges in the UV region. A blue-shift of the ultraviolet absorption edge was found when the Na doping concentration was larger than 4 at. %. [5]

The optical conductivity of zinc oxide doped with aluminum changes as follows.

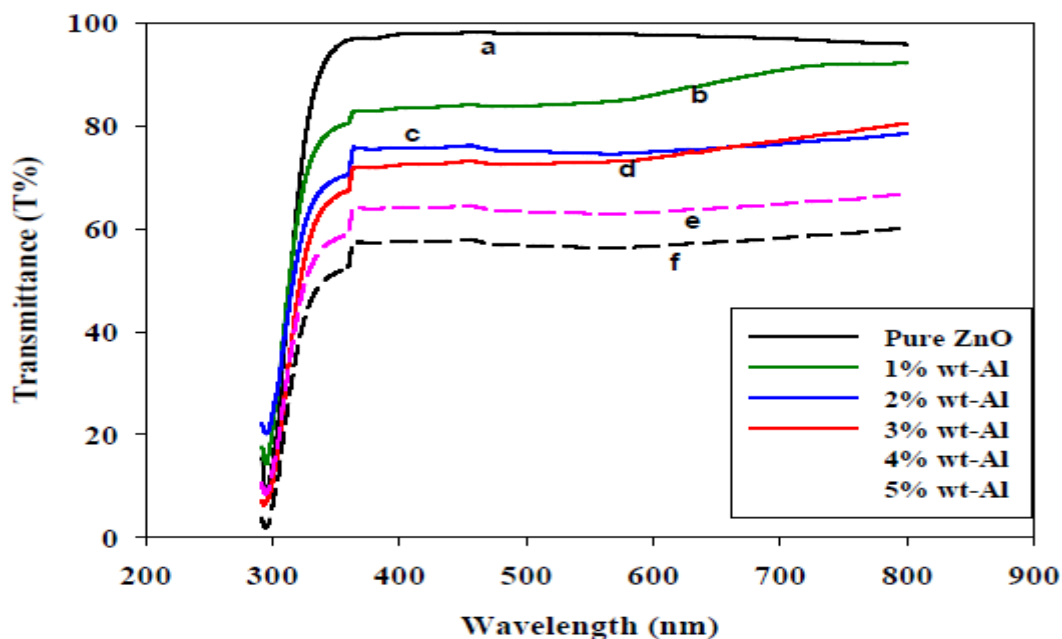


Figure 4: The optical transmittance spectra for the pure and Al-doped ZnO films deposited onto glass substrates: a-Pure ZnO, b- 1 % wt-Al, c- 2 % wt-Al, d- 3 % wt-Al, e- 4 % wt-Al, f- 5 % wt-Al [6]

Figure 4 shows the optical transmittance spectra obtained for the pure and Al-doped ZnO films deposited onto glass substrates. The optical transmittance of the films was obtained by averaging in the range 450 - 650 nm, as indicated by the vertical dashed lines. In the visible region the pure ZnO thin film had an optical transmittance of greater than 80% and by inserted the Al doping it is reduce to half with increase the Al doping to be 5% wt.

Copper doping zinc oxide changes as follows:



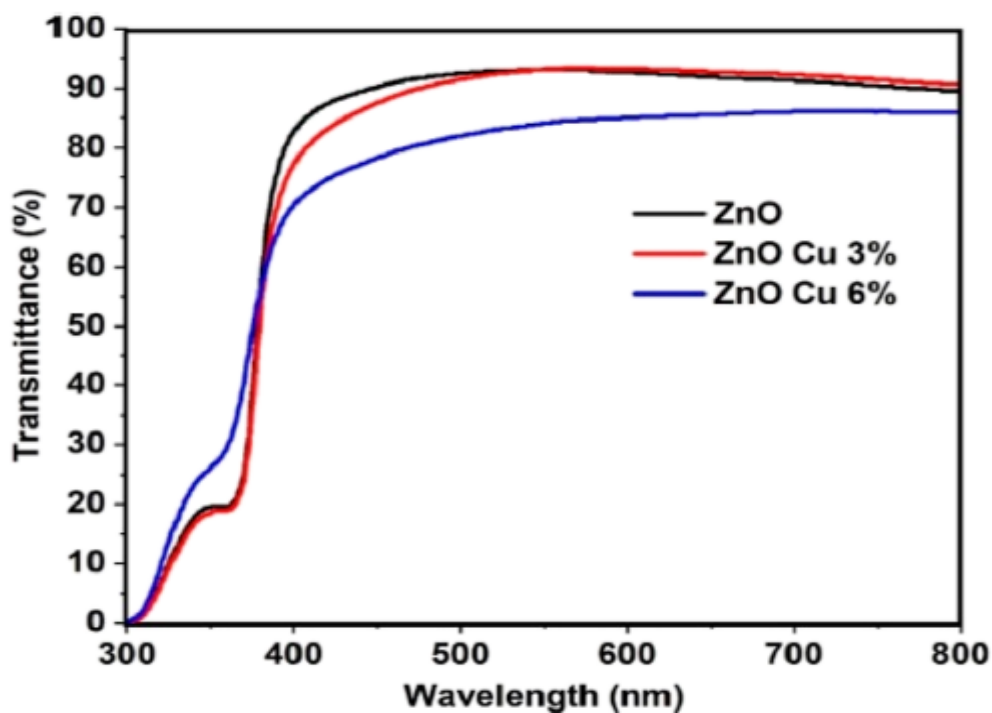


Figure 5. Transmittance spectra of pristine and Cu-doped ZnO films. [7]

ZnO is a direct band gap conductor, and its band gap can be easily determined by measuring the direct transition between conduction and valence bands. Figure 5 shows the optical emission of the deposited samples measured at a wavelength of 300–800 nm using a UV spectrophotometer. All deposited films exhibit intense optical transmittance within the visible spectrum. For a transparent conducting oxide material, high transmittance is an important property that can reveal the morphological homogeneity and crystalline quality of the deposited films for the optical applications. The optical transmittance in Cu doped ZnO thin films is smaller than pristine ZnO, which may be due to the increase of absorbing and scattering centers with the incorporation of  $\text{Cu}^{2+}$  ions. The Cu 3d orbital is much shallower than the Zn 3d orbital, and when a Cu atom occupies a Zn site inside the ZnO lattice, it introduces two strong effects: first, the strong d–p interaction between Cu and O moves O 2p up, which narrows the direct fundamental energy gap, and second, the Cu 3d orbital creates impurity bands above the ZnO valence band. These impurity levels act as a strong absorption site in the UV–visible regime and are hence responsible for the decreases in transmittance in doped films [7]

## Parameters of metal oxide films doped with various impurities

Table 1

No	Sample	Concentration of doping elements, mol, %	Crystallite size, nm	Wave length nm	Optical transmittance %	Optical band gap energy, $E_g$ , eV
1	ZnO				75-80	3. 37
2	Zn:Mg	2,4,6	19,24,28	376-357	84,88,90	3. 20; 3,43
3	Zn:Na	2,4,6,8.	50	300-600	< 80%	3,25; 3,20; 3. 19; 3,26
4	Zn:Al	1,2,3,4,5	27, 12, 7	375	<75	3,408;3. 404;3,35;3,32
5	Zn:Cu	3,6	~280	350-800	< 80%	3. 25; 2. 87; 2. 31

Looking at the table, we can see that for all samples, the transmittance increased from 84% to 90% and the bandgap also increased from 3. 20 to 3. 43 (eV). This concludes that the film is suitable for use in optoelectronic devices. A decrease in optical transmission and bandgap is observed with increasing concentration of samples doped with sodium, aluminum, and copper

#### Conclusions

From these serial experiments one may realize that it is likely to produce various metal doped thin film structures which might inhibit very interesting optical properties in the area of photonics. It is possible to change the optical conductivity, electrical properties, and chemical stability of zinc oxide doped with different input atoms. We cannot speculate about the application of optoelectronics, sensors or photovoltaics by optical conductivity alone. We still need to conduct a lot of research in this regard.

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## **A NEW APPROACH TO THERAPEUTIC COMBINATION IN THE TREATMENT OF PATIENTS WITH VIRAL LIVER CIRRHOSIS**

*Abstract. In some studies, when aprotinin was used in patients with liver cirrhosis, the authors observed a decrease in cholecystokinin-8 and gastrin-17 indicators in the rat model of subacute CCL4 intoxication [10. – p. 128–132.; 12. – p. 141-146]. As a result of the decrease in the amount of short-chain peptides in the blood, the influence of the autonomic nervous system decreases, which affects the risk factors leading to the development of cirrhotic cardiomyopathy, and ultimately reduces the rhythm disorders observed in the heart.*

*Key words: Liver cirrhosis, CCL4, short chain peptides, cirrhotic cardiomyopathy, ECG, EXOKG.*

Administration of the synthetic small-molecule protease inhibitor gabexate reduces elevated transaminase levels and improves the histological appearance of carbon tetrachloride-poisoned liver 24 hours after intravenous administration. In this case, TNF- $\alpha$  and interleukin- $\beta$ 1 levels were observed to decrease in rats receiving gabexate compared to rats receiving normal physiological solution. Using gabexate (aprotinin) in them, vitality was preserved even when a 20% lethal solution of carbon tetrachloride (CCl<sub>4</sub>) was injected [6. - b. 260-265].

Based on the results of the examinations, we selected 56 patients with changes in heart rhythm and prescribed them for complex treatment with a dose of 300 units of aprotinin in 100 ml of physiological solution intravenously for 3 days. The basis for prescribing this drug was the presence of changes in the ECG and EXOECG of the patients under observation. In addition, patients were recommended to drink spironolactone for a longer period than 300 mg per night.

After three months of follow-up, liver tests and short-chain peptides and some instrumental tests were repeated. Information about them is presented in tables 1 and 2 below.

**Table 1**

**Laboratory parameters obtained before and after treatment with aprotinin and spironolactone in patients with advanced liver cirrhosis due to viral hepatitis V**

Indicators	Liver cirrhosis with HBV infection n=76	
	Before treatment	After treatment
Aspartate aminotransferase unit/s*1	0,74±0,08	0,56±0,06
Alanine aminotransferase unit/s*1	0,93±0,11	0,71±0,09
Total bilirubine (mkmol/l)	47,9±5,5	29,7±4,1*
Unconjugated bilirubin (mkmol/l)	26,0±2,7	24,0±2,5
Cholecystokinin-8, ng/ml	2,47±0,26	1,74±0,21*
N-pro brain natriuretic peptide, pg/ml	156±2,4	136±1,4*

\* - difference to the indicators before the treatment.

As shown in the table, no reliable changes were observed in AST and ALT values after treatments. Total bilirubin levels before and after treatment were 47.9±5.5 and 29.7±4.1 μmol/L, respectively, and the differences were reliable (R<0.001). Unconjugated bilirubin levels did not change reliably. Cholecystokinin-8 levels in the blood of patients were 2.47±0.26ng/ml before treatment and 1.74±0.21ng/ml after treatment, which were reliably (R<0.001) decreased. N-pro brain natriuretic peptide levels before treatment and then it was equal to 156±2.4 and 136±1.4pg/ml, respectively, and reliable positive changes were observed (R<0.05).

Also, the above indicators were studied in patients with liver cirrhosis developed on the basis of chronic hepatitis C. Information about them is presented in the following 2 tables.

**Table 2**

**Laboratory parameters obtained before and after treatment with aprotinin and spironolactone in patients with advanced liver cirrhosis due to viral hepatitis C**

Markers of serum	Liver cirrhosis with HCV infection n=70	
	Before treatment	After treatment
Aspartate aminotransferase unit/s*1	0,89±0,09	0,63±0,07*
Alanine aminotransferase unit/s*1	1,26±0,13	0,89±0,09*
Total bilirubine (mkmol/l)	61,5±6,7	39,4±4,3*

Unconjugated bilirubin (mkmol/l)	34,2±4,27	26,7±3,4
Cholecystokinin-8, ng/ml	2,86±0,26	1,92±0,23*
N-pro brain natriuretic peptide, pg/ml	152±2, 4	133±1, 4*

\*-reliable compared to the condition before treatment.

As shown in the table, a reliable difference was observed in AST and ALT values after treatments ( $R < 0.001$ ). The total bilirubin values before and after treatment were  $61.5 \pm 6.7$  and  $39.4 \pm 4.3 \mu\text{mol/l}$ , respectively, and the differences were reduced by 1.56 times and the differences were reliable ( $R < 0.001$ ). Unconjugated bilirubin values were  $34.2 \pm 4.27$  and  $26.7 \pm 3.4 \mu\text{mol/l}$ , respectively, and the 1.2-fold decrease was not reliable ( $R > 0.05$ ).

We also compared blood peptides before and after treatments and found the following. Cholecystokinin-8 levels in patients' blood decreased 1.5 times to  $2.86 \pm 0.26 \text{ ng/ml}$  before treatment and  $1.92 \pm 0.23 \text{ ng/ml}$  after treatment, and the results were reliable ( $R < 0.001$ ). N-pro brain natriuretic peptide values before and after treatment were  $152 \pm 2.4$  and  $133 \pm 1.4 \text{ pg/ml}$ , respectively, and reliable positive ( $R < 0.05$ ) changes were observed.

In our observations, a decrease in liver function tests was noted in patients with liver cirrhosis developed on the basis of HBV and HCV infections after adding aprotinin and spironolactone to its standard treatment, but these changes were reliably observed in patients with HCV infection. Because when aprotinin and spironolactone are used at the same time, they have a complementary effect and the treatment efficiency is even higher.

Hypothetically, as a result of the normalization of liver tests, the breakdown of cholecystokinin-8 improves in it, which in turn leads to stabilization of the activity of the autonomic nervous system. The listed changes, in turn, create conditions for pathological changes in the heart to shift in a positive direction. As a result, existing rhythm disorders in patients, including prolongation of the Q-T interval, are reduced.

The use of spironolactone together with aprotinin as a standard treatment for liver cirrhosis prevents and reduces fibrosis not only in the liver but also in the heart.

Treatment with aprotinin and spironolactone, based on the standard treatment of viral liver cirrhosis, led to a decrease in liver tests, short-chain peptides (cholecystokinin-8) and N-pro brain sodium uretic peptide, and improved cardiac function. Indeed, positive changes in cardiac function by overnight Holter monitoring after the treatments.

Echocardiography before and after these procedures revealed positive changes in left ventricular end-diastolic volume, left ventricular end-diastolic and systolic size and volumes, as well as a number of other parameters (Table 4).



**Table 4**

**Pre- and post-treatment echocardiographic findings in patients receiving aprotinin and spironolactone with advanced liver cirrhosis due to viral hepatitis**

Кўрсаткичлар	Даволашдан олдин n=56	Даволашдан кейин n=56	P
Left lobe (long axis), mm	32. 16±0,13	29,9 ± 0,33	<0,001
Width of the left lobe, mm	36. 16 ±0,11	34,56±1,3	>0,05
Left ventricular end-diastolic volume, ml	60. 6±0,84	47,3±2,61	<0,001
The length of the right part, mm	47. 16±0,1	45,46±1,4	>0,05
Interventricular wall thickness, mm	11. 9±0,11	10,6±0,56	>0,05
The thickness of the back wall of the left ventricle, mm	10,6±0,1	8,9±0,1	<0,001
After the left ventricle	44,0±0,96	41,5±1,2	<0,001
Diastolic	29,6±0,095	27,7±0,7	<0,001
size, mm	87,3±1,05	74,9±2,5	<0,001
Left ventricular end-systolic size, mm	34,6±1,06	31,2±1,3	<0,001
Left ventricular end-diastolic volume, ml	135,16±2,35	130,3±3,0	>0,05
Left ventricular end systolic volume, ml	70,2±0,27	67,1 ±0,8	<0,001

When comparing left ventricular end diastolic volumes in patients with advanced liver cirrhosis due to viral hepatitis who received aprotinin and spironolactone, the values before and after treatment decreased from 60. 6 ± 0. 84 ml to 47. 3 ± 2. 61 ml, respectively, the difference between them was 21. 2 % (P<0. 001).

Also, left ventricular end-diastolic and systolic dimensions were 44. 0±0. 96 mm and 29. 6±0. 095 mm and 41. 5±1. 2 mm and 27. 7±0. 7, respectively,

before and after treatment. and the difference between them in both cases was equal to 6. 4% (P<0. 001).

In addition to the above, in our study, left ventricular end-diastolic and systolic volumes were compared before and after treatment, which were 87. 3±1. 05ml and 34. 6±1. 06ml and 74. 9±2. 5ml and 31. 2ml, respectively. ±1. 3 ml, the difference between them was 14. 2% and 12. 7% (P<0. 001).

As mentioned above, in liver cirrhosis, the amount of cholecystokinin-8 in the blood increases in line with the decrease in liver function, and this indicates that the process of its decomposition in the liver is disturbed. As a result, it stimulates the vegetative nervous system and affects the activity of the heart, and the indicators of N-pro brain sodium uretic peptide in the blood increase, and various pathological changes are observed in the heart. Complex treatments with the addition of aprotinin and spironolactone affect this pathological ring, change the functional state of the heart in a positive direction and lead to the stabilization of the pathological process.

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## **THE ROLE OF DIVERSIFICATION OF TOURIST SERVICES IN THE ECONOMY**

*Abstract. The diversification effect of tourism is to stimulate the country's economic growth and accelerate the development of regions, to develop the country's economy through the development of the information technology sector, as well as the digitization of services in the tourism sector, to create new jobs, and to show positive economic and social effects. should serve to improve the quality of life of the local population. In the economy of Uzbekistan, tourism has been an important sector for the country's development for years. The countries of the world are in the process of digital transformation, and this process is of great importance for the country's economy. Diversification of tourism services will create new jobs, provide tourist services in favorable conditions, digitize services and increase income. This article aims to study the importance of digitalization of the tourism sector in the development of the economy of Uzbekistan.*

*Key words: Digital tourism, diversification, tourism sector, digital transformation, safe tourism.*

### **Introduction**

The domestic tourism industry is experiencing the effects of two opposing trends. On the one hand, the field of domestic tourism has an important socio-economic value. The tourism industry is an initiative to develop more than 32 related branches of the national economy. In addition, it serves as a way to diversify the economy and increase the stability of socio-economic systems. A new type of tourist behavior: its independence, accurate information, critical attitude to the offered goods and services, demographic, economic, social system factors, changes in modern human psychology, as well as many industrial sectors related to the pandemic. making adjustments to the development, identifying new trends and characteristics of touristic demand. The need for diversification is also due to the fact that tourists are increasingly choosing products that fit their

schedules and interests. Group tours are becoming more and more individual groups. For many people, it is important to travel with people close to them in their social circles and views in order to feel safe and comfortable. Tourism organizations need to adopt personalized marketing tools and customer interactions as soon as possible. Travel safety is becoming one of the main branches of domestic tourism diversification. Tourists are considering their health and well-being more than ever before when deciding on a destination, helped by safe environments, social distancing, the introduction of immunity passports and new hygiene standards in the tourism industry. New requirements for personal safety are applied to types of insurance services (for example, insurance against coronavirus, trip cancellation), a "menu" of individual (instead of a package) insurance services has appeared, as well as domestic tourism or changed the requirements for targeted insurance products. Modern technologies can accompany the tourist at all stages, from understanding the need (platforms with virtual tours), travel planning (recommendation services and applications for creating personal offers, platforms with ready itineraries) to providing comfort during the trip. (Transportation and tourism terminals, robots, contactless check-in technologies), the exchange of impressions (local navigation gadgets and applications, language translation) and the exchange of reviews.

#### Literature analysis

The main goal of this study is to study the impact of the diversification of tourist services on economic processes, and in this section, to study the analytical processes of existing literature and scientific works in this field. Let's look at the analysis. Product or market diversification can create many businesses that form new sub-sectors in tourism. When connections between firms belonging to different sub-sectors create new products, industry diversification and then new sub-sectors can emerge. Tourism is a territory-based industry, and its competitive advantages depend on territorial assets, which can range from a single asset, such as sea-sun-sand tourism, to a wide mix of different assets. Diversification of the sector can be developed between tourism sub-sectors (domestic) and/or its sub-sectors and other (non-tourism) sectors (cross-industry) through virtual realities in more target areas. In addition, it can be used as a platform for virtual realities between non-tourism sectors at regional, national and international levels.

Areas specialized in tourism can be characterized by regional development opportunities based on unsustainably managed natural and cultural resources. These local amenities can create a vicious circle that attracts visitors, which in turn contributes to their detriment. [118]. The latest studies show that tourism In

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specialized regions of Southern Europe, where tourism services are more labor-intensive, there is a high level of unemployment, slow recovery from the financial crisis, and low productivity [2, 1]. This is related to low added products and services of mass consumption tourism, reduction of socio-economic impacts and excessive use of natural resources [3, 2]. Other negative effects of regional specialization of tourism include economic tuition, increased cost of living, crime, asset overcrowding, crowding out of local businesses, particularly small and medium enterprises (SMEs) - imitation of luxury, demand goods, social polarization, demoralization, cultural ties. alienation, pressure on public services such as transport, environmental degradation and the decline of other traditional sectors [4]. Nevertheless, it is surprising that the impact of specialization in tourism on socio-cultural stability and quality of life in tourist destinations has not been sufficiently studied. These effects can be overcome with diversification strategies, as a result of which tourism develops links with other sectors, which increases its added value, but also takes into account the sustainability of its resources.

According to Schumpeter's theory of economic development, innovation and product diversification are different but interrelated growth strategies. While innovation refers to the degree or type of newness in a product, diversification does not mean specializing in one product, but expanding a product or industry into a new market. Rather than innovating within the same market, firms may choose to seek diversification and enter new industries. In addition, firms implementing diversification strategies can use different types of innovation - product, process, radical or incremental - to enter new markets. This paper suggests that tourism diversification strategies should be approached from the context of recent evolutionary economic geography (EEG), which applies to tourism-dominated place-based economies. According to EEG, "path dependence" is a set of territorial characteristics that determine the initial conditions of territorial development and therefore influence and limit possible future outcomes. In addition, tourism areas can follow different evolutionary paths (S-shaped life cycle, entering a stable equilibrium or ongoing process of change and mutation). [519]. Some regions tend to develop feedback loops that lead to self-sustaining economies over time, which in turn leading to increased product and market development of a given sector comes, and then increases network productivity and regional prosperity. Diversification and specialization of tourism belongs to these processes, because it plays a decisive role in their formation, which is not sufficiently studied. This is especially true in areas

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dependent on tourism for their diversification and regeneration through knowledge creation and dissemination in business over time [6]. Determining the levels and types of diversification processes in tourism and studying the factors affecting them while maintaining stable social, economic and environmental results is of crucial importance in the era of increasing competitiveness in the world economy [5]. Therefore, this article examines diversification in tourism at the product/market, regional, and sectoral levels (Figure 1). Product/market levels refer to all geographic levels, from the individual firm to the international context. The network level refers mainly to the diversification of networks at the regional level, but also to cross-industry knowledge transfer at the regional, national and international levels.

#### Research materials and methods

Socio-demographic trends, in particular, population aging, climate change, migration, changes in social values, perceptions of society and consumers about the nature of resources forced tourism to adapt to new market requirements. Market and product diversification strategies stimulate growth by developing new and original products. Often they are risky due to attracting high investment costs, excessive financial resources, creating a confusing image, duplicating and standardizing the tourism experience; moreover, they depend on the motivation of managers to create synergies in the value chain and introduce new skills, techniques, structures, competencies and resources and/or capabilities at the firm level.

#### A catalyst for platform and other industry diversification

In this approach, tourism is prioritized as a convenient regional platform for RV creation among non-tourism sectors. Tourism facilitates communication between different sectors in three ways. First, the development of new tourism products often requires cross-sectoral collaboration and crossing sector boundaries, leading to knowledge transfer and innovation. This is the cross-border project TourFish, which links the food, fishing and heritage as well as the hospitality sectors in the Oberpinzgau region of Austria. It also created new connections between the wood industry and the health sector, resulting in new "allergy-friendly" furniture products (discussed earlier in this article). Secondly, tourism markets at the international level are a catalyst for the discovery and experimentation of new products and a platform for diversifying exports by introducing new foreign market demands into domestic markets and standardizing and improving existing local products. Thirdly, tourism provides cross-industry connections (interregional diversification) between remote and developed regions. It also facilitates the international mobility of people and ideas, which creates new RVs between sectors. This approach can be used to diversify non-tourism sectors, particularly in remote areas where tourism often increases connectivity with core regions.

#### Diversification in tourism and other industries (cross-industry)

This approach is suitable for areas specializing in tourism that aim to diversify tourism and other industries. Tourism can be linked to other priority areas/sectors, which can create new sub-sectors of tourism: for example, related to agriculture and medicine, which create forms of tourism in Mediterranean countries [9]. Once the prioritization is complete, the challenge is to ensure that mechanisms or structures emerge for new bottom-up entrepreneurial initiatives and to mobilize relevant stakeholders for the potential to provide added value in terms of skills and training. This ensures the flow of "open supply" between interested parties, enhances and accelerates the learning process [10]. Mutual support, development of new skills and adequate training, especially for low-tech workers, are important if tourism is a priority. In such a complex and multidisciplinary nature, it is important to be open-minded and ready to think about developing new sectors of tourism and acquiring new skills; Such as training entrepreneurs on the Dark Sky Route in Portugal to improve their guiding skills and knowledge of astronomy.

### Results

Tourism sectors tend to share similar cognitive knowledge, such as manufacturing and marketing, with consumers and labor, and between them and non-tourism sectors, particularly retail, catering, agriculture., contributes to interdisciplinary RV between medicine and healthcare. Cross-industry knowledge transfer between firms with non-complementary competencies, typically with high cognitive distance and unrelated diversity, has so far been underrepresented in the economic geography literature. received little attention. This applies to non-tourism sectors, such as cut flowers, jewelry, cultural industry and some trade sectors, which have recently established contact with the tourism industry by opening new markets.

**Economic growth:** Diversification of tourism services can lead to increased income from tourism, which in turn contributes to economic growth. By offering a variety of services, destinations can attract a wider range of tourists, leading to greater spending and economic activity in the local community.

**Job creation:** Diversification of tourism services often requires the development of new infrastructure and the hiring of additional staff. This can lead to the creation of jobs in the tourism sector, providing employment to the local population and reducing the unemployment rate.

**Increased Resilience:** Relying on a single type of tourist service or attraction can make a destination vulnerable to changes in demand or changes in the market. By diversifying tourist services, destinations can reduce their dependence on a single segment and increase their resilience to external influences.

**Regional development:** Diversification of tourism services can also help develop rural or underdeveloped areas. By promoting unique attractions and experiences, these areas can attract tourists and benefit from increased investment in infrastructure, creating a balanced and sustainable tourism sector.

Increased competitiveness: Diversifying tourism services helps destinations differentiate themselves from their competitors. By offering unique and diverse experiences, destinations can attract a wider range of tourists and position themselves as desirable and competitive in the marketplace.

In general, the diversification of tourism services can have positive effects on the economy, including economic growth, job creation, increased stability, regional development and increased competitiveness.

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## **NEUROEDUCATION: APPLYING BRAIN SCIENCE IN THE CLASSROOM**

*Abstract.* Neuroeducation, a relatively new field, merges neuroscience, psychology, and education to enhance teaching and learning processes. It studies how the brain learns, applying this understanding to improve educational practices. This interdisciplinary approach focuses on the brain's mechanisms during learning, offering insights into memory, attention, and cognitive development. Neuroeducation aims to tailor teaching methods to align with how the brain processes information, potentially transforming traditional educational models. It emphasizes personalized learning, understanding neurodiversity, and utilizing brain-based strategies to optimize student learning outcomes.

*Keywords.* Neuroeducation, Neuroscience, Psychology, Educational Practices, Brain-based Learning, Memory, Attention, Cognitive Development, Personalized Learning, Neurodiversity.

Neuroeducation represents the confluence of neuroscience, psychology, and education, focusing on applying brain science to improve teaching and learning. It seeks to understand the neurological processes behind learning and memory, using these insights to develop more effective educational strategies. This field has gained traction in recent years, as advancements in neuroscience offer new perspectives on how students learn best. Neuroeducation aims to create a more inclusive and effective educational system by acknowledging individual differences in brain development and learning processes.

**Scientific Foundations:** Neuroeducation is grounded in neuroscience research, particularly in areas related to learning and brain development. Studies in neuroplasticity, for instance, reveal how learning reshapes the brain's structure and function.

**Application in Education:** The application of neuroscientific findings in the classroom includes strategies that cater to different learning styles, understanding the role of emotions in learning, and recognizing critical periods for certain types of learning.

**Implications for Teaching Practices:** Neuroeducation suggests a shift from one-size-fits-all teaching approaches to more personalized methods. It emphasizes the importance of a stimulating environment, interactive learning, and the role of feedback in enhancing neural connections.

**Challenges and Ethical Considerations:** While promising, neuroeducation faces challenges, including translating complex scientific

knowledge into practical teaching strategies. Ethical considerations regarding the application of neuroscience in education also need to be addressed.

**Neurodiversity and Inclusion:** A significant contribution of neuroeducation is its focus on neurodiversity, advocating for educational practices that accommodate a wide range of neurological differences, such as those seen in learning disabilities and autism.

**Future Directions:** As research in brain science advances, neuroeducation is likely to play an increasingly important role in shaping educational practices. It holds the potential for developing customized learning experiences based on an individual's neurological profile.

Neuroeducation offers a transformative approach to education, integrating neuroscience into teaching and learning processes. By understanding how the brain learns, educators can develop more effective and inclusive teaching methods. This interdisciplinary field faces challenges in application and ethical considerations but holds promise for personalizing education to suit diverse learning needs. As research continues to evolve, neuroeducation is poised to significantly impact educational practices, potentially leading to a more adaptive and effective learning environment.

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## **REGGIO EMILIA APPROACH: AN INNOVATIVE METHOD IN EARLY CHILDHOOD EDUCATION**

*Abstract.* The Reggio Emilia Approach is an innovative educational philosophy for early childhood education, originating in the Italian city of Reggio Emilia post-World War II. This approach emphasizes child-centered learning, viewing children as competent, resourceful, and active participants in their learning. It focuses on the importance of community, collaboration, and the environment as the 'third teacher.' Key elements include project-based learning, documentation of children's thoughts and progress, and fostering creativity and exploration. The Reggio Emilia Approach has gained international recognition for its focus on nurturing a child's curiosity and individuality.

*Keywords.* Reggio Emilia Approach, Early Childhood Education, Child-Centered Learning, Community Collaboration, Environment as Teacher, Project-Based Learning, Creative Exploration, Documentation, Curiosity, Individuality.

The Reggio Emilia Approach is a progressive and innovative approach to early childhood education developed in the mid-20th century by Loris Malaguzzi and parents in the Italian city of Reggio Emilia. It is grounded in the belief that young children have the right to be active participants in their learning. This approach is characterized by its emphasis on children's natural development, the importance of the learning environment, and the role of teachers as facilitators. Reggio Emilia classrooms are known for their emphasis on creativity, exploration, and expression in a supportive and enriching environment.

**Philosophical Foundations:** The Reggio Emilia Approach is based on a constructivist theory, which posits that children construct their knowledge through interactions with the world and others. Key principles include respect for the child, the role of the environment, and the importance of community and parental involvement.

**Learning Environment:** The environment is considered a 'third teacher' in this approach. Classrooms are designed to be aesthetically pleasing and to stimulate curiosity and learning. They are equipped with natural materials, open-ended resources, and spaces that promote collaboration and exploration.

**Role of the Educator:** Teachers in the Reggio Emilia Approach act as co-learners and collaborators with the children, rather than traditional instructors. They observe children's interactions and scaffold their learning, guiding their exploration and discovery.

**Documentation and Reflection:** Documentation of children's work, including their conversations and interactions, is a crucial component. This

ongoing documentation serves as a tool for reflection and assessment for teachers, children, and parents.

**Project-Based Approach:** Learning activities are often project-based, stemming from the children's interests. Projects are in-depth studies of concepts, ideas, and interests, which may last for days, weeks, or even months.

**Global Influence and Adaptation:** The Reggio Emilia Approach has influenced early childhood education worldwide. Its principles have been adapted in various cultural contexts, while maintaining its core focus on respecting children's rights and potentials.

The Reggio Emilia Approach to early childhood education offers a distinctive and effective way of engaging young learners. Its emphasis on child-led learning, the importance of the environment, and the collaborative role of educators and families create a rich educational experience. This approach nurtures creativity, critical thinking, and a deep love for learning, setting a strong foundation for children's future educational journeys. Its influence and adaptation across different cultures underscore its universal relevance and effectiveness.

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## **OPTICAL PROPERTIES OF ZINC OXIDE DOPED WITH DIFFERENT DOPANT ATOMS**

*Abstract. In this paper a review of provides information on the areas of application of zinc oxide, its advantages over other metal oxide semiconductors, and its possible use as an electrode in solar cells. The change of its optical properties, i. e., its optical transmittance, was considered when different input atoms were introduced. Zinc oxide doped with magnesium increases its optical conductivity, when sodium, aluminum and copper are added, its optical conductivity decreases. The future trends and perspectives of researchers on what kind of doping atoms should be doped to increase the optical transmittance are suggested at the end of this article.*

*Key words: metal oxide, ZnO thin film, doped zinc oxide, optical properties.*

Currently, thin films based on transparent superconducting oxides have been widely studied due to their unique properties in optoelectronic devices such as light-emitting diodes, electronic paper displays, liquid crystal displays, touch panels, plasma displays, etc.. In particular, solar cells often require greater transparency than visible light to effectively utilize the entire solar spectrum. On the basis of metal oxide materials, it is possible to obtain multi-layered heterostructures that allow efficient use of solar radiation due to its different electrophysical properties and the width of the forbidden area, which covers a large part of the sunlight spectrum. In addition, the relatively simple and economical process of obtaining such heterostructures is important [1].

Metal oxide ( $M_nO_x$ )-based solar cells have the potential to solve some of the problems encountered in conventional solar cells, with excellent chemical stability and a fully oxidized perspective under environmental conditions. Due to the large amount of metal oxide that provides efficiency in production,  $M_nO_x$  is usually used as a functional layer in solar cells, for example, transparent conductive electrodes can be used in electrons ( $TiO_2$ ,  $SnO_2$ ,  $ZnO$ ,  $Fe_2O_3$ etc) Since n-type metal oxides are of particular importance for the production of thin-film solar cells, indium-tin oxide (ITO) and doped zinc oxide (ZnO) are the main materials used for photovoltaic industrial production [2]. However, due to the high price of indium element in the market, it is urgent to obtain new necessary materials and properties for the industrial production of modern photovoltaic devices. In this context, thin films based on low-cost and high-performance transparent oxides are necessary and more in demand as a substitute for new

optoelectronic devices. Among the many types of transparent conductive films, zinc oxide (ZnO) has attracted great interest.

Zinc oxide (ZnO) is a crystalline, n-type semiconductor belonging to the  $A_2B_6$  group of compounds. Its band gap is about  $\sim 3.37$  eV at 300K. The ZnO compound is a white crystal in the cold or at normal temperature, and when heated, the color of the substance changes: it turns yellow at about  $250^\circ\text{C}$ . This is explained by the decrease in the band gap and the shift from UV to blue in the absorption spectrum [3]. The main advantages for zinc oxide nanostructures include: ZnO growth can be carried out on a variety of substrates (including amorphous or flexible biological and degradable polymers); There are different synthetic ways to grow films, each of which has certain advantages; high volume electron mobility equal to the energy of ultraviolet light; the width of the prohibited area; high transparency; including unique properties such as room-temperature luminescence and high electron mobility, besides, ZnO has a controllable optical band gap that can be modified by changing composition, morphology, and volumes.

The optical properties of transparent conductive oxides formed by doping various chemical elements to zinc oxide (ZnO) were studied. Sodium, magnesium, copper and aluminum were considered as alloying elements. The optical conductivity of ZnO(MZO) doped with magnesium is shown below.

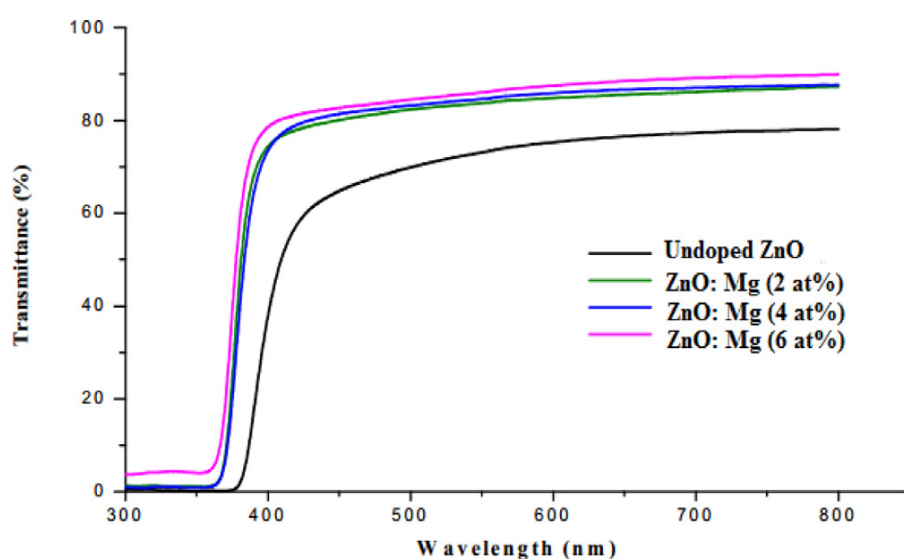


Figure 1. Optical transmittance spectra of the ZnO and MZO films with various Mg doping contents. [4]

The optical properties of MZO thin films were determined by transmission measurements in the range of 200–800 nm. The average thickness of the samples, measured by a stylus profilometer, is about 400 nm. It is shown in figure 1 surface emission spectra of ZnO and MZO thin films. Optical transmission increased to the visible light region. This depends on the increase in the concentration of  $\text{Mg}^{2+}$ . The light transmittance of pure ZnO is 75%. value luminous emission of



ZnO:Mg (2 at. %), ZnO:Mg (4 at. %) and ZnO:Mg (6 at. %) are 84%, 88% and 90%, respectively. It can be seen that with increasing doping, the absorption spectrum shifts to shorter wavelengths from 376 nm to 357 nm. The motion of the absorbing surface enhanced the optical transmission in the shorter wavelength region compared to pure ZnO thin films. [4]

Now let's look at the optical transmission of sodium doped ZnO

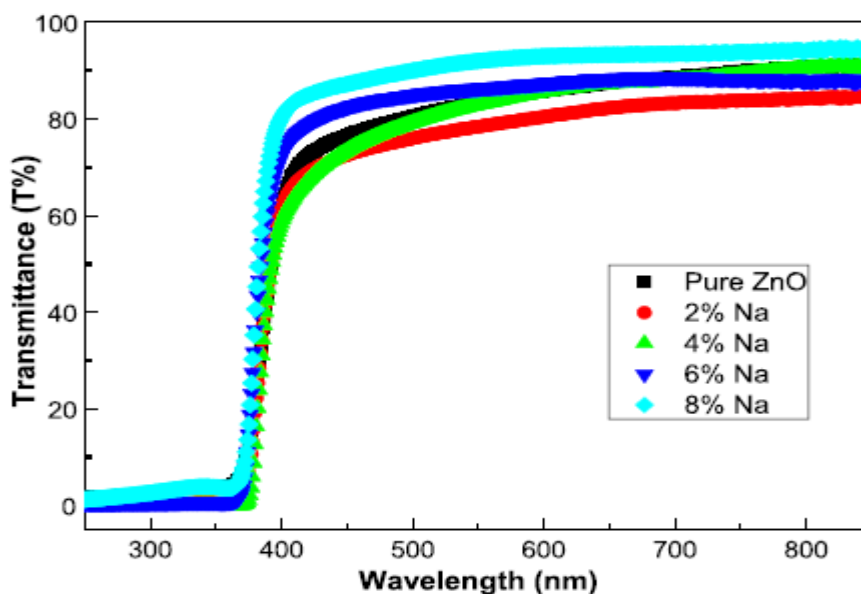


Fig. 2 Optical transmittance spectra of Na-doped and undoped ZnO films [5].

Fig. 2 shows the transmittance spectra of the undoped and Na-doped (2 at. %, 4 at. %, 6 at. %, and 8 at. %) ZnO thin films. It is obvious that the average transmittance of the films was above 80% in the visible range from 400 nm to 800 nm with sharp ultraviolet absorption edges in the UV region. A blue-shift of the ultraviolet absorption edge was found when the Na doping concentration was larger than 4 at. %. [5]

The optical conductivity of zinc oxide doped with aluminum changes as follows.

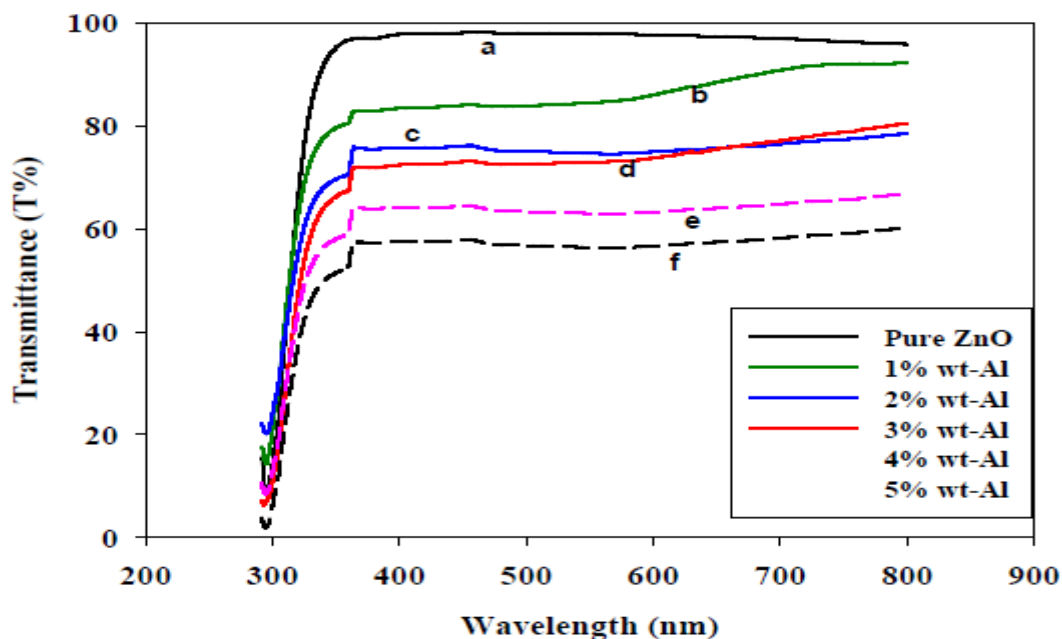


Figure 4: The optical transmittance spectra for the pure and Al-doped ZnO films deposited onto glass substrates: a-Pure ZnO, b- 1 % wt-Al, c- 2 % wt-Al, d- 3 % wt-Al, e- 4 % wt-Al, f- 5 % wt-Al [6]

Figure 4 shows the optical transmittance spectra obtained for the pure and Al-doped ZnO films deposited onto glass substrates. The optical transmittance of the films was obtained by averaging in the range 450 - 650 nm, as indicated by the vertical dashed lines. In the visible region the pure ZnO thin film had an optical transmittance of greater than 80% and by inserted the Al doping it is reduce to half with increase the Al doping to be 5% wt.

Copper doping zinc oxide changes as follows:

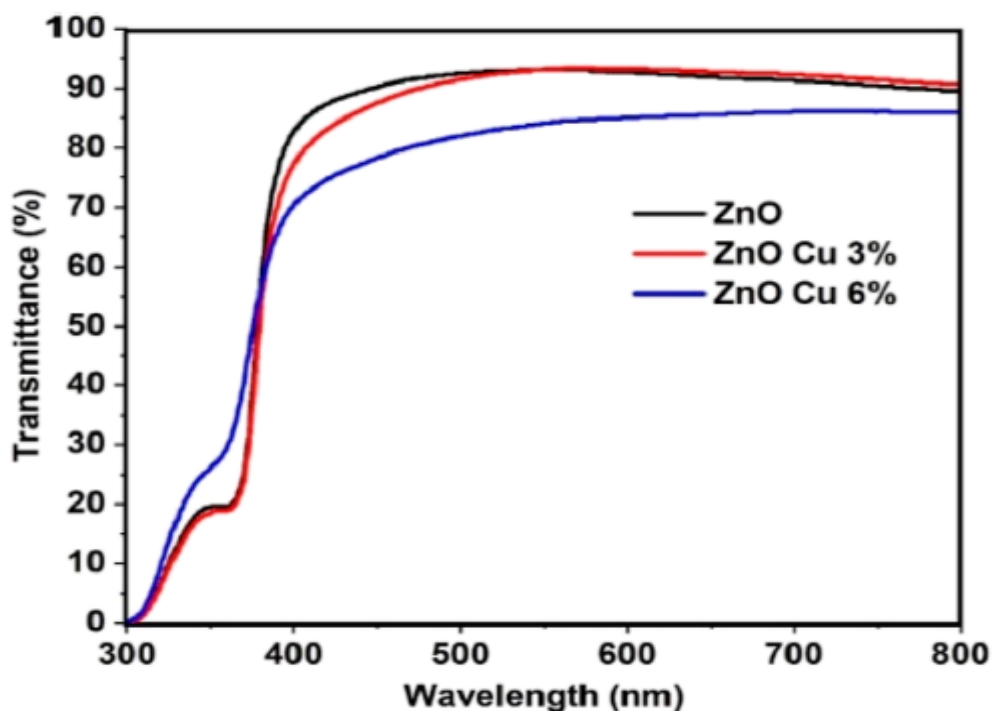


Figure 5. Transmittance spectra of pristine and Cu-doped ZnO films. [7]

ZnO is a direct band gap conductor, and its band gap can be easily determined by measuring the direct transition between conduction and valence bands. Figure 5 shows the optical emission of the deposited samples measured at a wavelength of 300–800 nm using a UV spectrophotometer. All deposited films exhibit intense optical transmittance within the visible spectrum. For a transparent conducting oxide material, high transmittance is an important property that can reveal the morphological homogeneity and crystalline quality of the deposited films for the optical applications. The optical transmittance in Cu doped ZnO thin films is smaller than pristine ZnO, which may be due to the increase of absorbing and scattering centers with the incorporation of  $\text{Cu}^{2+}$  ions. The Cu 3d orbital is much shallower than the Zn 3d orbital, and when a Cu atom occupies a Zn site inside the ZnO lattice, it introduces two strong effects: first, the strong d–p interaction between Cu and O moves O 2p up, which narrows the direct fundamental energy gap, and second, the Cu 3d orbital creates impurity bands above the ZnO valence band. These impurity levels act as a strong absorption site in the UV–visible regime and are hence responsible for the decreases in transmittance in doped films [7]

## Parameters of metal oxide films doped with various impurities

Table 1

№	Sample	Concentration of doping elements, mol, %	Crystallite size, nm	Wave length nm	Optical transmittance %	Optical band gap energy, $E_g$ , eV
1	ZnO				75-80	3. 37
2	Zn:Mg	2,4,6	19,24,28	376-357	84,88,90	3. 20; 3,43
3	Zn:Na	2,4,6,8.	50	300-600	< 80%	3,25; 3,20; 3. 19; 3,26
4	Zn:Al	1,2,3,4,5	27, 12, 7	375	<75	3,408;3. 404;3,35;3,32
5	Zn:Cu	3,6	~280	350-800	< 80%	3. 25; 2. 87; 2. 31

Looking at the table, we can see that for all samples, the transmittance increased from 84% to 90% and the bandgap also increased from 3. 20 to 3. 43 (eV). This concludes that the film is suitable for use in optoelectronic devices. A decrease in optical transmission and bandgap is observed with increasing concentration of samples doped with sodium, aluminum, and copper

#### Conclusions

From these serial experiments one may realize that it is likely to produce various metal doped thin film structures which might inhibit very interesting optical properties in the area of photonics. It is possible to change the optical conductivity, electrical properties, and chemical stability of zinc oxide doped with different input atoms. We cannot speculate about the application of optoelectronics, sensors or photovoltaics by optical conductivity alone. We still need to conduct a lot of research in this regard.

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## **BEMORLARDA GLAUKOMANING O'TKIR XURUJINI KECHISH XUSUSIYATLARI, ULARNI TASHXISHLASH VA DAVOLASHGA ZAMONAVIY YONDASHUV**

*Rezyume. Glaukomaning o'tkir xurujining xabarchisi ko'rishning xiralashishi va yorug'lik manbalari atrofida Kamalak doiralarining paydo bo'lishi bo'lishi mumkin. Ushbu hodisalar ko'z ichi bosimining to'satdan va tez ko'tarilishi bilan bog'liq bo'lib, bu shox pardadagi metabolik jarayonlarni buzadi. Natijada, shox parda bulutli bo'lib, ko'rishning xiralashishi bilan namoyon bo'ladi.*

*Yorug'lik manbasiga qarab, bemor uning atrofida xuddi shunday Kamalak doirasini ko'radi, chunki sog'lom odam tumanli ob-havo sharoitida ko'chadagi yorug'lik manbai atrofida ko'radi.*

*Hech qachon o'tkir tutilishni boshdan kechirmagan bemorlar, bu glaukomaning o'tkir xurujining xabarchilari ekanligini bilmasligi mumkin. Ba'zan yillar davomida glaukoma faqat prekursorlar sifatida namoyon bo'ladi.*

*Ushbu maqolada bugungi kunda zamonaviy oftalmologiyaning dolzarb muammosi bo'lib turgan glaukomaning o'tkir xurujining kechishi, oldini olish va davolash masalalari yoritilgan.*

*Kalit so'zlar: glaucoma xuruji, ko'z sklerasi, yorug'lik manbai.*

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## **FEATURES OF THE COURSE OF AN ACUTE ATTACK OF GLAUCOMA IN PATIENTS, A MODERN APPROACH TO THEIR DIAGNOSIS AND TREATMENT**

*Resume. A harbinger of an acute attack of glaucoma may be blurred vision and the appearance of iridescent circles around light sources. These phenomena are associated with a sudden and rapid increase in intraocular pressure, which disrupts metabolic processes in the cornea. As a result, the cornea becomes cloudy and blurred vision is manifested.*

*Looking at a light source, the patient sees around it the same rainbow circle as a healthy person sees around a light source on the street in foggy weather.*



*Patients who have never experienced acute seizures may not know that they are precursors to an acute attack of glaucoma. Sometimes, over the years, glaucoma manifests itself only as precursors.*

*This article highlights the issues of the course, prevention and treatment of an acute attack of glaucoma, which is an urgent problem of modern ophthalmology today.*

*Keywords: glaucoma attack, sclera of the eye, light source.*

**Izlanish dolzarbligi.** Glaukoma xurujning paydo bo'lishi to'satdan paydo bo'lishi bilan tavsiflanadi o'tkir og'riq boshning tegishli yarmiga tarqaladigan ko'zda. Ko'rish keskinligi faqat yorug'lik hissi saqlanib qolguncha keskin kamayadi [1,9]. Og'riq ko'ngil aynish, qusish, bosh aylanishi, qattiq titroq, umumiy bezovtalik bilan birga bo'lishi mumkin.

Ushbu simptomlar tashxisni qiyinlashtiradi va noto'g'ri davolanishga olib keladi, shuning uchun yuqoridagi belgilar mavjud bo'lganda, anamnezni (glaukoma mavjudligi) sinchkovlik bilan aniqlash kerak, shuningdek, bemor xuruj rivojlanishidan oldin qanday dorilarni qabul qilganligini aniqlash kerak (mydriatics, masalan, atropin, xurujning rivojlanishiga hissa qo'shadi). Ushbu patologiya uchun katta ma'lumot ko'zni tekshirish orqali aniqlanadi. Yuzaki tekshiruvda ham ko'zning qizarishi, oval shaklidagi keng, kengaygan o'quvchi va uning nurga reaksiyasi yo'qligi, shuningdek rangi o'zgarishi ko'rinadi [2,4,7].

Glaukomaning o'tkir xurujida qora rang o'rniga, o'quvchi yashil rangga o'xshaydi, ammo glaukomaning eng muhim belgisi ko'zning keskin siqilishidir.

Ko'z olmasini palpatsiya qilishda uning ohangida sezilarli o'sish va og'riq aniqlanadi, ko'z "tosh" kabi taassurot qoldiradi [6]. Ko'z ichi bosimi keskin ko'tariladi (70-100 mm HG gacha). Fundus odatda tekshirilmaydi yoki optik asabning giperemik diski, kengaygan tomirlar, rangpar Retina ko'rinadi.

Birlamchi glaukomaning klinik shakllari orasida eng og'ir prognostik nuqtai nazardan yopiq burchakli glaukoma (zug) hisoblanadi, bu erta tashxis qo'yishning murakkabligi, klinik kursning o'ziga xos xususiyatlari va davolashning qiyinligi bilan bog'liq. Quigley H. ma'lumotlariga ko'ra, 2007 yilga kelib dunyoda 16 million kishi zug bilan kasallangan, bu glaukoma bilan kasallanganlarning umumiy sonining taxminan 32-42 foizini tashkil qiladi. Mongoloid irqiga mansub shaxslar orasida birlamchi GKning ustunligi aniqlandi, bu Evropa va negroid irqiga mansub odamlarda kasallikning tarqalishidan o'n baravar ko'pdir [8].

Osiyo mintaqasida GKning yuqori chastotasi ko'plab tadqiqotlar ko'z olmasining qisqa optik o'qiga ega bo'lgan mahalliy aholining ko'zlari tuzilishining anatomik xususiyatlari bilan bog'liq. Qisqa ko'zning anatomik va topografik xususiyatlari, ular orasida kichik old kamera, nisbatan qalin ob'ektiv, siliyer tananing oldingi holati, shox pardaning kichikroq diametri - UPC blokadasiga olib keladigan salbiy omillarning genetik jihatdan aniqlangan to'plami sifatida qaraladi [3]. Biroq, anatomik tuzilmalarning topografik nisbati oftalmotonusning buzilishi

va zug rivojlanishida trpger funksiyasini o'ynash uchun juda muhim bo'lishi mumkin bo'lgan narsa hali ham qarama-qarshi bo'lib qolmoqda.

Involuytsion rivojlanish jarayonida u yoki bu anatomik omilning ahamiyati o'zgarishi mumkin. Bu, birinchi navbatda, ko'plab mualliflar CPC blokadasini va zug rivojlanishida etakchi rol o'ynaydigan ob'ektiv komponentiga tegishli. Yoshga bog'liq qalinlashuv va ayniqsa katarakt bulutlarining rivojlanishi bilan ob'ektiv nafaqat asosiy predispozitsiya qiluvchi, balki qo'zg'atuvchi omil bo'lib, ko'z ichi bloklari tizimining paydo bo'lishi uchun qulay sharoit yaratishi mumkin [5,11].

Shu bilan birga, bir qator mualliflarning ta'kidlashicha, linzalarning qalinligi linza blokining klinikasini qo'zg'atmasdan katarakt bulutlarining rivojlanishi bilan o'rtacha qiymatdan oshishi mumkin [4,10]. Adabiyotda keltirilgan linzalarning qalinligi ko'rsatkichlarining keng doirasi ob'ektiv faol ishtirok etadigan va ko'z ichi bloklarining paydo bo'lishida etakchi omil bo'lgan sharoitlarni chuqur o'rganishni talab qiladi.

Jarrohlik aralashuvining antihipertenziv ta'sirining patogenetik mexanizmlari yaxshi tushunilmagan bo'lib qolmoqda, bu shaffof linzalarni olib tashlash ko'rsatkichlarini yoki uning dastlabki bulutlanishida GKda patogenetik yo'naltirilgan operatsiya sifatida asoslashga imkon bermaydi.

Birlamchi zug muammosidagi yuqoridagi, ijtimoiy ahamiyatga ega, kam o'rganilgan va munozarali masalalar ushbu tadqiqotning maqsadga muvofiqligini, uning maqsadi va aniq vazifalarini aniqladi.

**Tadqiqotning maqsadi.** Glaukoma xurujlari va patogenetik yo'naltirilgan jarrohlik davolash usullarining differentsial diagnostikasi tizimini yaratish orqali Andijon viloyatining tub aholisi bo'lgan bemorlarni o'tkir glaucoma xuruji bilan reabilitatsiya qilish samaradorligini oshirish.

**Izlanish materiallari va usullari.** Oldimizga qo'yilgan vazifani bajarish uchun o'tkir glaucoma xuruji tashhisi bilan murojaat qilib kelgan jami 60 nafar bemorlarni tekshirish, tashhishlash va davolash maqsadida ajratib oldik.

O'z tekshiruvimizda biz, vizometriya, biomikroskopiya, ko'rish maydonlarini aniqlash, oftalmoskopiya, tonometriya, tonografiya, gonioskopiya, Heidelberg retinal tomografiyasi, kompyuter perimetriyasidan foydalandik. Barcha bemorlarga lazer yordamida iridotomiya o'tkazildi. Barcha bemorlarga ko'z ichi bosimi to'liq qoplanmaguncha anti-Glaukomatoz dorilar va antioksidantlar berildi.

**Izlanish natijalarining tahlili.** Barcha bemorlarga quyidagi oftalmologik tekshiruv o'tkazildi: tuzatish bilan ko'rish keskinligini aniqlash, biomikroskopiya, ko'rish maydonlarini aniqlash, mydriaz sharoitida fundusni batafsil tekshirish, tonometriya, tonografiya, gonioskopiya, optik diskni tekshirish uchun Heidelberg retinal tomografiyasi va kompyuter perimetriyasi.

Barcha bemorlarga yuqori darajadagi miyopi tashxisi qo'yilgan: 6,0 dan 15 gacha dptr, o'rtacha  $8,75 \pm 0,75$  dptr. Bundan tashqari, ko'pchilik bemorlarda (44 ta ko'zdan 38 tasi) yiliga 0,25-1,5 dptr miyopi rivojlanishi qayd etilgan.

Kuzatuv oxiriga kelib ko'rish keskinligi barcha ko'zlarda o'zgarishsiz qoldi. Shuni ta'kidlash kerakki, kuzatuv davomida 44 ta ko'zdan 32 tasida miyopiyaning rivojlanishi to'xtadi, bu, ehtimol, oftalmotonusning normallasishi va ko'z ichi bosimining haddan tashqari ko'payishi tufayli ko'z olmasining cho'zilishining to'xtashi bilan izohlanishi mumkin. 6 ko'zda miyopiyaning keyingi rivojlanishi yiliga o'rtacha 0,5 dptrga qayd etildi.

Ko'z ichi bosimi 10 kundan 3 yilgacha bo'lgan vaqt oralig'ida 26 ko'zda to'liq qoplandi. Ushbu guruhda PG bilan 4 ta ko'z va LDS bilan 22 ta ko'z bor edi. Prostaglandinlar va ularning analoglaridan foydalanganda biz klinik jihatdan ahamiyatli yon ta'sirlarni qayd etmadik. Ushbu guruhda biz yuqorida aytib o'tilgan vaqtlarda dori-darmonlarni davolashdan butunlay voz kechdik, chunki natijada ko'z ichi bosimining to'liq kompensatsiyasi va gidrodinamik ko'rsatkichlarning normallasishi olingan. Gonioskopiya bilan barcha bemorlarda burchak tuzilmalarini pigmentdan 6 oydan 3 yilgacha tozalash qayd etildi. Ko'rish maydonlari va optik diskning holati ushbu guruhdagi barcha ko'zlardagi kuzatuv davomida o'zgarishsiz qoldi.

Qolgan 18 ko'zda ko'z ichi bosimini qoplash mahalliy antihipertenziv dorilar yordamida amalga oshirildi: PG bilan 8 ko'z, LDS bilan 10 ko'z. Prostaglan-dinlar, p-adrenoblokatorlar, karbo-anhidraz inhibitörleri ishlatilgan. Gonioskopiya barcha bemorlarda ko'zning old kameraning burchak tuzilmalari tozalanishi kuzatilgan, ammo dori-darmonsiz kompensatsiyalangan ko'z ichi bosimi bo'lgan guruhga qaraganda kamroq darajada. Ushbu guruhda ko'rish maydonlari va optik diskning holati butun kuzatuv davrida barcha ko'zlarda o'zgarishsiz qoldi.

Shuni ta'kidlash kerakki, barcha bemorlar, afsuski, LDS ning keyingi bosqichlarida yoki allaqachon rivojlangan PG bosqichida murojaat qilishdi. Bu, bizning fikrimizcha, shifokorlarning ushbu patologiyaga nisbatan ehtiyotkorligi etarli emasligi bilan bog'liq. Biomikroskopiya paytida shox pardaning holatiga (endoteliyda pigmentning cho'kishi mumkin), old kameraning chuqurligiga (ildizdagi iris prolapsasi), iris holatiga (pigmentning chuqur püsürtülmesi mumkin) e'tibor berish kerak. LDS uchun xos bo'lgan alomatlar mavjud bo'lganda, ko'z ichi bosimini nazorat qilish va kerak bo'lganda midriaz bilan provokatsion test o'tkazish muhimdir. Ko'rinishidan, kech tashxis qo'yish va bemorlarni boshqarishning noto'g'ri taktikasi pigmentning old kameraning burchagidan uzoq vaqt yuvilishi va normal ko'z ichi bosimining sekin tiklanishi bilan bog'liq.

Shuni ta'kidlaymizki, hatto GK tashxisi qo'yilgan taqdirda ham, ba'zi ko'zlarda ko'z ichi bosimini to'liq normallashtirish va antihipertenziv dorilarni tark etish mumkin edi. Biz bunday holatlarni faqat uzoq muddatli terapiyadan so'ng GK ning dastlabki bosqichi bilan ko'zimiz oldida qayd etdik. Antihipertenziv dorilarni ishlatmasdan GK to'liq kompensatsiyasiga faqat LDS bilan ko'z o'ngida erishildi. Bizning ma'lumotlarimiz Schuko va boshqalarning fikriga mos keladi, o'z vaqtida davolash (birinchi navbatda lazer iridektomiyasi) ko'p hollarda

suyuqlik dinamikasini normallashtirishga va hatto ko'zning funktsional holatini biroz yaxshilashga olib keladi.

**Xulosa.** Glaukoma xurujlarida ko'z ichi bloklarining har xil turlarini differentsial diagnostikasi va patogenetik jihatdan asoslangan davolash taktikasini tanlash, aniqlangan va diagnostika mezonlari sifatida qabul qilingan morfometrik ma'lumotlar asosida amalga oshirilishi mumkinligi asoslanadi.

Glaukomatoz jarayonning dastlabki bosqichlarida o'quvchi bloki bilan birlamchi glaukoma xurujlari davolash va vizual funktsiyalarni saqlab qolish bilan maksimal gipotenziv va rekonstruktiv ta'sirga erishishga imkon beradi, va bir ko'zda ko'z ichi bloklari kombinatsiyasi bilan birlamchi zug bilan. ob'ektivni fakoemulsifikatsiya qilish uchun tayyorgarlik bosqichi sifatida qaralishi mumkin.

Andijonning tub aholisining qorong'u pigmentli "shimgichli" irisi tuzilishining o'ziga xos xususiyatlarini hisobga olgan holda turli xil lazer energiyasi manbalaridan foydalangan holda bir bosqichli, bosqichli, kombinatsiyalangan lazer iridektomiyasining ishlab chiqilgan va klinik sinovdan o'tgan original texnologiyasi koagulyatsion lazerning umumiy quvvatini 2 baravar va impulsli lazerning umumiy energiyasini 4 baravar kamaytirishga imkon beradi va shu bilan lazer ta'sirining shikastlanishini kamaytiradi.

Ob'ektivni fakoemulsifikatsiya usuli bilan olib tashlashning maqsadga muvofiqligi, uning qalinligidan va ob'ektiv tomonidan qo'zg'atilgan blokda katarakt o'zgarishlar mavjudligidan va bir ko'zda bloklarning kombinatsiyasidan qat'i nazar, bu ushbu aralashuvni GKda anti-Glaukomatoz operatsiyalar majmuasiga kiritish zarurligini ko'rsatadi.

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## ACCOUNTING OF SECURITIES IN COMMERCIAL BANKS

*Annotation. This article provides information on securities transactions in commercial banks. In particular, in the list of transactions carried out by banks, information is given about the types of activities carried out with securities, about securities issued by commercial banks.*

*Keywords: Securities, commercial banks, markets, Joint Stock Companies, Exchange, Transaction, bonds.*

Banks carry out their activities in the securities market in accordance with the laws of the Republic of Uzbekistan "on banks and banking activities", "on Securities and stock exchange", "on the protection of Joint-Stock Companies and shareholders' rights", Central Bank meory documents, as well as "recommendations for commercial banks to carry out operations in the Securities Market" (Directive No. 211 of April 26, 1996).

Commercial banks perform transactions with securities under a general license issued by the central bank. The license records the following types of activities carried out with securities in the list of operas performed by banks:

- accounting for issue and sale of securities, save them;
- securities procurement;
- investment of funds in securities;
- maintaining and maintaining the Register of dealers, depositors and shareholders;

- perform commercial, brokerage, trust operas and provide advice;
- Securities Management under the contract with the client, etc.

Investing funds in securities various securities:

- ✓ simple and preferred shares;
- ✓ obligations;
- ✓ government debt obligations;
- ✓ certificates of deposit;
- ✓ is carried out by placing funds on a bill of exchange and others.



Depending on the development of the banking system in the individual countries and the types and scope of the operas that banks hold, their investiture activities can be focused in different directions, and the amount of income generated by the types of these operas can also be different.

For example, in the practice of American banks, investing in securities that represent short-term debt obligations of the state usually generates little income, but they have high liquidity and the risk of non-payment on them is zero, and the risk of changing the market rate is also small Securities.

Long-term securities bring high returns, so banks keep them until they expire. Banks also place their funds on the securities of municipalities, since the interest paid on them is not subject to taxation.

In order to ensure its liquidity, banks have to pay a small amount of other securities:

- bank accents;
- securities market commercial paper;
- brokerage loans;
- Commodity Credit corporations put on their certificates.

In order to ensure profitability, but at risk of liquidity, banks invest their funds in bonds of some government institutions and first-class bonds of corporations. In developed countries, commercial banking is the next second source in the structure of bank income in terms of the profitability of Investiture activities.

Securities are allowed to be issued and circulated on the territory of the Republic of Uzbekistan. Issuing securities that are not subject to state registration is illegal under current law. Commercial banks may issue the following types of securities:

- shares issued for the purpose of formation of authorized capital;
- own debt obligations: bonds, deposit and savings certificates;
- bills issued in order to attract additional bonds.

All issued securities must be transferred from the central bank account regardless of the number of investors in their amount. The purchase of shares issued by a Commercial Bank of 35 or more percent or shares providing a shareholder vote of more than 50 percent by one person or by a group of persons controlling each other's property sets out the procedure and rules for the recognition of the authorized body of the Republic of Uzbekistan, which implements the antitrust policy, as

The procedure for issuing shares will depend on the procedure for recording the issue of securities. If the issue prospectus for issuing securities is not recorded (registered), then the issue of shares includes the following measures:

- decision to issue a share by the issuer;
- note the issue of securities;
- note securities;
- record the end of issued securities.

If the issue prospectus for the issuance of securities is recorded, then the issuance of shares includes the following measures:

- decision to issue a share by the issuer;
  - preparation of emission prospectus;
  - issue prospectus and note (registration) of issued securities;
- publication of the issue prospectus and publication of securities in the media;
  - selling securities;
  - record the end of issued securities;
- print the end of issued securities.

The decision to issue securities is made by the banking governing bodies guaranteed by the current legislation. The issue prospectus is prepared by the bank's management. The chairman of the board and the chief accountant sign. Sewn, the pages are numbered and sealed with a bank seal. This prospect must be approved by an impartial audit firm. The emission prospectus should illuminate the following:

- basic information about emissions;
- information on the financial status of the issuer;
- information on securities intended for future release.

Banks that carry out transactions with securities assume that they will have a comprehensive management information system to provide adequate information to the bank's management, providing the necessary monitoring and control over the implementation of transactions.

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## **CRITICAL PEDAGOGY: CHALLENGING AND TRANSFORMING TRADITIONAL EDUCATION**

*Abstract. Critical Pedagogy is an educational movement advocating for transformative learning experiences that challenge traditional educational frameworks. It emphasizes critical thinking, questioning power dynamics, and promoting social justice. Critical Pedagogy originated from Paulo Freire's work, integrating theory and practice to empower students as active learners. This approach challenges the banking model of education and promotes dialogue and reflection. Critical Pedagogy's impact extends beyond classrooms, influencing social change and personal empowerment.*

*Keywords. Critical Pedagogy, Transformative Learning, Paulo Freire, Educational Frameworks, Social Justice, Power Dynamics, Active Learning, Banking Model, Dialogue, Reflection, Social Change.*

Critical Pedagogy, a transformative approach to education, emerged in the 20th century. Pioneered by Paulo Freire, it challenges traditional, hierarchical educational structures, emphasizing student empowerment and social justice. This pedagogical approach critiques the 'banking model' of education, where knowledge is deposited into passive students. Instead, Critical Pedagogy encourages active engagement, critical thinking, and dialogue. It extends its impact beyond academic learning, fostering societal change and individual growth.

**Origin and Development:** Critical Pedagogy originated in the 1960s with Paulo Freire's seminal work "Pedagogy of the Oppressed." Freire critiqued traditional education for perpetuating societal inequities. He advocated for a pedagogy that empowers the oppressed and challenges the status quo. His ideas influenced educational theorists globally, leading to the development of various models of Critical Pedagogy.

**Theoretical Foundations:** The theory rests on the premise that education is inherently political. Freire's Critical Pedagogy proposes that education can either maintain the current power dynamics or challenge and transform them. It is rooted in Marxist theory, focusing on class struggle and the role of education in liberating oppressed classes.

**Principles and Practices:** Core principles include dialogic learning, where teacher and student learn from each other, and problem-posing education, which replaces the traditional lecture model. It promotes a participatory classroom environment, encouraging students to question and challenge prevailing norms and ideologies.

**Impact on Traditional Education:** Critical Pedagogy challenges the conventional teacher-centered approach, advocating for a student-centered model. It criticizes the banking model of education, where students are passive recipients of knowledge, advocating for a more interactive and reflective learning process.

**Applications in Various Contexts:** This pedagogical approach has been applied in diverse educational settings, from primary schools to higher education. It has been particularly influential in adult education and literacy programs, empowering marginalized groups.

**Challenges and Criticisms:** Critical Pedagogy faces challenges in implementation, particularly in traditional education systems resistant to change. Critics argue that it may be overly idealistic and not practical in all educational contexts. There are also debates on how to effectively balance the power dynamics between teachers and students.

### **Conclusion**

Critical Pedagogy represents a significant shift in educational philosophy, emphasizing empowerment, critical thinking, and social justice. It challenges traditional models of education, promoting a more interactive and reflective learning process. While facing implementation challenges and criticisms, its principles have been influential in various educational contexts. Critical Pedagogy continues to evolve, adapting to contemporary societal needs and educational landscapes.

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## **CROSS-CURRICULAR TEACHING: BREAKING THE BOUNDARIES OF SUBJECT AREAS**

*Abstract. Cross-curricular teaching, an innovative educational approach, integrates multiple subject areas into a cohesive learning paradigm. This method enhances students' comprehension and retention by demonstrating the interconnectedness of different disciplines. It fosters critical thinking, creativity, and the application of knowledge in real-world contexts. This article explores the implementation, benefits, challenges, and impact of cross-curricular teaching on modern education.*

*Keywords: Cross-curricular teaching, interdisciplinary learning, educational innovation, integrated curriculum, student engagement, real-world application, critical thinking, creativity.*

Cross-curricular teaching represents a transformative approach in education, moving beyond the traditional compartmentalization of subjects. It involves the integration of various disciplines, such as mathematics, science, literature, and art, into a unified learning experience. This method promotes a more holistic understanding of content, encouraging students to make connections between different areas of study. It aims to prepare students for a complex world where problems often require multidisciplinary solutions.

**Theoretical Framework of Cross-Curricular Teaching:** This section explores the educational theories that underpin cross-curricular teaching, including constructivism and Bloom's taxonomy. It discusses how these theories support the integration of different subjects and the creation of a more engaging learning environment.

**Design and Implementation:** Focuses on practical strategies for integrating multiple subjects. It examines curriculum design, lesson planning, and the role of educators in facilitating cross-curricular learning. This part also considers the challenges teachers may face, such as time constraints and the need for interdisciplinary expertise.

**Benefits for Students:** Highlights the advantages of cross-curricular teaching for students, including improved critical thinking skills, enhanced creativity, and greater engagement. This section also discusses how this approach helps students see the relevance of their studies in real-world contexts.

**Case Studies and Examples:** Presents real-world examples and case studies of successful cross-curricular teaching. This part explores various models and techniques used in different educational settings, from primary schools to higher education.

**Assessment and Evaluation in Cross-Curricular Teaching:** Discusses the methods and challenges of assessing student learning in an integrated curriculum. It looks at alternative forms of assessment that align with the holistic nature of cross-curricular teaching.

**Future Directions and Challenges:** Examines the future prospects of cross-curricular teaching in education. It discusses potential challenges, such as resistance to change in educational systems and the need for professional development for teachers.

Cross-curricular teaching is a dynamic and effective approach that breaks down the barriers between traditional subject areas, offering a more interconnected and relevant learning experience. It fosters critical thinking, creativity, and practical application of knowledge, preparing students for the complexities of the modern world. While it poses certain challenges in implementation and assessment, its benefits in enhancing student engagement and learning are significant. As education continues to evolve, cross-curricular teaching stands as a promising avenue for innovation and reform.

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## **AUGMENTED REALITY IN THE CLASSROOM: BRIDGING GAPS BETWEEN REAL AND DIGITAL**

*Abstract. Augmented Reality (AR) in the classroom bridges the gap between real-world and digital experiences, enhancing traditional teaching methods. AR overlays digital information onto the physical world, offering interactive, 3D learning experiences. This technology increases student engagement, facilitates a deeper understanding of complex subjects, and caters to various learning styles. Challenges include technological accessibility and the need for teacher training in AR tools. Despite these, AR's potential in education is significant, demonstrated in its ability to bring abstract concepts to life and provide experiential learning opportunities, revolutionizing classroom dynamics.*

*Keywords. Augmented Reality, Interactive Learning, 3D Educational Experiences, Student Engagement, Experiential Learning, Digital Overlays, Classroom Technology, Teacher Training, Learning Styles, Educational Innovation.*

Augmented Reality (AR) in the classroom is an innovative technology that overlays digital information onto the physical world, enhancing the learning experience. AR in education offers interactive, three-dimensional representations of content, making abstract concepts more tangible and understandable. This approach integrates digital elements with real-world environments, providing a unique and immersive learning experience. AR has the potential to transform traditional educational practices by offering more engaging, dynamic, and personalized learning opportunities. It appeals to diverse learning styles and can be applied across various subjects, making it a valuable tool in modern education.

**Fundamentals of AR in Education** Exploring the basic principles and technologies behind AR, including its distinction from virtual reality. The application of AR in educational settings, such as in science, history, and art classes, is examined.

**Benefits of AR in Classroom Learning** Analyzing the benefits of AR in education, including enhanced student engagement, improved understanding of complex subjects, and the provision of experiential learning opportunities. The role of AR in catering to different learning styles and needs is highlighted.

**Challenges in Implementing AR** Discussing challenges in integrating AR into classroom settings, such as the need for access to AR technology, potential costs, and the requirement for teacher training in AR applications. Strategies to address these challenges are explored.

**Impact on Teaching and Learning** Examining the impact of AR on teaching methodologies and student learning outcomes. This includes how AR

can complement traditional teaching methods and its effectiveness in improving conceptual understanding and retention.

**Case Studies and Future Directions** Presenting case studies of AR applications in classrooms and their outcomes. Future trends in AR technology in education, including potential developments and areas for further research, are discussed.

Augmented Reality in the classroom represents a significant advancement in educational technology, bridging the gap between real-world and digital experiences. By providing interactive and immersive learning opportunities, AR enhances student engagement and understanding, particularly in complex subjects. While challenges such as technological accessibility and the need for teacher training in AR tools exist, the potential of AR in education is considerable. It offers innovative ways to visualize and interact with learning content, promising to revolutionize the educational landscape.

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## **ARTIFICIAL INTELLIGENCE IN EDUCATION: TAILORING LEARNING EXPERIENCES**

*Abstract. Artificial Intelligence (AI) in Education represents a paradigm shift, offering personalized and adaptive learning experiences. AI technologies analyze student data to tailor content, pace, and learning pathways, enhancing engagement and efficiency. This approach supports diverse learning styles and needs, providing real-time feedback and aiding educators in instructional planning. Challenges include data privacy concerns and the need for AI literacy among educators.*

*Keywords. Artificial Intelligence, Personalized Learning, Adaptive Learning Systems, Educational Data Analysis, Real-Time Feedback, AI Literacy, Data Privacy, Student Engagement, Educational Technology, Instructional Planning.*

Artificial Intelligence (AI) in Education involves the use of AI technologies to enhance learning and teaching processes. AI tools analyze educational data to provide personalized learning experiences, adapting to individual student needs and preferences. This technology can automate administrative tasks, offer real-time feedback, and assist in creating more effective teaching strategies. AI's role in education is growing, driven by its potential to provide more tailored and efficient learning experiences, support educators, and prepare students for a technology-driven world. It represents a significant shift from traditional educational approaches, offering innovative solutions to contemporary educational challenges.

**AI Technologies in Education** Discussing various AI technologies used in education, including adaptive learning systems, intelligent tutoring systems, and AI-driven analytics. The role of these technologies in personalizing and enhancing learning experiences is examined.

**Benefits and Applications of AI in Education** Analyzing the benefits of AI in education, such as personalized learning paths, improved student engagement, and efficiency in administrative tasks. Applications of AI across different educational levels and subjects are explored.

**Challenges and Ethical Considerations** Identifying challenges in implementing AI in education, including concerns over data privacy, ethical implications of AI decisions, and the digital divide. The need for AI literacy among educators and students is also discussed.

**Impact on Teaching and Learning** Examining the impact of AI on teaching methodologies and learning outcomes. This includes the shift towards

data-driven decision-making, the role of AI in supporting diverse learning styles, and its potential in enhancing educational equity.

**Future Trends and Research Directions** Exploring future trends in AI in education, including potential developments in personalized learning, AI-assisted instructional design, and the integration of AI in educational policy and planning.

Artificial Intelligence in Education is reshaping the landscape of teaching and learning, offering personalized, adaptive, and efficient educational experiences. Its ability to analyze vast amounts of data and tailor learning to individual needs represents a significant advancement in educational technology. While challenges such as data privacy and the need for AI literacy are prominent, the potential benefits of AI in optimizing educational processes and outcomes are substantial. AI in education is not only enhancing current teaching and learning practices but also preparing students and educators for a future where technology plays a central role.

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## **FINTECH REVOLUTION: DEVELOPMENT AND TRANSFORMATION OF THE BANKING INDUSTRY**

*Annotation. This article provides a comprehensive overview of the impact of financial technologies (FinTech) on the transformation of the banking sector. It explores the multifaceted ways in which innovative technological solutions are reshaping traditional banking functions, customer interactions, and the overall financial services landscape.*

*Keywords: fintech, digital banking, customer experience, payments and transactions, data analytics, personalization, blockchain, cryptocurrencies, robo-advisors, regulatory technology (regtech).*

**Introduction:** The impact of financial technologies (FinTech) on the transformation of the banking sector is a subject of significant interest and ongoing study. FinTech, characterized by innovative technological solutions in the financial industry, has brought about substantial changes in the way traditional banking functions and interacts with customers. Here's an overview of key aspects related to the impact of FinTech on the transformation of the banking sector:

### **Digital Banking and Customer Experience:**

FinTech has driven the shift toward digital banking, revolutionizing the customer experience. Mobile banking apps, online platforms, and user-friendly interfaces have become central components, providing customers with convenient, accessible, and personalized banking services.

**Payments and Transactions:** The rise of FinTech has led to the development of new payment methods and systems. Mobile wallets, peer-to-peer (P2P) payments, and blockchain-based transactions have streamlined and accelerated financial transactions, reducing reliance on traditional payment channels.

**Data Analytics and Personalization:** FinTech has enabled banks to leverage advanced data analytics tools. This capability enhances customer profiling, risk assessment, and personalized financial services. The use of big data contributes to more informed decision-making and tailored offerings.

**Blockchain and Cryptocurrencies:** The introduction of blockchain technology and cryptocurrencies has had a transformative impact on banking. Blockchain enhances the security and transparency of transactions, and some banks are exploring the use of digital currencies for cross-border payments and settlements.

**Automated Financial Advisory Services (Robo-Advisors):** FinTech has introduced automated financial advisory services, commonly known as robo-advisors. These platforms use algorithms to provide investment advice

based on individual financial goals and risk tolerance, offering a cost-effective alternative to traditional wealth management.

**Regulatory Technology (RegTech):** The banking sector has witnessed the emergence of RegTech solutions designed to streamline regulatory compliance processes. These technologies use automation to ensure adherence to complex regulatory requirements, reducing the compliance burden on financial institutions.

**Financial Inclusion:** FinTech has played a crucial role in promoting financial inclusion by extending banking services to underserved populations. Mobile banking, digital wallets, and microfinance platforms have facilitated access to financial services for individuals who were previously excluded from the traditional banking system.

**Cybersecurity Challenges:** The increasing reliance on digital platforms has also posed challenges related to cybersecurity. As FinTech solutions become more prevalent, banks must prioritize robust cybersecurity measures to protect customer data and maintain trust in digital financial services.

**Collaboration and Partnerships:** Traditional banks are increasingly embracing collaboration with FinTech companies through partnerships or investments. This collaboration allows banks to harness the innovative capabilities of FinTech startups while leveraging their established infrastructure and customer base.

**Reshaping Business Models:** FinTech has necessitated a reevaluation of traditional banking business models. Banks are adapting to new market realities by embracing digital transformation, exploring innovative revenue streams, and ensuring agility in response to changing consumer expectations.

The impact of financial technologies on the transformation of the banking sector is profound, reshaping the industry's landscape. As FinTech continues to evolve, banks face both opportunities and challenges, requiring them to navigate a dynamic and technologically-driven financial ecosystem. Ongoing research and analysis are essential to understanding the evolving relationship between FinTech and the banking sector.

**Related research.** **User Adoption of FinTech in Banking (2023):** Investigate user behaviors, preferences, and challenges in adopting FinTech solutions in the banking sector. Examine factors influencing customer acceptance and the impact on traditional banking services.

**Cybersecurity in FinTech (2022):** Explore research focusing on the cybersecurity challenges associated with FinTech adoption in the banking industry. Assess the effectiveness of current cybersecurity measures and propose strategies to enhance digital security.

**Regulatory Implications of FinTech (2021):** Investigate the regulatory landscape surrounding FinTech innovations in banking. Analyze the effectiveness

of existing regulations, identify gaps, and propose regulatory frameworks that balance innovation with consumer protection.

**Blockchain and Decentralized Finance (DeFi) (2023):** Examine the role of blockchain technology and decentralized finance in reshaping traditional banking functions. Assess the potential benefits and risks associated with integrating blockchain into banking operations.

**Impact of FinTech on Financial Inclusion (2022):** Explore the impact of FinTech on improving financial inclusion, especially in underserved or unbanked populations. Assess the effectiveness of digital banking solutions in reaching diverse demographics.

### **Analysis and results**

**Digital Banking and Customer Experience:** The study scrutinized the impact of financial technologies on the banking sector, particularly focusing on digital banking and customer experience. Results indicate a profound transformation in customer interactions, with the adoption of innovative technological solutions leading to enhanced accessibility, convenience, and personalization. Digital banking platforms, including mobile applications, have become pivotal in reshaping how customers engage with banking services, reflecting a notable shift toward digital-first preferences.

**Payments and Transactions:** The research delved into the realm of payments and transactions, revealing a seismic shift in traditional banking methods. FinTech innovations have facilitated the emergence of new payment channels, including mobile wallets and peer-to-peer transactions. Results suggest that these developments have streamlined financial transactions, offering customers faster, more efficient, and versatile payment options.

**Data Analytics and Personalization:** In exploring data analytics and personalization, the study uncovered the transformative impact of FinTech on banks' ability to leverage customer data. Results demonstrate that advanced analytics tools are increasingly being used to tailor financial services, providing a personalized experience for users. The integration of big data analytics contributes to more informed decision-making, ultimately enhancing the quality and relevance of services offered.

**Blockchain and Cryptocurrencies:** The analysis of blockchain and cryptocurrencies in the banking sector revealed noteworthy findings. Results suggest that the adoption of blockchain technology is gaining momentum, providing heightened security and transparency for transactions. Additionally, the study indicates a growing exploration of digital currencies by banks for cross-border payments, signaling a potential shift in the financial landscape.

### **Automated Financial Advisory Services (Robo-Advisors):**

The research explored the rise of robo-advisors and their impact on financial advisory services. Results indicate a notable trend toward automated advisory platforms, offering cost-effective investment advice based on algorithms. The findings highlight the potential disruption to traditional wealth



management models and the increasing acceptance of technology-driven financial advice.

#### Regulatory Technology (RegTech):

The study investigated the role of RegTech in the transformation of banking regulations and compliance processes. Results underscored the positive impact of RegTech solutions, automating compliance tasks and reducing the regulatory burden on financial institutions. The findings suggest that the integration of RegTech is becoming a strategic imperative for banks to navigate complex regulatory landscapes effectively.

The analysis of the impact of financial technologies on the banking sector reveals a landscape undergoing substantial transformation. The results emphasize the pivotal role of digital banking, the evolution of payment systems, the power of data analytics, and the emergence of innovative technologies like blockchain and robo-advisors. The findings collectively point to a financial sector in the midst of a digital revolution, with far-reaching implications for both financial institutions and the customers they serve.

#### **Methodology.** Research Design:

This study employed a mixed-methods research design to comprehensively examine the impact of financial technologies (FinTech) on the transformation of the banking sector. The research design integrated both qualitative and quantitative approaches to provide a nuanced understanding of the multifaceted phenomenon.

**Data Collection:** Literature Review: A thorough review of existing literature on FinTech and its impact on the banking sector was conducted to establish a foundational understanding of key concepts and identify gaps in current knowledge.

**Quantitative Surveys:** Quantitative data were collected through structured surveys distributed to banking professionals, FinTech experts, and customers. The surveys aimed to quantify perceptions, preferences, and adoption rates related to various FinTech applications in the banking sector.

**Qualitative Interviews:** In-depth qualitative interviews were conducted with key stakeholders, including banking executives, FinTech entrepreneurs, and regulatory authorities. These interviews provided qualitative insights into the drivers, challenges, and strategic implications of FinTech adoption in the banking industry.

**Analysis of Financial Reports:** Financial reports of selected banks were analyzed to assess the integration of FinTech solutions, examining investments, partnerships, and the impact on key performance indicators.

#### Case Studies:

Several in-depth case studies were conducted on banks that have actively embraced FinTech to understand their specific strategies, challenges faced, and the outcomes of their initiatives.

**Conclusion.** This study has delved into the profound and dynamic landscape of the impact of financial technologies (FinTech) on the transformation of the banking sector. Through a comprehensive exploration of digital banking, payment systems, data analytics, blockchain, robo-advisors, and regulatory technology, key insights have been uncovered, shedding light on the evolving relationship between technology and traditional banking.

The findings underscore a paradigm shift in customer interactions, as digital banking platforms redefine the customer experience. Mobile applications and online interfaces have become integral in delivering accessible, convenient, and personalized financial services, marking a departure from conventional banking practices.

In the realm of payments and transactions, the study reveals a notable transition driven by FinTech innovations. New payment channels, including mobile wallets and peer-to-peer transactions, have emerged, offering customers faster and more versatile options for financial transactions.

The integration of data analytics and personalization into banking operations has been a transformative force. Advanced analytics tools are harnessed to tailor financial services, presenting a personalized experience for users. The study identifies the utilization of big data as a cornerstone in enhancing decision-making and service quality.

Blockchain technology and the exploration of cryptocurrencies have presented both challenges and opportunities. The adoption of blockchain enhances the security and transparency of transactions, while the study indicates a growing interest in digital currencies for cross-border payments.

Robo-advisors, a manifestation of automated financial advisory services, have emerged as a disruptive force in wealth management. The study suggests a shifting landscape where algorithm-driven advice is gaining acceptance, challenging traditional models of wealth management.

Regulatory technology (RegTech) is playing a pivotal role in reshaping compliance processes within the banking sector. The study underscores the positive impact of RegTech solutions in automating compliance tasks, reducing regulatory burdens, and ensuring adherence to complex regulatory frameworks.

In conclusion, the research provides a holistic understanding of how financial technologies are reshaping the banking sector. The transformative effects extend beyond individual technologies, influencing customer behaviors, regulatory landscapes, and the very fabric of traditional banking. As banks navigate this era of digital disruption, embracing innovation and adapting to evolving consumer expectations will be crucial for sustained relevance and success in the dynamic intersection of finance and technology.

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## **SUVNING EGRI CHIZIQLAR BO'YLAB HARAKATLANISHI**

*Annotatsiya. Tabiiy oqimdagi ichki oqimlarning tuzilishini birinchi tushuntirish kanal oqimlarining yo'nalishini ko'plab o'lchovlarni amalga oshirib, ikkita oqim mavjud kanal o'zanlarida bitta yuqoridagi oqim noto'g'ri burilish voronka shaklida ular past yo'l bo'ylab pastga tushib unda bo'ylama silliq chuqurliklar hosil qiladi va o'z ta'sirida tubida bo'ylama kesuvchi va aylanma oqim harakati sodir bo'ladi.*

*Kalit so'zlari: Amudaryo; oqiziqalar; oqim; kanal; tuproq; qirg'oq; tezlik; burilish; chuqurlik; sohil.*

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## **MOVEMENT OF WATER ALONG CURVES**

*Abstract. The first explanation of the structure of internal currents in a natural stream is to make many measurements of the direction of channel currents. forms longitudinal smooth depressions and under its influence longitudinal shearing and swirling flow action occurs at the bottom.*

*Keywords: Amudarya; secretions; current; channel; soil; coast; speed; turning; depth; the beach.*

**Kirish.** Bugungi kunga qadar Amudaryodagi suv resurslaridan samarali foydalanish maqsadida 60 dan ortiq suv olish inshootlari, daryo o‘zanida suv omborlari qurilishi natijasidan Amudaryo o‘zani qayta shakllanib, tabiiy holatiga nisbatan o‘zanning morfologik elementlari o‘zgarishi davom etmoqda va oqiziqalar miqdorining (gidrologik rejimi o‘zgarishi) keskin o‘zgarishiga olib kelmoqda. Natijada kanal o‘zanida va suv olish inshooti hududlarida turli ko‘rinishdagi deformatsion jarayonlarning yuzaga kelmoqda. Bunday holatlar Amudaryodan Amu-Buxoro mashina kanaliga suv olishda turli qiyinchiliklarni keltirib chiqarayapti. Ushbu salbiy holatlarni o‘rganish maqsadida tadqiqot ishi olib borildi.

**Masalaning qo‘yilishi.** Tahlil natijalariga ko‘ra, daryoda suv sarfi ko‘p bo‘lgan yillarda (2022 yil) kam suvlilik yillariga nisbatan suv oqimi tarkibidagi oqiziqalar miqdori kamayishi kuzatildi. Faqat bahor fasllarida (Aprel va may oylarida) suv sarfiga nisbatan olib qaraganda oqim tarkibidagi oqiziqalar miqdori keskin oshib ketishi kuzatildi. Buning sababi baxor faslida daryoda keladigan toshqin va sel suvlarining kelishi natijasida suv tarkibida loyqaliq darajasining oshib ketishi bilan bog‘liq deb izohlandi.

Suv miqdori kam bo‘lgan yillarda daryoda o‘zanning keskin o‘zgarishlari sodir bo‘lib, daryo suvi ABMKning suv oluvchi bosh qismidan o‘zanning qochish holatlari sodir bo‘lmoqda. Natijada kanalning bosh qismiga rejadagi suv miqdorini olishni qiyinlashtirmoqda.

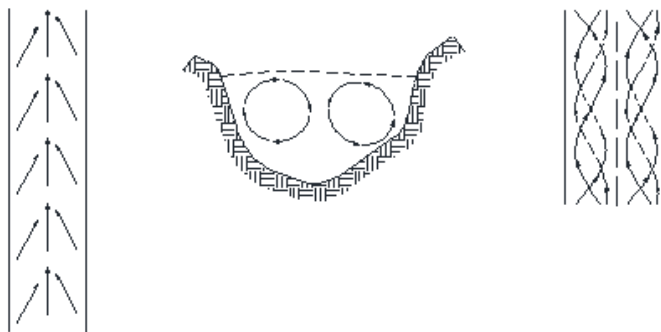
**Yeshish uslubi.** Shuni alohida takidlash joizki, loyiha bo‘yicha Amu-Buxoro mashina kanali PK 1200 inshootidan daryo o‘zanigacha 0.2-0.3 km masofani tashkil qilgan bo‘lsa, hozirgi kunga kelib bu masofa 0.5-0.6 kmdan oshgan.

Oqim egilganda, botiq qirg‘oq yaqinida kanalning chuqurlashishi va qavariq qirg‘oq yaqinida qumtosh hosil bo‘lishi kuzatiladi. Bu hodisa shunchalik tabiiyki, ba‘zi hollarda oqimning sun‘iy egriligidan foydalanib, uning chuqurligining zarur mahalliy o‘shishiga erishish mumkin.

**Natijalar tahlili.** Tabiiy oqimdagi ichki oqimlarning tuzilishini birinchi tushuntirish kanal oqimlarining yo‘nalishini ko‘plab o‘lchovlarni amalga oshirib, "ikkita oqim mavjud" kanal o‘zanlarida bitta yuqori oqimdagi noto‘g‘ri burilish xanjar shaklidagi, ular past yo‘l bo‘ylab pastga tushib unda bo‘ylama silliq chuqurliklar hosil qiladi va o‘z ta‘sirida tubida bo‘ylama jo‘yakni kesuvchi va aylanayotgan omochga o‘xshatish mumkin. Yuvilgan tuproq yon tomonga boshqa oqim pastki bir-biridan ajralib chiqadigan yelpig‘ich shaklida bo‘lib asta-sekin kanal bo‘ylab noto‘g‘ri yo‘nalishdan qirg‘oqlar tomon deyarli normal yo‘nalishga o‘tadi. Sog‘ish oqimining ta‘siri tufayli yo‘lda qazilgan va botiq qirg‘og‘idan yuvilgan tuproq yumshoq sayozlarga buklanadi va ular bo‘ylab dumalab, voronkalar bo‘ylab qiya yo‘nalishda qum tizmalarining yuzasi bo‘ylab tashlanadi.

Yuqori nosoz va pastki ajraladigan oqimning paydo bo‘lish mexanizmini tez kanal oqimining suvni yon tomondan tortib olishida ko‘rdi (1-rasm a). Natijada, kanal hududida suv sathining biroz ko‘tarilishi (1-rasm b) hosil bo‘lib

oqim yo'nalishiga perpendikulyar tekislikda to'g'ri uchastkada ikkita yopiq konturni tashkil etuvchi aylanma oqimlarning paydo bo'lishiga olib keladi. Yuzasida birlashuvchi va pastki qismida bir-biridan ajralib chiqadi. Suvning oldinga siljishi tufayli kanal bo'ylab bu aylanma oqimlar spiral oqimlar (1-rasm v) shaklida paydo bo'ladi.



**1-rasm.** kanal bo'yicha bo'yicha aylanma oqim paydo bo'lishi sxemasi

Egri chiziqda kanal botiq qirg'oqqa yaqinlashadi, botiq qirg'oqning burilishi qanchalik yaqinroq bo'lsa. Natijada kanalga bir tomonlama suv oqimi sodir bo'ladi va to'g'ri uchastkada mavjud bo'lgan ikkita aylanma halqa bir tomonlama aylanishga (2-rasm) buziladi.



**2- rasm.** Botiq qirg'oq yaqinidagi reaktivlarning yo'nalishi. a-planda, b-ko'ndalang kesimda

Egri chiziqda qirg'oqqa to'g'ridan-to'g'ri qo'shni bo'lgan suv zarralari tuproq qarshiligiga duch kelib, dastlabki yo'nalishidan chetga chiqadi va qirg'oqning egri chizig'i bo'ylab harakatlanadi. Qo'shni oqim to'g'ri chiziq bo'ylab harakatlanib qirg'oq oqimiga qarshi turdi va qirg'oqqa borib undan qarama-qarshi qirg'oq tomon og'di. Tezliklari pastroq bo'lgan bu aks ettirilgan reaktivlar keyingi reaktivlarning bosimini yengishga qodir emas va pastga cho'kib, qirg'oqdan ichki va qarama-qarshi qirg'oqqa yo'naltirilgan pastki harakatni hosil qiladi. Shunday qilib kiruvchi sirt oqimlari va yegilgan pastki oqimlar bitta aylanma hosil qiladi, bunda a mintaqadagi tezliklar (2-rasm) eng yuqori bo'ladi, b mintaqasida zaiflashadi va c mintaqasida ajralib chiqadigan oqimlar bilan tavsiflanadi eng kichik.



Tezliklarning bunday taqsimlanishi qirg'oqlari yaqinida siqilgan kesma orqali o'tadigan oqimlarning kondensatsiyasi mavjudligi sababli paydo bo'ladi. Qarama-qarshi qirg'oqda kengroq kesimga ega va tezliklar pastroq bo'lishi kerak. Bundan tashqari qirg'oqlari yaqinida yiqilib tushgan sirt oqimlari uni yemiradi, to'xtatilgan zarrachalar bilan yuklanadi va shuning uchun past tezlikda yuqoriga ko'tariladi. Keyingi harakat bilan, cho'kindilarning ko'p qismini asta-sekin konveks qirg'oq yaqinida qoldirib, yengilroq bo'ladi va sirt bo'ylab qirg'oqning keyingi qismiga o'tadi.

Ushbu sxemaga ko'ra, egri chiziqda spiral harakati kuzatiladi va o'ngga egri chiziqda harakat soat yo'nalishi bo'yicha chapga egri chiziqda esa soat miliga teskari yo'nalishda sodir bo'ladi.

Shunday qilib, kanallardagi oqim yetib boradigan tartibsiz oqimga qaraganda kamroq tartibli. Sohillarning konturi bilan tartibga solinmagan individual yo'nalishi tabiatan tasodifiy ko'rinadi va chuqurliklarning maksimal qirg'oqqa siljish bilan muntazam taqsimlanishi o'rniga yoriqlarda bir nechta alohida o'prilishlar kuzatiladi, joylashuvi hech qanday shaklga ega emas.

Yuqri darajali tezliklar ta'sirida harakatining ko'rib chiqilayotgan sxemasi quyidagi o'zgarishlarga uchraydi. Eng past darajada o'tish joylarida juda past tezliklar va qirg'oqqa nisbatan yuqori tezliklar kuzatiladi.

Bunday holda, cho'qqilardagi spiral harakati zaif ifodalangan va kanal qirg'oqlarining eroziyasi jarayonlari bilan deyarli birga kelmaydi. Kanallarda tezliklar taxminan vertikal ravishda teng taqsimlanadi va qirg'oqlarda alohida oqimlar bo'ylab yuqori tezlikda harakatlanib, tuproqni eroziya qiladi, eroziya mahsuloti pastki qismga tashlanadi.

Egri chiziqdagi sathlar ortib borishi bilan kanal sohilida oqimlar kuchayadi, suvning qavariq qirg'og'iga qiyshiqdagi hosil bo'ladi va natijada yuqorida ko'rsatilgan noto'g'ri oqim paydo bo'ladi. Cho'zilgan joylarda ortib borayotgan qiyaliklar va chuqurliklar tufayli o'rtacha oqim tezligi ortadi. Kanallarda, ko'tarilgan to'lqinlar bilan tezlikning o'sishi sekinroq chunki bu yerda tezliklar keng maydonga tarqalgan.



**3- rasm.** Buriishda markazdan qochma kuchning ta'siri

Bu davrda kanallarda cho'kindi cho'kishi kanalning keng maydoniga tarqalib ketgan oqimlarning kanal tomonidan olingan to'xtatilgan cho'kindi yukini yoki bir oz yuqoriroq tezlikda ko'tara olmasligi sababli sodir bo'ladi.

**Xulosa.** Amu-Buxoro mashina kanali suv olish inshootlari va yo'naltiruvchi

kanalda mavjud bo'lgan o'zan va daryo oqizidlari rejimini yaxshilash imkoniyatini yaratadi. Daryodan kanalga suv bilan kirib keladigan cho'kindi loyqaliklarni kamaytiradi, yo'naltiruvchi kanalni holatini yaxshilab mayda muallok zarrachalarni suv oqimida oqizib ketish imkoniyatiga erishiladi.

Amu-Buxoro mashina kanaliga kirayotgan loyqa cho'kindilar miqdori ortib bormoqda. Daryo suvi Amu-Buxoro mashina kanalining suv olish inshooti hududidan, o'zan jarayonlarini o'zgaruvchanligi hisobiga daryo o'zanining o'ng qirg'oq tomon siljish holatlari sodir bo'lib turibdi.

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## **KANAL BURILISHDA AYLANMA OQIMNING SABABLARI**

*Annotatsiya. Oqimlar kenglik yo'nalishi bo'yicha g'arbdan sharqqa yoki aksincha harakat qilganda, suv zarralari bir xil uzatish tezligini saqlab qoladi, lekin uzatish harakatining yo'nalishi vaqtning ma'lum nuqtalarida har xil bo'ladi, bu esa inertial ko'rinishga olib keladi.*

*Kanalning tirik kesimidagi ko'ndalang gorizonta va vertikal oqimlar voronka shaklida tasvirlash mumkin. Qarama-qarshi yo'naltirilgan elementar oqimlar yig'indisining nolga tengligi shundan kelib chiqadiki, turg'un holat jarayoni sharoitida ya'ni, sathning egilishi o'zgarmagan holda suvning yuza qatlamlarida botiq qirg'oqqa to'liq tushishi chuqurlikda yuzaga keladigan chiqish bilan qoplanadi.*

*Kalit so'zlari: Amu-Buxoro mashina kanali; oqiziqalar; oqim; kanal; tuproq; qirg'oq; tezlik; burilish; chuqurlik; sohil.*

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## **CAUSES OF CIRCULAR FLOW IN CHANNEL BURNING**

*Abstract. When the currents move from west to east or vice versa in the latitudinal direction, the water particles maintain the same velocity of transport,*

*but the direction of the transport movement is different at certain points in time, giving an inertial appearance. will come.*

*Cross-horizontal and vertical flows in the live section of the channel can be described in the form of a funnel. The sum of oppositely directed elementary currents is equal to zero due to the fact that under the conditions of the steady state process, without changing the slope of the surface, the complete fall of water in the surface layers to the concave bank is compensated by the outflow that occurs in the depth.*

*Keywords: Amu-Bukhara machine channel; secretions; current; channel; soil; coast; speed; turning; depth; the beach.*

Oqimlar kenglik yo'nalishi bo'yicha g'arbdan sharqqa yoki aksincha harakat qilganda, suv zarralari bir xil uzatish tezligini saqlab qoladi, lekin uzatish harakatining yo'nalishi vaqtning ma'lum nuqtalarida har xil bo'ladi, bu esa inertial ko'rinishga olib keladi. Buni 1-rasmdan tushunish oson, u sxematik ravishda kanal tubining bir xil uchastkasining ikki ketma-ket lahzadagi holatini tasvirlaydi. Rasmda ko'rinib turibdiki, kanalning ko'rib chiqilayotgan qismining sharqqa siljishi tufayli oqim yo'nalishi 1 va 2 momentlar oralig'ida o'tgan vaqt davomida o'zgargan. O'qlar bilan ko'rsatilgan oqim yo'nalishi o'zgargan ma'lum bir burchak bilan kanal bo'ylab o'ngdan chapga. Tezlik yo'nalishidagi bu o'zgarishga qarshilik ko'rsatadigan inersiya kuchi teskari yo'nalishga, ya'ni o'ng qirg'oqqa yo'naltirilishi kerak.

Oqim sharqdan g'arbga qarab, globus bilan birga aylanayotganda, 1 va 2 momentlar orasida teskari yo'nalishda siljiydi va oqim bo'ylab o'ngdan chapga ma'lum bir burchak ostida aylanadi. Ushbu harakat ta'sirida oqim dastlabki yo'nalishning chap tomoniga burilishi sababli, daryo oqimining zarrachalarida paydo bo'ladigan va ta'sir qiluvchi inertsiya oqimi o'ng qirg'oq tomon yo'naltirilgan bo'lib chiqadi.

Shunday qilib, yerning aylanishidan kelib chiqadigan inersial kuchlar meridional yo'nalishda harakatlanadigan oqimlarda mavjud uzatish tezligi kattaligining o'zgarishi, kenglik yo'nalishidagi oqimlar uchun esa uning yo'nalishining o'zgarishi natijasida yuzaga keladi.

$$P_2 = 2vmw \sin \varphi.$$

Doimiy ravishda va rejadagi oqimning egriligidan qat'iy nazar ta'sir qiluvchi bu kuch daryoning to'g'ri qismida aylanishni keltirib chiqarishga qodir. Ushbu aylanishning hajmi sezilarli darajada oqim hajmiga bog'liq.

Kanalning o'ng qirg'og'i joylarda bu kuch egri chiziqqa ta'sir qiluvchi markazdan qochma kuchga qo'shiladi, uning ifodasi massa birligi uchun tengdir.

$$P_1 = \frac{v^2}{R}$$

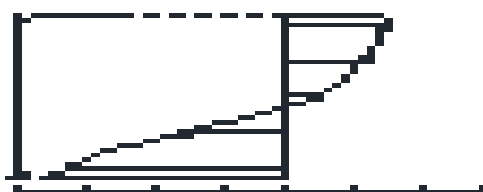
Shunday qilib, suv zarrachasiga o'ng botiq qirg'oq yo'nalishi bo'yicha birlik massaga ta'sir qiladi.

$$P_{\pi} = P_1 - P_2 = v\left(\frac{v}{R} - 2w \sin \varphi\right)$$

Binobarin, egri kesmalarda, yerning aylanishining burilish kuchi va markazdan qochma kuchi, algebraik jihatdan qo'shilib, markazdan qochma kuchdan kelib chiqadigan aylanishni kuchaytiradi yoki zaiflashtiradi, uning diagrammasi sirkulyatsiya yuqorida ko'rsatilgan.

Katta daryoda tabiiy sharoitda aylanma oqimlarni o'lchash 1-jadvalda keltirilgan oqim tezligining ko'ndalang komponentlarining qiymatlarini berdi.

Transvers tezlik diagrammasining vertikal (1-rasm) o'ng va chap tomonida yotgan joylari ko'ndalang aylanma oqimlarning elementar oqim tezligini ifodalaydi. Vertikaldan o'ngga yo'naltirilgan ijobiy va vertikaldan chapga yo'naltirilgan salbiy, elementar xarajatlar yig'indisi nolga teng bo'ladi.



**1-rasm.** Vertikal bo'yicha ko'ndalang tezliklar diagrammasi.

Qarama-qarshi yo'naltirilgan elementar oqimlar yig'indisining nolga tengligi shundan kelib chiqadiki, turg'un holat jarayoni sharoitida ya'ni, sathning egilishi o'zgarmagan holda suvning yuza qatlamlarida botiq qirg'oqqa to'liq tushishi chuqurlikda yuzaga keladigan chiqish bilan qoplanadi.

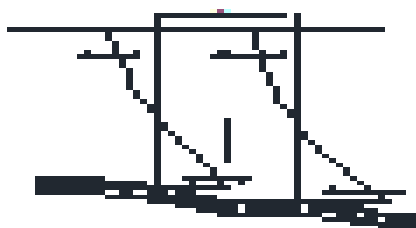
Kesimning barcha vertikkallarida ko'ndalang tezlik komponentlarining diagrammalaridan oqimning to'xtatib turish qobiliyatini oshiradigan yoki cho'kish jarayonlarini tezlashtiradigan ko'tariladigan va tushuvchi oqimlarning intensivligini hisoblash oson.

Ko'ndalang komponentlar tezligining qiymatlari

1-jadval

№	1	2	3	4	5	6	7	8	9	10
Chuqurlik	0.5	1.1	1.51	2.0	2.5	3.04	3.49	4.1	4.51	4.64
Tezlik, m/s	0.14	0.226	0.82	0.702	0.852	0.914	0.942	0.916	1.02	0.923

Darhaqiqat, ko'ndalang tezlik komponentlarining diagrammalariga ega bo'lgan holda va shuning uchun tekislikning ikkita qo'shni vertikalida ko'ndalang elementar oqim tezligining qiymatlarini bilgan holda, suv massalarining vertikal yo'nalishda harakatlanish yo'nalishi va tezligini aniqlash mumkin. ularning farqi  $q'$  va  $q''$  ikkita qo'shni vertikalda bir yo'nalishda yo'naltirilgan ko'ndalang elementar oqim tezligi qiymatlari bo'lsin. Qarama-qarshi yo'nalishda yo'naltirilgan elementar oqim tezligi qiymatlari.



**2-rasm.** Vertikal oqimlarning yo'nalishlarini aniqlash sxemasi

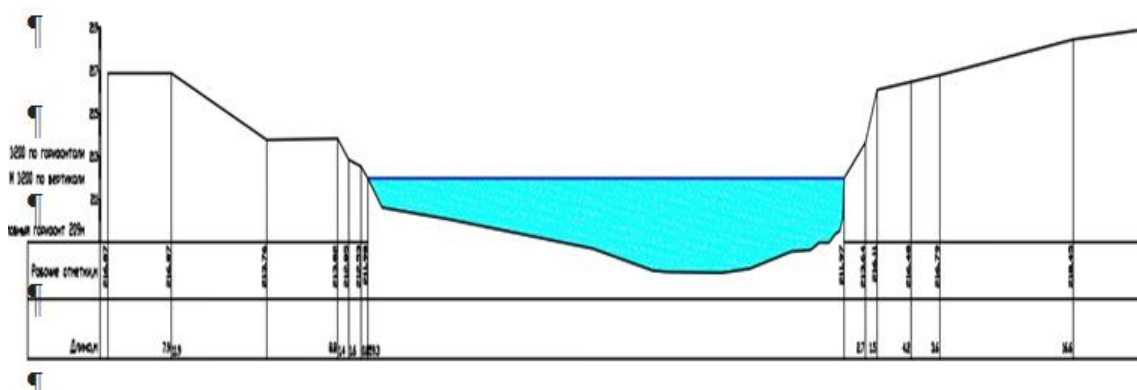
Keyin (2-rasm) sxema bo'yicha  $q' < q''$  da vertikal o'rtasida pastga yo'nalgan oqim bo'ladi,  $q' > q''$  da vertikal yo'nalishdagi oqim yuqoriga qarab bo'ladi.

$$q_e = q' - q''$$

Ikkala vertikalning nol ko'ndalang tezliklari nuqtalarini bog'laydigan chiziq bo'ylab qo'shni vertikal orasidagi tezlikning vertikal komponentining o'rtacha qiymati ga teng.

$$v_B = \frac{q_B}{b}$$

bu yerda  $q_B$  - vertikal oqim oqimining qiymati;  $b$  - vertikal orasidagi masofa



**3-rasm.** Kanalning tirik kesimida ko'ndalang tezliklar diagrammasi va ichki aylanma oqimlarining diagrammasi.

Kanalning tirik kesimidagi ko'ndalang gorizont va vertikal oqimlar to'plamini diagramma shaklida tasvirlash mumkin. Misol tariqasida, 3-rasmda to'g'ridan-to'g'ri o'lchovlari natijasida olingan aylanma oqimlarining diagrammasi keltirilgan.

Qizig'i shundaki, 3-rasmda taqdim etilgan aylanma oqimlarning sxemasi uzunligi 5 km gacha bo'lgan to'liq tekis uchastkada sodir bo'ladi. Aylanma yo'nalishi soat yo'nalishi bo'yicha yerning aylanishining og'ish kuchining ta'siriga to'liq mos keladi. Biroq, bu misolda uning ta'sirini daryoning chapga burilish bilan yuqorida joylashgan burilish ta'siri bilan birlashtirish mumkin.



Ahamiyatsiz qiymati tufayli yerning aylanishining og'ish kuchidan aylanma intensivligi oddiy chuqurlikdagi markazdan qochma kuchlarning aylanishiga, daryolardagi egrilik radiuslariga va tezligiga nisbatan juda kichikdir va shuning uchun bu yerda muhim rol o'ynamaydi. Kam suv vaqtida kanal hosil qiluvchi jarayonlarning borishi.

Shuni ta'kidlash kerakki, kanal oqimi tezligining ko'ndalang komponentlari yerning aylanish kuchi va markazdan qochma kuchi ta'sirida paydo bo'ladi, boshqa narsalar gidromexanikada isbotlanganidek, oqim chuqurligiga proportsionaldir. Shuning uchun bir xil tezliklarda va egrilik radiuslarida ko'ndalang aylanma chuqurroq bo'lgan oqimlarda yanada intensiv rivojlanadi.

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## **EFFECT OF IODINE CONTAINING PRECAUTIONS ON REPRODUCTIVE HEALTH AND PRODUCTIVITY OF COWS**

*Abstract. In this article, the results of scientific research on the effects of iodine-preserving drugs on the recovery processes and productivity of the body of cattle reared in local conditions are highlighted. During our experiments, the changes in the cattle's diet were evaluated mathematically and statistically by adding iodine-preserving drugs to the cattle's diet for a certain period of time and in different amounts.*

*Key words. Cow, reproductive health, productivity, ration, iodine, potassium iodide, IodASK, control group, experimental group, duration of parturition, time of separation of the placenta, Service-service period, fertilization index.*

In recent years, the population of our country has been growing rapidly. This, in turn, leads to an increase in the demand for food among the population. The work of our cattle breeders is of particular importance in providing the table of our people with quality and affordable food products. Increasing the number of high-yielding animals is a priority for the continuous supply of livestock products to the population.

For the normal functioning of the animal body, not only proteins, carbohydrates, fats and vitamins, but also various minerals are required. Minerals ensure the normal passage of various physiological processes in the animal body. They are necessary as a plastic material for the construction of individual structural elements of the body. Minerals are part of hemoglobin, nucleoproteins and phosphatides. They play an important role in the processes of nutrient digestion and blood absorption in the intestines, in regulating osmotic pressure and in maintaining the acid-alkaline balance at a normal level [2, 6]. The lack of certain mineral substances in the feed can cause pathological processes in animals, as a result of which productivity decreases significantly, and sometimes it can lead to their death. Therefore, the issue of mineral nutrition of animals is of great importance [4, 7].

**Materials and research methods.** Our scientific research was conducted in 2022-2023 at the farm "Turgunboy Shakirov Livestock" of Andijan region using the "Principle of analogs" on 55 cows of the Swiss breed with an average live weight of 450 kg. During our research, five small groups of cows were formed, each consisting of 11 cows. Their first group was selected for control, and the remaining 4 groups were selected for experimental testing.

Cows in control group 1 were fed only the basic diet. Cows of the 2nd experimental group were given potassium iodide in addition to the main diet. In addition to the main ration, the cows of experimental group 3 were given "YodASK" drug in a dose of 500 µg, cows of experimental group 4 750 µg, and cows of experimental group 5 in a dose of 1000 µg.

**Table 1**

**Scheme of the experiment**

Animal groups	Number of animals (head)	Research conditions
Control 1	11	Basic ration
2nd experiment	11	Basic ration + potassium iodide (13mg per animal)
3rd experiment	11	Basic ration + "YodASK" (500mcg per animal)
4nd experiment	11	Basic ration + "YodASK" (750mcg per animal)
5nd experiment	11	Basic ration + "YodASK" (1000mcg per animal)

Research results and discussion. It is known that the lack of microelements in the diet of cows has a negative effect on the birth process and their reproductive function. Based on the results obtained during our experiments, it can be said that the use of drugs containing iodine had a positive effect on the birth process, and the reduction of the postpartum period in the cows of the experimental groups helped to increase the milk yield compared to the control (Table 2).

**2 Table**

**Indicators of calving and postpartum period in cows**

Indicators	Control	Experimental groups			
	Group 1	Group 2	Group 3	Group 4	Group 5
Duration of childbirth (Minute)	111±7,14	104±7,46	99±7,9	88±6,9*	90±7,04*
In % to control	100,0	93,7	89,2	79,3	81,1
The time of separation of the placenta (Minute)	544±33,1	482±39,2	456±33,68	409±32,10**	414±31,24**
In % to control	100,0	88,6	83,8	75,2	76,1
Service period (day)	74±2,72	71±3,14	69±3,09	64±3,2*	65±2,7*
In % to control	100,0	95,9	93,2	86,5	87,8
Fertilization index	2,1±0,20	1,8±0,26	1,6±0,24	1,5±0,18*	1,5±0,19*
In % to control	100,0	85,7	76,2	71,4	71,4

Cows in experimental group 2, which received additional potassium iodide, had a labor duration of 104 minutes, which is 7 minutes less than the "control group". In the cows of the 3rd experimental group treated with "YodASK" drug, the total length of labor was 99 minutes, which is 12 minutes shorter than the cows in the control group. The duration of labor in experimental animals of group 4 was reduced to 23 minutes compared to the "control group", and in experimental animals of group 5 it was reduced to 21 minutes and was 88 and 90 minutes, respectively.

The same relationship was observed in the duration of placental separation. Thus, separation of the placenta after childbirth in cows of experimental group 3 occurred faster than in the control group - 1 hour 47 minutes, in cows of experimental group 4 - 2 hours 17 minutes, in cows of experimental group 5 - 2 hours 25 minutes. In experimental group 2, although there was no significant difference, this difference was in the average values up to 1 hour.

Positive correlations were also observed between the use of iodine-preserving drugs and the duration of service. Thus, the service life of cows of the 3rd group receiving 500 µg of the drug "YodASK" was 69 days, 64 days of the cows of the 4th group receiving the dose of 750 µg, 65 days of the cows of the 5th group receiving the dose of 1000 µg, and potassium iodide. In the 2nd group of used pigs, this indicator was 71 days. The difference between these indicators compared to the control group is 5, 10, 9 and 3 days, respectively.

This trend continued in the second month of lactation. In the third month of lactation, the highest average daily milk yield was observed in cows of experimental group 4 and was 23.9 kg, which is 2.5% higher than in the control group. The average daily milk yield of the cows in the experimental group 2 was 23.6 kg, which was 1.3% higher than that of the control group. The average daily milk yield of cows of experimental groups 3 and 5 was 23.4 kg, which is 2.3% higher than the control group. During the entire period of the experiment, on average, the average daily milk yield of cows in experimental group 4 increased from 2.3% to 6.5% of the milk yield of cows in all other groups.

Summary. In short, the use of iodine-preserving preparations made it possible to increase the reproductive health of cows and milk yield. At the same time, the use of the drug "YodASK" more than potassium iodide has been proven to be an effective tool in increasing the reproductive health of cows and milk yield.

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## **GYPSUM IN CONSTRUCTION FROM ANCIENT TIMES TO PRESENT DAY**

*Abstract. The industrial use of products containing calcium sulfate is not only economically, but also environmentally significant, on the possibility of increasing its strength by adding various modified additives to gypsum binders obtained on the basis of waste considered. In addition, scientific research works on increasing the strength by adding traditional chemical additives used for ordinary construction plaster are described.*

*Keywords: history of gypsum mineral raw materials, gypsum, anhydrite, binder, solution.*

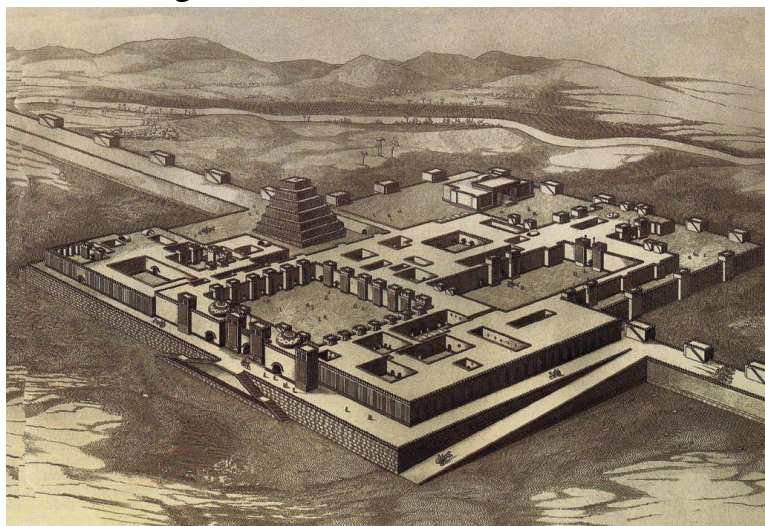
Gypsum binders are one of the first artificial binders that were obtained in the history of human civilization and have been used in construction from the era of the Ancient World to the present day. They are obtained by firing gypsum stone and then grinding it. Gypsum stone was formed as a result of the evaporation of the world's oceans 150–200 million years ago and is found in the form of dihydrate and anhydrous calcium sulfate – gypsum and anhydrite. According to various sources, gypsum binders were first produced and began to be used in construction in various regions of the world in the period from the 11th to the 5th millennium BC. e. They found application in the greatest volumes in the form of building semi-aqueous gypsum, obtained by firing at a temperature of 130–180 °C, in the 3rd–2nd millennia BC. e. – in the form of plastering, masonry and finishing mortars.



**Fig. 1. Pyramid of Cheops. Egypt**



The masonry gypsum mortars and plaster in the Cheops pyramid (Fig. 1) and the tomb of his mother, in which the gypsum content is 97.3–9.5%, were of especially high quality. From the 3rd millennium BC. e. building gypsum was used in clay-gypsum, gypsum-clay-lime and gypsum-lime masonry and plaster mortars. In the 1st millennium BC. BC, in particular, Sargon's palace was built in the city of Mosul (Fig. 2), which had more than 200 rooms plastered with gypsum-lime mortars. In certain regions of the world from the 3rd millennium BC.



**Fig. 2. Sargon's Palace in Dur-Sharrukin, the capital of Assyria**

Anhydrite binders, obtained by firing gypsum dihydrate and anhydrite at different temperatures, have found use. A two-phase gypsum binder has also found use, consisting of semi-aqueous gypsum and soluble anhydrite, obtained by firing gypsum stone at a temperature of 300–400 °C. This binder with higher strength and extended setting time with semi-aqueous gypsum has become widespread for plaster, masonry mortars and self-leveling floors, which are used in certain regions of the world to this day. In the middle of the 3rd millennium BC. e. In the city of Mohenjo-Daro in India, the walls of some buildings were covered with light gray gypsum mortar with the addition of sand, clay and lime flour.

From the 2nd millennium BC. e. In India, construction used predominantly high-fired gypsum, obtained by firing natural gypsum or anhydrite at temperatures of 800–950 °C, which differs from the previously mentioned gypsum binders in its increased water resistance and was used in gypsum-clay, gypsum-clay-lime and gypsum-lime masonry and plaster mortars in various buildings and structures, including hydraulic engineering. At that time, high-fired gypsum was called hydraulic, although in fact it did not meet modern requirements for hydraulic mineral binders.

From the end of the first half of the 1st millennium BC. e. and until the beginning of the second half of the 1st millennium AD. e. Building gypsum was widely used in construction in Ancient Greece and Ancient Rome, used primarily for plastering and finishing internal walls and columns in the form of gypsum and

gypsum-lime mortars, into some varieties of which marble crushed into dust was introduced (such solutions were called “knock”). During the same period of time, in Ancient Greece and Ancient Rome, marble powder was added to gypsum binder in combination with quartz and adhesives, thereby obtaining artificial marble for the manufacture of architectural details and statues.

During the Middle Ages and the Renaissance, many outstanding monuments of construction art were built using gypsum, clay-gypsum and gypsum-lime binders in masonry, plastering and finishing mortars. From insignificant in the era of the Ancient World to widespread since the 5th century, the use of gypsum binders in Central Asia, Transcaspia, Transcaucasia, the city of Bulgaria, and Mexico has increased. In Central Asia and the Caucasus, in monumental and civil construction, varieties of clay gypsum were used in the form of a binder - “ganch”, “gazha” and “azryk”, fired at a temperature of 130–170 °C. Using masonry and plaster mortar based on them, the mausoleum of Sultan Sanjar (Fig. 3) and a bridge across the Murghab River were built in Old Merv (Turkmenistan) in the 12th century; baths in Bukhara, still in use today.



**Fig. 3. Mausoleum of Sultan Sanjar. Turkmenistan**

Since the beginning of the 15th century, most residential buildings in the central Aztec city of Tenochtitlan (near modern Mexico City), built of mud brick, were covered with dazzling white gypsum plaster.

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## **KREATIV YONDASHUV ASOSIDA BO`LAJAK MUTAXASSISLARNI TAFAKKURINI RIVOJLANTIRISHNING AFZALLIKLARI**

*Annotatsiya. Mazkur maqolada kreativlikning mazmun-mohiyati, bo`lajak mutaxassislarining ta`lim-tarbiyaviy faoliyatga kreativ yondashuvi, talabalarni kreativ fikrlashga o`rgatish hamda kreativ yondoshuv asosida o`z-o`zini rivojlantirishni takomillashtirishning ilmiy-nazariy asoslari, bo`lajak mutaxassislarining kreativligiga oid ma`lumotlar yoritilgan.*

*Kalit so`zlar: kreativ yondoshuv, potensial kreativlik, faoliyatdagi kreativlik, o`z-o`zini rivojlantirish, bo`lajak mutaxassislar, ijodkorlik.*

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## **THINKING OF FUTURE SPECIALISTS BASED ON A CREATIVE APPROACH DEVELOPMENT BENEFITS**

*Abstract. In this article, the essence of creativity, the creative approach of future specialists to educational activities, the scientific and theoretical foundations of teaching students to think creatively and improving self-development based on a creative approach, the creativity of future specialists information is highlighted.*

*Key words: creative approach, potential creativity, creativity in activity, self-development, future specialists, creativity.*

Jamiyatning yangilanishi ta`lim-tarbiya tizimini o`zgarishini, unga yangicha yondoshuv hamda yangicha munosabatni talab qiladi. Bo`lajak mutaxassislariga sifatli ta`lim va tarbiya berish, bilim, ko`nikmalarini har tomonlama egallashlariga, kelajakda o`z sohasining yetuk mutaxassisi bo`lishlarida hamda o`quv fanlarini o`zlashtirib borishlariga yengillik yaratish bugungi kunda dolzarblik kasb etadi.

Mamlakatimizda kadrlar tayyorlash va ta`limni tashkil etishning jahon standartlariga javob beradigan samarali tizimi yaratildi va bugungi kunda ham oliy ta`limni modernizatsiyalashga davlat siyosatining ustuvor yo`nalishi sifatida



e'tibor qaratilmoqda. Xususan, O'zbekiston Respublikasi Prezidentining 2017 yil 20 apreldagi "Oliy ta'lim tizimini yanada rivojlantirish chora-tadbirlari to'g'risida"gi PQ-2909-son qarori, 2017 yil 27 iyuldagi "Oliy ma'lumotli mutaxassislar tayyorlash sifatini yanada kengaytirish chora-tadbirlari to'g'risida"gi PQ-3151-son qarori, 2017 yil 9 avgustdagi "Oliy ta'lim tashkilotlarida pedagogika yo'nalishlarida maxsus sirtqi bo'limlarni tashkil etish to'g'risida"gi PQ-3183-son qarori, 2018 yil 5 iyundagi "Oliy ta'lim tashkilotlarida ta'lim sifatini oshirish va ularning mamlakatda amalga oshirilayotgan keng qamrovli islohotlarda faol ishtirokini ta'minlash bo'yicha qo'shimcha choratadbirlar to'g'risida"gi PQ-3775-son qarori, O'zbekiston Respublikasi Prezidentining 2019 yil 8 oktyabrdagi PF-5847-son qarori O'zbekiston Respublikasi oliy ta'lim tizimini 2030 yilgacha rivojlantirish konsepsiyasi qabul qilindi. 2017-2021-yillarga mo'ljallangan "O'zbekiston Respublikasini yanada rivojlantirish bo'yicha Harakatlar strategiyasi", O'zbekiston Respublikasi Prezidentining "Pedagog kadrlarni tayyorlash, xalq ta'limi xodimlarini qayta tayyorlash va ularning malakasini oshirish tizimini yanada takomillashtirish chora-tadbirlari to'g'risida"gi Qaroriga muvofiq, ta'lim bosqichlarining uzluksizligi va izchilligini ta'minlash, ta'limning zamonaviy metodologiyasini yaratish, o'quv-metodik majmualarning yangi avlodini ishlab chiqish va amaliyotga joriy etish hamda pedagog xodimlarini qayta tayyorlash va ularning malakasini oshirish tizimini yanada takomillashtirish taqozo etadi.

Mustaqil davlatlar hamdo'stligi (MDH) mamlakatlari olimlaridan A.Aksenova, A.V.Morozov, D.V.Chernilevskiy, N.Veraks, N.A.Alekseev, Yu.K.Kruglova, K.G. Krechetnikov kreativ yondashuv asosida ta'lim sifat va samaradorligini rivojlantirish masalalari bo'yicha ilmiy izlanishlar olib borganlar. Ta'lim jarayonida ijodiy qobiliyatlarni shakllantirishning omillari M.M.Zinovkina, A.V.Morozov, D.B.Chernilevskiy, V.N.Drujinin va boshqa olimlar tomonidan o'rganilgan bo'lsa, ijod qilishning psixologiya xususiyatlariga qaratilgan konsestual nazariyalar Y.A.Ponomarev, A.N.Leontev, A.V.Morozovlar tomonidan yaratilgan. Ijod mezonlari, uning psixologik mexanizmlari, ijodiy tafakkurning rivojlanish texnikasi va boshqalarning ishlarida tadqiq etilgan D.B.Bogoyavlenskaya ishlarida ijod tahlili birliklari belgilangan. O'tkazilayotgan ilmiy-uslubiy adabiyotlar tahlili natijalariga ko'ra, bugungi kunda oliy ta'lim muassasalarida ta'lim olayotgan mutaxassislarni kreativ yondoshuv asosida o'z-o'zini rivojlantirish faoliyatini takomillashtirish, ularni samaradorligini pedagogik tajribaga asoslash zarurati mavjud. Ta'lim sifatini va samaradorligini oshirish, birinchi navbatda tarbiyachi – pedagoglarning mahoroti va ularning ta'lim faoliyatlariga mas'uliyat bilan yondoshishiga bog'liq albatta. Buning uchun tarbiyachi – pedagoglar mashg'ulotlar jarayoniga, markazlarda ishlashga va o'rganilayotgan yangi bilimlarni bolalarga yetkazib berish jarayoniga nisbatan ijodiy – kreativ yondoshgan holda uyushtirishi lozim. Tarbiyachi o'z oldiga o'zi tarbiyalayotgan bolalarni maktab ta'limiga sifatli tayyorlashni maqsad qilib qo'yar ekan, buning uchun avvalo mashg'ulotlarni

maqsadini aniq belgilab olishi va bilish jarayonini tashkil etishda sifat o'zgarishlariga erishishni nazarda tutishi kerak. Maktabgacha ta'lim tashkiloti tarbiyalanuvchilariga turli noan'anaviy usullar asosida ta'lim berish 6-7 yoshli bolaning maktab ta'limiga sifatli tayyorgarligining samarali kechishiga ko'maklashadi. Noan'anaviy usullar bilan tashkil etilgan mashg'ulotlar bolalarning qobiliyatlarini sayqallaydi va qiziqishlarini uyg'otib, mashg'ulot mobaynida zerikish va toliqishlarsiz ijodiy va mantiqiy fikrlashlarini rivojlantiradi.

Maktabgacha yoshdagi bolalarda, ayniqsa tayyorlov guruhi bolalarida ilk matematik tasavvurlarni shakllantirish juda ahamiyoti kattadir. Farzandlarimizni kelajakda qaysi kasbni egallashidan qat'iy nazar o'z kasbini mahorat bilan egallashi uchun unga matematik bilimlar zarurdir. Shu boisdan ham Yurtimiz ertasi bo'lgan farzandlarimizning baxtli kelajagi uchun qayg'urish, har tomonlama ya'ni, intellektual, jismoniy, estetik, aqliy, sog'lom avlodni tarbiyalashga intilish har bir maktabgacha ta'lim tashkiloti tarbiyachisining ustuvor maqsadi bo'lsagina ertamiz egalari bo'lgan bolajonlarimizni buyuk shaxsiyat egalari qilib ulg'aytira olishimiz mumkinligini tushungan tarbiyachi o'z oldiga qo'ygan maqsadini tayyorlov guruhi bolalarini maktabga tayyorgarlik monitoringini oshishida ma'lum darajada hissasini qo'shish bilan bajara oladi desak adashmaymiz. tayyorlov guruhi bolalarini maktab ta'limiga sifatli tayyorlashda matematika mashg'ulotlarini turli xil interfaol usullardan, xususan, ertaklar, qisqa hikoyalar, harakatli o'yinlar, arifmetik topshiriqlar, matematik savollar, jamoa bo'lib shug'ullanish, juftliklarda ishlash, masala tuzish, tushuntirish, tetiklashtiruvchi mashqlar, matematik bilimlarni mustaxkamlash uchun o'yinlar bilan tashkil qilinsa ta'limiy jarayonlar mazmunli bo'ladi va bolalarni maktabga tayyorgarlik monitoringini oshishida xizmat qiladi. Yurtimiz ertasi bo'lgan farzandlarimizning baxtli kelajagi uchun qayg'urish, har tomonlama ya'ni, intellektual, jismoniy, estetik, aqliy, sog'lom avlodni tarbiyalashga intilish har bir maktabgacha ta'lim tashkiloti tarbiyachisining ustuvor maqsadi bo'lsagina ertamiz egalari bo'lgan bolajonlarimizni buyuk shaxsiyat egalari qilib ulg'aytira olishimiz mumkinligini tushungan tarbiyachi o'z oldiga qo'ygan maqsadini tayyorlov guruhi bolalarini maktabga tayyorgarlik monitoringini oshishida ma'lum darajada hissasini qo'sha oladi, buning uchun albatta bo'lajak mutaxassislarimiz har tomondan ya'ni, ijodiy, pedagogik, aqliy va axloqiy qolaversa estetik tomonlardan ham mohir bo'lishi, har bir pedagogik jarayoniga qattiq tayyorgarlik ko'rib, kunlik faoliyatlariga o'zgacha noan'anaviy, kreativ tomonlama yondoshib ishlamo'g'i lozim deb hisoblaymiz. Shundagina biz ertangi yorug' istiqbolimizdan umid qilsak arziydi.

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## **EXPERIENTIAL LEARNING: EDUCATION THROUGH EXPERIENCE**

*Abstract. Experiential Learning is an educational approach where knowledge is gained through hands-on, practical experiences. Rooted in the philosophy that learning is most effective when directly experiencing and engaging with the subject matter, this method contrasts with traditional theoretical or lecture-based learning. It encompasses various activities like internships, field trips, workshops, and simulations. Experiential Learning emphasizes the importance of reflection, critical analysis, and application of knowledge in real-world situations, fostering deeper understanding and retention of information.*

*Keywords. Experiential Learning, Hands-On Experience, Practical Knowledge, Real-World Application, Reflection, Critical Analysis, Internships, Field Trips, Workshops, Simulations, Learning Retention.*

Experiential Learning is a dynamic and interactive educational approach that emphasizes learning through direct experience. This approach, rooted in the works of educational theorists like John Dewey, Kurt Lewin, and David Kolb, advocates that effective learning occurs when students are actively engaged in experiences relevant to their lives. By participating in real-world scenarios, students gain practical skills and knowledge, enhancing their understanding and retention of information. Experiential Learning is applicable across various disciplines and educational levels, making it a versatile and impactful teaching method.

**Theoretical Foundations:** Experiential Learning is based on the premise that learning is a process that occurs when individuals are engaged in direct experience and reflect on that experience. Key theorists like John Dewey emphasized the importance of interaction between education and experience.

**Key Components:** This approach includes four essential stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Students first engage in an experience, then reflect on it, learn from it, and finally apply what they have learned in new situations.

**Implementation in Education:** Experiential Learning can be implemented through internships, field trips, role-playing, simulations, service learning, and project-based learning. These methods provide students with opportunities to apply classroom knowledge in practical settings.

**Benefits and Challenges:** The benefits include improved problem-solving and decision-making skills, enhanced engagement and motivation, and better

preparation for real-world challenges. Challenges include resource constraints, the need for well-planned experiences, and the requirement for skilled facilitation.

**Impact on Student Outcomes:** Research shows that Experiential Learning can lead to deeper understanding, improved academic performance, and greater interest in the subject matter. It also helps in developing critical thinking, collaboration, and communication skills.

**Contemporary Applications:** With advancements in technology, experiential learning now includes virtual simulations and online internships, expanding its reach and applicability. It is increasingly recognized as essential in preparing students for the complexities of the modern workforce.

Experiential Learning represents a significant shift from traditional education models, placing emphasis on practical, hands-on experiences. Its focus on engaging students directly with real-world scenarios enhances learning outcomes and prepares them for future challenges. While implementation can be resource-intensive, the benefits of improved engagement, skill development, and practical application of knowledge are substantial. Experiential Learning continues to evolve, integrating technology and innovative practices to meet the changing needs of education.

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## SOCRATIC METHOD IN MODERN EDUCATION: ENCOURAGING ANALYTICAL THINKING

*Abstract.* The Socratic Method, derived from the teaching practices of the ancient Greek philosopher Socrates, is a form of cooperative argumentative dialogue that stimulates critical thinking and illuminates ideas. In modern education, this method is used to encourage analytical thinking and deeper understanding of concepts. By asking continuous questions, educators lead students to express their thoughts and challenge their assumptions. This method fosters active learning, critical analysis, and the development of reasoning skills, making it a valuable tool in various educational settings.

*Keywords.* Socratic Method, Modern Education, Analytical Thinking, Critical Thinking, Cooperative Dialogue, Reasoning Skills, Active Learning, Questioning Technique, Assumption Challenging, Conceptual Understanding.

The Socratic Method, with its roots in ancient Greek philosophy, remains a relevant and influential teaching strategy in modern education. It revolves around the use of questioning to foster critical thinking and to illuminate ideas. Unlike traditional lecture methods, the Socratic approach encourages students to engage actively in their learning process by thinking deeply, questioning continuously, and examining their assumptions. This method is particularly effective in promoting analytical thinking, understanding complex concepts, and developing effective communication and argumentation skills.

**Historical Background:** Originating from Socrates, the method was first used as a technique for philosophical inquiry. It involves asking a series of questions to draw out underlying assumptions and to reveal the extent of a person's knowledge on a subject.

**Core Principles:** The Socratic Method is based on the belief that students learn through inquiry and reasoning rather than memorization. It encourages an in-depth exploration of topics and values the process of questioning and dialogue over the mere acquisition of facts.

**Application in Modern Classrooms:** Today, the Socratic Method is applied in various educational contexts, from elementary education to higher learning. It is especially prevalent in disciplines like law, philosophy, and literature, where critical analysis is essential.

**Techniques and Strategies:** Key strategies include open-ended questioning, encouraging students to think aloud, and fostering a classroom environment where questioning is valued. Teachers guide discussions, helping students explore different perspectives and deepen their understanding.

**Benefits and Challenges:** The method enhances critical thinking, problem-solving skills, and independent thought. It can, however, be challenging to implement effectively, requiring skilled facilitation and a classroom culture that supports open dialogue and respects differing viewpoints.

The Socratic Method continues to be a vital tool in modern education, promoting analytical thinking and a deeper understanding of complex subjects. Its emphasis on questioning and dialogue aligns well with contemporary educational goals of developing critical thinking and reasoning skills. While implementation can be challenging, the benefits of enhanced student engagement, understanding, and intellectual development make it a valuable addition to educational practices.

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## **SOYA URUG'INI SAQLASHDA NAMLIGINING DON SIFAT KO'RSATKICHLARIGA TA'SIRI**

*Annotatsiya. Maqolada soya urug'ini saqlash vaqtida urug'larning namligini uning tarkibidagi oqsil miqdoriga, moyliligiga, moyning kislota tarkibi, soya moyining kislota soni va yod soniga ta'sirini o'rganishdan olingan natijalar keltirilgan. Soya urug'ini kritik namligidan past namlikda yoki kritik namlikka teng namlikda saqlaganda uning sifat ko'rsatkichi shuncha yaxshi saqlanishi aniqlandi.*

*Kalit so'zlar: soya urug'i, oqsil, yog'lilik, namlik, kritik namlik, kislota soni, hajmiy massa.*

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## **INFLUENCE OF MOISTURE ON GRAIN QUALITY INDICATORS IN SOY SEED STORAGE**

*Abstract. The article presents the results of a study of the influence of seed moisture on the protein content, fat content, fatty acid composition, acid number and iodine number of soybean oil during storage of soybean seeds. It has been established that the quality indicator of soybean seeds is better preserved when stored at a moisture below the critical moisture or at a moisture equal to the critical moisture.*

*Key words: soybean seeds, protein, fat content, moisture, critical moisture, acid number, bulk density.*

**Kirish.** Soya urug'lari to'liq pishganda va urug'ning namligi 14-16% bo'lganda yig'ib olinadi. Agar o'rim-yig'im paytida yomg'irli ob-havo bo'lsa, urug'ning namligi odatdagidan yuqori bo'lishi mumkin. Namligi yuqori bo'lgan xom ashyo, tuproq, qum, barglar va boshqa chiqindilarni darhol tozalash va quritish uchun yuborish kerak, aks holda urug'lik darajasida mikroorganizmlar va

fermentlarning faolligi faollashadi va urug' yadrosida nafas olish jarayoni kuchayadi.

Urug' tirik organizmdir. Oddiy sharoitlarda u sekin nafas oladi. Namlik ko'tarilgach, fermentatsiya jarayoni boshlanadi, nafas olish ham kuchayadi va urug' yadrosidagi zaxira ozuqalar iste'mol qilina boshlaydi. Namlik va haroratning oshishi ferment faolligini oshiradi. Fermentlardan oksidaza va gidrolaza ayniqsa tez rivojlanadi. Oksidaza yadrodagi oqsillarni va boshqa moddalarni achitadi, gidrolaza esa organik moddalarning gidrolizlanish jarayonini tezlashtiradi. Namligi yuqori va qayta ishlanmagan moyli urug'lar uzoq muddatli saqlashda sifati yomonlashadi, bu esa ulardan olinadigan moy miqdorini kamaytiradi [1]. Yangi yetishtirilgan soya urug'lari ferment faolligi yuqori, namligi notekis, texnologik qiymati past. Yig'ilgan soya urug'larini daladan tezda olib tashlash kerak, aks holda ular turli zararkunandalar, mikroorganizmlar va begona o'tlar bilan aralashib, xomashyo sifatini buzadi. Yuqorida aytib o'tilganidek, yog'li xom ashyo saqlash vaqtida bir qator o'zgarishlarga duch kelishi mumkin. Bunday holda, fermentlar ta'sirida urug'larning tarkibi o'zgaradi [2].

**Tadqiqotni o'tkazish uslubiyati.** Tadqiqot uchun soya urug'ining O'zbekiston respublikasi hududida ekilayotgan To'maris va Oyjamol navlaridan foydalanildi. 2022 – 2023 – yillarda olingan natijalar tadqiqot ishi uchun asos bo'lib xizmat qildi.

Soya urug'idagi namlikning massa ulushini aniqlash – quruq qoldiq usulida GOST 10856 – 96 talablari asosida [3], oqsil miqdorini aniqlash Keldal usulida GOST 10846 – 91 asosida [4], moy miqdorini aniqlash – ekstraksiya usulida Sokslet apparati yordamida [5] amalga oshirildi. 1000 dona urug'ning vaznini aniqlash **GOST 10842-89** (ISO 520-2014) ga muvofiq amalga oshirildi [6].

**Olingan natijalar va ularning muhokamasi.** Biz olib borgan tadqiqotlarimizda soya namligining va quritish usulining urug' sifat ko'rsatkichlariga ta'siri o'rganildi. Olib borilgan tadqiqot ishimizda dastlab, 1000 dona soya urug'ini massasini aniqlashdan boshlandi. Bunda o'rtacha olingan natijalar quyidagini tashkil etdi: To'maris navi uchun 159,7 g; Oyjamol navi uchun 154,8 g

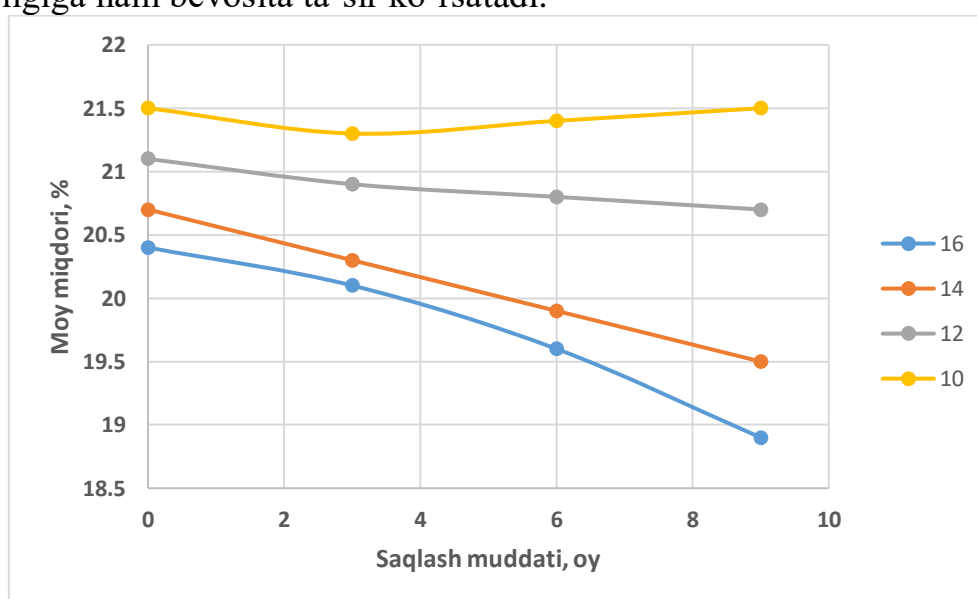
### 1-jadval

#### Soya urug'ining namligini va saqlash davomiyligini mahsulot tarkibidagi moy miqdoriga hamda moyning kislota soniga ta'siri

№	Namlik, %	Saqlash muddati, oy	Moy miqdori, %	Kislota soni, mg KOH/g
1	16	0	20,4	2,54
2		3	20,1	3,06
3		6	19,6	3,52
4		9	18,9	4,11
5	14	0	20,7	2,54
6		3	20,3	2,83
7		6	19,9	3,24

8		9	19,5	3,77
9	12	0	21,1	2,54
10		3	20,9	2,68
11		6	20,8	2,76
12		9	20,7	2,89
13		0	21,5	2,54
14	10	3	21,3	2,65
15		6	21,4	2,74
16		9	21,5	2,88

Olingan natijalar shuni ko'rsatmoqdaki, soya urug'ining namligi 12 % va undan past bo'lganda mahsulot tarkibidagi moyning namlik ta'sirida gidrolizlanishi sekin boradi. Bu esa o'z navbatida moyning kislota soni ortib ketmasligiga ham bevosita ta'sir ko'rsatadi.



**1-rasm. Moy miqdorini saqlash davri va namligiga bog'liqlik grafigi.**

So'ngra soya donini saqlashda namligining yog' kislota tarkibiga ta'siri o'rganildi. Olingan natijalar 2 – jadvalda keltirilgan.

**2 – jadval**

**Yog' kislota tarkibining va yod sonining o'zgarishiga namlikning ta'siri**

№	Urug' namligi, %	Saqlash muddati, oy	Yog' kislota tarkibi			Yod soni, mgJ <sub>2</sub>
			C <sub>18:1</sub>	C <sub>18:2</sub>	C <sub>18:3</sub>	
1	16	0	22,1	54,6	10,7	132,2
2		3	21,4	55,7	9,8	133,4
3		6	20,8	56,2	9,5	134,1
4		9	20,1	56,4	9,3	134,2
5	14	0	22,1	54,6	10,7	132,2
6		3	21,5	55,1	10,3	132,8
7		6	21,1	55,4	10,1	133,5
8		9	20,9	55,6	9,9	133,6

9	12	0	22,1	54,6	10,7	132,2
10		3	21,8	54,9	10,5	132,6
11		6	21,7	55,1	10,3	133,1
12		9	21,6	55,2	10,1	133,2
13	10	0	22,1	54,6	10,7	132,2
14		3	21,8	54,8	10,5	132,5
15		6	21,7	55,1	10,3	132,9
16		9	21,6	55,2	10,2	133,1

Jadvalda keltirilgan natijalar shuni ko'rsatmoqdaki, soya doni qanchalik quruq holda saqlansa, urug' sifat ko'rsatkichlariga ijobiy ta'sir qiladi.

Navbatdagi tadqiqotimizda soya tarkibidagi oqsil miqdorini o'zgarishiga soya namligining ta'siri o'rganildi. Olingan natijalar quyidagi 3 – jadvalda keltirilgan.

### 3 – jadval

#### Oqsil miqdorining o'zgarishiga namlikning ta'siri

№	Urug' namligi, %	Saqlash muddati, oy	Oqsil miqdori, %
1	16	0	41,4
2		3	40,1
3		6	38,8
4		9	36,4
5	14	0	41,6
6		3	40,6
7		6	39,3
8		9	37,1
9	12	0	41,8
10		3	41,4
11		6	40,9
12		9	40,6
13	10	0	41,9
14		3	41,6
15		6	41,4
16		9	41,1

Olingan natijalar shuni ko'rsatmoqdaki, soya urug'ining namligi 12 % va undan past bo'lganda mahsulot tarkibidagi oqsil miqdorining namlik va fermentlar ta'sirida gidrolizlanishi sekin boradi. Bu soyaning sifat ko'rsatkichi shuncha yaxshi saqlanishini bildiradi.

**Xulosa.** Soya urug'ini saqlashda shuni xulosa qilish mumkinki, saqlashda mahsulotlarning namligi kritik namlikka teng yoki undan past bo'lgan holda saqlash urug'ining sifat ko'rsatkichlariga ijobiy ta'sir etishi aniqlandi. Namlik yuqori bo'lgan holda don tarkibidagi fermentlar faolligi ortishi, bu moylar va oqsillar gidrolizi sezilarli ortishiga sabab bo'lishi yana bir bor isbotlandi.

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## **ANOR YETISHTIRISH TEXNALOGIYASI VA ZARARKUNANDALARIGA QARSHI KURASHISH CHORALARI**

*Annotatsiya. Anor yetishtirish qadimdan shakillanib dexqonlar tomonidan sifatli va mo'l xosil olinmoqda. Anor foydali mevalar qotirida yuqori o'rinlarda turadi. Anorni sevib istemol qiladigan insonlar yildan yilga ko'payib bormoqda. Anorga bo'lgan talablarning oshishi asnosida anor yetishtirish texnologiyalarida muammolar kuztailib ularning zararkunandalari xam ko'payib bormoqda.*

*Kalit so'zlar: Anor mevaxo'ri – Euzophera punicaella Mooze, Foydali xususiyati, Agrotexnikasi va qarshi kurashish choralari.*

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## **POMEGRANATE CULTIVATION TECHNOLOGY AND PEST CONTROL MEASURES**

*Abstract. Pomegranate cultivation has been established since ancient times, and farmers are getting a high-quality and abundant harvest. Pomegranate ranks high among useful fruits. The number of people who love and eat pomegranates is increasing year by year. Due to the increase in demand for pomegranates, there are problems in pomegranate cultivation technologies and their pests are increasing.*

*Key words: Pomegranate borer - Euzophera punicaella Mooze, Useful properties, Agrotechnics and control measures.*

Muxtaram Prezidentimiz Sh.M. Mirziyoyevning «Aholini oziq – ovqat mahsulotlariga, sanoatni esa xom – ashyoga talabini qondirish hozirgi kunda mustaqil davlatimizni qishloq xo‘jaligi oldida turgan eng muhim vazifalardan biri bo‘lib kelmoqda» degan fikrlariga asosan ushbu maqolani tayyorladik.

Anorning shifobaxsh xususiyatlari juda ko‘p. Xalq tilida «anorning ichida nechta donasi bo‘lsa, u shuncha dardga davodir» degan ibora yuradi. Bu bejizga aytilmagan. Anor mevasi tarkibida 80% suv, 12-15 % qand, 19% askorbin kislota, sof holda organik kislotalar- olma, limon, shovel kislotalari mavjud. B guruhi vitaminlari B1, B2, B6, B9 va karotin, A vitamini, shuningdek K, Mg, Co, Fe, Ca, P kabi mineral moddalar mavjud. Anor qonni ko‘paytiradi, tarkibida antioksidant moddalar borligi uchun organizmni yoshartirish xususiyatiga ega. Bundan tashqari anor mevasining po‘stlog‘i, daraxtning gullari, barglari va ildizidan turli dori preparatlari tayyorlanadi. (7). Anor uzoq gullaydi, yoppasiga gullash davri 20 maydan 1 iyungacha davom etadi. Dastlabkisi mayning boshlarida, eng oxirgisi sentabr-oktabrda paydo bo‘ladi. Gullash davrining oxirida tug‘ilgan mevalar pishmay qoladi. Birinchi tug‘ilgan mevalari yirik va bir tekis pishadi. Anorning guli ikki xil: birinchisi yirik, urug‘chisi uzun, ko‘zasimon bo‘ladi. Ular urug‘chisining ustunchasi. Odatda, changdondan yuqori yoki u bilan baravar turadi. Bu gullarning changi sifatli bo‘ladi va meva tugadi. Ikkinchisi mayda, urug‘chisi qo‘ng‘iroqsimon gul bo‘ladi. Ular urug‘chasining tugunchasi yaxshi rivojlanmagan, ustunchasi kalta bo‘lib, changlardan pastroqda joylanadi, Bu gullar meva tugmaydi, ko‘pincha o‘tgan yilgi novdalarda, urug‘chisi kalta novdalarda paydo bo‘ladi. Urug‘chisi uzun 5,0- 11,5% ni tashkil etadi. Anorning mevasi yirik, qalin po‘stli, meva qati va tushib ketadigan kosachasi bo‘lib vazni 250-800g va undan og‘ir bo‘ladi. Mevasi 6-12 uyali, juda serdon, 300- 1500gacha doni bo‘ladi. Ularning xar biri sershira rada bilin qoplangan. Doni och pushti rangdan to‘q qizil, Deyarli qora rangacha bo‘ladi. Anor mevalari odatda shoxlarning uchida tugiladi, shox shabba orasida kam bo‘ladi. Buni butashda inobatga olish kerak. Kechikib uzilsa anor yorilib ketadi. (9)

Anor mevalaridan odamni tinchlantirib, asabiy zo‘riqishning oldini oladigan choyni tayyorlash mumkin. Buning uchun pishgan mevaning po‘stlog‘i va pardevorlarini quritish lozim. Undan keyin esa choy yoki boshqa ichimlikka maydalangan quruq anordan biroz qo‘shish mumkin.

**Anor mevaxo‘ri** – *Euzophera punicaella Mooze*. (Lepidoptera, Tortricidae oilasi). O‘zbekistonning ko‘pgina hududlarida anorning ashaddiy zararkunandasi hisoblanadi.

Tarqalishi. Anor mevaxo‘ri Eron, Hindiston, Afg‘oniston, Turkmaniston, Tojikiston, Gruziya, Armaniston va boshqa davlatlar hududlarida uchraydi.

Ta‘rifi. Anor mevaxo‘rining kapalagi nisbatan yirik bo‘lib, tanasi 7-8 mm, qanotlarini yozganda 12-17 mm keladi. Umumiy tusi kulrang. Orqa juft qanotlari tiniq, och tusda, keng, oldingisi esa ingichkaroq. Kapalagining lab paypaslagichlari yuqoriga qarab qayrilgan. Tuxumi oqish-sariq, yuzasi g‘adir-

budir, kattaligi 0,75-1,0 mm. Qurtlari och kulrang, boshi qo'ng'ir-qora, kattaligi 8-11 mm gacha yetadi. G'umbagi jigarrang, uzunligi 8-9 mm keladi.

Hayot kechirishi. Anor mevaxo'ri yetuk qurt hamda g'umbak shaklida asosan daraxt ostiga to'kilgan mevalar ichida, po'stida, daraxtning pana joylarida xas-cho'plarning ostida qishlab qoladi. 2005-yilgi kuzatuvlarimizga ko'ra, bu hasharotning qishlab chiqqan qurtlari aprelning uchinchi va mayning birinchi o'n kunligida g'umbakka aylana boshlagan. Qishlab chiqqan g'umbaklari esa aprelning uchinchi o'n kunligida kapalakka aylanib, mayning birinchi o'n kunligida tuxum qo'yishga kirishgan. G'umbaklik davri yoz kunlari 10-12 kunda tugaydi. Kapalaklari odatda kechasi uchadi, meva kosachalariga bittadan tuxum qo'yadi. Yozgi bo'g'inlari meva yoriqlarida ham tuxum qo'yib ketishi mumkin. Bitta urg'ochi zot 90-100 ta tuxum qo'yishi mumkin. 5-7 kundan keyin tuxumdan ochib chiqqan qurt meva kosasi yoki yoriqlar orqali anor mevasining ichiga kiradi va uni shikastlay boshlaydi. Qurtlar anor donalari hamda donalar oralaridagi parda to'siqlar bilan oziqlanadi. Har meva ichida 3-4 hatto 10 tagacha qurt borligini kuzatish mumkin. Zararlangan anor mevasi odatda gul kosasi atrofidan boshlab chiriy boshlaydi, yoriladi va to'kilib tushishi mumkin.

Qurtlik davri o'tishi uchun 17-22 kun talab etiladi. Rivojlanishni tugatgan qurt meva gulkosasiga qaytadi va ko'pincha u yerda yumshoq pilla o'rab, ichida g'umbakka aylanadi. 8-12 kundan so'ng undan yangi bo'g'in kapalagi uchib chiqadi. Bir mavsumda Farg'ona vodiysi sharoitlarida 5-6 ta, Surxondaryoda esa 7 tagacha bo'g'in beradi. Anor mevaxo'rining kushandalari mavzud. Lekin qurti meva ichida hayot kechirganligi sababli ularning ahamiyati asosan kapalak, tuxum va qurt berkinib olguncha namoyon bo'ladi. Kapalaklarini qushlar, o'rgimchak, beshiktervatarlar qirib turadi, tuxumini esa trixogramma, qurtlarini pardaqaqnotlilardan brakonid, ixneumonid kushandalar hamda tahina pashshasi zararlagani aniqlangan. Zarari. Anor mevaxo'ri asosan anor daraxtining meva nishonalarini zararlaydi. Shikastlangan mevalar ikkilamchi mikroorganizmlar faoliyati oqibatida chiriydi, yoriladi, to'kiladi va yaroqsiz bo'lib qoladi. Buning natijasida daraxt va bog' hosildorligi kamayadi, mevaning sifati pasayadi. Himoya qilinmagan anor daraxti hosilining 25,2% dan 77,5% gacha qismi yo'qolishi mumkin.

Kurash choralari. 1. Ichki karantin tadbirlarini amalga oshirish, chunki hozircha bu zararkunanda hududimizning shimoliy-g'arbiy hududlarida aniqlanganicha yo'q.

#### **Anorning kemiruvchi zararkunandalariga qarshi kurashish choralari.**

Anor gullashidan boshlab vaqti-vaqti bilan u yerda trixogramma kushandasini tarqatib turish yaxshi samara beradi.

Anor mevaxo'riga qarshi kimyoviy kurashishda quyidagini inobatga olish tavsiya qilinadi. Bir-ikki marta ishlov berish bilan hosilni himoya qilib bo'lmaydi. Anor daraxti gullay boshlagandan keyin har 15 kunda bir marta turli preparatlar ishlatiladi. Bundan maqsad mevaxo'r kapalagiga qarshi kurashishdir, chunki qurtiga qarshi deyarli kurashib bo'lmaydi. Ishlov hosil yetilishidan 30kun oldin

to'xtatiladi. Preparatlardan sintetik piretroidlar hamda fosforli birikmalarni almashtirib ishlatish lozim.

5. Mehanik -kimyoviy usul sifatida quyidagi tadbir tavsiya qilinadi. Anor gullab bo'lgach, hosil tugunchasining gul kosasi tozalanib, ichiga piretroid eritmasi botirib olingan loy tiqib qo'yish zararlantirishning oldini olishi mumkin. Ammo bu sohada qo'shimcha izlanishlar o'tkazish lozim.

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## **MONTESSORI METHOD: A CHILD-CENTERED APPROACH TO EDUCATION**

*Abstract. The Montessori Method, developed by Dr. Maria Montessori, is a child-centered educational approach emphasizing independent learning, hands-on activities, and a prepared environment. It focuses on the holistic development of the child, nurturing intellectual, social, and emotional growth. Montessori classrooms are characterized by mixed-age groups, a focus on self-directed activity, and specially designed learning materials.*

*Keywords Montessori Method, Maria Montessori, Child-Centered Education, Independent Learning, Hands-On Activities, Holistic Development, Mixed-Age Groups, Self-Directed Activity, Learning Materials, Lifelong Learning.*

The Montessori Method, pioneered by Dr. Maria Montessori in the early 20th century, revolutionized the field of education. It is grounded in the belief that children learn best in an environment where they are allowed to explore, discover, and learn at their own pace. This approach contrasts traditional teacher-led classrooms, prioritizing self-directed learning, independence, and respect for a child's natural psychological development. Montessori classrooms are known for their distinctive setup, featuring age-specific materials and activities that cater to different stages of a child's growth.

**Philosophical Underpinnings:** The Montessori philosophy is based on the idea that education should be an aid to life. It focuses on the whole child, considering their physical, emotional, social, and cognitive development. Montessori believed in the innate potential of each child and the importance of nurturing this potential in a supportive environment.

**Key Components of the Montessori Classroom:** Montessori classrooms are carefully prepared environments, equipped with specific materials that promote active learning. They are structured to encourage independence, with activities set up for children to choose freely. Mixed-age groupings are another hallmark, facilitating peer learning and social interaction.

**Role of the Educator:** In Montessori education, the teacher's role is that of a guide or facilitator, rather than a traditional instructor. Teachers observe children and provide materials and activities that align with their developmental needs and interests.

**Montessori Materials:** Unique educational materials are central to the Montessori Method. These materials are designed to be self-correcting and to



allow for hands-on learning. They cover various areas, including practical life skills, sensory learning, mathematics, language, and cultural studies.

The Montessori Method has made a significant impact on the field of education, offering a child-centered approach that nurtures the holistic development of children. Its focus on independent learning, hands-on activities, and a prepared environment aligns well with contemporary educational goals. Montessori's principles of respecting the individuality of each child and fostering a love for learning have proven to be timeless, continuing to influence educational practices globally.

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## **DIFFERENTIAL INSTRUCTION: CATERING TO DIVERSE LEARNING NEEDS**

*Abstract. Differential Instruction is an educational approach designed to address the diverse learning needs of students. It involves tailoring teaching methods, materials, and assessments to accommodate individual learning styles, abilities, and interests. This approach enhances engagement, understanding, and achievement by recognizing that students learn differently. Differential Instruction promotes inclusivity and equity in education, aiming to provide all students with equal opportunities to succeed. It relies on flexible grouping, varied instructional strategies, and ongoing assessment to meet the unique needs of each student.*

*Keywords Differential Instruction, Diverse Learning Needs, Individual Learning Styles, Tailored Teaching Methods, Inclusivity, Educational Equity, Flexible Grouping, Varied Instructional Strategies, Ongoing Assessment, Student Engagement.*

Differential Instruction represents a responsive approach to teaching that considers the varied learning needs, abilities, and interests of students. It moves away from the one-size-fits-all model of education, acknowledging that effective learning requires adapting teaching methods. This approach is grounded in the belief that instructional strategies should be flexible and dynamic, catering to the diverse learning profiles in a classroom. Differential Instruction aims to optimize student learning and achievement by providing customized educational experiences.

**Foundational Principles:** The foundation of Differential Instruction lies in the recognition that students have diverse ways of learning, differing in interests, abilities, and learning styles. This approach calls for educators to proactively plan varied approaches to what students need to learn, how they will learn it, and how they can express what they have learned.

**Implementation Techniques:** Effective Differential Instruction includes using a variety of teaching methods, such as cooperative learning, hands-on activities, and digital tools. It also involves modifying learning environments, using formative assessments to guide instruction, and providing differentiated work assignments.

**Student-Centered Learning:** Central to this approach is the focus on student-centered learning. Educators must understand and respond to the individual needs of students, allowing for personalized learning paths.

**Challenges and Teacher Preparation:** Implementing Differential Instruction presents challenges, including the need for extensive planning, classroom management skills, and ongoing professional development for teachers. Educators must be skilled in assessment, curriculum modification, and instructional strategies.

**Impact on Student Outcomes:** Research indicates that Differential Instruction positively impacts student engagement, motivation, and learning outcomes. It promotes a deeper understanding of content and develops skills like critical thinking and problem-solving.

**Broader Implications:** This approach aligns with inclusive education policies and practices, emphasizing the need for equitable access to education for all students. It supports the educational goals of equity and diversity, preparing students for a diverse and ever-changing world.

Differential Instruction is a critical approach in modern education, addressing the diverse learning needs of students. It emphasizes the importance of adapting teaching strategies to enhance learning experiences and outcomes. While implementation poses challenges, the benefits of increased student engagement, motivation, and achievement are significant. Differential Instruction is not just an instructional strategy but a commitment to equitable and inclusive education, preparing students for success in a diverse society.

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## **MINTAQALAR BARQAROR RIVOJLANISHINING IQTISODIY- EKOLOGIK JIHATLARI**

*Annotatsiya. Mamlakatimiz ijtimoiy-iqtisodiy va ekologik sohalar tizimini modernizatsiya qilishga alohida e'tibor qaratmoqda. O'zbekiston Respublikasi hukumati tomonidan ekologiya sohasini rivojlantirishga, ekologik muammolarni oldini olishga va ko'lamini qisqartirishga qaratilgan qator qonun, farmon va qaroqlar qabul qilindi, ular o'z navbatida mamlakatda ekologiya sohasini barqaror rivojlantirishda, mavjud ekologik vaziyatni yaxshilashda muhim ahamiyat kasb etadi. Maqolada mamlakatda olib borilayotgan ekologik islohatlar, mintaqa ekologiyasini rivojlantirishning iqtisodiy-ekologik jihatlari haqida so'z brogan.*

*Kalit so'zlar: Barqaror rivojlanish, barqaror iqtisodiy taraqqiyot, ijtimoiy siyosat, tabiiy resurslar, milliy iqtisodiyot, innovatsion iqlim, investitsion iqlim, moliyaviy barqarorlik, ekologik vaziyat.*

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## **ECONOMIC AND ENVIRONMENTAL ASPECTS OF SUSTAINABLE DEVELOPMENT OF REGIONS**

*Abstract. Our country is paying special attention to the modernization of the system of socio-economic and ecological spheres. The government of the Republic of Uzbekistan adopted a number of laws, decrees and laws aimed at developing the field of ecology, preventing and reducing the scope of environmental problems, which, in turn, are of great importance in the sustainable development of the field of ecology in the country and improvement of the current environmental situation. The article talks about the ecological reforms carried out in the country, the economic and ecological aspects of the development of the ecology of the region.*

*Key words: Sustainable development, sustainable economic development, social policy, natural resources, national economy, innovation climate, investment climate, financial stability, environmental situation.*

Bizga ma'lumki, O'zbekiston Respublikasi 2015 yildan keyingi davrda BMT tomonidan 2030 yilga mo'ljallangan 17 ta maqsad va 169 ta vazifalardan iborat barqaror taraqqiyot dasturini qo'llab-quvvatlab, barqaror rivojlanishning uchta sohalari (iqtisodiy, ekologik va ijtimoiy) bo'yicha majmuali ishlarni olib borishini ma'lum qilgan.

Ushbu doirada qaraydigan bo'lsak, barqaror rivojlanish konsepsiyasi – kelajak avlod ehtiyojlarini inobatga olgan holda hozirgi zamon kishilik jamiyatining o'zaro uzviy bog'langan ekologik xavfsiz, iqtisodiy ta'minlangan, ijtimoiy muhofazalangan va institutsional birlashgan hayot tarzini shakllantirishni o'z ichiga olgan g'oyalar tizimidir [1].

Hozirda, barqaror taraqqiyot muammosi ikki asosiy yo'nalishda rivojlanmoqda. Birinchisi – bu jamiyatni barqarorlik prinsiplari asosida rivojlantirish maqsadlarini belgilab olish va ularga erishishni ta'minlaydigan shart-sharoitlarni aniqlashdir. Ikkinchisi – barqaror iqtisodiy taraqqiyotni ta'minlovchi omillarni o'rganish: barqaror taraqqiyot parametrlari va omillari aniqlanadi, uning mutanosibligi, shart-sharoitlari, maqbulligi mezonlari aniqlanadi, o'sish imkoniyatlari o'rganiladi.

So'nggi paytlarda mintaqalarni tahlil qilishda, tizimli yondashuvdan foydalanish faollashdi, bu birinchi navbatda, ijtimoiy-iqtisodiy va ekologik tizimlar sifatida o'rganishda namoyon bo'ladi. Respublika mintaqalarini iqtisodiy-ekologik jihatlarini hisobga olgan holda hududiy rivojlanish strategiyasini ishlab chiqishning ahamiyati oshib bormoqda. O'zbekiston Respublikasi Prezidenti SH.M.Mirziyoev Oliy Majlis Senati va Qonunchilik palatasiga Murojaatnomasida (2023 yil) kelgusi yil uchun rivojlanishning asosiy 6 yo'nalishini belgilab berdi, unda asosiy «...to'rtinchi yo'nalish- ekologiya, ayniqsa, suv masalalari global muammoga aylanib borayotgani bilan bog'liq» deb ta'kidlab o'tganlar.

Mamlakatimiz mintaqalar barqaror rivojlanishining iqtisodiy jihatlariga e'tibor qaratar ekanmiz, mintaqalarning iqtisodiy salohiyatidagi tafovutlar bir qator ob'ektiv sabablar-bozor islohotlarining dastlabki davridagi mintaqaviy rivojlanish darajasi, mintaqaning investitsion jozibadorligi, iqtisodiy-geografik rivojlanishi, infratuzilmaning rivojlanganlik darajasi, innovatsion salohiyati va boshqa ko'pgina omillar bilan izohlanadi.

Bugungi kunda mintaqalarning barqaror rivojlanishining asosiy yo'nalishlari sifatida quyidagilarni ajratib ko'rsatish mumkin:

- ijtimoiy siyosat;
- tabiiy resurslar salohiyati va ulardan oqilona foydalanish;
- milliy iqtisodiyotni raqobatbardoshligini oshirish;
- innovatsion iqlim;



- investitsion iqlim;
- moliyaviy barqarorlik.

Mamlakatimizda yuz berayotgan iqtisodiy munosabatlarni isloh qilish va xo‘jalik yuritishning yangi bozor sharoitlarining rivojlanish jarayonlari ishlab chiqarish faoliyatini tashkil etish – hududiy iqtisodni boshqarish tamoyil va usullariga yangicha yondashuvni talab etadi.

Respublikamizda 2021 yil atmosferaga chiqarilgan ifloslantiruvchi moddalar miqdori 924 ming tonnani tashkil etgan. Atmosferaga chiqarilgan ifloslantiruvchi moddalar miqdori eng yuqori bo‘lgan hududlar sifatida Toshkent (46,5 foiz) va Qashqadaryo viloyatlari (13,9 foiz) qayd etilgan. Eng kam ulush esa Jizzax (0,4 foiz), Surxondaryo (0,7 foiz) hamda Xorazm viloyatlarida (0,7foiz) qayd etilgan.

O‘zbekiston Respublikasi hududlarini ekologik tanglik darajasiga ko‘ra quyidagicha xarakterlanadigan zonalarga bo‘lish mumkin:

-o‘ta keskin ekologik vaziyat – Qoraqalpog‘iston Respublikasini o‘z ichiga olgan;

-juda murakkab ekologik vaziyat – Qashqadaryo, Farg‘ona, Navoiy va Toshkent viloyatlari;

-o‘rtacha ekologik vaziyat – Buxoro, Namangan va Samarqand viloyatlari va Toshkent shahri;

-past darajadagi ekologik vaziyat – Andijon, Jizzax, Surxondaryo, Sirdaryo, Xorazm viloyatlari.

Tabiiy muhitning holatiga alohida mintaqalarning ixtisoslashuvi va respublikaning bir qator o‘ziga xos xususiyatlari sezilarli darajada ta’sir qiladi. Ularga quyidagilar kiradi:

-nisbatan kichik, ammo jadal rivojlangan hududda ishlab chiqarish va aholining yuqori konsentratsiyasi (Farg‘ona vodiysi);

-suv resurslarining cheklanganligi va sifatsizligi (Orolbo‘yi mintaqasi);

-hududning katta qismi atmosferaning ifloslanish salohiyati baland bo‘lgan zonalarda (Toshkent, Navoiy va boshqa viloyatlar) joylashishi.

Bizga ma’lumki, 2023 yil 14 iyul kuni O‘zbekiston Respublikasi Oliy Majlisi Qonunchilik palatasi va Senatining qo‘shma majlisida SHavkat Mirziyoev qasamyod qabul qildi va O‘zbekiston Prezidenti lavozimiga kirishdi. Ushbu yig‘ilishda, Prezident ekologiya, atrof-muhitni asrash va suv tanqisligi muammolarining oldini olishga qaratilgan masalalarni ustuvor vazifa sifatida ko‘rsatib o‘tgani alohida e’tiborga molik [2].

Sababi, bugungi kunda dunyoda yuz berayotgan shiddatli jarayonlar, oziq-ovqat xavfsizligi, iqlim o‘zgarishi va ekologiya bilan bog‘liq muammolar hamjamiyat oldiga yangidan-yangi vazifalarni qo‘ymoqda. Jahon yalpi ichki mahsuloti, aholi sonining o‘sishi, insoniyatning atrof-muhitga salbiy ta’siri va global energiya resurslarining cheklanayotgani ekologik muammolarning kuchayishiga sabab bo‘lmoqda.

SHuni ham aytib o'tish joizki, so'nggi yillarda mamlakatimizda qabul qilinayotgan aniq maqsad va vazifalarni o'zida jamlagan farmon va qarorlar, tasdiqlangan dasturlar ijrosi doirasida ko'rilgan chora-tadbirlar ijobiy natijalarni bermoqda. Jumladan, Orolbo'yi hududini rivojlantirish bo'yicha Davlat dasturi ishlab chiqildi, O'zbekiston Parij bitimini ratifikatsiya qildi. Orolbo'yi mintaqasi uchun Inson xavfsizligi bo'yicha ko'p tomonlama sheriklik trust jamg'armasi tashkil etildi, 2030 yilgacha bo'lgan davrda O'zbekiston Respublikasining atrof-muhitni muhofaza qilish konsepsiyasi tasdiqlandi.

O'zbekiston "2019-2030 yillar davrida mamlakatning "yashil" iqtisodiyotga o'tish strategiyasi"ni qabul qildi, mamlakatimiz tashabbusi bilan BMT Bosh Assambleyasining Orolbo'yi mintaqasini ekologik innovatsiya va texnologiyalar hududi, deb e'lon qilish bo'yicha maxsus rezolyusiyasi qabul qilindi.

SHu o'rinda Prezident o'z nutqida ekologiya va atrof-muhitni asrash, suv taqchilligining oldini olish bundan buyon ham dolzarb vazifa bo'lib qolishini qayd etdi. Xususan, davlat rahbari o'z nutqida "...biz dunyodagi eng katta ekologik ofat – Orol fojiasini bevosita o'z boshidan kechirayotgan xalqmiz. SHuning uchun hozirgi vaqtda respublikamizda bebaho ekologik tizimni saqlash va mustahkamlashga qaratilgan keng ko'lamli dasturlar, jumladan, "Yashil makon" umummilliy loyihasi amalga oshirilmoqda...", deya qayd etdi.

SHunday ekan, mazkur dasturlarni amalga oshirish orqali ekologik muammo va iqlim o'zgarishi sharoitida dunyo hamjamiyatining diqqat markazida bo'lgan Orol dengizining qurigan tubida qo'shimcha 500 ming gektar yashil maydonlarni barpo etish orqali 2026 yil yakuniga qadar ularning umumiy hajmi 2,5 million gektarga yoki hududning 78 foiziga etkazish bilan nafaqat O'zbekistonda, balki mintaqada ekologik barqarorlik tiklanishiga erishish ta'minlanadi.

Hududda Orolbo'yida xalqaro "Yashil iqlim" va Global ekologik jamg'armalarning bioxilma-xillik, iqlim o'zgarishi va tuproq emirilishining oldini olishga qaratilgan dasturlari asosida loyihalarni amalga oshirish ham ekologik muammolar bugungi kunning dolzarb masalasi ekanini tasdiqlab turibdi.

Xulosa qilib aytganda, Prezident nutqidagi ekologiya va atrof-muhit masalasi davlat boshqaruvi organlari, jamoat tashkilotlari va fuqarolarni tabiatni muhofaza qilish, aholining qulay tabiiy muhitda hayot kechirishi uchun barcha zarur shart-sharoitlarni yaratish, tabiiy resurslardan oqilona va samarali foydalanishga hamda ekologik xavfsizlik muammolarining oldini olishga safarbar qiladi.

**Xulosa o'rnida shuni aytish lozimki**, mintaqalar barqaror rivojlanishning iqtisodiy-ekologik jihatlari quyidagi maqsadlarda amalga oshirilishi lozim [3]:

-hozirgi va kelajak avlodlar uchun barqaror rivojlanishning teng imkoniyatlarini ta'minlash;

-ishlab chiqarish kuchlarining tuzilishi va joylashishi tabiat rissurslari holati bilan muvofiq kelishini o'z vaqtida ta'minlash;

-ishlab chiqarishni rivojlantirish va joylashtirishning eng samarali yoʻnalishlarini belgilash;

-tabiiy resurslardan oqilona foydalanish va ularni takror ishlab chiqarish boʻyicha tadbirlar tuzilmasini, hajmini va joylashishini asoslash;

-resurslardan foydalanish, ularni asrash, yaxshilash, muhofaza qilishda ilmiy-texnika taraqqiyotining asosiy yoʻnalishlarini aniqlash;

-xomashyo va chiqindilardan majmual foydalanish tadbirlarini asoslash.

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## **MIND MAPPING IN EDUCATION: ENHANCING COGNITIVE SKILLS**

*Abstract. Mind Mapping in Education is a visual tool that enhances cognitive skills by organizing and representing information in a structured, graphical format. It encourages creative thinking and helps in the understanding and retention of complex concepts. Mind Maps facilitate brainstorming, planning, and problem-solving, making them effective for both individual and collaborative learning. They aid in synthesizing information, developing ideas, and fostering deeper comprehension. While mind mapping requires developing specific skills for effective use, its application in education has been widely recognized for improving memory, concentration, and organization skills, benefiting learners of all ages.*

*Keywords Mind Mapping, Cognitive Skills, Visual Learning, Brainstorming, Information Synthesis, Creative Thinking, Problem-Solving, Memory Enhancement, Concentration, Educational Tools.*

Mind Mapping in Education involves the use of mind maps, a visual and structured way of representing ideas and concepts. It helps in organizing information hierarchically, making complex topics easier to understand and remember. Mind Maps are used as a cognitive tool to enhance creativity, comprehension, and memory. They are particularly effective in brainstorming sessions, project planning, and summarizing content. This approach encourages learners to make connections between different concepts and develop a deeper understanding of the subject matter. Mind Mapping is applicable across various educational levels and disciplines, offering a flexible and engaging method for learning and idea development.

**Concept and Principles of Mind Mapping** Exploring the concept of mind mapping, including its structure and principles. This includes understanding how mind maps are created and the cognitive processes involved in developing and interpreting them.

**Benefits of Mind Mapping in Learning** Analyzing the benefits of mind mapping in education, such as enhanced memory, improved organization skills, and the promotion of creative and critical thinking. The role of mind mapping in facilitating effective note-taking and concept visualization is highlighted.

**Applications in Educational Settings** Discussing the various applications of mind mapping in educational contexts, including its use in lesson planning, knowledge assessment, and collaborative learning activities. The adaptability of mind maps to different subjects and educational levels is explored.

**Case Studies and Empirical Research** Presenting case studies and research findings on the effectiveness of mind mapping in enhancing cognitive

skills and academic performance. These examples demonstrate the practical application and benefits of mind mapping in various educational contexts.

### **Conclusion**

Mind Mapping in Education offers a powerful tool for enhancing cognitive skills, promoting creativity, and improving information retention. Its visual and structured approach aids in the synthesis of complex information, fostering deeper comprehension and idea development. While it requires the development of specific skills, the benefits of mind mapping in enhancing memory, concentration, and organization are significant. Mind Mapping represents a valuable addition to traditional educational methods, providing a dynamic and effective way to engage with and understand content.

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## **PEER TEACHING: A COLLABORATIVE APPROACH TO LEARNING**

*Abstract. Peer Teaching, a collaborative educational approach, involves students teaching and learning from each other. This method fosters a deeper understanding of material, enhances communication skills, and builds empathy among learners. Peer Teaching breaks down complex concepts into more understandable segments, as students often communicate in relatable language. It encourages active learning and responsibility in students' own education. Challenges include ensuring accuracy of information and varying levels of student engagement.*

*Keywords. Peer Teaching, Collaborative Learning, Student Engagement, Communication Skills, Empathy, Active Learning, Educational Responsibility, Self-Confidence, Critical Thinking, Teaching Methodology.*

Peer Teaching is an educational approach where students take on the role of instructors, teaching their peers and, in the process, reinforcing their own understanding of the subject matter. This method capitalizes on the unique dynamics of peer interaction to facilitate learning. Peer Teaching is beneficial in enhancing comprehension through mutual explanation and discussion. It also promotes a sense of responsibility and involvement in the learning process. This approach is applicable across various age groups and educational settings, encouraging collaboration, empathy, and the development of communication and teaching skills among students.

**Concept and Dynamics of Peer Teaching** Exploring the concept of Peer Teaching and the dynamics involved, including the roles and responsibilities of student-teachers and learners. The principles that make Peer Teaching effective, such as mutual respect and collaboration, are examined.

**Benefits of Peer Teaching in Education** Analyzing the benefits of Peer Teaching, including improved understanding of concepts, enhanced communication skills, and increased empathy and respect among students. The impact of Peer Teaching on student engagement and motivation is highlighted.

**Challenges and Strategies for Effective Implementation** Discussing the challenges associated with Peer Teaching, such as ensuring the accuracy and depth of content being taught and managing varying levels of student engagement. Strategies for effective implementation and overcoming these challenges are explored.

**Impact on Learners and Teachers** Examining the impact of Peer Teaching on both the student-teachers and the learners, including the development of critical thinking skills, self-confidence, and a deeper understanding of the subject matter.

**Case Studies and Research Evidence** Presenting case studies and empirical research findings on the effectiveness of Peer Teaching in various educational contexts. These examples demonstrate the adaptability and practical benefits of Peer Teaching in enhancing learning outcomes.

### **Conclusion**

Peer Teaching is a powerful and collaborative approach to learning, offering numerous benefits to both student-teachers and learners. It promotes active engagement, deeper understanding, and the development of essential life skills such as communication, empathy, and critical thinking. While there are challenges to its implementation, effective strategies and supportive educational environments can enhance the effectiveness of Peer Teaching. As an addition to traditional teaching methods, Peer Teaching provides a dynamic and interactive learning experience, valuable for students' academic and personal development.

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## **GEOGRAPHICAL BASIS OF ECONOMIC AND SOCIAL DEVELOPMENT OF DENOVSKY DISTRICT**

*Abstract. This article analyzes the geographical location of the Denovskiy district in the northern part of the Surkhandarya region, the economic and socio-geographical position in the region. In addition, the production potential of the Denovskiy district of the region and its role in the social sphere were analyzed.*

*Key words: production, specialization, geographical location, social spheres, clusters, specialization.*

**MAIN PART:** Denov district of Surkhandarya region was established on September 2, 1926. Denov district is one of the districts located in the northern part of Surkhandarya region. Area: 0.819 thousand sq. km Border length: 155.8 km, from the south is Shorchi district (9.2 km), from the south is Oltinsoy district (41.1 km), from the north is Sariosiyo district (49.2 km), from the east is Uzun district (30.3 km), bordering Kumkurgan district (26.0 km) from the west. Denov District has 1 city, 12 towns, and 115 villages.

Nature. The northern, southern and central parts of Denov district consist of texel. It is surrounded by the Bobotog ridge in the east and Boysuntog ridge in the west. The earth's surface descends to the east. Surkhandarya, Topalondarya, Sangardak, Kyzilsuv rivers, Hazarbog, Oybarak, Chilmurob canals, Daytolak, Denov streams flow through Denov district.

Population of. Most of the population is Uzbek (83.3%), Tajik (15.3%), Russian (0.4%), Turkmen (0.1%), other nationalities (0.9%). There are 500 people per km<sup>2</sup>.

Economy. In terms of regions, the highest share of production of consumer goods in the total volume of the region is 22.4% for Termiz city, 15.5% for Denov district, 14.2% for Shorchi district, 14.2% for Zharqo. Rgan district was 8.0% and Termiz district was 6.1%.

**The share of regions in the volume of total industrial products of Surkhandarya region, in %.**

The largest share in the volume of industrial production of the region is the share of the city of Termiz (21.0% of the volume of industrial production of the

region), Zharkorgan (18.5%), and Denov (15.7%) districts. is coming. The lowest rate corresponds to Bandikhon (0.1%), Kyziriq (1.4%) and Boysun (1.8%) districts.

Industrial enterprises:

The largest industrial enterprises are 3;

There are 595 small industrial enterprises.

Large industrial enterprises are: "Denov vino-vodka" open joint-stock company, "Mez Denov oil-oil enterprise", "Denov Textile Cluster".

"Denov vino-vodka" became an open joint-stock company. The society operates in the following areas: production of wine, vodka, cognac products, use of vehicles and provision of paid services; Currently, the joint-stock company "Denov vino-vodka" has 1 vodka bottling shop, 1 wine bottling shop, and the following products are produced in these shops: 20 types of vodka products in the company, i.e. "Denov", "Pahlavon", " Shakhristan", "Surkhan Tongi", "Sangardak", "Luch", "Yuznaya", "Dakhodnaya", "Novaya marka", "Evroasia", "Evroasia-2" special vodka, "Russkaya", "Pshenichnaya", "Elegant" and 6 types of wine products, namely "Uzbekistan Port", "Kagor", "Eastern Jewel", "Rkatsetili", "Yuznaya barkhat", "To'maris" wine products are produced.

"DENOV TEXTILE CLUSTER" textile cluster is one of the leading enterprises producing cotton products in the CIS countries. Modern technologies have made it possible to produce cotton products in large quantities almost without waste. It grows cotton, produces yarn, refined oil, animal feed, milk, meat, and knitted products. "DENOV TEXTILE CLUSTER" textile cluster is one of the leading enterprises producing cotton products in the CIS countries. Modern technologies have made it possible to produce large quantities of cotton products without waste (Figure 1).

This cluster is a land area in several Oltinsoy, Uzun, and Sariosiyo districts. All products are produced on modern equipment imported from India, Switzerland and Turkey.







**Figure 1. DENOVA TEXTILE CLUSTER**

"Mez Denov oil-oil enterprise" includes production of vegetable oil of the food industry, oil purification, hydrogenation, production of household soaps, laundry detergents, alifs and other products based on synthetic fatty acids.

**Social spheres.** Denov district is second only to Termiz city in terms of education, health care, sports, culture, tourism, services and other areas. There are a total of 7 higher education institutions in the Surkhandarya region, 5 of them in the city of Termiz, 1 in the district of Termiz and 1 in the district of Denov. This indicates that the need for education, i.e. higher education, is increasing in Denov district. It was established on April 17, 2020 at Denov Entrepreneurship and Pedagogical Institute, the only one in Denov district. The institute prepares bachelor's degrees in 24 educational areas, and master's degrees in 12 specialized areas. More than 7,500 students study at the institute and 203 teachers-professors teach them. In Denov district, there are 101 schools (76,842 students, 5,624 teachers), 360 kindergartens. There are 71 medical institutions, including 23 state medical institutions, 48 private medical institutions (3,377 general medical staff, 425 doctors, 2,102 local medical staff). There are 504 sports facilities and 2 sports schools. There are 6 cultural centers and 2 recreation parks. Tourist objects are the mausoleum of Sultan Sanjar Mozi, Said Ataliq madrasa, mausoleum of Khoja Alovuddin Attar.

**CONCLUSION:** Denov district has a favorable economic-geographical location, which we can see in the economy of historical-cultural monuments. Today, Denov's industrial production is taking place in various sectors at high levels with the regional center Termiz and the industrially developed district of Zharkorgan on all fronts. It is self-evident that Denov district is distinguished by its economic and natural geographical convenience, convenient transportation geography, and wealth of labor resources in the path of historical development.

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## **HISTORY OF RELIGIOUS, PILGRIMAGE TOURISM AND GEOGRAPHY OF DEVELOPMENT CENTERS**

*Annotation. This article describes pilgrimage tourism, including the history of the formation of the phrase "pilgrimage" and its meaning, its place in the world and in Uzbekistan in the field of tourism, how important it is today, the unique characteristics of world religions such as Christianity, Islam, and Buddhism. we will dwell on the tourists who visit the holy places and the rituals of pilgrimage.*

*Key words: definition of "Pilgrimage", pilgrimage tourism, religious pilgrimage, shrine, mosque, church, mausoleum.*

**MAIN PART:** Pilgrimage tourism is a type of religious tourism and is a collection of pilgrimage trips by representatives of different religions. The definition of "pilgrimage" comes from the Latin word "peregrinatio". The inhabitants of Jerusalem welcomed Jesus Christ with a "palm branch". It is done by visiting and traveling to places of faith and religious objects for prayer and pilgrimage. Pilgrimage tourism is currently a widespread tourism industry. Pilgrimage tourism is essentially the process of visiting places of pilgrimage. Pilgrimages are usually long journeys of days, weeks or even months for religious purposes. They are places where people of faith go to strengthen their relationship with their religion, encompassing a whole journey. Pilgrimage tourism may include visits to mosques and churches or other religious sites in a particular city or region where a visit is possible. Pilgrimage tourism is a type of tourism that fully or strongly motivates tourists to achieve religious attitudes and traditions. Pilgrimage tourism is a set of pilgrimage trips by representatives of different religions. Traditionally, it refers to religious travel, but it can also refer to secular travel that has special significance for the pilgrim. The journey, which is often long and sometimes difficult, is an opportunity for people to reflect. Pilgrimages can be a way to deepen relationships with religion. It's definitely a way to show how committed you are to the faith, and it's also an opportunity to learn more about the religion itself. As a form of travel, pilgrimage allows people to visit holy places. A traveler traveling for religious purposes is a person who goes outside the country of

permanent residence for a period of not more than six months to visit holy places and religious centers.

Religious tourism should be understood as activities related to providing services and meeting the needs of travelers who travel to holy places and religious centers outside the usual environment.

Religious tourism is divided into two main types:

- pilgrimage tourism;
- excursion and educational religious tourism

Each religion has its own beliefs, customs and rituals of religious pilgrimage. Established pilgrimage rituals of world religions; they are:

- Pilgrimage in Christianity - travel to the Holy Land and other geographical places of sacred importance for Christian devotion for the purpose of prayer and worship, for example: (Pilgrimage Church); in general, the pilgrims visit holy places for a generation. Christian traditions are based on the desire of Christ, the apostles to pray before the miraculous icons, to immerse themselves in the holy waters of the Jordan River and holy springs; penitential pilgrimages are expected as a sign of Greek repentance;

- Pilgrimage in Islam - Hajj ceremony: Muslims who visit Mecca and Medina and perform the prescribed rituals there;

- Pilgrimage in Hinduism and Buddhism - kora - the ceremony of walking around the shrine;

• among Hindus - visiting Prayag and Varanasi (Benares, India) (the latter among Jains);

• Buddhists have Buddhist shrines in India;

• among Japanese Buddhists and Shintoists - Nara settlement;

• among Tibetan Buddhists - the settlement of Lhasa (Tibet);

- Judaism's Pilgrimage Ritual: During the First and Second Temple periods, the three annual "pilgrimage festivals" (Passover, Shavuot, Sukkot) included pilgrimages to Ram;

- The Bahá'í pilgrimage is the residence of the holy places of Haifa and Acre.

Pilgrimage tourism in Christianity

Christianity is the largest religion in the world by the number of believers. about 2.6 billion people (almost every third of the Earth's population). Christianity includes two main branches: the Orthodox Church (Eastern Church) and the Catholic Church (Western Church). Many scholars also identify as branches of Christianity Protestantism, Monophysitism and Nestorianism, as well as many religious currents, movements and sects. In fact, Protestantism is only a branch of the Western Church, that is, Catholicism. Monophysitism and Nestorianism are heresies condemned by the East and the West Church. The specific characteristics of Christian pilgrims are mainly determined by the religious consciousness of believers.

Main reasons to visit:

- the desire to pray and touch the miraculous icon, indestructible monuments;
- recognition in a religious center or religious center or from a well-known person. religious figure;
- performing charity work;
- donation;
- achieving guidance;
- recovery from illness;
- to fulfill the oath.

The characteristics of the pilgrimage in Christianity can be different directions, sects and sects. The nature of these trips, their intensity depends on the specific economic and political situation of another country, the level of material well-being of citizens, their social and professional status. Religious tourists are influenced directly or indirectly by the geographical location and climate of travel destinations.

Christianity is the second oldest world religion after Buddhism. a religion with a rich cultural and spiritual heritage. In many countries of the world, there are many Christian shrines and monuments, displayed in museums in most major cities with cultural values.

#### **Pilgrimage tourism in Islam**

Taking into account the religious tourism of Muslims, it can be noted that there is a pilgrimage with a specific purpose. Every Muslim should go to Hajj at least once in his life. Hajj to the holy cities of Mecca and Medina. A characteristic feature is the sharp increase in the number of pilgrims. During the Hajj, which Muslims perform once a year, the calendar dates change according to the month. Only Muslims can visit these cities, which limits the excursion, because excursionists - representatives of other religions - cannot visit the main shrines.

If we look at the geography of religious places in Islam, as mentioned above, pilgrimage involves visiting the two holy cities in Islam - Mecca and Medina, located in Saudi Arabia.

These pilgrimages are divided into two categories:

- 1) hajj (big pilgrimage);
- 2) Umrah (small pilgrimage).

Mecca and Medina are visited by about 2 million pilgrims every year. The first pilgrimage is the largest mosque in the world - Haram Bait Ullah. Inside the mosque is the shrine of the Kaaba. The "Kaaba" comes from the shape of the building, which looks like a cube, but is actually rectangular, measuring about 13.1 m, and 15 m high. The Kaaba is built of gray stone from the surrounding mountains, covered with a 25 cm high marble plinth. The shrine of the Kaaba is covered with a black blanket (muslin). This blanket is produced every year in Egypt. Just before the arrival of the pilgrims, the black veil was replaced by a white bag. At the end of the pilgrimage month, a new black veil is worn again, and the old one is cut into pieces and sold as souvenirs to the pilgrims. The second

is to visit Madinah for Umrah. Combined with pilgrimage to Mecca. The distance between Mecca and Medina is 300 km. Pilgrims usually travel this distance by plane or car. The mosque in Medina is smaller than Mecca. Prophet Muhammad (pbuh) was buried there. In Medina, pilgrims climb Jabal al-Nur mountain to visit the cave where the first revelation was given to the great prophet Muhammad (pbuh) on Jabal mountain. Pilgrims visit famous battlefields and mosques.

In addition to the centers of pilgrimage in Mecca and Medina, Islamic pilgrims visit other religious monuments in other countries of the world. One of the most important shrines of Islam is located in Jerusalem.

Khalifa Umar Mosque ("Dome of the Rock"). It is located on Mount Moriah, on the site of the king's former temple. This place is holy for Christians, Jews and Muslims, because Abraham sacrificed his son Isaac gathered here. For Muslims, this place is important because the Prophet Muhammad (pbuh) made a night journey from here to heaven.

Other important Muslim pilgrimage sites are:

- In Istanbul, there is the Blue Mosque (former St. Sophia Cathedral);
- Umayyad Mosque in Damascus;
- Golden Mosque in Baghdad;
- In Cairo - Ibn Tulun and Sultan Hasan Mosque;
- In Delhi - Qutub Minar and Quwwat ul Islam Mosque

Religious tourism has a great emotional impact on people. Many people come back changed after the pilgrimage, having solved some of the contradictions in life, rested and come back in a good mood. The development of religious tourism is now very important, the rapid development of infrastructure and, finally, allowing people who want to visit holy places to purify themselves and cleanse their souls.

Pilgrimage tourism in Buddhism

Buddhism (from the Sanskrit word "Buddha", literally enlightened) is a religious-philosophical doctrine (dharma) about spiritual awakening (bodhi) that arose in the VI century BC. In ancient India. The founder of the doctrine is Siddhartha Gautama, who later received the name Shakyamuni Buddha.

The followers of this teaching themselves called it "Dharma". (Law, doctrine) or "Buddhadharma" (Teachings of the Buddha). "Buddhism" was created by Europeans in the 19th century.

It is believed to be one of the oldest religions in the world, recognized by different peoples with completely different traditions. "Without understanding Buddhism, it is impossible to understand the great cultures of the East - the Indian, Chinese, Tibetan and Mongolian cultures, which have been steeped in the spirit of Buddhism to their last foundations."

The largest number of Buddhists live in the following countries:

- Japan - 72 million people
- Thailand - 52 million people
- Myanmar - 37 million people



Vietnam - 35 million people  
China - 34 million people  
Sri Lanka - 12 million people  
Republic of Korea - 12 million people  
Cambodia - 7 million people  
India - 6 million people  
99.1% - Asia  
0.4% - Europe  
0.4% - America  
0.1% - other regions

Buddhism is one of the 3 world religions. It appeared in Ancient India in the 6th-5th centuries. V. BC. and distributed in Southeast and Central Asia, Central Asia and Siberia. This religion is based on man's inner desire for spiritual realization (nirvana), which is achieved through meditation, wisdom and high moral values. One of the centers of Buddhism is located in the highlands of Tibet in the city of Lhasa. Here is the monastery and palace of the Dalai Lama, the Buddhist spiritual leader. Built in the 17th century, the palace has more than 1,000 rooms, 10,000 objects of worship, and 20,000 statues. Until 1959, the palace was the winter residence of the Dalai Lama. After being expelled from the country by the Chinese Communists, he made his way to India.

In Kandy (Sri Lanka) there is another shrine of the Buddhist world - the left tooth of the Buddha, which came here many centuries after the cremation of the Buddha's body. Every year, at the end of July - beginning of August, Buddhists from all over the world gather in connection with the removal of the holy relic from the temple, and a colorful celebration is held for 10 days. The city of Nara (Japan) is one of the most revered cities among Buddhists. About 3 million pilgrims visit it every year.

Separately, a visit to Mount Kailash and Lake Monasarovar (Tibet) should be mentioned. Mount Kailash is a sacred mountain for representatives of 4 religions - Buddhism, Hinduism, Jainism and the ancient Tibetan religion of Bon. In the book of the famous Russian ophthalmologist E.R. Muldasheva "In Search of the City of Gods" a scientific expedition to this area is charmingly described. Mount Kailash (height 6666 meters) is the most magnificent pyramid in the world.

In the Middle Ages, religious pilgrimage acquired a special mass character in the form of the Crusade. It was held under the banner of the fight against Muslims, under the motto of liberating Christian holy places from them.

Pilgrimage activities became more active in the 15th and 16th centuries. Most of those who go to the Holy Land (Jerusalem) mask their goals and interests with a religious pilgrimage.

Based on the work of a number of scientists, in particular A. Yu. Aleksandrova, the following 11 macro-regions of pilgrimage can be distinguished:

- Orthodox countries of the world: Russia, Ukraine, Belarus, Moldova, Georgia, Greece, Bulgaria, Romania, etc.;
- the majority of foreign Europe with the dominance of Catholicism and Protestantism, numerous movements;
- North America (NA) with a dominant position of Christianity;
- Latin America (LA), where Christianity and traditional folk beliefs of the local population prevail;
- Islamic-dominated North Africa;
- The predominance of Islam and the presence of centers of Christianity and traditional folk beliefs in East and partly West Africa;
- Western Asia dominated by Islam and enclaves of Christianity and Judaism;
- South Asia with the spread of Hinduism, Buddhism and Islam, as well as centers of Christianity, Sikhism and Jainism;
- Southeast Asia with enclaves of Buddhism, Islam, Christianity and Hinduism;
- Eastern Asia where Buddhism, Confucianism, Shintoism dominate, Christianity and Islam;
- Central Asia under Islamic rule; Buddhism dominates Central Asia (Tibet).

Each macro-region is primarily known for its secular centers of pilgrimage. They receive the international flow of believers and are often combined with the functions of administrative, industrial, cultural and touristic centers of religious specialization. In addition, there are religious objects of national and local significance in the macro-regions. The city of Jerusalem is one of the largest religious centers in the world. Jerusalem is also a holy center for believers of three religions: Islam, Christianity, and Judaism.

These macro-regions are divided based on the potential of existing religious shrines. Among them, the most important regions are the Vatican in Europe, the cities of Mecca and Medina in Saudi Arabia and Jerusalem in Western Asia. In Central Asia, there are religious tourist resources in ancient Bukhara and Samarkand, Tashkent, Termiz, Khiva and other cities of Uzbekistan.

Pilgrimages usually involve visiting the shrines of prominent figures of various religions. Since the place to be visited is sacred, many believe that praying there means that the prayer is more likely to be answered. Some shrines and sites rely entirely on this impressive power of tourism for their income. This, in turn, affects the surrounding areas. Tourists rent hotels and restaurants. Jobs will be created for guides, souvenir makers, photographers, etc.

Pilgrimage is to go to holy places, graves and cemeteries and perform certain religious and educational prayers. Objects with the status of holy places, places of religious events, burial places of great saints of all times and their followers, holy places of lost religions, objects of perennial pilgrimage, places the appearance of nature is the only landscape created by forces. The development of

pilgrimage traditions is common to all major religions. In Islam, the cities of Mecca and Medina are the main cities of pilgrimage tourism. In addition, Jerusalem (Khalifa Umar Mosque on Mt. Moriah), Istanbul (Blue Mosque), Damascus (Ummavi Mosque), Baghdad (Golden Mosque), Gohira (Ibn Tulun and Sultan Hasan Mosque) and Delhi (Qutb Minar minaret and Quwwat ul Islam) mosque) are also important holy places of pilgrimage for Muslims. In practice, pilgrimage tourism includes all types of tourist services related to religion, various types of mysticism, unexplained phenomena and traditions. Today, the tourism industry is developing at a rapid pace, geographical problems such as tourism and historical tourism, pilgrimage, ecotourism, educational tourism, sports, medical tourism and opportunities for the development of tourism and recreation in Uzbekistan, competition in the international tourism market is increasing.

The sacred places named after our ancestors serve as a great heritage for the future generations with the lifestyle, culture, national and religious values, architecture and architecture of our people. In order to preserve the entire spiritual and cultural heritage of our people, to preserve, repair and beautify every step, monument, shrines to the required level, to improve their infrastructure, to create comfortable conditions for pilgrims and travelers, 20 monuments were built. repairs, improvements and improvements are being made. Shrines and shrines located in the territory of Tashkent region were given to the regional administration of the "Golden Heritage" international charity fund, and 6 to the "Waqf" fund. In particular, by the regional branch of the international charitable society "Golden Meros" "Prophet father" in Ohangaron district (2001), "Shoabdumalik bobo" (2009-2018), "Zarkent father" in Parkent district (2002). Currently, the shrines of "Bukhangar Buva", "Ansari Baba", and "Hazrati Mulla" in Boston district are being designed. Zangiota, Hazrat Ali, Shodimalik father, Buzruk father, Zarkent father, Paygambar father, Shamirgori saint, Parpi father, Sheikh Umar Vali Buzruk father are located in the region., Kyrgyz shrines are famous, pilgrims visit here not only from our republic, but also from neighboring republics and countries such as Central Asia, Russia, Kazakhstan, Turkey, Indonesia, Malaysia, Iran, Pakistan.

Increasing the attractiveness of the region for the development of tourism depends, first of all, on increasing the interest in knowing its historical and cultural possibilities.

It includes historical objects, shrines and other spiritual and cultural monuments, folk crafts, museums. Historical-cultural heritage includes all socio-cultural environment with all its traditions and customs and features of everyday life. Almost all shrines are of interest to tourists. Currently, there are more than 10 major centers of pilgrimage tourism in the world, and the presence of Central Asian countries with Islamic values in them indicates that there are great opportunities for the development of this field in our country.

**CONCLUSION** In conclusion, it can be said that religious-pilgrimage tourism did not appear today. It is an ancient form of travel that has been

historically formed. At that time, in the 1st century AD, the population of the world was 200 million people, but by now it has exceeded 8 billion, and we can see that the number of believers has also increased accordingly. We can see that the demand for goods and services has also increased. In general, pilgrimage tourism has taken an independent place as a type of tourism today and is becoming more and more popular within domestic and foreign tourism.

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## **DESIGNING THE SUBJECT OF COMPARATIVE HEAT OF COMBUSTION OF FUEL USING GRAPHIC ORGANIZERS**

*Abstract. This article analyzes the problems of designing graphic organizers that serve to increase the efficiency of the lesson in the educational process. In order to use graphic organizers in physics lessons, it is necessary to know the ways and means of data analysis, comparison, comparison, and then design. If the "Venn" diagram and "T-scheme" are used in the implementation of such planning, there will be opportunities to form the skills and competencies of the students and to achieve the effectiveness of the lesson.*

*Key words: modern pedagogical technologies and interactive methods, graphic organizers, fuel, relative heat of combustion.*

### **INTRODUCTION**

In order to increase the effectiveness of education, to ensure that the individual is at the center of education and to ensure that young people learn independently, educational institutions need teachers who are well-prepared and who, in addition to solid knowledge in their field, know modern pedagogical technologies and interactive methods, and who know the rules of their use in organizing educational and educational activities. The contribution of teachers is also significant in transforming the fundamental reform of the educational system into the most important factor and solid basis of changing the mindset and worldview of our students and young people, increasing their confidence in the future. In the successful solution of these tasks, the presence of another factor, that is, the awareness of the nature of modern educational technologies by the employees of the continuous education system, pedagogues-teachers and their ability to use them effectively in the educational process, as well as the decision of a creative approach to the organization of the educational process, is of great importance. Based on this, it is necessary to use *graphic organizers that serve to increase the efficiency of the lesson in the educational process* [4]. In order to use graphic organizers in physics lessons, in turn, it is necessary to know the ways and means of data analysis, comparison, and comparison, and then to carry out design work [5]. If we use the "Venn" diagram and "T-schema" in the implementation of such planning, there will be opportunities to form the skills and competencies of the students and to achieve the effectiveness of the lesson. In this article, we refer to the role of designing graphic organizers in the teaching of

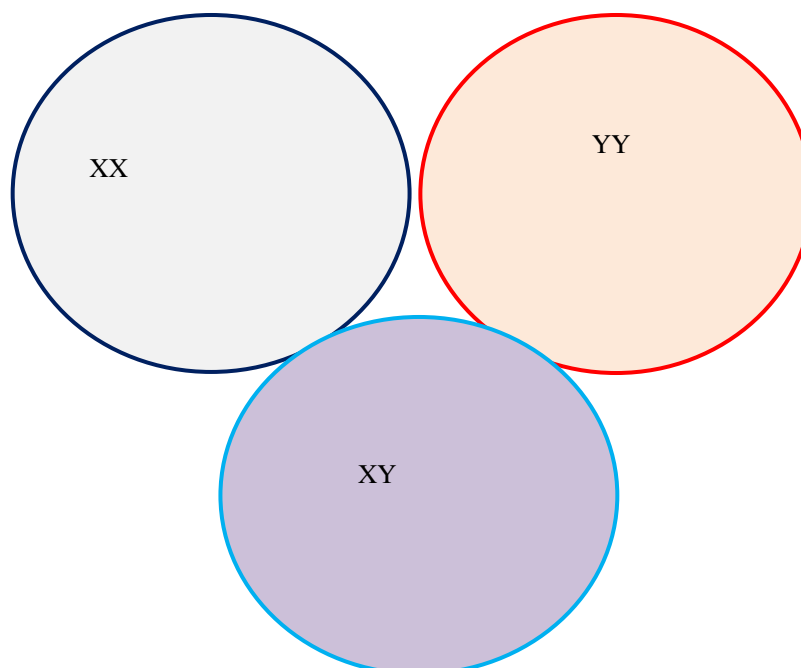


Physics in general secondary schools, as well as lesson developments related to the content of information in the course of the lesson.

## 1. Problems of designing graphic organizers in physical education

### 1.1. "Venn Diagram"

This interactive method is used to analyze and summarize the specific and common aspects of two or more concepts. In this case, the specific aspects of the concepts are written on the right and left circles, and the aspects common to them are written on the intersection of the circles. For example, concepts of "theoretical training". The Venn diagram for is shown below shown.



Venn diagram

A "Venn diagram" is used to compare, contrast, or contrast two aspects and what they have in common. In this, students develop the skills of systematic thinking, comparison, comparison, and analysis. This method with from working with the rule of making a "Venn diagram " first they get to know each other. They make a "Venn diagram " in separate small groups and intersecting places (xx) as desired data they kill with xy. This method, which seems simple at first glance, increases students' thinking ability and memory. Or it encourages independent work on the topic. Students are divided into three groups. Group 1 works for the right side of the diagram, Group 2 works for the left side of the diagram, Group 3 works for the space formed by the joining of two circles. In some cases, it can be given as homework or in the process of strengthening the lesson in order to test the level of mastery of the students.

**1.2. T - scheme.** This interactive method is a universal organizer of comparative concepts ("yes" / "no" or "agree" / "against"), and allows to visually

and concisely describe opinions that are sharply different from each other or opposite, sometimes differing by different criteria. creates comfort. The T-schema on the topic "Attitude to teaching using interactive methods" can be described as follows.

- The teacher asks them to do the task individually and allocates 10 minutes;
- At the end of the time, he tells the students to read out their opinions without comments;
- All conclusions After listening, it is summarized and final conclusion is formed.

Student: - Carefully study the topic listens;

- He himself for necessary information records in his notebook;
- Based on the given scheme to understanding relatively his independent opinion;
- Final conclusion with those who have died introduces;
- To the regulations complies.

To be expected result: students topic on the surface necessary knowledge learns about the essence of the course.

## **2. Topic: Fuel composition and specifications**

A combustible substance whose main component is carbon is called a fuel. As a result of the rapid progress of the physical reaction, the fuel emits heat. The main source of heat energy is fuel, and according to D.I. Mendeleev, fuel is "a combustible substance that is deliberately burned to obtain heat." In this case, the following requirements for fuel are burned:

- release a large amount of heat during combustion;
- low content of substances harmful to nature in the composition of combustion products;
- fast and burning.

Aggregate on this fuel is solid, liquid and in the form of gas. It is divided into types. Either do it organic and nuclear, come exit on this natural and artificial to be can time heat energy to get main source It is an organic oil is used. On the globe work being released and consumption getting dressed of energy about 70% is organic oil like to h is taken and 30% - water, wind, sulfur and nuclear is taken. The composition of organic fuel includes combinations of combustible and non-combustible elements. Solid and liquid fuels include the following combustibles: carbon S, oxygen O, nitrogen N. Sulfur in fuel is usually divided into combustible and non-combustible. Non-combustible sulfur is part of the mineral part of the oil. Combustible sulfur (volatile) is divided into organic  $S_{op}$  and  $S_k$  species from kolche, sulfur composition from kolche is  $FeS_2$ ;  $S_{uch} = S_{or} + S_k$ . Sulfur mineral part from Kolche to the composition when it comes in, it burns in the process participation is enough The mineral impurities included in the fuel form ash (A), and the ash does not participate in the combustion process and reduces the heating value of the fuel.

*Organic vegetables*

Organic oils are organic, flammable, dry and worker masses with is described. Consider the mass of each one organize to the doer suitable respectively with an index in the form of degree is determined

Organic mass:

$$C^{\circ} + H^{\circ} + S^{\circ} + O^{\circ} + N^{\circ} = 100\% \quad (1)$$

organic mass sulfur to the composition colchedanli sulfur

Combustible mass (dry ashless):

$$S^{\text{or}} N^{\text{+}} B^{\text{or}}_{\text{three}} + O^{\text{or}} + N = 100\% \quad (2)$$

Combustible mass composition or burning material.

Dry mass:

$$S_k + n_k + S + O_k + N_k = 100\% \quad (3)$$

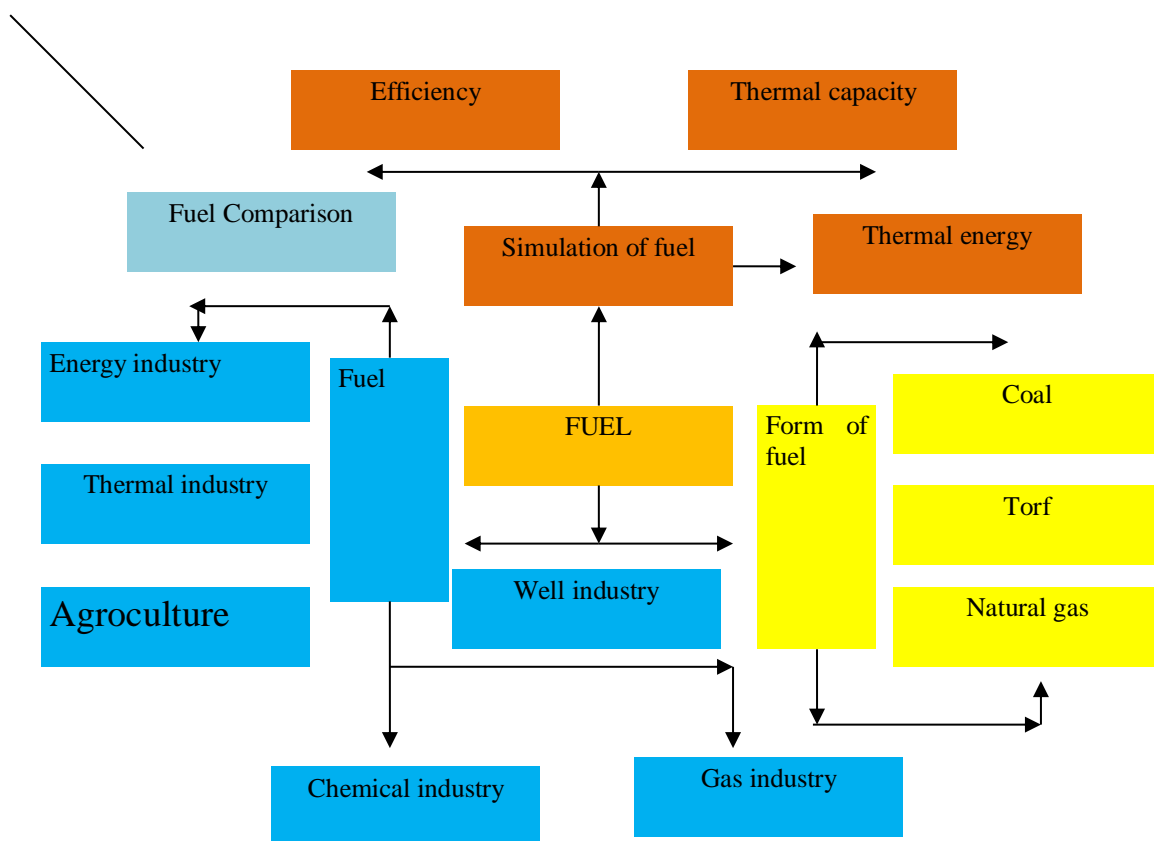
Dry mass includes all substances, including ash.

Working mass:

$$S^i + N^i + S^i_{\text{three}} + O^i + N + A^i + W^M = 100\% \quad (4)$$

Fuel common mass, that's it including ash and humidity, worker mass is called Burning with process analysis other accounts, according to through the working mass take will go. The composition of the fuel element from one mass to another is carried out using proportions or matching coefficients. The composition of gases is written in the form of the sum of the volumetric contents of the components:

$$CH_4 + Ho + CO + C_n H_m + Oo + N + HS = 100\% \quad (5)$$



1 table. Table of main elements of fuel

The more carbon in the fuel, the less oxygen and vice versa. An increase in the amount of oxygen in the oil reduces its heat output. During the reaction (combustion) of the physical elements in the fuel, different amounts of heat are released. Few electrolysis of water with hydrogen gas in quantity method with is taken and scientific research used in laboratories. Natural and as water, gas, or oil of industry and village economy used in different fields. Fuel content to know necessity burning material balance of the process information get for need. From this out, fuel composition or heat identifies, this while his of burning comparison heat  $Q$ , that is, 1 kg of liquid or solid fuel or 1 m<sup>3</sup> gas fuel normal in conditions combustion separable heat amount (respectively kJ /kg, kJ /m<sup>3</sup> measurement describes) in units. Burn comparison the heat by calculating  $h$  to find or kilometer in the equipment experience method with clarify can burning comparison the heat in the analysis or the composition of the  $i$  element D. I. Mendeleev's suggestion on this came from the formula is used. It looks like fuel burning heat in his elements when it burns separable hot flashes to the index equal to

The formula for the high specific heat of combustion of liquid or solid fuel has the following form:

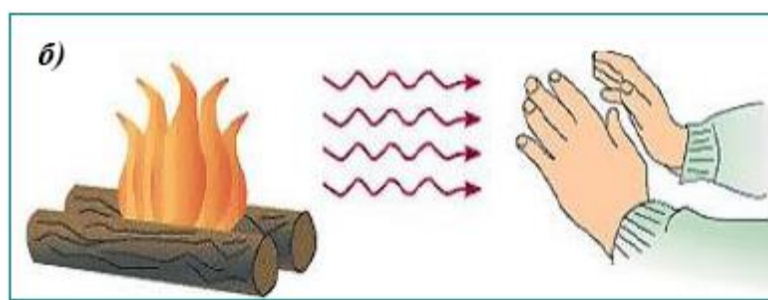
$$Q_{yu} = 339C + 1256H - 109(O - C), \text{ kJ/kg (6)}$$

2512 kJ of heat is used to evaporate 1 kg of water, taking into account that W is given in percentages, the heat going to evaporate moisture is equal to 25W.

The relative heat of combustion of liquid or solid working oil is determined from this formula:

$$O_k^i = 339S + 1030N - 109(0 - S) - 25 W, \text{ kJ /kg}, (7)$$

where the coefficients represent the heat of combustion of individual elements and the number divided by 100 is given; Composition of various elements in % of C,H,O,S-oil. The heat of combustion of a gas boiler is taken for normal conditions relative to 1m<sup>3</sup> of dry gas, and the constituent elements are found by the heat of combustion:



2 Pictures. Relative heat of combustion

$$Ok_k = 358SN_4 + 638S_2N_6 + 913S_3N_8 + 108N_2 + 126CO + 1590S_2N_4 + 234H_2S; \text{ kJ/m}^3$$

where CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub> and other components in the gas mixture by volume are in %. Planning, economic calculations and comparisons of indicators of thermal energy equipment should be carried out on a unified basis. For this purpose, the concept of conditional heat is introduced, its calorific value is assumed to be equal to 29.35 MJ/kg, which corresponds to the calorific value of low-ash coal.

In order to pass the subject of the physics textbook "Comparative heat of combustion of fuel" using the design of graphic organizers, it is appropriate to use the "Venn diagram" from the methods and tools of data analysis, comparison and comparison.



3 Pictures. Types of fuel

Then the teacher gives students an understanding of fuel and combustion phenomena: certain conditions are created for combustion phenomena to occur: the following requirements for fuel are burned:

- release a large amount of heat during combustion;

- low content of substances harmful to nature in the composition of combustion products;
- fast and burning.

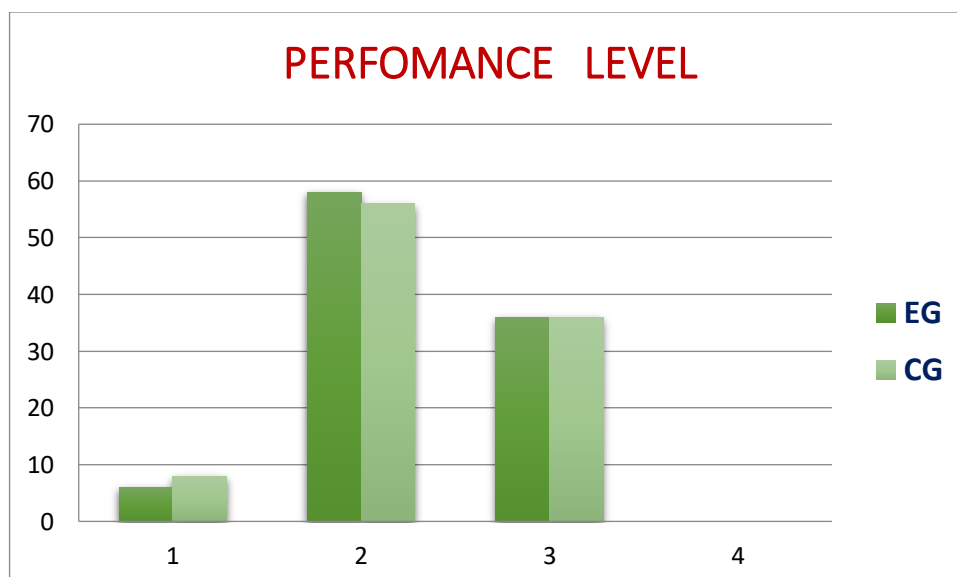


Gas evolution Heat evolution Precipitation Color change  
4 Pictures. Specific heat of combustion of fuel

Then, after the teacher explains the topic, he has the students complete a Venn diagram to reinforce the new topic. It should be noted that there are no reliable standardized methods for determining the level of mastery of students using the design of graphic organizers on the topic "Specific heat of combustion of fuel". Taking this into account, standard and repeatedly tested methods were used, which indirectly correspond to the parameters of interest to us. made it possible to measure using indicators Control in Table 1 and acquisition of students in experimental groups the results are presented.

Table 1

Levels	E G	K G
It's okay	6	8
Average	58	56
Low	36	36



5 Pictures. Taken from an experimental study data control and the mastery levels of students in experimental groups.



## Summary

Thus, the use of graphic organizers in physics lessons, organizing the lesson through informational analysis, comparison, and the means of comparison, prepares a solid foundation for students' mastery of a new topic and independent thinking.

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## **MORPHOBIOLOGICAL PARAMETERS OF THE SPOTTED-EYED CATFISH (*RHODEUS OCELLATUS*) IN THE NORIN RIVER**

*Abstract. The article presents an analysis of the morphobiological parameters of *Rhodeus ocellatus* (Kner, 1866), which is found in the Norin River of the Aral Sea Basin, Fargan Valley.*

*Key words: Morphometry, *Rhodeus ocellatus*, Norin River, invasive species.*

The name of the *Rhodeus*-seed is Greek for rhodeos-rose (fishbase). *Rhodeus ocellatus* belongs to the family of carp and is considered an invasive species that accidentally came to our country from China during the acclimatization of herbivorous fish [1]. Initially, it was reported that the species was mistakenly identified as the Amur warbler (*Rhodeus sericeus*). Later, it was identified as *Rhodeus ocellatus* [3].

The entry and survival of non-native species into the ichthyofauna (adaptation to the climate) has a negative effect on individuals and populations of local species. It leads to the extinction of local species around the world [4,5,6]. Interspecies interbreeding is observed between *Rhodeus ocellatus*. Interbreeding between *Rhodeus ocellatus kurumeus* and *Rhodeus ocellatus ocellatus* was observed [7].

Currently, *Rhodeus ocellatus* is distributed in the basins near the plains and foothills of the Syr Darya water basin (including in the lower reaches of the Norin, Karadarya, Ohangoron, Chirchik rivers), Amudarya, Zarafshan River, and Kashkadarya. There are many more in the reservoirs of the plain (Tuyabogiz, Qairaqqu, Tudakol, Talimarjon, etc.). Nowadays, this fish can be found in many fisheries [2].

The body is tall, compressed from the sides. The body is silvery. It has a thin black line on the side, which widens on the body of the tail (Fig. 1). The fins of the chicks have light black spots on their shoulder fins. The mouth is small and relatively low [2]. He becomes an adult at the age of two. During the period of reproduction, men enter "marriage dress". Females have a pipe for laying eggs. It lays eggs inside a bivalve using a tube.

**Material and methodology.** The samples were taken from the upper reaches of the Norin River, Uchkurgan District, and the lower reaches of the Norin River, Uychi District. We used hooks and nets for catching. We found that the gray-eyed fish is more common in the upper reaches of the Norin River than in its lower reaches. Morphometric analyzes were obtained from 10 samples caught in 2022 and 20 of 30 fish caught in 2023. We have shown the morphometric

measurements in Table 1. The total length, standard length and weight of 40 fish were also measured. Samples are stored in 10% formalin solution. A digital caliper with an accuracy of 0.01 mm and an electronic scale with an accuracy of 0.01 g were used to measure the samples. All statistical calculations were performed using MS Excel 2013.

We determined the taxonomy of fish using the identifiers "Fish diversity of Uzbekistan" [1] by Mirabdullayev I.M., Kuzmetov A.R., Kurbanov A.R., "Fishes of Uzbekistan" [2] by M.A. Yuldashev, T.V. Salikhov, B.G. Kamilov.



**Figure 1. Rhodeus ocellatus. Norin River.**

**Results.** In the process of determining the morphometric and meristematic characteristics of the samples, 33 different measurements of fish were taken. The body length of 10 gray-eyed fish (*Rhodeus ocellatus*) caught in 2022 ranged from 37.39 mm to 63 mm (51.50 mm on average); body weight ranged from 1.16 g to 7.99 g (average 3.83 g). The body length of 30 gray-eyed fish (*Rhodeus ocellatus*) caught in 2023 ranged from 82.59 mm to 44.10 mm (average 66.00 mm); body weight ranged from 7.07 g to 1.01 g (average 4.29 g).

The dorsal fin of *Rhodeus ocellatus* (D) has III-11 rays, and the anal fin (A) has III-10 rays. The lateral line is incomplete, there are 6-8 coins.

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## **YENGIL SANOAT TARMOG' I RAQOBATBARDOSHLIGINI TA'MINLASHDA INNOVATSION FAOLIYATNI RIVOJLANTIRISH IMKONIYATLARIDAN FOYDALANISH**

*Annotatsiya: ushbu maqolada yengil sanoat tarmog' i raqobatbardoshligini ta'minlashda innovatsion faoliyatni rivojlantirish imkoniyatlaridan foydalanish masalari keng yoritilgan.*

*Kalit so'zlar: yengil sanoat, innovatsion, Harakatlar strategiyasi, mahsulot, bozor, davlat, mehnat taqsimoti.*

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## **USING THE OPPORTUNITIES TO DEVELOP INNOVATIVE ACTIVITY IN ENSURING THE COMPETITIVENESS OF THE LIGHT INDUSTRY NETWORK**

*Annotation. In this article, the tables of the use of opportunities for the development of innovative activities in ensuring the competitiveness of the light industry network are widely covered.*

*Keywords: Light Industry, Innovation, Action Strategy, Product, Market, state, Division of Labor.*

2017-2021 yillarda O'zbekiston Respublikasini rivojlantirishning beshta ustuvor yo'nalishi bo'yicha Harakatlar strategiyasida «prinsipial jihatdan yangi mahsulot va texnologiya turlarini o'zlashtirish, shu asosda ichki va tashqi bozorlarda milliy tovarlarning raqobatbardoshligini ta'minlash» bo'yicha muhim vazifalar belgilab berilgan. Mazkur vazifalarni bajarilishi yengil sanoat korxonalarini raqobatbardoshligini marketing strategiyalari asosida oshirish borasidagi ishlarni jadallashtirishni talab etadi.

O‘zbekiston Respublikasi iqtisodiyotini rivojlantirish va uni jahon iqtisodiyotiga integratsiyalashuvini ta’minlash uchun mamlakatda iqtisodiy resurslarning yetarliligi muhim ahamiyat kasb etadi. Mamlakatimizda iqtisodiy resurslarning yetarliligi ulardan samarali va tejamkorlik bilan foydalanish lozimligini keltirib chiqaradi. Mavjud imkoniyat va zaxiralarni ishga solishning eng muhim yo‘nalishi, mamlakatdagi boy mineral xom-ashyo hamda o‘simlik dunyosi resurslarini chuqur qayta ishlashni bosqichma-bosqich oshirib borish, yuqori qo‘shimcha qiymatga ega bo‘lgan mahsulotlar ishlab chiqarishning hajmi va turini kengaytirish maqsadga muvofiqdir.

Shu ma’noda hozirgi kunda davlatimiz tomonidan istiqbolli sanoat mahsulotlarining raqobatdoshligini oshirish orqali jahon bozorida yangi segmentlarni kengaytirish va egallab olish masalalari dolzarb bo‘lib, bu orqali tashki iqtisodiy faoliyatni jadallashtirish, jahon mehnat taqsimotida o‘z o‘rnini egallash hamda samarali korporativ boshqaruv tizimini takomillashtirish masalalarini hal etilishi rejalashtirilmoqda.

Integratsiyalashuvning kichik darajasi mamlakatlar iqtisodiyotida yangi xo‘jalik yuritish tizimini shakllantirish yo‘li hisoblanib, o‘zaro pirovard mahsulot ishlab chiqaradigan va geografik yaqin bo‘lgan korxonalar va tashkilotlarni o‘z ichiga olgan “Klaster”lar yaratishdir. Rivojlangan mamlakatlarda innovatsion iqtisodiyotni shakllantirish va boshqarishda klasterlardan foydalanish bo‘yicha ma’lum tajriba to‘plangan.

Klasterlarni shakllantirishdan maqsad – shahar, tuman va viloyat ichida joylashgan bir xil soha korxonalarini va ular bilan yagona texnologik zanjirda bo‘lgan ta’lim, ilmiy, injiniring, konsalting, standartlashtirish, sertifikatlashtirish, va boshqa xizmatlarni uyg‘unlashtirish-innovatsion ishlab chiqarishni tashkil etish asosida raqobatbardosh tovarlar yaratishga yo‘naltirishdan iboratdir.

Paxta-to‘qimachilik ishlab chiqarishi tashkilotchilari tomonidan o‘z ehtiyojlari uchun olib kelinadigan, bo‘xona to‘lovlari to‘lashdan 2020 yil 1 yanvargacha bo‘lgan muddatga ozod qilinadigan imtiyozlar ham belgilab berildi. Aytish joizki ushbu qaror asosida bu jarayonda keng ko‘lamli ishlar amalga oshirilayotir. Eng muhimi, Buxoroda, Sirdaryoda va Navoiy viloyatida boshlangan “klaster” tajribasi yurtimiz bo‘ylab keng tarqalmoqda. Xususan, Samarqand, Toshkent, Surxandaryo, Jizzax, Qashqadaryo, va boshqa viloyatlarda ham “klaster” tizimida ishlab chiqarish ob’ektlari barpo etishga kirishildi.

Mamlakatda modalar marketingini samarali yo‘lga qo‘yish yengil sanoat tovarlari savdosini rivojlantirish hamda korxonalar raqobatbardoshligini ta’minlashda muhim omil hisoblanadi. Moda industriyasi rivojlanishida jahon modalar markazi hisoblangan Fransiya, beshinchi yirik kiyim bozori hisoblangan Braziliya, shuningdek, modalar bozori eng tez rivojlanayotgan – Rossiya, moda bozorida ikkinchi o‘rinni egallagan O‘zbekiston Respublikasi Prezidenti tomonidan 2016 yil 21 dekabrda PQ2687 sonli “To‘qimachilik va tikuv-trikotaj sanoatini rivojlantirishning 2017-2021–yillarga mo‘ljallangan chora-tadbirlar dasturi to‘g‘risida”gi qarori sohadagi mavjud imkoniyatlarni to‘la ochish,



salohiyatlardan oqilona va unumli foydalanish maqsadida qabul qilingan edi.

Ishlab chiqarish tarmoqlari o`rtasidagi iqtisodiy munosabatlarni modellashtirish asosida tarmoqlarning bir-biri bilan iqtisodiy aloqalarini mustahkamlash, tarmoqlarda innovatsion faoliyatni rivojlantirish va birinchi navbatda ishlab chiqarish tarmoqlarida vertikal integratsiya jarayonlar tizimini takomillashtirishning ustuvor yo`nalishlarini tadqiq qilish hamda ilmiy asoslangan chora-tadbirlar ishlab chiqish, korxonalar faoliyatini barqaror o`shirish va global raqobatbardoshlikka erishishini ta`minlashda ishlab chiqarish tarmoqlarini boshqarishga ta`sir ko`rsatuvchi vertikal integratsiya jarayoni omillarini chuqur va har tomonlama tahlil qilishni hamda ular orasidagi miqdoriy bog`lanishlarni aniqlashni taqozo etadi. Shu nuqtai nazardan qaraganda, ishlab chiqarish tarmoqlarida vertikal integratsiya asosida innovatsion faoliyatni takomillashtirish nafaqat ilmiy-nazariy, balki muhim amaliy ahamiyat ham kasb etadi.

Shu bois, mamlakatimiz ijtimoiy-iqtisodiy rivojlanishining joriy va istiqboldagi chora-tadbirlarini belgilashda tashqi omillar ta`sirini ham har tomonlama hisobga olish, iqtisodiy rivojlanish dasturlarini ushbu jarayonlar ta`siri nuqtai-nazaridan shakllantirish hamda ular o`rtasidagi iqtisodiy munosabatlarni takomillashtirishni taqozo etiladi. Bu boradagi chora- tadbirlar asosida iqtisodiy o`shirishning uzoq muddatli barqaror sur`atlarini hamda iqtisodiyotning muvozanatli rivojlanishini ta`minlash, tarkibiy o`zgartirishlarni davom ettirish va iqtisodiyotni modernizatsiyalash, buni birinchi navbatda, xalqaro sifat standartlariga javob beradigan, ichki va tashqi bozorlarda talab yuqori bo`lgan raqobatbardoshli mahsulotlar ishlab chiqarishga yo`naltirilgan iqtisodiyotning eng muhim tarmoqlarini modernizatsiyalash, ishlab chiqarishni diversifikatsiya qilish, texnik-texnologik jihatdan qayta jihozlash yo`li bilan amalga oshirish belgilab berilgan bo`lib, bu o`z navbatida ishlab chiqarish tarmoqlarida vertikal integratsiya faoliyatini takomillashtirish orqali amalga oshirish ko`zda tutiladi.

Shuningdek, ushbu tizim faoliyatini iqtisodiy islohotlarni hamda ishlab chiqarish tarmoqlari o`rtasidagi munosabatlarni o`zgarib turishini e`tiborga olgan holda taklif va tavsiyalarni ishlab chiqilishi, qo`yilgan ma`sadni yanada takomillashtirishga olib keladi. Buning uchun bizning fikrimizcha, quyidagi bir qator vazifalarni amalga oshirish maqsadga muvofiqdir:

-mamlakatimiz iqtisodiyotini rivojlantirish uchun ishlab chiqarish korxonalarida vertikal integratsiya metodologiyasini o`rganish va uni rivojlantirishda integratsion jarayonlarni ya`ni integratsiya holatda mehnat taqsimotini, innovatsiyani, kapitalni, ishchi kuchini, ixtisoslashtirish va kooperatsiyalash jihatlarini nazariy jihatdan o`rganish, yaxshi mukammallashgan xo`jalik mehanizmini yaratish;

- vertikal integratsiyani innovatsion taraqqiyotdagi tamoyillar, iqtisodiy va ma`muriy usullarni ishlab chiqish va iqtisodiy-nazariy jihatdan ularni asoslash bu borada jahon tajribalarini o`rganish, ularni O`zbekiston sharoitida qo`llash

usullarini ishlab chiqish;

- iqtisodiy jarayonlarda vertikal integratsiya bo'yicha iqtisodiy- ijtimoiy ko'rsatkichlar tizimini yaratish va tahlillarini o'tkazish. Vertikal integratsiya asosida innovatsion rivojlanishdagi mezonlarni ishlab chiqish, vertikal integratsiyada foyda, rentabellik va samaradorlikni aniqlovchi ko'rsatkichlarni belgilash hamda baholash usullarini yaratish, iqtisodiy tarmoqlarda vertikal integratsiya faoliyatida innovatsion taraqqiyot asosida foydani maksimallashtirish yo'llarini ishlab chiqish;

-O'zbekistonda iqtisodiy tarmoqlarning hozirgi holati tahlili. Bir yoqlama va ko'p tomonlama integratsiyada bo'lgan tarmoqlarning rivojlanish dinamikasi tahlilini amalga oshirish, vertikal integratsiya faoliyatiga mos keluvchi tarmoqlarni guruhlash, ularning shakllarini tavsiflash, iqtisodiy, tashkiliy, texnikaviy munosabatlarini rivojlantirish bo'yicha taklif va tavsiyalar ishlab chiqish, iqtisodiyotning innovatsion rivojlanish sharoitida ishlab chiqarish tarmoqlarida vertikal integratsiya faoliyatiga ta'sir etuvchi ichki va tashqi omillarni aniqlash, ularni turkumlash, omillar ta'sir darajasini iqtisodiy-matematik usullardan foydalangan holda korrelyasion va regression tahlillarini o'tkazish;

Xulosa qilib aytganda, mamlakat iqtisodiyotini rivojlantirishda xom-ashyo eksportini kamaytirib, tayyor mahsulot eksportini oshirish lozimligi tugrisida qo'yilgan vazifalarni izchillik bilan amalga oshirishni nazarda tutgan holda mahsulot ishlab chiqaruvchi firmalar uchun ketma-ket bo'ladigan ishlab chiqarish bosqichlarida ishlab chiqaruvchi va sotish xarajatlarini kamaytirishda ishlab chiqarish jarayoniga vertikal integratsiyani tatbiq etish keng imkoniyatlar beradi.

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## **QISHLOQ XO'JALIGIDA AGROSERVIS XIZMATLARINI TASHKIL ETISH**

*Annotatsiya. Maqolada agroservisning hozirgi davrdagi iqtisodiy ahamiyati, agroservis korxonalarini tashkil etishning o'ziga xos xususiyatlari va agroservis korxonalarini rivojlantirish bo'yicha takliflar keltirilgan.*

*Tayanch so'zlar: iqtisod, servis, agroservis, mahsulot, traktor, avtomobil, ombor, qishloq xo'jaligi, agrofirmalar, tadbirkorlik.*

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## **ORGANIZATION OF AGROSERVICE SERVICES IN AGRICULTURE**

*Annotation. The article presents the economic value of agro-service at present, the specific features of agro-service enterprises and the development of agro-service enterprises.*

*Key words: economics, service, agroservices, products, tractors, automobiles, warehouses, agriculture, agrofirms, entrepreneurs.*

Iqtisodiyotni modernizatsiyalash sharoitida iqtisodiyotning muhim tarmoqlaridan biri bo'lgan xizmatlar sohasining o'рни juda katta va o'z ahamiyatga egadir. Bu ishlab chiqarishning murakkablashuvi, bozorni kunlik va shaxsiy talabdan kelib chiqqan holda tovarlar bilan to'ldirish, jamiyat hayotini yangilovchi ilmiy-texnologik taraqqiyotning jadal o'sishi bilan bog'liqdir. Bularning barchasini axborot, moliyaviy, transport, konsalting va boshqa xizmat turlarisiz amalga oshirib bo'lmaydi.

Agrosektorda agromarketingning shakllanish xususiyatlari va rivojlanish tendensiyalarini tadqiq etishdan oldin, agrosektor va agrosanoat tushunchalarining mazmun-mohiyatini aniqlashtirish maqsadga muvofiq. Tadqiqotlar ko'rsatishicha, tadqiqotchi olimlar orasida ushbu tushuncha bo'yicha turli xil ta'riflar berilgan bo'lishiga qaramasdan, ularning bu boradagi yondashuvlari bir-birlariga ancha yaqin. Xususan, rus olimlari A.V.Turyanskiy va V.L.Anichinlar agrosektorni quyidagi uchta sohaga ajraluvchi majmua deb qaraganlar 1) qishloq xo'jaligiga xizmat ko'rsatuvchi tashkilotlar; 2) qishloq xo'jaligi tovar ishlab chiqaruvchilari; 3) qishloq xo'jaligi mahsulotlarini

tayyorlash, saqlash, qayta ishlash va sotish bilan shug'ullanuvchi tashkilotlar1, deb hisoblashgan bo'lishsa, yana bir guruh olimlar M.L.Lezin, V.A.Tixonov va Yu.V.Sedixlar: "Agrosektor - bu qishloq xo'jaligini ishlab chikarish vositalari majmuasi bilan ta'minlovchi korxonalar, shu jumladan, agroservis korxonalari, qishloq xo'jaligining barcha mulkchilik va tashkiliy- xuquqiy shakllardagi korxonalari, fermer va dexqon xo'jaliklari, ixtisoslashgan urug'chilik va naslchilik xo'jaliklari, tajriba stansiyalari aholisining shaxsiy yordamchi xo'jaliklaridir".

Xizmatlar sohasining dinamik rivojlanishi kichik biznesni ushbu sohadafaoliyat yuritish uchun taqdim etilgan imkoniyatlardan kelib chiqadi. Xizmatlar sohasini rivojlantirish dasturini amalga oshirish doirasida, yangidan tashkil etilgan xizmatlar ko'rsatish bo'yicha korxonalarni texnologik jihatdan jihozlash uchun tadbirkorlik sub'ektlariga imtiyozli kreditlar ajratildi.

Ma'lumki, respublikamizda qishloq xo'jaligining asosiy maqsadi ishlab chiqarish samaradorligini oshirish, ichki va tashqi bozorda iste'mol mahsulotlarini sifatli va samarali etishtirish hisoblanadi. Bu borada O'zbekiston Respublikasi Prezidenti Sh.M.Mirziyoyev ta'kidlaganidek, "Qishloq xo'jaligini yanada isloh qilish va rivojlantirish bo'yicha birinchi navbatdagi vazifa-ko'p tarmoqli fermerlikni rivojlantirish, har bir fermer xo'jaligining iqtisodiy samaradorligi va moliyaviy barqarorligini ta'minlashdir. Bu masalani biz mamlakatimiz oziq-ovqat xavfsizligini ta'minlashning garovi deb hisoblaymiz" deb batafsil to'xtalib o'tilgan. Shu bois, bugungi kunda qishloq fermer xo'jaliklarini rivojlantirish uchun agroservis tizimini tashkil etish –qishloq xo'jalik mahsulotlarini sifat darajasini oshirish, ishlab chiqarish imkoniyatini kengaytirish, erning agrotexnik holatlarini yaxshilash, etishtirilgan mahsulotlarni qayta ishlash yoki uni ichki va tashqi bozorga chiqarish muammolarini hal etish, ularni tashish xarajatlarini kamaytirish va qishloq xo'jaligini moliyaviy barqarorligini ta'minlash imkonini beradi.

Qishloq xo'jalik sub'ektlarida mashina-traktor parki barcha mexanizatsiya yordamida bajariladigan ishlarni bajarishdan iborat. Xo'jalikda traktor va qishloq xo'jalik mashinalariga bo'lgan talab erning-iqlim sharoitida, xo'jalikning yo'nalishiga, dexqonchilik va chorvachilikdagi mahsulot ishlab chiqarish hajmiga va ish jarayonlarining mexanizatsiyalash xolatiga, texnologik jarayoniga asoslanib aniqlanadi. Mashina- traktor parki (MTP) ning tashkiliy tuzilmasi traktor, avtomobil kombayn va qishloq xo'jalik mashinalari parklari, ta'mirlash ustaxonasi diagnostika markazi texnikalarni saqlash omborlari, ta'minot, yoqilg'i quyish bo'limi, dispecherlik xizmati va h.k. iborat. MTP da boshqarish bosh muxandis tomonidan olib boriladi. Respublika agrar sohasida texnikalardan samarali foydalanish maqsadida chet el tadbirkorlari bilan hamkorlikda texnika vositalari ishlab chiqarish, servis xizmatlari ko'rsatish, ta'mirlash, lizing asosida katta ishlar qilindi.

Texnikani eskirgan, ishdan chiqqan qismlarini almashtirish, yangilash va

ta'mirlash texnikadan foydalanuvchilar uchun qo'shimcha mehnat va moddiy rusurslar, ehtiyot qismlar, ta'mirlash materiallari, binolar, asbob-uskunalar va boshqa turdagi xarajatlarni ta'lab etadi. Qishloq xo'jaligida foydalaniladigan texnika va qishloq xo'jalik mashinalarini tiklash maqsadida texnika-ta'mirlash xizmat ko'rsatish korxonalar tashkil etildi.

Texnika-ta'mirlash xizmati bazasi ob'ektiga: xo'jaliklarning markaziy ta'mirlash ustaxonasi; avtomobil saroyi; mashinilar hovlisi; neft omborlari; benzin quyish shaxobchalari; harakatdagi texnik xizmat ko'rsatish va ta'mirlash avtomashinasi ustaxonalari; MTP qoshidagi texnik xizmat ko'rsatish punktlari; chorva fermalariga texnik xizmat ko'rsatish texnik stansiyalari; kombayn va boshqa murakkab mashinalarni ta'mirlash sexi; ta'mirlash zavodlari murakkab turdagi texnikalarni kapital ta'mirlashga ixtisoslashgan ustaxonalar va sexlar; eyilgan detallarni qayta aniqlash ustaxonalaridan tashkil topadi. Bu texnika ta'mirlash xizmati bazasi o'z xizmat qilish doirasiga ko'ra 3 bosqichga:

korxonalar, tuman va viloyat mashina-traktor birlashmalariga bo'ysunadi.

Texnika-ta'mirlash xizmatlari ko'rsatish bazasining asosiy vazifalari: barcha markadagi qishloq xo'jalik mashinalarini yil mobaynida har qanday sharoitdahan qishloq xo'jalik ishlarini bajarish olish qobiliyati jihatidan shay turish, texnika holatida yuz bergan qanday kamchiliklar, nosozliklarni oldini olish va tuzatish, ularga qisqa muddatida texnik servis xizmatlarini ko'rsatishdir.

Traktor agregatini ishlatish davomida uning texnik holati detallarning eyilishi, yechilishi, mexanizmlar, rostlanishining buzilishi, zanglash, va hokazolar natijasida yomonlasha boradi. Bunday o'zgarishlar natijasida traktorning asosiy ko'rsatkichlari bo'lmish tortish quvvati, yonilg'i tejamkorligi, mustahkamlik pasaya boradi.

Mashina-traktor parkini turli texnik xizmat ko'rsatish ishlarini, texnik ko'riklar va diagnostikani, ishlatish sharoitida ta'mirlash va saqlash ishlarini bajaradi. Ularning tarkibiga markaziy ta'mirlash kompleksi, qo'zg'almas texnik xizmat ko'rsatish posti, harakatlanuvchan texnik xizmat ko'rsatish ustaxonasi, yonilg'i va moy bilan ta'minlash posti, harakatlanuvchan avtomobil asosida tuzilgan yonilg'i moylash materiallari bilan ta'minlovchi agregatlar, traktor va qishloq xo'jalik mashinalarini joriy ta'mirlash ustaxonasi, avtomobil asosida tuzilgan harakatlanuvchan ta'mirlash ustaxonasi va traktorlarni qo'yish (saqlash) uchun mo'ljallangan joylar kiradi.

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## **TECHNOLOGY OF MANUFACTURING SPACE MODULES FOR REINFORCED CONCRETE CONSTRUCTIONS**

*Abstract. In this article, the technology of preparing space modules for reinforced concrete structures is presented based on various theories.*

*Key words and phrases: concrete strength, plastic, structure, plate, strength, construction, technology.*

This technology involves the production of special cavities placed inside a reinforced concrete slab. Where static calculations allow, concrete is replaced with voids made of 100% recycled polypropylene. There is normal air inside the cavities. Thus, using such lightweight constructions, it is possible to build buildings with large spans.

One of the possible ways to obtain lightweight constructions is to use the technology of arranging coatings with non-removable gaps. Reducing the weight of the structure by removing the material that does not participate in the process (by 20-40%), without worsening the strength properties, together with the order of delivery of a smaller amount of concrete mixture for concreting the object, determines the appropriate economic effect. In addition, the effectiveness of this approach is improved by reducing the load on the load-bearing elements of the structure and its foundations.

Using recycled plastic blanks not only reduces building materials, but also the energy needed to process and transport them. According to statistics provided by the manufacturer, one standard truck loaded with hollow modules replaces seven concrete mixers. As a result, it further reduces the logistics burden on highways, which is especially important for large cities. Reducing the use of building materials has several advantages. In terms of environmental safety of technology, it is important to reduce the emissions of automobiles and special vehicles. Also, the blanks take up little space on the construction site, as they are delivered to the facility disassembled. The design is carried out according to the existing construction standards, first simple slabs are calculated, then the parameters for hollow slabs are recalculated and determined.

For plates with a thickness of 200-350 mm, devices are used in the form of an ellipse, and for plates of 300-600 mm, in the form of a sphere. Modules of spaces allow to exclude the cost of concrete, which is not involved in the work of monolithic reinforced concrete slabs, that is, they are not located in the holes of the slabs, where additional strength is needed, and around the columns. Spacers

are placed in the lower reinforcement layer and allow to install the upper reinforcement mesh in the design position without using an additional frame.

In recent years, unified modules made of polymer materials of various shapes have been widely used abroad as non-removable gap formers. Such systems include Airdeck, BubbleDeck, Cobiax, U-Boot Beton and U-Bahn Beton.

According to the Airdeck technology, the bottom cover of the intermediate plate is made in the form of a ready-made reinforced concrete structure with polypropylene melt additives. The working dimensions of the device-box are 20x20 cm, and the height is from 12 to 35 cm. Each interval of the device-box is 30 cm.

BubbleDeck technology is divided into three types:

An analogue of A-airdeck technology, differing only in the form of reinforcement and attachment;

Type B - plate-sized flat reinforcement modules consisting of fixtures and reinforced frames are installed in a formwork on the construction site and concreted using a two-step technology;

Type C - ready-made reinforced concrete intermediate slabs manufactured in the factory with facilities for delivery to the construction site. As a device, spherical or elliptical hollow balls made of recycled plastic (polyethylene, polyvinylpropylene or polyvinyl chloride) with a diameter of 18 to 36 cm are used, depending on the thickness of the concrete slab. The devices are located inside the armature module and are kept in the design position thanks to the special cellular shape of the lower and upper bars.

Cobiax technology includes two types of linear reinforcement modules (up to 250 cm long) for concreting media with a thickness of 20 to 35 cm. ("Eco-Line" system) applies. The main difference from the above-mentioned technologies is the manual placement of modules with spacers before the concrete is poured into the formwork.

Daliforms Group offers a technology similar to Cobiax, but with significant differences. It has two systems, u-Boot Beton and U-Bahn Beton. The U-Boot Concrete System uses block-shaped units made of recycled polypropylene with working dimensions of 52x52 cm and a height of 10 to 56 cm. U-Boot Concrete System units can be used with a thickness of 20 to 76 cm. allows to concretize intermediate slabs. Distances between devices are set using expansion joints with a graduated scale. The U-Bahn Beton system uses P- shaped devices made of recycled polypropylene with working dimensions of 120x40 cm and a height of 20 cm. The ends of the devices can be closed with standard plugs. This system is specially developed for the implementation of one-sided intermediate slabs made of monolithic reinforced concrete.

At the same time, technologies for the production of lightweight constructions are widely used in modern construction. A vivid example of the use of such technologies is the 167 m high skyscraper "Santa Fe II" built in 2013 in Mexico. It is the construction of the tallest residential building in Mexico.

Reinforced-concrete intermediate plates have a thickness of 250 mm and an average weight of only 3.5 kn/m<sup>2</sup>. The 80×80 cm foam polystyrene units are placed on a plate with 100 cm long steps in two directions for concreting internal ribs 20 cm thick.

The name of the technology	Constructive thickness of the Oriopa,	The size of the device, cm <sup>3</sup>	Devices step, cm	The number of devices is pcs/m <sup>2</sup>	Device size, m <sup>3</sup> /m <sup>2</sup>	Don't rush reduced thickness, cm
Airdeck	25	4100	30	11	0.045	20.4
BubbleDeck	25	3100	20	25	0.076	17.2
Cobiax	25	9100	35	8.2	0.075	17.5
U-Boot Concrete	25	28000	64	2.44	0.068	18.2
Mo nofant	25	121500	100	1	0.1215	12.85

Above from the table apparently – apparently, polystyrene most of the time taking off unobtainable empty spaces – as plate using – shortened thickness another to technologies compared to much little, this while of structures heavy weight – to minimize take will come. The number of devices per 1 m<sup>2</sup> area simplifies the process of reinforcement and concreting, at the same time, it predetermines the rationalization of sections without being bound by the usual form of devices made of polymer materials.

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## **GENERAL INFORMATION ON CELLULAR CONCRETE PRODUCED ON THE BASIS OF INNOVATIVE TECHNOLOGIES**

*Abstract. In this article, general information about cellular concrete produced on the basis of innovative technologies is presented based on theories.*

*Key words and phrases: concrete durability, porosity, silica, acid, strength, construction.*

Cellular concrete - mineral binder and silicate to fillers based on artificial porous construction material is light \_ concrete of types one is considered (Figure 1)



Figure 1. Cellular concrete appearance

Basically construction heat insulation for intended: for example, of buildings a lot layered the wall structures heat insulation layer as, reinforced concrete medium plates and attics for insulation as; up to 400°C has been equipment and of pipes surfaces heat with protection to do for \_ to the heat resistant cellular concrete surface temperature up to 700°C has been equipment heat insulation for is used.

Cellular concrete the following properties according to classified as:

- functional the goal,
- pore harvest to do method,
- connective type,
- silicate of the component type,
- hardening method

Cellular of concrete functional purpose according to classification is given in table 1.

Cellular of concrete average density and to the goal looking classification

Table 1

Concrete type	Average density, kg / m <sup>3</sup>	To squeeze strength, MPa
Heat insulation	300-500	0.4-1.2
Thermal insulation-structural	500-800	1.2-2.5
Structural	800-1200	2.5-15

Porous crop to do method according to to the following divided into:

- chemical (aerated concrete, gas silicates, gas slag concrete, gas ash concretes and others);
- mechanical (foam concrete, foam silicates, slag hydroxide foamy concrete, foam aggregate concrete and others);
- mechanical-chemical (foamy aerated concretes).

Chemical method basically high dispersion pore harvest doer aluminum component and initial components (alkaline environment provide) between chemical reactions through gas harvest to do is based on Aerated concrete in getting gas work producer (aluminum powder) and calcium between hydroxide [Ca(OH)<sub>2</sub>]. reactions the following scheme according to continue will:



Harvest has been hydrogen do not interfere it provides porosity (increase). This porization method with carbonated of concrete products is taken.

Mechanic method mouldable to the mass special prepared technical stable foam enter them \_ together mixing and later on porous do not interfere to harden based on This scheme according to foamy concrete is taken.

Foamy concrete products work release technology fundamentally difference who does two scheme according to organize done: first scheme usual atmosphere in pressure technical foam, lime part and foamy concrete mixture to receive provides; second scheme 0.1 - 0.5 MPa excess in pressure foamy concrete mass to receive provides a mixer and pneumatic camera of the pump functions one in the aggregate will be combined.

Marked products efficient combined mechanical and chemical method get can \_ This method news category input can, in this the first stage molding mixture to the structure foam the introduction with breaks down, then porous in mass gas harvest doer substances or cellular porosity which provides another methods because of bigger cellular holes harvest will be done.

Connector type according to cellular concrete as follows classified as:

- cemented;
- lime-silicate connective;
- slag binder substance \_
- ash;
- gypsum connective.

Hardening method according to the following divided into:

- autoclave cellular concretes (hardening processes at a temperature of 170-190 ° C and steam is air environment occurs at a pressure of 0.8-1.2 MPa will be);



- autoclave didn't happen cellular concrete (up to 100 ° C has been hydrothermal processing to give in temperature and atmosphere in pressure hardens);

- natural stiffening cellular concrete (normal moisture conditions for 28 days hardens).

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**O‘ZGARUVCHILARI AJRALAGAN DIFFERENSIAL  
TENGLAMALARINI YECHISHDA ONLAYN KALKULYATOR  
(mathdf.com) YORDAMIDA YECHISH**

*Annotatsiya. Ushbu maqolada Diffeensial tenglamalarni zamonaviy axborot texnologiyalaridan foydalanishning samarasi haqida ma'lumotlar keltirilgan. Amaliyot darslarida onlayn kalkulyator (mathdf.com) dan foydalanish usullari misollar yordamida keltirilgan.*

*Kalit so'zlar: differensial tenglama, google, onlayn kalkulyator.*

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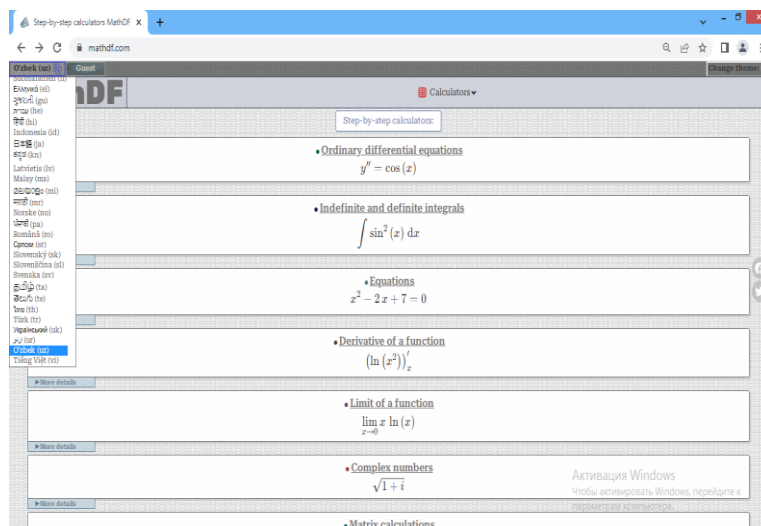
**SOLVING DIFFERENTIAL EQUATIONS WITH SEPARATION OF  
VARIABLES USING AN ONLINE CALCULATOR (mathdf.com)**

*Abstract. This article provides information about the effectiveness of using differential equations with modern information technologies. In practice lessons, methods of using an online calculator (mathdf.com) are presented with the help of examples.*

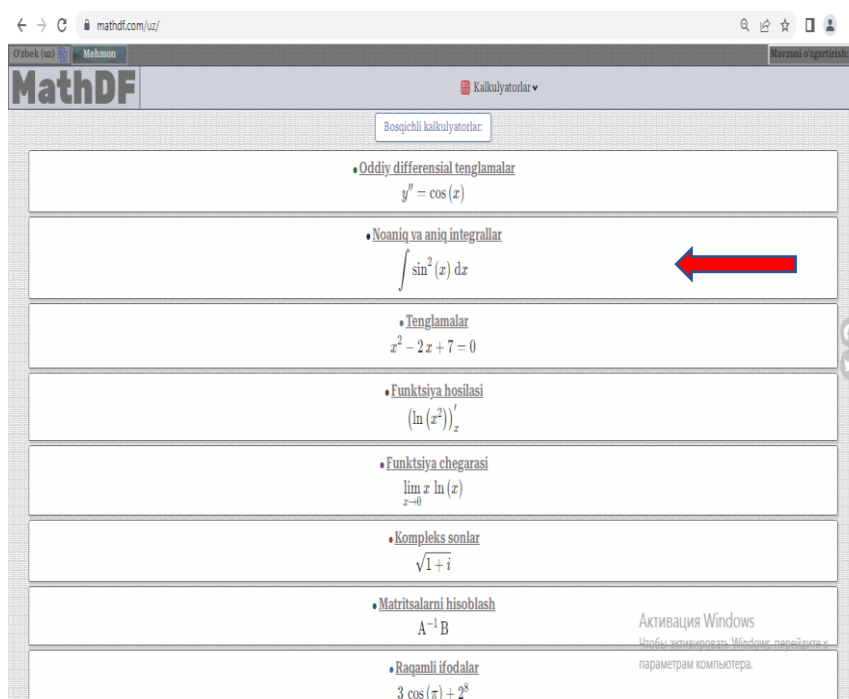
*Keywords: differential equation, google, online calculator.*

Ta'lim tizimiga yuqori samarali xalqaro amaliyotni joriy etish, Respublika ta'lim tashkilotlarini nufuzli xalqaro reytinglarga kiritish bo'yicha tizimli ishlar amalga oshirilmoqda. Matematika fanlarini o'qitishga yangi texnik vositalar, shu jumladan, kompyuter va boshqa axborot texnologiyalarining jadal kirib kelayotgan hozirgi davrida fanlararo uzviylikni ta'minlash maqsadida informatika fani yutuqlaridan foydalanish dolzarb masalalardan biridir. Kompyuter texnikalarini ta'lim muassasalariga tatbiq etish, o'qitish jarayonini optimallashtirishga keng yo'l ochib beradi. Bu ishda birinchi tartibli differensial tenglamalarni onlayn kalkulyator (mathdf.com) yordamida yechishni ko'rsatilgan.

Googlega mathdf.com deb yozamiz ko'rib turganingizday oyna ochiladi chap burchakdan qulay tilni tanlaymiz, o'ng burchakda mavzuni o'zgartirish mumkin.



Bu oynada “Oddiy differensial tenglamalar” bo’limini tanlaymiz.



Keyin bu oyna ochiladi. Bu oynada ko‘plab qulayliklar mavjud bo‘lib o‘zgaruvchilarga ajraladigan differensial tenglamani yuklaymiz.

Kalkulyator Oddiy differensial tenglamalar (ODE) va ODE tizimlari

Kalkulyator yechish usullarini qo'llaydi: ajratiladigan, bir jinsli, chiziqli, birinchi tartibli, Bernoulli, Rikkati, integrallashiruvchi omil, differensial guruhlash, tartibni kamaytirish, bir jinsli bo'lmagan, doimiy koeffitsientlar, Eylar va tizimlar - differensial tenglamalar. Boshlang'ich shartlar yoki shartsiz (Kochi muammosi)

Ifodani kiriting va bosing [Enter] yoki tugma

Variantlar Sozlamalar  
Ga nisbatan hisoblang  $y$   $x$

$x_0 = 0$   
 $y(x_0) = 0$

Avtomatik ravishda

Toza

$y' - 2x^2y + y^2 = 5 - x^2$

$y' - 2xy + y^2 = 5 - x^2$

Bu yerga diff tenglamani yozamiz

Javobni olish

Boshlang'ich shart

Quyidagi masalani orqali qarab chiqamiz.

**Misol.** Math.com kalkulatori yordamida berilgan o'zgaruvchilarga ajraladigan differensial tenglamani yechamiz.  $x^2 y^2 y' + 1 = y$

O'zbek (uz) Mehmon Mavzuni o'zgartirish

MathDF Kalkulyatorlar

Kalkulyator Oddiy differensial tenglamalar (ODE) va ODE tizimlari

Kalkulyator yechish usullarini qo'llaydi: ajratiladigan, bir jinsli, chiziqli, birinchi tartibli, Bernoulli, Rikkati, integrallashiruvchi omil, differensial guruhlash, tartibni kamaytirish, bir jinsli bo'lmagan, doimiy koeffitsientlar, Eylar va tizimlar - differensial tenglamalar. Boshlang'ich shartlar yoki shartsiz (Kochi muammosi)

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Avtomatik ravishda

Toza

$x^2 y^2 y' + 1 = y$

$x^2 y^2 y' + 1 = y$

Differensial tenglama

$$x^2 y^2 y' + 1 = y$$

Hisoblangan yechim

$$\frac{y^2}{2} + y + \ln(y - 1) = C - \frac{1}{x}, \quad y = 1$$

bilan  $C$  – doimiy  $y = y(x)$

Bosqichma-bosqich yechim

Hisoblash

$$x^2 y^2 y' + 1 = y$$

Muddatni o'tkazish

Shu bilan birga, u belgini teskari tomonga o'zgartiradi

$$x^2 y^2 y' = y - 1$$

Tenglamaning har ikki tomonini bo'ling  
ga  $x^2$

$$y^2 y' = \frac{y - 1}{x^2}$$

Transformatsiya

$$y'(x) = \frac{dy}{dx}$$

Endi shu o'zgaruvchilarga ajraladigan differensial tenglamaga boshlang'ich shart berib ishlaymiz. To'rtburchak ichiga  $x_0 = 1$  va  $y(x_0) = 2$  ni kirgizamiz

Mavzuni o'zgar...

Kalkulyatorlar ▾

Kalkulyator Oddiy differensial tenglamalar (ODE) va ODE tizimlari

gan, bir jinsli, chiziqli, birinchi tartibli, Bernoulli, Rikkati, integrallashtiruvchi omil, differensial guruhlash, tartibni kamaytirish, bir jinsli bo'lmagan, doimiy koeffitsientlar, Eylar va tizimli differensial tenglamalar. Boshlang'ich shartlarsiz yoki shartsiz (Kochi muammosi)

Variantlar

Sozlamalar

Ga nisbatan hisoblang y ( x )

$x^2 y^2 y' + 1 = y$

=

Avtomatik ravishda ▾

Tenglamani ishchi maydonga kiritamiz

Ishchi maydonga kiritib tenglikni bosami

$$x^2 y^2 y' + 1 = y, \quad x_0 = 1, \quad y(1) = 2$$

Активация Windows  
Чтобы активировать Windows, перейдите к параметрам компьютера.

Koshi muammosini hal qilish

Topamiz  $C$

---

Tenglama yechimining boshlang'ich shartlarini almashtiring

$$\frac{y^2}{2} + y + \ln(y - 1) = C - \frac{1}{x}$$

da  $x = 1$   
 $y = 2$

↓

$$4 = C - 1 \rightarrow C = 5$$


---

Topilgan koeffitsientlarni o'rniga qo'ying

Tenglamani yechish

$$\frac{y^2}{2} + y + \ln(y - 1) = 5 - \frac{1}{x}$$

Hisoblangan ODE yechimi

$$\frac{y^2}{2} + y + \ln(y - 1) = 5 - \frac{1}{x} \quad \text{da} \quad x_0 = 1, \quad y_0(1) = 2$$

Актив  
Чтобы

Ko'rib turganingizdek tenglamani yechim yo'li bilan va boshlang'ich shart bilan xususiy yechimini topib berdi.

**Misol.**  $y' = \frac{x+7}{y-9}$ ; bir jinsli differensial tenglamalarini yechishda onlayn kalkulyator (mathdf.com) yordamida foydalanamiz.



## Kalkulyator Oddiy differensial tenglamalar (ODE) va ODE tizimlari

Kalkulyator yechish usullarini qo'llaydi: ajratiladigan, bir jinsli, chiziqli, birinchi tartibli, Bernoulli, Rikkati, integrallashtiruvchi omil, differensial guruhlash, tartibni kamaytirish, bir jinsli bo'lmagan, doimiy koeffitsientlar, Eylar va tizimlar - differensial tenglamalar. Boshlang'ich shartlarsiz yoki shartsiz (Kochi muammosi)

Ifodani kiriting va bosning  yoki tugma

Variantlar Sozlamalar

Ga nisbatan hisoblang

Tizim

$$\begin{aligned} x' &= -x+4y \\ y' &= y+2x+e^{2t} \end{aligned}$$

$x_0 = 0$

$y(x_0) = 0$

Avtomatik ravishda

$$y'=(x+7)/(y-9)$$



$$y' = \frac{x+7}{y-9}$$



Активация Windows  
Чтобы активировать Windows, перейдите к параметрам компьютера.

Differensial tenglama

$$y' = \frac{x+7}{y-9}$$

Hisoblangan yechim

$$\frac{y^2}{2} - 9y = \frac{x^2}{2} + 7x + C$$

bilan  $C$  — doimiy  $y = y(x)$

Bosqichma-bosqich yechim

Hisoblash

$$y' = \frac{x+7}{y-9}$$

Transformatsiya

$$y'(x) = \frac{dy}{dx}$$

$$\frac{dy}{dx} = \frac{x+7}{y-9}$$

Tenglamaning ikkala tomonini ko'paytiring  
ga differensial  $dx$

$$dy = \frac{(x+7) dx}{y-9}$$

Ko'paytiring

$$ga \ y-9$$

$$(y-9) dy = (x+7) dx$$

Ajraladigan tenglama

$$M(y) dy = N(x) dx$$

Tenglamaning ikkala tomonini integrallang

$$\int y-9 dy = \int x+7 dx$$

Olingan integrallarni hisoblang

Bosqichma-bosqich yechim  
Chap integral

Bosqichma-bosqich yechim  
O'ng tomonda integral

$$\frac{y^2}{2} - 9y = \frac{x^2}{2} + 7x + C$$

Hisoblangan ODE yechimi

$$\frac{y^2}{2} - 9y = \frac{x^2}{2} + 7x + C$$

$dx$

Natijaga shart berib ko‘ramiz ya’ni  $y(10) = 10$ ; shartini

Koshi muammosini hal qilish

Topamiz  $C$

---

Tenglama yechimining boshlang‘ich shartlarini almashtiring

$$y = x + 16 \ln(x - 9) + C$$

da  $x = 10$   
 $y = 10$

↓

$$10 = C + 16 \ln(10 - 9) \rightarrow C = 0$$

---

Topilgan koeffitsientlarni o‘rniga qo‘ying

Tenglamani yechish

$$y = x + 16 \ln(x - 9)$$

Hisoblangan ODE yechimi

$$y = x + 16 \ln(x - 9) \text{ da } x_0 = 10, y_0(10) = 10$$

Активация Windows  
Чтобы активировать Windows, перейдите  
ПАРАМЕТРАМ КОМПЬЮТЕРА

Mana shunday natijaga ega bo‘lamiz javobimiz  $y' = x + 16 \ln(x - 9)$  ga teng ekanligi kelib chiqadi.

MathDF.com onlayn kalkulyatori imkoniyatlar keng bo‘lib unda har bir tenglamada qatnashgan funksiyalar haqida ham ma’lumot olsa bo‘ladi. Qulaylik taraflaridan yana biri oddiy smartfonda ham bimalol tenglamalarni yechsa bo‘ladi.

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## **LIFELONG LEARNING: CULTIVATING A LOVE FOR LEARNING BEYOND THE CLASSROOM**

*Abstract. Lifelong learning, a continuous, self-motivated pursuit of knowledge for personal or professional reasons, extends beyond formal education. It encompasses a range of learning activities throughout life, fostering personal development, adaptability, and a deeper understanding of the world. This concept is increasingly vital in a rapidly changing global landscape, where ongoing learning is essential for both career advancement and personal fulfillment.*

*Keywords. Lifelong Learning, Continuous Education, Personal Development, Professional Development, Self-Motivated Learning, Adult Education, Skill Enhancement, Knowledge Society, Learning Culture, Adaptability.*

Lifelong learning is an integral part of the modern knowledge society, characterized by the continuous acquisition of skills and knowledge beyond traditional schooling. It is driven by curiosity, personal interests, and the necessity to adapt to changing environments. Lifelong learning encompasses formal and informal learning activities, including professional development courses, self-study, online learning, and experiential learning opportunities.

**Concept and Scope of Lifelong Learning:** This section explores the definition and scope of lifelong learning, distinguishing it from traditional education models. It delves into various forms of lifelong learning, including formal, non-formal, and informal learning experiences.

**Benefits of Lifelong Learning:** The benefits of lifelong learning are manifold, including personal fulfillment, adaptability to change, career advancement, and enhanced social inclusion. This section examines how lifelong learning contributes to individual well-being and societal development.

**Challenges in Promoting Lifelong Learning:** Despite its importance, promoting lifelong learning faces several challenges, such as accessibility issues, motivation barriers, and the lack of recognition for informal learning. This section discusses these challenges and potential solutions.

**Role of Technology in Lifelong Learning:** Technology plays a pivotal role in facilitating lifelong learning. This section explores how digital platforms, online courses, and e-learning resources contribute to making learning accessible and flexible.

**Lifelong Learning in the Workplace:** The workplace is a critical environment for lifelong learning. This section examines the role of employers in

supporting continuous learning and skill development, emphasizing the need for ongoing training and development programs.

**Lifelong Learning for Personal Development:** Beyond professional benefits, lifelong learning significantly contributes to personal growth and self-actualization. This section highlights the value of learning for personal interests and hobbies, and its impact on quality of life.

**Global Perspectives on Lifelong Learning:** Different countries and cultures approach lifelong learning in diverse ways. This section compares and contrasts international perspectives and policies on lifelong learning, showcasing global trends and best practices.

Lifelong learning is essential for navigating the complexities of the modern world. It enriches individuals' lives, enhances professional competencies, and contributes to societal progress. The challenges in promoting lifelong learning require innovative solutions, including leveraging technology, creating supportive environments, and developing inclusive policies. Cultivating a love for learning beyond the classroom is a journey that offers endless opportunities for growth, discovery, and fulfillment.

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## **INTERDISCIPLINARY TEACHING: MERGING DISCIPLINES FOR HOLISTIC EDUCATION**

*Abstract. Interdisciplinary teaching, merging various academic disciplines, offers a holistic approach to education, transcending traditional subject boundaries. This pedagogical method fosters critical thinking, creativity, and problem-solving skills by integrating knowledge and methods from different fields. It prepares students for the complexities of the real world, where challenges are seldom confined to a single discipline.*

*Keywords. Interdisciplinary Teaching, Holistic Education, Curriculum Integration, Critical Thinking, Creativity, Problem-Solving, Collaborative Learning, Cross-Disciplinary, Educational Strategies, Student Engagement.*

Interdisciplinary teaching involves the integration of concepts, theories, and methodologies from different academic disciplines to provide a more comprehensive understanding of complex topics. It aims to break down the silos of traditional education systems, encouraging students to make connections across subjects. This approach enhances students' ability to apply knowledge in diverse contexts, promoting a deeper understanding and appreciation of the interconnectedness of different fields.

**Concept and Importance of Interdisciplinary Teaching:** This section defines interdisciplinary teaching and explains its importance in contemporary education. It emphasizes how this approach reflects the interdependent nature of knowledge and real-world issues.

**Pedagogical Approaches to Interdisciplinary Teaching:** Various pedagogical strategies for interdisciplinary teaching are discussed, including thematic learning, project-based learning, and collaborative teaching methods. This section explores how these approaches facilitate the integration of different disciplines.

**Benefits for Students and Educators:** The benefits of interdisciplinary teaching for students include enhanced critical thinking, creativity, and the ability to view problems from multiple perspectives. For educators, it offers opportunities for professional growth and collaborative teaching experiences.

**Challenges in Implementing Interdisciplinary Teaching:** Implementing this approach faces several challenges, such as curriculum constraints, lack of resources, and the need for professional development. This section discusses these challenges and potential solutions.

**Preparing Students for a Complex World:** This section emphasizes the role of interdisciplinary teaching in preparing students for the complexities and



challenges of the contemporary world, equipping them with versatile skills and a holistic perspective.

**Future Directions in Interdisciplinary Education:** The future of interdisciplinary teaching, including emerging trends and potential areas of growth, is discussed. The section speculates on how this approach will evolve to meet the changing needs of society and education.

### **Conclusion**

Interdisciplinary teaching is a vital component of modern education, offering a more holistic and relevant learning experience. It prepares students to think critically, creatively, and collaboratively, equipping them with the skills needed to address multifaceted real-world problems. While there are challenges in its implementation, the benefits for student learning and engagement are significant.

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## CHET TILLARINI O'RGANISHDA MOBIL ILOVALARNI O'RNI

*Annotatsiya. Ushu maqola mobil ilovalar orqali chet tillarini o'rganishning yangicha usuli haqida. Ya'ni mazkur mobil dastur 3D virtual reallikda sun'iy intellekt bilan jonli suhbat orqali o'rganishni o'z ichiga oladi.*

*Kalit so'zlar: Unity 3D, model, 3D model, Virtual Reallik, Sun'iy intellekt.*

*Khasanov A.A., Ph.D.*

## INSTALL MOBILE APPS WHEN LEARNING FOREIGN LANGUAGES

*Abstract. This article is about a new way to learn foreign languages through mobile applications. That is, this mobile application covers learning in 3D virtual reality through live chat with artificial intelligence.*

*Keywords. Unity 3D, model, 3D model, Virtual Reality, Artificial Intelligence.*

Hozirga kunga kelib innovatsion rivojlanish kun sayin jadallab bormoqda. Har bir sohada axborot-kommunikatsiya texnologiyalardan foydalanish orqali yuqori samaradorlikka erishilayotgani hech kimga sir emas. Hozirgi kunda chet tilini o'rganuvchilar uchun ham bir qancha mobil ilovalar mavjud. Lekin ko'pgina til o'rgatuvchi mobil ilovalar o'zbek tilidagi interfeysga hamda 3D ko'rinishga ega emas. Quyida biz chet tilini o'rgatuvchi mobil ilovani bir usulini ko'rib o'taylik.

Til o'rganuvlar uchun Unity 3D dasturi orqali turli xil tillarni virtual-jonli o'rganishni o'zbek tilida yo'lga qo'yish kerak (1-rasm).



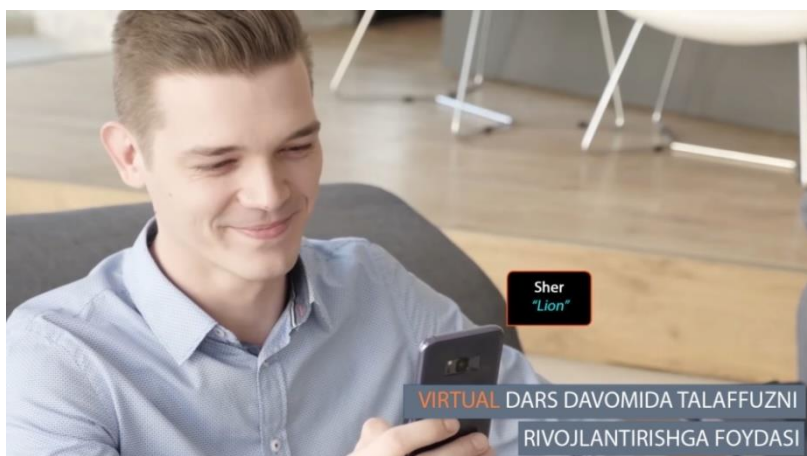
1-rasm. Unity 3D dasturi interfeysi

Bunda uyali telefon orqali virtual o'qituvchi ayol bilan muloqoti yaratiladi. 3D model sifatida yaratilgan o'qituvchi inson hayvonlarni, meva-sabzavotlarni va boshqa doimiy hayotimizda qo'llaniladigan predmetlarni 3D modeli bilan, hatto hayvon-jonzotlarni ovozi hamda harakati bilan aytib, o'rgatadi. Buni eng qulayligi ham shundaki, foydalanuvchi o'rganayotgan predmetlarini yana ham anglab tushunish uchun har tomonlama aylantirib ko'rishi mumkin. Bu esa eslab qolish uchun juda qulay yo'l hisoblanib, shu so'z bilan ko'z o'ngida gavdalanishi esda qolishda yaxshi rol o'ynaydi. Dars so'ngida virtual o'qituvchi o'zlashtirilgan yangi so'zlarni o'zbek tilida so'rab, ingliz (yoki o'rganilayotgan tilda) javob qaytarishingizni talab qiladi. Bu vaqtda foydalanuvchi ingliz tilida javob qaytaradi agar to'g'ri o'rgatilgandek va sof talaffuz qilinsa tasdiq tariqasida shu predmetni dars avvalidagi 3D modeli paydo bo'ladi (2-rasm).



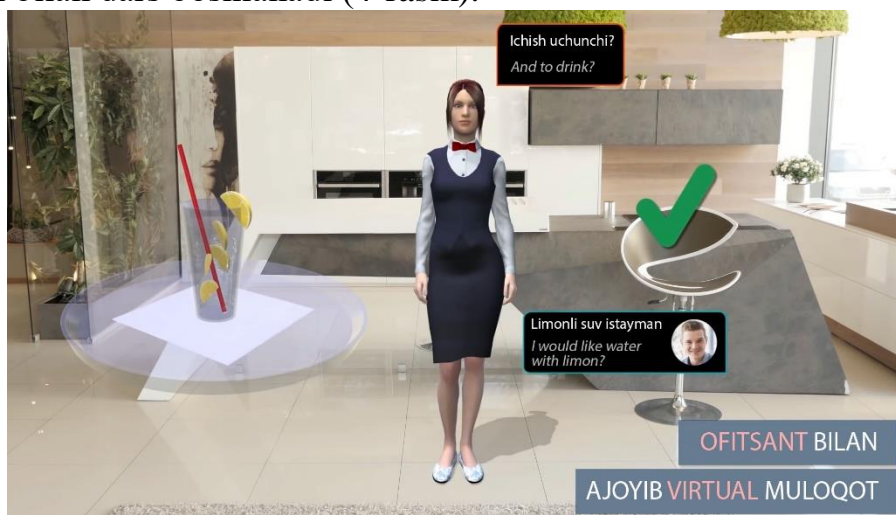
2-rasm. Virtual til o'rganish interfeysi

Bu dastur orqali nafaqat tillarni hattoki ibora va so'zlashuv gaplarini ham o'rganish mumkin. Buni restoran misolida ko'rsak. Virtual o'qituvchi avval so'zlashuv gaplarini o'rgatadi, masalan ofitsant bilan. Dars so'ngida virtual o'qituvchi ofitsant ko'rinishiga o'zgaradi va sizdan huddi real hayotdagidek "Nima istaysiz?- what would you like?" savoliga dars avvalida o'rgangan ibora gaplaringizni qo'llashlari mumkin bo'ladi. Misol uchun: "Men bir chashka kofe ichmoqchiman - i would like a cup of coffee" misolida javob qaytarganda dasturga kiritilgan algoritm yordamida dars boshida ko'rsatilgan bir chashka qahvani 3D modeli paydo bo'ladi va shu bilan boshqa so'rovlarni amalga oshirishi yoki virtual ofitsant savollariga o'rganayotgan tilida javob qaytarib suhbat qilishi mumkin. Biz bu yo'l bilan til o'rganuvchilarni nafaqat so'z boyligini hatto ularni to'g'ri talaffuz qilishlarini, real suhbatdagi hayajonlarini ketkazishni ta'minlagan bo'lamiz. Mazkur loyihada til o'rganuvchilar istalgan yoshdagilarni qamrab olishi mumkin (3-rasm).



3-rasm. Virtual til o'rganish interfeysi

Bunda foydalanuvchi dasturni yuklab oladi, nishon (target) sifatida mavjud biror yerni dasturni o'zida rasmga oladi. Bundan maqsad keyingi 3D jarayonlar mana shu belgilangan nishon(target)ni o'zi uchun o'rnatish joyi deb qabul qiladi va shu nishonni kamerada yoqatmasdan foydalanishni talab qiladi. So'ng virtual 3D o'qituvchi bilan dars boshlanadi (4-rasm).



4-rasm. Virtual til o'rganish interfeysi

Mazkur ilova Unity 3D dasturi orqali yaratiladi. Bunda C# dasturlash tili orqali buyruqlar yoziladi va shu bilan birga Unity 3D dasturini o'zini elektron kutubxonasidan yordamchi plaginlaridan foydalaniladi.

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## **MOBILE LEARNING: EDUCATION ON THE MOVE**

*Abstract. Mobile Learning, or m-learning, involves the use of mobile devices like smartphones and tablets to facilitate learning anytime and anywhere. This approach capitalizes on the ubiquity and convenience of mobile technology, offering flexibility and accessibility in education. Mobile Learning supports personalized, just-in-time learning experiences and encourages active, student-centered learning. Challenges include distractions from mobile device use, data privacy concerns, and ensuring educational content quality. Despite these challenges, m-Learning has gained traction due to its potential to make education more adaptable, inclusive, and aligned with the digital lifestyle of modern learners.*

*Keywords. Mobile Learning, m-Learning, Smartphones, Tablets, Flexible Learning, Accessibility, Personalized Learning, Just-in-Time Learning, Data Privacy, Educational Technology.*

Mobile Learning (m-Learning) refers to the use of mobile technology, such as smartphones and tablets, to facilitate learning beyond the traditional classroom setting. It leverages the portability and accessibility of mobile devices to offer learners the flexibility to engage with educational content anytime and anywhere. This approach aligns with the increasing reliance on mobile technology in daily life, making learning more adaptable and student-centered. Mobile Learning is characterized by its ability to provide immediate access to information, support personalized learning paths, and foster interactive and collaborative learning experiences.

**Evolution and Scope of Mobile Learning** Examining the evolution of m-Learning and its current scope in the educational landscape. This includes the integration of mobile devices in different educational contexts and the shift towards more flexible and accessible learning models.

**Benefits of Mobile Learning in Education** Analyzing the benefits of m-Learning, such as increased accessibility, support for personalized and self-paced learning, and the promotion of active and engaged learning experiences. The impact of m-Learning on student motivation and participation is highlighted.

**Impact on Teaching and Learning Practices** Examining the impact of m-Learning on teaching methodologies and student learning outcomes. This includes the role of mobile technology in supporting diverse learning styles and enhancing the learning experience through interactive and collaborative tools.

**Case Studies and Future Trends** Presenting case studies of successful m-Learning implementations in various educational settings. Future trends in m-

Learning, including potential developments in mobile educational technologies and their implications for teaching and learning, are discussed.

**Conclusion** Mobile Learning represents a significant advancement in educational technology, offering learners the flexibility to access educational content anytime and anywhere. Its alignment with the digital lifestyle of modern learners makes it a relevant and effective approach to education. While challenges such as managing distractions and ensuring content quality exist, the benefits of m-Learning in promoting active, engaged, and personalized learning experiences are substantial. As mobile technology continues to evolve, so too will the opportunities for m-Learning to enhance and expand educational practices.

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## **E-PORTFOLIOS IN EDUCATION: A TOOL FOR REFLECTIVE LEARNING**

*Abstract. E-Portfolios in education serve as a dynamic tool for reflective learning, allowing students to compile and showcase their work digitally. This approach encourages self-assessment, critical reflection, and personal growth, as students continuously document their learning journey. E-Portfolios facilitate the demonstration of skill development over time, offering a comprehensive view of individual progress. Challenges include technical barriers, privacy concerns, and the need for sustained student motivation. Despite these issues, e-portfolios have become increasingly popular in education due to their ability to foster a deeper level of engagement and provide tangible evidence of learning and achievement.*

*Keywords. E-Portfolios, Reflective Learning, Digital Showcase, Self-Assessment, Skill Development, Personal Growth, Student Motivation, Educational Technology, Privacy Concerns, Learning Documentation.*

E-Portfolios in education are digital platforms where students can collect, reflect on, and showcase their work and learning progress. They serve as a tool for reflective learning, allowing students to document various aspects of their educational journey, including completed projects, skill development, and personal reflections. This method shifts the focus from traditional assessment to a more holistic view of learning, emphasizing personal growth and continuous improvement. E-Portfolios are used in diverse educational settings, from K-12 to higher education, and have gained popularity for their ability to engage students in a meaningful and self-directed learning process.

**Concept and Functionality of E-Portfolios** Exploring the concept of e-portfolios, their structure, and functionality. This includes the types of content typically included, such as written work, multimedia projects, and reflective pieces, and how these elements contribute to a comprehensive learning profile.

**Benefits of E-Portfolios in Education** Analyzing the benefits of e-portfolios, including their role in promoting self-assessment, critical thinking, and personal development. The impact of e-portfolios on student engagement and the demonstration of learning progress over time is highlighted.

**Challenges and Considerations** Discussing the challenges associated with the use of e-portfolios, such as technical issues, ensuring student privacy, and maintaining consistent student engagement. Strategies to address these challenges are explored.

**Case Studies and Implementation Examples** Presenting case studies and examples of successful e-portfolio implementation in various educational

contexts. These examples illustrate the versatility and effectiveness of e-portfolios in enhancing reflective learning practices.

### **Conclusion**

E-Portfolios represent a valuable tool in modern education, facilitating reflective learning and personal growth. They offer students a platform to document and showcase their learning journey, encouraging a deeper level of engagement and self-assessment. While challenges such as technical barriers and privacy concerns exist, the benefits of e-portfolios in fostering continuous learning and skill demonstration are significant. E-Portfolios are increasingly recognized as an important component of a holistic educational experience, providing tangible evidence of learning and achievement.

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## **IMPROVING THE METHODOLOGY OF TEACHING INFORMATICS TO FOREIGN STUDENTS**

*Abstract. The globalization of education has led to an increasingly diverse student population, with individuals from various cultural backgrounds seeking education in informatics. As the demand for skilled professionals in the field continues to rise, it becomes imperative to optimize the methodology for teaching informatics to foreign students. This scientific article explores innovative approaches and strategies to enhance the effectiveness of teaching informatics to a diverse student body, ensuring inclusivity and promoting a deeper understanding of the subject matter.*

*Keywords: Methodology, multimodal teaching, adaptive assisment, technological integration.*

### **1. Introduction**

Informatics education has become a crucial component of academic curricula worldwide, catering to students with diverse linguistic, cultural, and educational backgrounds. This article addresses the challenges associated with teaching informatics to foreign students and proposes methodologies to overcome these challenges.

### **2. Cultural Considerations in Informatics Education**

Understanding the cultural context of students is essential for effective teaching. This section discusses the impact of cultural differences on learning styles, preferences, and communication, emphasizing the need for culturally sensitive teaching strategies. Incorporating cultural elements into instructional materials and promoting cross-cultural collaboration can enhance the learning experience.

### **3. Multimodal Teaching Techniques**

Recognizing the diverse learning preferences of students, this section advocates for the integration of multimodal teaching techniques. These may include visual aids, interactive simulations, hands-on projects, and collaborative activities. By catering to various learning styles, instructors can create a more engaging and accessible learning environment for foreign students.

### **4. Adaptive Assessment Strategies**

Traditional assessment methods may not accurately measure the understanding of foreign students due to language barriers and cultural nuances. Implementing adaptive assessment strategies, such as project-based assessments,

practical exams, and continuous evaluation, can provide a more accurate reflection of a student's grasp of informatics concepts.

### ***5. Language Support Initiatives***

Language proficiency is often a significant challenge for foreign students in informatics programs. This section explores language support initiatives, including specialized language courses, dedicated language mentors, and language integration within the informatics curriculum. Effective communication is crucial for fostering a conducive learning environment.

### ***6. Technological Integration in Teaching***

Leveraging technology can enhance the learning experience for foreign students. Virtual laboratories, online collaboration platforms, and interactive learning resources can bridge gaps in access to resources and facilitate remote learning. This section discusses the integration of technology to make informatics education more accessible and interactive.

### ***7. Faculty Development Programs***

Ensuring that instructors are equipped with the necessary skills to teach a diverse student body is paramount. Faculty development programs focusing on cultural competence, effective communication, and inclusive teaching methodologies are crucial for preparing educators to address the unique challenges posed by teaching informatics to foreign students.

### ***8. Case Studies and Best Practices***

The article concludes with a discussion of case studies and best practices from institutions that have successfully implemented innovative methodologies for teaching informatics to foreign students. Sharing experiences and learning from successful initiatives can guide educators and institutions in improving their informatics education programs.

### ***9. Conclusion***

As the landscape of informatics education continues to evolve, adapting teaching methodologies to meet the needs of a diverse student population becomes essential. This article provides a comprehensive exploration of strategies and approaches to enhance the methodology for teaching informatics to foreign students, ultimately contributing to a more inclusive and effective learning environment.

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№А7. URL: <https://cyberleninka.ru/article/n/use-of-modern-methods-in-teaching-information-technology-in-medical-education> (дата обращения: 21.12.2023).

## **MULTIMEDIA LEARNING: INTEGRATING VISUAL AND AUDIO TOOLS IN TEACHING**

*Abstract. Multimedia Learning, the integration of visual and audio tools in education, enhances learning by leveraging multiple sensory modalities. This approach combines text, images, video, and audio to create a more dynamic and engaging learning environment. Multimedia Learning supports various learning styles, improves retention and understanding, and fosters interaction and creativity in educational settings. Challenges include potential cognitive overload and ensuring access to technological resources.*

*Keywords. Multimedia Learning, Visual Tools, Audio Tools, Sensory Modalities, Interactive Learning, Learning Styles, Student Engagement, Cognitive Overload, Technological Resources, Educational Innovation.*

Multimedia Learning involves the use of both visual and audio materials to facilitate learning and teaching processes. This approach recognizes the importance of diverse sensory experiences in learning, combining text, graphics, videos, and sound to enrich the educational content. By catering to different learning styles, multimedia learning can increase student engagement and improve the comprehension of complex topics. It offers a versatile and interactive way to present information, making learning more accessible and enjoyable. In an increasingly digital world, multimedia learning aligns with the technological proficiency of students, integrating seamlessly into various educational frameworks.

**Theoretical Foundations of Multimedia Learning** Exploring the cognitive theories behind multimedia learning, including the Cognitive Theory of Multimedia Learning and Dual Coding Theory. Understanding how these theories explain the effectiveness of combining visual and auditory information in learning.

**Benefits of Multimedia in Education** Analyzing the benefits of using multimedia tools in education, such as enhanced understanding of complex concepts, improved retention of information, and catering to different learning preferences. The role of multimedia in fostering a more engaging and interactive learning environment is highlighted.

**Challenges and Effective Implementation** Discussing the challenges in implementing multimedia learning, including the risk of cognitive overload and the need for adequate technological infrastructure. Strategies for effective use of multimedia in education and overcoming these challenges are explored.

**Impact on Teaching and Learning** Examining the impact of multimedia learning on teaching methodologies and student learning outcomes. This includes how multimedia can complement traditional teaching methods and its effectiveness in improving academic performance.

**Case Studies and Empirical Evidence** Presenting case studies and empirical research findings on the effectiveness of multimedia learning in various educational contexts. These examples demonstrate the adaptability and impact of multimedia tools in enhancing learning experiences.

**Conclusion** Multimedia Learning represents a significant advancement in educational methodology, offering a more dynamic and engaging approach to teaching and learning. By utilizing a combination of visual and audio tools, it addresses the diverse learning needs of students, enhancing both engagement and comprehension. While challenges such as managing cognitive load and ensuring access to technology exist, the benefits of multimedia learning in improving educational outcomes are substantial. As a component of modern education, multimedia learning is pivotal in providing an enriched, interactive, and effective learning experience.

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## **SERVICE-LEARNING: COMBINING EDUCATION WITH COMMUNITY ENGAGEMENT**

*Abstract. Service-Learning is an educational approach that combines learning objectives with community service to provide a pragmatic, progressive learning experience. It emphasizes real-world relevancy and social responsibility. Students engage in activities that address community needs while enhancing their academic skills, fostering civic responsibility, and promoting personal growth. Challenges include balancing service objectives with learning outcomes and ensuring meaningful contributions to the community.*

*Keywords Service-Learning, Community Engagement, Civic Responsibility, Real-World Learning, Social Responsibility, Interpersonal Skills, Critical Thinking, Educational Objectives, Community Service, Personal Growth.*

Service-Learning is an experiential, pedagogical approach that integrates meaningful community service with instruction and reflection. It enriches the learning experience by applying academic skills to real-world community needs, promoting a deeper understanding of course content, and fostering a sense of social responsibility. This approach encourages students to engage actively in their communities, applying their knowledge and skills to solve practical problems. Service-Learning is distinguished by its dual focus on both the service component and the learning aspect, making it a mutually beneficial experience for students and the community.

**Principles and Framework of Service-Learning** Exploring the principles and framework of Service-Learning, including its emphasis on reciprocal learning and the balance between service objectives and academic learning outcomes.

**Benefits of Service-Learning in Education** Analyzing the benefits of Service-Learning, such as enhanced understanding of course content, development of critical thinking and interpersonal skills, and promotion of civic engagement and social responsibility.

**Challenges and Effective Implementation** Discussing the challenges in implementing Service-Learning, including ensuring meaningful service contributions, aligning service activities with academic objectives, and addressing logistical and ethical considerations. Strategies for effective implementation are explored.

**Impact on Students and Communities** Examining the impact of Service-Learning on students, including personal growth, enhanced academic skills, and increased civic awareness. The benefits to communities, such as addressing

specific needs and fostering partnerships with educational institutions, are also discussed.

**Case Studies and Empirical Research** Presenting case studies and research findings on the effectiveness of Service-Learning in various educational contexts, demonstrating its adaptability and impact on both students and communities.

Service-Learning is a dynamic and impactful educational approach, effectively combining academic learning with community service. It offers students practical opportunities to apply their skills in real-world situations, promoting personal and social development. While there are challenges to its implementation, Service-Learning provides substantial benefits, including enhanced academic understanding, development of critical life skills, and a strengthened sense of civic responsibility. As part of a comprehensive educational experience, Service-Learning plays a crucial role in preparing students to be informed, engaged, and empathetic community members.

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## **HOLISTIC EDUCATION: A COMPREHENSIVE APPROACH TO LEARNING**

*Abstract. Holistic Education is an educational philosophy that emphasizes the development of every aspect of a person, including intellectual, emotional, social, physical, artistic, creative, and spiritual potentials. It focuses on the interconnectedness of these aspects and how they contribute to the individual's overall development. Holistic Education aims to create a more balanced, integrated, and reflective individual, preparing students for not just academic success but also for personal fulfillment and responsible citizenship in a global community. This approach fosters a deeper understanding of self, others, and the world, promoting a lifelong love of learning and personal growth.*

*Keywords. Holistic Education, Comprehensive Learning, Intellectual Development, Emotional Growth, Social Skills, Physical Well-being, Artistic Creativity, Spiritual Awareness, Personal Fulfillment, Global Citizenship.*

Holistic Education is an approach to learning that seeks to educate the whole person. It moves beyond the traditional focus on academic skills to include emotional, social, ethical, and spiritual development. This educational philosophy acknowledges that children are complex beings with a variety of needs and potentials. Holistic Education aims to nurture all aspects of a student's being, creating an environment where intellectual, emotional, physical, and creative capacities are equally valued and developed. This approach is seen as a response to the often fragmented, test-driven education systems, offering a more balanced and integrated form of education.

**Philosophical Foundations of Holistic Education:** Holistic Education is rooted in the belief that education should be about the growth of the whole person. Philosophers like Rudolf Steiner and Maria Montessori emphasized the importance of educating all aspects of the individual, not just the intellect.

**Key Components of Holistic Education:** Holistic Education involves a broad curriculum that includes not only academics but also arts, physical education, emotional development, and spiritual growth. It encourages creativity, critical thinking, and self-reflection, aiming to develop well-rounded individuals.

**Benefits of a Holistic Approach:** This approach promotes overall well-being, self-awareness, and a deep sense of interconnectedness with others and the world. It helps students develop a balanced set of skills and attributes, necessary for personal and professional success in a complex, rapidly changing world.

**Challenges and Implementation Strategies:** Implementing Holistic Education can be challenging due to current educational structures and assessment

methods. Strategies include teacher training, curriculum development, and creating school environments that support holistic practices.

**Global Citizenship and Environmental Awareness:** Holistic Education often incorporates themes of global citizenship and environmental stewardship, teaching students about their role in a global community and the importance of sustainable living.

Holistic Education offers a comprehensive approach to learning that addresses the diverse needs and potentials of students. By focusing on the development of the whole person, it prepares individuals for a range of life's challenges and opportunities. While there are barriers to its widespread implementation, the principles of Holistic Education can significantly enhance the educational experience, fostering not only academic success but also personal growth and social responsibility.

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## **TECHNOLOGY-ENHANCED LEARNING: THE ROLE OF TECH IN MODERN EDUCATION**

*Abstract. Technology-Enhanced Learning (TEL) is revolutionizing the educational landscape by integrating digital tools and platforms to enrich the learning experience. This transformation extends beyond mere digitization of traditional methods, offering interactive, personalized, and accessible learning opportunities. TEL's impact on student engagement, teacher effectiveness, and educational accessibility is profound.*

*Keywords. Technology-Enhanced Learning, Digital Education, E-Learning, Interactive Learning, Educational Technology, Student Engagement, Teacher Training, Online Learning, Educational Accessibility, Virtual Classrooms.*

Technology-Enhanced Learning encompasses the use of digital technologies to support and improve teaching and learning processes. It represents a shift from traditional classroom-based instruction to a more flexible, interactive, and student-centered approach. TEL includes a wide range of technologies such as online learning platforms, educational software, virtual classrooms, and digital resources. This integration of technology in education aims to enhance student learning experiences, improve educational outcomes, and provide equitable access to quality education. The emergence of TEL is reshaping the roles of teachers and learners, necessitating new skills and pedagogies.

**Evolution of Technology in Education:** Tracing the evolution from basic computer-assisted instruction to sophisticated AI-driven learning platforms, this section explores the historical context and technological advancements that have shaped modern TEL.

**Pedagogical Shifts in TEL:** TEL introduces significant pedagogical shifts, emphasizing active learning, collaborative problem-solving, and personalized instruction. It challenges traditional teaching methods and promotes a learner-centered approach, adapting to individual learning styles and needs.

**Digital Tools and Resources:** Examining various digital tools such as learning management systems, interactive whiteboards, educational apps, and online resources, this section discusses how these tools enhance learning experiences and facilitate various educational activities.

**Impact on Student Engagement and Achievement:** TEL has been shown to increase student engagement, motivation, and participation. This section analyzes research findings on the impact of technology on student achievement and learning outcomes.

**Challenges and Barriers:** Despite its benefits, TEL faces challenges including digital divide, privacy concerns, and resistance to change. This section addresses these challenges and discusses potential solutions and strategies to overcome them.

**Future Trends in TEL:** Looking forward, this section speculates on emerging technologies such as augmented reality, virtual reality, and artificial intelligence, and their potential impact on future educational practices.

Technology-Enhanced Learning is a dynamic and transformative aspect of modern education. It has the potential to greatly enhance the learning experience, making it more interactive, accessible, and personalized. While TEL presents certain challenges, its benefits in terms of student engagement, achievement, and educational equity are significant. The future of TEL is promising, with continual advancements in technology offering new possibilities for innovative educational practices.

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## **FARG‘ONA VILOYATIDA AJRALISH JARAYONINI GEOGRAFIK TAHLILI**

*Annotasiya: Ushbu maqolada yosh oilalarda ajralish va ularning geografik tahlili borasida, avvalo Respublikamizning Farg‘ona viloyatining shaharlar kesimida ajralish va uning ko‘rsatkichlari to‘g‘risida fikr va mulohazalar keltirilgan.*

*Tayanch so‘zlar: Oila, to‘la oila, tugalmas oila, nikoh, ajralish, demografik tarkib, urbanizatsiya, qishloq, shahar.*

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## **GEOGRAPHICAL ANALYSIS OF THE PROCESS OF SEPARATION IN FERGANA REGION**

*Annotation. In this article, concerning divorces in young families and their geographical analysis, first of all, opinions and comments on divorces and their rates in the urban part of the Fergana region of our Republic are presented.*

*Key words: Family, complete family, incomplete family, marriage, divorce, demographic, composition, urbanization, village, city.*

Mamlakatimizda ko‘p yillar davomida oilalarni davlat tomonidan qo‘llab-quvatlash, ularni har tomonlama jamiyatning asosiy bo‘g‘ini sifatida barqarorligin ta‘minlash jamiyatimizning ustivor yo‘nalishlaridan biri sanalgan. Binobarin, xalqmuayyan oilalarda tashkil topar ekan, uning barqarorligini, oilalarning tinch-totuvligi mamlakatning rivoji va istiqbolini belgilovchi asosiy omil hisoblanadi. Hozirda O‘zbekistonda oilalar barqarorligini ta‘minlash, oilalarda ajralishlar sonini kamaytirish, oilani saqlab qolish imkonini beradigan ko‘plab tashkiliy-huquqiy ijtimoiy siyosiy-choralar belgilangan. O‘zbekiston Respublikasining prezidenti Sh.M. Mirziyoyov ta‘kidlaganidek, “Biz uchun muqaddas bo‘lgan oila asoslarini yanada mustahkamlash, honadonlarda tinchlik – xotirjamlik, ahillik va o‘zaro hurmat muhini yaratish, -ma‘rifiy ishlarini aniq mazmun bilan to‘ldirishdan iborat bo‘lmog‘i zarur. Ayollar o‘rtasida jinoyatchilik, oilalarda ajralishlar ko‘paygani, yoshlarni turli diniy-

ekstirimitikoqimlar va terroristik tashkilotlar ta'siriga tushishi kabi halqimizga hos bo'lmagan achchiq va noxush masalalar bilan bog'liq. ”

Oila tarkibiga hamda rivojlanishiga ta'sir etuvchi omillaridan birinikohning bekor etilishi ya'ni ajralishdir. Ma'lumki oilada er-xotinning ajralish nikohning bekor etilishi birinchi navbatda oilaning demografik tarkibiga ta'sir ko'rsatadi.([1]) Oila to'la oiladan, tugalmas oilaga aylanadi. Oilada farzandlar tug'ilishi ma'lum darajada kamayadi. Bu esa, o'z navbatida oilaning davom etiruvchi avlod yaratilishiga, oilaning demografik rivojlanishiga ya'ni aholi takror barpo bo'lishiga ta'sir etadi Ajralishjarayoning o'ziga xos xususiyatlari mavjud bo'lib, bu xususiyatlaridan biri uning qishloq va shahar aholisida keskin farq qilishidir. Ko'pgina statistik ma'lumotlarda yosh oilalar o'rtasida ajralishlar sonining o'sib borish dinamikasini ko'rsatadi va bu holat ayniqsa, yirik shaharlarda yuqori ekanligi hech birimizga sir emas.([2])

Shahar aholisida oilalarning buzilish holatlari qishloq aholisiga qaraganda 4-5 barobar yuqori bo'lib, bunday farq respublikaningbarcha viloyatlarida kuzatilgan. Biz buni Respublikamizning Farg'ona viloyatining misolida ko'rib chiqamiz.

### Nikohdan ajralishlar soni (yillarda; birlikda)

1-jadval

(2019-2020 yy.)

<i>№</i>	<i>Hududlar</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>
	<i>Farg'ona viloyati</i>	3192	2842	4285
<i>1</i>	Farg'ona shahri	459	394	618
<i>2</i>	Qo'qon shahri	352	331	447
<i>3</i>	Quvasoy shahri	104	80	119
<i>4</i>	Marg'ilon shahri	203	156	317

*Manba: Farg'onastatistikama'lumotlari.*

Yuqorida jadval ma'lumotlari Farg'ona viloyatining shaharlarida ajralish ko'rsatkichlarini yildan yilga bir-biridan farq qiladi. Ohirgi uch yillikda eng ko'p ajralish ko'rsatkichi 2021 yilda Farg'ona shahriga to'g'ri kelgan bo'lsa, eng past, 2020 yil Quvasoy shahriga to'g'ri kelgan

Mutaxasislarning aytishicha, oiladagi shaxslararo munosabatlarning yomonlashuvi xususan, ajrimlar uchun asosiy sabab er-xotin o'rtasidagi maishiy kelishmovchiliklar, qaynona, qaynota yoki uchinchi shaxs, umuman boshqalarning oila ishiga aralashuvi, farzandsizlik, ichkilikbozlik va moddiy yetishmovchiliklar, turmush o'rtog'ining ishsizligi va iqtisodiy muammolar sabab bo'lmoqda. Oilaviy ajralishlar salbiy ta'sir ko'rsatadigan uch asosiy holatni tahlil qilsak: Jamiyat uchun – noto'liq oilalar soni ko'payadi, oilalararo yoki qarindoshlararo adovat yuzaga keladi, bir jinsning ikkinchi jinsga nisbatan nafрати paydo bo'ladi,; Erkak uchun – yolg'izlik hissining ortishi, giyohvandlik va ichkilikbozlikka berilish, turli kasalliklar; Ayol uchun – yolg'izlikni his qilishning ortishi, qayta oila qurish imkoniyatining cheklanganligi, nevrozlar, stresslar, turli kasalliklar, o'z joniga qad qilish va boshqalar. Bizning fikrimizcha, muammo

qanchalik murakkab bo`lmasin, albatta, uning yechimi bo`ladi. Jamiyatimiz hayotidagi erta ajrim va noto`liq oilalarning sonini kamaytirishning samarali yechimlari sifatida quyidagilarni keltirishimiz mumkin:

1. Texnika-telefon, ijtimoiy tarmoqlar-Telegram, Instagram, Facebook ashunga o`xshash inson tafakkuri mahsuli bo`lgan narsalarning hayotimizning asosiy qismiga aylanib qolmasligiga yo`lga qo`ymaslik lozim. Oilaga uchun sarflanishi kerak bo`lgan vaqtning ijtimoiy tarmoqlar uchun sarflanishini oldini olish kerak.

2. Yosh oilalarga qaynona, qaynota va boshqa uchin uchinchi shaxslarning o`z boshimchalik bilan aralashuvini bartaraf etish. Ya`ni O`zbekiston Respublikasi 3-moddasida keltirilgan "oilaviy munosabatlarga aralashishga yo`l qo`yilmasligi" bandining amalda keng miqyosda qo`llanishi. 3. Yangi barpo etilayotgan oilalarda ikki taraf ham bir-birining yetti pushtini surishtirib, sovchiligi orqali bir-biriga mos keladigan yoshlarni taqdirini bog`lash 4. Garchi ayni paytda FHDYO organlari qoshida oila dorilfununlari tashkil etilib, nikohlanuvchi yoshlar bir oylik o`quv kurslarida qatnashayotgan bo`lsa ham ajrimlar sonini kamaygani yo`q. Shu o`rinda aytish joizki, 18-20 yil oilada singdirilmagan ko`nikmalar bir oyda davomida tushuntirilishining imkoni yo`q. Shuning uchun har bir farzandni ota-onalari yoshlik davrlaridan katta hayotga tarbiyalab, zarur ko`nikmalarni berib borsa, namunali oila bo`lib ularga o`rnak bo`lsa vaziyat ancha ijobiy tarafga o`zgaradi.([3])

Xulosa qilib aytganda, hamma gap baribir yoshlarning oila haqidagi tasavvuri va uning atrofidagi masalalarga borib taqaladi. Kalavaning uchinida davlat tashkilotlarining yoki ota-onalarning qo`liga tutqazib qo`yish emas, chigallikni hamjihatlikda yechishga urunish, turli yo`llar bilan bo`sa-da, er-xotin o`rtasidagi ajralishlar sonini kamaytirish, oilalarning bir butunligi va barqarorligini saqlab qolish borasidagi mexanizmlarni kuchaytirish, bu borada amalga oshirilayotgan islohotlarni kuchaytirish nafaqat, zamon talabi, ayni vaqtdasiz-u bizning asosiy vazifamizdir.

Shahar aholisida ajralish ko`rsatkichini oshiradigon omillardan biri, bu urbanizatsiya va mehnatga layoqatli aholining harakatchanligining oshishi va aholi tarkibida boshqa millatlarning yuqoriligi ham o`z ta`sirini ko`rsatadi.

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## **YOSHLARNING DEMOGRAFIK FAOLIYATI**

*Annotasiya: Ushbu maqolada aholining (16 - 29) yoshgacha bo‘lgan guruh vakillarini tashkil etuvchi yoshlarning demografik faoliyatidagi tug‘ilish va uning respublikamizda yosh guruhlari bo‘yicha taqsimlanishi, shuningdek, tug‘ilishga ta‘sir etuvchi omillarni to‘g‘risida fikr va mulohazalar keltirilgan.*

*Kalit so‘zlar: Yoshlar, yosh guruhlari, tug‘ilish, ruzproduktiv mayl, demografik, demografik faoliyat, ijtimoiy-iqtisodiy. urbanizatsiya, qishloq, shahar.*

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## **DEMOGRAPHIC ACTIVITY OF YOUTH**

*Annotation. This article provides feedback and feedback on the birth in the demographic activities of young people who make up the representatives of the population (16 - 29) under the age group and its distribution by age groups in our republic, as well as on the factors affecting birth.*

*Key words: Youth, age groups, birth, ruzproductive predisposition, demographic, demographic activity, socio-economic. urbanization, rural, urban.*

Aholining eng katta ijtimoiy qatlami hisoblangan yoshlarning bugungi kunda jamiyat xayotidagi egallagan o‘rni bevosita mamlakat rivojlanishi va kelajagini belgilaydigan muxim omildir. Ayni vaqtda uning tarkibini sotsial - ijtimoiy strukturasi o‘rganish muxim ahamiyat kasb etadi.

Yoshlarni bunday ijtimoiy holatini faolligini demografik nuqtai – nazardan o‘rganish mavzuning dolzarbligini oshiradi.

**Muammoning o‘rganilganlik darajasi.** Aholini 16 dan 29 yoshgacha bo‘lgan guruxini tashkil etgan yoshlarni muammolarini hal etish mamlakatimiz rahbari Sh. M. Mirziyoevning asarlari va nutqlarida bildirilayotgan ilmiy nazariy va amaliy fikr mulohazalarida o‘z ifodasini topib kelmoqda. O‘zbekistonda yosh guruhlarda tug‘ilish jarayonlarini o‘rgangan olimalaridan biri Bo‘rieva M.Ryosh guruxlarning demografik jarayonlarini o‘rgangan. O‘tgan davr mobaynida mamlakatimizda yoshlarni tahlil qilgan qator ilmiy maqolalar yaratildiki, bu yoshlar muammosi sabablarini, uni hal qilish yo‘llarini ko‘rsatishga ma‘lum

darajada xissa bo'lib qo'shildi. Olimlar va tadqiqotchilar tomonidan yoshlarga oid davlat siyosatini tahlili va ularni muammosini ijtimoiy falsafiy, pedagogik va psixologik holatlarini o'rganishga juda ko'plab ishlar amalga oshirilganligini alohida e'tirof etish lozim.

Aholini 16 -29 yoshgacha bo'lgan guruxini tashkil etgan yoshlar demografik nuqtai-nazardan etarlicha o'rganilmagan. Ularni demografik jarayonlaridagi ishtirokini, munosabatini tahlil etish, Respublikani demografik rivojlanishi, istiqbolini aniqlab ilmiy asoslashda ahamiyatlidir.

Tug'ilish bu - biologik jarayon, u insonlarning reproduktiv mayli, ya'ni farzand ko'rishga bo'lgan munosabati bilan bog'liqdir. Reproaktiv mayl-esa inson yashayotgan ijtimoiy iqtisodiy muhit ta'sirida o'zgarib boradi. Insoniyat o'z tarixiy taraqqiyoti davomida bir nechta ijtimoiyi- iqtisodiy bosqichlarni bosib o'tgan va bu tug'ilish darajasi jamiyat taraqqiyotining hamma bosqichlarida ham bir xil bo'lmagan. Tug'ilishning yosh guruhlari bo'yicha koeffitsiyenti - har 1000 ta ma'lum yosh guruhidagi (15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49) ayollarga nisbatan tug'ilgan bolalar sonidir, biz aynan shu guruhlarda yoshlar guruhiga mansub bo'lgan aholi qatlami ya'ni 16-29 yoshgacha mansub bolgan ayollarning viloyatda aholi takror barpo bo'lishiga qo'shgan hissasini ko'rib chiqamiz.

O'rganilgan ma'lumotlarga ko'ra, Respublikada 2022-yilning yanvar-iyun oylarida tug'ilgan chaqaloqlar onasining yoshi bo'yicha 37,9 % chaqaloqlarni onasining yoshi -25 yoshgacha, 61,1 % ining onasi esa, 25-39 yoshlarga bu esa o'z navbatida 1,0 % chaqaloqlarning onasi 40 yosh va undan katta yoshdagilardan iborat bo'lgan.

Yuqoridagi ma'lumotdan ko'rinib turibdiki, Respublikada tug'ilgan bolalarning asosiy qismi nisbatan yosh ayollarga to'g'ri keladi. Bu holat so'nggi-yillarda yanada barqarorlashdi.

Yoshlarning demografik faoliyatidan biri - tug'ilish hisoblanib, unga ta'sir etuvchi omillarni quyidagicha ta'riflash mumkin:

- Mamlakatning ijtimoiy-iqtisodiy rivojlanganligi, aholi turmush darajasi. Agar mamlakatda iqtisodiyot rivojlangan bo'lsa, texnika va texnologiya taraqqiy etadi, aholi turmush darajasi ko'tarilgan sari aholining farzand ko'rishga bo'lgan munosabati ham o'zgarib boradi, ya'ni aholining savodxonligi, texnika texnologiya, fan qirallari ochilgan sari tug'ilish kamayib boradi.

- Ayollarda ijtimoiy ishlab chiqarishda bandligi. Ayollar ijtimoiy ishlab chiqarishda qanchalik ko'p band bo'lsa, tug'ilish shuncha kamayadi. Aksincha, ayollar bandligi past darajada bo'lsa, tug'ilish shuncha yuqori bo'ladi. Ayollarning ishlab chiqarishda bandligi farzand ko'rish oraliq davriga ta'sir etuvchi asosiy omillardandir. farzand ko'rish oraliq davrining uzayishi ayol sog'ligini tiklashda muhim ahamiyat kasb etadi. Chunki, farzand tug'ilganidan so'ng uni parvarishlash va voyaga etkazish ayolga juda katta ma'suliyat yuklaydi. Shuning uchun ham ayolning jamiyatda tutgan o'rni yuqorida aytilgan fikrlarni yanada yaqqol isbotlaydi.

- Mamlakatning urbanizatsiya darajasi. Urbanizatsiya aholi tarkibida shahar aholisi tarmog'ining oshishidir. Shahar va qishloq aholisining turmush tarzi o'ziga xos xususiyatlarga ega. Shahar aholisi qishloq aholisiga qaraganda kam farzandli bo'ladi, buning asosiy sababi shundaki. Qishloqda azaldan bolalar mehnatidan foydalanib kelingan, shuningdek, qishloq aholisining turmush tarzi ham ko'p bolalilikni taqozo etadi.

- Milliy ma'naviy qadriyatlar, dinning ta'siri. Milliy madaniy qadriyatlar ham tug'ilish jarayoniga ta'sir etuvchi asosiy omillardan hisoblanadi. Masalan: islom dini aholining ko'p farzandli bo'lishiga undaydi. Er yuzida yana turli dinlar borki, ular ham aholining ko'payishini e'tirof etadi. Shuningdek. Erta turmush qurish ko'p farzandli bo'lishga ta'sir etadi.

- Aholining milliy tarkibi. Aholining ko'payishiga ta'sir etuvchi asosiy omilardandir. Ayrim millatlarning mentaleti ko'p farzandli bo'lishiga, ayrimlarniki esa, kam farzandli bo'lishiga xosligini kuzatish mumkin. Masalan: o'zbek, tojik millat vakillari O'rta Osiyodagi ko'p farzandlilikni maq'ullaydigan millatlardan biri hisoblanadi. Evropa va rus millatiga mansublar esa, kamfarzandlilikni o'zlariga ma'qul deb biladilar.

Aholi tarkibidagi yoshlar ya'ni (16-19, 20-29) salmog'ining yuqoriligi tug'ilish kabi demografik jarayonlarga ijobiy ta'sir ko'rsatadi. Ayni paytda tug'ilish yuqori bo'lgan hududlarda yoshlarni salmog'i ham yuqori bo'ladi. Aksincha, tug'ilish darajasi past bo'lgan hollarda aholi tarkibida qariyalarning salmog'i yuqori bo'ladi. Demografik nuqtai nazardan yondashganda aholining bugungi yosh tarkibi kechagi aholi takror barpo bo'lishining natijasi va kelajakdagi demografik rivojlanishining asosi bo'lib hizmat qiladi.

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## OPTOELECTRONIC HUMIDITY MEASUREMENT METHOD

*Abstract. In the article, the optoelectronic method for measuring humidity is based on a mutual change in the flow of infrared (IR) radiation incident on the analyzed wet material and after interaction with it.*

*Keywords: humidity, optoelectronic, infrared light, transparent, full return.*

### Introduction

The optoelectronic method of moisture measurement is based on the interaction of infrared (IR) radiation flux in the states falling on and after interacting with the wet material being analyzed.

The main role in this is played by the absorption of IR-radiation of certain wavelengths in moisture, that is, in the IR-spectra of water. Water has a number of absorption spectra at a wavelength of 0.8-6.1  $\mu\text{m}$ , and these spectra are selectable (0.94; 1.91 and h.k.).

### Materials and methods:

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

In optoelectronic moisture meters, precipitation diodes (iodine) are selected for these wavelengths. The absorption and return of light propagated from iodine in moisture by interacting with the material is recorded in radiation receivers (NQQ).

In this case, the passage of IR radiation through two different environments obeys the Buger-Lamberg-Ber law, that is

$$\Phi_{\lambda} = \Phi_{0\lambda e} - \left[ \sum_{i=1}^n (\varepsilon_i(\nu) C_i + \alpha_p) d \right] \quad (1)$$

where:  $F_{\lambda}$  is the flow of light passing through a medium in the direction of a given wave length  $\lambda$ ;  $F_{0\lambda}$  is the flow of light falling from a wavelength to an environment in the direction of a given wave length  $\lambda$ ;  $\varepsilon_i(\nu)$  is the coefficient of attention to absorption in the  $i$  – component of a wave length  $\lambda$ ;  $\alpha_r$  is the concentration of a component in percent  $\lambda$  (%);  $d$ -medium thickness.

If  $F_{0\lambda}$ ;  $\alpha_r$ ;  $d$ ;  $\varepsilon_i(\nu)$  (permanent) that are beneficially,  $F_\lambda$  (through radiation monoxromatik)  $S_i$ , we can find that the wet environment.

Fot In this case it will be possible to selectively measure and base wavelengths according to the basic scheme of the optoelectronic moisture meter (figure 9,7), that is, the flow of radiations  $F_{0\lambda}$  va  $F_{0\lambda 2}$ . With these currents, it will be possible to irradiate the material, record the flow of returning or passing light using NQQ, convert them to photoelectric silnal, process the photoelectric signal, and determine the percentage of moisture proportional to the signal quantity.

Photoelectric signal processing is carried out as follows. The signal coming out of the nqq is transmitted to the amplifier and a signal of the desired amplitude is obtained. These signals are mathematically processed as measurement and base signals.

If the environment being analyzed is the same for both (beam and beam) currents  $\sum_{i=1}^n (\varepsilon_i(\nu) C_i + \alpha_p) K_1$ , then we will be able to assume that for the beam, we will take that for th e beam current of the meter is both rotating and absorbing  $\sum_{i=1}^n (\varepsilon_i(\nu) C_i + \alpha_p) K_1 + K_2$ .

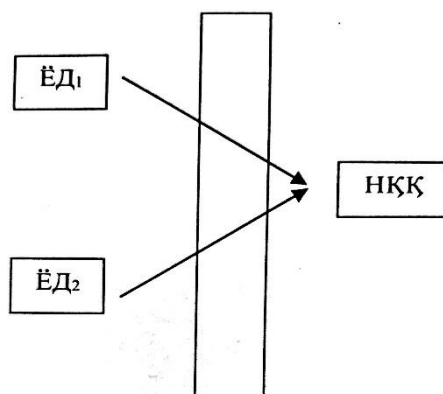


Figure 1. Scheme for determining moisture in an optoelectronic way: BFD ( $\ddot{E}D_1$ ) – base fat diode ( $\lambda=0,7$  mkm), MFD ( $\ddot{E}D_2$ ) – measurement fat diode (0,94 mkm), KE (M)– controlled environmen, RR (HKK) – radiation receivers

### Results and discussion:

Then when the controlled medium  $F_{0\lambda}$  is illuminated at the arc - base and  $F_{0\lambda 2}$  is illuminated at 2 – measure wavelengths, the currents of light passing through the medium are as follows:

$$\Phi_{\lambda 1} = \Phi_{0\lambda 1} \cdot e^{-kd}; \Phi_{\lambda 2} = \Phi_{0\lambda 2} \cdot e^{-(k_1+k_2)d}. \quad (2)$$

If we equalize the initial light currents ( $\Phi_{0\lambda 1} = \Phi_{0\lambda 2}$ ), then (with both currents falling to one RR), where: resistor resistance  $J_{F1}$ ,  $b \cdot J_{F2}$ , connected in series with  $R_N$  – RR, B is the photoelectric current of  $J_{F1}$ ,  $b \cdot J_{F2}$  the base and shaft sewer. Photo electric current with its own light current  $J_F = U^{\gamma} F^{\alpha}$  for the fact that it is connected in the cell  $F U_1 = R_n J_{\phi 1}; U_2 = R_n J_{\phi 2}. \quad (3)$



$$J_{\phi_1} = CU^\gamma (\Phi_{0\lambda_1} e^{-kd})^\alpha;$$

$$J_{\phi_2} = CU^\gamma (\Phi_{0\lambda_1} e^{-(k_1+k_2)d})^\alpha \quad (4)$$

where: constant quotient is  $\gamma$  string and  $\gamma$  string is a non - quotient; C is a quotient.

Since only one RR is applied, if U is being supplied from the voltage, then

$$U_1 = A (\Phi_{0\lambda_1} e^{-kd})^\alpha; \quad U_2 = A \left[ \Phi_{0\lambda_1} \left( e^{-(k_1+k_2)d} \right)^\alpha \right], \quad (5)$$

where:  $A = SU^\alpha Rn$ .

The ratio of signals to obtain a signal proportional to humidity:

$$\frac{U_1}{U_2} = \frac{(\Phi_{0\lambda_1} e^{-K_1 d})^\alpha}{[(\Phi_{0\lambda_2} e^{-(K_1+K_2)d})]^\alpha} \quad (6)$$

logorifmable, i.e.  $\ln U_1 - \ln U_2 = K_2 d \alpha$ . (7)

Remembering that the resulting signal is not linear, that the base light current is also absorbed in moisture even if it is small, it is known that some inaccuracies in the measurement arise.

To eliminate these inaccuracies, i.e. increase accuracy, a full internal return distortion (FIRD) effect is applied.

This effect is based on the fact that the optical density of light propagates from a larger ( $n_1$ ) medium and the optical density shifts to a smaller, controlled ( $n_2$ ) medium. Consider the case when a Hemisphere lens is taken as a FIRD element (figure 9.8).  $\Phi_{0\lambda_1}$  light currents fall under the tip of a tube from an environment with a larger optical density to an environment with a smaller optical density.

If we take into account that the reduction of the coefficient R is exactly proportional to the absorption of light in the medium being analyzed, then the larger the absorption, the greater the distortion of the full return effect. Also, if this absorption is carried out in an environment with a certain humidity, the amount of relapse violation, which is fraught with a change in humidity, also changes.

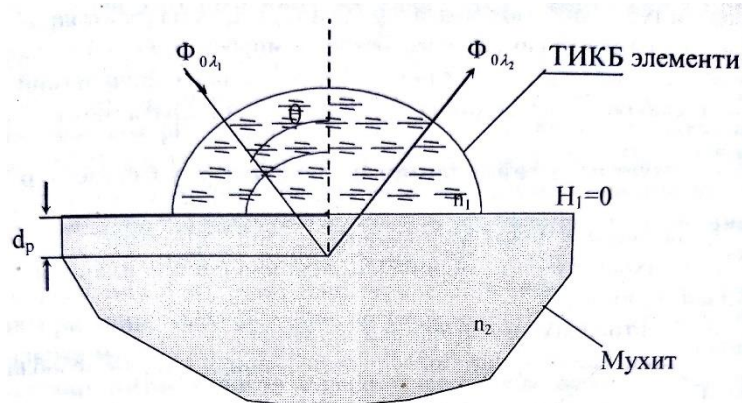


Figure 2. Scheme of application of full internal return distortion (FIRD) effect when measuring humidity optoelectronic:

If the flow of light ( $\Phi_{0\lambda 1}$ ) is penetrating into the environment being examined in some ( $d_r$ ) quantity, then the attitude in the flock is appropriate:

$$d_p \frac{\lambda_1}{2\pi(\sin^2 \theta - n_{21})^{\frac{1}{2}}} \quad (8)$$

If the angle of incidence is equal to or greater than the critical angle of  $q_k = \arcsin \frac{n_2}{n_1}$  of the input, then it is called the full internal return (FIR) effect. If the complex breaking pointer of a less dense medium consists of  $n = n_2 - i\chi_2$  of the moment 2, then absorption is observed in the medium, and the full internal return is broken.

Where the return coefficient is

$$R = \frac{J_\lambda}{J_{0\lambda}} \quad (9)$$

will be smaller than one unit.

### **Conclusion:**

This method is widely used and developed in the enterprises of our country, including various liquid substances (oil, petroleum products, cottonseed oil, etc.) by scientists from the Fergana Polytechnic Institute.k.) and materials (cement, concrete, reinforced concrete, wood products, cotton, gauze, sawdust, etc.k.) as well as scientific research in the direction of systematic automatic measurement of soil moisture in La'lmi, cultivated fields, the tradition of creating express Measuring Instruments continues.

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## **GAMIFICATION IN EDUCATION: A NEW APPROACH TO LEARNING**

*Abstract. Gamification in education, the application of game-design elements in learning environments, aims to enhance student motivation and engagement. By incorporating points, levels, badges, and interactive challenges, this approach makes learning more enjoyable and immersive. Gamification addresses diverse learning styles and promotes active participation. However, it also faces challenges such as the potential for reduced educational quality and inequity in access to technological resources.*

*Keywords Gamification, Education, Student Engagement, Interactive Learning, Motivation, Digital Learning Tools, Game-Design Elements, Active Learning, Educational Technology, Learning Outcomes.*

Gamification in education refers to the use of game-design elements in non-game contexts to enhance teaching and learning processes. This innovative approach aims to motivate students by making learning activities more engaging and interactive. It borrows concepts from video games, such as points, levels, and rewards, to create an immersive learning experience. Gamification has gained popularity in educational settings due to its potential to increase student engagement and motivation.

**Principles of Gamification in Education** The core principles of gamification include points, badges, leaderboards, and storytelling. These elements create a game-like environment that motivates and engages students. Understanding how these principles align with educational objectives is key to successful implementation.

**Psychological Aspects of Gamification** Gamification taps into psychological factors such as motivation, reward systems, and competition. Examining the impact of these factors on student behavior and learning outcomes is crucial. The role of intrinsic and extrinsic motivation in gamified learning environments is particularly important.

**Technology and Tools for Gamified Learning** Various digital platforms and tools support gamification in education. These include educational apps, online platforms, and interactive software that integrate game-design elements into learning activities. The effectiveness of these technologies in enhancing the learning experience is a significant area of study.

**Challenges and Limitations** While gamification has many benefits, it also faces challenges such as the risk of oversimplifying educational content and creating competitive environments that may not suit all learners. Addressing these

challenges requires careful design and implementation of gamified learning experiences.

**Case Studies and Empirical Evidence** Case studies from schools and universities illustrate the application and outcomes of gamification in different educational contexts. Empirical research provides insights into the effectiveness of gamification in improving student engagement, motivation, and academic performance.

Gamification in education offers a novel approach to learning by making it more engaging and interactive. It leverages game-design elements to motivate students and cater to various learning styles. Despite challenges such as the potential for educational oversimplification and unequal access to technology, gamification has shown promise in enhancing learning experiences and outcomes. It represents a significant shift in educational paradigms, aligning learning processes with the interests and behaviors of the digital generation.

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## **KINDNESS IS A SPRING OF PRAGMATIC, NOBLE HEURISTIC KNOWLEDGE OF SOCIO-ECONOMIC PHENOMENA IN THE WORLD AND MODERNITY**

*Abstract. The article highlights important aspects of human kindness. Kindness has always been considered one of the most valuable qualities. Only a strong-minded person can do good deeds without expecting to receive anything in return. For him, kindness is a natural quality inherent in his nature. Those who only try to look kind, as a rule, are not fully so. Anyone can become kinder, but for this you will have to work hard on developing spirituality and positive thinking.*

*Key words: kindness, person, personality, society, ethnos disinterestedness, benevolence.*

### **Introduction**

Everyone understands the meaning of the word "kindness". But even an educated person is likely to get confused if you ask him to formulate in comprehensive words what kindness is. Therefore, today we will talk in detail about what it is, how it manifests itself and by what signs it can be determined, as well as find out how to become kinder [1].

Kindness is a positive quality expressed in a benevolent attitude towards people and all living beings in general. An important feature of this quality is that such an attitude is selfless, based on sincere feelings, and not on the desire to benefit or demonstrate oneself from the best side. Simply put, kindness is when you do good for the sake of good, without having any other motives at all.

Kindness can manifest itself in such forms as: caring for someone; attentive attitude; the ability to sincerely sympathize; selfless help on their own initiative; benevolence towards all living beings; mercy.

Kindness has always been considered one of the most valuable qualities. Only a strong-minded person can do good deeds without expecting to receive anything in return. For him, kindness is a natural quality inherent in his nature. Those who only try to look kind, as a rule, are not fully so. However, this does not mean that kindness cannot be developed. Anyone can become kinder, but this will require a lot of work on the development of spirituality and positive thinking [3].

**Materials and methods.** This includes empirical methods such as: scientific fact, modeling, observation, experiment; as well as methods of



theoretical knowledge such as: analysis, synthesis, abstraction, induction, deduction, hypothesis, formalization, historical method, logistic method, scientific foresight. The research materials are: scientific facts, the results of previous surveys, experiments and tests; means of abstracting, idealizing, rationalizing and materializing scientific imagination.

The first thing we encounter from birth is maternal kindness. We remember this feeling and throughout our lives we need to experience the kindness of loved ones and show it to those who are nearby, in the community with us. But circumstances do not always allow for kind and sincere relationships, even between close people, communities and ethnic groups. Therefore, the attitude towards kindness changes over time, and not everyone, it is not always possible to keep this grateful quality in themselves.

A kind person can be recognized by such signs as: attentiveness and responsiveness towards all people; politeness and good manners; tolerance; selflessness; lack of tendency to negative emotions; calm attitude to constructive criticism of one's own address; ability to listen to any interlocutor; lack of bias and a tendency to divide people into "friends" and "strangers" or "good" and "bad"; the ability to defend one's beliefs even in the face of danger; independence from other people's opinions.

The range of human kindness is limitless, and examples can be given endlessly. Let's consider some of the most obvious manifestations such as: volunteering and charity; assistance to seriously ill people; assistance to refugees affected by unfair wars, the hardships of drought and famine; assistance to stray and homeless animals; care for the environment; kindness in communication; help to neighbors if in need [3].

### **Results and discussion:**

Anyone has the ability to bring both good and evil into this world. The problem is that good requires investment of effort, time and other resources, and evil often becomes a side effect of actions aimed at obtaining benefits. Being kind is most hindered by such character and personality traits as: selfishness; arrogance [7]; envy; greed; malice; resentment; inferiority complexes [6]; moral degradation; personality cult; racism; Nazism and chauvinism [2].

Kindness implies selfless care for other people. An egoist is usually "fixated" on himself, so it does not even occur to him that he can do something good for someone else. Thus, sincere kindness is peculiar only to those who have managed to cope with all these negative qualities and feelings. A person who actively works on himself and gets rid of flaws, simultaneously cultivates kindness in himself [4].

A truly kind act is considered to be one in which a person does not expect any benefit. In reality, he always gets something in return. Here are a few lines about the positive effect of kindness on the moral state of a person: a kind act brings a sense of joy; goodness multiplies exponentially; goodness always returns; kind people live longer; kind people remain beautiful in old age; kind people are

not lonely and attracts other people around them, and mostly the same kind [5]; kind people are more successful.

Benevolence helps to find mutual understanding with anyone. While an angry or envious person spends his strength fighting those whom he considers competitors, a kind and sincere person finds new partners and builds trusting relationships with them.

In order to do good deeds, no effort is needed. If kindness is inherent in a person, it manifests itself. Real goodness is not aimed at receiving gratitude, creating appearances, or atoning for guilt. Therefore, it is important to pay attention to your own actions, trying to understand how others perceive them [6].

Another important principle says: "All great things begin with small things." Simply put, big things start with small actions. If you do not have enough resources to organize a charitable foundation or build a shelter for homeless animals, this is not a reason to give up. Every day, each of us has many reasons and opportunities to perform small acts of kindness [6].

### **Conclusion:**

Remarkable in this regard are the arguments of the famous ancient Chinese philosopher Confucius (551-479 BC), who taught: "When you go deeper and explore the principles and principles of actions, then judgments about good and evil (moral knowledge) reach the last stage of perfection. And when judgments about good and evil (moral knowledge) reach the highest degree of perfection, then desires will become pure and sincere. And when desires are pure and sincere, the heart becomes both truthful and direct. And when the heart is truthful and direct, then a person corrects himself, becomes better. And when a person corrects himself and becomes better, then order is established in the family. And when the family is in order, then the nations are well governed. And when nations are well governed, then the whole world will live in peace and beautiful harmony" [8].

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## **THE EFFECT OF "FLOW STATE" OR "FLOW OVERSHOOT" IN INTUITIVE AND HEURISTIC STRATEGIES OF COGNITION**

*Abstract. The article is devoted to explaining the "flow state". The state of flow is a special state of the psyche characterized by absolute concentration on current and creative activities, accompanied by the absence of extraneous thoughts and complete "disconnection" from external distractions. An important feature of the flow state is that a person stops thinking about anything other than the activity itself. He is so focused on the process that he does not even think about the goal and the result. Therefore, after working for some time in a state of flow, he often wonders how much he managed to do, and does not understand when it happened.*

*Key words: heuristics, intuitionism, flow, experience, distractions.*

### **Introduction**

Anyone can remember situations in their life when they were able to work with amazing productivity. At such moments, a person is completely focused on work, and the world around him does not distract him at all, as if it ceases to exist for a while. Psychologists call this phenomenon the flow state [1].

The flow state is a special state of the psyche characterized by absolute concentration on current and creative activities, accompanied by the absence of extraneous thoughts and complete "disconnection" from external distractions. Being in this state, a person ceases to notice the passage of time. In addition, he does not have to make efforts to carry out his activities [2].

An important feature of the flow state is that a person stops thinking about anything other than the activity itself. He is so focused on the process that he does not even think about the goal and the result. Therefore, after working for some time in a state of flow, he often wonders how much he managed to do, and does not understand when it happened.

Instead of the term "flow state", the word "flow" or the phrase "flow experience" can be used to denote this concept. In English, the expressions "in the flow" (in the flow) and "in the zone" (in the zone) are used.

The author of the term and the founder of this concept is considered to be the Hungarian-American psychologist Mihai Csikszentmihalyi (author of the book "Flow: the psychology of optimal experience"). He came to the conclusion that people have been familiar with the flow state for many millennia, and in some cultures (especially in the East) it has always been given great importance [5].

## **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

It is worth noting that he did not come up with such an inspiring name himself. The volunteers who participated in the experiments often used the word flow ("flow" in English) to describe their condition. They said that they were being picked up and carried by a current that completely controlled the direction of their thoughts and movements, and they could only relax and succumb to this flow [3].

To better understand what the flow state is and how it manifests itself, let's look at some illustrative examples:

- The game. This is the most obvious example, because in any game a person enjoys the process itself and does not think much about the goal.
- Creativity. It is believed that it is representatives of creative professions who most often face the state of flow. While working on another masterpiece, a poet, artist or musician can disconnect from the outside world for many hours, not thinking about anything and not noticing anything around him [4].
- Dance. This is a special art form. On the one hand, the dance requires the performer to be in a state of flow, and on the other hand, it helps him to enter this state.

This applies to all dances: singles, doubles, and groups. Naturally, you can give examples of the flow state for any type of activity. And it does not always imply that a person is passionate about the process or enjoys it. Often the reason can be a strong concentration or a very big responsibility. For example, a traumatologist, conducting a complex operation, also stays in a streaming state, focusing as much as possible on his work and disconnecting from all external stimuli.

## **Results and discussion:**

The state of flow is also called "flow experience" for a reason, because the feelings and emotions experienced at the same time are quite difficult to describe. A person feels united with the part of the world that participates in his activities.

The flow state can occur in any activity, regardless of its nature, goals and objectives. It can accompany routine cleaning, working on a complex project, playing sports, participating in competitions or performing on stage.

Another important feature of the flow state is that a person completely disconnects from all extraneous experiences. These experiences are simply incompatible with the flow state, so it is more difficult for people to enter this state.

Mihai Csikszentmihalyi named three factors that contribute to the emergence of a flow state:

- Motivation. A person should have incentives that motivate him to complete this task as best and as quickly as possible. It should be more than just material a reward, but something that inspires him.
- Attention. A person should focus on his activities. And ideally, this should happen at the expense of natural interest, and not through volitional efforts.
- related circumstances. The high social significance of the task increases motivation, and a comfortable workplace helps you focus and work more productively.

### **Conclusion:**

The strategy and practical actions of a creative person for the acquisition and successful use of the flow state are as follows:

- high motivation. The flow state often occurs on its own when you are working on something interesting and exciting.
- focus on simple and understandable tasks. One of the main obstacles hindering the flow is a lack of understanding of how to solve the current problem. Therefore, spare no effort to set clear and solvable tasks for yourself.
- Precise planning. Your head will not be filled with unnecessary thoughts, and you will be able to focus on solving problems, and not on thinking about what and how to do next.
- Always act. The opposite of the flow state, as you might guess, is procrastination. It can be difficult to defeat it, but the first step is always simple and clear – you need to start acting.
- Protecting yourself from distractions. This advice complements the previous one. If you completely get rid of external stimuli, you can focus even on not particularly exciting work.
- to put your work in order and condition. There should also be only the chosen work in mind, i.e. the creative process.

### **Conclusions**

1. The author of the term and the founder of this concept is considered to be the Hungarian-American psychologist Mihai Csikszentmihalyi (author of the book "Flow: the psychology of optimal experience"). He came to the conclusion that people have been familiar with the flow state for many millennia, and in some cultures (especially in the East) it has always been given great importance [5].

2. It is worth noting that he did not come up with such an inspiring name himself. The volunteers who participated in the experiments often used the word flow ("flow" in English) to describe their condition. They said that they were being picked up and carried by a current that completely controlled the direction of their thoughts and movements, and they could only relax and succumb to this flow [3].

3. The state of flow is a special state of the psyche, which is characterized by absolute concentration on current and creative activities, accompanied by the



absence of extraneous thoughts and complete "disconnection" from external distractions. Being in this state, a person ceases to notice the passage of time. In addition, he does not have to make efforts to carry out his activities [2].

4. An important feature of the flow state is that a person stops thinking about anything other than the activity itself. He is so focused on the process that he does not even think about the goal and the result. Therefore, after working for some time in a state of flow, he often wonders how much he managed to do, and does not understand when it happened.

5. The flow state can significantly increase the efficiency of our creative activity, so anyone, especially an inventor, architect, designer, should be able to enter it whenever they need to work productively.

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## HEURISTIC STRATEGIES OF SELF-DIRECTED EDUCATION IN UNIVERSITIES

*Annotation. The article provides judgments about the prospects for the use of heuristic strategies in independent education and scientific and creative activities.*

*Key words: heuristics, heuristic strategies, theory of knowledge, philosophy of science, intuitionism, scientific and managerial decisions, logical approach.*

### Introduction

The ability or ability to obtain independent education using heuristic strategies and methods is determined by the psychological and intellectual indicators of each person, from the point of view of the educational institution, each teacher and student (student), this ability, in turn, is the ability to work with data sources, general analysis and introspection, their work and it is formed and it is improved in the process of monitoring the activities of colleagues.

### Materials and methods:

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Independent education of a person is:

- a necessary condition for professional activity, which is led by a person who wants to become the owner of a profession, and aimed at acquiring, consolidating and expanding knowledge;
- science, technology, technology, production, education, service, culture; in political life, etc. It consists in acquiring knowledge and skills independently, but on a systematic basis [2].

work and it is formed and improved in the process of observing the activities of colleagues.

Independent education of a person is:

- a necessary condition for professional activity, which is led by a person who wants to become the owner of a profession, and aimed at acquiring, consolidating and expanding knowledge;

• science, technology, technology, production, education, service, culture; in political life, etc. It consists in acquiring knowledge and skills independently, but on a systematic basis [2].

The main directions of independent education with the use of a heuristic strategy can be issues of a wide scale [1]: professional, in the field of knowledge (in the subject of education and study); psychological and pedagogical ((focused on relationships with students and parents); psychological (image, communication, art of influence, leadership qualities, etc.); methodological (methodological, pedagogical technologies, forms, styles and directions of study); - scientific and theoretical; legal and legal; ethical and aesthetic; - humanitarian and cultural; historical and toponomic; political and sociology; foreign languages, etc.

### **Results and discussion:**

Specific forms, sources and results of independent education of a heuristic or creative nature include [2]: familiarization with additional scientific and technical, scientific and technical, popular scientific literature in the specialty, independent finding and study of existing regulatory documents, direct acquaintance with the activities of modern industrial production, construction crowns; field study of building structures and the study of testing processes, the preparation of scientific and technical reports; obtaining information from Internet sites, viewing and studying video and audio materials through various media; reading periodicals related to the network, preparing reviews based on Internet information on the studied science, pedagogy, psychology, information and professional technologies; writing and defending scientific dissertations as an independent researcher; preparing scientific reports, articles and abstracts of articles, preparation for creative contests, scientific Olympiads and participation in them; participation in seminars, trainings, conferences, classes of colleagues; debates, advice and exchange of ideas with colleagues; mastering modern pedagogical methods during iterative learning [3]; Learning foreign languages; studying information, computer and telecommunication technologies [4], etc.

The purpose of including heuristic interpretation issues in independent learning is to create a fruitful ground for students to develop creative thinking and modeling skills [5]. At the same time, it is desirable that each problem is intended to be solved both algorithmically and heuristically. The student who solved the problem at the heuristic level is highly appreciated.

Type 1 problem. **A subject test is given and an appropriate grade scale is assigned to it (Table 1):**

**Table 1**

#### **Heuristic hierarchical test problem**

<b>№</b>	<b>The content of the task</b>	<b>The highest score for completing a task stage</b>
<b>1</b>	<b>Solve the test!</b>	<b>3</b>

2	According to the concepts of the test topic, make up 5 glossaries!	4
3	Within the topic, make a matching test of 5 items!	5

There is a type 2 problem. **The task of a case study on a specific topic is presented and the appropriate evaluation criterion is given (Table 2):**

Table 2

**Heuristic hierarchical task by case stage**

№	Task content	The highest score for completing a task stage
1	Solve the case study!	3
2	On the topic of the case study, make a glossary of 5 definitions!	4
3	Make a case study on a related topic, with an answer!	5

**There are 3 types of problem.** It is proposed to create a cluster related to a specific topic and an appropriate evaluation criterion is given (Table 3):

Table 3

**Heuristic hierarchical cluster task**

№	The content of the task	The highest score for completing a task stage
1	Create a cluster on the given topic, while observing the sequence, hierarchy of concepts!	3
2	On the topic of the cluster, make a glossary of 5 definitions!	4
3	On the topic of the case study, make a glossary of 5 definitions!	5

There are 4 types of problem. **The task is given to write an article on a specific topic and the appropriate evaluation criteria (Table 4):**

**Table 4****Heuristic hierarchical task of writing a scientific article**

<b>№</b>	<b>The content of the task</b>	<b>The highest score for completing a task stage</b>
<b>1</b>	<b>It is proposed to write an article related to a specific topic and it is given an appropriate evaluation criterion</b>	<b>3</b>
<b>2</b>	<b>Translate the article into English, write 5 glossaries on the topic!</b>	<b>4</b>
<b>3</b>	<b>After checking the article by the teacher, publish it in a local or foreign magazine!</b>	<b>5</b>

**Conclusion:**

Due to the exorbitant speed of selection and adoption of cognitive or scientific decisions, heuristic algorithms are widely used in the fields of artificial intelligence and scientific creativity. Heuristic methods are based on an intelligent search for strategies for intuitive, computer-based and automated problem solving. using several alternative approaches at the same time, for example, experimental and theoretical approaches [4].

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## **ALGORITHMIZATION OF THE SOLUTION OF THE CREATIVE PROBLEM OF SYNTHESIS OF COMPOSITE BUILDING MATERIALS USING HEURISTIC METHODS**

*Abstract. The complex problem associated with the selection of the composition and chemical synthesis of new composite building materials can be solved using heuristic strategies, the article highlights the algorithms of an effective approach to solving the problem.*

*Keywords: heuristics, chemical synthesis, method, construction, composite material, criterion, stage, prototype, alternative, analogue, solution.*

### *Introduction*

Solving the problems of composition selection and chemical synthesis of new composite building materials using heuristic methods – decision-making consists of successive stages [2]. The process of solving such problems using heuristic methods actually consists of 5 consecutive steps [4]:

1. Setting the question of chemical synthesis, defining goals and objectives [1].
2. The selection of the prototype substance and method that can be used based on the analysis of the shortcomings and defects of the prototype and the existing contradictions in its development [3].
3. Change the prototype using the selected methods and create several new technical solutions as alternatives.
4. Analysis of new technological solutions from the point of view of expediency and efficiency of use.
5. Choosing the most optimal of the alternative options as a solution to the problem of chemical synthesis, if any option does not meet the requirements, using other prototypes, repeat the laboratory synthesis processes provided in steps 2-4 until the optimal solution is created.

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.



## **Results and discussion:**

The solution to the problem, that is, the chemical technological process, can be represented as consisting of the five steps described above, but in fact the number of steps is determined by the complexity of the task [5]. Below we will explain the 8 stages of making a decision on a creative problem using an example.

At the first stage, a question is posed on a creative task. At this stage, data is collected, processed and analyzed. The main task of this stage (solved by analysts) is to timely notice signs of difficulties arising in the research process, and fix the causes, bring them to the attention of decision makers.

The second step is to diagnose the problem. The first step to solving the problem is to identify it. There are two views on the problematic situation. According to the first, the situation of unattainability of the set goals is a problem. According to the latter, untapped potential can also be considered a problem.

The third stage is the formation of constraints and criteria for decision-making. Solutions to many problems, which are the product of creative thinking, are not realized due to the lack of raw materials, technologies and machines or other resources with special properties necessary for the implementation of the decisions made at that time. In such situations, coordinating actions of constraints are necessary, which narrow down the options for making design decisions. In addition to identifying limitations, the project manager should also set standards for evaluating a options. Such standards are called criteria, and they also serve as recommendations for evaluating architectural solutions.

When designing a new substance or composite material, the following requirements and limitations serve as criteria: architectural and construction attractiveness of the substance, non-repeatability; requirements determined by the functional process taking place in the room: lighting, temperature and humidity conditions, etc.; energy saving requirements for the technical use of the building, the effective use of renewable energy sources; requirements for strength, spatial uniformity and seismic resistance of the design scheme chosen during the implementation of the project; availability of materials and raw materials; availability of technological possibilities for implementation, production performance of machines and mechanisms can meet the requirements of the project; requirements for labor protection and prevention of negative environmental impact; technical and economic requirements and restrictions [7].

If the project is devoted to restoration and reconstruction issues, additional requirements and restrictions to the above should be taken into account: preservation of the historical flavor of the building; as a result of reconstruction, do not adversely affect the strength, spatial and earthquake-resistant aspects of the building [6].

The fourth stage is the formation of a variety of alternative solutions to the problem. Usually, the chief architect carefully draws acceptable alternatives and limits the options.

The fifth stage is the evaluation of alternatives. When evaluating solutions, the manager compares the advantages and disadvantages of the options, as well as determines the possible consequences in general. To do this, the project manager needs specific information about the results of the initial evaluation of the options [8].

The sixth step is choosing an alternative. If the problem is identified correctly, the alternatives to the solution are thought out and evaluated, it is relatively easy to make a choice, that is, to make a decision. It remains for the moderator to choose an alternative option with the most positive consequences.

The seventh stage is implementation. Solving the problem does not end with choosing an alternative, but limiting the choice of a course of action does not matter much to the customer organization. To solve the problem or use the solution, first get the desired substance [8].

### **Conclusion:**

The eighth stage is feedback. Before and after making a decision on the project, conducting an examination and obtaining detailed information about what happened during the synthesis of composite material allows the project manager to make timely adjustments and prevent negative phenomena and consequences.

A team of scientific analysts and technologists can choose one of the heuristic strategies: brainstorming, a collective method of searching for original ideas, a multidimensional matrix method, a collective notebook, the Delphi method and other methods [9].

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## **DENIAL BY THE INDIVIDUAL, AS WELL AS BY SOCIETY, IS A PROTECTIVE–INHIBITORY OR DRIVING MECHANISM OF THE DIALECTIC OF COGNITION?**

*Abstract. The article highlights important aspects of the mental state of denial. Denial is one of the protective mechanisms of the human psyche, which consists in the fact that an individual refuses to recognize the existence of facts that make him suffer. He refuses to accept reality as it is, and distorts it in his perception so that it does not hurt him. An important feature of this psychological defense is that a person discards painful information even before the stage of its realization.*

*Key words: negation, defense, mechanism, dialectic, model, cognition, creativity.*

### **Introduction**

Sigmund Freud introduced this concept into psychology. As part of his research, he came to the conclusion that denial is the most primitive psychological defense that arises in the early stages of the formation of the psyche. He also argued that this protective mechanism is present in one form or another in almost all animals capable of experiencing fear and pain [1].

Denial is one of the protective mechanisms of the human psyche, which consists in the fact that an individual refuses to recognize the existence of facts that make him suffer. He refuses to accept reality as it is, and distorts it in his perception so that it does not hurt him. An important feature of this psychological defense is that a person discards painful information even before the stage of its realization [3].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Even small children resort to denial. When they are scared, they hide their heads under the covers, and because of this it seems to them that all dangers (no matter fictional or real) cease to exist. Adults are more likely to use denial to protect themselves from stress. They deny failures, additive behavior (their own

or someone else's), health problems and the need for treatment, the approach of death, the loss of a loved one and other painful knowledge.

Many more examples can be given. But it is these types of denial that are most common and manifest themselves almost identically in all people who go through them. And there is nothing abnormal about it. Denial is a natural defense mechanism of our psyche and the first stage of acceptance of the inevitable, which was created by evolution in order to help us cope with shock.

As noted above, Sigmund Freud, the founder of psychoanalysis, discovered and described this phenomenon. He became interested in denial in the early stages of his professional career. In 1895, 39-year-old Freud, together with his mentor Joseph Breuer, published the work "The Study of Hysteria", in which this phenomenon was described in sufficient detail [3].

### **Results and discussion:**

Freud came to the conclusion that denial is a way to slowly and "painlessly" take note of difficult information. That is, by denying certain thoughts, we kind of admit that we would like to displace them later. But at the same time, some restrictions imposed by repression are removed, thinking becomes more independent of the pleasure principle and primitive instincts.

Repression is one of the protective mechanisms of the psyche described by Sigmund Freud. It consists in the fact that a person displaces into the unconscious thoughts, knowledge, feelings and desires that disturb, frighten or cause him discomfort. The main difference between denial and repression is that denial occurs before awareness of the fact, and repression occurs after.

Thus, denial allows you to protect your mind from frightening information. In the future, one way or another, having learned a fact that was previously denied, a person will perceive it as news. At the same time, he can recall the repressed information even on his own, although this probability is low. If you remind him, he will perceive this information as forgotten.

The protective mechanisms of the psyche arise for a reason. In the process of evolution, they contribute to the survival of an individual and the preservation of its genes in the population [8].

The benefit of denial is the ability to protect yourself from suffering, pain and horror, feelings of helplessness and hopelessness. When a person is faced with events that can cause the listed feelings in him, denial allows him to abstract from reality, maintaining self-control and the ability to respond adequately to the situation. If this is not a pathological denial, the person in the future still realizes and comprehends what happened, accepts new circumstances [4].

The harm of denial lies in the fact that a person moves away from reality and spends a significant amount of vital energy to maintain this sometimes meaningless state. He has to create an alternative version of reality, spending a lot of resources on it. As a result, he does not have the strength to solve problems for real, and not pretend that they do not exist [6].

Denial helps to protect against harsh reality, but it does not cancel it. Therefore, it can be considered as a useful protective mechanism, but at the same time, its danger should not be underestimated. And if the state of denial has dragged on, not allowing a person to adequately assess the surrounding reality, this is a reason to consult a doctor [9].

But on the other hand, without denying the previous state of the cognitive process, there is no sense in talking about dialectics. In gnosology, the Law of Negation of Negation occupies a special place [5].

Here, in essence, the answer to the question of interest to many is formulated: why in the history of philosophy at all times on an equal footing. various opposing, sometimes completely incompatible schools, currents and directions coexist, and there is no end in sight to this diversity. It can be added that philosophical knowledge has no clearly defined boundaries, and this makes it possible to consider philosophy as a personal, subjectively experienced experience of an autonomous thinker. Unlike this or that scientific knowledge, it does not have a single system, there are no founders and successors (in the sense that scientific disciplines have it), and as a result there are many ways of philosophizing. Philosophical theories for the most part contradict and even mutually exclude each other.

Such things also occur at the intersection of general philosophy and psychology, especially in relation to the concept of "denial".

#### **Conclusion:**

In other words, pluralism of views in philosophy, even in all sciences [7] is the norm and, moreover, an absolutely necessary condition. But the road of philosophy is paved with precedents; figuratively speaking, philosophy is a "piece product", which cannot be said about science. The great German philosopher I. Kant, noting these features of philosophy, argued that it is possible to teach philosophy, but not philosophy, because it has no foundation in the form of an empirical base and is like an air castle that lives only until the next philosopher. According to another classic of German philosophy, A. Schopenhauer, "a philosopher should never forget that philosophy is an art, not a science" [2].

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## **RECOMMENDATIONS FOR OPTIMIZATION OF MATHEMATICAL AND OTHER MODELING OF BUILDING STRUCTURES, BUILDINGS AND STRUCTURES**

*Abstract. The article provides recommendations for optimizing mathematical and other modeling of seismic safety problems of building structures, buildings and structures*

*Keywords: scientific and management solutions, modeling, optimization, building structures, seismic safety, heuristic strategies.*

### **Introduction**

Currently, regression, correlation, similarity, simulation, argumentation and grouping methods of mathematical modeling are widely used [1].

Mathematical models are created as a result of theoretical and practical analysis of the object. Methods of mathematical planning of experiments allow us to build a mathematical model of the process or system under consideration in an optimal way on the scale of changes in factors affecting the output indicator.

If the values of one factor are considered as variables, and the rest are conditionally considered stationary, then it will be possible to build a one-factor mathematical model. If all factors are considered as variables, we will have a multifactorial mathematical model. Mathematical models are divided into static and dynamic mathematical models. If the factors of the model depend on the indicators, then the model is called a regression model, and the process of building such a model is called regression analysis. If both the factors of the model and the model itself are random, such a model is called a correlation model, and the process of building the model is called correlation analysis [1].

During the modeling process, practical issues are solved in the following order:

- systematic analysis of the interaction between variables of a complex object;
- structural and index identification of the object;
- qualitative (incomplete) or quantitative long-term (ambient) forecasting of processes;

Materials and methods:

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and

analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Before identifying an object, a systematic analysis of the interaction of variables is performed. This allows not only to find a set of characteristic variables, but also to divide them into output values and influencing factors.

During identification, output values are set, it is necessary to find the structure of all elements and evaluate the indicators. As a result of identification, the patterns of the inspected object are revealed. When identifying with less accurate data, it becomes possible to determine how the object interacts and solve the problem of short-term forecasting.

People can make short-term predictions using only intuition. This explains why people can predict the weather without any differential equations. Here, a heuristic, i.e. intuitive approach to decision-making is manifested [3]. But the tasks of accurate quantitative forecasting of uncertain data are solved using special self-governing modeling methods.

### **Results and discussion:**

Mathematical models can be built by comparing the results of repeated observations or processing the results of experiments. The first method is called simulation modeling, and the second method is called experimental or self-governing modeling method [1].

The method of simulation (similar) modeling is based on the theory of automatic control. Information theory-based modeling also takes into account some probabilistic effects. The approach to self-modeling is also based on information theory.

The simultaneous use of automatic control theory and information theory in the construction of a mathematical model makes it possible to increase the accuracy of the constructed model. When using the generalized method, indeterminate elements are obtained from the results of the experiment, and specific elements are specified by the author of the model. In this case, the accuracy of the model increases due to the cancellation of opposite hypotheses [1].

The stages of building dynamic models of physical processes are as follows: study and analysis of the results of observation conducted at the facility; selection of a modeling method; replacement of a continuous process with a discrete analog; evaluation and adjustment of the coefficients of the model.

The criterion for evaluating the created model is practice. The effectiveness of modeling methods is determined by how accurately they reflect the real object, their versatility, relative simplicity, the cost of experiments conducted in real conditions, and the ratio of costs (profitability) for creating a model.

In general, the process of building a mathematical model is performed according to the following algorithm:

1. The choice of the object of scientific research. It takes into account the necessity, relevance, economic efficiency, and modeling capabilities of the object in question.

2. The study of the object. At this stage, the structural design of the object, technological, physico-chemical processes are studied. The processes, which at first glance differ little, are studied sequentially.

3. Creation of a structural (calculation) scheme of the object. In this case, the object under study is conditionally divided into fundamental parts.

4. Creating a mathematical expression of individual joints. In this case, the process is written in the form of general equations, inequalities and tables corresponding to the terms, algorithms for their solution are developed.

5. Determination of indicators of joint equations. Physical, chemical properties, quality indicators, geometric dimensions, strength and stability, as well as seismic safety of a building structure are determined and measurement or calculation algorithms are written for them.

6. Compilation and analysis of the equations of the object. At this stage, the joint equations are linked to each other and algorithms for constructing an object calculation model are developed, taking into account boundary conditions, initial conditions and possible variable intervals.

7. The choice of methods to solve the problem. It takes into account the laws of the object's nature, technical and economic capabilities, set goals and objectives.

8. Evaluation of the accuracy of the model. The accuracy of the model should not be less than the accuracy required in the real object. If the condition is not met, the process of building the model is reviewed anew, starting from point 4, based on heuristic strategies of cognition [1].

In addition, it is important to have a "common sense filter" at the output – an assessment of the result by a person, a competent specialist with the skills and experience of empirical and theoretical research in a particular field [2].

By building a mathematical model of a process or system with the development of a control algorithm, they lay the foundation for automatic control and control of the object. This applies, literally, to the issues of assessing the real bearing capacity, seismic safety of building structures of buildings and structures [4].

### **Conclusion:**

With the help of a mathematical model, it is possible to control indicators that have a stronger impact and maintain them at the required level, solve issues of optimizing a process or system. The fact that a mathematical model of a process or system has not been created in management, the lack of sufficient knowledge about their dynamic properties, ignoring heuristic strategies, simply, not literacy forces you to act blindly. In this situation, the recommended heuristic strategies of the theory of knowledge and philosophy of science work well [5].

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## METHODS OF HEURISTIC STRATEGIES KNOWLEDGE

*Abstract. The article is devoted to explaining the methods of heuristics. Heuristic methods for solving non-standard problems are effective algorithms that allow you to rationalize various aspects of search activity. These methods are based on the activation of human creative activity and the development of his creative abilities based on intuitive procedures of activity, fantasy, analogies, etc.*

*Keywords: heuristics, intuitivism, method, solution.*

### Introduction

Heuristics is considered a young developing science, its basic concepts are currently insufficiently defined. This is especially true for the concept of "heuristic method" [1].

#### Materials and methods:

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies.

These methods are based on the activation of human creative activity and the development of his creative abilities based on intuitive procedures of activity, fantasy, analogies, etc. [2].

By the heuristic method, most researchers understand a way to solve a problem with a certain efficiency, but insufficient reliability. Heuristic methods for solving non-standard problems are effective algorithms that allow you to rationalize various aspects of search activity.

#### Results and discussion:

##### 1) The "brainstorming" method

The term "brainstorming" or "brainstorming" was proposed by the American scientist A. F. Osborn. When two types of people, creative and critical, come together in controversial discussions, they destroy each other. With this in mind, Osborne recommended separating the processes of generating ideas and discussing them. The first group, having received the task, is only engaged in the formation and promotion of ideas, even if the idea is in fantastic forms. The second group mobilizes to analyze the ideas presented.

##### 2) The team method of finding original ideas

The collective method of searching for original ideas is based on the following psychological and pedagogical patterns and principles: creative



cooperation in the process of solving problems, encouraging imagination and unexpected associations, supporting the birth of original ideas, relying on a democratic style.; to believe in each other's creative powers and abilities so that all participants are on an equal footing; using a suitable combination of intuition and logic [2].

### 3) The method of heuristic questions

It is advisable to use the method of heuristic questions to collect additional information in terms of sorting available data in the process of solving a problematic situation or creative task. Heuristic questions serve as an additional incentive, serve to form a new strategy and tactics for solving a creative task. It is recommended to ask and search for answers to the following seven key (heuristic) questions in order to gather enough information about any event: Who? Which one? Why? Where? With what? How? When? [3].

### 4) The method of multidimensional matrices

The main idea of the multidimensional matrix method is reflected in solving creative problems as follows. Since each innovation is a different combination of known elements (devices, processes, ideas, etc.) or a combination of the known and the unknown, the multidimensional matrix method allows you to do this purposefully and systematically, rather than by trial and error.

### 5) The method of free associations

When forming associations, unusual connections are noted between the components of the problem, and elements of the surrounding world, as well as components of the creative experience of people involved in solving the problem. In the process of the birth of new associative connections, creative ideas for solving the problem arise.

### 6) Inversion method

The inversion method is based on the laws and corresponding principles of dualism, dialectical integrity and optimal use of opposite approaches of creative thinking: analysis and synthesis, logical and intuitive, static and dynamic, internal and external aspects of the object. If the final solution is not reached, a through-grid is used, and so on.

### 7) The empathy method (personal analogy style)

The method is based on the process of empathy, the researcher identifies himself with the object and subject of observation, "lives" in the image of the invention, as if giving him his personal feelings, emotions, the ability to see, hear, think, etc.

### 8) The synectical method

At the initial stages of the synectics method, the process of learning "creative mechanisms" takes place, some of which are recommended to be developed in the learning process. The part is called "drive mechanisms". They include direct, personal, and symbolic analogies. To begin the discussion with the analysis of certain signs, which serves to clarify the essence and naturally leads to a situation of problem statement.

#### 9) The method of organized strategies

One of the main psychological obstacles in solving creative tasks is observational inertia, that is, it is difficult for a decision-maker to abandon the usual ways to which he is accustomed and find a new approach and new directions in finding the idea of a solution. Even if we have chosen the right direction (strategy), there remains a risk that we have not missed something important, perhaps an original strategy or idea.

#### 10) Delphi Method

The method involves conducting multi-stage questionnaires, in which the results of the questionnaire are presented to experts working separately from each other. Experts are given questions and undocumented forms of answers, for example, numerical values of parameters. Experts will be notified of the results of the first round of survey processing, where the position of each expert will be indicated. The expert discusses how much the estimate deviates from the average value.

#### 11) The decision tree method

The decision tree method is used in situations where the results of one decision affect future decisions. This method allows you to systematize and visualize, the problem is visualized in the form of a tree. The branches of the tree indicate elections, the further classification of branches reflects the possible results of actions, each of which is assigned a certain probability of occurrence. An important aspect of this method is that "decision trees" and "expectation trees" are considered together and interchangeably.

#### 12) The script method.

The essence of the method: the possible scenarios of the development of a problem situation analyzed by experts are recorded for a specific time, then discussed by experts, and the data is quantified using the model.

#### 13) The SWOT analysis method.

The method involves identifying the strengths and weaknesses of the internal environment (organization), as well as identifying opportunities and threats of the external environment. Analyzing the relationships between these parameters creates an opportunity for decision-making.

#### 14) The collective notebook method

Employees participating in the discussion of the problem, at the specified time, contribute ideas and suggestions for solving the problem, record them in a collective notebook and improve them. The leader chooses the best of the opinions and attitudes received and makes a decision [4].

#### 15) The personal notebook method.

Ideas for solving a problem that arise at any time are recorded in a personal notebook. The leader chooses the best ideas and makes decisions based on them.

#### **Conclusion:**

The above-mentioned methods are not exhaustive, we can name many more heuristic methods inherent in various inventors and discoverers [4], which today

provide us with opportunities for selection and decision-making [3] in conditions of uncertainty of the object of being, science and management [5].

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## **RULES FOR CALCULATING THE ECONOMIC EFFICIENCY OF RESTORATION, REINFORCEMENT AND MAJOR REPAIRS OF BUILDINGS IN SEISMICALLY ACTIVE REGIONS**

*Abstract. The article considers the calculation of the economic efficiency of measures for the restoration, reinforcement and overhaul of buildings in seismically active regions. The possibility (admissibility) of using heuristic approaches to solve each complex problem, such as a field survey, is determined by the ratio of costs for solving the problem using accurate and heuristic methods, the cost of error and statistical parameters of heuristics. In addition, it is important to have a "common sense filter" at the output – an assessment of the result by a person, a competent specialist with the skills and experience of empirical and theoretical research in a particular field.*

*Keywords: construction, building, seismic resistance, spatial rigidity, sediment, damage, reinforcement, restoration, reconstruction, design soluti.*

### **Introduction**

The assessment of the technical condition of buildings begins with an initial technical inspection. The purpose of the initial technical inspection is to determine the bearing structural system of buildings, the main geometric parameters, the seismicity of the area and the area where the building is located, as well as to verify the compliance of the main parameters of the building with the requirements of earthquake-resistant construction [1].

The assessment of the technical condition of buildings includes the processes of preliminary technical inspection and full-scale inspection of equipment. In both processes, it is necessary to pay attention to the extent to which the technical condition of the construction parts meets the requirements of the relevant standards and QMQ [2].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The list of parts of the building to be studied as part of a survey of the technical condition of the building: floor and foundation; load-bearing structures;

roof; exterior decoration of the building; interior decoration of the building; water supply networks; sewer networks; power supply network and electrical equipment; heating networks and equipment; gas supply network and equipment; surrounding space; fire safety elements.

### Results and discussion:

After studying the complex engineering and geological conditions of the construction area in kind, the next step is to analyze violations of regulatory requirements for the soil of the structure and the impact of defects on other structural parts of the building (Table 1).

The possibility (acceptability) of using heuristic approaches to solve each complex problem, such as a field survey, is determined by the ratio of the cost of solving the problem using accurate and heuristic methods, the cost of error and statistical parameters of the heuristic. In addition, it is important to have a "common sense filter" at the output – an assessment of the result by a person, a competent specialist with the skills and experience of empirical and theoretical research in a particular field [3]. Table 1

Analysis of damage from engineering and geological conditions in buildings and structures

The name of the damage to the structural part of the building	Degree of damage, details	What geological, geodynamic and hydrogeological process or event and climatic conditions caused the damage?	Recommended methods, constructive, technological and organizational measures to strengthen the soil of the structure, ensure its priority and increase seismic resistance

### Conclusion:

As a result of the calculation based on Table 2, given as an example, it was determined that the total damage index of the building [4] is 35.6 %:

$$P = \sum K_i * P_i / 100 = 3560 / 100 = 35,6\% (1)$$

It is recommended to determine the generalized financial value of the costs of strengthening, restoration and repair of structural damage based on the indicators of general wear of the building using the following formula:

$$C_1 = C * P * N_i (2)$$

where:  $C_1$  is the value of the generalized costs of strengthening, restoring and repairing damage to building structures;  $C$  is the financial assessment of the building based on cadastral documents;  $P$  is the total damage index of the building;  $N$  is the indexation coefficient for the transition from the last determined cadastral value of the building to the price of the current year.

If necessary, it is recommended to use the following formula to find the amount of generalized costs for strengthening, restoring and repairing damage to any part or structural element in a building:

$$C_{1i} = C * K_i * P_i * N_i / 100 (3)$$

where:  $C_{1i}$  is the value of the generalized costs of strengthening, restoring and repairing damage to the  $i$ -th structural part;  $C$  is the financial assessment of the building based on cadastral documents;  $K_i$  is the share of the  $i$ -th structural part of the building;  $P_i$  is the level of damage to the structure;  $N_i$  is the indexation coefficient of the cadastral value of the building to the price of the current year [2].

Table 2

**Generalized indicators of destruction of structural elements of a building**

№	Structural elements and parts of the building	The share of structures in the cost of the building: $K_i$ , %	The level of damage determined as a result of the technical assessment of the structure: $P_i$ , %	The percentage of destruction (the product of indicators in the 3rd and 4th columns): $K_i * P_i$ , %
1	2	3	4	5
1	Foundations	7	20	140
2	Building frame and load-bearing walls	36	20	720
3	Partitions	6	20	120
4	Covering and overlaps	12	20	240
5	Roofs	3	40	120
6	Floors	6	60	360
7	Doors and windows	4	60	240
8	Interior decoration Внутренняя отделка	5	60	300
9	Exterior decoration	3	60	180
10	Engineering equipment	12	80	960
11	Other elements	6	30	180
	Total:	100	-	3560

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## **A SOCIABLE AND CONSTRUCTIVE ACADEMIC TEACHER – FORMING THE BACKBONE OF A CREATIVE TEAM WITH A HEURISTIC STYLE**

*Abstract. Science develops in communicating environments of human society, the article highlights important aspects of overcoming communication barriers, the role of a sociable scientist in the formation of a creative team and a society with a heuristic style of thinking.*

*Keywords: communicative barrier, evaluation, overestimated, understated, correction, overcoming.*

### **Introduction**

The term "sociability" is derived from the Latin word *communicabilis*, which translates as "communicating" or "connected". As it is easy to guess, it is closely related to the term "communication" (Latin *communicatio*). Initially, science developed in the communicating environments of human society [1].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Sociability is the ability to quickly establish contact with other people, find approaches to communication and negotiate productively. It is useful both in personal relationships and in scientific ones. A sociable person is able to interact constructively with all people, regardless of their profession, education, age, gender, social status and other factors, as well as the degree of their acquaintance with them.

Sociable people enjoy communication and other forms of interaction with others. They like to spend time in the company, play team games, and take part in teamwork. As a rule, such people have developed empathy, so they feel the mood of the interlocutor well and adjust to it. In addition, they are usually very charismatic, which makes them easy to gain the trust of others.

Another feature of sociable people is their "flexibility". They do not get lost and quickly adapt to any interlocutor, accepting and adopting his manner of communication, adapting to his knowledge and perception of the world around

them. Such a person often finds himself in the center of attention, and in his team he usually becomes a leader.

### **Results and discussion:**

It is worth noting that sociability is not an innate quality, but a skill acquired in the process of socialization. Of course, it strongly depends on temperament and character. And yet, most of the components of communication skills are acquired, developed and improved throughout life. We are constantly learning to listen and speak, receive and transmit non-verbal signals, manage our emotions and understand the emotions of the interlocutor [2].

Very often, sociability means ordinary sociability, but these are different concepts and they should not be identified. A sociable person is not necessarily sociable. In other words, the fact that he likes to talk does not guarantee that he is able to establish contact or feel the emotions of the interlocutor. For example, an annoying fellow traveler on a train, whose mouth does not close all the way, can be called sociable, but not sociable in any way [3].

A sociable person is someone who is really pleasant to communicate with. He is educated and tactful, always speaks competently, taking care that the interlocutor understands him and understands him unambiguously. He knows how to make a good impression and always takes care not to alienate the interlocutor with his obsession or annoyance. Besides, he always knows when to stop talking and start listening.

Sociability is the ability to effectively convey information, listen and hear the interlocutor, and ensure high quality communication and interaction. Sociability is simply a love of communication and a tendency to look for an opportunity to communicate in any circumstances. Sociability, unlike sociability, can be a really effective tool for achieving success in all spheres of life, including in scientific activity [2].

The sociability of a person includes such features and skills as:

- open-mindedness and the absence of "hardened" beliefs that complicate mutual understanding with other people;

- tolerance to other people's subjective opinion, whatever it may be;
- a broad outlook that allows you to talk on any topic;
- charisma that evokes sympathy from others;
- flexibility of character, allowing you to adapt to the interlocutor;
- sincerity and openness in communication;
- adequate self-assessment;
- calmness and self-confidence.

The main advantages of sociable people [1]:

- attentiveness and kindness in communication;
- ability to keep up a conversation on any topic;
- the ability to listen and understand the interlocutor;
- ease of communication;
- no awkward pauses and ridiculous attempts to fill them;

- the ability to please anyone;
- the ability to articulate your thoughts clearly and clearly.

A sociable teacher should have important components of constructive criticism at the level of art, in relation to himself and others. Criticism is an analysis of someone's activity or its result, indicating strengths and weaknesses, mistakes and successful decisions. In fact, it is a review in which a critical person expresses his subjective opinion about something. In a broad sense, criticism is a combination of positive and negative assessments. In everyday life, criticism usually means negative statements, pointing out flaws and shortcomings.

There are many types of criticism that can be classified according to different properties [1]. In everyday life, such forms of it are most often found as:

- remark – a short statement indicating a specific shortcoming;
- accusation – an indication of a bad deed or mistake, attributing guilt to a person for undesirable consequences;
- discontent is the expression of one's own negative feelings related to other people's actions;
- claim – criticism, implying demands to fix or redo something;
- objection – disagreement with someone else's opinion, decision, or approach to a particular activity.

Of course, there are other options, but it is in these five formats that criticism is voiced most often.

### **Conclusion:**

Constructive criticism is a form of criticism, the main purpose of which is to help correct shortcomings and violations of norms [3]. At the same time, the criticizing person does not feel envy or anger and does not seek to offend the criticized person. Such criticism can be seen as an outside view or advice to help make something better [4]. It gives us the opportunity to correct mistakes, learn something new, develop and improve our skills. Constructive criticism, its properties are most often mentioned as:

- **Constructiveness.** By constructive criticism is meant usefulness to the one whose actions. That is, the main purpose of such criticism is to point out the shortcomings and suggest how they can be eliminated.

- **Objectivity.** Objective criticism points to real-world shortcomings that no one will dispute. If a person criticizes something that he personally does not like, such criticism is called subjective.

- **Justice.** If the deficiencies are indeed present, the remark can be considered fair and appropriate. If a person expresses personal dislike or argues because of a bad mood, such criticism is likely to be unfair [5].

- **Literacy.** In order to criticize competently, you need competence in a specific field of activity. It is worth noting that literacy is not necessary for criticism to be fair. For example, you can criticize a spoiled or tasteless dish without being a cook or even a professional taster.

- The choice of the object of criticism. It is considered bad form to criticize a person. Therefore, criticism is usually directed at actions or their result.

- Openness. Open criticism is voiced directly to the person whose actions are being criticized. The hidden one usually speaks behind the back and is directed more at the person than at the actions. The tendency to criticize other people behind their backs is considered one of the main signs of a hypocrite.

- Specificity. Criticism can be directed at specific shortcomings, or it can be general. Obviously, in the second case, it is much less constructive and does not represent much value [6].

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**RESULTS OF INVESTIGATION OF TECHNICAL CONDITION,  
EARTHQUAKE RESISTANCE AND DESIGN SOLUTIONS FOR  
RESTORATION, RECONSTRUCTION OF THE MADRASAI WORLD  
BUILDING IN THE CITY OF KAKAND**

*Annotation. The article discusses the results of a full-scale technical survey and the proposed methods of restoration and reconstruction measures to ensure the durability of the "Madrasai Mir" building in the city of Kokand.*

*Keywords: construction, building, seismic resistance, spatial rigidity, settlement, reconstruction, design solution.*

**Introduction**

The Madrasai Mir Memorial was built in 1799 under the historical name "Norbutabek madrasasi" and is a historical and architectural monument of the Republic of Uzbekistan. Restoration and reconstruction of the facility requires a special approach, while an important role is played by the study and understanding of engineering solutions of the national architecture of the Kakand Khanate in the XVIII century [1].

**Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

A field survey is a set of measures that allow for a general objective assessment of the technical condition of structures, buildings and structures. As a result of the survey, a conclusion is given on the suitability of structures and operation or on the need for repairs, measures are being developed to strengthen the structure.

Surveys of buildings and structures are carried out in two stages. At the first stage, a preliminary inspection of the facility is carried out, design and technological documentation is studied, then a detailed inspection is carried out, real operating conditions are identified, cracks, defects and structural damage are recorded [3].

At the second stage, detailed surveys of the technical condition of structures are carried out in order to obtain additional information about the actual boundary conditions, about the features of deformation of the structure, about stresses in it.

Reconstruction and capital repairs of existing buildings and structures involves, first of all, conducting a survey of their technical condition, determining their suitability for further operation. According to the provisions of the current regulations, the results and conclusions of the technical survey serve as the basis for the development of projects.

### **Results and discussion:**

Space-planning features of the building. The building consists of four portal compartments, which frame the courtyards of the mosque on four sides. Overall dimensions of the main – Northern portals: length 49.4 m, width 24.5 m; Southern portals: length 50.7 m, width 8.9 m; Eastern portals: length 49.4 m, width 9.0 m; Western portals: length 49.4 m, width 9.0 m. The building is one-storey, has three domes, two are in the main portal, One is located in the southern portal of the building, and unfinished minarets are located at the four corners of the building. The hujras, located at the intersection of mutually perpendicular parts of the memorial complex, are divided diagonally into two triangular rooms using separate adjacent walls, that is, a kind of sedimentary and seismic seam is arranged. Do you wonder if there were standards for antiseismic construction 220 years ago?! Or the Madrasai Mir Memorial is another vivid example of intuitive, historical memory, a couple, heuristic wisdom of folk architecture [4].

The main portal in the madrasah is traditional, with a pointed niche divided into two tiers. In the first tier, in the recess, there is an entrance pointed arch with a wooden door, above which, in the corners of a rectangular niche, a mosaic has a floral ornament. In the second tier there is a balcony gallery. Arched niches with imitation grilles are made in the upper part of the portal. Arched and rectangular niches alternate in the sides of the portal. At the corners of the portal there are traditional guldasts with decorative lanterns and corrugated domes. The trunk of the guldasta is made of brick masonry in a "herringbone pattern", diagonally. In the corners of the madrasah, the domes of the reading room (darshana) rise, standing on a low platform of a quadrangle turning into an octagon. The drum is divided into lancet window openings with a panjara.

The foundation of the building. Based on the excavated pit and the lithological section of the soil of the base of the building located closer, the capacities and other mechanical parameters of the soil layers were determined. 1-formation – a bulk layer with a thickness of 0.4 m, consists of sandy loam, sand, gravel containing construction debris; 2-formation – a bearing layer of the base, where the foundation bodies are deposited, sandy loam from brown to dark gray light, water-saturated, from plastic to current consistency, with interlayers of 282 loam, with inclusion carbonate nodules up to 20%, with an average capacity of 4 meters; 3-formation – gravel-galichnik deposits with sandstone filler, water-



saturated, consist of sedimentary and igneous rocks. The groundwater level is 3.6 m.

The foundations of the building. The foundations under the walls are ribbon, built on two layers, the bottom layer is on a ground–clay solution of rubble not hewn stones, the thickness of the layer is 300 mm, the overhang (console) from the wall on the upper part is 320 mm; the top layer is a five-row brickwork on ganch mortar, the thickness of the brick is 60-65 mm, the thickness of the solution is 25-30 mm, the total height of the masonry is 400 mm, the overhang (console) from the wall on the top is 650 mm. The general shape of the foundation on the cross section is wedge–shaped, in the form of a truncated triangular pyramid, the smaller base is directed downward. It should be noted that the vertical cross-section of the foundations has the most stable shape, it never overturns during earthquakes. Seismic vibrations contribute to the additional immersion of the foundation body into the ground, the soles never come off the ground, the foundation and foundations adapt to each other, the compatibility of taking special loads does not increase.

It seems that the time has come to reconsider the foundations of foundation construction in terms of ensuring the seismic stability of buildings and structures in special engineering and geological conditions of construction sites. The calculated bearing capacity of the base soil (sandy loam) according to KMK - 2.02.01-98 and the results of engineering and geological surveys  $R_0 = 630$  kPa. When calculating the deformations of the base using the calculation schemes specified in clause 2.40KMK -2.02.01-98, the average pressure under the sole of the foundation  $p$  should not exceed the calculated resistance of the base soil.. In parts of the building, the pressure values under the soles of the foundations of the building range from 3-20 kPa to 550 kPa. However, there are local damages in some sections of the strip foundations. But in general, the continuity and consistency of neighboring parts in a suitable state are preserved.

Field studies [3] and experience in the operation of historical buildings have also established that lime and clay solutions are characterized by flexibility, which is often accompanied by displacement, without subjecting stress to individual boulders and bricks, which make up the foundation structure [5].

The walls of the building. The walls are built of burnt "Muslim brick", square in shape with sides of 240-260 mm.on ganch mortar, the brick thickness is 55-72 mm, the mortar is 20-30 mm. The volume weight (average density) of the brick is  $-1.45$  g / cm<sup>3</sup>, the compressive strength is 8.6 MPa, this corresponds to the strength of a modern brick of the M75 brand, the compressive strength of the ganch mortar is 3.0-6.5 MPa, corresponds to the strength of the M50 grade mortar. To determine the mechanical strength of bricks and ganch mortar, cubes were cut from natural samples, for a solution with 283 faces of 10 mm, for bricks with faces equal to the thickness of ground natural bricks. Compression tests were carried out using a P50 press. The thickness of the main load-bearing walls is on average

1100 mm (four bricks). The height of the framing exterior walls of the sides is 4900 mm, the height of the walls of the exterior facade is 6200 mm.

#### **Conclusion:**

1. A field survey is a set of measures that allow for a general objective assessment of the technical condition of structures, buildings and structures. As a result of the survey, a conclusion is given on the suitability of structures and operation or on the need for repairs, measures are being developed to strengthen the structure.

2. Surveys of buildings and structures are carried out in two stages. At the first stage, a preliminary inspection of the facility is carried out, design and technological documentation is studied, then a detailed inspection is carried out, real operating conditions are identified, cracks, defects and structural damage are recorded [3].

3. At the second stage, detailed surveys of the technical condition of structures are carried out in order to obtain additional information about the actual boundary conditions, about the features of deformation of the structure, about stresses in it.

4. Reconstruction and capital repairs of existing buildings and structures involves, first of all, conducting a survey of their technical condition, determining their suitability for further operation. According to the provisions of the current regulations, the results and conclusions of the technical survey serve as the basis for the development of projects.

5. The general shape of the foundation of the Madrasai Mir building in the cross section is wedge-shaped, in the form of a truncated triangular pyramid, the smaller base is directed downward.

6. It seems that the time has come to reconsider the foundations of foundation building, taking into account historical innovations, folk creative heritage in architecture [4].

7. Research and experience in the operation of historical buildings have also established that lime and clay mortars are characterized by flexibility, which is often accompanied by displacement, without straining individual boulders and bricks that make up the foundation structure [2].

8. The hujras, located at the intersection of mutually perpendicular parts of the memorial complex building, are divided diagonally into two triangular rooms using separate adjacent walls, that is, a kind of sedimentary and seismic seam is arranged.

9. Does he not realize that there were standards for antiseismic construction 220 years ago?! Or the Madrasai Mir Memorial is another vivid example of intuitive, historical memory, a couple, heuristic wisdom of folk architecture! [4].

10. Restoration and reconstruction, according to the recommendations, will serve to ensure the normal operation and durability of the building for the next centuries. At the same time, to provide for joint regular supervision of research and design institutions [6].

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## **STRENGTHENING THE REINFORCED CONCRETE FLOOR OF A MULTISTORY FRAME BUILDING CONSTRUCTED IN A REGION OF HIGH SEISMICITY**

*Annotation. The article is devoted to the results of a full-scale instrumental examination and strengthening of a monolithic continuous reinforced concrete floor of a building being built in a region of high seismicity*

*Key words: building, crack, deflection, redistribution of effort, seismic resistance.*

### **Introduction**

The constructive solution of a monolithic reinforced concrete floor When designing a monolithic reinforced concrete floor, the requirements of CMC 2.03.01-96 "Concrete and reinforced concrete structures" were met. The floor structure is an example of a cross-beam system.

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach

An uncut monolithic reinforced concrete slab with a thickness of 200 mm rests along the contour on longitudinal and transverse reinforced concrete frames. The calculated span of the crossbars is equal to 7350 and 8400 mm, the height of the crossbars is equal to 700 and 800 mm, meets the requirements of norms and practices of designing monolithic housing construction. The current regulations propose to design the height of the crossbars within 1/10 – 1/12 of the calculated span. This condition is met in the project. The width of the cross-section of the main crossbars is assumed to be 700 and 600 mm, which is more than 1/2 of the cross-section height. Some parts of the reinforced concrete monolithic floor were subjected to premature formation and opening of cracks during the construction process. The damaged floor slabs are located in the basement, at around -0.30 m. All floor elements (crossbars, floor slab, including columns) are built with monolithic concrete of class B50 and reinforced with class AIII reinforcement. The slab part of the floor is reinforced with double reinforcement, in the upper part in two mutually perpendicular directions with class A-III fittings with a

diameter of 10 mm, in increments of 250 mm, in the lower part in two mutually perpendicular directions with class A-III fittings with a diameter of 12 mm, in increments of 200 mm. The concrete protective layer of reinforcement in slabs of monolithic floors is assumed to be equal to 25 mm, in columns it is assumed to be equal to 40 mm, in crossbars it is assumed to be equal to 30 mm. At the joints, the anchoring length of the working reinforcing rods in monolithic slabs is assumed to be 500 mm. Instrumental assessment of the formation and opening of cracks in the damaged part of the monolithic reinforced concrete floor Instrumental examination of the formation and opening of cracks in the damaged part of the monolithic reinforced concrete floor made it possible to assess their technical condition. Excessive cracks reaching up to 0.5 mm have formed in parts of the floor slab (Fig. 1).



Fig.1. A fragment of the damaged part of a monolithic slab of reinforced concrete beam floor.

### **Results and discussion:**

Such crack opening sizes violate the conditions that limit the permeability of structures and the safety of fittings in structures.

If the required temperature and humidity regime of concrete hardening is not observed, uneven shrinkage of concrete manifests itself, which leads to the formation and disclosure of unforeseen cracks and deflections in reinforced concrete structures. In this case, these processes also took place.

### **Conclusion:**

1. The spatial planning and structural solutions of the building, its structural parts meet the requirements [9], the strength of reinforced concrete slabs, crossbars and floor columns are instrumentally tested, corresponds to the design class - B50, despite this, excessive deflections and crack opening were observed on the reinforced concrete floor, even during the construction of the facility. This

forced the use of an extraordinary creative, heuristic approach to solving the problem [5]. In addition, the building is being built on a region of 9-point seismicity [6]. In this situation, we had to resort to the method of marginal equilibrium [7]. The computational model and algorithms for evaluating statically indeterminate structures were formed based on the use of empirical and theoretical strategies [8].

2. During the full-scale examination, deflections of a reinforced concrete slab of a monolithic continuous floor were measured using engineering leveling [4]. These deflections were formed before loading with operational loads. This warns against negative phenomena when the overlap is fully loaded with the following long-term and temporary payloads [1].

3. Analysis of the distribution and direction of cracks in the slabs showed that the cause of premature formation and opening of cracks in the slab part of the monolithic beam floor was shrinkage – its own volumetric shortening of concrete [2].

4. In the limiting state of reinforced concrete structures of sufficient length, a complete redistribution of efforts occurs, bearing capacity resources are fully realized, pre-stresses, shrinkage stresses are removed or relaxed, structures with cracks work as structures without cracks [3];

5. As a reinforcement structure, it is recommended to reinforce and increase by 50 mm the upper part of the reinforced concrete floor with heavy concrete of a class not lower than B50, to reinforce with reinforcement of a diameter of 10 mm, class A-III, the pitch of the rods in two directions should be equal to 150 mm. The protective layer of the reinforcement should be taken equal to 15 mm [3].

6. In the construction process, they usually resort to accelerating the turnover of the formwork and at the same time violate the regulatory technical regulations. This happened at the construction site in question.

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## **PRIORITIES OF METROLOGY, STANDARDIZATION AND QUALITY MANAGEMENT IN MANUFACTURING INDUSTRIES**

*Abstract. The life of society in our time is unthinkable without measurements, technical regulation and product quality control. The level of development of industrial sectors, science, technology and everyday life requires special attention to the work on metrology, standardization and certification as the main directions of state policy.*

*Keywords: measurements, technical regulation, product quality control, Metrology, standardization, network, demand, system.*

### **Introduction**

Measurements are one of the most important means of human perception of nature. Nowadays, it is impossible to imagine the life of society without measurements, technical regulation and product quality control. The level of development of industrial sectors, science, technology and everyday life requires special attention as the main directions of state policy in the field of metrology, standardization and certification, and the leadership of our country, in turn, believes that timely resolution of these issues at a high level will play an important role in raising the culture of production in the country, improving the welfare of the population ensuring peace and stability in the country. a worthy place in the community as an important factor in the assessment [1,2].

In Uzbekistan, after gaining state independence, legal and regulatory frameworks were created to ensure the quality and competitiveness of products in the country and on the world market. During the period from the Republic of Uzbekistan, which publishes "On Standardization", "On Metrology" (in a new edition, April 7, 2020, No. 614), "on certification of products and services" (1993), "on food quality safety" (1997), "on consumer protection"(1996), "Kuril Norms and Rules " and a number of government resolutions on these areas. The State System of Standardization (uzst), the state system for ensuring the uniformity of measurements (uzst), the national certification system (UZST), classification and coding systems for technical, economic and social goods (Uzst), the Tashkent System of Product Creation and Production (uzst), the accredited system (Uzst) and quality systems (uzst). CT) and other systems. Many standards and other regulatory documents have been developed for each of these systems [1].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The President of our Country, Sh.M. Mirziyoyev, about "the sustainable development of metrology, standardization and certification systems in the activities of management, constant monitoring to ensure that Uzbekistan also occupies a worthy place among the leading countries of the world in these areas", makes all relevant and vital decisions. At the initiative of the President of the Republic of Uzbekistan, with the issuance of "Metrology for Görizid" (new edition, April 7, 2020, No. 614), kununi gabul kilindi, President of the Republic of Uzbekistan, with the issuance of "technical regulation, standardization, certification of Washington Metrology systems further development of the measure - "On measures for standardization, metrology and certification"2018 No. VP-4059 dated December 12, 2018, No. 348 dated April 24, 2019 of the Cabinet of Ministers of the Republic of Uzbekistan, On measures to further improve creative activity" [1].

In order to radically accelerate the process of our country's entry into the world trade system in Uzbekistan, the President of the Republic of Uzbekistan 2021 June 2 Decree No. PF-624 "on cardinal improvement of public administration in the field of technical regulation", about the President of the Republic of Uzbekistan for 2021, June 2, Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 5133 "On measures to organize the activities of the Agency for Regulation in the field of Uzbek textile production under the Ministry of Investment and Foreign Trade of the Republic of Uzbekistan" marks the beginning of the rapid development of the metrology, standardization and certification industry in our country. On the basis of the Uzbek Agency for Metrology, Standardization and Certification, in accordance with the instructions of the President of the country, the Uzbek Agency for Technical Regulation was established under the Ministry of Investment and Foreign Trade of the Republic of Uzbekistan as a successor to the creation of hukuki [1].

### **Results and discussion:**

In the current conditions of a market economy, among the urgent tasks facing the Agency for Technical Regulation are scientific achievements, new technologies, collage of processes, bringing product quality to the level of halkaro standards, ensuring competitiveness and export coordination. Solving the problems of metrology, standardization, quality control and quality management requires the application of existing state and industry standards and other regulatory documents in accordance with Halkaro standards. The need to address these issues, in turn, is directly related to Uzbekistan's plans to join the global trade network [3,4,5,6].

The problem of ensuring and improving quality in agriculture is one of the urgent and complex problems. An important place in solving this problem is occupied by standardization (along with technical standardization), improvement of the state of metrological measuring equipment, introduction of modern tools and services for testing, measurement and quality control.

The level of measuring, testing and control-measuring devices and texter systems used in all branches of agriculture has largely determined the level of development of the industry.

The creation and development of modern textile workers and textual specialists to ensure the development of agronomic sciences requires further improvement of work in the field of measurement of textile workers, metrological services, standardization, certification, snfat management in ethylmok [3].

Einich, at the time of the global tarakchio, the development of science, industry, construction and agriculture could not be imagined without measurements. Every second, multimillion measurements are carried out on the dune. On their basis, the proper quality and technical level of products are ensured, uninterrupted and trouble-free operation of transport is ensured, as well as medical diagnoses are made, an assessment of the environmental situation is carried out and other important issues are resolved. No sphere of human activity or where the results of measurements, tests and controls cannot be effectively used [1,4,5,6,7,8,9]. Ethylmoke mobilizes multimillion-dollar fractions and group components that are used to increase efficiency. Currently, 15 percent of Caribbean community labor is spent on measurements. In developed countries, between 3% and 6% of GDP is spent on measurements and related goals.

The magnitude of the measured values of the va and the range are constantly expanding. Currently, for example, length is measured from 10-10 m to 1017 m, temperature from 0.5 k to 106 k, electrical resistance from 10-6 m to 1017 m, power from 10-15 m to 109 m. As the Range of measured values expands, the complexity of measurements also increases. Measurement is simply a primary technical action associated with a complex process related to the preparation and reading of a measurement experiment, processing, analysis and reflection of the data obtained [1].

### **Conclusion:**

One of the reasons why deaths are so important is their importance. The tasks of management, analysis, forecasting, planning, control and coordination are based on reliable source data, while data is generated by measuring the necessary physical quantities, parameters and indicators. Naturally, the decision made in the control group depends on the degree to which the accuracy and reliability of the measurement results.

Today's engineers, scientists and agronomists should serve the effective use of modern technologies and equipment, the introduction of automatic process control, and the acceleration of production of high-quality products that are competitive on the world market. First of all, I think this is useful information for

entering the education system, including for nano- and biotechnology, learning English. [10,11,13].

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**HIGHLY EFFICIENT, RESOURCE-SAVING TECHNOLOGY FOR THE  
HIGHLY EFFICIENT, RESOURCE-SAVING TECHNOLOGY FOR THE  
RESTORATION OF STRUCTURES OF COMBINED ROOFING OF  
LARGE-SPAN BUILDINGS OF ELECTRICAL ENGINEERING**

*Abstract. The article highlights the results of a field survey and extraordinary engineering solutions for the reconstruction of the rolled roof of an electrical engineering building in disrepair. A field survey is a set of measures that allow for a general objective assessment of the technical condition of structures, buildings and structures. As a result of the survey, a conclusion is given on the suitability of the structure and operation or on the need for repairs, measures are being developed to strengthen the structure.*

*Keywords: industrial building, rolled roof, emergency condition, survey, full-scale, restoration, efficiency, calculation model, heuristic approach, technology, deformation seam.*

**Introduction**

At the request of the administration of an industrial enterprise for the production of electrical products, a survey of the technical condition, verification calculations of the seismic resistance of building structures of the facility were carried out [1] and a technology for restoration and measures to ensure the durability of building coating structures was developed [4].

A field survey is a set of measures that allow for a general objective assessment of the technical condition of structures, buildings and structures. As a result of the survey, a conclusion is given on the suitability of structures and operation or on the need for repairs, measures are being developed to strengthen the structure.

Surveys of buildings and structures are carried out in two stages. At the first stage, a preliminary inspection of the facility is carried out, design and technological documentation is studied, then a detailed inspection is carried out, real operating conditions are identified, cracks, defects and structural damage are recorded.

At the second stage, a detailed examination of the technical condition of the structures is carried out in order to obtain additional information about the actual boundary conditions, about the features of deformation of the structure, about stresses in it.

**Materials and methods:**



This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Reconstruction and capital repairs of existing buildings and structures involves, first of all, conducting a survey of their technical condition, determining their suitability for further operation. According to the provisions of the current regulations, the results and conclusions of the technical survey serve as the basis for the development of projects.

Due to the diversification of production, the existing production building has been reconstructed since 1977, the current building is one-story, rectangular in plan and consists of six spans, widths of 24 and 18 m, the longitudinal pitch of the columns is 12 m. Antiseismic and shrinkage seams have been installed in the longitudinal and transverse directions of the building. The overall dimensions of the roof of the building are 157\*145 meters, with a total area of 22765 square meters (2.28 hectares). The roof of the production building is rolled. The structure of the roof structures includes: a rolled waterproofing carpet made of foil, an asphalt base, a glass wool insulation.



**Fig.1. Fragments of the technically emergency condition of the enclosing layer of the roof**

A full-scale examination of the roof, carried out by inspection and sampling [1], showed that there are defects and damage of an emergency nature. There is an uneven surface throughout the roof area, caused by soaking of the screed and insulation material, There are excessively open through cracks reaching up to 30-35 mm (Fig.1).. Through cracks in the waterproofing layers occupy within 21-23% of the total roof area, norms allow the production of restoration work with physical wear of structures up to 60 percent [10].

## **Results and discussion:**

The technical inspection of the building before reconstruction assumed obtaining the most complete data on the actual: the state of seismic resistance and bearing capacity of the building elements, taking into account their changes over time [5]. The results of the survey serve as the starting material for the design of the reconstruction of the building [4].

The survey of the seismic resistance of the coating structures and the building as a whole includes [1]: a) inspection of coatings, identification of cracks, measurement of the width of their opening; b) determination of deflections of the coating plates; c) determination of the strength of the concrete of the coating plates; d) determination of the location of the reinforcement and the thickness of the protective layer of the coating plates; e) full-scale inspection of the coating farms, identification of cracks, measurement of the width of their opening; f) determination of the deflections of the trusses; g) determination of the strength of the concrete of the trusses; h) determination of the location of the reinforcement and the thickness of the protective layer [8]. i) to make a verification calculation of the seismic resistance of the building frame based on real, natural strength and deformation characteristics of materials [9].

The autopsy naturally established that during the reconstruction, the features of the newly introduced roof structures in the harsh continental climatic conditions of the region were not taken into account [2]. The primary project provides monolithic expanded clay concrete with a thickness of 100 mm as a roof insulation. This would serve as a rigid base for the asphalt concrete screed, keep it from uneven deformation during temperature elongation-shortening, distributing possible cracks, and protect the screed and rolled carpet layers from tearing. During the last reconstruction of the roof, expanded clay concrete with glass wool was replaced.

This led to a change in the design model of the supporting structure of the carpet [7], as a beam on an elastic base with uneven stiffness, which worsened the structural work of the roof, since mineral (glass) wool does not have uniform stiffness, which means it does not protect the upper layers of the roof from uneven deformation, and will not be able to distribute possible cracks along the entire area. The accumulation of deformations along the length of the roof led to the rupture of the screed and rolled carpet layer up to 30-35 mm, at each 14-15 meters in length.

## **Conclusions**

1. Reconstruction and capital repairs of existing buildings and structures involves, first of all, conducting a survey of their technical condition, determining their suitability for further operation. According to the provisions of the current regulations, the results and conclusions of the technical survey serve as the basis for the development of projects.

2. The autopsy naturally established that during the reconstruction, the features of the newly introduced roof structures in the harsh continental climatic conditions of the region were not taken into account [2].

3. The primary project provides monolithic expanded clay concrete with a thickness of 100 mm as a roof insulation. This would serve as a rigid base for the asphalt concrete screed, keep it from uneven deformation during temperature elongation-shortening, distributing possible cracks, and protect the screed and rolled carpet layers from tearing.

4. During the last reconstruction of the roof, expanded clay concrete with glass wool was replaced. This led to a change in the design model of the supporting structure of the carpet [7], as a beam on an elastic base with uneven stiffness, which worsened the structural work of the roof, since mineral (glass) wool does not have uniform stiffness, which means it does not protect the upper layers of the roof from uneven deformation, and will not be able to distribute possible cracks along the entire area. The accumulation of deformations along the length of the roof led to the rupture of the screed and rolled carpet layer up to 30-35 mm, at each 14-15 meters in length

5. To eliminate damage of an emergency nature in roof structures, extraordinary, heuristic engineering solutions for roof restoration are recommended, which leads to a radical change in the design scheme and design model [7].

6. It is necessary to arrange deformation seams (10-12 mm wide) along the lines of through cracks (approximately on each 14-15 m length of the roof) [3];

7. Arrange additional deformation seams (10-12 mm wide) in the middle between emergency through cracks (approximately on each 7-8 m length, parallel to the direction of the roofing carpet) [6];

8. Seal the expansion joints with a soft hermetic material or bitumen, lay the usual layers of waterproofing carpet on top of the seams;

9. In areas of the roof with cracks at an oblique angle, after sealing the screed with cracks, lay rolled waterproofing materials, preferably from foil insulation. On the roof restoration project, to provide and implement in the process of reconstruction the release of the edge of the rolled material at least 200 mm from the crack face.

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## THE NEED FOR HEALTHY EGOISM IN THE HISTORICAL AND SOCIAL ENVIRONMENT

*Abstract. The article highlights the need for healthy selfishness in the historical and social environment. Healthy selfishness is a tool that every person needs in order to live their life exactly the way they want it, without interfering with others doing the same. Unfortunately, not everyone knows how to distinguish rational selfish behavior from irrational behavior. If a person has a sense of self-worth and is able to achieve his goals while respecting the rights and interests of others, he can be considered a rational egoist.*

*Key words: egoism, healthy, unhealthy, positive.*

### **Introduction**

Selfishness is one of those qualities that are perceived ambiguously. In some situations, selfish behavior is condemned and condemned. In others, they justify him and say that everyone has the right to be a little selfish. It is enough to determine that there are two types of selfishness: healthy and unhealthy [2].

To put it simply, selfishness is taking care of yourself even at the cost of someone else's good. At the same time, it cannot be perceived as strictly negative behavior, because everyone needs to protect their own interests. Therefore, two types of selfishness began to be considered,

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Healthy selfishness is a behavior in which a person is guided by his own interests, but not to the detriment of others. In philosophy, it is also called rational or reasonable egoism.;

Unhealthy selfishness is a behavior in which a person thinks exclusively about his interests and desires, ignoring the interests of others. As a rule, he does not even think that his actions can harm anyone, and does not notice when this happens. Thus, there is no point in arguing about whether selfishness is a negative trait or whether it simply helps to defend one's interests. It is enough to be able to distinguish when he is healthy and when he is not [1].



## **Results and discussion:**

Healthy selfishness helps to build and protect personal boundaries, protecting our psychological comfort. And there is absolutely nothing wrong with a person being able to set priorities correctly without sacrificing their interests. Moreover, a person who is able to take care of himself will be able to take care of his loved ones and other people who are nearby and need his help [3].

Those who constantly make sacrifices and sacrifice their interests for the sake of others, as a rule, cannot take care of themselves or other people.

Healthy selfishness is a tool that every person needs in order to live their life exactly the way they want it, without interfering with others doing the same. Unfortunately, not everyone knows how to distinguish rational selfish behavior from irrational behavior.

If a person has a sense of self-worth and is able to achieve his goals while respecting the rights and interests of others, he can be considered a rational egoist. Such people usually have the following features:

- the ability to refuse. Many people do not know how to say "No!", which is why they are often forced to sacrifice their own interests;

- Reasonable persistence. There is no question of stubbornness here, it's just that such a person is persistent in achieving his goal. He always knows what he needs, so it is difficult to persuade or convince him. But when it's important, he has no problem compromising.;

- Honesty and independence. A person who is characterized by healthy selfishness avoids lies and hypocrisy. After witnessing an argument between two acquaintances, he will not support the one who is closer. He always stands on the side of truth, because it is this position that allows him to maintain a clear conscience and not take on unnecessary moral burden;

- the ability to accept yourself. A healthy egoist does not try to adjust to the expectations of others. He's always the way he feels comfortable being. He prefers and provides himself exactly like this, so he does not have to strain himself in order to meet some fashion trends or social requirements;

- restrained respect for the interlocutors. Such a person never fawns over other people, trying to please them. In this regard, he is self-sufficient and does not need anyone else's approval;

- Lack of guilt. A rational egoist understands how useless guilt is. He does not give up responsibility for his mistakes;

- respect for other people's feelings. He does not like it when people "get into his soul", because he prefers to deal with his experiences on his own. And in relation to others, he adheres to the same principle.

An unhealthy egoist cannot and does not try to understand someone else's point of view. He is always confident in his own rightness and expects other people to share his subjective opinion. He is also sure that others should act solely in his interests, because he does not think about the fact that they also have their own interests and needs [3].



A person who is able to defend his interests without neglecting others' interests always commands respect from others [4]. To cultivate a healthy selfishness is worth at least for the sake of it. Also, this quality gives such advantages as:

- freedom in realizing one's desires. A person who was taught by his parents to respect his own interests and desires in childhood often does not understand what he wants and what he aspires to. Rational selfishness helps you listen to your desires, hear and understand them;

- protection from those who want to "climb on the neck". Many people allow others to use them because they are afraid of offending them. Healthy selfishness helps to protect oneself from exploiters and manipulators, who are always focused on finding a more accessible victim;

- The ability to take responsibility. The ability to be responsible for their mistakes and blunders is a skill peculiar to people who control their own lives. And rational egoists are exactly like that;

- the ability to ask for help when needed. This is another useful skill that is usually missing in people whose parents weaned them from all manifestations of selfishness in childhood;

- the ability to easily survive failures. A rational egoist often says "No!", so he doesn't really worry when he hears this word in response to his request;

- harmony in the relationship. In personal relationships, compromises and concessions are not always useful. If one of the partners turns out to be "soft-hearted" and constantly compromises his interests, there will be no harmony in such a relationship;

- positive people in the environment. People who are characterized by reasonable selfishness do not like to listen to complaints and whining, taking on someone else's negativity. Therefore, they intuitively limit their communication with those who are prone to such behavior, their environment consists exclusively of positive people.

### **Conclusion:**

Healthy selfishness is the most rational form of behavior that commands respect from others and helps a person to be successful in all spheres of life. Such individuals tend to be compassionate and do not remain indifferent when someone needs help [5]. At the same time, they never allow themselves to be exploited and involved in any undesirable activities [7]. These qualities of character and behavior are very important for creative individuals [6].

The philosophical systems of the Ancient East, in particular China, are mainly represented by concepts in which a person is considered, as a rule, in the closest, inextricable connection with society, society. The most important meaning of his life is to follow the "law of ideal relations" between people, in the family, society, and the state, and this is facilitated by a reverent attitude towards socially accepted norms, rules, ceremonial, etc. [1]. It would be ideal if a person always arranges his personal life in accordance with the public good, in particular,

he must improve himself in order to then try to improve his family, work collective, ethnicity, society, the state and the world community.

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## **INFLUENCE OF IRRATIONAL SELF-ASSESSMENT ON THE PROCESS OF INTIUTIVE AND HEURISTIC KNOWLEDGE**

*Abstract. The article highlights the need for rational self-assessment for a creative person.*

*Key words: overestimated, underestimated self-esteem, adjustments, consequences.*

### **Introduction**

One of the main obstacles to personal success is considered to be low self-esteem. However, overestimated self-esteem can cause even more harm, preventing a person from adequately evaluating himself and his capabilities, as well as having a destructive effect on his relationships with other people [1].

Overestimated self-esteem is an unjustified overestimation by an individual of his knowledge, talents, abilities, achievements, social status and other advantages, accompanied by a complete unwillingness to admit his shortcomings.

Overestimated self-esteem is equally common in both women and men, but it can manifest itself in different ways for different sexes.

Because people with high self-esteem consider themselves special, they usually behave too self-confident and arrogant. And when they don't like what others are saying or doing, they may even start behaving aggressively to stop the behavior they don't like.

Such people are also characterized by excessive self-confidence. They are confident that they can handle any task better than anyone else [2].

A characteristic feature of overestimated self-esteem is that it manifests itself in a much more diverse way than underestimated. Everything strongly depends on the specific situation and the person, but most often there are such manifestations as: complete confidence in one's rightness, even if the opposite point of view is well and logically reasoned; emotional (often aggressive) reaction to constructive criticism; unwillingness to recognize the validity of someone else's opinion; frequent use of the pronoun "I"; the desire to keep the last word in any dispute or conflict (even if the statement turns out to be inappropriate); confidence in the wrongness of someone else's point of view, which persists even if necessary to agree with the fairness of individual statements; shifting one's guilt to others and circumstances; inability to apologize; attempts to prove one's case in a dispute

through denial of the opponent's competence (usually in a derogatory tone); the desire to be perfect and always do everything right the first time; the tendency to defiantly teach others about life (emphasizing that the "trainee" allegedly does not understand basic things); a painful reaction to their mistakes and mistakes when they are too obvious and there is no way to shift the blame to someone or justify themselves by circumstances; fear of appearing weak, defenseless, not knowing something, not controlling the situation or unsure of himself; showing arrogance in any communication; a tendency to interrupt the interlocutor.

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

It is worth recognizing that overestimated self-esteem is often useful. In particular, it gives a person such advantages as: determination and perseverance; self-confidence and self-reliance; the ability to ignore criticism; the ability to inspire confidence; rapid career growth; increased attractiveness to the opposite sex.

And yet there is more harm than good. People who tend to overestimate themselves usually face such problems as: underestimating the real complexity of tasks; lack of interest in self-improvement; deadlines and other failures due to incorrect assessment of their strengths; frequent careless statements insulting other people; arrogance and egocentrism; inability to adequately perceive criticism; painful reaction to serious failures.

One of the main problems of people with unreasonably high self-esteem is an inadequate perception of reality [3]. In other words, they themselves do not understand that they often look stupid, whereas they themselves think that others admire them.

### **Results and discussion:**

The idea of oneself and one's abilities is formed in a person as they grow up, although it can change significantly in adulthood. If we talk specifically about overestimated self-esteem, then such factors as academic and life success have the greatest influence on its formation and consolidation [4]. This allows people to consider themselves special and forms an inadequate self-perception in them, which persists into adulthood; attractiveness. People who are lucky with their appearance usually believe that attractiveness makes them special; having talents. Very often, such people think that they are talented in everything and in any profession they will be able to surpass experienced professionals quite quickly; prosperity, security. People who have managed to get a well-paid job are often confident in their talent and exclusivity.

If there is such a person among your friends, you probably know that it is not easy to communicate with him constructively and conflict-free without following the following rules: do not make excuses. If you start looking for excuses, instead of just rejecting all the accusations, consider that you have already lost the argument; do not succumb to manipulation. As a rule, people with high self-esteem are skillful manipulators. They know how to present a situation in such a way as to present themselves in a favorable light, appropriating someone else's merits or shifting their blame to someone else; do not praise or criticize him. If you praise him, he will demand praise from you next time. And he takes criticism painfully, and if you don't want to confront him, you don't need to criticize him either. You should communicate with such a person as neutrally as possible; do not argue with him. A person with high self-esteem will never let you win an argument. He will defend his case, even when all the facts will indicate that he is wrong. And the weaker his arguments are, the more aggressive he will behave; do not share personal information with him. Such people like to brag that they are supposedly strongly trusted by all their friends. It is better not to say anything superfluous to such a person, even at those moments when it seems to you that you can trust him; do not try to reform him. Overestimated self-esteem is a problem that a person must realize for himself. There is no point in putting pressure on him and trying to fix him; don't demand a different attitude from him. It also makes no sense to explain to him that he should restrain his ego in communicating with you. If you want to continue communicating with this person, just accept him for who he is.

#### **Conclusion:**

Anyone who realizes that he has problems with an adequate perception of himself should try to fix it. If overestimated self-esteem is not corrected in time [6], it will last for a long time, leads to the degradation of a person as a creative person [5] and can lead to disastrous consequences [7].

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## **ISOLATION IN THE PERSONALITY IS A SERIOUS OBSTACLE TO THE DEVELOPMENT OF CREATIVITY AND HEURISTIC STYLE OF COGNITION**

*Abstract. The article highlights important aspects of closure. Isolation is a permanent personality quality or a temporary condition, expressed in a decrease in communicative activity and conscious restriction of contacts with other people. A closed person usually avoids large companies and does not like to be the center of attention, because he is focused on his inner world. He prefers to immerse himself in his own thoughts and experiences, being in solitude and knowing for sure that no one will bother him.*

*Keywords: isolation, protection, mechanism, dialectic, model, cognition, creativity.*

### **Introduction**

Every well-read person remembers the expression "Man is a social being" [2]. Its meaning lies in the fact that we all constantly interact with other people: relatives, friends, acquaintances and strangers [1]. It's easy for some people. They are always happy to communicate and easily make new acquaintances. For others, it is difficult to make contact and get closer to people. They avoid noisy companies and prefer to spend time in a very narrow circle of the closest people or even alone [3].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

This behavior, contrary to the social nature of man, is due to such a quality as isolation. This quality is quite common and, of course, creates significant difficulties in a person's life.

Isolation is a permanent personality quality or a temporary condition, expressed in a decrease in communicative activity and conscious restriction of contacts with other people. A closed person usually avoids large companies and does not like to be the center of attention, because he is focused on his inner world.

He prefers to immerse himself in his own thoughts and experiences, being in solitude and knowing for sure that no one will bother him.

The main synonyms of the concept of "closeness" are: unsociability; unsociability; lack of communication; closeness; secrecy; lack of contact [3].

It is difficult for a closed person to start communicating with strangers, make new acquaintances and get closer to people. He feels uncomfortable in large companies, it is difficult for him to develop and maintain social ties.

Naturally, this affects all areas of life. In particular, introverted children almost always have problems with their studies. Of course, they could achieve success through diligence, but when faced with incomprehensible moments, they are in no hurry to ask questions to the teacher, so they begin to lag behind. And an adult, being withdrawn, constantly misses opportunities, because he often does not dare to "knock on the door" in the literal and figurative sense of the expression.

### **Results and discussion:**

It happens that a person is tired or thinking about something of his own, and they decide about him that he is withdrawn. And it also happens that an introverted person is required to be excessively sociable, simply not noticing that he is not predisposed to it. There are several signs that allow you to avoid these mistakes and accurately identify a closed person:

- lack of communication. Such a person keeps silent as much as possible, and when addressed, tries to answer as concisely as possible, avoiding entering into a dialogue. He also almost never starts communicating first.;

- lack of initiative. Introverted people avoid taking the initiative not only in communication, but in general in all matters. In order not to attract too much attention to themselves, they prefer to be behind other people's backs;

- characteristic poses. Such people constantly adopt so-called "protective" poses, shutting themselves off as much as possible and closing themselves off from the outside world. They tilt their heads, cross their arms over their chests and hold a briefcase or bag in front of them. At the same time, they try to take a place in the corner so that no one "gets close" to them from behind or from the side;

- nervousness. Being in a noisy place, a closed person feels uncomfortable and cannot hide it. He wants to get out of there as soon as possible, so he is constantly nervous, looks at his watch and does not hide his displeasure when someone addresses him.

Both external and internal factors can transform a person into a closed person, of which the most significant are: lack of communication skills; shortcomings that interfere with communication; negative experience; low self-esteem; upbringing; influence of temperament.

Isolation is often a consequence of how the parents raised the child. They could severely restrict his communication with other children and strangers in general. In addition, the reason may be the parents' detachment, their emotional coldness towards the child. For example, if he drew a drawing and showed them,

but did not hear the praise, he would later be reluctant to show the results of his efforts;

Closeness is often associated or even identified with shyness, but there is not much in common between these qualities. Yes, they can be related and mutually conditioned. And yet these are different concepts. To understand the difference between them, let's compare their features.

Isolation is a voluntary isolation of a person from society, reflecting his orientation towards his inner world. He does not like being in the center of attention, being in a big company and communicating with unfamiliar people. He does not feel such a strong need for constant communication and social interaction as the owners of an extroverted personality type. And it's not about fear or timidity at all [8].

Shyness is a personality trait that implies indecision, fearfulness and stiffness in communication. A shy person restricts his social contacts not because he does not need them, but because he is afraid of appearing intrusive or being rejected. He needs communication, intimacy and love just like all other people, but his timidity hinders him [4].

It should be noted that shyness may well cause isolation. If a person often gets into awkward situations because of it, it can gradually make him uncommunicative and unsociable. Under the influence of negative emotions, he may decide for himself that he simply does not like to communicate and be in large companies [5]

### **Conclusion**

Isolation is considered to be a negative personality trait. She is viewed together with sullenness and unsociability, and the people to whom she is peculiar are sometimes considered sociopaths. And yet she also has positive aspects, in particular, such as: the trust of others; loyal friends; the ability to focus.

In the long-term influence, isolation negatively affects the psychoemotional state of a person [6]. In particular, it can cause depression. Taking into account this and all other internal limitations [7] that some creative personalities have to put up with, it is necessary to get rid of these character traits [8].

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## **HOW DOES THE RESEARCHER'S EGO AFFECT THE PROCESS OF NATURAL AND HISTORICAL AND SOCIAL KNOWLEDGE?**

*Abstract. The article highlights the problems of choosing a creative team related to ego. The ego is a part of the human psyche, which is felt by him as "I", allows a person to perceive himself as a person, understand his interests and desires, set himself before himself. The ego is the moral axis of the human psyche, which is felt by him as "I", allows a person to perceive himself as a person, understand his interests and desires, set goals for himself and plan actions to achieve them*

*Key words: ego, self-esteem, self-determination, goal, interests, ability, creativity.*

### **Introduction**

It is important to mention that any personality is characterized by conscious volitional activity, which is based on rational activity [1]. "The fact that a person can have an idea of his "I" infinitely elevates him above all other beings living on Earth. Because of this, he is a person," I. Kant emphasized [2]. A person also manifests himself as a person when he purposefully realizes his creative potential, creating new material and spiritual values.

Modern science identifies three important factors influencing the formation of personality: genetic inheritance, cultural environment and life circumstances. As a result of the interaction of these components, a person as a person acquires a specific set of qualities inherent in him and only to him: corresponding needs, interests, temperament, abilities, motivations, goals, morality, etc. These individual characteristics of a person, which distinguish him from other people, are formed largely under the influence of the social and cultural conditions in which he lives, which allows us to talk about the fundamental role of society in the formation and formation of personality, although it can develop both in accordance with generally accepted norms and contrary to them. And in this regard, we can talk about both positive and negative personalities [3].

The ego is a part of the human psyche, which is felt by him as "I", allows a person to perceive himself as a person, understand his interests and desires, set himself before himself. The ego is the moral axis of the human psyche, which is felt by him as "I", allows a person to perceive himself as a person, understand his interests and desires, set goals for himself and plan actions to achieve them. It allows us to separate ourselves from others, identify our interests and desires, and

distinguish our own from others. Our ego, in fact, is what allows us to consider ourselves a person, to form some kind of idea of ourselves, to distinguish ourselves from other people and to feel our uniqueness. It is about him that we speak, using the pronoun "I" [4].

#### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Ego is a concept widely used not only in psychology, but also in religion, philosophy and various spiritual practices. In classical psychoanalysis, the ego is considered as a connecting element that ensures the interaction of the other components of the personality. It allows you to balance instinctual urges and aspirations, ensuring rational and holistic behavior of the individual. It also allows us to be aware of our personal boundaries and defend them [5].

The ego provides us with a dual perception of the world in which we clearly separate ourselves from the surrounding reality, get the opportunity to understand where "I" and where "not I", where "mine" and where "not mine". It allows us to form a subjective perception of our essence. At the same time, we always perceive our "I" positively or, at least, not negatively, whereas all other "not I" can be perceived both positively and negatively (if we see them as competitors or enemies).

The ego allows us to characterize ourselves in some way, attributing to ourselves such properties as height, age, character, gender, desires, interests, and so on. Thanks to him, we perceive the whole world as if we are in its center. For us, what matters is what surrounds us directly, and what is too far away, as if it does not exist. A person interested in science can understand well how the universe works and how huge its scale is. But thanks to the ego, he still views her as if he is at her center.

In modern psychology, the concept of ego is associated with such concepts as egoism and egocentrism: egoism is an attitude to life in which an individual puts his interests above others; egocentrism is a distorted perception of the world in which an individual attaches too much importance to his own self.

These are different concepts. If the egoist puts his interests above others, then the egocentric sees himself as more important and significant than others. Both selfishness and egocentrism can be dealt with by learning to control your ego. The ego is the central element of our psyche. From the point of view of psychology, it performs a large number of different functions, among which can be distinguished such as: self-determination; socialization; protective management of the psyche; self-control; formation of judgment and worldview; goal setting.



### **Results and discussion:**

The ego constantly reminds a person how he sees himself, what he wants to be, what he aspires to, what he wants, what he dreams about [11]. Also, to one extent or another, all people are guided by others and their successes, trying to keep up. All this stimulates the goal-setting process and provides the motivation necessary to move forward [6].

The ego is a complex psychological construct in which many different elements can be distinguished. In particular, it is responsible for the internal dialogue that we have with ourselves in the process of any reflection [10]. It also includes various selfish manifestations of personality, such as: unconditional self-love; a sense of self-importance; confidence in one's own rightness; one's ideas of justice; stubbornness, misunderstanding of other people's views; striving for safety and well-being; the desire to be attractive and appreciated [7].

As you socialize and grow up, the ego develops, becoming an important element in the personality structure. That is, it contains information that a person can present in order to answer the question of who he is. In fact, it captures all the events that the individual himself perceives as related to him. At the same time, all these events pass through the prism of perception, which depends on character, temperament, life experience and other personal factors [9].

### **Conclusion:**

A healthy and well-developed ego is necessary for the full functioning of the personality. In fact, it is its central component. With a methodical approach, people allow themselves to improve their inner self from any state and harmonize their relationships with others, since they are initially aimed at this [11]. An overgrown ego usually makes a person self-contained and "deaf" to the outside world [12]. As a rule, this leads to serious problems in all spheres of life. Such a person usually gets along very poorly with others and cannot work effectively in a team [9].

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## **PLURALISM OF OPINIONS OR RESPECT FOR A WORLDVIEW THAT IS NOT ADEQUATE WITH YOU IS A POWERFUL STIMULATOR OF HEURISTIC STRATEGIES OF KNOWLEDGE**

*Abstract. The article highlights important aspects of pluralism of opinions or respect for other conclusions. Externally, respect is manifested in such behavior features as: condescending communication with people, respect for manners, a delicate tone; demonstration of interest in communication; recognition of personal dignity and social status of a person; consideration of the interlocutor's communication style; recognition of the values of another person; evoke positive emotions; trust; refrain from criticism and reproaches, even when they are appropriate; find consensus in controversial situations.*

*Key words: respect, pluralism, opinions, interests, personality, society.*

### **Introduction**

Respect is a respectful attitude towards another person, implying benevolence, tolerance, attentive attitude to his feelings and desires, recognition of his personal dignity and acceptance of him for who he is. This is an important component of social interaction, based on morality, morality and the general cultural development of the individual showing this attitude [1]. Respect for another person is manifested not only in the external features of behavior, it is reflected in the internal and social motives of the individual [2].

According to Max Fasmer's dictionary, the word "respect" is derived from the German word *waage* – scales. That is, it can be understood as "considering weight", "taking into account", "recognizing significance" [3].

Respect implies that the perception of a person with all his flaws and the recognition of his right to be imperfect. Unfortunately, many people forget about this aspect of respect when it comes to close and beloved people, try to influence them, re-educate them, and sometimes even condemn and reproach if someone's behavior does not correspond to general reasoning. In order to cultivate respect for your loved ones, colleagues and contemporaries, it is important to learn how to allow them to remain themselves, and not try to "fix".

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are:

scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Respect can manifest itself in different ways in different types of interpersonal relationships.

1. Respect for elders. This form of respect can be called a cultural universal, because all nations have traditions according to which young people should respect representatives of older generations.

2. Respect in personal relationships. Everyone has their own ideas about what friendships, partnerships, family and other interpersonal relationships should be. And yet, there are a number of universal principles that indicate the presence of respect: recognition of the right of another person to personal space; recognition of the right to a subjective opinion other than one's own; acceptance of someone else's independence and inner self-sufficiency; to see an autonomous personality in a partner; support and assistance if necessary.

3. Respect for nature. Many people treat nature irresponsibly, without thinking about the fact that it needs to be taken care of. Responsible and respectful attitude to nature includes such elements as: compliance with key environmental principles; the preferred use of renewable resources; participation in activities against environmental disasters and the cataclysm of modernity; transition to environmentally friendly, renewable energy sources.

4. Self-respect. One of the most important types of respect is self-respect. Only with its presence can a person form an adequate self-esteem and build normal relationships with others. Self-respect is manifested in the following behavioral features: a holistic worldview, within which a person adequately perceives his place in the world around him and his role in society; a clear understanding of the meaning and significance of each of his actions, statements or public manifestations of feelings; a natural manifestation of his strengths without arrogance and bragging; expression of emotions without excessive affectation; open demonstration of character and personality traits; confident and relaxed behavior in all circumstances; it is reasonable to designate and protect personal boundaries [6].

#### **Results and discussion:**

Everyone should have self-respect, because this is the only way to build adequate social and interpersonal relationships. A person who is able to appreciate and respect himself will always be able to achieve the respect of others [8].

Everyone has a natural need for respect from the people around them. Evolution made us like this, because for our distant ancestors, respect from our fellow tribesmen was the key to survival. And today we need it in order to develop harmoniously and interact with society [4].

Everyone has the right to be imperfect and to make mistakes. And each of us should recognize this right for other people, without requiring others to perfectly meet all his requirements. It is important to be able to appreciate and respect other people for their individuality. This will allow building harmonious

relations with everyone, taking a stable position in society and gaining the necessary mutual understanding [5].

Respect for other people can be expressed in various forms. Most often, we show respect in the following ways: to see the situation from the position of another person; empathy and an adequate reaction to other people's emotions; to listen and hear the interlocutor; demonstration of assertiveness in communication (to defend our own personal boundaries and respect others, not to allow ourselves and others to manipulate the situation); not to impose our point of view on others as the only correct one; respect the privacy of others and keep the secrets entrusted to us; apologize in a timely manner for unsuccessful words and actions; comply with laws, norms and rules; take care of the protection, ecological cleanliness of the inhabited and natural environment; be interested in how other people and societies are doing; respect other people's private property; give time and attention to other people; help friends and disadvantaged people on various scales when required; a sense of gratitude for support, approval and solidarity [6].

### **Conclusion:**

There are some presets set by culture and way of life, the level of development, ways of ordinary reaction to a person met for the first time, a representative of an ethnic group, and these ways will differ significantly from the usual ways of reacting when meeting with any other object and subject of existence [7]. It is also obvious that this difference between a person and any other objects carries, among other things, a value component [1].

To recognize these phenomena as natural, the ability to peacefully exist and compete in vital technical and technological fields, in order to achieve and ensure the well-being of mankind, is respect and pluralism of opinions in a broad sense [9].

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## **CONSTRUCTIVE CRITICISM IS A STIMULATOR AND INSPIRATOR OF A HUMAN TO HEURISTIC STRATEGIES OF KNOWLEDGE AND CREATION**

*Abstract. The article highlights the impact of criticism on the activities of the creative team. When they talk about criticism, they most often mention its properties such as: constructiveness. Constructiveness means being useful to someone whose actions are being criticized. That is, the main purpose of such criticism is to point out the shortcomings and suggest how they can be eliminated*

*Key words: criticism, constructive, negative, efficiency, inspiration, insult, interests.*

### **Introduction**

Criticism is an analysis of someone's activity or its result, indicating strengths and weaknesses, mistakes and successful decisions. In fact, it is a review in which a critical person expresses his subjective opinion about something. In a broad sense, criticism is a combination of positive and negative assessments. In everyday life, criticism usually means negative statements, pointing out flaws and shortcomings. The word "criticism" came to Russian from French. In turn, the French word critique is derived from the ancient Greek κριτική, which can be translated as "the art of judging, analyzing".

No matter how hard we always try to do everything right, from time to time we have to face the fact that someone criticizes our actions. Each of us perceives it differently. Someone is offended, and someone takes into account the comments and tries to get better. However, the criticism itself can be different. Sometimes it is appropriate and constructive, and sometimes it is aimed at offending or offending.

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

There are many types of criticism that can be classified according to different properties. In everyday life, such forms of it are most often found as: remark – a brief statement indicating a specific flaw; accusation – an indication

of a bad deed or mistake, attributing guilt to a person for undesirable consequences; discontent – an expression of one's own negative feelings related to other people's actions; claim – criticism, implying demands to correct or redo something that; objection – disagreement with someone else's opinion, decision or approach to a certain activity. Of course, there are other options, but it is in these five formats that criticism is voiced most often [2].

### **Results and discussion:**

Constructive (positive) criticism has the following positive qualities:

- objectivity. Objective criticism points to real-life shortcomings that no one will dispute.;
- Justice. If the flaws are really present, the remark can be considered fair and appropriate. If a person expresses personal dislike or grumbles because of a bad mood, such criticism is likely to be unfair;
- Literacy. In order to criticize competently, you need competence in a specific field of activity;
- focus on the object. Criticizing a person (subject) is considered unreasonable, a manifestation of stupidity. Therefore, balanced, constructive criticism is directed at actions or their result;
- openness (publicity). Open criticism is voiced directly to the person whose actions are being criticized. The hidden one usually speaks behind the back and is directed more at the person than at the actions. The tendency to criticize other people behind their backs is considered one of the main signs of hypocrisy;
- The certainty of the destination (specific or general). Criticism can be directed at specific shortcomings, or it can be general. Obviously, in the second case, it is much less constructive and does not represent much value.

In most cases, one (or more) of the following various factors acts as the reason for criticism: profession; desire to assert oneself; habit; desire to help; interest; desire to hurt; desire to spoil reputation.

Of course, we must not forget about such a reason as the desire to harm another person, ruin his reputation or quarrel with common acquaintances. The motivations may be different. It can be jealousy, unhealthy competition, old grudges, a desire to avenge something or personal hostility.

Constructive criticism is a form of criticism whose main purpose is to help correct flaws. At the same time, the criticizing person does not feel envy or malice and does not seek or offend the criticized person [3]. Such criticism can be seen as an outside view or advice to help make something better. It gives us the opportunity to correct mistakes, learn something new, develop and improve our skills [4].

Most often, constructive criticism can be heard from close people. In addition, mentors and teachers resort to it, for whom it is important that their student or ward does not stop there, but continues to improve [5].

Negative (or destructive) criticism does not bring any benefit. Its main purpose is to hurt feelings, offend, humiliate a person or even harm him. As a rule,

it is based on envy, hatred, thirst for revenge and other destructive feelings. It is impossible to have a meaningful dialogue with a person who resorts to such criticism, because he ignores the laws of logic and continues to bend his line [6].

Negative criticism may not always harm the person it is directed at. But the critic himself can cause himself a lot of harm by focusing on destructive experiences and losing the opportunity to enjoy life. Thus, he discourages himself from productive work and self-development. [7]

### **Conclusion:**

If you think that criticism is unfair and unfounded, then there is nothing to worry about, because in this case it does not characterize you, but the person criticizing you. If you see or at least admit that it is fair, then you need to accept it and try to use this information as an instruction for your own benefit [8].

In general, when expressing criticism, it is enough to follow the following rules: criticize if you are competent enough in this matter; criticism should sound like a hint or recommendation, not as a reproach; if a person is not ready to listen to criticism, you can not enter into an argument, proving your case.

If the critic has objective grounds, and the criticism looks fair, of course, it should be taken into account. Let me understand that you are grateful to the person who pointed out the mistake to you [9]. In this case, you will not only benefit from criticism, but also give other people the impression of an educated and balanced person [10].

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## **HERMOELECTRONIC WIRES AND RESISTORS FOR SYSTEMS THAT AUTOMATICALLY CONTROL THE TEMPERATURE OF ENVIRONMENTS AND MOLES FOR SCIENTIFIC PURPOSES**

*Annotation. The wires connecting a thermoelectric thermometer with an electronic measuring instrument are made from such materials that their pair forms an EYuK corresponding to the temperature of the environment in which the thermometers themselves are connected. Such a requirement is limited by a temperature of about 1000 C. at a temperature higher than this, the descriptions of the thermoelectric thermometer and the wires connecting may differ from each other [1]. This is allowed to happen because the temperature of the wires connecting is usually not high. When the specified requirements are met, the thermocompensation wires extend to the length of the wires connecting the length of the thermoelectric thermometer (thermoparah), while the free ends of the thermoparah remain directly on the clamps of the instrument intended to measure the electric driving force EDF.*

*Key coils: thermoelectric thermometer, electric driving force, temperature, thermoelectric wire, resistance, difference.*

### **Introduction**

The wires connecting a thermoelectric thermometer with an electronic measuring instrument are made from such materials that their pair forms an EDF corresponding to the temperature of the environment in which the thermometers themselves are connected. Such a requirement is limited by a temperature of about 100 The wires connecting a thermoelectric thermometer with an electronic measuring instrument are made from such materials that their pair forms an EDF corresponding to the temperature of the environment in which the thermometers themselves are connected. Such a requirement is limited by a temperature of about 1000 C. at a temperature higher than this, the descriptions of the thermoelectric thermometer and the wires connecting may differ from each other [1].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

This is allowed to happen because the temperature of the wires connecting is usually not high. When the specified requirements are met, the thermocompensation wires extend to the length of the wires connecting the length of the thermoelectric thermometer (thermoparah), while the free ends of the thermoparah remain directly on the clamps of the instrument intended to measure the EDF. Failure to comply with the above requirement can lead to the formation of a “parasitic” TEYuK as a result of the appearance of sutures in places that connect the free ends of the thermopar with measuring wires. If the attenuating wires have the same leveling detail as the thermometer's, the “parasite” is divided to get rid of EDF formation [2].

The extension thermoelectric wires are made single and multi-wire, insulated and made with an external coating or shell, which is convenient for mounting and laying. For insulation, polyvinyl chloride, polyethylenterephthalate and fluoroplast coatings are used. In addition to insulation, wires are often wrapped rotting with a polyvinyl chloride shell, lavsan thread, or glass thread [2].

If it is required to avoid an external electrical magnetic field and mechanical impact, then copper, steel wire (GOST 24335-80) coating or screens are applied.

The attenuating thermoelectrode wires in each category will have a specific color of insulation material, or the color of the sheath and sheath itself, Table 1 lists thermoparas, recommended attenuating thermoelectrode wires, their markings and colors [1].

### **Results and discussion:**

Emitting thermoelectrode wires for thermoparticles  $^{\circ}\text{C}$ . at a temperature higher than this, the descriptions of the thermoelectric thermometer and the wires connecting may differ from each other [1]. This is allowed to happen because the temperature of the wires connecting is usually not high. When the specified requirements are met, the thermocompensation wires extend to the length of the wires connecting the length of the thermoelectric thermometer (thermoparah), while the free ends of the thermopEDF. Failure to comply with the above requirement can lead to the formation of a “parasitic” EDF as a result of the appearance of sutures in places that connect the free ends of the thermopar with measuring wires. If the attenuating wires have the same leveling detail as the thermometer's, the “parasite” is divided to get rid of EDF formation [2].

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lists thermoparas, recommended attenuating thermoelectrode wires, their markings and colors [1].

The electrical resistance of conductors or semiconductors is a function of the temperature in IT  $R=(t)$ . Measurement of temperature with resistance thermometers is based on the functional connection between temperature changes and changes in electrical resistance of conductors and semiconductors. The electrical resistance of most pure metals increases with increasing temperature, while the resistance of metal oxides (semiconductors) decreases. In the preparation of resistance temometers, pure metals are used that meet the following requirements.

1. In the environment being measured, the metal should not oxidize and the chemical composition should not change.

2. The temperature resistance coefficient of the metal should be sufficiently large and stabilized.

3. The resistance should change sharply in a straight or smooth curve without deviations and cases of hysteresis with temperature

$$a = \left( \frac{1}{R_0} \right) \cdot \left( \frac{dR_t}{dt} \right) (1)$$

in this:  $R_0$  and  $R_t$  – electrical resistances at a temperature of  $00\text{ S}$  and  $t0\text{S}$ , respectively.

The unit temperature coefficient is expressed in  $0\text{S}^{-1}$  or  $\text{K}^{-1}$ s. For most pure metals, the temperature coefficient lies at  $0.0035 - 0.065\text{ K}^{-1}$  limits. For semiconductor metals, the temperature coefficient is negative and one order more than that of metals ( $0.01 - 0.15\text{ K}^{-1}$ ).

Copper, platinum, nickel and iron are used to make resistance thermometers. Copper is a relatively inexpensive material whose resistance is linearly dependent on temperature [2], i.e.:

4. The specific electrical resistance should be large enough.

In the range of known temperatures, metals such as platinum, copper, nickel, iron, volpfram meet the above requirements.

The parameter describing a certain temperature-dependent change in electrical resistance is called the temperature coefficient of electrical resistance.

The temperature coefficient of metals whose electrical resistance depends on temperature can be determined with one value per temperature [2]:  $R_t=R_0(1+a_t)$ , (2)

bunda:  $R_t$  va  $R_0$  – mos holda  $t$  va  $0^0\text{S}$  haroratlarda termometrning qarshiligi;  $\alpha$  - mis simning harorat koefitsiyenti;  $\alpha=4,28 \cdot 10^{-3}\text{K}^{-1}$ .

Due to the high oxidation of copper, thermoparas made from it are used to measure temperatures of no more than  $2000\text{s}$ . The nominal resistors of resistance thermometers, usually made of copper, are  $10$ ;  $50$  and  $100\text{ ohms}$  at  $0^0\text{ S}$ , and are applied to measure temperatures from  $-200^0\text{S}$  to  $+200^0\text{S}$  over a long period of time. They are produced by precision classes II and III. The smallness of the

copper comparative resistance ( $\delta=0,17 \cdot 10^{-7}$  Ohm·m) is its disadvantage, since the less the comparative resistance, the more wire is needed, which in turn affects the dimensions of the thermometer. Therefore, the dimensions of copper thermometers will be relatively large. [2]:

Platinadan tayyorlangan qarshilik termometrlari  $-260^{\circ}\text{S}$  dan  $+1100^{\circ}\text{S}$  gacha haroratlarni o'lchash uchun qo'llaniladi. Platina - qimmatbaho material. Kimyoviy jihatdan inert modda bo'lib, sof holda osonlik bilan olinadi. Platinaning elektr qarshiligi bilan harorat o'rtasida murakkab bog'lanish bo'lib,  $-183^{\circ}\text{S}$  dan  $0^{\circ}\text{S}$  gacha bo'lgan harorat oralig'ida quyidagicha yozilishi mumkin [2]:

Platinum resistance thermometers-applied to measure temperatures from  $-260^{\circ}\text{S}$  to  $+1100^{\circ}\text{S}$ . Platinum is a valuable material. Chemically an inert substance, it is easily obtained in its pure form. There is a complex connection between the electric resistance of platinum and the temperature, which can be written in the temperature range from  $-183^{\circ}\text{S}$  to  $0^{\circ}\text{S}$  as follows [2]:

$$R_t = R_0 [(1 + At + Bt^2 + Ct^3(t-100))], (3)$$

From  $0^{\circ}\text{S}$  to  $+630^{\circ}\text{S}$ , the interval is:

$$R_t = R_0 (1 + A_t + Bt^2) (4)$$

is expressed in terms of. Where:  $R_t$  and  $R_0$  are the electrical resistance of Platinum at temperatures  $t$  and  $00\text{s}$ , respectively;  $a$ ,  $V$ ,  $s$  are constant coefficients whose values are determined by the boiling points of oxygen, water and sulfur when rating the thermometer.

Semiconductors (oxides of some metals) are also used to make resistance thermometers (thermistors). A significant advantage of semiconductors is the magnitude of the temperature coefficient in them. In the preparation of thermocouples, crystals of titanium, magnesium, iron, manganese, cobalt, nickel, copper oxides or some metals (for example, germanium) are used in combination with various mixtures. The connection between the thermometric resistance of the semiconductor (thermoresistor resistance) and the temperature can be expressed as follows [2]:

$$R_m = R_0 \cdot \exp\left(B \frac{T_0 - T}{T_0 \cdot T}\right) (5)$$

where:  $R_0$  is the thermometric resistance of a semiconductor at temperature  $T_0$ ;  $V$  is the coefficient specific to the material of the semiconductor from which the thermometer is made.

Germanium thermoresistors are common in industrial production to measure temperatures of 1.50 K and above, with oxidizing semiconductor materials used to measure temperatures ranging from  $-100^{\circ}\text{S}$  to  $+300^{\circ}\text{S}$ .

### **Conclusion:**

Thermostats of MMT-1, MMT-4, MMT-6, KMT-1, KMT-4 are also used in temperature measurement. Semiconductor thermoresistors are more commonly used in thermosignalization and automatic protection devices. The types, basic parameters and sizes of resistance thermometers produced in industry are determined by state standards (GOST 6651-78) [3,4].

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## **BLENDED LEARNING: REVOLUTIONIZING THE CLASSROOM EXPERIENCE**

*Abstract. Blended learning, an educational approach combining traditional classroom methods with digital media and online resources, offers a flexible and personalized learning experience. This model adapts to the diverse learning styles and paces of students, allowing for real-time feedback and self-paced study. The integration of technology in blended learning supports a more interactive and engaging educational environment. However, challenges include ensuring equitable access to technology and the need for teacher training in digital tools. Despite these challenges, blended learning has shown potential to enhance student learning outcomes and teacher efficiency.*

*Keywords Blended Learning, Educational Technology, Personalized Learning, Classroom Innovation, Digital Media, Online Resources, Interactive Learning, Student Engagement, Teacher Training, Learning Outcomes.*

Blended learning is an instructional methodology that combines traditional face-to-face classroom teaching with online learning activities. This approach allows students to learn partly through online delivery of content and instruction with some element of control over time, place, path, or pace. Blended learning's rise is driven by technological advancements and the evolving educational needs of a digital generation.

**Evolution of Blended Learning** Blended learning has evolved from simple computer-assisted instruction to sophisticated, integrated digital platforms. The growth of the internet and mobile technology has greatly influenced its development. Historical perspectives highlight the shift from teacher-centered to learner-centered environments, emphasizing adaptive learning paths.

**Technological Tools in Blended Learning** The utilization of Learning Management Systems (LMS), interactive software, and digital resources forms the backbone of blended learning. These tools facilitate a seamless transition between classroom and online environments, supporting varied learning and teaching styles. The effectiveness of these tools in enhancing student engagement and understanding is a key area of study.

**Impact on Student Learning and Engagement** Research shows that blended learning can lead to improved student performance and higher engagement levels. Personalized learning paths, interactive content, and collaborative online activities contribute to a more dynamic learning experience. The role of self-paced learning in fostering student autonomy and motivation is crucial.

**Challenges and Solutions** Challenges in implementing blended learning include digital divide issues, teacher training, and curriculum integration. Strategies to overcome these challenges involve ensuring equitable technology access, professional development for educators, and a well-structured blended curriculum.

**Case Studies and Real-World Applications** Various case studies demonstrate the effectiveness of blended learning in different educational contexts. Examples from schools and universities illustrate the adaptability of blended learning models to various subjects and learning environments.

**Conclusion** Blended learning represents a significant shift in educational practice, offering a more personalized and engaging learning experience. It effectively integrates technology into the learning process, catering to the diverse needs of modern learners. Challenges such as equitable access to technology and the need for teacher training must be addressed to maximize its potential. Overall, blended learning has shown promise in improving educational outcomes and preparing students for a technology-driven world.

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## **CALCULATING EARTHQUAKE RESISTANCE AND EARTHQUAKE RESISTANCE OF REINFORCED CONCRETE FRAME BUILDINGS USING THE LIMIT EQUILIBRIUM METHOD**

*Annotation. The article discusses the issues of calculating the seismic resistance and seismic stability of reinforced concrete frame-frame bearing systems using the method of marginal equilibrium. If we imagine the seismic resistance and seismic resistance of a seismically safe building or structure in the form of concentrated circles, then inside the circle there is a circle of the real normative seismic resistance of the object. Numerous surveys of the technical condition and seismic resistance of real construction sites, conducted by the author in order to develop reconstruction projects, showed excessively huge reserves of seismic bearing capacity of buildings designed and erected in strict accordance with the requirements of current building codes and regulation*

*Keywords: construction, building, seismic resistance, seismic resistance, method, calculation, limit state, spatial rigidity, plastic hinge.*

### **Introduction**

Initially, it is advisable to focus on the concepts of seismic resistance and seismic stability of buildings and structures. Seismic resistance is the ability of building structures, buildings and structures to withstand calculated seismic loads and deformations, while maintaining their operational properties within the limits provided for by current building codes and regulations, as well as technical regulations. Seismic resistance is the ability of building structures, buildings and structures in general, to withstand the strongest earthquakes with minimal damage (destruction of individual load-bearing elements of buildings and structures is allowed [4]).

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

If you present the seismic resistance and seismic resistance of a seismically safe building or structure in the form of concentrated circles, then the circle of the real normative seismic resistance of the object is located inside the circle. seismic

resistance of an object Seismic resistance means the real ultimate resistance of a structural system to strong seismic influences and includes all the resources of the seismic bearing capacity of a building and structure. As noted above, seismic resistance determines the ability of building structures, buildings and structures to withstand calculated seismic loads and deformations, while maintaining their operational properties within the limits provided for by current building codes and regulations, as well as technical regulations. Numerous surveys of the technical condition and seismic resistance of real construction sites conducted by the author, in order to develop reconstruction projects, showed excessive huge reserves of seismic bearing capacity of buildings designed and erected in strict compliance with the requirements of current building codes and regulations [8].

The main prerequisites for the optimal design of buildings and structures in seismically active regions, calculation and construction of seismically safe buildings should be reduced to increasing the reliability of calculations for seismic resistance, convergence of the boundaries of the areas of seismic resistance and seismic stability of the type of structures under consideration. The seismic stability of an object primarily depends on its height and weight as a whole, the structural system that takes over the seismic impact, the seismic regions where the object is being built, including microseismic zoning. Since geological faults may exist in areas of low seismic activity, which may pose an increased geodynamic danger to individual objects, especially high-rise buildings.

#### **Results and discussion:**

To ensure the optimality of design solutions for construction projects in regions of high seismicity (more than 8 points), it is necessary to develop new calculation methods. To study the actual operation of structures in conditions of strong earthquakes, it is necessary to study structural systems at a stage close to the limit, taking into account the accumulation and development of damage over time. In the problems of seismic resistance, the economic criteria of optimality are also important, on the basis of which the degree of antiseismic reinforcement can be selected, ensuring a given level of reliability of the structure with minimal costs for eliminating the consequences of an earthquake. At the same time, one of the main tasks is to determine the degree and extent of damage to load-bearing structures in conditions of possible earthquakes, which necessitates the study of buildings in conditions of real earthquakes. Therefore, it is very important that the technical and physical conditions of seismic resistance of buildings and structures are evaluated at the rigid-plastic stage of deformation of steel reinforcement and, accordingly, taking into account the descending branch of the concrete resistance diagram. The theory of calculation is based on the prerequisites, assumptions and limitations of the Limit equilibrium Method, which are given in classical form in the books by A.A. Gvozdev "Calculation of the bearing capacity of structures using the limit equilibrium method" [1] and S.M. Krylov "Redistribution of forces in statically indeterminate reinforced concrete structures" [2]. It should be noted

that in these works the situations with regard to static loads and displacements are considered.

The quasi-spatial frame model proposed by us for calculating the seismic stability of reinforced concrete frame-frame and frame-link buildings and structures at the elastic-plastic and plastic stages of the stress-strain state, as in addition to the classical assumptions of the limit equilibrium method, is based on the following hypotheses, prerequisites and assumptions:

the concrete of the stretched zone does not work, the tensile stress is perceived by the reinforcement; in the ultimate equilibrium state, the concrete of the compressed zone works elastically or plastically, and the dependence between stresses and deformations is nonlinear, contrary to Hooke's law, the descending branch of the concrete deformation diagram is included in the work;

in oscillatory processes, the stretched and compressed cross-section zones of the constituent elements and the reinforced concrete frame as a whole change periodically and acquire an alternating character, as a result, even compressed zones work with cracks and damage, the working height of stretched and compressed fittings should be determined minus the protective layers of longitudinal working fittings on both sides;

real buildings due to inelastic deformations and cracking will move away from resonance, this hypothesis has a fundamentally important, fundamental character when choosing the form of oscillation by which the destruction of the building occurs; in any form of destruction from the effects of forces and forced displacement, the exhaustion of the bearing capacity of a building or structure occurs according to a scheme according to which a minimum of energy (work) is spent internal efforts of the load-bearing frame. Here, when it comes to the dynamic nature of destructive influences, preference, the dominant position is given to the basic tone (the first form) natural vibrations of the building [6];

A quasi-spatial frame, i.e. a flat frame loaded across the width of the cargo area by forces in orthogonal planes with respect to the considered design frame, is accepted as the main design scheme [3].

### **THE MAIN CONCLUSIONS**

1. In the regulations of modern design, the calculation of buildings and structures for the action of seismic loads is carried out in strict accordance with the current state building codes, standards and rules obtained in normal and inclined sections of structures that operate in the elastic stage. Special coefficients of working conditions have been adopted, taking into account the features of seismic impact, the soil base and the structural structure of buildings and structures. Despite these clarifications, this approach remains as a conditionally elastic static method for calculating buildings for seismic impacts [8].

2. Numerous surveys of the technical condition and seismic resistance of real construction sites conducted by the author, in order to develop reconstruction projects, showed excessive huge reserves of seismic bearing capacity of buildings

designed and erected in strict compliance with the requirements of existing building codes and regulations [5].

3. The proposed method for calculating the seismic resistance and seismic resistance of reinforced concrete frame buildings takes into account the joint action of forces located in the planes of the longitudinal frames and parallel to them, and also, in the calculation of longitudinal frames, the joint action of forces located in the planes of the transverse frames and parallel to them is taken into account.

4. When the load-bearing capacity is exhausted, i.e. the seismic resistance of reinforced concrete frame-frame and frame-link buildings and structures, the forces caused by the introduction of forced deformations and displacements into the system, which created torsion and displacement from the frame plane in the sections of the frame frames, are completely removed.

5. A complete redistribution of forces in the design plane of the frame is realized. as mentioned above, in the ultimate equilibrium state, a complete redistribution of forces occurs, as a result of the formation of plastic hinges, the static indeterminacy of the reinforced concrete quasi-spatial calculation frame is resolved.

6. The bending moment in the design nodes of the frame reaches their maximum plastic values and becomes constant with further deformations of a plastic nature.

7. This allows that in the ultimate plastic equilibrium state, the calculated multi-storey frame can be conditionally divided into statically definable floors and racks using the section method.

8. For the considered truncated part of a static definable frame (for the left or right, for the upper and lower parts), it is possible to create conditions for the equilibrium of external and internal forces, this allows you to detail and analyze the seismic stability of any horizontal and vertical section of the supporting frame of a building separately [7].

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## **MOTIVATIONAL INFLUENCE OF SHAME AND GUILT ON MORAL FORMATION OF INDIVIDUAL AND SOCIETY**

*Abstract. The article analyzes the causes and consequences of feelings of shame and guilt. From a psychological point of view, shame is an emotion that protects us from rash actions. We control our behavior more carefully, monitor our manners and appearance, avoiding everything that we might be ashamed of. But at the same time, shame often becomes a limiting factor that prevents you from deciding on some important and completely unreasonable actions. Shame is often associated with remorse. But conscience is a basic emotion, an intrapersonal experience that arises in a person who realizes that he has committed an unacceptable act. Shame is a social emotion. That is, it occurs only in cases when the shameful fact becomes (or may become) known to others*

*Keywords: shame, guilt, self-esteem, development, correction, self-education.*

### **Introduction**

We are capable of experiencing a wide variety of emotions. We may not like some of them, but they all perform some functions and that is why they were formed in the process of evolution. Today we will talk about shame, an emotion that seems very uncomfortable and often undesirable, but is still important to us. We will figure out what the biological meaning of shame is, what benefits it brings and how it can harm, and also find out how to get rid of it when it is undesirable [1].

Shame is a feeling of inner discomfort caused by the fact that a person realizes the social unacceptability of his act, behavior, appearance or any other qualities. Social unacceptability means that something is subject to condemnation because it does not comply with generally accepted standards, values, patterns of behavior, norms of morality and morality. At the same time, such a discrepancy can be both real and imaginary [2].

### **Materials and methods**

This includes empirical methods such as: scientific fact, modeling, observation, experiment; as well as methods of theoretical knowledge such as: analysis, synthesis, abstraction, induction, deduction, hypothesis, formalization, historical method, logistic method, scientific foresight. The research materials are: scientific facts, the results of previous surveys, experiments and tests; means of abstracting, idealizing, rationalizing and materializing scientific imagination.



From a psychological point of view, shame is an emotion that protects us from rash actions. We control our behavior more carefully, monitor our manners and appearance, avoiding everything that we might be ashamed of. But at the same time, shame often becomes a limiting factor that prevents you from deciding on some important and completely unreasonable actions. Shame is often associated with remorse. But conscience is a basic emotion, an intrapersonal experience that arises in a person who realizes that he has committed an unacceptable act. Shame is a social emotion. That is, it occurs only in cases when the shameful fact becomes (or may become) known to others [3].

Scientists believe that the main function of shame is to help an individual avoid social isolation (in primitive society, any isolation significantly reduced the chances of survival). Therefore, a person who has committed a shameful act tries to make sure that they do not find out about it. In addition, this feeling often occurs even before the action begins, preventing a person from making a mistake. Thus, shame allows us to regulate our behavior, increasing the overall well-being of society.

An interesting feature of shame is that it manifests itself at the individual and social levels, causing reactions that are often clearly visible even from the outside. For example, the famous saying "burn with shame" did not appear from scratch. A person who is ashamed experiences the following conditions as: difficulty breathing; sweating; confusion (a person loses his mind, cannot find words); palpitations and increased heart rate; redness of the skin on the face; anxiety, fussiness; avoidance of eye contact; isolation [4,5,6].

It is also often said that a person experiencing shame is "ready to sink through the ground." And this phrase describes this condition very accurately. At such moments, there is such a strong desire to break eye contact, stop communication and other interaction that a person really wants to disappear in any way [7,8].

Studies have shown that people in childhood cannot feel shame. They acquire this ability as they grow up and socialize, learning that certain things are considered reprehensible in society. But gradually, when faced with public censure, he involuntarily develops the ability to experience this emotion [9].

A feeling of shame arises when a person realizes that something humiliating or reprehensible has happened to him, and others have found out about it. At the same time, as a rule, the damage to other people is insignificant or non-existent. Therefore, a person regrets more not about the act itself, but about what became known about it.

Guilt implies regret for a bad act and that this act has caused harm to other people. Obviously, like shame, it is a social emotion, somehow related to social or interpersonal interaction. However, guilt can be associated with an act that no one knows about. At the same time, it is important for a person who feels guilty to find a way to atone for his guilt and earn the forgiveness of someone who

suffered from his actions (or inaction). Thus, the feeling of guilt can be considered constructive, since it is aimed at improving relations between people [10,11].

It is worth noting separately that shame can be caused not only by specific actions or behavior in general, but also by other factors that often do not depend at all on the will of the person experiencing this emotion (for example, social status, physical appearance or health status). Guilt usually arises as a result of specific actions and decisions that have affected other people.

The main function of shame is to protect a person from undesirable actions, to make his behavior socially acceptable and thereby protect him from social isolation. Naturally, this benefits the whole society as a whole, regulating relationships in it and forcing each individual to keep himself within the boundaries that correspond to generally accepted norms.

A particular person may not be aware of the dangers that threaten all of humanity, but consciously or on a whim, building his life line day after day, he already answers the question: for what, in the name of what does he live? He responds with his actions, actions, and if they have not yet received full understanding, then solving such a task remains equally immensely difficult for someone who is just choosing his life path, and for someone who, looking back, sums up the results [11,12].

### **Results and discussion:**

This cardinal problem of human existence has been noticed for a long time. Thus, our great compatriot F.M. Dostoevsky (1821-1881) wrote that "the secret of human existence is not only to live, but to live for. Without a firm idea of what to live for, a person will not agree to live and would rather destroy himself than remain on earth, even if all around him were loaves."1 In this eternal desire of people to leave their mark on the Earth, a certain general regularity has manifested itself, reflecting the natural need of all living things to preserve continuity, not to disappear without a trace [13,14].

Without faith in one's soul and its immortality, F.M. Dostoevsky noted, human existence is unnatural, unthinkable and, most importantly, unbearable. He saw this as one of the main reasons for suicide. To the question about the meaning of life, the suicidal person "cannot and knows this, because although he realized that there is, as he puts it, "harmony of the whole," but I, he says, "do not understand it, I can never understand it, and that I will not be able to participate in it yourself, then it is absolutely necessary and comes out of itself." It was this clarity that finished him off. What's the trouble, what was he wrong about? The only trouble is the loss of faith in immortality."2. A person who cannot, does not want to disappear into oblivion, has several opportunities to preserve this faith [11,12].

### **Conclusion**

The most accessible way is offered by religion with its unambiguous answer to the question of the meaning of life — service to God and with an attitude

towards life after death, where everyone will be rewarded according to his earthly deeds.

Another possibility, which does not necessarily exclude the first one, is to devote oneself in the real world to serving people, goodness and justice. Which of the paths a person chooses depends only on himself.

And he will ultimately have to judge the correctness of the chosen line in life himself, having fully learned the depth of the saying of the ancient philosopher Marcus Aurelius: "Our life is what we think about it" [2].

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## **RT OR PSYCHOLOGICAL ASPECTS OF OVERCOMING COMMUNICATION BARRIERS BY A CREATIVE TEAM**

*Abstract. The article highlights important aspects of overcoming communication barriers. One of the main mistakes that people make in communication is that it seems to them that the interlocutor always understands the thoughts they express in exactly the same way as they themselves. In reality, there are always some factors that can lead to misunderstandings. The interlocutor may understand what is said in a completely different way due to the environment, mood, the presence or absence of certain knowledge and many other factors.*

*Key words: communication barrier, assessment, overestimated, underestimated, correction, overcoming.*

### **Introduction**

Communication barriers arise in newly created and supplemented creative teams with new specialists. The fruitful activity and success of the team largely depend on the degree of overcoming this type of difficult barriers [1].

Communication barriers are various obstacles that interfere with the mutual understanding of the parties involved in communication. In simple terms, this is all that prevents people from understanding each other correctly. The main problem that communication barriers create is not that some of the information may be lost, but that it may be accepted or interpreted incorrectly.

One of the main mistakes that people make in communication is that it seems to them that the interlocutor always understands the thoughts they express in exactly the same way as they themselves. In reality, there are always some factors that can lead to misunderstandings. The interlocutor may understand what is said in a completely different way due to the environment, mood, the presence or absence of certain knowledge and many other factors [2].

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Communication barriers can arise for external reasons, but most often they are caused by internal reasons of a psychological nature. Communication participants can create them consciously or unconsciously.

Often, obstacles in understanding arise as a protective mechanism of the psyche. For example, if a person is not ready for some information, he "defends" himself from it on an unconscious level and interprets what he has heard incorrectly. Sometimes it can also be a conscious (at least partially) protection from someone else's influence or manipulation.

Another common reason for the emergence of communication barriers is the difference in knowledge and experience [3]. For example, professional deformation makes a person perceive everything related to his work in a special way. Accordingly, this can create barriers in communication with untrained people [4]. Using some concepts in a conversation, a person will not even realize that the interlocutor cannot understand most of what is said.

### **Results and discussion:**

There are a large number of different communication barriers that can be classified into groups and types according to the main features:

- **Phonetic.** These are obstacles that arise due to speech peculiarities.
- **Semantic.** Semantics is the science of the semantic units of a language (the meaning of words and phrases). Accordingly, this type of barriers occurs when one of the parties misunderstands the meaning of words or phrases used in communication.
- **Stylistic.** The style of speech significantly affects its perception and can also lead to incorrect or inaccurate understanding of what is said, it is important that the style meets the expectations of the audience.
- **Non-verbal.** We transmit a significant part of the information through non-verbal communication. In some cases, non-verbal signals may contradict verbal symbols, making it much more difficult for the interlocutor to understand what was said.
- **Logical.** These are barriers that arise due to the fact that the participants in the communication have come to different logical conclusions.
- **Individual.** These are different characteristics of character and temperament.
- **Moral and value-based.** Differences in worldviews, values, stereotypes and other attitudes can also create serious obstacles to mutual understanding.
- **Barriers to bias.** A biased attitude towards the interlocutor greatly complicates communication with him, since it prevents him from objectively perceiving his words, decisions and actions.
- **Age-related.** People belonging to different generations perceive many things differently, and this often leads to mistakes in mutual understanding.
- **Ethnic.** These are the difficulties of mutual understanding arising from various national characteristics, as well as from a biased attitude towards representatives of other nations and nationalities.



- Religious. Each religion has its own customs, rules and prohibitions, which people of other faiths may not know about.
- Ethical. Each person has their own set of ethical values. Behavior that seems normal and natural to one person will be considered completely unacceptable by another.
- Aesthetic. If people's tastes do not match, it can also lead to problems with mutual understanding.
- Cognitive. Abstract thinking, perceptual skills and other cognitive abilities are developed differently for all people, and the interlocutors perceive the subject of conversation a little differently [5].
- Status cards. Differences in status cause people to perceive each other differently during a conversation. For example, a joke by a person with a higher status may seem like a threat to the second one.
- Professional. Any professional has a large amount of knowledge in his field of activity, and for an outsider his statements may be completely incomprehensible.
- Barriers to knowledge. Each person has a specific profession and area of interest, which affects their knowledge, erudition and life experience. It can be said that everyone has a unique set of knowledge, and this also leads to communication barriers [6].

### **Conclusion:**

When resolving communication barriers, the main responsibility always lies with the head of the creative team, therefore it is important to develop organizational and oratorical skills, the ability to correctly formulate thoughts and the ability to inspire researchers. The following techniques will help you do this:

- Empathy. Many people ignore the feelings of the other person, focusing on their own experiences. Empathy is one of the most valuable communication skills. If you understand well what the other person is thinking and feeling, you can significantly increase the level of mutual understanding and make communication more productive.
- Adequate expectations. It is important not to overestimate the level of education or competence of each employee of the creative team [6].

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## **ВЛИЯНИЕ СОСТАВА И УРОВНЯ ГРУНТОВЫХ ВОД НА АГРОЛАНДШАФТЫ (НА ПРИМЕРЕ СРЕДНЕГО ЗАРАВШАНА)**

*Аннотация. В статье показаны изменения состава и уровня грунтовых вод на примере Среднего Заравшана. Представлены статистические данные об уровне грунтовых вод на орошаемых землях Самаркандской области, минерализации грунта и оросительной водности орошаемых земель.*

*Ключевые слова: пролювиальный, делювиальный, почвенный, ирригационный, минеральный.*

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## **INFLUENCE OF COMPOSITION AND LEVEL OF GROUNDWATER ON AGROLANDSCAPES (BY THE EXAMPLE OF AVERAGE ZARAVSHAN)**

*Annotation. The article shows changes in the composition and level of groundwater using the example of Middle Zarafshan. Statistical data on the groundwater level on irrigated lands in the Samarkand region, soil mineralization and the availability of irrigation water on irrigated lands are presented.*

*Keywords: proluvial, deluvial, soil, irrigation, mineral.*

**Введение.** Образование подземных вод зависит от атмосферных осадков, влаги из атмосферы, проникающей в трещины горных пород, конденсации пространствами между почвой и песком, а также сорбционных процессов, распространённых в природе. При этом просачивание стоков в грунт также играет большую роль в формировании грунтовых вод. В Зерафшанской долине гидрогеологи выделяют Заравшанский артезианский бассейн и выделяют в нём Самаркандский бассейн.

Самаркандский бассейн геологически относится к мегасинклинальной структуре Самарканда и занимает большую площадь в Пенджикентской, Джумабазарской и Каттакурганской складках с востока на запад, а мощность мезоценовых отложений достигает 2000 м [1].

**Основная часть.** Четвертичные отложения наиболее распространены в Среднезарафшанском бассейне и по происхождению делятся на аллювиальные, пролювиальные и делювиальные породы. Они состоят из гравия и песчаной глины. Эти различные типы отложений различаются по переносимости и хранению воды, свойствам хранения и их химическому составу. Глины, песчаники, алевролиты этих месторождений непроницаемы для воды, поэтому на них скапливаются грунтовые воды различного масштаба.

Когда скважина, вырытая на меловые отложения в Каттакурганской складке, достигает глубины 569 м, из конгломератов, сложенных мелким гравием, на поверхность вырывается вода, солёность её составляет 1,2 г/л, температура +450°С. Из источников известно, что вода по составу сульфатно-хлоридная, а расход воды равен 1,1 л/сек [11, 12].

У села Улус вода бьёт с глубины 142-165 м в слое, сложенном глинами, песчаниками, гравелитами и конгломератами отложений мелового возраста под коренными отложениями мощностью 109 м. Вода сульфатно-хлоридная, натриево-магниевая-кальциевая, питьевая, уровень минерализации около 1 г/л, расход воды 1,3 л/сек [14, 16].

Разрезы скважин показали, что к югу слой осадочных отложений становится тоньше. У подножия гор Зирабулок и Зиявудин обнажены меловые отложения. Эти места являются зоной насыщения меловых отложений. Родниковые воды, выходящие из меловых отложений, в горном и предгорном поясах пресные, уровень минерализации не превышает 1,0 г/л, а в большинстве случаев составляет 0,6 г/л.

По данным А. Рахматуллаева и Х. Братова, наблюдавших за скважинами, вырытыми вокруг сел Улус и Нагорная, глубина горизонтов воды достигает от 90 до 412 м, а расход воды составляет 10 м/сек. и более того, качество воды хорошее и удовлетворительное или с низкой минерализацией.

Трудно составить однозначное мнение о закономерностях формирования напорных вод в третичных отложениях Самаркандского артезианского бассейна, третичные отложения выходят на поверхность в горных и предгорных зонах. Атмосферные дожди впитываются из мест выхода этих отложений третичного периода на поверхность земли и образуют воды, характерные для третичного периода. Если третичные отложения перекрываются проницаемыми четвертичными отложениями, вода может проходить через эти слои и накапливаться на третичных породах..

Напорные воды четвертичного периода, иногда извергающиеся сами, располагаются на глубине 50-60 м, в некоторых случаях на 200 м. Эти воды представляют собой в основном чистые пресные воды, иногда слегка солёные, которые используются в основном в качестве питьевой воды и частично для орошения. Также установлена степень минерализации напорных подземных вод четвертичного периода. В бассейне Среднего Зарафшана она меняется с востока на запад, т. е. увеличивается. В скважине, вырытой недалеко от города Булунгур, между гравием на глубине 335 м была обнаружена вода под давлением. Количество минеральных веществ в воде составляет 0,2 г/л, она представляет собой чистую воду с гидрокарбонатно-кальциевым содержанием. В окрестностях Самарканда в отложениях гравия и песчаника на глубинах 11 м, 47 м и 66 м обнаружены напорные воды, минеральность которых составляет 0,9 г/л, и они состоят из гидрокарбонатно-карбонатных отложений из сульфатно-кальциевых солей. К западу уровень минерализации воды увеличивается. Например, в районе города Кармана минерализация воды между гравием составляет 1,1 г/л и имеет сульфатно-гидрокарбонатно-магниевый состав. Уровень воды поднимается до 4,6 м [5, 7, 3, 15].

Более 50% территории Среднезарафшанского бассейна составляют горные равнины, пролювиальные отложения сложены зубчатыми, разнокалиберными камнями, а состав отложений меняется по мере удаления от гор, с мелким песком и алевроитом в сторону реки Зарафшан. Это состояние влияет на площадь и качество грунтовых вод. Источниками подземных вод пролювиальных отложений являются горы. По данным А. Н. Султонходжаева и др. (1965), вода в пролювиальных отложениях является также источником воды, поднимающейся из трещин в дочетвертичных породах под этими отложениями. В зоне, примыкающей к склонам горы, воды пролювиальных отложений залегают на глубине 30-40 м, иногда 60-70 м. По мере удаления от гор к реке вода приближается к поверхности, например, у городов Джума и Зирабулок их глубина составляет 20 м, а на участках у реки она уменьшается до 2-3 м., а в местах, где слой глины находится близко к поверхности, они образуют естественные заболоченные территории. Уровень минерализации подземных вод пролювиальных отложений невысокий. Например, 1-2 г/л в районе города Джума. В состав воды входят гидрокарбонатно-сульфатно-магниевые и сульфатно-гидрокарбонат-магниевые элементы. К западу уровень минерализации воды увеличивается в горных равнинах и достигает 5,0 г/л в селе Нагорный, городе Зирабулок и сёлах Малик. В состав воды входят сульфатно-хлоридно-натриевые соли [4, 6, 17].

Подземные воды широко распространены в бассейне Среднего Зарафшана. Пористость аллювиально-пролювиальных отложений позволяет атмосферным осадкам быстро проходить через реки, ручьи, каналы и воду и восполняет запасы воды в почве. В некоторых пониженных

местах они выходят в виде родника и образуют поверхностный ручей. Например, такими водами питаются канал Карасув и ручей Сиаб.

Также большое количество воды из русла реки и водоёмов будет впитываться в почву.

Аллювиальные отложения Среднезарафшанского бассейна богаты подземными водами, уровень минерализации умеренный. Поскольку гравийно-песчаные смешанные пласты хорошо проницаемы, в них постоянно происходит обмен воды. Глубина воды 1,0-4,0 м, по направлению к руслу вода приближается к поверхности земли и образует болота. В реке в период наполнения уровень грунтовых вод повышается. Уровень грунтовых вод снижается в зимние месяцы, когда уровень воды в реке снижается (см. Таблицы 1-3).

Таблица 1

Уровень грунтовых вод на орошаемых землях Самаркандской области  
в 2011 году, тыс. га

Районы	Тысячи орошаемых	0-1,0 млн га	1,0-1,5 м	1,5-2,0 м	2,0-3,0 м	3,0-5 м	5,0 м и глубже
Бурунгур	29,86		0,29	0,51	7,24	3,05	18,77
Джамбай	31,66	0,42	0,17	1,44	6,83	7,96	14,84
Иштихан	31,51	0,10	0,23	4,81	11,4	5,62	9,35
Каттакурган	34,6	0,126	1,26	3216	12 836	11 876	5,29
Нарпай	27,49	0,026	0,23	0,946	10,956	11,36	3,97
Нурабад	6,97			0,046	1,30	2,22	3,40
Ақдарья	27,49	0,246	0,38	1,03	11 246	11,72	2,87
Пастдаргам	53,99	0,083	0,33	1,26	9,22	10,28	32,82
Пахгачи	23,72	0,10	0,416	1,60	13 594	4,22	3,79
Пайарык	40,82	0,126	0,456	3156	12 339	9,136	15,61
Самарканд	16,97	0,306	0,463	0,426	7,463	2856	5,46
Тайляк	16,28	0,70	0,730	0,35	6723	6,62	1,16
Ургут	30,32			0,02	0,85	5,82	23,63
Кушрабат	5,75						5,75
Города	1,74						1,74
<b>Всего:</b>	<b>379,16</b>	<b>2,23</b>	<b>4,96</b>	<b>18,81</b>	<b>112,00</b>	<b>92,73</b>	<b>148,45</b>

Таблица 2

Уровень грунтовых вод на орошаемых землях Самаркандской области в  
2015 году, тыс. га

Районы	Тысячи орошаемых земель.	0-1,0 млн га	1,0-1,5 м	1,5-2,0 м	2,0-3,0 м	3,0-5 м	5,0 м и глубже
Джамбай	31 600	0,17	0,48	3,52	8,60	6,85	11,98
Иштыхан	31 503	0,22	0,55	2,12	14,03	8,95	5,63
Каттакурган	34 606	0,38	1,05	1,66	2,40	3,91	25,20
Нарпай	27 493	0,14	0,53	1,54	7,48	11,97	5,82
Нурабад	6961	0,04	0,20	0,41	1,16	1,75	3,40
Ақдарья	28 657	0,22	0,35	2,08	10,27	9,92	5,83
Патдаргам	53 896	0,08	0,46	1,81	9,36	13,68	28,50
Пахтачи	23,720	0,13	0,93	2,71	4,58	5,68	9,70
Пайарик	40 894	0,30	1,23	4,64	12,54	11,68	10,50
Самарканд	15 454	0,18	0,92	1,74	5,64	5,03	1,94
Тайляк	16 284	0,20	1,00	1,48	4,48	2,57	6,54
Ургут	30 306	0,04	0,14	0,32	4,98	7,51	17,31
Кушрабат	5,745						5,75
Города	2694						2,69
<b>Всего:</b>	<b>349,81</b>	<b>2,11</b>	<b>7,83</b>	<b>24,03</b>	<b>85,52</b>	<b>89,52</b>	<b>156,31</b>

Таблица 3

Уровень грунтовых вод на орошаемых землях Самаркандской области в  
2021 году, тыс. га

Районы	Тысячи орошаемых земель	0-1,0 млн га	1,0-1,5 м	1,5-2,0 м	2,0-3,0 м	3,0-5 м	5,0 м и глубже
Бурунгур	29 102	0,073	0,283	1367	4,425	7,504	78 000
Джамбай	31 587	0,217	0,498	1725	8,278	8,149	12,720
Иштихан	31 494	0,270	0,873	3460	8,617	8,417	9,857
Каттакурган	34 472	0,463	1628	3770	7,496	8,485	12 629
Нарпай	27 443	0,111	0,596	2097	8,151	9,560	6928
Нурабад	7,395	0,064	0,274	0,697	1285	1543	3532
Ақдарья	28 917	0,069	0,197	2790	9062	9,203	7,596
Пайарик	40 817	0,198	1207	3203	10 550	11 500	14 159
Пастрадгам	53 855	0,241	1342	2809	10,742	11 636	27 086
Пахтачи	23 708	0,103	0,872	1695	5,404	5,803	9830
Самарканд	15 397	0,149	0,793	1143	2914	3838	6560
Тайляк	16 284	0,196	0,627	1635	4284	2879	6663
Ургут	30 406	0,047	0,128	0,260	2364	4980	22 627
Кушрабад	5,745						5,745



город Самарканд	2356						2356
город Каттакурган	0,338						0,338
<b>Всего:</b>	<b>379 316</b>	<b>2.20</b>	<b>9.32</b>	<b>26 649</b>	<b>83 571</b>	<b>93,50</b>	<b>226,63</b>

В связи с тем, что очень большая часть бассейна Среднего Зарафшана занимает Самаркандскую область, а в неё входят такие крупные оазисы, как Самарканд и Каттакурган, статистические данные об уровне грунтовых вод на орошаемых землях были приведены на примере Самаркандской области. Здесь следует отметить, что статистические данные приводятся не на примере ландшафтов или оазисов, а на примере административно-территориальных единиц, областей и районов. Используемые нами данные представляли собой статистические данные, собранные мелиоративной экспедицией Зарафшанского бассейнового управления ирригационных систем, которые мы использовали в качестве основы для наших исследований.

В таблицах 1-3 показано, как изменился уровень грунтовых вод на орошаемых территориях Самаркандской области за 2011-2021 годы. По их данным, в 2011 году общая площадь орошаемых земель в регионе составила 379,316 тыс. га, из них 1,23 тыс. га имели глубину грунтовых вод 0-0,1 м, 4,96 тыс. га имели глубину 0-1,5 м, на глубине 1,5-2,0 м на 18,81 тыс. га, на глубине 2,0-3,0 м на 118 тыс. га, на глубине 3,0-5 м на 92,73 тыс. га м на глубине, расположенной на 148,45 тыс. га 5 м и глубже. По данным этого источника, по состоянию на 2015 год общая площадь орошаемых земель в регионе составила 349,81 тыс. га, из них площадь земель с уровнем грунтовых вод 0-1,0 м составила 2,11 тыс. га (по сравнению с 2011 годом уменьшилась на 11 000 га) площадь подземных вод на глубине 1,0-1,5 м составляет 7,83 (по сравнению с 2011 годом на 2,87 тыс. га) тыс. га, 1,5-2 Площадь подземных вод до глубины 0,0 м составляет 24,03 тыс. га (увеличение на 5,22 тыс. га по сравнению с 2011 годом), площадь грунтовых вод до 2,0-3,0 м составляет 85,52 тыс. га (уменьшение на 26,48 тыс. га). га по сравнению с 2011 г.), площадь подземных вод до 3,0-5,0 м составляет 89,52 тыс. га (уменьшение на 3,21 тыс. га по сравнению с 2011 г.) 5 Согласно приведенным выше данным, площадь подземных вод, расположенных на глубиной 0,0 м и более составила 156,31 тыс. га (уменьшение по сравнению с 2011 годом на 7,86 тыс. га).

При анализе данных 2021 года уровень грунтовых вод орошаемых земель общая площадь орошаемых земель Самаркандской области составляет 379 316 тыс. га (увеличена по сравнению с 2011 годом), из них уровень грунтовых вод составляет 0-1,0 м земли на уровне глубина 2,20 тыс. га (тенденция увеличения по сравнению с 2015 годом), площадь, занятая грунтовыми водами на глубине 1,0-1,5 м, составляет 9,32 тыс. га (больше, чем в 2015 году с тенденцией увеличения), площади с глубиной 1,5-2 м

составляют 26 649 тыс. га (тенденция увеличения по сравнению с 2015 годом), площади грунтовых вод глубиной 2,0-3,0 м составляют 83 571 тыс. га (по состоянию на 2015 год по сравнению с тенденцией снижения), площадь земель с грунтовыми водами на глубине 3,0- 5 м – 93,50 тыс. (по сравнению с тенденцией увеличения в 2015 г.), площади с грунтовыми водами на глубине 5,0 м и более – 226,63 тыс. (тенденция роста по сравнению с 2015 г.).

В восточной части бассейна реки уровень минерализации грунтовых вод не отличается от речных, содержание их составляет 0,3-0,5 г/л и состоит из гидрокарбонатно-магниевого солей. В таком составе и количестве город Хатырчи сохранился до недавнего времени, а затем продолжается на запад в виде узкого коридора вдоль берега реки. Сюда входит русло реки и первая терраса возле русла реки. Из-за большой высоты второй террасы обмен воды с рекой затруднен. В западных частях бассейна минерализация воды повышается до 5-10 г/л, увеличивается засоление почв (см. табл. 4-5).

Таблица 4

Минерализация почвы и оросительная водность орошаемых земель в 2011 году, тыс. га

Районы	1,0 г/л	1,0-3,0 г/л	3,0-5,0 г/л	Более 5,0 г/л	Проточная вода, до 1 г/л
Бурунгур	29.86				29.86
Джамбай	31,66				31,66
Иштихан	30,30	1.22			31.51
Каттакурган	32.45	2146			34,60
Нарпай	24.86	2.6	0,03		27.49
Нурабад	6,93	0,045			6,97
Ақдарья	27.49				27.49
Патсдаргам	53,64	0,35			53,99
Пахтачи	16 572	7.11	0,018		23,72
Пайарик	40,22	0,6			40,82
Самарканд	16.97				16.97
Тайляк	16,28				16,28
Ургут	30,32				30,32
Кушрабат	5,75				5,75
Города	1,74				1,74
<b>Всего:</b>	<b>365.04</b>	<b>14.07</b>	<b>0,05</b>		<b>379,16</b>

Таблица 5

Минерализация почвы и оросительная водность орошаемых земель Самаркандской области в 2021 году, на тыс. га

Районы	1,0 г/л	1,0-3,0 г/л	3,0-5,0 г/л	Более 5,0 г/л	Проточная вода, до 1 г/л
Бурунгур	29 102				29,10
Джомбай	31 587				31,59
Иштихан	30 969	0,525			31,49
Каттакурган	32 140	2332			34,47
Нарпай	23 065	4378			27,44
Нурабад	7,357	0,038			7,40
Ақдарья	28 850	0,067			28,92
Пайарик	39 455	1362			40,82
Пастдаргам	53 175	0,680			53,86
Пахтачи	18 452	5,029	0,227		23,71
Самарканд	15 397				15,40
Тайляк	16 284				16,28
Ургут	30 406				30,41
Кушрабад	5,745				5,75
Города	2694				2,70
<b>Всего:</b>	<b>364,68</b>	<b>14 412</b>	<b>0,227</b>		<b>379,32</b>

Следует отметить, что качество грунтовых вод в восточной части Среднего Зарафшана хорошее и может быть использовано в качестве питьевой воды, однако в западной части качественная вода сохраняется лишь в узкой, длинной зоне русла реки. На высокогорных равнинах солёность грунтовых вод увеличивается на второй террасе.

#### Заключение

В ходе исследования выяснилось, что экологомелиоративная ситуация в ландшафтах усложняется с подъёмом уровня грунтовых вод. Также в результате полевых исследований удалось научно обосновать тот факт, что в зависимости от видов и способов орошения этот процесс может ускоряться или замедляться.

Доказано, что значение коллекторно-дренажных систем велико в поддержании уровня грунтовых вод на определенном уровне. Снижение уровня грунтовых вод за счёт рекультивации фермерских и межхозяйственных коллекторов, используемых в сельском хозяйстве, позволяет стабилизировать эколого-мелиоративное состояние.

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**ПРОБЛЕМЫ РАЗВИТИЯ КРЕАТИВНОГО ПОТЕНЦИАЛА  
СТУДЕНТОВ НАПРАВЛЕНИЙ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ  
СРЕДСТВАМИ НАРОДНО – ПРИКЛАДНОГО ИСКУССТВА**

*Аннотация. Данная статья рассматривает актуальные вопросы подготовки выпускников направлений дошкольного образования средствами народного декоративно – прикладного искусства Узбекистана, роль и значения традиционных художественных ремесел в развитии креативного потенциала будущих специалистов в сфере дошкольного образования*

*Ключевые слова: традиции, художественные ремесла, народное декоративно – прикладное искусство, декоративная деятельность, креативный потенциал, креативная педагогика, эстетическое суждение и оценка, композиция, орнамент, мотивы, художественные промыслы, усто-шогирд, преемственность.*

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**PROBLEMS OF DEVELOPING THE CREATIVE POTENTIAL OF  
STUDENTS OF PRESCHOOL EDUCATION BY MEANS OF FOLK  
APPLIED ARTS**



*Annotation. This article considers actual issues of training graduates of preschool education by means of folk decorative and applied arts of Uzbekistan, the role and significance of traditional arts and crafts in the development of creative potential of future specialists in the field of preschool education*

*Keywords: traditions, artistic crafts, folk decorative and applied art, decorative activity, creative potential, creative pedagogy, aesthetic judgment and evaluation, composition, ornament, motifs, art crafts, usto-shogird, continuity.*

Современная педагогическая наука рассматривает эстетическое воспитание как сложную философскую и общественно - педагогическую систему, являющееся составной частью общей духовной культуры человека. Установлено, что эстетическое отношение человека к действительности, включая природную и предметную среду, искусству, так же как и литература имеет свои объективные закономерности, которые доступны осмыслению, изучению и использованию в эстетическом, нравственном и в конечном счете духовном развитии и воспитании личности. Эстетические закономерности находят проявление в жизни природы и общества, эстетическом сознании и деятельности.

Другое важное положение – эстетическое воспитание как категорию философскую и педагогическую возможно оценить, как целенаправленный, организованный и контролируемый педагогический процесс формирования личности эстетического отношения к действительности и эстетической деятельности.

Значение эстетического воспитания, роль развития творческого потенциала педагогов - наставников средствами искусства и литературы неоднократно подчеркивались многими великими мыслителями прошлых веков: Аль Фаробий, Абдурахмон Жомий, Алишер Навоий, Абдулла Авлоний и др., выдающимися просветителями как Н. Чернышевский, Л. Толстой, В. Белинский... Данной проблеме были посвящены научные труды многих крупных ученых – педагогов прошлого столетия: В. Сухомлинского, А.С. Макаренко, А. Бакушинского, Л. Выготского и др.

Искусство, особенно народное, с заложенными в ней огромным эстетическим потенциалом и возможностями как наиболее «концентрированная и развитая» форма эстетического сознания занимает особое место как в общей проблематике эстетики как науки, так и в «профессиограмме», разработанной педагогической наукой. И здесь очень важным представляется разработка и создание педагогических условий развития креативного потенциала у студентов - будущих учителей предметов эстетического цикла, в частности учителей дошкольного образования. Исходя из анализа задач эстетического воспитания, вытекающих из трудов ведущих учёных Республики в области теории и методики развития творческого потенциала учащихся молодежи средствами народного, декоративно - прикладного искусства Узбекистана

Р. Хасанова, Б. Бойметова, С. Булатова, К. Касимова, Ш.Т. Хасанова и других, а также последних научных исследований эстетики, искусствознания, психологии и педагогики можно сделать вывод о том, что уровень эстетического воспитания напрямую зависит от уровня эстетического образования будущих учителей. А в условиях Узбекистана, где искусство, особенно национальное декоративно - прикладное: миниатюра, художественная вышивка, золотое шитьё, керамика, художественная резьба и роспись по дереву и ганчу и др. имеют многовековые эстетические идеалы, эстетическое образование является определяющим фактором развития творческого потенциала студентов. Президент Республики Узбекистан Ш. М. Мирзиёев подчеркнул «... важность подготовки в сфере высшего и среднего – специального профессионального образования современно и самостоятельно мыслящих, обладающих высокими духовно – нравственными качествами, образованных и высококвалифицированных кадров» [1.].

Последние годы исследователи – практики дошкольного образования проявляют большой интерес к проблеме обучения и воспитания креативных качеств у детей на основе обучения дошкольников творческим видом искусств, в частности декоративно – прикладного искусства как эффективного средства развития креативности и творческого мышления младших школьников. Потребность воспитания креативных качеств у детей обусловлена бурным развитием современного общества, необходимостью кардинального совершенствования всех видов деятельности, креативных решений и изобретений. Таким образом, современный уровень науки и техники требует творческого отношения, адаптацию к уровню новых требований. Мотивация к творчеству в этих условиях является главной для ребенка, направленным условием для самореализации. И здесь очень важным является сам уровень развития креативной педагогики, как... «особой отрасли педагогического знания, изучающей вопросы организации процесса становления и развития творческих способностей обучающихся, о необходимости педагогического развития творческих способностей...» [2. с. 5].

Необходимым компонентом педагогических условий развития творческого потенциала студентов средствами народного искусства являются мотивационно - целевые условия. Мотивационно - целевые условия должны быть направлены на достижение дидактических, воспитательных и творческих целей. Дидактические цели, в свою очередь должны быть направлены на приобретение студентами – будущими специалистами дошкольного образования комплекса знаний, умений и навыков в сфере народного декоративно - прикладного искусства, особенно его исконных, традиционных видов. К примеру, при изучении традиционной вышивки Узбекистана студент должен знать её основные локальные центры Республики, генезис Бухарского центра

художественного текстиля, вышивки школ Нураты, Шахрисябза, Самаркандского центра художественной вышивки, Сурхандарьи, Карши, Ташкентских, Ферганских центров, знать исторические этапы, динамику развития этого вида художественного ремесла, уметь выделить общие черты и локальные особенности этих школ.

В процессе изучения студенты в курсе «*Методика обучения изобразительной деятельности*» осваивают технику и приёмы работы, композиции сюжана и других изделий, конструктивные построение узоров и орнаментов, колорита, постигая их прелесть и красоту.

И здесь очень важен учёт возрастных и психологических особенностей старших дошкольников, а именно:

- воспитание интереса к уникальным предметам национального декоративного искусства
- знание характерных особенностей узбекского народного прикладного искусства
- воспитание способностей к эстетическому суждению и оценке при восприятии произведения
- обучение детей основам декоративной деятельности по одному из видов народного творчества

Достижение дидактических целей, таким образом, направлено на формировании у обучаемых эстетической образованности, что и обеспечивает в будущем направленность педагога на эстетическое воспитание дошкольников. И самое главное – реализуются такие творческие цели, как развитие у обучаемых способностей к художественному восприятию, формирует креативное мышление, способствует осмыслению значимости эстетического воспитания средствами народного искусства.

Очень важно при создании мотивационно - целевых условий освоения богатейшего художественного наследия наших предков, обеспечение содержательных условий – разработка программ, факультативов, спецкурсов, спец практикумов, в соответствии с блоком самостоятельных занятий учебного предмета «*Методика обучения изобразительной деятельности*» - III – семестр 2 курс.

Самостоятельные занятия в курсе данного предмета по глубокому изучению народного искусства родного края в объеме 90 часов разработан на кафедре педагогики Туркестанского университета новых инноваций. Учебный предмет в значительной степени обеспечен научно - методическим материалом, видео и фото материалами, творческими работами, учебно - методическими комплексами. Здесь задача – непрерывное пополнение содержания обучения с использованием современных информационных и педагогических технологий.

Кроме традиционных форм и методов обучения студентов исконным видам художественных ремесел в программе самостоятельных занятий предусмотрены экскурсии в музей народного декоративно - прикладного

искусства, посещения творческих мастерских известных художников - ремесленников, их приглашения на встречи и выставки творческих работ. Крупный ученый А. Бакушинский справедливо считает, что «очень большое воспитательное значение имеет... эстетическое восприятие природы, конечно главным образом в виде художественных экскурсий. Это восприятие должно представлять с собой своеобразную форму художественного творчества...» [3, с. 126].

Конечной целью организация педагогических условий должно быть формирование у студентов осознанного, устойчивого интереса к национальному народно - прикладному искусству, воспитание на этой базе эстетического вкуса и эстетической восприимчивости.



Можно сделать вывод о том, что, эффективность развития креативного потенциала студентов средствами народного декоративно - прикладного искусства напрямую зависит от оптимальности организации педагогических условий, что в свою очередь влияет на уровень эстетической подготовки и эстетической образованности будущего специалиста. Б. Неменский пишет: «Искусство как культура отношений ко всем явлениям жизни – это группа задач фактически вбирает в себя содержание искусства, выраженное через него нравственно - эстетические, эмоционально - ценностные критерии общества» [4, с.82]. «Постоянный источник эстетических воспитательных дел – мир искусства», - подчеркивает другой автор И.П. Подласый [5, с.170].



Развитие творческого потенциала студентов средствами народного искусства – это процесс целенаправленного формирования интереса и способностей личности к познанию и полноценному восприятию прекрасного, выработки системы представлений об истории художественной культуры узбекского народа, формирование потребностей проявить себя в прикладном искусстве, вносит элементы прекрасного в образовательно –воспитательную среду дошкольников.



Студент 1 курса Туркистанского университета новых инноваций Темиркулова Феруза Умеджановна в процессе самостоятельной работы.

Таким образом, традиционная народная художественная культура в процессе целенаправленного изучения, восприятия, занятия в рамках спецкурсов несёт в себе ряд эстетических воспитательных функций. Роль народного декоративно - прикладного искусства как действенного фактора эстетического воспитания и эстетической образованности будущих учителей - наставников дошкольного образования приобретает в современных условиях исключительно важное значение, является настоящей необходимостью жизни и способствует формированию высоких нравственно - эстетических качеств личности.

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## **ВЛИЯНИЕ ПОЛИМОРФИЗМА ГЕНА ИЛ-10 НА КЛИНИЧЕСКИЕ ИСХОДЫ У ДЕТЕЙ С ПНЕВМОНИЕЙ И АТОПИЧЕСКИМ ДЕРМАТИТОМ**

*Аннотация.*

*Цель: изучить влияние полиморфизмов гена IL-10 на клинические исходы у детей с пневмонией и атопическим дерматитом.*

*Результаты. Исследования показывают, что полиморфизмы гена IL-10 связаны с повышенной восприимчивостью, тяжестью и худшими клиническими исходами у детей с пневмонией и атопическим дерматитом. Полиморфизмы в гене IL-10 влияют на экспрессию и функцию IL-10, способствуя нарушению регуляции иммунного ответа, характерному для этих заболеваний.*

*Заключение. Полиморфизмы гена IL-10 играют роль в клинических исходах пневмонии и атопического дерматита у детей. Выявление этих полиморфизмов может помочь улучшить стратегии стратификации риска, лечения и профилактики этих заболеваний.*

*Ключевые слова: пневмония, ИЛ-10, полиморфизм гена, иммунитет, атопический дерматит, клинический исход.*

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## **THE IMPACT OF IL-10 GENE POLYMORPHISMS ON CLINICAL OUTCOMES IN CHILDREN WITH PNEUMONIA AND ATOPIC DERMATITIS**

*Abstract.*

*Objective: to investigate the impact of IL-10 gene polymorphisms on clinical outcomes in children with pneumonia and atopic dermatitis.*

*Material and methods: a total of 10 studies met the inclusion criteria.*

*Results: the studies suggest that IL-10 gene polymorphisms are associated with increased susceptibility, severity, and poorer clinical outcomes in children with pneumonia and atopic dermatitis. Polymorphisms in the IL-10 gene affect IL-10 expression and function, contributing to the dysregulated immune responses characteristic of these diseases.*

*Conclusion: IL-10 gene polymorphisms play a role in the clinical outcomes of pneumonia and atopic dermatitis in children. Identifying these polymorphisms*

*could help improve risk stratification, treatment, and prevention strategies for these diseases.*

*Keywords: pneumonia, IL-10, gene polymorphism, immunity, atopic dermatitis, clinical outcome.*

**Актуальность.** Пневмония и атопический дерматит являются распространенными воспалительными заболеваниями, поражающими детей во всем мире. Пневмония является основной причиной заболеваемости и смертности среди детей в возрасте до пяти лет, ежегодно унося 1,4 миллиона жизней (1). Атопический дерматит, с другой стороны, является хроническим воспалительным заболеванием кожи, которым страдают до 20% детей в развитых странах (2). Несмотря на различные клинические проявления, и пневмония, и атопический дерматит характеризуются нарушением регуляции иммунного ответа, что приводит к воспалению и повреждению тканей. Было обнаружено, что полиморфизмы гена IL-10 влияют на уровень экспрессии и функцию IL-10, что может способствовать развитию и прогрессированию этих заболеваний (3).

**Цель:** в этом обзоре мы стремимся исследовать влияние полиморфизмов гена IL-10 на клинические исходы у детей с пневмонией и атопическим дерматитом. В частности, мы рассмотрим связь между полиморфизмом гена IL-10 и восприимчивостью к заболеванию, тяжестью и клиническими исходами.

**Методы.** Был проведен комплексный поиск в базах данных Scopus и Pubmed с использованием релевантных ключевых слов, включая «ИЛ-10», «генные полиморфизмы», «пневмония», «атопический дерматит», «дети» и «клинические исходы». Исследования включались, если они соответствовали следующим критериям: (1) были опубликованы на английском языке, (2) проводились у детей с пневмонией или атопическим дерматитом, (3) оценивали влияние полиморфизмов гена IL-10 на клинические исходы и (4) имели размер выборки не менее 50 участников. Всего 10 исследований соответствовали критериям включения и были включены в обзор (4–13).

**Результаты:** Результаты включенных исследований позволяют предположить, что полиморфизмы гена IL-10 связаны с тяжестью и клиническими исходами пневмонии и атопического дерматита у детей. В частности, в некоторых исследованиях было обнаружено, что полиморфизмы гена IL-10 связаны с повышенной восприимчивостью к пневмонии и атопическому дерматиту (4, 7). Кроме того, было обнаружено, что полиморфизмы гена IL-10 ассоциированы с повышенной тяжестью заболевания и худшими клиническими исходами у детей с пневмонией и атопическим дерматитом (5, 6, 8-13).

В таблице 1 приведены характеристики исследований, включенных в этот обзор. Исследования проводились в разных странах, включая Китай, Японию и Турцию, с выборкой от 50 до 394 участников.

Таблица 1: Характеристики исследований, включенных в обзор

№	Страна	количества образцов	Заболевание	Полиморфизма гена ИЛ-10	Исход
1	Китай	394	пневмония	rs1800896 (-1082A/G)	Тяжелая степень
2	Япония	101	Атопический дерматит	rs1800896 (-1082A/G)	Клиническое улучшение на лечение
3	Турция	50	пневмония	rs1800896 (-1082A/G)	смертность
4	Япония	120	Атопический дерматит	rs1800872 (-819C/T)	Тяжелая степень
5	Китай	107	Атопический дерматит	-1082A/G	Повышенный риск развития атопического дерматита (OR = 1.97, p = 0.03)
6	Китай	202	Атопический дерматит	-1082A/G	Ассоциация с более тяжелым атопическим дерматитом (p = 0.03)
7	Япония	132	Атопический дерматит	-592C/A	Связь с повышенным риском атопического дерматита (OR = 2.47, p = 0.03)
8	Китай	150	Атопический дерматит	-819C/T, -592C/A	Ассоциация с более ранним возрастом начала атопического дерматита (p = 0.03)
9	Китай	218	пневмония	-1082A/G	Связь с повышенным риском пневмонии (OR = 1.70, p = 0.03)
10	Китай	190	пневмония	-1082A/G	Ассоциация с более тяжелой пневмонией (p = 0.01)

**Обсуждение:** результаты этого обзора позволяют предположить, что полиморфизмы гена ИЛ-10 связаны с тяжестью и клиническими исходами как пневмонии, так и атопического дерматита у детей. В частности, в некоторых исследованиях было обнаружено, что полиморфизмы гена ИЛ-10 связаны с повышенной восприимчивостью к пневмонии и атопическому дерматиту. Кроме того, установлено, что полиморфизмы гена ИЛ-10 ассоциированы с увеличением тяжести заболевания и ухудшением клинических исходов у детей с пневмонией и атопическим дерматитом.

IL-10 является важным противовоспалительным цитокином, играющим важную роль в регуляции иммунных реакций. Было обнаружено, что полиморфизмы в гене IL-10 влияют на экспрессию и функцию IL-10, что может способствовать развитию и прогрессированию различных воспалительных заболеваний. В контексте пневмонии и атопического дерматита полиморфизмы гена IL-10 могут способствовать нарушению регуляции иммунного ответа, характерному для этих заболеваний.

Связь между полиморфизмом гена IL-10 и повышенной восприимчивостью к заболеванию заслуживает особого внимания. В рассмотренных исследованиях было обнаружено, что полиморфизмы гена IL-10 связаны с повышенным риском как пневмонии, так и атопического дерматита. Это говорит о том, что генетические факторы могут играть важную роль в определении восприимчивости человека к этим заболеваниям.

В дополнение к предрасположенности к заболеванию также было обнаружено, что полиморфизмы гена IL-10 связаны с тяжестью заболевания и клиническими исходами. Например, в исследованиях атопического дерматита полиморфизмы гена IL-10 были связаны с более тяжелым течением заболевания и более ранним возрастом начала заболевания. В исследованиях пневмонии полиморфизмы гена IL-10 были связаны с более тяжелым течением заболевания.

Результаты этого обзора имеют важное значение для диагностики и лечения пневмонии и атопического дерматита у детей. Выявив генетические факторы, влияющие на предрасположенность к заболеванию и его тяжесть, клиницисты смогут лучше адаптировать свои стратегии лечения к конкретным пациентам. Кроме того, определение потенциальных терапевтических целей может привести к разработке новых и более эффективных методов лечения этих заболеваний.

**Заключение:** Полиморфизмы гена IL-10, по-видимому, играют существенную роль в патогенезе и клинических исходах как пневмонии, так и атопического дерматита у детей. Результаты этого обзора позволяют предположить, что полиморфизмы гена IL-10 связаны с повышенной тяжестью заболевания и худшими клиническими исходами у детей с этими заболеваниями. На нарушение регуляции иммунного ответа, характерное для пневмонии и атопического дерматита, могут влиять полиморфизмы гена IL-10, влияющие на экспрессию и функцию IL-10. Выявление этих полиморфизмов может помочь улучшить стратегии стратификации риска, лечения и профилактики этих заболеваний у детей.

Благодарности: мы хотели бы поблагодарить авторов исследований, включенных в этот обзор, за их ценный вклад в эту область. Мы также благодарим базы данных Scopus и Pubmed за предоставление доступа к литературе, использованной в этом обзоре.

Конфликт интересов: Авторы заявляют об отсутствии конфликта интересов в связи с публикацией данной статьи.

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## **РОЛЬ КРУПНЫХ ПРОМЫШЛЕННЫХ ПРЕДПРИЯТИЙ В ЭКОНОМИКЕ ЮЖНОГО УЗБЕКИСТАНА**

*Аннотация. В данной статье раскрывается создание крупных предприятий «Шортангазкимё» и «GTL», которые технологически перерабатывают крупный газ Южного Узбекистана и производят из него различную химическую продукцию для отраслей народного хозяйства, а также хозяйственную деятельность предприятия.*

*Ключевые слова: создание предприятия, специализация, кооперация, концентрация, объем производства, диверсификация.*

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## **THE ROLE OF LARGE INDUSTRIAL ENTERPRISES IN THE ECONOMY OF SOUTH UZBEKISTAN**

*Annotation. This article reveals the creation of large enterprises “Shortangazkimyo” and “GTL”, which technologically process large gas from Southern Uzbekistan and produce various chemical products from it for sectors of the national economy, as well as the economic activities of the enterprise.*

*Key words: creation of an enterprise, specialization, cooperation, concentration, production volume, diversification.*



Южный Узбекистан является основным газодобывающим и промышленно перерабатывающим регионом нашей республики. Газодобывающая и перерабатывающая промышленность в этом регионе создана на базе богатых местных месторождений природного газа. В годы независимости в Кашкадарьинской области был построен и введен в эксплуатацию крупный Шуртанский газохимический комплекс.

Строительство комплекса осуществлялось на основании постановления Кабинета Министров Республики Узбекистан №395 от 11 ноября 1996 года «О строительстве Шуртанского газохимического комплекса по производству полиэтилена». Комплекс расположен в городе Шуртан Гузарского района Кашкадарьинской области. Предприятие входит в состав акционерного общества «Узбекнефтегаз». Предприятие специализируется на производстве продуктов органического синтеза, полиэтилена, топливного газа, сжиженного газа, газового конденсата, гранулята, серы, полиэтиленовых матов, полиэтиленовых пленок, переработке газа, добываемого на местных шахтах.

Среди ведущих мировых компаний, участвующих в строительстве предприятия, — американская ABB Lummus Global, Honeywell, немецкая Fisher, Ermafa, канадская Nova Chemicals, итальянская Renco, ABB Soimi, японская Mitsui, Nisho Iwai, французская «Upedex», российская «Союзнефтранс». ", активное участие приняли фирмы и компании ВНИИГаз. Также со своими инвестициями участвовали «Эксимбанк» США, «Чейз Манхэттен Банк», «Париба» Франции, «Коммерцбанк» Германии, «Эксимбанк» Японии, страховое агентство «Гермес».

Проектная мощность комплекса — 4,2 млрд тонн в год перерабатывает м<sup>3</sup>газ, 125 тыс. тонн полиэтиленовых гранул, 137 тыс. тонн сжиженного газа, 103 тыс. тонн газового конденсата, 4 тыс. тонн гранулированной серы, а также 4,2 млрд. тонн. м<sup>3</sup> специализируется на производстве товарного газа (топлива).

**Таблица №1**

**Информация о сотрудниках предприятия (декабрь 2023 г.)**

№	Должности сотрудников предприятия	Количество работников
I	<b>Общая численность сотрудников, из этого:</b>	3653
1,1	Руководящий состав	243
1,2	Специалисты	656
1,3	Технический персонал	240
1,4	Обслуживающий персонал	598

1,4	Сотрудники производства	1912
1,5	В том числе женщины	640

**Источник:** <https://sgcc.uz/uz/page/complex/statistics>

С момента создания предприятия особое внимание уделялось всестороннему развитию производства. В частности, постоянно увеличивался объем производства продукции.

В настоящее время на предприятии работают 3653 сотрудника. Из них 52,3% - производственные работники, 17,9% - специалисты, 16,3% - обслуживающий персонал, 17,5% от общего числа работающих на предприятии - женщины (табл. 1).

**Таблица №2**

**Объем производства продукции на предприятии**

№	Типы продуктов	2015	2016	2017	2018	2019	2020	2021	2022
1	Газопереработка сырья, млн.т	4182,2	4258,4	4235,2	4223,0	4196,4	4197,4	4174,8	4031,0
2	Переработанный природный газ, млн.т	3570,1	3641,7	3608,3	3607,7	3578,8	3583,6	3526,1	3394,8
3	Сжиженный газ, тыс. тонн	116,3	122,8	121,8	116,9	116,8	117,2	117,5	111,3
4	Газовый конденсат, тыс. тонн	99,8	96,2	102,7	102,9	103,7	104,6	103,6	99,2
5	Полиэтиленовые гранулы, тыс. тонн	134,2	138,1	136,4	135,05	134,7	132,7	135,2	127,4
6	Сера, тыс. тонн	1,1	1,1	1,2	1,1	1,1	1,05	1,1	0,95
7	Полиэтиленовые трубы, тыс. тонн	5,3	3,9	4,4	4,74	4,5	4,4	4,179	3,6
8	Полиэтиленовая арматура, тонн	20,4	25,4	18,5	24,8	32,8	36,0	57,8	81,1
9	Детали системы капельного орошения, тонн	108,9	238,6	132,1	137,74	329,1	268,5	814,5	256,3

**Источник:** <https://sgcc.uz/uz/page/complex/statistics>

Из данных приведенной выше таблицы 2 известно, что на предприятии производится около 10 видов продукции. Промышленная продукция производится на предприятии за счет технологически глубокой переработки местного газового сырья. В 2015-2019 годах объем производства всех видов промышленной продукции на предприятии

увеличился. В течение 2020-2022 годов объем производства промышленной продукции несколько снизился, такие тенденции снижения промышленного производства соответствуют периоду пандемии «Ковид-19».

Более 60% продукции комплекса экспортируется в Россию, Казахстан, страны Балтии, Польшу, Венгрию, Австрию, Грецию, Турцию, Иран, Пакистан, Китай и многие другие зарубежные страны.

Еще одним крупным современным предприятием южного региона является завершённый и введенный в эксплуатацию в 2021 году завод «Узбекистан GTL», расположенный в Гузорском районе Кашкадарьинской области. Предприятие имеет стоимость 3,42 миллиарда долларов и полностью заработает в 2022 году. Предприятие способно перерабатывать 3,6 миллиарда кубометров природного газа и производить 307 тысяч тонн авиационного керосина, 724 тысячи тонн дизельного топлива и 437 тысяч тонн нефти (нефти) в год. Площадь предприятия GTL составляет 135 га. Он оснащен более чем 10 000 оборудованием производства 130 ведущих предприятий из 24 стран мира, таких как Япония, Южная Корея, Сингапур, США, Германия, Италия, Великобритания, Россия, Китай. Он построен и запущен в таких странах, как ЮАР и Малайзия.

Стоимость 1,5 миллиона тонн жидкого топлива, производимого заводом, превышает 1 миллиард долларов. Импортозамещение за счет производства фабричной продукции составляет 500 миллионов долларов в год, экспорт – 200 миллионов долларов, осенью в бюджет ожидается поступление налоговых поступлений в размере 2 триллионов сумов.

Одним словом, эти крупные производственные предприятия, созданные на базе местного сырья в регионе Южного Узбекистана, обеспечивают быстрый рост промышленного производства не только в регионе, но и в Республике Узбекистан, и в то же время, в увеличении объема производства промышленной продукции и товаров народного потребления, они в конечном итоге служат повышению благосостояния населения.

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## **РАЗВИТИЕ ВНЕШНЕЭКОНОМИЧЕСКИХ СВЯЗЕЙ РЕСПУБЛИКИ УЗБЕКИСТАН В ГОДЫ НЕЗАВИСИМОСТИ**

*Аннотация. В данной статье рассматриваются процессы развития внешнеэкономических связей за годы независимости, структурные изменения в экономике на основе проводимых в нашей стране рыночных реформ, удельный вес отраслей материального производства республики во внешнеэкономических связях, а также изучен вопросы дальнейшего развития внешнеэкономических связей республики.*

*Ключевые слова: Экспорт и импорт, внешнеторговый оборот, структура экспорта и импорта.*

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## **DEVELOPMENT OF FOREIGN ECONOMIC RELATIONS OF THE REPUBLIC OF UZBEKISTAN IN THE YEARS OF INDEPENDENCE**

*Annotation. This article examines the processes of development of foreign economic relations over the years of independence, structural changes in the economy based on the market reforms carried out in our country, the share of the republic's material production sectors in foreign economic relations, and also examines the issues of further development of foreign economic relations of the republic.*

*Key words: Export and import, foreign trade turnover, structure of export and import goods.*

На основе активных двусторонних и многосторонних экономических отношений страны мира добиваются экономического прогресса. В связи с этим на основе интеграции стран мира в различные интегрированные группы, интеграции производственных кооперативных отношений процесс интернационализации масштабов производства в мире все больше расширяется. Это требует от каждой страны мира проведения открытой и активной политики внешнеэкономических связей.

Республика Узбекистан в последние годы является одной из быстро развивающихся стран Центральноазиатского региона. После обретения независимости в республике последовательно проводились реформы рыночной экономики, направленные на коренную реструктуризацию экономики.

С первых лет независимости принятие законов и документов о внешнеэкономической деятельности в Узбекистане сыграло важную роль в установлении равноправных отношений между нашей страной и странами мира.

За годы независимости произошли существенные изменения в географии внешнеэкономических связей нашей республики и товарном составе. Если раньше страны СНГ составляли основу внешнеэкономических связей нашей республики, то сейчас вклад зарубежных стран увеличивается. Готовая продукция занимает место сырья в структуре экспорта.

Экономические реформы, проведенные за годы независимости, привели к коренной перестройке всех отраслей экономики нашей страны, достижению глубоких структурных изменений, налаживанию непрерывной цепочки переработки местного сырья с широким внедрением иностранных инвестиций в промышленность и сельское хозяйство, увеличению диверсификация производства и увеличение выпуска готовой продукции. Велась практическая работа по повышению экспортного потенциала регионов и отраслей. Это привело к качественному и содержательному развитию внешнеэкономических связей нашей республики. Увеличилась доля готовой продукции во внешнем экспорте.

«Структурная структура внешней торговли уже много лет не одинакова. В 1996-1997 годах он имел отрицательное соотношение, то есть отрицательное сальдо, а в остальные годы обмен товарами регулярно рассчитывался в пользу нашей страны. За 1995-2013 годы объем экспорта увеличился в 3,8 раза, а импорта за этот период увеличился в 3,0 раза» [3].



Таблица 1

**Страны с высокой долей во внешнеэкономических связях Республики  
Узбекистан (млн долларов США)**

	Страны	2018год				2021год			
		Всего внешне торговый оборот	Из этого:			Всего внешне торговый оборот	Из этого:		
			Экспорт	Импорт	Удельный вес в Республике		Экспорт	Импорт	Удельный вес в республике
1	РФ	5655,9	2 117,3	3538,6	16,9	7 517,0	2058,9	5458,1	17,8
2	КНР	6433,5	2875,4	3 558,1	19,2	7440,9	2518,8	4922,1	17,6
3	Казахстан	2919,6	1352,2	1567,4	8,7	3910,5	1 172,1	2 738,4	9,2
4	Турция	2057,6	944,8	1 112,8	6,2	3388,3	1690,1	1698,3	8,0
5	Республика Корея	2159,2	108,7	2050,5	6,5	1889,5	51,8	1837,7	4,4
6	Республика Кыргызия	402,8	269,7	133,1	1,2	952,6	791,1	161,5	2,2
7	Туркмениста н	302,8	59,5	243,3	0,9	881,9	191,3	690,6	2,0
8	ФРГ	778,7	53,7	725,0	2,3	762,7	70,4	692,3	1,7
9	Украина	427,2	100,1	327,1	1,3	704,0	231,6	472,4	1,6
10	Афганистан	604,6	602,5	2,1	1,8	655,6	649,4	6,2	1,5

*Таблица составлена на основе информации Госкомстата Республики Узбекистан.*

Данные таблицы показывают, что основная часть внешнеторгового оборота нашей Республики соответствует доле таких стран, как Российская Федерация, Китайская Народная Республика, Казахстан, Турция и Республика Корея. В последние годы вклад стран Центральноазиатского региона, таких как Кыргызстан и Туркменистан, во внешнеэкономические связи увеличивается.

В развитии внешнеэкономических связей нашей республики важную роль играет коренная модернизация горнодобывающей и перерабатывающей промышленности на основе передовых инновационных технологий, производство высококачественной готовой к экспорту продукции, политика поддержки и стимулирование экспортной деятельности товаропроизводящих предприятий.

Узбекистан является одной из основных стран-производителей хлопкового волокна не только в Центральноазиатском регионе, но и в мире.

За годы независимости доля хлопкового волокна в структуре экспорта снизилась. Например, доля хлопкового волокна в общем объеме экспорта составила 59,7% в 1990 году, 27,5% в 2000 году, 17,7% в 2013 году, 2,4% в 2020 году (январь-май).

В течение следующих 5 лет в сфере сельского хозяйства нашей республики произошли структурные изменения. Посевные площади хлопка постепенно сокращались, а вместо хлопка расширялись посевные площади под выращивание сахарного тростника, овощей, фруктов и винограда. Также созданы современные тепличные хозяйства на основе инновационных технологий.

В результате Узбекистан стал одной из стран, экспортирующих на мировой рынок готовую промышленную продукцию и различную сельскохозяйственную продукцию. В 2021 году в структуре экспорта нашей Республики была высока доля промышленных товаров, цветных металлов и услуг, а в структуре импорта – машин и транспортного оборудования, промышленных товаров и химикатов, и аналогичной продукции.

Как указано в пункте VII новой стратегии развития Узбекистана на 2022-2026 годы, озаглавленной «Укрепление безопасности и оборонного потенциала нашей страны, проведение открытой, прагматичной и активной внешней политики»:

«Совершенствование правовой основы экономического, культурного и гуманитарного сотрудничества со странами Южной Азии, Ближнего Востока и Африки (Саудовская Аравия, ОАЭ, Кувейт, Катар, Пакистан, Индия, Иран);

Совершенствование правовой базы экономического, культурного и гуманитарного сотрудничества со странами, добившимися сильной экономики в регионе СНГ и Американского региона;

Внедрение современных механизмов регулирования внешнеполитической деятельности Республики Узбекистан. Пересмотр деятельности дипломатической службы исходя из требований времени;

Совершенствование системы регулирования отношений, связанных с международными договорами Республики Узбекистан;

Разрабатывать предложения по укреплению договорно-правовой базы двустороннего и многостороннего сотрудничества Республики Узбекистан с зарубежными странами и международными организациями и координировать их реализацию;

Разработаны и реализуются такие перспективные планы, как «разработка электронной базы данных для единого учета, проверки и мониторинга международных договоров Республики Узбекистан». [1]

Одним словом, за годы независимости расширилась география внешнеэкономических связей нашей Республики, увеличился экспортный потенциал. Узбекистан является одной из стран, которая ведет внешнеэкономические связи со странами мира на равноправной основе,

активно ведет внешнеэкономические связи со многими странами мира. Бурное развитие нашей национальной экономики, основанной на рыночной экономике, обеспечивает всестороннее развитие внешнеэкономических связей нашей республики и служит повышению благосостояния нашего народа.

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## **АУДИТОРСКИЕ ПРОГРАММЫ ПО СБОРУ АУДИТОРСКИХ ДОКАЗАТЕЛЬСТВ КАК ИНСТРУМЕНТ АВТОМАТИЗАЦИИ ВАЖНЕЙШИХ АУДИТОРСКИХ ПРОЦЕДУР**

*Аннотация. В статье рассматривается Понятие и сущность специализированных аудиторских программ и их решение на платформе. Их можно применить для продвижения программы аудита в связи с необходимостью организации практической работы по созданию экспертно-информационных систем. Для этого в ответственных организациях, координирующих аудиторскую деятельность, следует создать специальный отдел, состоящий из экономистов, бухгалтеров, аудиторов, математиков и программистов. Автоматизация процесса аудита определяет эффективность аудиторской работы.*

*Ключевые слова: аудит, анализ, оценка, информационная технология, автоматизация, компьютеризация, доказательства.*

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## **AUDIT PROGRAMS FOR COLLECTING AUDIT EVIDENCE AS A TOOL FOR AUTOMATING IMPORTANT AUDIT PROCEDURES**

*Annotation. The article discusses the concept and essence of specialized audit programs and their solution on the platform. They can be used to promote the audit program in connection with the need to organize practical work on creating expert information systems. To do this, in responsible organizations coordinating audit activities, a special department should be created, consisting*

*of economists, accountants, auditors, mathematicians and programmers. Automation of the audit process determines the effectiveness of the audit work.*

*Key words: audit, analysis, assessment, information technology, automation, computerization, evidence.*

В условиях модернизации экономики растет потребность в повышении эффективности управления бизнесом. Это, в свою очередь, требует активизации и совершенствования системы внутреннего контроля.

На новом этапе реформ, основанном на принципах либерализации экономики и повсеместного внедрения рыночных механизмов, снижение роли государства в экономике и повышение эффективности частного сектора требует разработки четкого, прозрачного и ориентированного на результат механизма.

В процессе своей деятельности хозяйствующие субъекты имеют сложный экономический механизм с множеством независимых и взаимосвязанных систем. Одна из этих систем – обеспечение бухгалтерского учета и внутреннего контроля. Такие системы интегрированы на предприятиях не только как функция управления, но и на этапах внедрения, то есть подготовки экономических данных, их анализа, оценки, исправления ошибок с участием службы внутреннего аудита. Развитие предприятий,

владеющих средствами производства и орудиями труда, во многом будет зависеть от целостности этих средств и эффективности их работы<sup>20</sup>.

Аудиторы собирают свои аудиторские доказательства, используя свои собственные специальные методы проверки в процессе аудита, подтверждают точность и правильность финансовой отчетности результатами аудита и дают свои рекомендации по исправлению учетной информации. Организация аудита на уровне международных стандартов напрямую связана с разработкой и внедрением методов, основанных на современных информационных технологиях.

Стремительное развитие всех сфер жизни общества и государства требует проведения реформ, основанных на современных инновационных идеях, разработках и технологиях, которые обеспечат быстрое и качественное продвижение нашей страны. В то же время анализ показал, что работы по модернизации, диверсификации производства, увеличению его объемов и расширению ассортимента конкурентоспособной продукции на внутреннем и внешнем рынках не проводятся должным образом.

Компьютеризация аудиторской деятельности на основе современных информационных технологий не только экономит время и ресурсы на аудит, но и позволяет получать данные, которые сложно рассчитать вручную. Эта

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<sup>20</sup>“2019 — 2021 йилларда Ўзбекистон Республикасини инновацион ривожлантириш стратегиясини тасдиқлаш тўғрисида” Ўзбекистон Республикаси Президенти Фармони ПФ-5544-сон 21.09.2018й қарори. ([http:// http://lex.uz/pdfs/3914502](http://lex.uz/pdfs/3914502))



информация в первую очередь касается стратегии компании, путей и средств улучшения ее экономического и финансового положения. Используя вычислительные мощности компьютеров, можно было определить, как руководство должно вести себя в течение отчетного периода и как действовать в будущем, на основе данных за отчетный период. Эта информация станет основой для объективной оценки решения, принимаемого руководством предприятий и организаций.

Кроме того, дальнейшее развитие аудита в современных условиях возможно только с использованием специализированных компьютерных программ и информационных технологий. Важным направлением совершенствования современной технологии аудита является ее компьютеризация. Следует отметить, что чем технологичен процесс, соответственно, чем больше он формализован, тем проще его будет автоматизировать. Чем больше средств автоматизации в арсенале аудитора-технолога, тем шире круг операций, которые можно автоматизировать.

Автоматизация процесса аудита повышает эффективность аудита. Хранение большого количества критериев и данных в памяти компьютера, с одной стороны, увеличивает возможности аудитора, с другой – позволяет создать систему контроля и советов. Система компьютеризации аудиторской деятельности состоит из следующих компонентов.

- Использование компьютерных технологий как метода и инструмента аудитора в процессе аудита;

- Проверка информации, разработанной в среде компьютерной информационной системы клиента, на основе оценки надежности и рисков, присущих такой среде.

- Получение, накопление и обобщение аудиторских доказательств.

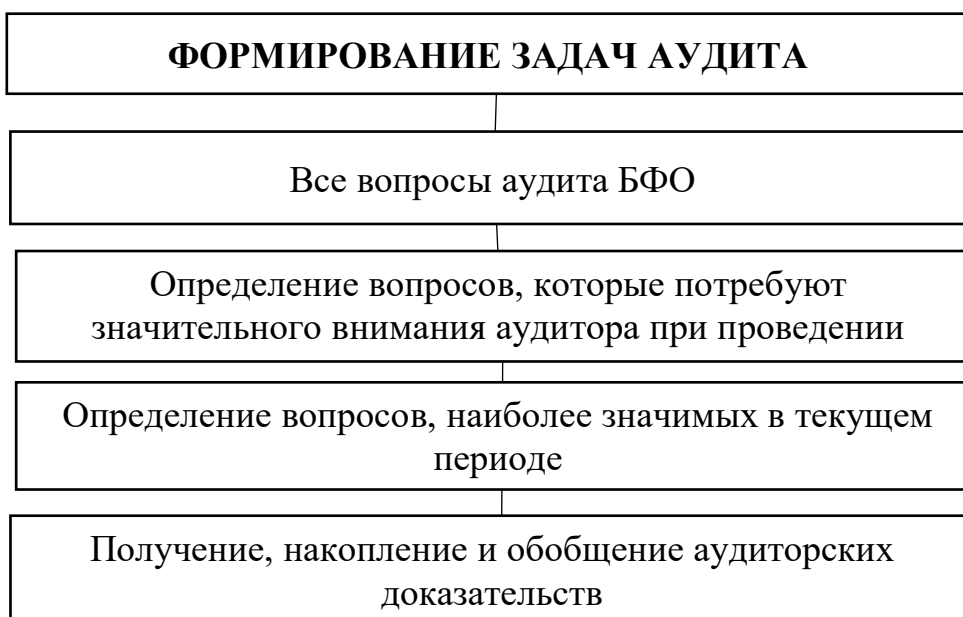
Основная часть аудита также нуждается в автоматизации. Рассмотрим цели и задачи автоматизации аудита на этапе непосредственной проверки.

В начале аудиторской проверки необходимо определить «внутренние» нормативные документы. А именно провести:

1. анализ положений учетной политики;
2. анализ состава учитываемых хозяйственных операций;
3. анализ других общих документов (учредительных документов, лицензий, членства в СРО, долгосрочных договоров и т.п.)

Многие данные из данных документов должны находиться в разделе справочники компьютерных программ. Рис.1

Соответственно компьютерная система будет состоять из функциональной и вспомогательной частей. Функциональная часть состоит из методов, приемов и инструкций, отраженных в информационно-математических моделях, стандартах, нормах и т.д., используемых в управлении аудитом.



**Рис. 1. Схема конкретизации задач аудита<sup>21</sup>**

Вспомогательная часть – это информационное программное обеспечение, предназначенное для выполнения функции аудита. Если мы посмотрим на функциональную часть компьютерной системы более широко, она состоит из функциональных систем и сложных вопросов, разделенных конкретными характеристиками. Например:

по типу аудита (внешний, внутренний)

по функции аудита (контрольно-инспекционный, управленческий консалтинг, консалтинг-прогнозирование и др.);

Система компьютеризации внутреннего аудита, напротив, предназначена только для данного предприятия, что отражает расчет его учетных характеристик, финансовых и других показателей. Например, рентабельность рассчитывается по-разному, однако на предприятии может применяться определенный метод. Диагностику и инструктаж тоже можно провести особым образом. Они представляют собой цели и задачи, поставленные руководством предприятия.

Анализ показывает, что компьютеризированная система внешнего аудита отличается от системы внутреннего аудита своими функциями и источниками информации и, что наиболее важно, своими пользователями. Система внешнего аудита должна учитывать общие стандарты и правила проверяемого лица. Они приходят на предприятие извне и носят общий характер. Проблема в том, что компьютерная система, выполняющая внешний аудит, совместима с корпоративной программной средой (операционная система, сервисные инструменты и т.д.).

<sup>21</sup> *Посохина А.В.* Вариант развития современного аудита в условиях автоматизации // Развитие учетно-аналитической и контрольной системы в условиях глобализации экономических процессов: сб. науч. ст. / под общ. ред. Т.Г. Шешуковой / Перм. гос. ун-т. Пермь, 2016. С.248-260

Цели и вопросы могут быть сформулированы и согласованы специалистами, назначенными руководством предприятия. Поэтому адаптировать эту систему к разным предприятиям будет немного сложно и проблематично.

Если в ходе сбора аудиторской доказательстве выявлена ошибка, необходимо определить причину (умышленную, случайную или по вине системы бухгалтерского учета). Более опасно указывать на причину ошибки абсолютно и ясно. Следовательно, можно использовать коэффициенты уверенности или меры уверенности теории неопределенной логики. Эти коэффициенты позволяют оценить характеристику ошибки по шкале от 0 до 1. Результаты аудиторской доказательстве хранятся в специальных файлах и используются в аудиторском отчете по окончании работы системы. Для проверки правильности и достоверности отчета предприятия используются специальные графики испытаний, правила аудита, стандарты и нормы. Табличные индикаторы включают арифметические и логические отношения между записями, записями реестра учетных записей. Правила основаны на знаниях эксперта и отражают последовательность работы, выполняемой аудитором при сборе аудиторской доказательстве действий бухгалтерского персонала.

Хорошо иметь операторов связи с примерным форматом и структурой данных, необходимыми для экспертной консультационной системы. Однако, поскольку разные клиенты имеют разное содержание и структуру, система экспертного консультирования может стать концепцией, которая соответствует желаемой структуре. Решить эту проблему можно путем параметрической настройки программ экспертной и информационно-консультационной системы на работу с клиентскими файлами вместо конвертации клиентских файлов. экспертно-информационная совместимость информационных систем клиентских файлов с системными файлами двумя способами:

- путем преобразования файлов учетной системы клиента в файлы, которые может получить сбора доказательств эксперт и программная оболочка информационной системы;
- Программная оболочка эксперта и информационной системы может быть реализована путем параметрической настройки системы источника информации клиента.

Первый способ выполняется иначе под влиянием следующих факторов:

возможно: Экспорт и информация в клиенте - использование той же программной оболочки учетной системы в консалтинговой системе; у клиента есть программная оболочка системы бухгалтерского учета высокого уровня от экспортной и информационно-консультационной системы; использование централизованных или сетевых форм обработки данных в клиенте; это требует создания процедур совместимости

информации, которые имеют место на разных уровнях воздействия. Самый простой, самый простой - первый фактор включает преобразование файлов в системе программирования. Вторым фактором - это преобразование файлов, которые можно обрабатывать в разных программных оболочках. Третий вариант - это смешанный вариант, основанный на частичном использовании операционных входных данных, введенных аудитором вручную. В практике сбора аудиторской доказательств есть обязательное требование включения отдельных первичных документов.

Возникает проблема конвертации клиентских файлов в оптимальное программное обеспечение для экспертной и информационно-консультационной системы. Отсюда проблема преобразования клиентских файлов в форму, принимающую программную оболочку экспертной и информационно-консультационной системы.

Первая группа показателей заключается в том, что расчет производительности труда на основе достигнутого результата может быть несколько неточным или вводить в заблуждение аудиторские организации, так как результаты сбора аудиторской доказательств будут другими, и в процессе аудита будет допущен ряд рисков. Вторая группа показателей относится к предоставленным услугам, т.е. Какие услуги были предоставлены заказчику? он отвечает. Здесь есть несколько основных услуг: аудиторские услуги, налоговые услуги, услуги по восстановлению бухгалтерского учета и консультации. Основная часть услуг - это аудит финансово-хозяйственной деятельности. Показатели, рассчитанные на основе сбора аудиторской доказательств финансово-хозяйственной деятельности, позволяют оценить эффективность аудиторских компаний. Окончательный результат исследования в этом порядке проясняет следующие вопросы, а именно: определение разницы между услугами, предоставляемыми аудиторскими организациями; в отслеживании скорости изменения в результате изучения комиссионных, выплачиваемых клиентам. Сравнение результатов с количеством обследованных участников и сравнение их с заработной платой и отработанными часами даст аналогичный показатель производительности труда. Некоторые типы проверки могут отличаться в зависимости от характера сети.

Одним словом, необходимо организовать практическую работу по созданию экспертных и информационно-консультационных систем в сборе аудиторской доказательств по компьютеризации аудита.

Поэтому сотрудникам целесообразно разрабатывать и внедрять собственные рабочие программы, исходя из особенностей экономики и предприятий страны, изучая опыт использования информационных систем для компьютеризации в аудиторском доказательстве аудиторской деятельности в компаниях, работающих в нашей стране и за рубежом.

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**ФИТОХИМИЧЕСКОЕ ИЗУЧЕНИЕ КОДОНОПСИСА  
(CAMPANULACEAE)**

*Аннотация. Фитохимические исследования показали, что полиацетилены, фенилпропаноиды, алкалоиды, тритерпеноиды и полисахариды видов *Codonopsis* способствуют нескольким биологическим действиям.*

*Ключевые слова: фитохимия кодонопсиса, биологическая активность, контроль качества.*

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**A PHYTOCHEMICAL STUDY OF CODONOPSIS  
(CAMPANULACEAE)**



*Annotation. Phytochemical studies have revealed that polyacetylenes, phenylpropanoids, alkaloids, triterpenoids and polysaccharides in Codonopsis species contribute to several bioactivities.*

*Keywords: Codonopsis phytochemistry, bioactivity, quality control.*

Род *Codonopsis* относится к семейству колокольчиковых и включает 42 вида многолетних обоеполюх растений. В основном встречается в Центральной, Восточной и Южной Азии и других странах. В Китае можно встретить около 40 видов кодонопсиса. Однако *C. pilosula* (фр.) Nannf., *C. pilosula* Nannf. есть скромная (Наннф.) Л. Д. Шен, *C. таншен* Олив. и *C. lanceolata* (Sieb. и Zucc.) Vent. & Крюк. ф. бывший Траутв. являются распространенными видами, свежие или сушеные корни которых известны как лекарственные препараты и используются в народной медицине на протяжении сотен лет. *Codonopsis Radix* назначают в виде высушенных корней *C. pilosula*, *C. pilosulavar. Modeta* и *C. tanshen* в Китайской фармакопее.

*Codonopsis Radix* известен как «Дангшен» по-китайски, «Таджин» по-японски и используется в традиционной китайской медицине для восполнения дефицита ци (жизненной энергии), укрепления иммунной системы, улучшения работы желудочно-кишечного тракта, улучшения язвы желудка и улучшения аппетита., кровяное давление и т. д. В китайской медицине женьшень (*Panax ginseng* CA Mey.) иногда используется в качестве заменителя. Сообщается, что другие виды *Codonopsis*, в том числе *C. Tubeulosa*, *C. subglobosa*, *C. clematidea* и *C. lanceolata*, в некоторых регионах использовались в качестве заменителей *Codonopsis Radix*. *C. lanceolata*, обычно называемый репчатым луком, является очень ценной травой в традиционной китайской медицине, а ее корень популярен как специальная трава в некоторых азиатских странах. *C. lanceolata* используется для лечения бронхита, астмы, кашля, туберкулеза, диспепсии и психоневроза.

Фитохимические исследования показали наличие у видов *Codonopsis* алкалоидов, фенилпропаноидов, тритерпеноидов, полиацетиленов, флавонов, органических кислот, полисахаридов и других веществ. Среди них полиацетилены, фенилпропаноиды, алкалоиды, тритерпеноиды и полисахариды являются основными компонентами и ответственны за многие важные процессы, происходящие в растениях этого рода. Большие различия в химических профилях между видами и наборами образцов могут привести к тому, что эти виды *Codonopsis* будут иметь различную биологическую активность. Некоторые соединения, принадлежащие к этим пяти химическим классам, оцениваются на предмет потенциальной биологической активности и фармакологических механизмов. Однако фармакологические механизмы биологической активности и клинического

применения этих видов *Codonopsis* остаются неизвестными. Кроме того, токсичность кодонопсиса не освещена в научной литературе.

Поскольку многие исследования показали, что различные химические компоненты способствуют воздействию видов *Codonopsis*, количественное определение биологически активных компонентов для обеспечения эффективности видов *Codonopsis* остается актуальным. В Китайской фармакопее (издание 2010 г.) в качестве химического маркера для идентификации *Codonopsis Radix* используется только лобетоллин, который оказался бесполезным для многих видов *Codonopsis*. Таким образом, в нескольких исследованиях были предприняты попытки разработать точные, чувствительные и селективные аналитические методы для качественной и количественной оценки материалов *Codonopsis*. В этом обзоре суммируются и оцениваются доступные фитохимические и биоактивные свойства рода *Codonopsis*, о которых сообщается в литературе, чтобы предоставить информацию, которая принесет пользу традиционному использованию и научным исследованиям. Кроме того, представлены результаты исследований по эффективному и безопасному использованию кодонопсиса, а также оценка качества разных видов кодонопсиса.

В течение последних 30 лет во всем мире проводились фитохимические исследования видов рода *Codonopsis*. Лишь некоторые растения видов *Codonopsis* были изучены с целью химико-таксономической идентификации, разделения и идентификации различных важных химических веществ этого рода, а также сравнения химических веществ в разных видах растений. *C. pilosula*, *C. tanshen*, *C. lanceolata* и *C. clematidea*, фитохимия которого широко изучена; Выделено и идентифицировано более 100 соединений. С другой стороны, о небольшом количестве соединений сообщалось в *C. cordifolioside*, *C. nervosa*, *C. thaltrifolia*, *C. xundianensis* и *C. Tubeulosa*, поскольку они встречаются только в некоторых регионах. Составные части остальных видов *Codonopsis* еще не зарегистрированы, поскольку эти виды *Codonopsis* трудно собрать или они могут быть в дефиците. К настоящему времени из различных частей растений этих видов *Codonopsis* выделены и охарактеризованы полиацетилены, фенилпропаноиды, алкалоиды, тритерпеноиды, полисахариды и другие вещества.

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## **ОБЩИЕ ПОНЯТИЯ О ГЕТЕРОЦИКЛИЧЕСКИХ СОЕДИНЕНИЯХ**

*Аннотация. Приведены сведения о происхождении, химических и физических свойствах, получении и использовании 5- и 6-членных конденсированных гетероциклических соединений.*

*Ключевые слова: пурин, пиримидин, пиррол, тиофен, индол.*

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## **GENERAL CONCEPTS OF HETEROCYCLIC COMPOUNDS**

*Annotation. Information is provided on the origin, chemical and physical properties, production, and use of 5- and 6-membered condensed heterocyclic compounds.*

*Keywords: purine, pyrimidine, pyrrole, thiophene, indole.*

Гетероциклические соединения образуются путем образования замкнутой цепи, причем в образовании замкнутой цепи, помимо атома углерода, участвуют «чужие» атомы — атомы таких элементов, как кислород, азот, сера. Гетероциклические соединения разнообразны, и теоретически в образовании кольца может участвовать элемент, способный образовывать хотя бы две ковалентные связи. Гетероциклические соединения с азотом, кислородом и серой широко распространены в природе и хорошо изучены.

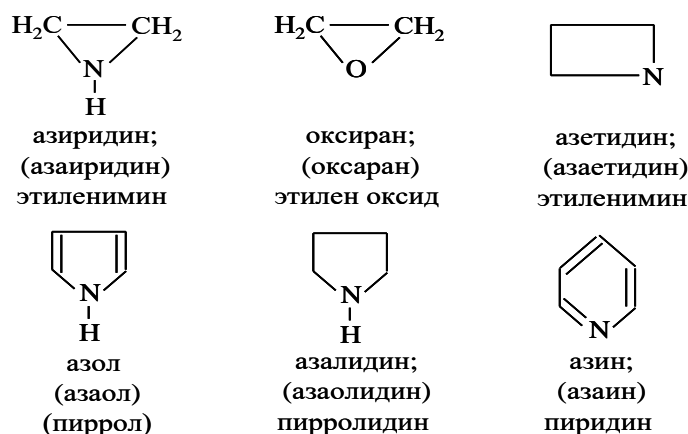
Элементы, участвующие в образовании замкнутой цепи вместе с атомами углерода, называются гетероатомами. В зависимости от их количества в кольце гетероциклические соединения делятся на гетероциклические соединения с одним, двумя, тремя и т.д. гетероатомами. Гетероциклические соединения. Трех-, четырех-, пяти-, шести- и четночленные гетероциклические соединения (их еще называют гетероциклами) устойчивы. Гетероциклические соединения могут иметь компактную структуру. Гетероциклические соединения широко распространены в природе (к гетероциклическим соединениям относятся лекарственные средства, алкалоиды, пигменты и др.) легли в основу развития химии соединений. В настоящее время две трети исследований, проводимых химиками всего мира, сосредоточены на синтезе гетероциклических соединений и изучении их свойств.

Свойства большинства гетероциклических соединений, близких к жирным соединениям, — оксида этилена, лактонов, ангидридов, двухосновных карбоновых кислот — с рассмотренными и предыдущими разделками. Эти соединения легко образуются из соединений с открытой цепью и в результате разрыва кольца снова превращаются в соединения с открытой цепью. Некоторые из гетероциклических соединений отличаются по своим свойствам от других органических соединений и в большей или меньшей степени повторяют свойства ароматических соединений. Они легко включаются в такие реакции, как галогенирование, нитрование, сульфатирование, алкилирование, ацилирование, характерные для бензола. Эти свойства обусловлены наличием в их кольце секстета электронов.

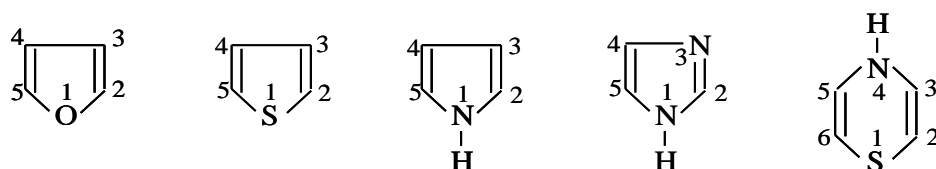
В результате взаимодействия 2  $\pi$ -связей и неспаренных свободных электронов в гетероатоме образуется небольшое электронное облако, и катушка распределяется в одной плоскости. Стабильность секстета  $\pi$ -электронов и бензольных колец отличается от гетероциклов.

Помимо реакции обмена и торможения, характерной для ароматических углеводов, для гетероциклических соединений характерна реакция обмена гетероатомов и углерода, называемая карбонизацией.

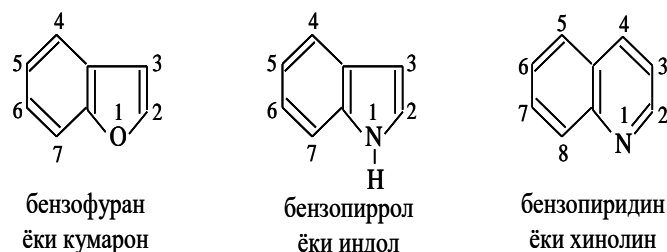
При наименовании гетероциклических соединений в настоящее время придерживаются следующего правила: в зависимости от природы гетероатома это окса(O), тию(S), азо(N); в зависимости от числа атомов в кольце ir – (3), et – (4), ol – (5), in – (6); В зависимости от степени насыщенности используются суффиксы типа -идин- (N-насыщенное кольцо), -ан- (N-свободное кольцо), -ин- (ненасыщенное) и т. д., например:



Вышеуказанные гетероциклы принято называть пирролом, пирролидином, пиридином. Если в кольце один гетероатом, нумерация начинается с этого гетероатома. Если в кольце несколько гетероатомов, первым нумеруют кислород, затем серу и азот. Если в кольце есть NH и N, то сначала ставится число – NH-, затем – N. Пяти- и шестичленные гетероциклические соединения нумеруются следующим образом:



В одночленных гетероциклах состояния 2 и 5 — это  $\alpha$ ,  $\alpha'$ , состояния 3 и 4 — это  $\beta$ ,  $\beta'$ -состояния; 2-е и 6-е состояния в шестичленных гетероциклах —  $\alpha$ ,  $\alpha'$ -; Состояния 3 и 5 называются  $\beta$ ,  $\beta'$ -, а состояние 4 называется  $\gamma$ -состоянием. Гипсированные полициклические гетероциклы называют разными названиями (кумарон, индол, хинолин и др.). Но эти соединения можно назвать в зависимости от того, из каких колец состоит молекула. Если негетероатомная часть кольца содержит бензольное кольцо, если имеется бензо-, нафталиновое кольцо, используют приставки нафто. Например:





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## **РЕЗЕРВИРУЮЩЕЕ УСТРОЙСТВО ДЛЯ ЭЛАСТИЧНЫХ КОНТЕЙНЕРОВ НА ХЛОПКОУБОРОЧНОЙ МАШИНЕ**

*Аннотация. Процесс перемещения контейнеров, заполненных уплотненным хлопком из зоны уплотнения в резервирующее устройство, вызывает колебания остова и уборочных аппаратов, что может отрицательно сказаться на агротехнические показатели хлопкоуборочной машины. Используются основные положения теории колебаний, предложены конструкции устройств, снижающих колебания механизмов машины.*

*Ключевые слова: хлопкоуборочная машина, эластичный контейнер, уплотнение, резервирующее устройство, колебания, остов машины, уборочные аппараты.*

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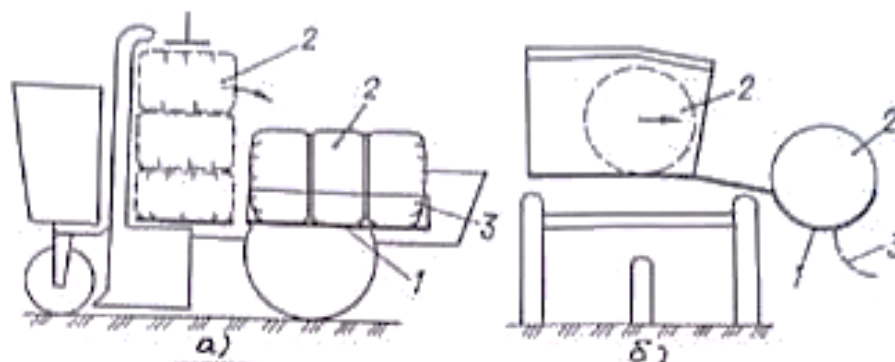
## **RESERVING DEVICE FOR ELASTIC CONTAINERS ON A COTTON PICKER**

*Annotation. The process of moving containers filled with compacted cotton from the compaction zone to the backup device causes vibrations of the frame and harvesting apparatus, which can negatively affect the agrotechnical performance of the cotton harvester. The basic principles of the theory of vibrations are used, and designs of devices that reduce vibrations of machine mechanisms are proposed.*

*Key words: cotton picker, elastic container, compaction, backup device, vibrations, machine frame, harvesting devices.*

Научно-исследовательским институтом механизации сельского хозяйства (НИИМСХ) и Каршинским инженерно-экономическим институтом (КИЭИ) предложена технология и технические средства для

сбора, погрузки-разгрузки и транспортировки хлопка-сырца контейнерным способом [1-3].



**Рис.1.** Схема резервирующих устройств на хлопкоуборочной машине:

а) вертикальное, б) горизонтальное резервирующие устройства.

1-резервирующее устройство; 2-контейнер; 3-откидной борт; 4-уплотнительная камера;

В результате анализа технологии и машин для сбора хлопка, предлагается схема, представленная на рис.1. Здесь одно или два (расположенных симметрично относительно остова машины) боковые резервирующие устройства 1, вмещают по одному контейнеру 2. Выгрузка осуществляется откидыванием дугообразного борта 3 в процессе разворота машины. Каждое резервирующее устройство работает индивидуально со своей уплотнительной камерой 4.

По конструктивно-компоновочным соображениям наиболее приемлемы два способа расположения контейнера на хлопкоуборочной машине при наполнении его хлопком – вертикальное (рис.1.а) и горизонтальное (рис.1.б). в зависимости от расположения контейнера хлопкоуборочная машина получила названия – машина с вертикальной или горизонтальной камерами уплотнения.

Разработаны обе конструкции, описанные в работах /10-12/. Хотя эти конструкции имеют различные компоновочные схемы, предполагаемая схема резервирующего устройства приемлема для обеих и является универсальной. При этой схеме наполненный хлопком контейнер перемещается в резервирующее устройство и укладывается в горизонтальном положении.

Резервирование заполненных хлопком контейнеров осуществляется либо путем падения контейнера, предварительно наклоненного устройством замены контейнеров при вертикальной камере уплотнения, либо путем выкатывания контейнера по наклонной плоскости, при горизонтальной камере. Исходя из этого, процесс перемещения контейнера из вертикальной уплотнительной камеры в резервирующее устройство

получил название – вертикальное резервирование, а из горизонтальной – горизонтальное резервирование.

В процессе резервирования происходит перемещение массы контейнера на хлопкоуборочной машине в момент сбора хлопка. Этот динамический процесс вызывает реакцию остова машины и, как следствие, колебания остова машины и аппаратов.

Большой вклад в развитие теории динамики хлопкоуборочных машин внесли: Глущенко А.Д, Туранов Х.Т, Матчанов Р.Д. Тошболтаев М. и др [4-6]. Влиянию колебаний аппаратов на полноту сбора посвящена работа А.Б.Газибекова [7]. В работе даны аналитические зависимости полноты сбора от амплитуды линейных и угловых колебаний аппаратов.

**Аналитические исследования делятся на три последовательных этапа:**

- исследование пространственных колебаний остова хлопкоуборочной машины, как консервативной динамической системы, в процессе резервирования;

- исследование зависимости вынужденных колебаний аппаратов с серийной подвеской от пространственных колебаний остова машины;

- определение ожидаемого снижения полноты сбора в результате колебаний аппаратов.

**В процессе исследований были приняты следующие допущения:**

- удар контейнера о платформу резервирующего устройства считаем неупругим;

- до начала удара контейнера, система находится в равновесном состоянии;

- центр тяжести контейнера сосредоточен в его геометрическом центре;

- сопротивлением системы пренебрегаем.

Процессом резервирования назван процесс перемещения контейнера из уплотнительной камеры в резервирующее устройство, где контейнер располагается в горизонтальном положении. Эластичный контейнер имеет цилиндрическую форму с одинаковыми параметрами:

- высота контейнера 1,8 – 2,0 м;

- диаметр контейнера 1,1 – 1,2 м;

- масса хлопка в контейнере 250-300 кг.

Таким образом, оба способа резервирования вызывают колебания хлопкоуборочной машины, обусловленные взаимодействием кинетической энергии контейнера и потенциальной энергии остова хлопкоуборочной машины. Поэтому при исследовании процесса резервирования машину следует рассматривать, как стационарную консервативную систему с несколькими степенями свободы. Рассмотрим возможные пространственные колебания хлопкоуборочной машины.

Как любое твердое тело, машина может иметь шесть степеней свободы: продольно-горизонтальные ( $x$ ); поперечно-горизонтальные ( $y$ ) и вертикальные ( $z$ ) колебания центра тяжести, а также угловые колебания вокруг центр масс: продольно-угловые ( $\psi$ ) относительно поперечной оси ( $Y$ ); поперечно-угловые ( $\theta$ ) относительно продольной оси ( $X$ ) и угловые перемещения ( $\varphi$ ) относительно вертикальной оси ( $Z$ ).

Уравнение движения системы, находящейся в консервативном силовом поле и обладающей  $S$ - степенями свободы, носит название уравнение Лагранжа второго рода для консервативных систем и имеет вид [8]:

$$\frac{d}{dt} \left( \frac{dT}{dq_j} \right) - \frac{dT}{dq_j} = - \frac{d\Pi}{dq_j}, \quad j = 1, 2, \dots, s, \quad (1)$$

где  $T$  – кинетическая энергия системы;  $\Pi$  – потенциальная энергия системы;  $S$  – число степеней свободы ( $S=3$ );  $q_j$  – обобщенная координата.

Кинетическая энергия  $T$ , которой обладает система после неупругого удара контейнера, входящая в уравнение (1) определится как суммарная энергия машины и контейнера по соответствующим координатам

$$T = \frac{1}{2} \sum_{i=1}^3 \sum_{j=1}^3 a_{ij} q_i q_j, \quad (i, j = 1, 2, 3), \quad (2)$$

где  $a_{ij}$  - коэффициент инерции.

В нашем случае удар неупругий и поэтому считаем, что система колеблется как одно целое, т.е. масса контейнера после удара принадлежит массе машины.

Однако при небольших скоростях, не все возможные колебания достигает существенных величин. Существенных значений обычно достигают лишь вертикальные линейные ( $z$ ), продольно-угловые ( $\psi$ ) и поперечно-угловые ( $\theta$ ) колебания [8].

Нами определены свободные пространственные колебания остова хлопкоуборочной машины при резервировании контейнера по трем степеням свободы. Принимая колебания остова как возмущающий фактор, определим вынужденные колебания уборочных аппаратов. Учитывая, что основное снижение полноты сбора определяется горизонтально-поперечными и вертикальными колебаниями аппаратов [10,11], ограничимся изучением этих колебаний.

Вертикальные колебания аппаратов возможны за счет податливости гидросистемы подъема и опускания аппаратов и определяется коэффициентом ее жесткости  $C_n$ .

Поперечно-горизонтальные колебания аппаратов относительно остова, по конструктивным соображениям, не могут достигать существенных значений, поэтому принимаем, что аппараты относительно остова хлопкоуборочной машины в этом направлении не колеблются. Определяющее влияние горизонтально-поперечных колебаний на полноту

сбора оказывают колебания нижней части рабочей щели аппаратов, непосредственно контактирующей с основаниями кустов хлопчатника. Поэтому поперечно-горизонтальные колебания аппаратов определяются угловыми колебаниями остова хлопкоуборочной машины вокруг продельной оси  $X$ . Следовательно

$$A_r = \rho\theta$$

или с учетом (2).

$$A_r = \rho \sum_{r=1}^3 \mu_2^{(r)} A_1^{(r)} \sin(k_r t + \beta_r) \quad (3)$$

где  $A_r$  - амплитуда поперечно-горизонтальных колебаний аппаратов;  $R$ -полярный радиус от оси  $X$  до нижней части рабочей щели.

Исходя из сказанного, заключаем:

- горизонтально-поперечные колебаний аппаратов – суть угловые колебания  $\theta$  остова машины;
- вертикальные колебания аппаратов, есть вынужденные колебания системы с одной степенью свободы.

Такие колебания описываются дифференциальным уравнением, имеющим вид.

$$\ddot{q} + 2n\dot{q} + k^2 q = \frac{1}{a} Q_F(t),$$

$$2n = \frac{b}{a}; k^2 = \frac{c}{a}, \quad (4)$$

$c$  – коэффициент жесткости;  $a$  - коэффициент инерции;  $b$  - коэффициент рассеивания энергии;  $k$  - частота собственных колебаний;  $q$  - обобщенная координата.

Определение снижения полноты сбора от колебаний уборочных аппаратов производилось по эмпирическим зависимостям, приведенным в работе [6].

$$\begin{aligned} \Delta\Pi_r &= A_y(A_r) = A_1 A_r + A_2 A_r^2, \\ \Delta\Pi_e &= A_z(A_e) = A_1 A_e + A_2 A_e^2, \end{aligned} \quad (5)$$

где  $A_1 = 0,05\% / \text{см}$ ,  $A_2 = 0,11\% / \text{см}^2$ ,  $B_1 = 0,1\% / \text{см}$ ,  $B_2 = 0,087\% / \text{см}^2$

- коэффициенты функций снижения полноты сбора хлопка при 90% показателях полноты сбора;

$A_r$  амплитуда поперечно-горизонтальных колебаний аппаратов;

$A_e$  амплитуда вертикальных колебаний аппаратов.



Общее снижение полноты сбора определено суммированием снижений за счет горизонтальных и вертикальных колебаний

$$\Delta\Pi = \Delta\Pi_r + \Delta\Pi_e \quad (6)$$

Таким образом, в результате проведенных аналитических исследований, определено снижение полноты сбора от динамических воздействий массы резервируемого контейнера на остов хлопкоуборочной машины, т.е. с помощью метаматического аппарата прослежен путь влияния удара контейнера о платформу резервирующего устройства, через динамическую систему остов – подвеска – аппараты на полноту сбора хлопкоуборочной машины.

В таблице приведены результаты расчетов амплитуд колебаний остова и аппаратов хлопкоуборочной машины в зависимости от массы резервируемого контейнера и ожидаемое снижение полноты сбора. Из этой таблицы видно, что процесс резервирования контейнера вызывает значительные колебания уборочных аппаратов хлопкоуборочных машины и приводит к снижению полноты сбора до 2,3-4,5%, что недопустимо.

Следовательно, необходимо принять дополнительные меры по снижению амплитуд колебаний аппаратов.

#### Результаты аналитических исследований

Параметр	Экспериментальная установка на базе ХНП-1,8				
	Масса контейнера $m_k$ , кг.				
	250	275	300	325	350
Z, см	3,1	3,26	4,23	4,7	5,0
$\theta$ , рад	0,014	0,016	0,019	0,021	0,023
$\varphi$ , рад	0,015	0,015	0,02	0,022	0,025
$A_r$ , см	2,43	2,61	3,16	3,67	3,9
$A_B$ , см	1,1	1,15	1,5	1,67	1,79
Снижение полноты сбора, %	1,0	1,1	1,6	2,1	2,3

На основании проведенных аналитических исследований можно сделать следующие выводы:

1. Процесс резервирования контейнеров вызывает значительные колебания аппаратов хлопкоуборочной машины, что может привести к снижению полноты сбора хлопка-сырца на 2,3-4,41%. Поэтому для уменьшения амплитуды колебаний аппаратов, резервирующее устройство должно устанавливаться на спорное колесо, движущееся по междурядью.

2. Предполагается, что резервирующее устройство с опорными колесами окажет демпирующее действие на уборочные аппараты не только в процессе резервирования, но и в процессе сбора хлопка с зарезервированным контейнером.

3. Рациональной схемой резервирующего устройства для навесной системы хлопкоуборочной машины является схема с боковым расположением контейнеров и выгрузкой на обе стороны. Такая схема является универсальной как для горизонтальной, так и вертикальной камер уплотнения.

4. В работе хлопкоуборочной машины появляется новый динамический процесс, связанный с перемещением довольно значительной массы контейнера. Поэтому необходимо изучить влияние этого процесса на их динамические и, связанные с ними, агротехнические показатели хлопкоуборочной машины.

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## **ТЕХНИКА И ТАКТИКА ЗАЩИТЫ В ВОЛЕЙБОЛЕ**

*Аннотация. В статье рассматриваются особенности техники и тактика защиты в волейболе. Игра в защите в волейболе, так же, как и в остальных командных видах спорта, играет большую роль в достижении победы. Эффективность действий защитника в волейболе зависит от подвижности, быстроты реакции, ловкости, умения владеть различными способами перемещения: рывками, прыжками, выпадами, падениями и бросками.*

*Ключевые слова: рывок, прыжок, быстрота, ловкость, блок, передача мяча, защита.*

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## **TECHNIQUES AND TACTICS OF DEFENSE IN VOLLEYBALL**

*Annotation. The article discusses the features of technology and defensive tactics in volleyball. Playing defense in volleyball, as in other team sports, plays a big role in achieving victory. The effectiveness of a defender's actions in volleyball depends on mobility, reaction speed, agility, and the ability to master various methods of movement: jerks, jumps, lunges, falls and throws.*

*Key words: dash, jump, speed, agility, block, passing the ball, defense.*

На современном этапе развития волейбола наблюдается тенденция опережающего роста тактического мастерства нападающих игроков по сравнению с совершенствованием тактики в защите. Игра в защите в волейболе, так же, как и в остальных командных видах спорта, играет большую роль в достижении победы. Нередко выигрывает именно та команда, которая лучше демонстрирует оборонительные действия [4].

Систематические тренировки позволяют выработать соответствующие навыки и повысить уровень подготовки в игре. Правильно построенная командная защита в волейболе играет важную роль, давая возможность отражать удары противника. Это сложный процесс, требует слаженных действий всей команды. Эффективность действий защитника зависит от подвижности, быстроты реакции, ловкости, умения владеть различными способами перемещения: рывками, прыжками, выпадами, падениями и бросками. Умение координировать движения и ориентироваться в пространстве, также играет большую роль при игре в защите. Цель защитных действий - нейтрализация нападения противника. Индивидуальные действия игрока в защите складываются из действий игрока без мяча –наблюдение- - ориентировка- быстрота реагирования- перемещение, а также с мячом - прием подачи- прием нападающих ударов, - страховка - блокирование [1].

Защита в волейболе всегда осуществляется против оппонента. Различают несколько видов атакующих действий противоположной команды – нападающий удар, блок, подача. Вследствие этого существуют несколько альтернативных действий по нейтрализации атаки нападения соперника – блок, страховка и прием. Чтобы оборона эффективнее показывала себя на площадке, необходимо заранее обозначить тактику. К примеру, блок + страховка.

Блок – очень важный элемент в оборонительных действиях. Грамотно выполненный защитный элемент – блок способствует нейтрализации атаки противоположной команды. Существует несколько видов блоков: одиночный, двойной и тройной, где название обозначает количество волейболистов, исполняющих данный элемент [1].

Чтобы правильно выполнить этот оборонительный элемент необходимо:

- полная сосредоточенность;
- правильная стойка;
- скорость передвижения;
- техника прыжка.
- оценить обстановку;
- правильная техника блока [2].

Приём мяча в волейболе – это защитное действие, при котором волейболист сохраняет мяч на своей половине, не дав ему коснуться площадки. Этот элемент обычно осуществляется с подачи соперника, и, как правило, эту функцию чаще всего выполняет либеро, который располагается на задней линии и выполняет исключительно оборонительные действия [5].

Страховка – это грамотное расположение и действия партнеров по команде, при котором в случае неудачного рикошета от блока или скидки соперника, они смогут подстраховать и сохранить мяч в игре.

Тактика защиты в волейболе «углом вперед» означает, что защитник первой, пятой и шестой зон должны предвидеть траекторию и силу нападающего удара соперника, вследствие чего принять определенные меры защиты для нейтрализации атаки. У игроков этих зон есть несколько определенных действий, которые они выбирают исходя из ситуации сложившийся на площадке [1].

*Варианты действия для игрока первой зоны:*

✓ перемещение для страховки партнера по команде, выполняющего блокировку;

✓ перемещение по боковой линии для приема атакующего удара;

✓ после выполнения приема скидки направить мяч во вторую зону.

*Варианты действий для игрока пятой зоны:*

✓ перемещение для страховки партнера по команде, выполняющего блокировку;

✓ уйти из-за блока и перемещаться по боковой линии в незащищенный участок своей половины, чтобы выполнить прием атакующего удара соперника;

✓ сместиться в шестую зону, чтобы принять скидку.

У игрока шестой зоны лишь один вариант – принимать скидки. Игра в защите в волейболе «углом назад» означает, что игроки первой и пятой зоны либо выполняют приём атакующего удара, либо принимают скидку во второй зоне, третьей, четвертой или шестой. При этом защитнику шестой зоны необходимо как можно быстрее определить траекторию нападающего удара и принимать определённые меры в зависимости от ситуации:

➤ прием мяча, которые от соприкосновения с блоком направился в сторону лицевой линии;

➤ прием скидок, направленных за защитников первой зоны и пятой;

➤ прием атакующих ударов соперника, направленных в районе зоны лицевой линии;

➤ выполнять страховочные действие в шестой зоне [3].

Таким образом, совершенствования техники и тактики защиты в волейболе так же, как и в остальных командных видах спорта, играет большую роль в достижении победы. При этом в волейболе важную роль играет правильно построенная командная защита и систематические тренировки, которая дает возможность выработать соответствующих навыков и повысить уровень подготовки в игре.

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## **СОВЕРШЕНСТВОВАНИЕ ТЕХНИКИ ПОДАЧИ МЯЧА В ВОЛЕЙБОЛЕ**

*Аннотация. В статье рассматриваются особенности совершенствования техники подачи мяча в волейболе. Подача мяча в волейболе – это оружие нападения, поэтому от волейболистов требуется владеть данной техникой в совершенстве. Правильная техника подачи мяча улучшает точность и силу подачи, а также способствует достижению успеха в игре.*

*Ключевые слова: очко, нападения, подача, команда, техника, успех, игра.*

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## **IMPROVING FEEDING TECHNIQUES BALL IN VOLLEYBALL**

*Annotation. The article discusses the features of improving the technique of serving the ball in volleyball. Serving the ball in volleyball is an offensive weapon, so volleyball players are required to master this technique perfectly. Proper serving technique improves the accuracy and power of the serve and contributes to success in the game.*

*Key words: point, attack, serve, team, technique, success, game.*

Волейбол – одна из наиболее популярных командных спортивных игр, в которой особое внимание уделяется навыкам подачи. Любая игра в волейбол начинается с подачи, и от нее в большой степени зависит, выиграет команда очко или проиграет. Поэтому подача в волейболе занимает особое место.

Хорошая подача может сразу принести команде очко или серьезно затруднить соперникам приём мяча и осуществление их тактических замыслов. У

волейболистов высших разрядов выигрыш очков с подачи составляет до 10 % от общего числа, затруднение приёма сопернику – до 50 % и ошибки при подаче (потеря подачи) – до 5 %. [1,6].

Совершенствованию техники подачи мяча в командах любого уровня в той или иной мере уделяют внимание в каждом тренировочном занятии. Стабильная, надёжная подача на протяжении всей встречи – показатель высокого мастерства волейболистов. Подача - это, естественно, оружие нападения, поэтому от волейболистов требуется владеть данной техникой в совершенстве. В подаче различают: исходное положение, подбрасывание мяча и замах, удар по мячу и движение после удара по мячу. Успех в выполнении подачи зависит от умения согласовывать свои движения по отношению к летящему мячу так, чтобы удар по мячу был произведён в нужной точке, что обеспечивает эффективность подачи [4].

Любая игра в волейбол начинается с подачи. Если во время подачи была допущена ошибка, например, мяч попал в сетку или улетел в аут, то команда теряет одно очко. Подача выглядит следующим образом: игрок располагается за границами площадки перед линией подачи. Подбрасывая мяч, игрок руками направляет его в сторону площадки противника. Выполнить подачу нужно в течение 5 секунд. Подбрасывание мяча производится одной рукой. Удар по мячу производится ладонью или кистью руки, пальцы при этом чуть согнуты. Очень важно, чтобы удар по мячу произошел в нужной точке [7].

По характеру подачи бывают силовые, нацеленные и планирующие. Силовые подачи направлены на затруднение приема мяча противником. Силовая подача происходит с вращением мяча. При нацеленных подачах мяч направляется на слабого игрока или в уязвимые места поля противника. При планирующих подачах мяч подается таким образом, что он может изменить траекторию своего полета в разном направлении. Планирующая подача происходит без вращения мяча [5].

Подачи, при которых удар по мячу наносится над головой, называются верхними; когда удар по мячу наносится снизу-нижними. Если игрок выполняет подачу, стоя лицом к сетке, она называется прямой, если боком к сетке-боковой.

Нижняя прямая подача- основной способ подачи для начинающих спортсменов. Большой трудности в обучении нижней подаче нет, а польза от этого большая. Во-первых, есть возможность постепенно совершенствовать навыки приёма мяча и подачи, и, во-вторых, учебная двусторонняя игра в волейбол проходит более интересно и эффективно.

Верхняя прямая подача сочетает в себе силу и точность, т. е. волейболист может послать мяч в определённую зону площадки противника точно и в то же время достаточно сильно. Для новичков изучение данной подачи большой трудности не составляет.

Верхняя боковая подача- одна их самых сложных подач по технике, известна как силовая подача, т.е. этим способом можно послать мяч очень сильно, что часто сразу приносит очко команде. Хотя по результативности боковая подача и находится на первом месте, однако на неё падает и наибольшее количество ошибок. Изучают боковую подачу лишь наиболее подготовленные волейболисты [2].

Начинать обучение надо с нижней прямой подачи, при которой игрок видит всю площадку и мяч можно более точно послать через сетку, чем при нижней боковой подаче. Спортсмены достигают высокой степени совершенства в нижних подачах и уверенно применяют их в игре [3].

Процесс обучения подачам и совершенствования техники включает в себя: развитие специальных (для подач) физических качеств при помощи подготовительных упражнений; освоение составных частей того или иного способа подачи при помощи подводящих упражнений и их целостного объединения; выполнение подачи в усложнённых условиях, способствующих формированию надёжного навыка, при помощи упражнений на технику и тактику; применение подачи в учебной двусторонней игре и на соревнованиях. Ниже приводятся упражнения, из которых можно подобрать такие, которые будут полезны начинающим волейболистам, и такие, которыми смогут воспользоваться волейболисты с опытом [1].

Таким образом, совершенствования техники подачи – необходимый этап в освоении навыков игры в волейбол. Правильная техника подачи волейбольного мяча не только улучшает точность и силу подачи, но и способствует достижению успеха в игре.

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## **ОЦЕНКА ПРОИЗВОДСТВЕННОЙ ЭФФЕКТИВНОСТИ ЗАНЯТОСТИ ОТРАСЛЕЙ ЭКОНОМИКИ УЗБЕКИСТАНА**

*Аннотация. В статье рассматриваются вопросы оценки производственной эффективности занятости отраслей экономики Узбекистана. Формирование и реализация производственной эффективности отраслей основывается на создании такой системы, которая позволит в кратчайшие сроки и с высокой эффективностью использовать в производстве интеллектуальный и научно-технический потенциал страны. Благодаря использованию новых информационных технологий этими потенциалами могут пользоваться как малые, так и крупные организации в обеспечении занятости населения. Проведена оценка производственной эффективности трудовых ресурсов, динамика уровня занятости и безработных в Республике Узбекистан.*

*Ключевые слова. Оценка производственной эффективности, научные разработки, рынок труда, занятость, безработица, трудовые ресурсы.*

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## **ASSESSMENT OF PRODUCTION EFFICIENCY OF EMPLOYMENT OF INDUSTRIES OF THE ECONOMY OF UZBEKISTAN**

*Annotation. The article discusses the issues of assessing the production efficiency of employment in sectors of the economy of Uzbekistan. The formation and implementation of industrial efficiency of industries is based on the creation of a system that will allow the intellectual, scientific and technical potential of the country to be used in production in the shortest possible time and with high efficiency. Thanks to the use of new information technologies, both small and large organizations can use these potentials to provide employment to the population. An assessment was made of the production efficiency of labor resources, the dynamics of the level of employment and the unemployed in the Republic of Uzbekistan.*

*Keywords. Assessment of production efficiency, scientific developments, labor market, employment, unemployment, labor resources.*

## Введение

На сегодняшний день во всем мире особое внимание уделяется стремительному осуществлению восстановления рынка труда при надлежащем обеспечении занятости населения, созданию новых рабочих мест в соответствии с инновационным развитием при сохранении существующих рабочих мест.

Главное внимание уделяется таким вопросам, как обеспечение достойной занятости населения в структуре проводимых в Узбекистане широкомасштабных социально-экономических реформ, грамотная организация новых рабочих мест в условиях разделения труда, повышение уровня жизни населения и целевое использование организационно-экономических ресурсов эффективной занятости.<sup>22</sup>

Безусловно, распределение занятых неформально, анализ которых приведен в предыдущем разделе, является важной составляющей, отражающей современную структуры занятости в Узбекистане. Достижение эффективной занятости в важнейших отраслях экономики страны становится актуальным направлением. Это связано с тем, что такая занятость стала важнейшим компонентом в максимально полной реализации человеческого потенциала. Она представляет собой основу, где взаимосвязаны между собой обеспечение роста ВВП, конкурентоспособности страны, повышение производительности труда, увеличение прибыли хозяйствующих субъектов, рост налоговых доходов и т.д. Все это обеспечивает, как следствие, качество жизни населения.

Отраслевая структура занятости в Узбекистане также имеет свои особенности. Если, в самом начале осуществления реформ имело место сокращение занятых в промышленности, то по мере стабилизации экономики занятость здесь постепенно стала возрастать. Вместе с тем, резко возросла и занятость в сельском хозяйстве, так как для большинства сельских жителей сельское хозяйство является основным источником доходов. Можно заметить, что в период 2010-2021 гг. значительный рост показателя обеспечивали преимущественно два вида деятельности: сельское, лесное и рыбное хозяйство - 3502,1 тыс. человек (112,3% к 2010 г.) (табл. 1).

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<sup>22</sup> Указ Президента Республики Узбекистан «О Стратегии развития Нового Узбекистана на 2022–2026 годы» от 28.01.2022 г. №УП-60. – [www.lex.uz](http://www.lex.uz).

Таблица 1

**Динамика занятости в важнейших отраслях и сферах экономики  
Узбекистана**

Показатель	2017 г.		2018 г.		2019 г.		2020 г.		2021 г.	
	Тыс. чел.	%	Тыс. чел.	%	Тыс. чел.	%	Тыс. чел.	%	Тыс. чел.	%
Численность занятого населения	13520,3	100	13273,1	100	13541,1	100	13236,4	100	13538,9	100
<i>в том числе: по видам экономической деятельности</i>										
Сельское, лесное и рыбное хозяйство	3671,3	27,2	3537,2	26,6	3544,6	26,2	3499,2	26,4	3502,1	25,9
Промышленность	1826,8	13,5	1802,9	13,6	1821,5	13,5	1809,5	13,7	1883,3	13,9
Строительство	1290,0	9,5	1205,5	9,1	1324,6	9,8	1305,6	9,9	1286,8	9,5
Торговля	1480,2	10,9	1401,8	10,6	1436,4	10,6	1405,4	10,6	1537,2	11,4
Перевозка и хранение	654,9	4,8	645,2	4,9	646,1	4,8	610,5	4,6	648,5	4,8
Образование	1106,6	8,2	1111,7	8,4	1134,4	8,4	1158,2	8,8	1178,3	8,7
Здравоохранение и социальные услуги	602,6	4,5	604,0	4,6	616,7	4,6	669,5	5,1	659,0	4,9
Другие виды деятельности	2887,9	21,4	2964,8	22,3	3016,8	22,3	2778,5	21,0	2843,6	21,0

Источник: составлена по данным Министерства занятости и сокращения бедности Республики Узбекистан

В промышленности - 1883,3 тыс. человек (117,3% к 2010 г.) и торговли – 1537,2 тыс. человек (124,4% к 2010 г.) Эти отрасли более востребованы в экономике. Однако, наблюдается снижение доли занятого населения в сельском, лесном и рыбном хозяйстве с 26,9% до 25,9%.

Максимальными темпами в 2021 г. росла занятость населения в осуществлении услуг по перевозке и хранению (127,2% к 2010 г.), которая по абсолютному значению увеличилась на 138,6 тыс. человек. Следует также отметить строительство, где численность занятых возросла в 2021 г. по сравнению в 2010 г. на 24,4% или 301,6 тыс. человек. В промышленном



секторе за этот период показатель возрос лишь на 0,1 п.п., с 13,8% (2010 г.) до 13,9% (2021 г.). При этом увеличилась доля занятых в строительной сфере на 0,6 п.п. или с 8,9% (2010 г.) до 9,5% (2021г.) и в торговле за этот же период на 0,7 п.п.<sup>23</sup>

Наиболее сильно явления пандемии затронули такую отрасль, как сельское, лесное и рыбное хозяйство, где в 2020г. по сравнению с 2019 г. численность занятых снизилась на 45,4 тыс. человек. В числе сфер экономической деятельности в которых наблюдалось снижение аналогичного показателя стали перевозка и хранение – 35,6 тыс. чел., торговля – 31 тыс. чел., строительство – 19 тыс. чел.<sup>24</sup>

Для более полного зрительного восприятия данные о темпах роста/сокращения численности занятых в отраслях экономики Узбекистана нами периоды обозначены в следующих категориях: 2010/2021гг., 2015/2021 гг. и 2017/2021 гг. (табл. 2).

Анализируя периоды, можно заключить, что в целом темпы роста численности занятых в республике за одиннадцать лет (2010-2021 гг.) составили 116,4% (1), за 2015-2021 гг. – 113,7% (2), а за 2017-2021 гг. – 100,0% (3). Рост численности занятых был характерен для всех отраслей и сфер экономики.

Таблица 2

**Темпы роста/сокращения численности занятых в важнейших отраслях и сферах экономики, %**

Показатель	Темпы роста/сокращения среднегодовой численности занятых, %		
	2021/ 2010	2021/2015	2021/2017
Численность занятого населения	116,4	103,7	100,1
<i>по видам экономической деятельности</i>			
Сельское, лесное и рыбное хозяйство	112,3	97,2	95,4
Промышленность	117,3	106,5	103,1
Строительство	124,5	105,3	99,8
Торговля	124,4	108,7	103,9
Перевозка и хранение	127,2	105,5	99,0
Образование	106,9	106,6	106,5
Здравоохранение и социальные услуги	110,5	109,6	109,4
Другие виды деятельности	117,2	104,1	98,5

Источник: разработана автором по данным Министерства занятости и сокращения бедности Республики Узбекистан.

<sup>23</sup> Амирджанова С.С. ГОСУДАРСТВЕННАЯ ИННОВАЦИОННАЯ ПОЛИТИКА В СФЕРЕ ЗАНЯТОСТИ // Экономика и социум. 2022. №1-1 (92). URL: <https://cyberleninka.ru/article/n/gosudarstvennaya-innovatsionnaya-politika-v-sfere-zanyatosti>

<sup>24</sup> Статистические данные о занятости в мире. [Электронный ресурс]. – Режим доступа [https://ru.tradingeconomics.com/country-list/employed-persons\\_](https://ru.tradingeconomics.com/country-list/employed-persons_) (дата обращения: 10.01.2023).

Следует заметить, что в разрезе областей в 2021 г. доля женщин в общей занятости сильно не различается и колеблется в пределах от 39% (Республика Каракалпакстан) до 49,5% (Андижанская область). В пятерку областей с наибольшим таким показателем после Андижанской области еще входят Сурхандарьинская и Бухарская области, где в сельском, лесном и рыбном хозяйстве трудятся от общей занятости 48,5% и 48% женщин.

Анализируя гендерную ситуацию с занятыми можно заметить, что в каких-то отраслях экономики работает больше женщин, чем мужчин, а в других наоборот – акцент сделан на деятельности мужчин. В других сферах экономики женщин занято больше, чем мужчин, в числе таких: обрабатывающая промышленность (13,5% против 11,2%), оптовая и розничная торговля (13,5% и 9,9%), образование (13,1% и 4%) и др.<sup>25</sup>

Занятость мужчин и женщин в отраслях в 2021 г. по сравнению с 2016г. изменилась следующим образом. Так, за этот период женщин стало больше работать в образовании, где показатель увеличился на 2,3 п.п., в обрабатывающей промышленности (1,8 п.п.), здравоохранении и предоставлении социальных услуг (1,4 п.п.), оптовой и розничной торговле (1,2 п.п.) и др. В частности, в сельском, лесном и рыбном хозяйстве (-2,4 п.п.), перевозка и хранение (0,2 п.п.).

В рамках проведения исследования в данном разделе проведем анализ занятости в важнейших отраслях и сферах экономики и расчет их производственной эффективности в динамике. Теоретические и практические исследования показывают, что эффективная занятость, с одной стороны, является чрезвычайно востребованным понятием и используется, как в трудах по экономической теории, так и сфере исследования социально-экономических и трудовых отношений. В работе под эффективностью будем понимать соотношение результатов деятельности с величиной затрат ресурсов. С точки зрения производственного критерия эффективная занятость характеризуется минимальными удельными затратами ресурсов на единицу выпуска<sup>26</sup>.

Анализ средних значений темпов роста показателей, характеризующих производственную эффективность занятости отраслей и сфер экономики, приведенных в табл. 3, выявил следующее. Средние значения годовых темпов роста за исследуемый период составили: ВДС всех отраслей -103,4%, численность занятых - 104% и стоимость основных фондов – 140,4%. Рассчитанные нами с использованием этих данных производительность труда и фондоотдача и их средние значения показали положительный рост, так по первому из них 123,7%, а по второму – 101,7%.

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<sup>25</sup> Сборник статистических показателей достижения национальных ЦУР в Республике Узбекистан. – Ташкент: Государственный комитет Республики Узбекистан по статистике, 2022. – 97 с.

<sup>26</sup> Амирджанова Ситора Суннат кызы. (2022). МАКРОЭКОНОМИЧЕСКИЕ АСПЕКТЫ ОБЕСПЕЧЕНИЯ ЗАНЯТОСТИ НАСЕЛЕНИЯ В УСЛОВИЯХ УСТОЙЧИВОГО ЭКОНОМИЧЕСКОГО РОСТА. *Място Пишлосьци*, 24, 197–206. <https://miastoprzyszlosci.com.pl/index.php/mp/article/view/62>.

Данные табл. 3 показывают, что значительные темпы роста производительности труда имелись в анализируемый период в промышленности (средний темп роста с 2007 по 2021 г. составил 133,3%), строительстве (127,4%) и сельском, лесном и рыбном хозяйстве (121,4%). Такой темп роста обеспечен повышением объемов производства продукции, где средний годовой темп роста ВДС промышленности составил 134,1%, строительства 106,3% и сельского хозяйства 119,7%. Все это при происходящем единовременно ежегодном сокращении занятости, характеризующемся следующими средними значениями в промышленности 0,7%, в строительстве 1,5% и сельском, лесном и рыбном хозяйстве (-)1,3%.

Анализ показал, что темпы роста производительности труда, хоть и не высокие, характерны для видов деятельности, где заработная плата превышает среднюю по экономике. Однако, возможность обеспечения и поддержания значительного уровня оплаты труда на протяжении длительного периода времени является доказательством высокого уровня доходности вида деятельности.

Также показателем, который характеризует эффективность использования трудовых ресурсов и их занятость, является фондоотдача по видам экономической деятельности. Расчет этого показателя за 2017-2021 годы в целом по отраслям экономики показал его средний темп роста в 101,7% (табл. 3). Более высокий средний темп роста данного показателя характеризовался в промышленности (101,9%) и строительстве (101%). Между тем, наблюдаются и минимальные значения фондоотдачи в таких сферах, как предоставления услуг по проживанию и питанию (87,5%), сельском, лесном и рыбном хозяйстве (93,6%), а также предоставление услуг по перевозке и хранению (98,8%).

Таблица 3

**Среднее значение темпов роста (снижения) показателей, характеризующих производственную эффективность занятости в отраслях и сферах экономики Узбекистана за 2017-2021 годы**

Отрасль (сфера) экономики	Среднее значение темпов роста показателей, %				
	Валовая добавленная стоимость	Численность занятых	Стоимость основных фондов	Производительность труда	Фондоотдача
Отрасли экономики, всего	103,4	104,0	140,4	123,7	101,7
В том числе:					
сельское, лесное и рыбное хозяйство	119,7	98,7	128,0	121,4	93,6

промышленность	134,1	100,7	131,3	133,3	101,9
строительство	106,3	101,5	127,6	127,4	101,0
оптовая и розничная торговля	120,7	101,2	121,5	109,8	100,2
услуги по проживанию и питанию	120,3	100,6	138,2	119,2	87,5
перевозка и хранение	117,7	102,2	119,6	115,2	98,8
информация и связь	121,7	102,5	122,7	119,6	100,4
прочие отрасли	122,8	101,6	117,8	122,6	103,7

Источник: рассчитана по данным Агентства статистики при Президенте Республики Узбекистане и Министерства занятости и сокращения бедности Республики Узбекистан

В большинстве отраслей и сфер экономики республики производительность труда неразрывно связана со структурой производства, а конкретнее - с ее технологической стороной. Тем не менее, производственные фонды в отраслях отличаются своей изношенностью, а при значительной степени происходит повышение энергозатратности и трудоемкости производственных процессов, что непосредственно влияет на эффективность. В Узбекистане принята специальная программа, которая с успехом реализовывается по модернизации и технологическому оснащению производств в отраслях экономики.

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## **ЦИФРОВАЯ ТРАНСФОРМАЦИЯ УЧЕБНОГО ЗАВЕДЕНИЯ И АДАПТАЦИЯ ПЕРСОНАЛА**

*Аннотация. Современные университеты сталкиваются с растущей необходимостью внедрения цифровых технологий для оптимизации образовательных. Настоящая статья рассматривает стратегии цифровой трансформации в контексте высшего образования и ее воздействие на процессы адаптации персонала университетов.*

*Ключевые слова: цифровая трансформация, учебное заведение, адаптация, технологии, цифровизация, искусственный интеллект, автоматизация.*

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## **DIGITAL TRANSFORMATION OF THE EDUCATIONAL INSTITUTION AND STAFF ADAPTATION**

*Abstract. Modern universities are faced with the growing need to introduce digital technologies to optimize educational processes. This article examines the strategies of digital transformation in the context of higher education and its impact on the processes of adaptation of university staff.*

*Keywords: digital transformation, educational institution, adaptation, technology, digitalization, artificial intelligence, automation.*

В наше время тенденции в образовании находятся под влиянием стремительных изменений в информационных технологиях, ставя перед университетами необходимость активного внедрения цифровых инноваций. Однако, успех цифровой трансформации университета зависит не только от



технологической адаптации, но и от способности персонала эффективно взаимодействовать с новыми цифровыми средствами обучения.

Исследование основано на совокупности методов, направленных на анализ взаимодействия цифровой трансформации и адаптации персонала в университетской среде. Применен качественный и количественный анализ данных, включая опросы сотрудников и студентов, а также анализ статистических показателей цифрового внедрения. Важное внимание уделено изучению образовательных практик и обучающих технологий, используемых в университетах. Методы сравнительного анализа позволяют выявить различия в подходах к цифровой трансформации и уровень адаптации персонала в различных образовательных контекстах.

Поскольку пандемия COVID-19 привела к закрытию учебных заведений по всему миру в 2020 году, многие университеты сделали шаг к цифровизации учебного процесса. Хотя темпы цифровой трансформации и были быстрыми, окончание пандемии не обязательно должно замедлить ее. Во всяком случае в большинстве учебных заведений. На самом деле, скорее всего, это было только началом ускорения развития цифровизации во всех отраслях.

Учебным заведениям, которые не были готовы к цифровой трансформации, было сложно адаптироваться к новым задачам дистанционного и виртуального обучения. Хотя это заняло время, и каждое учебное заведение столкнулось со своими уникальными проблемами, были шаги, которые учебные заведения предприняли, чтобы обеспечить максимально плавный и быстрый процесс.

Одним из первых шагов был быстрый и принудительный переход всех студентов на дистанционное обучение. В связи непредвиденности такого тотального перехода, поначалу, студенты, да и часть педагогического состава, ощутили дискомфорт.



Итоги опроса 260-и студентов 1-3 курса в Гугл-форме, касаясь дистанционного обучения во время пандемии.

Неприязнь от вынужденных мер у преподавателей, была даже выше чем у студентов. По данным от Министерства науки и высшего образования Российской Федерации (Минобрнауки России), в качестве основных угроз,

связанных с невозможностью либерализации образования, перехода на дистанционный формат, называют:

- 1) спад мотивации студентов к обучению;
- 2) нехватку у студентов навыков и умений для поддержания дисциплины, и усердия в дистанционном обучении;
- 3) эмоциональные срывы как студентов, так и преподавателей;
- 4) рост нагрузки на преподавателей;
- 5) отсутствие в системе образования индивидуального подхода, обезличенность;
- 6) невозможность контролировать уровень знаний;
- 7) ограничение в ряде направлений (прежде всего, технических, математических) на дистанционную передачу знаний
- 8) формализация процессов образования, склонность к шаблонным, унифицированным решениям. [4]

Также по результатам исследования:

- 96,2% преподавателей лично перешли на дистанционный формат образования.
- 91,0% преподавателей считают достаточными меры, принимаемые в их учебных заведениях.
- 87,8% преподавателей считают, что занятия по их курсам лучше проводить в очном формате.
- 67,0% преподавателей не соглашались с тем, что большинство лекций и семинаров через год будут переведены в онлайн формат.
- 53,2% преподавателей проходили за последний месяц курсы по ведению онлайн обучения. [4]

Государство на законодательном уровне осуществляет поддержку цифровой трансформации учебных заведений. Один из примеров, принятая госпрограмма "Приоритет 2030", которая предусматривает гранты, в том числе на модернизацию технологий в вузах. Трансформация университетов должна проходить с учетом новых и перспективных технологий: адаптивного обучения, искусственного интеллекта, Big Data, блокчейна, облачных платформ, UX-дизайна, расширенной реальности. В программе участвуют 132 университета из 56 субъектов РФ.

Отметим, что высшее образование - одна из лидирующих отраслей по уровню цифровизации в России. По данным доклада НИУ ВШЭ, доля компаний, использующих облачные сервисы, в сегменте высшего образования - 45,9%, в целом по экономике - 25,7%. Цифровые платформы в сегменте высшего образования используют 35,6% компаний, в целом по экономике - 17,2%. Интернет вещей используют 17,1% компаний в сегменте высшего образования, и 13% - показатель по всем секторам.

Необходимо постепенно внедрять инновационные технологии для цифровой трансформации университета.

В частности, такие, как:

- технологии искусственного интеллекта (ИИ). Внедрение и активное использование всяческих инструментов ИИ, повышающих качество и скорость отслеживания, диагностики, тестирования, оценки и мониторинга, для адаптивного обучения.

- облачные технологии, база данных. Важно использование, постоянное расширение и обновление этих технологий в образовательном процессе (обновление и расширение образовательного контента).

- использование технологий интернета вещей.

- геймификация образовательных процессов. Например, цифровые обучающие игры, благодаря которым повышается вовлеченность студентов; симуляторы, которые погружат в сам процесс и помогут изучению, а так же использованию на практике, полученных знаний.

- робототехника. Ее внедрение позволяет использовать роботов в самых различных аспектах процессов обучения, вплоть до замены преподавателя роботом или использование робота, как лаборанта и студента.

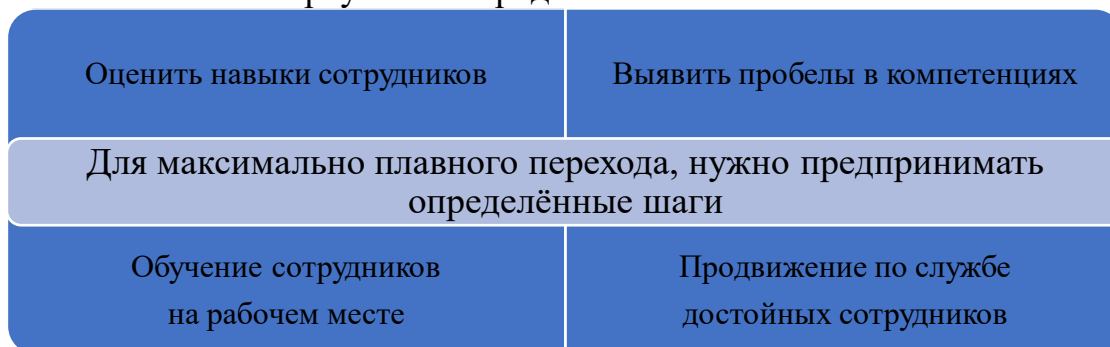
- дополненная реальность и технологий визуализации VR/AR. Возможность погрузиться в различные локации из любого места, в частности из подготовленной аудитории (лаборатории). Это позволяет обеспечить безопасность человеку, финансовая экономия и экономия времени. Так же можно симулировать локации, в которые в реальности нет возможности попасть, по тем или иным причинам.

- автоматизация (автоматизация рутинных процессов)

- развитие системы контент-фильтрации, контроля и отслеживания использования различных ресурсов образования.

- применение CRM, для отслеживания информации, и ERP для планирования.

Некоторые процессы сложно, дорого, небезопасно, а иногда, даже невозможно организовать в реальной жизни. Цифровая трансформация дает возможность студентам, специалистам и самим научным деятелям, улучшать практические навыки, ставить эксперименты, осуществлять различные тесты в виртуальной среде.



- Цифровая трансформация не замедляется. Цифровизация началась задолго до пандемии. Однако пандемия лишь ускорила темпы.

- Часть образовательного процесса, а возможно и весь, в конечном итоге, будет выполняться из дома.

- Кибербезопасность учебных заведений станет более сложной, поскольку все больше студентов и преподавателей будут работать из дома, придется начать контролировать безопасность сетей.

- Цифровая трансформация позволит учебным заведениям лучше обучать студентов, независимо от их местоположения.

Цифровая трансформация учебных заведений потребует времени. Однако, плавный путь трансформации приведёт к поставленным целям, позволит студентам шагать в ногу со временем и конкурировать в мировом рынке труда и науки.

#### **Использованные источники:**

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## **ОТНОШЕНИЕ ПРЕПОДАВАТЕЛЕЙ ВУЗОВ К ПРОФЕССИОНАЛЬНО-ОРИЕНТИРОВАННОМУ ПРЕПОДАВАНИЮ АНГЛИЙСКОГО ЯЗЫКА**

*Аннотация. В статье рассмотрены экспериментальные работы, проведённые в высших учебных заведениях по определению уровня образования профессиональной компетентности студентов на основе материалов, используемых на занятиях по английскому языку. Представлены результаты опросов, которые являются одним из наиболее эффективных способов получения информации в научных исследованиях.*

*Ключевые слова: высококвалифицированных кадров, профессиональной компетентность, респонденты, неязыковые специальности, содержание текстов.*

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## **THE ATTITUDE OF UNIVERSITY TEACHERS TOWARDS PROFESSIONALLY ORIENTED ENGLISH LANGUAGE TEACHING**

*Annotation: the article considers experimental work carried out in higher educational institutions to determine the level of education of students' professional competence based on materials used in English classes. The results of surveys are presented, which are one of the most effective ways to obtain information in scientific research.*

*Keywords: highly qualified personnel, professional competence, respondents, non-linguistic specialties, the content of texts.*

Высшие учебные заведения нацелены на подготовку высококвалифицированных кадров для промышленности и отраслей экономики. С учетом перспективы страны основной целью высшего образования является подготовка высококвалифицированных, конкурентоспособных, высокообразованных специалистов, отвечающих требованиям времени, способных развивать науку, культуру, экономику и социальную сферу республики, а также умеющих самостоятельно мыслить и обладающих высокой духовностью.

В Постановлении Кабинета Министров Республики Узбекистан "Государственный образовательный стандарт по иностранным языкам

системы непрерывного образования”, утвержденном 8 мая 2013 года, говорится “Использование коммуникативного, личностно-ориентированного, интегративно-компетентного подходов при обучении иностранным языкам в среднем, средне- специальном, высшем и послевузовском видах образования”, базируется на основных принципах направления “Профессионально-ориентированные иностранные языки” (с учетом профессионально-ориентированных требований отдельных ступеней образования)” [1: 3].

В высших учебных заведениях все предметы требуют преподавания с учетом специфики работы будущих специалистов. Поэтому изучение английского языка имеет единственную цель – подготовить квалифицированных специалистов, отвечающих международным стандартам. Политика открытости независимой Республики Узбекистан, ее активное вхождение на мировой рынок и расширение международного сотрудничества во всех сферах повышает потребность во владении иностранными языками. Следовательно, совершенное знание иностранных языков специалистами стало приоритетом нашего времени. Поэтому возникает необходимость в разработке новых методик, позволяющих полноценно осуществлять профессиональную деятельность на иностранных языках, и применять их на практике, адаптируясь к условиям.

В нашем научном исследовании, проводимом с этой целью, мы проводили экспериментальную работу в высших учебных заведениях по определению уровня образования профессиональной компетентности студентов на основе материалов, используемых на занятиях по английскому языку.

С целью изучения процесса использования учебно-методических материалов, относящихся к специализации в высших учебных заведениях, а также опыта преподавателей, их мнений, проблем и достижений по данной теме, пригодности используемых ими материалов и того, как они совершенствуют знания студентов, их навыки, такие как чтение, письмо, аудирование и разговорная речь, и насколько все это повышает профессиональную компетентность студентов, мы провели опрос среди преподавателей английского языка, работающих в высших учебных заведениях Республики Каракалпакстан, в том числе в Каракалпакском государственном университете, в Нукусском государственном педагогическом институте, в Ургенчском государственном университете в Хорезмской области и в Бухарском государственном университете в Бухарской области, где английский язык преподается студентам, для которых он не является основным предметом, и наблюдали за их занятиями.

Опрос является одним из наиболее эффективных способов получения информации в научных исследованиях, так как большое количество людей имеет возможность получить ответы на различные вопросы одновременно [2:138]. Всего в нашем опросе приняли участие 66 преподавателей, в том



числе 16 из Каракалпакского государственного университета, 13 из Нукусского государственного педагогического института, 27 из Ургенчского государственного университета, 10 из Бухарского государственного университета, и высказали свое мнение по данной теме. Стаж работы респондентов, принявших участие в опросе, варьировался от 1 до 32 лет, в том числе 6 из 26 опрошенных имели стаж работы от 1 до 5 лет, 2 из них проработали от 5 до 10 лет, 8 - от 10 до 20 лет и 10 имеют стаж работы от 20 до 30 лет. Это говорит о том, что наши респонденты достаточно опытные, 18 преподавателей работают на нефилологических факультетах более 10 лет и преподают на следующих факультетах: физкультура, физика, математика, история, экономика, туризм, юриспруденция, энергетика, химия, биология и технология. На вопрос, какой учебник они используют для преподавания английского языка, 50% респондентов указали учебник "Scale up" (Усиление возможностей), потому что этот учебник рекомендован в учебной программе. В дополнение к нему цитировались следующие учебники: "Solutions" (Решения) (Тим Фалла, Пол А. Дэвис), "Speak up" (Говори) (Дуглас М. Фрейли, Джозеф С. Туман), Destination (Пункт назначения) (Малкольм Манн, Стив Тейлор-Ноулз), Outcomes "Результаты" (Хью Деллар, Эндрю Уолкли), Grammarway (Дженни Дули, Вирджиния Эванс), New Inside Out (Новое наизнанку) (Сью Кей и Вон Джонс), Straightforward (Незамысловатый) (Адриан Теннант), English Grammar in Use (Практическая грамматика английского языка) (Р. Мерфи), English Grammar (грамматика английского языка) (Качалова К.Н.). Наш анализ показал, что ни один из этих учебников не был написан для преподавания студентам материалов по основной специальности. Выяснилось, что только 3 преподавателя пользуются учебником, созданным для обучения с использованием материалов по специальности студентов (учебником "Английский язык для студентов-юристов" Саттарова Т.К. пользовались ассистент преподавателя Ескараева Сауле а преподаватель того же вуза Керимбаева Набира, вела уроки по учебнику "Английский язык для студентов энергетических специальностей", а Шигабутдинова Дина, из Бухарского государственного университета, вела занятия по следующим учебникам: 1) Вирджиния Эванс, Дженни Дули, Алан Грэм. Карьерный путь: Спорт - Книга 2. Express Publishing, 2012 г. 2) Эванс Вирджиния, Дули Дженни, Грэм Алан. Карьера: спорт - Студенческая книга - Книга 1, 2012 г. 3) Введение в физическое воспитание, физические упражнения и спорт Лумпкин, Анджела Макгроу-Хилл Education, 2017 4). A Dictionary of Sports Studies Tomlinson, Alan The Oxford Reference Collection 2017). Шестидесят процентов учителей заявили, что пользуются своими учебно-методическими комплексами. Из этих ответов мы поняли, что учителя уделяют меньше внимания темам, связанным с профильным предметом студентов, так как мы заметили, что указанные ими учебники не содержали материалов, относящихся к упомянутым выше специальностям.

Респонденты указали в своих ответах, что они преподают от 2 до 10 основных тем в каждом семестре, и не смогли объяснить, на чем основаны эти цифры. Когда мы изучали их методику преподавания, то увидели, что у преподавателей Нукусского государственного педагогического института, Бухарского государственного университета есть тематика, связанная со специализацией, и задачи, созданные в соответствии с ней, но такая ситуация наблюдается не во всех учебно-методических комплексах преподавателей Каракалпакского государственного и Ургенчского государственного университетов.

На уроках английского языка 37% учителей уделяют внимание грамматике, 44% — изучению новых слов, чтению текстов, остальные — говорению, аудированию, пониманию и осмыслению прочитанного. Мы считаем, что это хороший результат, ведь преподаватели знают, что нужно учить не только грамматику, но и языковые навыки, и обращают на них внимание.

На вопрос, какие темы изучают их студенты на уроках английского языка и как они выбирают тему, респонденты ответили:

В аэропорту, В путешествии, Здоровое питание, Покупка, В ресторане, Работа, Профессиональные обязанности и указали, что более 60 процентов составляют темы на основе направлении указанных в рабочих программах. Однако, когда мы спросили, как они выбирают темы, нам не удалось получить ответа, но один из преподавателей ответил, что выбирает темы в соответствии с интересами, пожеланиями и потребностями студентов. Темы, указанные преподавателями, являются общими, направленными на развитие компетенций, необходимых только в повседневной жизни, и мы считаем, что на основе этих тем сложно развивать у студентов профессиональные компетенции.

На наш вопрос: изучаются ли на занятиях темы, связанные со специальностью студентов, и сколько тем изучается в семестре, были получены следующие ответы: на одном из каждых 4 уроков (Хусенова М., Бухара), по 2 темы за семестр (преподаватель из Бухары), 3 темы за семестр (Бекбергенова Г., Нукусский государственный педагогический институт), 6 тем на 2 курсе, 6 тем на 3 курсе (Утепбергенова Д. НГПИ), 3 темы течение семестра на 1- 2 курсах, 18 тем на 3 курсе (Керимбаева Н., КГУ), до 10 тем (Калабаева М., КГУ) и количество тем, как ожидалось, разное, и эти ответы стали поводом для поиска ответа на вопрос, на основании чего должно быть определено количество тем, и по которым студенты смогут развивать знания и умения, по своей специальности.

На вопрос, какие проблемы возникают в процессе обучения материалов, связанных по специальностью студентов, преподаватели отвечали, что им самим приходится искать эти материалы и разрабатывать на их основе задания, что многие материалы не соответствуют уровню знаний студентов, что иногда сами преподаватели не обладают глубокими

знаниями по темам специализации студентов, т.е. неязыковым специальностям, более того, им иногда сложно ответить на вопросы студентов, так как у них нет конкретного учебника английского языка по основной специальности студентов.

В процессе прохождения учебных материалов, относящихся к специальности, почти все преподаватели отмечали, что наряду с лексическим и грамматическим материалом они обращают внимание на содержание текстов.

Отвечая на вопрос о том, что вызывает трудности у студентов при изучении материалов, относящихся к их специальности, преподаватели указывали, что у студентов возникают проблемы в изучении многозначных слов из-за недостаточного знания английского языка, в овладении произношением терминов, в общении, письме, чтении, запоминании слов и понимании на слух.

Учителя утверждали, что на занятиях они используют дискуссионные упражнения, упражнения на развитие лексики, на закрепление темы, на говорение и понимание на слух, а также задания, предназначенные для закрепления грамматики, орфографии, а также упражнения на закрепление лексического материала, такие как завершение предложений с пропусками, поиск правильных/неправильных предложений, и заметили, что учащиеся склонны допускать лексические и грамматические ошибки при их написании.

Практически все респонденты считают важным развитие четырех навыков (аудирование, говорение, письмо и чтение) в процессе изучения английского языка, а также считают важным использование для их развития новых педагогических технологий. 50% опрошенных считают, что студенты не могут выучить английский язык самостоятельно, а 50% уверены, что могут выучить английский самостоятельно благодаря большому количеству онлайн-уроков.

Преподаватели считают, что уроки английского языка будут эффективны, если они тщательно подготовятся к урокам, сделают уроки более интересными, используя игры и дебаты, оригинально разработанные учебники английского языка, увеличат количество уроков, разделят учащихся на группы в соответствии с их уровнем знаний и использовать индивидуальный подход к каждому ученику.

Анализ ответов на анкету подтвердил наше предположение о том, что на сегодняшний день преподаватели английского языка не имеют четкого представления о самой сути методики использования специализированных материалов в учебном процессе.

Изучение, анализ и обобщение современного состояния преподавания английского языка в высших учебных заведениях дало нам возможность сделать следующие предложения:

С первых дней обучения английскому языку в вузах необходимо обучать студентов методам изучения данного предмета, а также прививать им знания о способах повышения профессиональной компетентности в английском языке. Для развития профессиональной компетентности самостоятельная работа студентов должна быть организована на научной основе.

На наш взгляд, использование междисциплинарной связи с профильными науками в обучении студентов английскому языку считается важнейшим фактором совершенствования языкового образования и развития профессиональной компетентности.

**Использованные источники:**

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## **ОВҚАТЛАНИШ КОРХОНАЛАРИДА ХИЗМАТ КЎРСАТИШ СИФАТИ ВА УНИ ЯХШИЛАШ ЙЎЛЛАРИ**

*Аннотация. Мақолада ҳозирги кундаги умумий овқатланиш корхоналардаги хизмат турлари, овқатланиш маданияти, хизмат кўрсатишнинг асосий қоидаси, маънавий талаблари ёритилган.*

*Калит сўзлар: хизмат кўрсатиш, гигиена қоидалари, меҳмон, тадбир, ходим, маданият.*

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## **QUALITY OF SERVICE IN FOOD ENTERPRISES AND WAYS TO IMPROVE IT**

*Abstract. The article describes the types of services, food culture, the basic rule of service, and moral requirements in today's public catering establishments.*

*Key words: service, hygiene rules, guest, event, employee, culture.*

Ҳозирги кунда Республикамизда фаолият юритаётган хизмат кўрсатиш соҳалари ичида, аҳоли ва туристларга барча қулайликларга эга бўлган сервис хизматини ташкил этувчи умумий овқатланиш корхонлари алоҳида ажралиб туради. Бугунги кунда, Республика иқтисодиётининг асосий таркиби ҳисобланган ички савдо айланмаси даромадининг бир қисми шу соҳа ҳиссасига тўғри келади. Айниқса, кейинги йилларда мазкур хизмат кўрсатиш соҳаси фаолиятидаги иқтисодий кўрсаткичлар суръатининг ўсиши кузатилмоқда.

Республикамиз ҳудудида умумий овқатланиш корхоналаридан – ресторан, ошхона, кафе ва барлар фаолият олиб бормоқда. Уларнинг сони кўпайиб, рақобат бозори шаклланмоқда. Ҳеч кимга сир эмаски, мустақиллик даврида барпо этилган овқатланиш корхоналари, ўзининг шинам ва кўркамлиги, замонавий техник-технологик жиҳозлар ва асбоб-ускуналар билан таъминланганлиги, қурилиш ва гигиена қоидалари талабларига жавоб бериши ҳамда аҳолига сервис хизмати кўрсатиш даражаси билан стандарт меъёрларига жавоб беради. Лекин, биз ҳозирги вақтда кенг тус олаётган ана шу соҳадаги айрим муаммолар хусусида қисқача тўхталмоқчимиз.

Маълумки аҳоли ва туристларнинг овқатланиши асосан умумий овқатланиш корхоналари – ресторан, кафе, ошхоналарда олиб борилади овқатланиш хизматини сифатини оширишда ундаги ходимлар меҳнатини сифатини ошириш керак бўлади чунки ҳар бир корxonанинг самарадорлигини ва рақобатбордошлиги, шу корхонада ишлаб чиқариладиган маҳсулотлар сифати ва кўрсатиладиган хизмат маданиятга боғлиқ бўлади.

Хизмат кўрсатиш маданияти бу меҳмонларга хизмат кўрсатишга қаратилган ташкилий маданият бўлиб, унинг асосида маълум қоидалар, кетма – кетликда бажариладиган ишлар, амалий кўникмалар ётади. Хизмат кўрсатиш маданиятини ҳар бир корxonани ўзи ишлаб-чиқади. Айрим корхоналарда хизмат кўрсатиш маданияти жуда паст, айримларида эса жуда юқори бўлиши мумкин. Юқори даражада хизмат кўрсатиш маданияти персоналнинг ҳар қандай ҳолатда унинг ҳаракатланиши ва ситуацияни тўғри баҳолаши меҳмонлар ўртасида ўзини тутиши ҳамда ишга ва корхонага нисбатан ҳурматда бўлиши билан белгиланади.

Овқатланиш маданияти умуминсоний маданиятнинг узвий бир қисми бўлиб, кишиларнинг сихат-саломатлигига, меҳнат унумдорлигига, жисмоний ва ақлий камолотига, қолаверса оила ва давлатнинг иқтисодий тараққиётига ўз таъсирини кўрсатади.

Шундай экан, бугунги кунда аҳолини овқатланиш корхоналаридаги сервис хизматини ташкил этишда, овқатланиш маданиятининг элементлари етарлича инобатга олинганми деган савол туғилади? Бу борада олиб борилган кузатувлар ва таҳлиллар шуни кўрсатдики, кўпчилик овқатланиш корхоналарининг сервис хизматида амалга ошириладиган вазифалар етарли даражада йўлга қўйилмаганлиги, хўрандаларнинг кайфиятларига салбий таъсир этиш ҳолатларини келиб чиқишига сабаб бўлмоқда. Бундай нохуш ҳолатларнинг содир бўлиши, айниқса, сервис хизмати кўрсатиш жараёнининг бевосита иштирокчиси бўлган официантлар ҳисобига тўғри келади. Маълумки, официантлар хизмат фаолияти давомида хўрандалар билан энг кўп мулоқотда бўладиган хизмат ходимларидир. Официантларнинг хизмат фаолиятидаги бажарадиган вазифалари кенг қамровли ва жуда нозик бўлиб, юксак дид билан амалга оширишни талаб этади. Улар томонидан амалга ошириладиган тадбирлар қуйидагилардан иборат:

- хўрандаларни хушмуомалалик ва эътибор билан кутиб олиш;
- хўрандаларни таркиби (жинси), ёшини эътиборга олган ҳолда, белгиланган қоидалар асосида жойлаштириш ва кўмаклашиш;
- белгиланган қоидаларга риоя этган ҳолда хўрандалардан буюртма олиш;
- столни қўшимча идиш ва хўрак асбоблари билан таъминлаш;
- таом ва ичимликлар учун мос келадиган идишларни тўғри танлаш;



- буюртма бўйича берилган таом ва ичимликларни белгиланган тартибда келтириш;
- фойдаланилган идишларни йиғиштириб олиш;
- хўрандалар томонидан берилган саволларга хушмуомалалик билан жавоб бериш;
- юқоридаги амалга оширилган вазифаларни ўз вақтида бажарилишини таъминлаш;
- белгиланган қоидалар асосида ҳисоб-китоб қилиш ва хушмуомалалик билан уларни кузатиш каби вазифаларни ўз ичига олади.

Юқорида қайд этилган сервис хизмати элементларини меъёрида бажариш ходимлардан, айниқса официантлардан малакали тажриба ва етарли билимга эга бўлишларини тақозо этади.

Айтиш жоизки, ҳозирги вақтда фаолият кўрсатаётган кўпчилик овқатланиш корхоналарида хизмат кўрсатаётган ходимлардан ва официантларнинг тажрибасизлиги ёки махсус билимга эга эмасликлари кўзга ташланмоқда. Бу эса ўз навбатида тизимдаги сервис фаолиятининг ривожланишига тўсқинлик қилади.

Шу боис, соҳада юз бераётган муаммоли вазиятларни бартараф этиш ва сервис фаолияти даражасини ошириш мақсадида, қуйидаги тадбирларни амалга ошириш лозим деб ҳисоблаймиз:

Умумий овқатланиш корхоналарига тегишли диплом ва сертификатга эга бўлган малакали кадрлар фаолият юритиши ишчи ходимларни меҳнат вазифасига тайинлашда айнан шу мутахассислика эга эканлигини текширган ҳолда ишчи ходимларни танлов асосида ишга қабул қилиш керак.

Ўзбекистон ошпазлар уюшмасининг Республика бўйича фаолияти ва таъсир доирасини янада кенгайтириш ва ҳокимят ташкилотлари орқали акридитациядан ўтган ташкилотлар томонидан тайёрланаётган мутахассисларнинг малакавий даражасини лицензиялаш ишларини олиб бориш.

Хизмат кўрсатишнинг асосий қоидаси сифатида ходимлар барча меҳмонларга нисбатан жуда хушмуомала эътиборли ва одобли бўлишлигини ўзлаштириши керак. Меҳмонлар хизмат кўрсатувчи ходимларни кўриши, лекин, уларни ўзаро суҳбатини эшитиши керак эмас. Овқатланиш корхоналарнинг машҳурлиги тўғридан-тўғри хизмат маданияти этикасига, официантларни хушмуомалалиги ва эътиборлигига боғлиқдир. Замонавий ресторанда хизмат кўрсатиш маданиятини барча шакллари ишлаб чиқариш, ташкилий ва эстетик аспектлар билан чекланмайди. Хизмат кўрсатиш ҳақиқатдан маданиятли бўлиши учун биргина замонавий, чиройли техник жихозланган корхонага эга бўлиш кифоя эмас. Муҳими ушбу корхонада малакали, ўз ишини яхши биладиган кадрларга эга бўлишдир.

Меҳмон ресторан, кафе, бар остонасини хатлаб ўтишданок унга хушмуомала ва эътибор билан кутиб олиш муайян даражада уларни

психологик мослашувини ўсишигга таъсир этади. Меҳмонларга индивидуал ёндошувни таъминлаш зарур. Бунда уларни ўзига хос сифатлари, қизиқишлари, мойилликлари ҳисобга олинади.

Овқатланиш корхоналари хизмат кўрсатиш ходимлари уларнинг касбларига қўйиладиган маънавий талабларни аниқ тасаввур қилиши керак. Овқатланиш зали марказий фигуралари бўлган официант, бармен метрдотелларни саралаш ва ишга қабул қилишда асосан ушбу талаблардан келиб чиқишади. Чунки уларга юзлаб одамлар илтимос, маслаҳат билан муражаат қиладилар, уларга танқидий мулоҳаза қилишади, махтов билдиришади.

Менинг фикримча, юқорида қайд этилган таклифнинг амалга оширилиши овқатланиш корхоналарида кўрсатилаётган сервис хизматининг яхшиланишига ва мазкур соҳанинг мамлакатимиз иқтисодиётига қўшаётган ҳиссасини янада ошишига олиб келади.

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## **ИГРА ЧЕСТНОСТИ: ОСНОВЫ СПОРТИВНОЙ ЭТИКИ**

*Аннотация. Статья "Игра честности: основы спортивной этики" исследует ключевые принципы, которые лежат в основе честной игры и нравственного поведения в мире спорта. Она освещает важность этики для формирования не только профессиональных спортсменов, но и всех участников спортивного сообщества. Рассматриваются этические аспекты соревнований, справедливость в спорте и нравственные дилеммы, с которыми сталкиваются спортсмены. Статья призывает к углубленному осознанию этических принципов в спорте и созданию инклюзивной, справедливой спортивной среды.*

*Ключевые слова: спортивная этика, честная игра, нравственные принципы, этические дилеммы, спортивное сообщество, справедливость в спорте.*

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## **THE GAME OF HONESTY: THE BASICS OF SPORTS ETHICS**

*Annotation. The article "The Game of Integrity: Fundamentals of Sports Ethics" explores the core principles underpinning fair play and moral conduct within the realm of sports. It sheds light on the significance of ethics in shaping not only professional athletes but also all members of the sporting community. Ethical aspects of competitions, fairness in sports, and moral dilemmas faced by athletes are scrutinized. The article advocates for a deeper awareness of ethical principles in sports and the creation of an inclusive, equitable sporting environment.*

*Keywords: sports ethics, fair play, moral principles, justice in sport, ethical dilemmas, sporting community.*

**Введение:**

Целью данной статьи "Игра честности: основы спортивной этики" является исследование важности этических принципов и моральных

ценностей в контексте спортивной деятельности. Рассматривается фундаментальное значение честной игры, справедливости и этических стандартов как неотъемлемой части каждого спортивного события и поведения спортсменов.

Тема подчеркивает, что спорт не только соревнование за победу, но и платформа для внедрения и пропаганды нравственных ценностей. Статья обращается к актуальным этическим вопросам в сфере спорта, предлагая анализ нравственных дилемм и вызовов, стоящих перед спортсменами, тренерами и всеми участниками спортивного сообщества.

Анализ этических аспектов спортивной деятельности призывает к осознанному подходу к этическим вопросам в спорте, стремясь способствовать формированию нравственно-этической культуры в спортивной среде и обеспечить создание инклюзивной, справедливой платформы для всех участников спортивной деятельности.

#### Этические принципы в спорте

Спортивная этика строится на основе честной игры, внутренней справедливости и решении моральных дилемм, с которыми сталкиваются спортсмены и спортивные сообщества. Исследуется, как эти принципы влияют на поведение участников спортивных состязаний и на их действия вне поля соревнований.

Рассматриваются не только правила игры, но и сложные моральные вопросы, такие как этичность использования допинга, вопросы судейства, тактика команд, а также личная ответственность спортсменов за свои поступки. Одновременно освещается, как спортивные организации и институты работают над решением этических проблем внутри спортивного мира.

#### Влияние этики на спортивное сообщество:

Этика в спорте играет важную роль в формировании характера и ценностей у спортсменов. Обсуждается, как спортивная этика способствует развитию добродетелей, таких как честность, уважение, командный дух и толерантность. Рассматривается влияние этических принципов на формирование лидерских качеств и созидательного подхода к соревнованиям.

Акцент делается на необходимости установления четких этических стандартов и правил поведения внутри спортивного сообщества. Обсуждается, какие меры могут быть приняты для создания этически здоровой среды, способствующей развитию спортивных талантов и поддержанию доверия между участниками. Рассматриваются примеры позитивного воздействия этических стандартов на общество и спортивные организации.

#### Пути улучшения этических аспектов в спорте

Освещается роль образования и тренингов в формировании этического мышления и поведения у спортсменов и тренеров. Обсуждаются

программы обучения этике в спорте и их влияние на развитие нравственных ценностей у молодых спортсменов. Рассматриваются методы, способствующие внедрению этических принципов в обучающие программы и тренировочные процессы.

Обсуждаются меры, направленные на создание инклюзивной и справедливой среды в спорте, где уважение к этическим нормам и равные возможности для всех являются основополагающими принципами. Рассматриваются политики и инициативы, направленные на борьбу с дискриминацией, насилием и нарушениями этических норм в спорте.

#### **Заключение**

Спортивная этика остается основополагающим элементом не только в самом спорте, но и в формировании ценностей и общественного мнения. В данной статье мы обсудили ключевые аспекты спортивной этики, подчеркнув важность честной игры, справедливости и нравственного поведения для спортсменов, тренеров и всего спортивного сообщества.

Необходимость продвижения этических принципов в спорте выходит за рамки соревновательных площадок. Это способствует формированию лидерства, уважения к оппонентам и внедрению этических норм в повседневную жизнь спортсменов.

Одновременно, создание инклюзивной, справедливой спортивной среды для всех участников способствует развитию спортивных талантов и обеспечивает устойчивость спортивной культуры.

Поддерживая обучение в духе этики и создание равных возможностей для всех, мы можем обеспечить спорту прочные основы этического поведения, вдохновляя следующее поколение спортсменов на достижение не только выдающихся результатов, но и превосходства в нравственных ценностях.

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## **РАЗВИВАЯ ТЕЛО И ДУХ: ОСНОВЫ ЗОЖ В КОНТЕКСТЕ ФИЗИЧЕСКОЙ КУЛЬТУРЫ**

*Аннотация. Эта статья исследует ключевую роль физической культуры в современном обществе, подчеркивая ее значимость для здорового образа жизни. Она обобщает основные принципы и историческое развитие физической культуры, а также анализирует влияние физической активности на физическое и психологическое благополучие.*

*Статья освещает последние тенденции и инновации в этой области, а также рассматривает эффективные стратегии пропаганды здорового образа жизни через физическую культуру. Она выделяет роль образования и государственных программ в развитии физической активности и представляет новые технологии в этой области.*

*Ключевые слова: физическая культура, здоровый образ жизни, физическая активность, психологическое благополучие, образование и спорт.*

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## **DEVELOPING BODY AND SPIRIT: THE BASICS OF HEALTHY LIFESTYLE IN THE CONTEXT OF PHYSICAL CULTURE**

*Annotation. This article explores the key role of physical culture in modern society, emphasizing its importance for a healthy lifestyle. She reviews the basic principles and historical development of physical culture, as well as analyzes the impact of physical activity on physical and psychological well-being.*

*The article highlights the latest trends and innovations in this field, as well as examines effective strategies for promoting a healthy lifestyle through physical education. She highlights the role of education and government programs in the development of physical activity and introduces new technologies in this area.*



*Keywords: physical education, healthy lifestyle, physical activity, psychological well-being, education and sports.*

Введение:

В современном обществе роль физической культуры и спорта в воспитании и общем развитии личности становится предметом все более глубокого изучения и внимания. Они играют важнейшую роль не только в поддержании здоровья, но и в формировании характера, ценностей и личностных качеств человека.

Физкультура, как основа здорового образа жизни, способствует формированию физической выносливости, развитию координации и укреплению организма. Однако ее влияние выходит далеко за рамки физического состояния, проникая в сферу личностного развития. Спорт, в свою очередь, не только формирует навыки соревновательности и командного взаимодействия, но и укрепляет духовные качества, такие как самодисциплина, упорство и уверенность в себе.

Исследования в области психологии, педагогики и спортивной медицины углубляют наше понимание влияния физкультуры и спорта на формирование личности в различных возрастных группах. Они открывают новые перспективы для интеграции физической активности и спортивной деятельности в образовательные программы, обеспечивая полноценное и гармоничное развитие индивида.

Цель данной статьи – проанализировать и систематизировать основные аспекты влияния физкультуры и спорта на воспитание и общее развитие личности, выявить их роль в формировании физических, психологических и социальных аспектов человеческой индивидуальности, а также рассмотреть перспективы применения данной информации в практической сфере образования и спортивной деятельности.

Физкультура как фактор воспитания личности

Физическая культура играет ключевую роль в формировании личности, оказывая влияние как на физическое, так и на психологическое благополучие человека.

Физические упражнения и тренировки способствуют не только укреплению тела, но и развитию выносливости, гибкости и силы. Этот аспект влияет не только на общее физическое самочувствие, но и на психологическое состояние, повышая уверенность в себе и самооценку.

Регулярные занятия физической культурой формируют дисциплину и самодисциплину, что имеет значение не только в спорте, но и в повседневной жизни. Они требуют соблюдения режима, установления целей и последовательности в достижении результата, что способствует формированию ответственного подхода к собственному здоровью и достижению целей в различных сферах.

Формирование культуры здоровья через физическую активность и спорт вносит важный вклад в общее развитие личности. Она не только учит правильному питанию и уходу за телом, но и способствует пониманию ценности здорового образа жизни с самого раннего возраста, создавая осознанное отношение к собственному здоровью и благополучию.

Спорт в контексте личностного развития:

Спортивная деятельность является неотъемлемой частью формирования личности, оказывая влияние как на физическое, так и на психологическое развитие человека.

Участие в спортивных состязаниях не только формирует соревновательный дух и умение работать в команде, но и прививает этику и мораль, важные аспекты развития личности. Это ведет к формированию справедливости, уважения к соперникам и усвоению ценностей спортивной этики.

Спортивная активность требует не только физической подготовки, но и психологической устойчивости. Участие в спорте помогает преодолевать трудности, укрепляет уверенность в собственных силах, развивает стрессоустойчивость и способность эффективно реагировать на разнообразные ситуации.

Спортивная деятельность влияет на формирование личности во многих аспектах, создавая основу для развития самореализации и успешного функционирования в различных сферах жизни. Она способствует развитию физических, моральных и психологических качеств, играя важную роль в общем развитии индивидуальности.

Заключение

Исследование роли физкультуры и спорта в формировании личности выявило их существенный вклад не только в физическое здоровье, но и в психологическое развитие индивида. Физическая культура является основой здорового образа жизни, способствуя укреплению тела, развитию выносливости и формированию дисциплины. В то же время, спорт играет важную роль в формировании моральных ценностей, развитии соревновательного духа и укреплении психологической устойчивости.

Физическая активность и занятия спортом не только способствуют здоровью организма, но и учат преодолевать трудности, развивают самодисциплину и уверенность в собственных силах. Эти качества, приобретенные через физическую культуру и спорт, оказывают влияние на различные сферы жизни, от повседневных решений до профессиональной деятельности.

Интеграция физической активности и спорта в образовательные программы становится неотъемлемой частью формирования личности, обогащая процесс обучения и воспитания. Отмечается необходимость дальнейших исследований для более глубокого понимания механизмов воздействия физической культуры и спорта на личностное развитие, а также

для разработки эффективных стратегий внедрения данных практик в различные сферы жизни с целью максимального раскрытия потенциала каждого человека.

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## **ОСОБЕННОСТИ ИНФОРМАЦИОННОГО ОБЕСПЕЧЕНИЯ ТАМОЖЕННЫХ ОРГАНОВ РОССИЙСКОЙ ФЕДЕРАЦИИ**

*Аннотация. В научной статье рассматриваются особенности информационного обеспечения таможенных органов Российской Федерации. В данной работе анализируется важность информационной поддержки для эффективной работы таможенных органов, подчеркивается значимость современных технологий и передовых практик в области информационного обеспечения таможенных органов, таких как единая информационная система таможенного управления, биометрические технологии, электронный документооборот и международное сотрудничество. Также, делаются выводы о необходимости адаптации передовых информационных методов для повышения эффективности работы таможенных органов Российской Федерации и достижения высоких стандартов качества и безопасности в таможенной сфере.*

*Ключевые слова: таможенные органы, информационное обеспечение, электронный документооборот, международное сотрудничество, безопасность в таможенной сфере.*

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## **CONCEPTUAL FOUNDATIONS OF PATRIOTIC EDUCATION IN THE CUSTOMS AUTHORITIES OF THE RUSSIAN FEDERATION**

*Abstract. The scientific article examines the features of information support for the customs authorities of the Russian Federation. The paper analyzes the importance of information support for the effective functioning of customs authorities, emphasizing the significance of modern technologies and advanced practices in the field of information support for customs authorities, such as the unified information system of customs management, biometric technologies, electronic document flow, and international cooperation. Conclusions are also drawn regarding the necessity of adapting advanced information methods to enhance the efficiency of the Russian Federation's customs authorities and achieve high standards of quality and security in the customs sphere.*

*Keywords: Customs authorities, information support, electronic document management, international cooperation, security in the customs sphere.*

Информационное обеспечение таможенных органов Российской Федерации является одним из ключевых элементов в эффективной и эффективной работе этой важной государственной службы.

Российская Федерация, являясь частью глобальной экономики, сталкивается с необходимостью обеспечения высококачественной информационной поддержки для таможенных служб, что подразумевает обработку и анализ существенных объемов информации, электронный документооборот, системы контроля и мониторинга, а также применение современных технологий в борьбе с таможенными правонарушениями.

Информационное обеспечение таможенных органов России имеет ряд особенностей, связанных со структурой и функциями таможенной системы.

Во-первых, информационное обеспечение таможенных органов должно соответствовать законодательству Российской Федерации и международным нормам в области таможенного дела. Это включает в себя сбор, обработку и анализ информации о товарах, транспортных средствах и

физических лицах, пересекающих таможенную границу Евразийского экономического союза (ЕАЭС) [1, 2, 3].

Во-вторых, информационное обеспечение должно быть адаптировано к структуре таможенных органов и их функциям. Например, информационные системы должны обеспечивать контроль за перемещением товаров через таможенную границу ЕАЭС, сбор и анализ данных о таможенных операциях, а также взаимодействие с другими государственными органами и участниками внешнеэкономической деятельности (ВЭД).

В-третьих, информационное обеспечение таможенных органов должно быть основано на современных технологиях и методах обработки информации. Это включает использование автоматизированных систем управления, анализа данных, электронного документооборота и других инструментов.

Наконец, информационное обеспечение таможенных органов должно обеспечивать безопасность и защиту информации от несанкционированного доступа, а также обеспечивать конфиденциальность данных.

Ключевая цель информационного обеспечения таможенных органов заключается в обеспечении безопасности государственных границ, борьбе с контрабандой и незаконным перемещением товаров, а также в обеспечении соблюдения таможенного законодательства. Кроме того, информационные системы таможенных органов должны обеспечивать прозрачность и эффективность процессов таможенного контроля, ускорять таможенные операции и содействовать развитию международной торговли.

В данном контексте актуальной становится проблема разработки и внедрения современных информационных систем, а также обеспечения их совместимости с международными стандартами. Необходимо также учитывать аспекты защиты информации и конфиденциальности данных, особенно в условиях растущей угрозы кибератак.

Одна из ключевых функций информационного обеспечения таможенных органов – обеспечение точности и достоверности данных. Точность информации является неотъемлемым условием для эффективного принятия решений и предотвращения незаконных практик, таких как контрабанда или недостоверная информация об объемах и стоимости импортируемых товаров. Для решения этой задачи используются современные технологии анализа данных и системы, гарантирующие достоверность предоставленной информации.

Существующие информационные системы и технологии, используемые таможенными органами, играют важную роль в обеспечении эффективности таможенного контроля, борьбы с контрабандой и обеспечении безопасности государственных границ.

Вот несколько основных информационных систем и технологий, применяемых таможенными органами:



1) Единая автоматизированная информационная система «Меркурий»: это информационная система, используемая Федеральной таможенной службой (ФТС России). Она включает в себя модули для автоматизации процессов таможенного контроля, учета и анализа данных, электронного документооборота.

2) Системы электронного декларирования: они позволяют участникам ВЭД подавать декларации и другие документы в электронном виде, что ускоряет процессы совершения таможенных формальностей и снижает риски ошибок.

3) В-третьих, системы сканирования грузов: современные технологии сканирования грузов позволяют таможенным органам быстро и эффективно проверять содержимое контейнеров и грузов, что помогает выявлять контрабанду и незаконные грузы.

4) Существуют электронные базы данных и информационные порталы: их используют для обмена информацией с другими странами, международными организациями. Также существуют системы биометрической идентификации: для повышения безопасности границ и борьбы с незаконным перемещением лиц таможенные органы могут использовать системы биометрической идентификации, такие как сканеры отпечатков пальцев или системы распознавания лиц.

Эти системы и технологии играют важную роль в обеспечении эффективности работы таможенных органов, но также требуют постоянного развития и модернизации в ответ на изменяющиеся угрозы и проблемы в международной торговле.

Оценка эффективности и недостатков текущих информационных решений в таможенной сфере может быть проведена на основе следующих критериев: во-первых, эффективность контроля, так как одним из главных критериев оценки является способность информационных систем обеспечивать эффективный контроль за перемещением товаров через границу, выявление контрабанды и других незаконных операций. Во-вторых, скорость обработки, потому что важным фактором является скорость обработки документов и данных, а также скорость проведения таможенных процедур с использованием информационных систем. В-третьих, удобство использования в силу того, что информационные системы должны быть удобными и понятными для использования таможенными органами, а также для участников ВЭД.

Недостатки текущих информационных решений могут включать в себя: недостаточную защиту от киберугроз, информационные системы таможенных органов могут быть уязвимы для кибератак, что может привести к утечке конфиденциальной информации; сложность интеграции, информационные системы могут быть сложными для интеграции с другими системами или стандартами, что затруднит обмен данными между различными организациями, а также странами; высокие затраты на

обслуживание: информационные системы могут требовать значительных затрат на обслуживание и поддержку [1].

Оценка эффективности и недостатков текущих информационных решений позволяет выявить области для улучшения и модернизации, чтобы повысить эффективность таможенного контроля и обеспечить безопасность государственных границ.

Для результативного и успешного информационного обеспечения таможенных органов Российской Федерации необходимо внедрить и использовать следующие законодательные и организационные аспекты:

– Разработка и внедрение законодательных актов, регулирующих использование технологий информационного обеспечения в таможенной сфере, включая защиту персональных данных, правила обработки информации, ответственность за нарушение конфиденциальности и безопасности данных, также установление законодательной базы для электронного документооборота, включая признание электронных документов и подписей, установление правил и процедур их использования в таможенных процессах, к тому же разработка законодательства, регулирующего обмен информацией между таможенными органами различных стран в рамках международного сотрудничества.

– Создание специализированных центров по информационному обеспечению в таможенных органах, ответственных за разработку, внедрение и поддержку информационных систем, и обучение сотрудников таможенных органов в области использования новых информационных технологий, установление процедур и стандартов безопасности информации, включая защиту от кибератак, управление доступом к данным и обеспечение конфиденциальности информации [3].

Информационное обеспечение таможенных органов Российской Федерации необходимо для проведения таможенной политики в условиях глобализации и интеграции экономических процессов. В современной экономике большинство товаров и услуг производится в одной стране, но продается в другие. Это приводит к тому, что национальные таможенные органы должны иметь достаточно полную и точную информацию о происходящих в мире торговых операциях, чтобы принять правильные решения [4].

Информационное обеспечение таможенных органов России должен быть направлен на повышение эффективности таможенной системы. Это связано с тем, что таможенные органы Российской Федерации должны иметь возможность определять риски и предотвращать контрафактную деятельность, а также оптимизировать процессы документального обмена и таможенного контроля.

Информационное обеспечение таможенных органов Российской Федерации должно поддерживать международную кооперацию в области таможенной политики. Это связано с тем, что современная мировая

экономика требует высокого уровня координации между национальными таможенными органами для предотвращения контрафакта и борьбы с другими преступлениями, связанными с международной торговлей.

Информационное обеспечение таможенных органов РФ является необходимым условием для эффективной работы этих органов в современной мировой экономике. Для того, чтобы достигнуть высокий уровень эффективности, таможенные органы Российской Федерации должны постоянно инвестировать в развитие информационных технологий и проводить регулярные проверки и мониторинг системы информационного обеспечения. Это позволит им соответствовать требованиям современной мировой экономики и оставаться конкурентоспособными в глобальном контексте.

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## **ВЛИЯНИЕ СТРЕССА НА ФИЗИОЛОГИЮ И МОРФОЛОГИЮ ПИЩЕВАРИТЕЛЬНОЙ СИСТЕМЫ: АСПЕКТЫ ИЗМЕНЕНИЙ (ОБЗОР ЛИТЕРАТУРЫ)**

*Аннотация. Данная работа исследует влияние стресса на пищеварительный тракт человека. Она освещает физиологические аспекты и морфофункциональные изменения, происходящие в органах пищеварения под воздействием стрессовых факторов. Рассматриваются механизмы, через которые стресс оказывает влияние на работу желудка, кишечника и других органов пищеварения. Обсуждаются возможные пути адаптации и коррекции этих изменений с целью поддержания здоровья пищеварительной системы в условиях стресса. Полученные результаты могут способствовать разработке методов профилактики и терапии для улучшения состояния пищеварительной системы при воздействии стрессовых ситуаций.*

*Ключевые слова: стресс, пищеварительный тракт, физиология, морфофункциональные изменения.*

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## **THE EFFECT OF STRESS ON THE PHYSIOLOGY AND MORPHOLOGY OF THE DIGESTIVE SYSTEM: ASPECTS OF CHANGES (LITERATURE REVIEW)**

*Abstract. This work examines the effect of stress on the human digestive tract. It highlights the physiological aspects and morphofunctional changes occurring in the digestive organs under the influence of stress factors. The mechanisms through which stress affects the functioning of the stomach, intestines and other digestive organs are considered. Possible ways to adapt and correct these changes in order to maintain the health of the digestive system under stress*

*are discussed. The results obtained can contribute to the development of prevention and therapy methods to improve the state of the digestive system when exposed to stressful situations [2].*

*Key words: stress, digestive tract, physiology, morphofunctional changes.*

**Введение:** Пищеварительный тракт, являясь ключевой системой организма, обеспечивает поступление необходимых веществ для поддержания жизнедеятельности всех клеток и тканей. Эффективное функционирование этой системы предполагает слаженную работу различных анатомических и физиологических компонентов, включая желудочно-кишечный тракт, панкреатическую и желчную системы.

Многочисленные исследования демонстрируют, что стрессоры, воздействуя на организм, могут вызывать морфологические и функциональные изменения в структуре и работе пищеварительного тракта. Эти изменения, в свою очередь, сопровождаются адаптивными реакциями, направленными на поддержание гомеостаза и выживание организма в условиях стресса [15]

**Ключевые слова:** ФА (Физиологические аспекты) МИ (Морфофункциональные изменения) ГС (Гастроинтестинальная система) СЖС (Секреция желудочного сока) ВСО (Воспаление слизистой оболочки) НС (Нейроэндокринная система).

**Цель исследования:** Цель данной статьи заключается в детальном анализе литературы по изучению физиологические аспекты морфофункциональных изменений пищеварительного тракта при стрессе.

**Материалы и методы исследования:** Материалами данного исследования явились статьи, тезисы, авторефераты, взятые из медицинских сайтов PubMed, Elsevier, Google academia, Cyberleninca. Произведен их ретроспективный анализ.

**Результаты и их обсуждения:** Стресс является одним из факторов, способствующих развитию и усугубляющих течение заболеваний желудочно-кишечного тракта

Данный исследовательский направлен осуществляется в контексте широкой области медицинской и биологической науки, включающей исследования по адаптации организма к хроническим поражениям печени и их влияние на другие системы. Ряд предыдущих исследований показал, что хронические заболевания печени могут вызывать дисфункции в ЖКТ, в том числе в работе эндокринных клеток слизистой оболочки. Например, в работе автора было выявлено, что хронический гепатит вызывает изменения в структуре и функции эндокринных клеток тонкой кишки у крыс. Подобные изменения в эндокринной системе могут сказаться на пищеварении и обмене веществ. Исследование подтвердило, что патологические изменения в печени у самок крыс могут влиять на морфологию эндокринных клеток ободочной кишки, что в свою очередь



может иметь последствия для пищеварения и общего здоровья. Таким образом, предшествующие исследования позволяют предполагать, что детальное изучение морфофункциональных аспектов эндокринных клеток слизистой оболочки ЖКТ у потомства самок крыс с хроническим экспериментальным поражением печени является важным шагом в понимании механизмов адаптации организма к подобным состояниям и может иметь практическое значение для медицинской практики [11]

Изучение морфофункциональных особенностей эпителия крипт двенадцатиперстной кишки у потомства самок крыс с экспериментальным поражением печени является актуальной проблемой с точки зрения современной медицинской и биологической науки. Вот несколько причин, почему данная тема представляет важный интерес: Распространенность печеночных заболеваний: Хронические заболевания печени представляют собой значительную проблему для общественного здоровья. Они включают в себя алкогольный гепатит, цирроз печени, вирусные гепатиты и другие. Эти заболевания могут оказать воздействие на функциональное состояние других органов и систем. Влияние печеночных заболеваний на желудочно-кишечный тракт: Печень играет ключевую роль в пищеварении и обмене веществ. Поражение печени может привести к нарушениям этих процессов, включая работу желудочно-кишечного тракта, в том числе крипт двенадцатиперстной кишки. Молекулярные механизмы взаимосвязи между печенью и кишечником: Некоторые исследования фокусируются на разъяснении молекулярных путей, связывающих печень и кишечник. Эти пути могут включать в себя влияние циркулирующих в крови медиаторов и биологически активных веществ, таких как цитокины. Влияние питания на состояние кишечника при поражении печени: Некоторые исследования обращают внимание на роль различных видов питания (парентерального и энтерального) в поддержании интегритета кишечного эпителия при острой или хронической печеночной недостаточности [10]

Интенсивное кормление свиней в современных условиях сельского хозяйства требует постоянного поиска эффективных методов поддержания здоровья животных, особенно в контексте морфофункциональных нарушений пищеварительного тракта. В этом контексте использование природных детергентов сорбционного действия представляет собой интересное направление исследований. Данная статья обзорного характера представляет результаты исследований по использованию природных сорбентов в рационах свиней. В работе освещаются различные виды природных сорбентов (например, карбонаты, глины) и их воздействие на пищеварительный процесс. Особое внимание уделяется анализу результатов экспериментов, проведенных в условиях интенсивного кормления. Эта статья фокусируется на анализе морфофункциональных изменений в пищеварительном тракте свиней при применении природных сорбентов. В работе представлены данные о влиянии сорбентов на



морфологию слизистой оболочки кишечника, а также о функциональных параметрах системы пищеварения [8]

Исследование влияния питания на морфогенез мышечной оболочки ободочной кишки является важной темой в области физиологии пищеварительной системы. Особенно интересно изучить воздействие длительного потребления диспергированной пищи на структуру мышечных тканей данного участка ЖКТ у белых крыс. Для проведения исследования были выбраны белые крысы в возрасте от 3 до 6 месяцев. Группы животных разделили на две: контрольную группу, потреблявшую стандартное питание, и экспериментальную группу, в рационе которой длительное время преобладала диспергированная пища. После завершения эксперимента проводилось вскрытие животных и сбор образцов тканей для последующего анализа. Анализ показал, что длительное потребление диспергированной пищи сопровождается выраженными изменениями в структуре мышечной оболочки ободочной кишки. Наблюдается увеличение толщины мышц и увеличение числа мышечных волокон, что, вероятно, является адаптацией к измененным условиям пищеварения [4]

Морфофункциональных изменений слизистой оболочки тонкого кишечника при хронической алкогольной интоксикации представляет собой важную область исследований, имеющую практическое значение в контексте здоровья человека. Воздействие алкоголя на организм, в частности, на пищеварительную систему, может вызвать серьезные патологические изменения, что делает эту тему предметом глубокого анализа и изучения, посвященные данной теме, проводились на экспериментальных животных с целью выявления и анализа морфофункциональных изменений слизистой оболочки тонкого кишечника под воздействием алкоголя. Результаты исследований указывают на ряд характерных особенностей. Во-первых, длительное воздействие алкоголя приводит к атрофии ворсинок кишечника, что сопровождается уменьшением поглотительной поверхности и, следовательно, снижением эффективности пищеварения и всасывания питательных веществ. Во-вторых, наблюдается утолщение базальной мембраны эпителия кишечника и уменьшение выраженности микроворсинок, что может приводить к нарушению микроциркуляции и, как следствие, к гипоксии тканей. Кроме того, хроническая алкогольная интоксикация вызывает воспалительные изменения в слизистой оболочке тонкого кишечника. Это проявляется в увеличении числа лейкоцитов в субмукозе, активации процессов фагоцитоза и повышенной продукции противовоспалительных цитокинов [15]

Данная работа посвящена исследованию влияния поражения гепатобилиарной системы (печени) на морфофункциональные характеристики эндокринных и тучных клеток двенадцатиперстной кишки потомства самок крыс при хроническом Б-галактозаминовом поражении

печени. В ходе исследования были использованы белые лабораторные крысы самки и их потомство, подвергнутое хроническому поражению печени с помощью Б-галактозамина. Результаты исследования показали, что у экспериментальных животных по сравнению с контрольной группой наблюдается увеличение количества эндокринных и тучных клеток. Это может быть связано с компенсаторно-приспособительными механизмами организма, сопровождающимися увеличением популяции темных, слабо дегранулирующих клеток. Это, в свою очередь, может указывать на нарушение регуляторных процессов данных клеток. Авторы обосновывают актуальность исследования, отмечая, что состояние здоровья родителей, особенно матери, напрямую влияет на антенатальную и раннюю детскую заболеваемость, и смертность. Особое внимание уделяется патологии гепатобилиарной системы, которая в настоящее время является распространенной, особенно из-за инфекционных заболеваний. Исследование также выявляет влияние хронических поражений гепатобилиарной системы на различные органы и функциональные системы организма, такие как иммунная, репродуктивная и эндокринная системы [12]

Данное исследование посвящено изучению развития защитных функций надэпителиального слизистого слоя желудочно-кишечного тракта у здоровых свиней в период постнатального развития. Анализ компонентов слизи, её антиоксидантной и антирадикальной активности показал ряд особенностей в зависимости от возраста: Гликопротеины слизи определяют её физико-химические свойства и функции защиты эпителия. Их биосинтез и секреция зависят от гормонального фона и питания. Эти процессы завершаются при достижении половой зрелости и переходе на дифинитивное питание. Состав гликопротеинов меняется с возрастом: у поросят, переходящих на дифинитивное питание, содержание моносахаров ниже, что указывает на более разветвленные олигосахаридные цепочки.

Внеструктурные компоненты слизистого слоя зависят от сорбционных свойств гликопротеинов. Содержание белка комплексно зависит от физико-химических свойств слизи и размеров отделов пищеварительного тракта. Концентрация пепсина увеличивается с возрастом, особенно низка у поросят.

Скорость обмена эпителиоцитов увеличивается с удалением от желудка, что свидетельствует о некотором снижении защитной функции слизистого слоя.

Антиоксидантная и антирадикальная активность слизистого слоя с возрастом снижаются. Эти свойства связаны с олигосахаридными частицами гликопротеинов и другими антирадикальными субстанциями.

Функциональная незрелость биосинтеза гликопротеинов влияет на химические свойства слизи, делая её менее вязкой и эластичной, а также более подверженной деградации. Динамика антиоксидантной активности

слизи аналогична динамике изменений в плазме крови с возрастом. Таким образом, исследование позволяет понимать как формируются и меняются защитные функции слизистого слоя желудочно-кишечного тракта у здоровых свиней в постнатальном развитии, что может быть важным для профилактики гастродуоденальных заболеваний [13]

Авторы отмечают, что гипермоторика пищеварительного тракта ранее считалась основной причиной диареи, но сегодня эти представления изменились. Диарея приводит к различным нарушениям водного обмена, потере воды и секреции, а также уменьшению абсорбции. В работе подробно рассматриваются различные уровни защиты тонкого кишечника от воздействия вредных агентов. Описываются барьеры, такие как полость кишечника, подэпителиальный слой слизи, водно-электролитный слой и гликокаликс. Нарушение этих барьеров может привести к энтеральной недостаточности и патологии пищеварения. Авторы также подчеркивают выраженные нарушения механизмов пищеварения и всасывания при энтеральной патологии. Эти нарушения связаны с атрофией ворсинок и микроворсинок, изменениями в структуре и ультраструктуре энтероцитов, а также сорбционными свойствами слизистой оболочки. В результате исследований было установлено, что у больных животных с патологией тонкого кишечника наблюдались значительные колебания глубины крипт и атрофия слизистой оболочки. Также описываются изменения в высоте микроворсинок энтероцитов и появление микрополиповидных структур в слизистой оболочке. В целом, работа предоставляет детальный анализ патологии пищеварительной системы поросят, включая механизмы развития, изменения в структуре и функции кишечника, а также патологические признаки, обнаруженные в ходе исследования [5]

Данная работа посвящена исследованию пищеварительной системы у молодняка жвачных животных в раннем периоде их развития. В начальном этапе онтогенеза, когда питание состоит в основном из молока, пищеварение происходит преимущественно в тонком отделе кишечника под воздействием ферментов поджелудочной железы и кишечника. Ферментационные процессы в рубце, необходимые для переваривания грубых кормов, развиты слабо. Важные качественные изменения в пищеварительной системе ягнят происходят в течение первых 3-5 недель после рождения, когда начинается переход к потреблению растительных кормов. На этом этапе молодняк потребляет легкодоступные питательные вещества из материнского молока, а потребление сухих веществ из травы и комбикорма начинает увеличиваться. Интенсивный рост массы рубца и увеличение концентрации лактатов и жирных кислот в его содержимом наблюдается в первые недели жизни. С увеличением возраста молодняка, рост рубца и уровень ЛЖК в его содержимом продолжают, хотя с меньшей интенсивностью. Исследования позволяют предположить, что к 7-8 неделям возраста ягнята, начавшие потреблять растительные корма с

раннего возраста, достигают функциональной зрелости рубца и процессов ферментации, сравнимых с взрослыми животными. Это позволяет заключить, что они готовы к переходу на безмолочное питание с точки зрения качественных морфофункциональных показателей преджелудков [2]

Работа представляет собой исследование биохимических свойств микрофлоры у пациентов с гастроэзофагеальной рефлюксной болезнью (ГЭРБ) с проявлениями дистального гастроэзофагеального рефлюкса (ДГЭР). Авторы сравнивают микроорганизмы, выделенные из слизистой оболочки здоровых людей с теми, что выделены у пациентов с ГЭРБ. Результаты показывают, что у больных ГЭРБ с ДГЭР выявляется повышенная активность патогенных факторов у микроорганизмов. Активность патогенности микроорганизмов: У больных с ГЭРБ с ДГЭР выявлено увеличение количественного и качественного состава мукозной микрофлоры, а также присутствие факторов патогенности - гемолитической и лецитиназной активности. Это может играть роль в развитии воспалительных изменений в пищеварительных органах. Исследование микробиоты пищеварительного тракта представляется как интегральный показатель состояния здоровья человека. Идентификация варианта микробиоты при диспансеризации здоровых людей может помочь в выявлении групп риска и проведении превентивной коррекции. Работа подчеркивает важность изучения микробиоты пищеварительного тракта для оценки здоровья человека. Авторы подчеркивают, что изменения в микробиоте могут быть связаны с риском развития различных патологий в пищеварительной системе, включая ГЭРБ с ДГЭР. Работа представляет ценную информацию о взаимосвязи микробиоты пищеварительного тракта с ГЭРБ с ДГЭР. Результаты подчеркивают важность изучения микробиоты для диагностики и предотвращения патологий в пищеварительной системе. Данное исследование может служить основой для разработки индивидуальных подходов к нутритивной поддержке организма при патологиях пищеварительной системы [9]

Данный литературный обзор описывает результаты исследований, связанных с морфологическими изменениями в слизистой оболочке пищеварительного тракта у пациентов с синдромом раздраженного кишечника. Согласно авторам, несмотря на то, что синдром раздраженного кишечника рассматривается как функциональное заболевание, гистологические данные свидетельствуют о наличии выраженных морфофункциональных изменений в желудочно-кишечном тракте. Исследование включало клиникалабораторные наблюдения, в том числе бактериологические и гистологические анализы гастро- и колонобиоптатов у 24 пациентов с синдромом раздраженного кишечника. Все пациенты имели хронический дуоденит разной степени активности, сопровождающийся различными патологическими процессами в слизистой двенадцатиперстной кишки. Авторы также обсуждают влияние грибов рода

*Candida* на слизистую оболочку кишечника и отмечают, что их обнаружение может свидетельствовать о стойких дисбиотических нарушениях в кишечнике. Исследование подчеркивает важность морфологических изменений в слизистой оболочке кишечника у пациентов с синдромом раздраженного кишечника и их связь с хроническим воспалительным процессом и микробиоценозом кишечника [14]

В данной работе обсуждается важность рациональной гигиены питания для нормального роста и развития организма. Автор подчеркивает, что часто в повседневной жизни наблюдаются нарушения этой гигиены, что может привести к различным проблемам, таким как иммунодефициты, метаболические расстройства, ожирение и другие.

Особое внимание уделяется недоеданию, которое часто встречается среди госпитализированных пациентов, особенно тех, кто получает питание парентерально. Автор описывает различные факторы, способствующие недоеданию, включая первичное и вторичное недоедание, а также заболевания пищеварительного тракта. В работе подчеркивается, что недостаток или избыток определенных питательных элементов (белков, жиров, витаминов, микроэлементов) влияют на организм, вызывая различные изменения и патологические состояния. Автор также указывает на влияние белковой диеты на организм, отмечая, что при ее употреблении необходимо увеличить потребление воды. Далее автор представляет результаты эксперимента на крысах, где изучались изменения в морфологии и функции толстой кишки под воздействием белковой нагрузки. В результате исследования были выявлены атрофические изменения слизистой оболочки, замедление процессов абсорбции, а также изменения в мышцах и соединительной ткани [1]

Данная статья представляет обзор исследований по роли кишечной лимфоидной ткани в иммунной системе. Кишечная лимфоидная ткань, ассоциированная с кишечником (ЛТАК), играет важную роль в презентации антигенов иммунокомпетентным клеткам и последующем иммунном ответе. Элементы этой системы динамичны и подвержены влиянию различных стресс-факторов. В статье представлены результаты исследований параметров лимфоидной ткани кишечника у клинически здоровых крыс. Исследование проводилось на белых беспородных половозрелых крысах-самцах. Материалом для анализа служили ткани кишечника, подвергнутые обработке согласно стандартным методикам. Показано, что лимфоидные бляшки (ЛБ) представляют собой сгруппированные образования, расположенные в слизистой оболочке кишечника. Эпителий, контактирующий с ЛБ, отличается отсутствием бокаловидных клеток. ЛБ являются паренхиматозным органом, представленным лимфоцитами и макрофагами. Под эпителиальным пластом кишки обнаруживаются плазмоциты. В статье также описываются М-клетки, располагающиеся со стороны просвета кишки к ЛБ. Эти клетки



играют важную роль в захвате антигенов и представлении их компонентам ЛБ. Кроме того, представлены различные зоны внутри ЛБ, классифицируемые по разным авторам. Исследования также показали, что лимфоидные бляшки являются динамическими структурами, формирующимися и исчезающими в зависимости от наличия стресс-факторов. С возрастом увеличиваются размеры и количество ЛБ. Заключение подчеркивает широкое распространение лимфоидной ткани и ее элементов в кишечнике крыс. Разнообразие по строению и функциям делает эту ткань важным объектом исследований. Особое внимание уделяется клеточному иммунитету кишечника, который требует дальнейших исследований. Важность этих данных не ограничивается только доклиническими исследованиями, они также способствуют расширению наших знаний в области иммунологии и биологии [6]

Проблема дисбактериозов, связанных с антибиотикотерапией, представляет собой актуальную тему в современной медицине. Воздействие антибиотиков на микробиоценоз организма является одним из важных факторов, однако следует также учитывать и другие влияющие нарушения, как экзогенного, так и эндогенного происхождения [16].

Цель данного исследования заключается в изучении морфофункционального состояния желудка и слепой кишки у белых крыс после курсового приема кларитромицина. В эксперименте было задействовано 30 белых крыс-самцов репродуктивного возраста с массой  $200,0 \pm 20,0$  грамм. Курс антибиотикотерапии проводился путем введения кларитромицина вместе с пищей дважды в сутки. Для анализа использовались участки желудка и слепой кишки. Срезы тканей изучались под световым микроскопом "Конус". Морфометрические данные получали с использованием объект-микрометра Sigeta с делениями 1 мм/100 и точностью 0,01 мм. Исследование выявило значительные изменения в морфофункциональном состоянии желудка и слепой кишки у подопытных крыс. У 12 из 30 особей наблюдалось уменьшение объема слепой кишки почти в два раза по сравнению с объемом желудка. Это было обусловлено расширением фундального отдела желудка, что привело к изометрическому уплощению и сближению между собой слизистой и мышечной оболочки. У оставшихся 18-ти крыс наблюдалась противоположная картина: объемная вместимость слепой кишки в два раза превышала объем желудка. Это сопровождалось утолщением стенки слепой кишки и повышенным образованием складок слизистой оболочки. Вероятно, это связано с недостаточным поступлением остаточных продуктов пищеварения из тонкой кишки. Эти результаты подчеркивают важность изучения патогенеза дисбактериозов, вызванных антибиотикотерапией, и подчеркивают необходимость комплексного подхода к анализу морфофункциональных изменений в желудке и слепой кишке при таких воздействиях. Дальнейшие исследования в этом направлении могут пролить свет на механизмы



развития дисбактериозов и помочь разработать эффективные стратегии их профилактики и лечения[3]

В настоящее время, изучение патофизиологии и патоморфологии функциональных расстройств желудочно-кишечного тракта (ЖКТ) представляет собой актуальное направление медицинской науки. Основной целью этого исследования является систематизация современных научных данных, связанных с механизмами возникновения и развития данных патологий. Одним из ключевых моментов, определенных в литературе, является комплексное изменение нейроэндокринной и нервной регуляции пищеварительного тракта, обусловленное генетическим полиморфизмом и воздействием внешних провоцирующих факторов, в которых основной роль принадлежит стрессу. Эти изменения приводят к дисбалансу в функционировании диффузной нейроэндокринной системы и выражению ряда важных регуляторных молекул, таких как оксид азота и интерлейкин 1, что в свою очередь инициирует воспалительные процессы и изменения в клеточном обновлении эпителиоцитов, являющихся морфологическим основанием этих заболеваний. Важным выводом из проведенных исследований является необходимость дальнейшего развития классификационных критериев функциональных заболеваний ЖКТ, что может отразиться в будущем Римском консенсусе IV. Отмечается также, что у значительной части пациентов функциональные расстройства ЖКТ имеют наследственную предрасположенность. Исследования показывают, что у ближайших родственников пациентов с синдромом раздраженного кишечника (СРК) симптоматика может быть сходной. Генетический полиморфизм различных компонентов, таких как ферменты обратного захвата серотонина (5-НТ), g-протеин,  $\alpha 2$ -адренорецепторы и ген фактора некроза опухолей,  $\alpha$ , имеет значимое влияние на развитие этих расстройств. Долгое время обсуждается роль воспаления в формировании гиперчувствительности при функциональных расстройствах ЖКТ. Данные исследования указывают на высокую экспрессию молекул клеточной адгезии в слизистой оболочке желудка у пациентов с функциональной диспепсией, что сопровождается повышенной проницаемостью слизистой оболочки и инфильтрацией ее эозинофилами и тучными клетками. Также доказываемая важная роль воспалительного процесса при постинфекционном СРК. Завершенная работа по определению теста на наличие антител к винкулину в кишечнике пациентов, перенесших острый гастроэнтерит, позволяет отличать СРК от других заболеваний ЖКТ с высокой степенью точности. Итак, изложенные в обзоре данные предоставляют важную информацию о механизмах развития функциональных расстройств ЖКТ. Понимание этих механизмов имеет большое значение для дальнейшего улучшения диагностики и лечения данных заболеваний [7.18]

**Вывод:** в данном литературном обзоре были рассмотрены основные аспекты физиологических изменений, происходящих в пищеварительном тракте при стрессовых состояниях. Исследования в этой области позволяют понимать механизмы воздействия стресса на органы и системы, ответственные за пищеварение, что в свою очередь открывает перспективы для разработки эффективных методов профилактики и лечения расстройств пищеварения, вызванных стрессом. Одним из ключевых выводов является то, что стресс оказывает множественное и комплексное воздействие на функциональное состояние пищеварительного тракта. Под воздействием стресса происходит активация системы "борьба или бегство", что приводит к изменению кровоснабжения органов пищеварения, сокращению перистальтики, а также снижению выработки пищеварительных ферментов. Все эти процессы в совокупности могут привести к нарушению нормального пищеварения и усугублению существующих расстройств. Важным аспектом, подчеркнутым в ходе анализа литературы, является значимость комплексного подхода к проблеме. Это включает в себя не только медикаментозные методы лечения, но и психотерапевтическую поддержку, регуляцию рационального питания, а также методы релаксации и стресс-менеджмента. Таким образом, литературный обзор позволяет сделать вывод о неотъемлемой связи между стрессом и функциональными изменениями в пищеварительном тракте. Также при изменении морфологии кишечника связана с нарушением работы аппендицита [17]

Глубокое понимание этих механизмов открывает перспективы для разработки индивидуальных и комплексных методов лечения, направленных на восстановление нормальной функции пищеварительной системы в условиях стрессового воздействия.

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## **ТЕХНИКО-ЭКОНОМИЧЕСКОЕ ОБОСНОВАНИЕ СТРОИТЕЛЬСТВА ПРОЕКТОВ ОБЪЕКТОВ ИНФРАСТРУКТУРЫ**

*Аннотация. Основной целью представленной статьи является рассмотрение ТЭО проектов строительства объектов инфраструктуры*

*Ключевые слова: инвестиционная деятельность, ТЭО.*

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## **FEASIBILITY STUDY FOR THE CONSTRUCTION OF INFRASTRUCTURE PROJECTS**

*Abstract. The main purpose of the presented article is to review the feasibility study of infrastructure construction projects* *Keywords: investment activity.*

*Key words: investment activity, feasibility study.*

Сегодня строительство – это саморазвивающаяся отрасль экономики нашего государства. Строительство объектов инфраструктуры в основном осуществляется подрядчиками. С каждым годом увеличивается массовое строительство инфраструктурных объектов в городах и населенных пунктах, и эта стратегия доминирует со стороны правительства страны.

Стоит отметить активную динамику строительства инфраструктуры, которая активно внедряется в последнее время в связи с модернизацией Москвы, Казани и других крупных городов России. Каждый экономист (менеджер) перед реализацией проектов строительства инфраструктуры составляет прогноз и план проекта. И в этом ему помогает технико-экономическое обоснование (ТЭО) строительства объектов инфраструктуры.

Приток инвестиций в сектор строительства проектов объектов инфраструктуры в значительной мере детерминирует его развитие. Дефицит инвестиционных вложений и доступных кредитных ресурсов выступает сдерживающим фактором роста отрасли в развивающихся и трансформируемых экономиках, к числу которых относится и российская, где остро стоит вопрос низкой инвестиционной привлекательности инфраструктурных строительных проектов (вследствие высокой изношенности фондов, неэффективности организационной структуры компаний-застройщиков, отсутствия проработанных инвестиционных механизмов [1]). Подобная ситуация ведет к обострению конкуренции за инвестиционные ресурсы среди строительных компаний [2] и, соответственно, к повышению уровня требований, выдвигаемых потенциальными инвесторами по отношению к проектам и их ожидаемой доходности.

Инвестиционная привлекательность инфраструктурного строительного проекта является комплексной многосоставной категорией и формируется на основании совокупности внутренних и внешних ее свойств, обуславливающих его способность удовлетворять потребности пользователей, инвесторов, интересы общества, финансово-кредитных организаций, и других заинтересованных сторон и, соответственно, возможности привлечения инвестиций в реализацию проекта.

Инвестиционная привлекательность проектов строительства объектов инфраструктуры определяется его полезными функциями, в число которых в первую очередь входят:

- потребительская (удовлетворение потребностей работников и посетителей, создание условий для жизнедеятельности, обеспечение физической защищенности);
- социальная (удовлетворение потребностей общества), экономическая (способность объект генерировать дохода);
- информационная (поддержание социального статуса владельцев и пользователей объекта);
- стимулирующая (интенсификация деловой активности, повышение производительности труда), экологическая (улучшение состояния окружающей среды, оптимизация использования ее ресурсов). [3]

Традиционный подход к оценке инвестиционной эффективности инфраструктурных строительных проектов базируется на измерении и сопоставлении затрат на их осуществление и получаемых или ожидаемых финансовых результатов. При этом максимальная разница между этими двумя величинами в пользу достигнутого финансового результата при этом считается признаком высокой инвестиционной привлекательности проекта.

Впрочем, применение данного подхода в современных условиях развития строительного комплекса и инфраструктуры зачастую не позволяет получить исчерпывающего ответа на вопрос о целесообразности



финансировании того или иного проекта с точки зрения инвестора вследствие высокой значимости тех неэкономических эффектов, которые будут получены по его завершении и которые оказывают подчас решающее воздействие на успешность бизнеса в области инфраструктурного строительного.

К числу таких эффектов относятся экологический, социальный, этический и прочие [4], измерение каждого из которых в ходе проведения инвестиционной оценки представляет собой актуальную научную проблему, поскольку в условиях роста уровня требований к конкурентоспособности предприятий строительной отрасли весомое значение приобретает вся совокупность возможных способов повышения рыночной и инвестиционной привлекательности создаваемых объектов инфраструктуры.

Для обоснования инвестиционных решений по финансированию проектов строительства объектов инфраструктуры необходимо составление формализованного, структурированного плана его осуществления, определяющего порядок действий, а также обоснование критериев и алгоритмов для оценки, что подразумевает необходимость технико-экономического обоснования проекта.

ТЭО начинается с бизнес-планирования, точнее с подготовки бизнес-плана. Предварительное изучение проекта строительства можно отнести к основному документу строительных работ. На основании технико-экономического обоснования, утвержденного в правильном порядке, проводится тендерная документация, проводятся тендеры среди подрядчиков строительства, разрабатывается финансирование строительства и рабочая документация.

При подготовке технико-экономического обоснования учитываются – технологический, космический, конструктивный, экологический. Дается объективная оценка экологической, санитарно-эпидемиологической и эксплуатационной безопасности проекта, экономической эффективности и социальных последствий.

Проектная документация является ведущим документом, если субсидии на инвестиции в основной капитал соответствующих экономических единиц осуществляются из государственного бюджета России и внебюджетных фондов, а также централизованных фондов министерств и ведомств, а также в качестве собственных финансовых компонентов государственных компаний.

Заключение об обязательной реализации технико-экономического обоснования для финансового обоснования внедрения инвестиций делается с использованием альтернативных источников субсидий, принимаемых независимо от инвестора (заказчика).

Технологическая разработка технико-экономического обоснования осуществляется как юридическими, так и физическими лицами

(проектировщиками), имеющими право на выполнение необходимых услуг (работ), которые основаны на договоре (контракте) подрядчика и заказчика.

При реализации рационального предложения от проектировщиков клиент имеет право сделать выбор для подготовки технико-экономического обоснования.

Нормативный документ, который обменивается технологической, финансовой и другой деятельностью между клиентом и лицом, выполняющим работу, содержит соглашение на выполнение технико-экономического обоснования.

Стоимость технико-экономического обоснования проекта регулируется договором между клиентом и подрядчиком.

При выполнении работ, связанных с объемом финансирования технико-экономического обоснования, если в процессе экономического анализа выявляется убыточность проекта строительства, проект ликвидируется за счет финансирования заказчика в соответствии с установленными законом правилами.

При проведении технико-экономического обоснования следует учитывать некоторые особенности:

- при проектировании многоуровневых инфраструктур используются разные подходы к поставленным задачам, которые заказчик ставит на первое место с учетом всех возможных источников финансирования проекта;

- при проектировании инфраструктуры принимаются во внимание налоги, амортизация и финансовые стратегии, реализуемые как на федеральном, так и на региональном уровнях.

- учитывать интересы обеих сторон договора, т.е. клиента и важность национальных интересов (интересов в регионе) – с другой стороны;

- финансовый период, в течение которого должны быть выполнены значительные операции.

При проведении технико-экономического обоснования необходимо строго соблюдать и соблюдать экологические нормы, которые не причинят вреда окружающей среде.

Клиент, используя свои цели и текущую ситуацию, с типом решений, принятых в программах и механизмах размещения производительных сил, выполняет письмо о намерениях, которое он направляет в местный орган власти, ответственный за распределение землевладельцев.

После получения положительного решения от муниципалитета о декларации о намерениях (декларации) и оценке условий нахождения строительного проекта, клиент решает разработать технико-экономическое обоснование.

При выполнении первичной информации и материалов, подготовке задания на разработку технико-экономического обоснования, организационных вопросов, связанных с заявкой (тендером) на их

разработку, клиент привлекает сторонних разработчиков, консультирует, занимается маркетингом или организует конкурсную комиссию.

Ценность исходных данных определяется в зависимости от типа и степени эксплуатации установки, количества и типов используемых ресурсов, различных экономических и экологических ситуаций и т. д.

Согласование планируемых решений по строительству объекта и условий предварительного согласования участка принимается заказчиком или от его имени проектировщиком с учетом информации, полученной в соответствии с процедурой, изложенной в схеме, организовать предварительное согласование сайта.

Расходы, связанные с утверждением, подготовкой и передачей документации по предварительному утверждению и распределению площадок, финансируются заказчиком в порядке и размерах, определяемых местными органами власти.

Проекты, независимо от источников финансирования, форм собственности и принадлежности, подлежат государственной экспертизе в порядке, установленном в России.

При подготовке финансового обзора, выбор участка (земельного участка) для проекта продолжается. Успех всего проекта в некоторой степени зависит от этого выбора.

После согласования технико-экономического обоснования и подготовки финансовой отчетности клиент обращается к местному органу власти с правом изъятия и дает земельным участкам запрос на изъятие ранее согласованного земельного участка и передачу его на строительную площадку.

Документы на изъятие и сдачу земли осуществляются районными комитетами по земельной реформе и земельным ресурсам. [5]

Муниципалитет обобщает материалы и принимает решение об изъятии (выкупе) участка. Копия решения о доставке земли выдается заказчику.

Предпочтительным показателем является наименьший показатель, то есть годовая интенсивность работы, значение является самым низким в рейтинге. Не предпочтительным показателем является себестоимость, но он не является абсолютным показателем при анализе ТЭО для объекта инфраструктуры здания.

Таким образом, ТЭО проекта строительства объектов инфраструктуры является центральным условием успеха его планирования, реализации и инвестиционной привлекательности.

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## **ИЗУЧЕНИЕ ВЛИЯНИЯ БИОЛОГИЧЕСКОГО АКТИВНОГО ВЕЩЕСТВА НА ВСХОЖЕСТИ СЕМЯН СОРГО В ЛАБОРАТОРНЫХ УСЛОВИЯХ**

*Аннотация. В данной статье представлены данные по изучению прорастания и всхожести семян растений сорго в лабораторных условиях при влиянии биологического активного вещества корневина. Для эксперимента были использованы семена *Sorghum cernuum* L.*

*Ключевые слова: биологические активные вещества, семена сорго, рост, концентрация, лаборатория.*

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## **STUDYING THE INFLUENCE OF BIOLOGICAL ACTIVE SUBSTANCE ON THE GERMINATION OF SORGHUM SEEDS IN LABORATORY CONDITIONS**

*Annotation. This article presents data on the study of germination and germination of sorghum plant seeds in laboratory conditions under the influence of the biologically active substance root. The seeds of *Sorghum cernuum* L. were used for the experiment.*

*Key words: biological active substances, sorghum seeds, growth, concentration, laboratory.*

Нормальные процессы роста и развития растительных клеток зависят от ряда химических веществ. К ним относятся вещи, называемые гормонами. Гормоны синтезируются в самом растении в достаточном количестве. Именно поэтому их называют фитогормонами. Установлено, что у высших растений имеется несколько классов гормонов,

регулирующих рост, в том числе ауксины, гиббереллины, цитокинины, абсцизовая кислота, этилен и другие.

Фитогормоны и продукты их синтеза широко используются в растениеводстве. Из них гетероауксин используется для ускорения роста корней растений. Кроме того, корневин тоже занимает свое место среди биостимуляторов, ускоряющих рост растений.

Корневин – кристаллический порошок светлого цвета, биостимулятор, относящийся к группе ауксинов. Он содержит индолил масляную кислоту (более 5 г/кг ИМК) и принцип его действия заключается в том, что он воздействует на покровную ткань растения и стимулирует образование каллуса (живых клеток, образующихся на поверхности раны) и корней.

А когда сама ИМК попадает в почву, под воздействием воды и тепла в результате естественного синтеза она превращается в гетероауксин – фитогормон, ускоряющий корнеобразование. Таким образом, корневин в чистом растворе более эффективен, чем гетероауксин, но его действие более продолжительно. Помимо индолиловой масляной кислоты, корневин содержит микроэлементы: калий и фосфор, а также макроэлементы: марганец, молибден и др.

В данной работе мы наблюдали за процессом роста семян, используя корневин вместо гетероауксина. Эксперимент проводился в лабораторных условиях Биологического факультета Каракалпакского государственного университета со 3-ноября 2023 года [2]. Для эксперимента использовали семена растения сорго *Sorghum ceruuum* L..

Эксперимент проводился в лабораторных условиях по принятым методикам. Для этого нам понадобились семена сорго, различные концентрированные растворы корневина, чашки Петри, фильтровальная бумага, пипетки, колбы, пробирки и мензурка емкостью 10 мл.

Для эксперимента мы насчитали 30 штук сорго и поместили их в 5 чашек Петри (рис. 1). Для контроля брали воду и растворы Корневина с концентрацией 0,01%; 0,001%; 0,0001%; 0,00001%.

В ходе работы с использованием 0,01% раствора корневина в чистых пробирках готовили разбавленные растворы объемом менее 9 мл:

1. Обычная вода
2. 0,01% раствор
3. 0,001% раствор
4. 0,0001% раствор
5. 0,00001% раствор

Для приготовления этих растворов в первую пробирку на штативе помещают 9 мл обычной воды. Во вторую пробирку наливают 9 мл 0,01% раствора Корневина. После этого в чистую (10 мл мерную) пробирку емкостью 10 мл берут 1 мл 0,01% раствора корневина, заливают его 9 мл чистой воды, перемешивают ивливают 9 мл ее в третью пробирку.



К оставшемуся 1 мл раствора добавляют 9 мл воды, хорошо перемешивая, в помещают четвертую пробирку. Оставшийся 1 мл 0,0001% раствора смешивают с 9 мл чистой воды, помещают в пятую пробирку и перемешивают.

После приготовления растворов готовили 5 небольших чашек Петри с фильтровальной бумагой, раскладывали в них 30 семян и маркировали чашки. После этого выше упомянутое приготовленные растворы помещали в небольшие чашки Петри.

Чашки Петри со семенами, наполненные растворами, помещали в термостат с температурой 20-25<sup>0</sup>С. За ростом семян следили каждый день. Наша работа в методическом плане завершена.

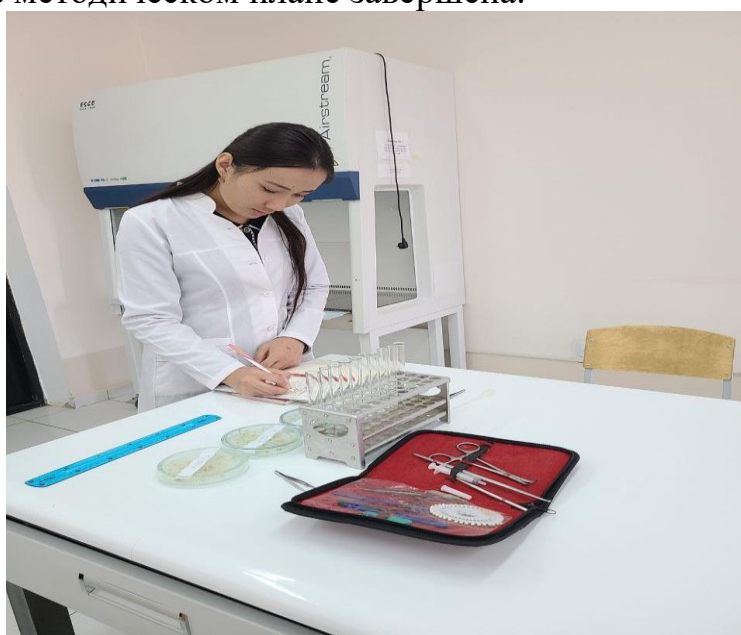


Рис.1. Процесс выполнение лабораторных работ

Для опыта семена были посажены 30- ноября 2023 г., подсчет проросших семян начали с 1 -декабря. Результаты эксперимента показаны в таблицах 1 и 2.

Таблица 1

**Влияние корневина на всхожесть семян сорго**

№ Чашки Петри	Варианты	Количество развившихся проростков на 2 день	Количество развившихся проростков на 3 день	Количество развившихся проростков на 5 день	Всхожесть (%)
№ 1	Контроль	20	29	29	97%
№ 2	0,01%	13	28	29	97%
№ 3	0,001%	11	29	30	100%
№ 4	0,0001%	16	30	30	100%
№ 5	0,00001%	14	29	30	100%

При этом через 5 дней прорастания семян мы увидели, что в чашке Петри, содержащей 0,001% и 0,00001% растворы корневина, проросло 100% семян. В течение 5 дней со дня опыта измеряли длину выросших корней семян в каждой чашке Петри.

**Средняя длина корневищ у семян, проросших в растворах разной концентрации биостимулятора**

Таблица 2

№ Чашка Петри	Варианты	Длина прорастания семян 30.11.23	Длина среднего прорастания семян в мм, 1.12.23	Длина среднего прорастания семян в мм, 2.12.23	Длина среднего прорастания семян в мм, 4.12.23
№ 1	Контроль	начало	15±2	30±5	85±9
№ 2	0,01%	-//-	16±2	24±4	75±8
№ 3	0,001%	-//-	10±2	20±6	65±9
№ 4	0,0001%	-//-	12±4	35±6	75±8
№ 5	0,00001%	-//-	16±6	36±8	90±9

В ходе эксперимента при обработке семян сорго растворами биологически активного вещества корневин разной концентрации были получены хорошие результаты. Необходимо отметить, что корневин во всех концентрациях оказал положительное влияние на рост проростков. Тем не менее, в конце на 5 день опыта при введении раствора с концентрацией менее 0,00001% длина роста семени достигала 90 мм и всхожесть семян составляла 100%. Значит, низкие дозы данного препарата оказывает более стимулирующее действие на рост корней растений сорго.

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## ОБ ОДНОМЕРНОМ И МНОГОМЕРНОМ ГИДРОЛОГИЧЕСКОМ ЧАСТОТНОМ АНАЛИЗЕ

*Аннотация. В данной статье основное внимание уделяется многомерному гидрологическому частотному анализу в гидрологических исследованиях и исследуются часто используемые распределения, критерии и методы оценки. Подчеркивается, что функция копулы играет важную роль в гидрологическом анализе.*

*Ключевые слова. Частота, анализ, распределение, норма, критерии, статистические оценки, функция копулы.*

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## ON UNIVARIATE AND MULTIVARIATE HYDROLOGICAL FREQUENCY ANALYSIS

*Abstract. This paper focuses on multivariate hydrological frequency analysis in hydrological research and examines commonly used distributions, criteria and estimation methods. It is emphasized that the copula function plays an important role in hydrological analysis.*

*Keywords. Frequency, analysis, distribution, norm, criteria, statistical estimates, copula function.*

**Введение.** Одномерная гидрологическая частота играет важную роль в оценке повторяемости наводнений или осадков, которая используется для проектирования таких сооружений, как плотины, мосты, водопропускные трубы, дамбы, автомагистрали, очистные сооружения, гидротехнические сооружения и промышленные здания. Используя одномерный метод гидрологического частотного анализа, можно оценить вероятность данного события, а также рассчитать величину расчетного количества осадков или наводнений за  $T$ -год.

**Основная часть.** Основная цель одномерного гидрологического частотного анализа состоит в том, чтобы установить взаимосвязь между

величиной паводка или дождя и интервалом повторяемости или периодом повторяемости.

Процедуры гидрологического частотного анализа в основном включают два этапа: выбор подходящего родительского распределения и оценку параметров выбранного распределения. Распределение для одномерного гидрологического анализа обсуждалось и исследовалось во многих исследованиях. В исследованиях гидрологической частоты использовались многочисленные модели распределения вероятностей, в том числе двухпараметрические распределения, т.е. распределения Гумбеля, Вейбулла, гамма и логнормальное (Du и др. 2015; Giraldo и Garcia 2012; Jiang и др. 2015; Villarini и др. 2009). Обычно используемые в гидрологии распределения суммированы в таблице 1.

**Таблица 1**

Распределения	Функция плотности	Параметры
Нормальный	$f(x) = \frac{1}{\sqrt{2\pi}\sigma} \exp\left\{-\frac{(x-\mu)^2}{2\sigma^2}\right\}, x \in R$	$\sigma > 0$ – параметр масштаба $\mu$ – параметр местоположения
Гамма	$f(x) = \frac{1}{\beta^\alpha \Gamma(\alpha)} x^{\alpha-1} \exp\left\{-\frac{x}{\beta}\right\}, x \in R$	$\alpha > 0$ – параметр формы $\beta$ – параметр масштаба
Гумбель	$f(x) = \frac{1}{\sigma} \exp\left\{-\frac{x-\mu}{\sigma} - \exp\left(-\frac{x-\mu}{\sigma}\right)\right\}, x \in R$	$\sigma > 0$ – параметр масштаба $\mu$ – параметр местоположения

Чтобы определить, может ли модель распределения правильно соответствовать ряду данных, можно использовать определенные критерии согласия, такие как критерии Колмогорова-Смирнова, Андерсона-Дарлингга и критерий Хи-квадрат.[2-4]

Методами оценки параметров, которые широко используются для одномерного гидрологического частотного анализа, являются метод моментов (ММ), метод максимального правдоподобия (ММП) и метод L-моментов. Ограничением ММ является то, что на моменты рядов данных в равной степени влияют малые значения, а на более высокие моменты (например, коэффициент вариации и асимметрии) сильно влияют крайности в рядах данных Haddad и Rahman, (2011). Альтернативным методом ММ является машинное обучение для оценки параметров распределения. Haddad и Rahman (2011) указали, что ММП в большинстве случаев является надежным методом и обеспечит оценщикам хорошие статистические свойства. Другой метод, L-моменты, настоятельно рекомендуется многими исследователями. На этот метод меньше влияют крайности в рядах данных Hosking (1990). Кроме того, L-моменты придают больший вес более

крупным значениям в гидрологическом ряду и, следовательно, как ожидается, обеспечат лучшее соответствие верхнему хвосту распределения Wang (1997).

Упомянутый выше метод в основном ориентирован на одномерный гидрологический анализ. Сложное явление часто характеризуется множеством аспектов. Некоторые гидрологические явления описываются двумя или более коррелирующими характеристиками. Например, для события наводнения, которое можно охарактеризовать пиком наводнения, величиной и продолжительностью наводнения, одномерного анализа распределения вероятностей, по-видимому, недостаточно, поскольку эти три случайные величины не являются взаимно независимыми из-за многомерного характера явления. Для системы с двумя или более переменными период повторяемости не равен периоду вынужденной возвратности переменной (Hawkes et al. 2002). В случае оценки частоты наводнений простой анализ пиковых значений паводков или повторяемости объемов паводков приведет к недооценке или переоценке риска (Де Мишель и др., 2005 г.; Юэ и Расмуссен, 2002 г.). Следовательно, для более сложного гидрологического явления с большим количеством переменных требуется многомерный статистический анализ (Гримальди и Серинальди, 2006а, b).

Поскольку гидрологические явления обычно описываются двумя или более коррелирующими переменными, требуется многомерный статистический анализ и анализ зависимостей. Наиболее важной проблемой многомерного вероятностного анализа является построение структуры зависимостей для задействованных коррелированных случайных величин (Ли и Чжэн, 2016). Многомерные функции распределения широко используются в литературе для моделирования двух или более зависимых гидрологических переменных и структуры их зависимости (Сальвадори и Де Мишель, 2007). Многомерный гидрологический анализ в основном включает в себя следующие три элемента: (а) демонстрация важности и объяснение полезности многомерной структуры, (b) подбор соответствующего многомерного распределения для моделирования гидрологического явления и оценка соответствующих параметров, и (с) изучение многомерных периодов повторяемости или другой соответствующий гидрологический анализ и моделирование (Chebana and Ouarda 2011).

В последние годы в гидрологических и экологических приложениях были внедрены некоторые многомерные подходы. Наиболее широко используемой совместной кумулятивной функцией распределения является функция Гаусса, но она имеет ограничение: предельные распределения должны быть нормальными. Затем были предложены двумерные распределения с ненормальными маргинальными, такие как двумерное экспоненциальное, двумерное гамма и двумерное распределение экстремальных значений. Некоторые авторы резюмировали недостатки этих

типов распределений: 1) для каждого предельного распределения требуется одно и то же семейство; 2) расширения на случай, выходящий за рамки двумерного, не ясны, и 3) параметры маргинальных распределений также используются для моделирования зависимости между случайными величинами.

В последнее десятилетие копулы использовались для многомерного гидрологического анализа. Favre и др. (2004) использовали 2-копулу для описания зависимости между пиком потока и объемом. Shiau и др. (2006) проанализировали двумерную частоту пика и объема паводка. Zhang и Singh (2006) использовали архимедовы копулы для построения двумерных распределений пика и объема паводка, пика и продолжительности паводка, а также объема и продолжительности паводка. Grimaldi и Serinaldi (2006) построили трехмерное совместное распределение переменных событий наводнения, используя полностью вложенные или асимметричные функции архимедовой копулы, и провели обширное моделирование, чтобы подчеркнуть различия с хорошо известными симметричными архимедовыми копулами. Salvadori и Michele (2007) представили некоторые достижения в гидрологическом моделировании с использованием копул, такие как расчет условных вероятностей и периодов повторяемости двумерных событий. Zhang и Singh (2007a) использовали копулу Gumbel–Hougaard для получения трехмерных распределений пика, объема и продолжительности паводка. Kao и Govindaraju (2008) исследовали неархимедову копулу из семейства Plackett и применили ее к изучению временного распределения экстремальных осадков. Serinaldi и др. (2009) применили копулы для вероятностного анализа характеристик засухи. До сих пор использование копул в гидрологии и водных ресурсах можно резюмировать следующим образом: анализ частоты осадков (Michele и Salvadori, 2003 г.; Grimaldi и Serinaldi, 2006 г.; Kao и Govindaraju, 2007 г.; Zhang и Singh, 2007 г.; Kuhn и др., 2007 г.; и Keef и др., 2009 г.), анализ частоты наводнений (Favre и др., 2004 г.; Shiau и др., 2006 г.; Zhang и Singh, 2006, 2007b; Renard и Lang, 2007 г.; Xiao и др., 2009 г.), анализ частоты засух (Shiau, 2006 г.; Kao и Govindaraju, 2010; Song и Singh, 2010), анализ морских штормов (Michele и др., 2007), моделирование рек (Chen и др., 2015) и некоторые другие теоретические анализы многомерных экстремальных задач (Salvadori и др., 2007; Salvadori и Michele, 2010).

Копулы — удобный инструмент для описания зависимости между случайными величинами. Эти функции впервые были введены в 1959 Абе Скларом в качестве ответа на вопрос Фреше о связи между многомерными вероятностными распределениями с их маргинальными распределениями меньшей размерности. Он доказал очень важное утверждение, которое стало основой копула методологии и согласно которому совместные распределения образуются соединением вместе одномерных маргинальных



распределений с использованием совместных распределений на единичном кубе.

Имея более чем пятидесятилетнюю историю, копулы за последние 10-12 лет стали интересны и полезны при решении различных статистических задач. Большую роль в этом случае сыграла и книга Nelsen [5] (Nelsen R.B. An introduction to copulas. Springer. 2006), первое издание которой вышло в 1999 году. Как показывают исследования последних десяти лет, возможности копульных функций в статистике огромны и их можно успешно использовать при решении самых разных статистических задач, что также является темой данной статьи.

Таким образом, функция копулы оказалась очень полезным и эффективным инструментом для многомерного гидрологического анализа и моделирования.

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## **КЛИНИКО-МОРФОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ИНФИЛЬТРАТИВНЫХ МЕНИНГИОМ ОСНОВАНИЯ ЧЕРЕПА И ВОПРОСЫ ИХ УСТРАНЕНИЯ**

*Резюме. Полученные данные дают наиболее полное представление об анатомо-топографических вариантах инфильтративных менингиом основания черепа. Это позволяет улучшить диагностику и разработать оптимальную тактику лечения этих опухолей.*

*При удалении инфильтративных менингиом, распространяющихся на кавернозный синус, была разработана и внедрена в практику методика интраоперационного выявления глазодвигательных нервов.*

*Внедрена в клиническую практику методика послеоперационного ведения пациентов с экстракраниально распространенной инфильтративной менингиомой основания черепа.*

*Были определены характерные нейровизуализационные, интраоперационные, морфологические, молекулярно-биологические критерии инфильтративных менингиом. Эти критерии влияют на рекомендации по хирургической тактике и последующей лучевой терапии.*

*Ключевые слова: менингиома, череп, анатомия и топография, инфильтрат.*

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## **CLINICAL AND MORPHOLOGICAL FEATURES OF INFILTRATIVE MENINGIOMAS OF THE BASE OF THE SKULL AND ISSUES OF THEIR ELIMINATION**

*Resume. The data obtained provide the most complete picture of the anatomical and topographic variants of infiltrative meningiomas of the base of the skull. This makes it possible to improve the diagnosis and develop optimal treatment tactics for these tumors.*

*When removing infiltrative meningiomas spreading to the cavernous sinus, a technique for intraoperative detection of oculomotor nerves was developed and put into practice.*

*The technique of postoperative management of patients with extracranially widespread infiltrative meningioma of the base of the skull has been introduced into clinical practice.*

*The characteristic neuroimaging, intraoperative, morphological, and molecular biological criteria of infiltrative meningiomas were determined. These criteria influence the recommendations for surgical tactics and subsequent radiation therapy.*

*Key words: meningioma, skull, anatomy and topography, infiltration.*

**Актуальность.** Менингиомы это медленно растущие, в большинстве своем доброкачественные опухоли, возникающие из арахноид-эндотелиальных отщеплений твердой мозговой оболочки [3,5]. Менингиомы составляют примерно 20% всех внутричерепных опухолей.

Несоответствие между доброкачественной гистологией инвазивных менингиом и их агрессивным биологическим поведением предполагает наличие молекулярных механизмов, лежащих в основе этого феномена [7]. В инфильтративных менингиомах были выявлены изменения в регуляции белков внеклеточного матрикса, усиливающие инвазивные свойства клеток, включая гиперэкспрессию матриксных металлопротеиназ 2 и 9, катепсинов В и L, SPARC (secreted protein, acidic, cysteine-rich), тенасцина и стромелизина 3. При помощи новой технологии матриксной сравнительной геномной гибридизации (СГГ) (или матриксной СГГ), одновременно может исследоваться статус сотен и даже тысяч геномных мишеней. Метод позволяет выявить нарушение баланса отдельных хромосомных фрагментов [1].

Понимание характера роста опухоли дает возможность адекватно спланировать операцию. Определение инвазии мозга, твердой мозговой оболочки, кости, мышц, нервов и слизистой оболочки требует тщательной гистологической оценки [6,8].

Открытым остается вопрос об объеме необходимой резекции костей основания черепа в зависимости от распространенности этих новообразований. Отсутствует единое мнение об оптимальных методах пластики дефектов основания черепа после удаления инфильтративных менингиом [5].

Таким образом, проблема инфильтративных менингиом связывается с изучением молекулярной онкобиологии в сопоставлении с патоморфологическими и клиническими данными, и разработкой на этом основании дополнительных методов лечения.

Подытоживая вышеизложенное, полная клиничко-морфологическая характеристика инфильтративных менингиом основания черепа с интра-, экстракраниальным распространением является актуальной для современной нейрохирургии [9]. Особенность исследования заключается в совместной работе нейрохирурга, рентгенолога, невролога, морфолога,

радиолога. Благоприятный результат лечения возможен только при совместном обсуждении и выработке единой тактики [4].

**Цель исследования.** Установить клиничко-морфологические критерии инфильтративных менингиом основания черепа на основании результатов молекулярной онкобиологии в сопоставлении с патоморфологическими и клиническими данными для улучшения результатов хирургического лечения этих опухолей.

**Материалы и методы исследования.** В работе анализируется 170 больных с опухолями передних и средних отделов основания черепа с интра- и экстракраниальным распространением. Пациенты были разделены на 3 группы. Первую группу (29 наблюдений) составили больные с менингиомами передней черепной ямки, бугорка турецкого седла и площадки основной кости с распространением в решетчатую кость, зрительные каналы, орбиты, полость носа. Вторую — пациенты с менингиомами крыльев основной кости, с преимущественным распространением в подвисочную ямку (55 наблюдений) и поражением крылонебной ямки, орбиты, ВГЩ, НГЩ, основной пазухи. В третьей группе пациентов с менингиомами крыльев основной кости с преимущественным распространением в орбиту (86 наблюдений) опухоль поражала наклоненный отросток, ВГЩ, НГЩ, зрительный канал.

**Результаты исследования.** В нашей работе мы сгруппировали пациентов с инфильтративными менингиомами передних и средних отделов основания черепа по принципу анатомического расположения зоны исходного роста опухоли и её распространения. В соответствии с этим все пациенты были разделены на три большие группы. В зависимости от преимущественного направления роста в каждой группе больные разделены на подгруппы. Четко определить локализацию и преимущественное распространение опухоли позволяет компьютерная и магнитная томографии. Приведенная ниже классификация основана на клиничко-рентгенологических сопоставлениях. Каждый тип опухоли имеет особенности клиники, диагностики и хирургической тактики.

Средний индекс мечения Ki-67 не различался в инвазивных менингиомах (6,1%) по сравнению с неинвазивными менингиомами (5,9%) (точный критерий Фишера,  $p = 0.4$ ). Таким образом, пролиферативные маркеры не дали решающей информации для определения биологического поведения доброкачественных менингиом.

9. Частота 24 повторных ГА (6 потерь и 18 добавок), встречающихся в более чем 50% исследованных опухолей, была относительно сходной в обеих подгруппах менингиом. Необходимо отметить, что все исследованные опухоли имели геномные делеции в области 22q, с наиболее частой делецией клона GSCL, за ним следовали клоны TBX1 и ВСЯ.

Настоящее исследование позволило выявить значительные цитогенетические различия между инвазивными и неинвазивными

менингиомами. Среднее количество ГА было значительно выше в инвазивных опухолях - 35 ГА (16 потерь и 19 добавок). Это позволяет предположить, что возникновение большого числа генетических aberrаций составляет молекулярную основу для агрессивного роста гистологически доброкачественных менингиом.

Среди инвазивных менингиом мы обнаружили преобладание геномных добавок, включающих в себя гены, вовлеченные в активацию транскрипции РНК клеточного цикла и митоза (TIF1, E2F5, PAK1, WNT1, TOP1) а также вирусные онкогены (REL, MOS), факторы роста (FGFR1, ERBB2), и компоненты внеклеточного матрикса (ELN, LAMA3). Среди генетических маркеров ДНК, MEN1, по всей видимости, является перспективным геном супрессором.

Инвазивные менингиомы обнаруживали частые делеции на хромосомах 1p, 6q, 9q, 14q и добавки на хромосомах 15q и 20. Таким образом, наличие в доброкачественной менингиоме множественных цитогенетических aberrаций, сопровождающихся добавлением онкогенов и делеций локусов генов супрессоров, ассоциируется с их возрастающим инвазивным потенциалом.

**Вывод.** Полученные данные дают наиболее полное представление об анатомо-топографических вариантах инфильтративных менингиом основания черепа. Это позволяет улучшить диагностику и выработать оптимальную тактику лечения этих новообразований.

Разработана и внедрена в практику методика интраоперационной идентификации глазодвигательных нервов при удалении инфильтративных менингиом основания, распространяющихся в кавернозный синус

Внедрена в клиническую практику методика послеоперационного ведения больных с инфильтративными менингиомами основания черепа, распространяющимися экстракраниально.

Выявлены характерные нейровизуализационные, интраоперационные, морфологические, молекулярно-биологические критерии инфильтративных менингиом. Эти критерии влияют на хирургическую тактику и рекомендации для дальнейшей радиотерапии.

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## **МОДЕРНИЗАЦИЯ СИСТЕМЫ СРЕДНЕГО ПРОФЕССИОНАЛЬНОГО ОБРАЗОВАНИЯ**

*Аннотация. В данной статье речь идёт о модернизации среднего профессионального образования, о проблемах и перспективах развития.*

*Ключевые слова: среднее профессиональное образование, предприятия, специалист, политика, проблемы, студент, персонал, работодатель, результат, модернизация, выпускник, стандарт, преподаватель, аспекты, задачи, специалист.*

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## **MODERNIZATION OF THE SECONDARY VOCATIONAL EDUCATION SYSTEM**

*Annotation. This article deals with the modernization of secondary vocational education, the problems and prospect of development.*

*Keywords: secondary vocational education, enterprises, specialist, policy, problems, student, personnel, employer, result, modernization, graduate, standard, teacher, aspects, tasks, specialist.*

Ключевой задачей на ближайшее будущее является осуществление государственной образовательной политики, главное требование которой – обеспечить эффективное, конкурентоспособное образование для молодого поколения. В соответствии с ростом потребности в специалистах среднего звена государственная политика предусматривает опережающее развитие системы среднего профессионального образования. На общегосударственном уровне заявлено о его приоритетности и значимости в обеспечении развития экономики и общества в целом. Но опережающее

развитие – это не только увеличение объемов подготовки специалистов, но и первостепенное изменение качества образования.

Среднее профессиональное образование, прежде всего, должно быть направлено на удовлетворение потребности экономики в кадровом потенциале. В последнее время развитие и функционирование системы профессионального образования, а также структура и качество производимого этой сферой трудового капитала вызывает серьезные нарекания работодателей. Можно обозначить ряд болевых проблем, которые уже в ближайшем будущем станут сдерживающим фактором как промышленного, так и экономического роста в целом:

- обеспечение реального производства квалифицированными специалистами и возможности обеспечить масштабы и современный уровень такой подготовки традиционной системой профессионального образования;

- адаптированность среднего профессионального образования к динамично изменяющимся условиям рынка, потребностям общества и преобладание, как правило, социально-пассивных выпускников средних специальных учебных заведений;

- необходимость сертификации и специализации обучающихся и специалистов, отсутствие подобной единой системы, что создает значительные трудности при трудоустройстве как выпускников, так и людей, уже ведущих трудовую деятельность;

- обеспечение соответствия профессиональной структуры подготавливаемых специалистов потребностям рынка труда и существующие профессиональные стандарты, которые не в полной мере соответствуют требованиям, предъявляемым к молодым специалистам современными работодателями.

- размыванием границ между профессиями в силу роста децентрализации экономической ответственности и развития систем управлением качеством;

- повышением индивидуальной ответственности работников за качество труда, совершенствование производственных процессов и управление собственной трудовой/производственной деятельностью.

Важным аспектом инновационного развития среднего профессионального образования, выступающего как практико-ориентированное обучение, является его интеграция с производственной сферой.

Это является фактором адекватности результатов системы среднего профессионального образования нуждам производства, сближения процесса подготовки кадров запросам различных отраслей экономики и

конкретных работодателей, обеспечения связи обучения студентов с будущей работой на предприятиях.<sup>27</sup>

Постоянно изменяющиеся требования работодателей, вызванные появлением новых производственных технологий, требуют изменения содержания обучения в средних профессиональных заведениях.

В этой связи образовательными учреждениями совместно с работодателями разрабатываются и корректируются набор требуемых профессиональных компетенций по подготовке будущих специалистов, вводятся новые дисциплины и программы подготовки студентов.

Все это оказывает влияние на систему практической подготовки студентов, а внедрение современных образовательных и информационных технологий позволяет готовить конкурентоспособных и востребованных специалистов на рынке труда.

Такое сотрудничество ориентировано на долговременное и стратегическое партнерство, так как позволяет готовить кадры под заказ предприятий, учитывать изменяющиеся запросы работодателей, как основных заказчиков специалистов, заключать договора между предприятиями и учебными заведениями по совместному управлению материальной базой, передаче в аренду оборудования, в том числе на льготных экономических условиях.

Выпускник системы среднего профессионального образования должен владеть набором компетенций, обеспечивающих готовность к работе в динамичных экономических условиях, воспринимать и анализировать социально-экономические процессы, прогнозировать их развитие, адаптироваться к ним.

В ходе подготовки специалиста первостепенное значение приобретает установка на развитие его личности и профессиональной культуры, позволяющая существенно облегчить процесс профессиональной адаптации.

Это требует основательных изменений в обеспечении качества подготовки специалистов.

Качественное профессиональное образование сегодня – это средство социальной защиты, гарантия стабильности, профессиональной самореализации человека на разных этапах жизни.<sup>28</sup>

В системе обеспечения качества среднего профессионального образования можно отметить следующие аспекты:

1) политика в области среднего профессионального образования, направлена на повышение его качества;

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2) установлены и признаны обществом и государством критерии, нормативы, стандарты качества образования;

3) объективные условия, содействующие достижению заданного качества образования, то есть высокий уровень подготовки преподавателей и студентов, качество учебных программ, дидактических и методических материалов, развитие современной материально-технической, социально-бытовой и информационной инфраструктуры учебных заведений СПО;

4) инновационные технологии организации учебного и воспитательного процессов, а также методы оценки качества обучения на различных этапах;

5) механизмы и инструменты управления и самоуправления колледжами с позиций качества.

Качество деятельности учебного заведения напрямую зависит от качества каждого из аспектов этой деятельности:

– учебно-методического обеспечения, образовательных программ, учебной литературы, пособий;

– обеспечения кадрами;

– инфраструктуры учебного заведения: информационной, материально-технической, социально-бытовой.

В условиях модернизации российского образования, введения федерального образовательного стандарта третьего поколения имеет место значительное увеличение творческой активности преподавателей, методистов.

Это ведет к совершенствованию методической работы, росту качества подготовки специалистов.

Главная роль в обеспечении качества образования принадлежит педагогическому персоналу: качество подготовки специалиста обусловлено качеством преподавания. Преподаватель, выступающий центральной фигурой в образовании, реализует образовательную программу в процессе обучения, а также принимает участие в формировании и обновлении содержания образования. Непосредственно он создает будущего специалиста как конкурентоспособного работника, как личность, способную к саморазвитию.

Стоит отметить, что развитие среднего профессионального образования с учетом меняющейся роли, места и функций рабочих кадров, к сожалению, тормозится отдельными проблемами: недостаточной результативностью управления учреждениями среднего профессионального образования; разрушением традиционных связей образовательных учреждений с предприятиями, устареванием материальной базы учебных заведений, затрудненным подбором баз для производственной практики студентов; невозможностью обеспечить в полном объеме подготовку кадров нужной квалификации; отсутствием пополнения учебных заведений руководителями и преподавателями,

обладающими опытом профессиональной деятельности на современных предприятиях.

Я думаю, что важным аспектом инновационного развития среднего профессионального образования, является его интеграция с производственной сферой. Является это фактором адекватности результатов системы среднего профессионального образования нуждам производства, сближения процесса подготовки кадров запросам различных отраслей экономики и конкретных работодателей, обеспечения связи обучения студентов с будущей работой на предприятиях

Необходимо также изменить взгляды преподавательского состава на качество педагогической работы.<sup>29</sup>

Реализация назначенных целей и задач по повышению качества образования невыполнима без создания и использования инновационных технологий, изменяющих роль преподавателя в учебном процессе.

Если раньше он был носителем знания, то сейчас превращается в консультанта, организатора деятельности студента – активного субъекта учебного процесса. При этом, важное значение при подготовке специалистов имеет уровень психолого-педагогической компетентности.

Он связан с умением преподавательского состава педагогически грамотно организовать, провести, диагностировать и корректировать учебно-воспитательного процесс.

В этом отношении большое значение имеет систематическое повышение квалификации преподавателей.

Первостепенными задачами, которые стоят сегодня перед системой СПО, безусловно, является ориентация на подготовку человека, который способен самостоятельно принимать решения, точно, эффективно, разумно действовать в постоянно изменяющемся мире.

Такими способностями может владеть только сформировавшаяся личность. Образованный человек отличается от необразованного тем, что продолжает считать своё образование недостаточным.

Сотрудники колледжа считают, что усилия инженерно-педагогических коллектива следует сосредоточить на следующих задачах:

1) создание нормативно-правовых условий для инициативного участия работодателей и других социальных партнёров в решении проблем среднего профессионального образования;

2) совершенствование договорной производственной (профессиональной) практики между работодателями и учебными заведениями;

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3) разработка механизма взаимодействия и интеграции системы профессионального образования со старшей образовательной школой;

4) реализация программ обучения, соединяющих различные формы обучения с непрерывными стажировками на предприятиях;

5) разработка стандартов минимального материально-технического оснащения профессий и специальностей;

6) разработка системы мер по повышению привлекательности системы среднего профессионального образования для потенциальных инвесторов.

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## **ИСПОЛЬЗОВАНИЕ НЕЙРОДИДАКТИЧЕСКОГО ПОДХОДА ПРИ ОБУЧЕНИИ ДЕТЕЙ С ДИСКАЛЬКУЛИЕЙ**

*Аннотация. В статье рассмотрены понятия дискалькулии и нейродидактического подхода, а также принципы и преимущества данного подхода в обучении. Автор делает вывод, что нейродидактический подход является оптимальным и наиболее эффективным при обучении детей с таким нарушением как дискалькулия.*

*Ключевые слова. Нейропедагогика, нейродидактика, нейродидактический подход, дискалькулия, педагогика, образование, обучение.*

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## **USING A NEURODIDACTIC APPROACH IN TEACHING CHILDREN WITH DYSCALCULIA**

*Annotation. The article discusses the concepts of dyscalculia and the neuro-didactic approach, as well as the principles and advantages of this approach in teaching. The author concludes that the neuro-didactic approach is optimal and most effective in teaching children with dyscalculia disorders.*

*Keywords. Neuropedagogy, neurodidactics, neurodidactic approach, dyscalculia, pedagogy, education, training.*

Дискалькулия, также известная как математическое расстройство или неспособность к изучению арифметики, является проблемой, которая существенно затрудняет учебу и понимание математических концепций у детей. В наши дни обширное использование информационных технологий и доступ к Интернету открывают новые возможности в обучении и помогают преодолеть традиционные трудности. Одним из наиболее инновационных подходов является нейродидактический подход. В данной статье мы рассмотрим, как нейродидактический подход может быть

эффективным инструментом в решении проблем при обучении детей с дискалькулией.

Нейродидактика - это научная область, изучающая, как мозг воспринимает информацию, и как эта информация может быть эффективно передана в процессе обучения. Нейродидактический подход основан на принципах нейробиологии и использует знания о работе мозга для разработки и применения методов обучения.

Принципы нейродидактического подхода при обучении детей с дискалькулией:

1. Персонализация обучения.

Нейродидактический подход учитывает индивидуальные особенности каждого ученика. Он адаптирует методы обучения, чтобы соответствовать уникальным потребностям и способностям детей с дискалькулией, создавая наиболее эффективную среду для их обучения.

2. Использование мультисенсорных методов.

Нейродидактический подход активно применяет разнообразные сенсорные стимулы (зрение, слух, осязание), чтобы активизировать разные области мозга. Такой подход позволяет ученикам с дискалькулией лучше воспринимать и запоминать математические концепции.

3. Включение эмоционального аспекта

Нейродидактический подход придает значение эмоциональной составляющей обучения. Эмоции играют важную роль в запоминании информации и формировании нейронных связей. Позитивная и поддерживающая обучающая среда способствует освоению математических навыков у детей с дискалькулией.

Какие же преимущества мы получаем, используя нейродидактический подход, при обучении детей с дискалькулией:

1) Улучшается понимание математических концепций.

Нейродидактический подход активизирует учебные процессы, стимулируя мозговую активность и облегчая усвоение математических концепций. Учащиеся с дискалькулией могут лучше понять абстрактные математические идеи, благодаря эффективным методам обучения, разработанным с учетом их индивидуальных особенностей.

2) Преодоление математической тревожности.

Дети с дискалькулией могут испытывать тревогу и негативные эмоции, связанные с математикой. Нейродидактический подход уделяет внимание эмоциональному аспекту обучения и создает поддерживающую обучающую среду. Позитивный подход и использование эмоциональных стимулов помогают снизить тревожность и повысить мотивацию учащихся.

3) Развитие метакогнитивных навыков.

Нейродидактический подход учитывает важность развития метакогнитивных навыков учащихся. Метакогнитивные навыки позволяют детям осознавать свои мыслительные процессы, контролировать свое

понимание и принимать стратегические решения в процессе решения математических задач. Ученики с дискалькулией, оснащенные такими навыками, могут эффективнее справляться с трудностями и повышать свои математические достижения.

#### 4) Интерактивное обучение.

Нейродидактический подход включает использование интерактивных методов обучения, таких как компьютерные программы, планшеты и другие технологии. Это позволяет детям с дискалькулией взаимодействовать с математическими концепциями в интерактивной и адаптивной форме, что улучшает усвоение и запоминание информации.

#### 5) Коллаборативное обучение и поддержка.

Нейродидактический подход поддерживает использование групповых активностей и коллаборативного обучения. Это позволяет детям с дискалькулией обмениваться опытом, работать вместе над математическими задачами и получать поддержку от своих сверстников. Такая среда способствует развитию социальных навыков и позволяет детям с дискалькулией чувствовать себя частью активной и поддерживающей обучающей группы.

Таким образом, нейродидактический подход представляет собой инновационный метод обучения, который может оказать значительную помощь детям с дискалькулией в преодолении математических трудностей. Этот подход основывается на понимании и использовании принципов работы мозга, чтобы разработать учебные стратегии, которые максимально учитывают индивидуальные потребности и особенности учащихся с дискалькулией.

Нейродидактический подход также подчеркивает важность регулярного мониторинга и оценки прогресса каждого ученика. С использованием различных инструментов и оценочных методов, учителя и специалисты могут отслеживать успехи и проблемы учащихся с дискалькулией и вносить необходимые корректировки в образовательный процесс.

Однако, несмотря на все преимущества нейродидактического подхода, важно отметить, что успешность его применения зависит от комплексного подхода к образованию детей с дискалькулией. Раннее обнаружение трудностей, регулярная поддержка специалистов, сотрудничество с родителями и применение различных методик и стратегий - все это важные компоненты, способствующие успешной адаптации и развитию математических навыков учащихся.

В целом, применение нейродидактического подхода в образовании детей с дискалькулией открывает новые возможности для повышения качества обучения и помощи в преодолении математических трудностей. Дальнейшие исследования и разработки в этой области могут привести к

ещё более эффективным и индивидуализированным методам поддержки и обучения для детей с дискалькулией.

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## **ПРИНЦИПЫ НЕПРЕРЫВНОГО ПРОФЕССИОНАЛЬНОГО РАЗВИТИЯ ПЕДАГОГОВ**

*Аннотация. Эффективность системы непрерывного профессионального развития педагогических работников неразрывно зависит от того, в какой степени удовлетворяются их профессиональные трудности и потребности и учитываются их индивидуальные особенности. С этой целью предпринимаются серьезные усилия по внедрению в систему технологий, направленных на обеспечение адресности и непрерывности непрерывного профессионального развития педагогов.*

*В данной статье освещается индивидуализация процесса непрерывного профессионального развития, его сущность, уровни, структура и этапы проектирования индивидуальной образовательной траектории педагога.*

*Ключевые слова: индивидуализация, индивидуальная образовательная программа, индивидуальный образовательный маршрут, индивидуальная образовательная траектория.*

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## **PRINCIPLES OF CONTINUOUS PROFESSIONAL DEVELOPMENT OF TEACHERS**

*Abstract. The effectiveness of the system of continuous professional development of teaching staff depends on the extent to which their professional difficulties and needs are satisfied and their individual characteristics are taken into account. For this purpose, serious efforts are being made to introduce technologies aimed at ensuring the addressability and continuity of continuous professional development of pedagogues into the system.*

*This article describes the process of individualization of continuous professional development, its essence, levels, the structure and design stages of the individual educational trajectory of a pedagogue.*

*Key words: individualization, individual education program, individual education route, individual education trajectory.*

Анализ практической деятельности учреждений высшего образования, учебных планов и программ, а также многолетние наблюдения показывают, что основной упор на курсах делается на повышение общей подготовки и профессиональной компетентности педагогических кадров, что используются одни и те же методы и методы, используемые для всех, и их профессиональные характеристики показали, что индивидуализм, уровень квалификации и потребности не учитываются должным образом. С этой точки зрения перед системой непрерывного профессионального развития педагогов стоят важные задачи, которые необходимо решить безотлагательно. Одна из них – превратить педагога из пассивного объекта в активного, самостоятельного, стремящегося, конкурентоспособного субъекта, то есть субъекта, который понимает цели и задачи своей работы, знает, как и в какой степени ему следует обладать профессиональными навыками, возможностями и способностями. В этом случае эффективное решение проблемы может быть достигнуто за счет индивидуализации процесса, что позволяет педагогам максимально активно использовать свой внутренний потенциал, понять свои профессиональные потребности и скорректировать их.

Согласно Педагогической энциклопедии, под индивидуализацией понимают систему управления своей учебной деятельностью, учитывающую индивидуально-психологические особенности каждого обучающегося. Индивидуализированное образование обеспечивается посредством образовательных, психолого-педагогических и организационно-управленческих мероприятий, выбранных на основе индивидуального подхода к организации образовательного процесса. Также в процессе обучения подбираются метод и темп обучения с учетом индивидуальных различий обучающихся, уровня развития их способностей к учебе.

Исследования Е.Бондаревского, С.Вершловского, В.Загвязского, Д.Зембиского, А.Петровского, В.Канкалика, М.Поташника выявили необходимость и перспективность перехода от общественных к индивидуальным методам формирования и развития педагогического образования. профессионализм. Анализы и исследования являются основой решения этих задач и показывают, что педагог определяется своей позицией, способностью приобретать новое педагогическое мышление, необходимостью выбора и разработки специальных педагогических программ, технологий.



По мнению И.М. Осмоловской, индивидуализация является важной формой образовательной дифференциации, при которой учебный процесс строится с учетом особенностей не только группы, но и каждого обучающегося. И. Е. Унт понимает под индивидуализацией учет индивидуальных особенностей учащихся независимо от того, какие формы и методы обучения используются. Ведь «индивидуальность – это ценность человека и его творчества».

Исходя из изложенных представлений, индивидуализация процесса непрерывного профессионального развития означает развитие внутреннего потенциала педагогов с учетом их особенностей, потребностей, мотивов и направленность на совершенствование их личностных и профессиональных качеств, исходя из поставленных целей и задач. Для себя мы понимаем дифференцированный процесс, создающий условия для построения траектории *lim*.

Индивидуализация процесса непрерывного профессионального развития может быть реализована по следующим направлениям:

➤ по содержанию обучающимся предоставляется возможность участвовать в процессе создания учебных планов и программ курсов непрерывного повышения квалификации и вносить изменения в определенное образовательное направление;

➤ создание условий для углубленного изучения обучающимися своего предмета в соответствии с их потребностями и интересами с учетом их способностей, способностей, темпа обучения, педагогического опыта;

➤ по времени и продолжительности определенный объем обучения определяется содержанием процесса непрерывного профессионального развития с учетом индивидуально-психологических особенностей и уровня подготовки слушателей.

В научной литературе более позднего периода для описания индивидуализации профессионального развития педагогов и процесса непрерывного профессионального развития используются различные термины. С точки зрения нашего исследования их анализ имеет особое значение.

Индивидуальная программа обучения – это первоначальная программа обучения или иной деятельности, направленная на личностное и профессиональное развитие, разработанная самостоятельно с учетом личных, образовательных, профессиональных интересов, потребностей и требований обучающегося. Это также интерпретируется как понимание (воображение) учащегося о будущей деятельности, целях, содержании, результатах, времени, месте, инструментах и взаимодействии с педагогами и другими субъектами обучения.

Разнообразие форм курсов непрерывного повышения квалификации будет недостаточно для полного обеспечения его эффективности, М. Джуманиязова в своем исследовании приходит к выводу, что содержание

курса важно и оно должно строиться на основе индивидуальных программ повышения квалификации. Однако индивидуальную программу повышения квалификации он рассматривает главным образом как инструмент, направленный на ознакомление учителя с современными знаниями в области науки, инновациями в области педагогической психологии между курсами. На наш взгляд, этот процесс должен включать в себя стратегию профессионального развития педагога с учетом его должности, задачи, обязанностей, курсов повышения квалификации, участия в различных методических мероприятиях, а также всех его профессиональных действий, направленных на самосовершенствование.

По мнению таких исследователей, как С. В. Воробьева, Н. А. Лабунская, А. П. Тряпицина, индивидуальное обучение – это дифференцированная образовательная программа, рассчитанная на определенную цель, дающая учащимся возможность выбора, определения своей позиции, обеспечивающая разработку и реализацию образовательной программы через педагогическая поддержка учителей в ее реализации. Индивидуальное направление обучения – это путь, который студент заранее определил на основе разработанной индивидуальной программы обучения, в которой четко указаны критерии обучения и времени, этапы обучения, педагогический подход преподавателя, осуществляется через поддержку.

В исследованиях индивидуальная образовательная траектория - это «...определенная согласованность (последовательность) элементов учебной деятельности при реализации индивидуальной образовательной цели, соответствующая способностям, потенциалу, мотивации и интересам каждого обучающегося» «...отбор соответствующих возрасту или неподходящих видов деятельности и их самостоятельное осуществление, требующие сознательного понимания и применения социального и культурного опыта». результаты и процесс развития опыта и личностных качеств обучающегося на основе вариативного обучения». Стиль учебной деятельности каждого студента зависит от его мотивации, изучения и реализации во взаимодействии с педагогом.

А. В. Хуторской трактует индивидуальную образовательную траекторию как уникальный способ реализации личностного потенциала каждого обучающегося в процессе обучения и «...его образования: содержание, цель, задачи», подчеркивает, что необходимо иметь возможность выбора. основные компоненты, такие как темп, форма обучения, методы, оценка результатов, система контроля по взаимному согласованию с педагогом.

Представляется, что существует единодушие в трактовке этих понятий исследователями, и в ряде случаев они являются синонимами, а в ряде случаев проявляются как категории, отличающиеся друг от друга определёнными характеристиками. В ходе нашего исследования анализ

содержания научно-методической литературы о природе этих понятий и подходов к ним позволил прийти к следующим выводам.

Индивидуальная образовательная программа – это программа, самостоятельно создаваемая по результатам диагностики профессиональных потребностей, трудностей, интересов и мотивации педагога, ориентированная на личностное и профессиональное развитие, позволяющая оптимизировать виды и формы непрерывного профессионального развития. и обеспечивает независимое образование.

Индивидуальное направление обучения - последовательность освоения индивидуальной образовательной программы педагога в зависимости от временных критериев и этапов осуществляется под контролем консультанта, что определяет гибкость образовательного процесса к существующим условиям.

Индивидуальная образовательная траектория – это конкретный путь действий, основанный на сознании и опыте педагога, определяемый педагогом для реализации своего личностного потенциала, профессионального совершенствования, понимания своей позиции и самовыражения в образовательном процессе.

Итак, в профессиональном становлении педагога выделяются три взаимотребующих уровня проектирования его учебной деятельности. Индивидуальная образовательная траектория предполагает наличие индивидуальной образовательной программы и направленности (задание содержания, планирование, анализ) и разработанных методов ее реализации, то есть технологии организации образовательного процесса.

Индивидуальная траектория образования расширяет границы и возможности среды непрерывного профессионального развития, усиливает мотивацию педагогов, создает условия для выбора и реализации удобных и эффективных средств непрерывного развития профессиональной компетентности. Он также служит учету индивидуальных особенностей, интересов, профессиональных трудностей, потребностей, личных мотивов, опыта, уровня квалификации и социальных возможностей педагогов.

Создание индивидуальной образовательной траектории педагога требует от него владения такими навыками, как понимание объема профессиональных потребностей, умение оценивать, проектировать и предугадывать точки развития. Результаты анкетирования студентов, проведенного в ходе исследования, показали, что педагоги положительно относятся к созданию и реализации индивидуальной образовательной траектории и имеют в этом потребность. Хотя на вопрос «Считаете ли вы эффективное профессиональное развитие путем создания индивидуальной траектории обучения?» большинство участников ответили положительно, более 69% из них заявили, что не могут самостоятельно формировать индивидуальные траектории обучения. Это подтверждает, что у педагогов недостаточно информации о формах, методах и инструментах

непрерывного профессионального развития, и необходимо организовать научно-методический мониторинг процесса формирования индивидуальной образовательной траектории. При этом большое значение в этом процессе имеет тесное взаимодействие преподавателей, методистов, специалистов соответствующей квалификации и педагогов образовательных учреждений повышения квалификации.

При проектировании индивидуальной образовательной траектории педагог и консультант должны работать вместе и учитывать следующее:

- общая профессиональная подготовка, опыт работы, профессиональные трудности и потребности педагога;
- состояние профессиональной и общественной активности;
- психологические особенности (темперамент, характер, эмоциональность и др.), коммуникативные характеристики;
- формирование и устойчивость профессиональных, социальных, познавательных мотивов;
- способен принимать оптимальные решения, выбирать наиболее удобные и эффективные для него формы и методы
- рефлексия, содержание деятельности, понимание потребностей и т.д.

Тот факт, что алгоритм построения индивидуальной образовательной траектории педагога состоит из этапов диагностики, уточнения цели, формирования содержания, задания направления, реализации, анализа и рефлексивной оценки, означает последовательность, непрерывность и завершенность ее логической цепочки.

Таким образом, индивидуальная образовательная траектория профессионального развития требует от педагога активного стремления к совершенствованию своей компетентности, быстрой рефлексивной адаптации, проявления и доказательства своей профессиональной и личностной индивидуальности на основе научно-методического наблюдения, ценностного мировоззрения, повышения своей веры, прогресса или создает условия для демонстрации и популяризации опыта и развития своего уникального профессионализма.

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## **СОВРЕМЕННЫЕ ВЗГЛЯДЫ ПЕДАГОГОВ НА ПРОБЛЕМУ МОДЕЛИРОВАНИЯ ОБРАЗОВАТЕЛЬНЫХ ПРОЦЕССОВ**

*Аннотация. В этой статье рассказывается о способности преподавателя к моделированию и построению деятельности на основе модели является, на наш взгляд, не просто еще одной составляющей этой многогранной работы, не только обязательным современным требованием, но и возможностью оптимально интегрировать названные выше составляющие и осуществлять в реальности свою миссию. Для обоснования данного утверждения необходимо раскрыть сущность моделирования, выделить его уровень, определить место и роль в системе деятельности.*

*Ключевые слова: оптимально, интегрировать, составляющие, осуществлять, реальность, обоснования, раскрыть сущность, моделирования, выделить его уровень, определить, идеального представления, построение модельного.*

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## **MODERN VIEWS OF TEACHERS ON THE PROBLEM OF MODELING EDUCATIONAL PROCESSES**

*Abstract. This article talks about the teacher's ability to model and build activities based on the model, which, in our opinion, is not just another component of this multifaceted work, not only a mandatory modern requirement, but also an opportunity to optimally integrate the above components and implement them in reality your mission. To substantiate this statement, it is necessary to reveal the essence of modeling, highlight its level, determine its place and role in the system of activity.*

*Key words: optimal, integrate, components, implement, reality, justification, reveal the essence, modeling, highlight its level, determine the ideal representation, construct a model.*

Профессиональная деятельность преподавателя на современном этапе модернизации российского образования представляет собой один из наиболее сложных видов деятельности. Кроме владения предметной парадигмой, она предполагает педагогическую и психологическую



компетентность, методическую и организационную работу, научную деятельность, консультирование и руководство исследовательской деятельностью обучающихся

Способность преподавателя к моделированию и построению деятельности на основе модели является, на наш взгляд, не просто еще одной составляющей этой многогранной работы, не только обязательным современным требованием, но и возможностью оптимально интегрировать названные выше составляющие и осуществлять в реальности свою миссию. Для обоснования данного утверждения необходимо раскрыть сущность моделирования, выделить его уровень, определить место и роль в системе деятельности. В данном случае под моделированием понимается и процесс создания модели как идеального представления, и построение модельного образовательного пространства, включая и модельные ситуации как «замещающие» реальную деятельность. Последние — модельные ситуации — на первый взгляд видятся как самый простой вид моделирования в образовательном процессе. Однако их роль в подготовке выпускника (в будущем — специалиста) достаточно серьезна, так как многие необходимые действия не могут сразу применяться на практике, требуют предварительной обработки. Для использования в образовании модельных ситуаций преподаватель не просто должен знать параметры, характеристики будущей профессиональной деятельности выпускника, но и обладать моделью этой деятельности, а также умением создавать модель образовательного пространства, в которое он включает обучающегося. В связи с этим можно утверждать, что моделирование деятельности и обучающегося, и самого преподавателя имеет серьезное значение в совместном труде на пути к профессионализму. Так, например, модель деятельности выпускника, построенная в компетентностном подходе, одновременно определяет:

- необходимые выпускнику компетентности;
- виды деятельности, к которым он должен быть готов;
- содержание профессионального образования (профильное обучение);
- способы работы, образовательные технологии;
- используемые средства и формы организации учебного процесса (начиная с классических лекций и заканчивая ролевыми, организационно-деятельностными играми);
- типы взаимодействий преподавателя и ученика.

Процесс моделирования учитывает, с одной стороны, суть явления, которое моделируется (нижний предел абстрагирования), а с другой — цель, которая ставится (верхней предел абстрагирования). Однако суть данного процесса от этого не меняется. Более того, представляется значимой и последовательность шагов в моделировании — определенные ценности образования, методологические основания деятельности диктуют ее принципы и позволяют разработать модель. Прежде всего рассмотрим, из

каких предпосылок исходит преподаватель при моделировании. Он может рассуждать подобным образом: «Человек проходит путь к специалисту на протяжении многих лет обучения школа → ссуз → вуз. Главный итог его работы не только защищенный дипломный проект и знания, показанные на комплексном государственном экзамене. Не менее важный итог и сформированные мышление, заинтересованность в совершении своей профессиональной деятельности, навыки принимать решения и тем самым брать ответственность на себя, которые так не обходимы в условиях неопределенности, нестандартной ситуации, характерны для современной жизни. Цель определяет средства и предполагает результат. Если обучающийся не пытается постичь смысл и технологию самообразования и саморазвития, то преподаватель и само образование не выполняют своей миссии. Миссия преподавателя состоит в том, чтобы, опираясь на уровень подготовленности, личностные способности обучающихся, создавая образовательные ситуации, направлять работу учащихся в необходимом для их саморазвития направлении. Отсюда бесконечные семинары, повышения квалификации и т. п., так мало отличающиеся от обучения в вузе и занимающиеся все тем же натаскиванием на работу в новых условиях. А завтра? Завтра начнется все сначала. Подобные рассуждение проявляют сложившуюся систему ценностей профессиональной деятельности преподавателя. Она может быть и иной. Но этот шаг принципиален, так как он определяет отправной пункт моделирования. Именно несоответствие того, ради чего работает преподаватель, тому, что представляет собой действительность, «заставляет» строить новую модель деятельности. В ином случае он действовал бы по прежней, принятой схеме. Затем преподаватель определяет, как может разрешить выявленное и осмысленное им противоречие. Выработать навыки самообразования, саморазвития и развития профессионального мышления на основе осуществления обучающимися самоконтроля учебных действий невозможно без включения критериальной рефлексии. Этот механизм познания позволит обучающимся осознанно относиться к происходящему в образовательном процессе, а преподавателю гибко реагировать на возникающие затруднения и проблемы, осуществлять необходимую коррекцию действий обучающихся. Это тем более необходимо, что часто, становясь студентами, бывшие школьники не только не умеют анализировать учебные и научные материалы, но и даже ориентироваться в литературе. Рефлексия необходима для того, чтобы препятствия в любой деятельности преодолевались не только интуитивно, случайно, с большими эмоциональными, физическими, временными и иными затратами. В рефлексии происходит построение знаний о деятельности, а на их основе осуществляется поиск причин препятствий в достижении целей, согласование способа деятельности и требования к ней. Дальнейшее моделирование возможно только в том случае, если преподаватель владеет понятием «критериальная рефлексия» и

собственно критериальной рефлексией (способностью к ней). Под рефлексией в данном случае понимается процесс осознания человеком своих действий, которые затруднены, не достигли результата. При поиске причин возникших затруднений и проблем внимание сфокусировано на себя, что позволяет не только построить образ себя иного, но и получить представление об ином варианте своих действий. В таком случае это затруднение становится субъективным вызовом, который побуждает к поиску дополнительного знания, к иному действию. Критериальная рефлексия включает в себя: анализ собственных действий, в процессе которых возникли затруднения; выявление причины собственных затруднений на основании социокультурных критериев; перепроектирование своих действий на основании норм (стандартов) познавательной деятельности. Такое познание обеспечивается тремя типами критериев: научными, философскими, методологическими. Рефлексивное сознание предполагает различие базовых функций мышления: ситуационно-регистрационной, нормативной, проблемной, концептуальной и ценностной. Для формирования организационного мышления необходимо различие базовых функций мышления. Опыт показывает, что методически можно решить эту проблему на основе модели организационного мышления, введенной школой О.С. Анисимова и адаптированной нами под задачи высшей школы. Данная модель, внешне простая, способная помочь отслеживать сложные рефлексивные процессы. Она включает пять элементов, пространственно разделенных и соответствующих пяти рефлексивным функциям. Каждое пространство соответствует определенному слою сознания. Завершающим этапом моделирования является введение модели в образовательную практику. Использование модели организованного мышления помогает обучающимся четко отслеживать свои действия. При решении более сложных задач возникает проблемная ситуация, когда недостаточно уже сформированных в теоретическом пространстве критериев, что требует достройки теоретического знания. Появляется потребность дополнить имеющиеся критерии новыми на основе специальной работы в пространстве теоретических оснований. Достижение самостоятельности, самоорганизации обучающихся в ходе решения задач невозможно, если не формировать критериальный слой в рефлексии. Это достаточно сложная работа, в ходе которой приходится на основе возникающих при рефлексии затруднений всякий раз строить обобщенное представление об основных шагах мыслительного процесса. Это особенно существенно для тех, для кого важен не только результат, но и путь к нему. В этом смысл обязательного закрепления технологии решения задач. Только в ходе попыток отследить форму своих мыслительных процессов можно обрести навыки организованного мышления. При решении задач можно схематично представить конструирование синтетического знания

(эмпирического и теоретического типа), принципов дополнения и уточнения, переходов от одного уровня теоретического знания к другому и т. п. В современном образовании, претерпевающим серьезные изменения, нет сложившегося отношения к моделированию, понимания его места и роли в профессиональной деятельности педагога. Само понятие «моделирование» неоднозначно. Иногда им называют процессы, далекие от подлинного моделирования, и, наоборот, авторы моделей не используют этот термин. Так, на основе психологического анализа учебной деятельности используется последовательность регулярных механизмов деятельности, вызывающих самоизменение ученика. Это, на наш взгляд, является примером разработки модели организации учебной деятельности, причем достаточно востребованной. Можно сделать вывод: высказанные предположения и положения подтверждают актуальность методического обоснования, раскрывающего сущность и особенности моделирования в деятельности преподавателя.

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## **К ВОПРОСУ О СЕМАНТИЗАЦИИ ЛЕКСИКИ В ЯЗЫКЕ**

*Аннотация. В данной статье описаны научные дискуссии по вопросу семантики лексики в языке. Также даются мнения о современной актуальности и проблемах семантизации словаря в языкознании.*

*Ключевые слова: лингвистика, словарная семантика, научный анализ, интернациональная лексика.*

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## **ON THE ISSUE OF SEMANTIZATION OF VOCABULARY IN LANGUAGE**

*Abstract. This article describes scientific discussions on the issue of semantics of vocabulary in the language. Also, opinions are given about the current relevance and problems of the semanticization of the dictionary in linguistics.*

*Key words: linguistics, dictionary semantics, scientific analysis, international lexicon.*

### ***Введение:***

Изучение лексических единиц как один основных элементов языковой системы. А последнее время является актуальным аспектом языкознания. В центре подобных исследований находится слово, так как представляет собой особый микромир, в котором отражается часть реальной действительности.

Изучением семантизации лексики занимались такие видные филологи как академик Шмелев Д.Н., профессор Новиков Л.А., Денисов Н.Н., Шанский Н.М. и многие другие. Семантизация лексики понимается как процесс выявления значения лексических единиц и результат этого процесса. При этом выбор способа семантизации определяется характеристикой слова: его формы, значения, структуры, частотностью употребления и другие. Каждое слово можно считать универсальной

единицей языка. Для того, чтобы производить необходимую классификацию существуют следующие основания:

1) Возможность слов входить в состав одной группы при общем компоненте в своем составе, то есть группа слов, имеющих общий суффикс, корень, приставку и так далее;

2) Объединение слов в отдельную группу, содержащую национально окрашенную лексику;

3) Объединение слов в группы, которые отражают отношение между его составляющими и реальными явлениями или предметами;

4) Принадлежность слов к одной из частей речи определяет их место в самой структуре высказывания; и другие.

Каждый из перечисленных способов имеет свои особенности.

Одним из наиболее сложных аспектов при изучении лексики считают сочетаемость слов при построении высказываний. В русском языке слова могут входить в состав свободных (неустойчивых) и несвободных (устойчивых) словосочетаний. Неустойчивые словосочетания строятся на основе значений, входящих в них слов при сохранении смысла высказывания. К примеру такие глаголы как надевать и носить сочетаются со всеми существительными, которые обозначают предметы обуви и одежды: носить/надеть куртку, носить/надеть сапоги и так далее. Устойчивые словосочетания построены в соответствии с языковой традицией. Например, слово впечатление только глаголами оставлять и производить: оставлять/производить впечатление.

Для правильности употребления словосочетания в русском языке необходимо помнить, что во многих из них зависимое слово стоит в определенном падеже с предлогом: открывать бизнес (что? чего?), открывать глаза (кому на что?), открывать памятник (кому?) и другие. При представлении нового лексического материала следует учитывать того, что выбор слов, которые должны правильно сочетаться друг с другом, представляет определенные трудности при усвоении любого иностранного языка.

Под сопоставлением слов русского языка со словами других языков понимают лингвистическую основу, которая способствует выработке навыков логического сопоставления языковых картин- изучаемый (русский в нашем случае) и родной для учащихся. Так, достаточное большое количество слов, которых обозначают абстрактные явления, предметы, на русском языке эквиваленты на иностранный язык, совпадая полностью в семантическом значении (сад, дом, стол, обед, кошка, корова, душа, мир, погода, клятва и другие.).

Внутренняя и внешняя характеристика слова. Внутренняя сторона слова представляет собой смысловое содержание, внешняя - буквенная/звуковая оболочка слова. Самой важной составляющей слова



является лексическое значение, в него входят все существенные признаки предмета/ факта явления, обозначаемого этим словом.

Необходимо учитывать фактор многозначности в русском языке - полисемию, так как однозначных слов сравнительно немного. К однозначным словам (они обычно терминологичные): (морфема, лексема, сема, словообразование, фонетика, лексикография, корень, грамматика, синтаксис и другие), некоторые слова, которые называют конкретный предмет обиходного характера (табурет, корж, диван, плитка и так далее.) слова выражающие субъективную оценку качества или признака (*болтушка, крохотный, малява, ксива*).

Лексикой с национально культурным компонентом (Василиса прекрасная, Бить баклуши, Три девятое царство, Царевна лягушка, Серый волк, Золотая рыбка, Избушка на курьих ножках и так далее.) также слова, входящие в концепты русской лингвокультуры (рожь, овес, лебеда, поле чистое, береза, речка, дремучий лес и так далее.), относят в отдельную группу слов (многозначные слова).

Главным требованием, предъявляемым к учебной семантизации, является адекватность, то есть соответствие потребностям того вида речевой деятельности для осуществления которого необходимо данная языковая единица (слово)"<sup>30</sup> Минимумы лежат в основе формирования активной лексики. Активная лексика включает в себя слова, которые человек использует в продуктивной устной и письменной речи, знает, как исследовать его самостоятельно. Пассивный словарь - лексические единицы, которые студент изучает, носитель знает, слышит, встречает в тексте, но не использует. "Пассивный словарный запас из-за потенциального словарного запаса, значение которых учащийся, студент может угадать по сходству с родным языком (международная лексика), по элементам словообразования, по контексту и так далее. Соотношение этих типов словарей друг к другу изменчиво. Слово из активного словаря могут стать пассивными или наоборот. Само количество активных и пассивных слов варьируется от этапа к этапу"<sup>31</sup>.

Концепция построения системы работы по усвоению лексических единиц охватывает обзор, организацию, систематизацию всего материала, всех языковых единиц, представляющих интерес как для учащегося студента, исследователя, так что фронт работы в этом плане большой, разнообразный, увлекательный. Подробный анализ семантизации лексических единиц задача более крупного формата.

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## **ОСОБЕННОСТИ ТЕХНИКИ ПЕРЕДАЧИ МЯЧА В ВОЛЕЙБОЛЕ**

*Аннотация. В статье рассматриваются особенности техники передачи мяча в волейболе. В волейболе передача мяча является одним из ключевых компонентов игры. Передача мяча в волейболе – это бросок, применяемый для определения нужного направления мячу с целью нападающего броска через сетку.*

*Ключевые слова: бросок, передача, матч, игра, техника, способ, ключевой.*

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## **FEATURES OF THE BALL PASSING TECHNIQUE IN VOLLEYBALL**

*Annotation. The article discusses the features of the technique of passing the ball in volleyball. In volleyball, passing the ball is one of the key components of the game. Passing the ball in volleyball is a throw used to determine the desired direction of the ball for the purpose of an attacking throw over the net.*

*Key words: throw, pass, match, game, technique, method, key.*

В волейболе передача мяча является одним из ключевых компонентов игры. Правильно выполненная передача или удобная доводка мяча до атакующего игрока в большинстве случаев приводит к выигрышу очка для своей команды. На тренировках передаче уделяется большое внимание, поскольку без хорошего паса в волейболе не может пройти ни одна комбинация в атаке.

Передача мяча в волейболе – это бросок, применяемый для определения нужного направления мячу с целью нападающего броска через сетку. Передавать мяч можно одной рукой либо двумя, в зависимости от ситуации и обстановки на момент волейбольного матча. Этот прием играет

основоположную роль в системе правил данного вида спорта. Всегда необходимо следить за тем, чтобы мяч был задействован в игре и не соприкасался с землей. Его передача должна быть четкой, отработанной до автоматизма [6].

Игроки, специализирующиеся на доводках мяча до атакующих игроков, в волейболе называются связующими. Техника передачи предусматривает два основных вида:

- ✓ нижняя передача;
- ✓ верхняя передача.

Нижняя передача используется, если волейбольный мяч направляется на низкой высоте и с большой скоростью, верхняя передача, если мяч находится высоко. Каждый спортсмен должен знать, как выполнять передачу и решение нужно принимать в доли секунды и за это время нужно оценить скорость, траекторию мяча и занять необходимую позицию для его доводки.

Техника передачи мяча отрабатывается на тренировках. Каждому волейболисту важно довести этот прием до автоматизма и знать, как делать передачу правильно [6].

Передача мяча – это важное ключевое движение, которое во многом предопределяет ход дальнейших событий. Волейболист в рамках передачи задает мячу траекторию, и в последующем у других игроков есть возможность совершить нападающий бросок. Передавать мяч в волейболе можно одной или двумя руками – игрок принимает решение в зависимости от ситуации и своего положения. Важно, чтобы мяч был постоянно в игре и не соприкасался с напольным покрытием [1].

*В волейболе выделены два ключевых способа передачи мяча игрокам:*

- нижняя передача – если мяч при игре в волейбол летит низко и быстро;
- верхняя передача – если мяч при игре в волейбол летит высоко.

Крайне важно освоить две эти техники. Потому что волейбол – динамичная и непредсказуемая игра, так что приходится применять и нижнюю, и верхнюю передачу в волейболе в разные периоды. Игроку приходится оценивать скорость, траекторию полета мяча, а также свою позицию за доли секунды, прежде чем принять решение. Как правило, передается он двумя руками, так как при таком положении удается направить мяч более четко, точно и правильно [5].

Нижним способом мяч передается не часто, однако этой технике стоит уделить должное внимание. Весомую долю очков удастся заработать команде при умелом применении нижней передачи. При обучении необходимо обратить внимание на правильном выходе под мяч.

Волейболисту приходится действовать моментально – он выставляет опорную ногу вперед, чтобы принять устойчивое положение, а вторую ногу опускает вниз (на колени). При таком раскладе важно держать спину

вертикально, а после непосредственного соприкосновения мяча со сцепленными руками можно слегка наклониться вперед для перенаправления кинетической энергии и формирования траектории движения мяча [2].

При получении мяча сверху игроку следует расставить ноги так, чтобы принять устойчивое положение, чуть приблизившись к летящему «снаряду». Одна нога должна быть выставлена на несколько сантиметров вперед. Коленки при этом могут быть незначительно согнуты, как при приготовлении к прыжку. Руки игрок сгибает и прижимает к торсу, и по мере приближения мяча выставляет их наверх и чуть вперед, сохраняя вертикальное положение тела. Уровень стойки может быть выше или ниже – это принимает каждый волейболист самостоятельно, исходя из ситуации [5].

Обучение верхней передачи начинается с правильного положения тела для верхней передачи, нижней передачи и приема мяча, расположения рук при выполнении технического элемента, выхода на мяч. Изучение верхней передачи начинается с первых занятий и совершенствуется на всех последующих. Верхняя передача мяча двумя руками представляет собой основной технический прием волейбола. Только верхняя передача обеспечивает наиболее точную передачу мяча [4].

➤ *Возможные ошибки при выполнении передач:*

➤ неправильное положение тела относительно траектории полета мяча.

➤ неправильное положение рук при выполнении передачи.

➤ одна рука касается мяча раньше.

➤ ноги выпрямлены.

➤ несоответствие скорости движения рук и ног скорости полета мяча.

➤ несвоевременный выход под мяч.

Таким образом, техника передачи мяча в волейболе является одним из ключевых компонентов игры. Волейболист в рамках передачи задает мячу траекторию, и в последующем у других игроков есть возможность совершить нападающий бросок. Правильно выполненная передача приводит к выигрышу очка для своей команды.

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## **ПЕРСПЕКТИВЫ УСТОЙЧИВОГО РАЗВИТИЯ СЕЛЬСКОГО ТУРИЗМА В УЗБЕКИСТАНЕ**

*Аннотация. Статья анализирует развитие сельского туризма в Узбекистане, рассматривая его вклад в улучшение жизни на селе и устойчивое социально-экономическое развитие. Освещаются текущее состояние, проблемы и стратегии отрасли, а также экономические, социальные и экологические преимущества.*

*Ключевые слова: сельский туризм, устойчивое развитие, Узбекистан, экономика туризма, инфраструктура туризма, инвестиции в туризм.*

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## **PROSPECTS FOR SUSTAINABLE DEVELOPMENT OF RURAL TOURISM IN UZBEKISTAN**

*Abstract. The article analyzes the development of rural tourism in Uzbekistan, considering its contribution to the improvement of rural life and sustainable socio-economic development. The current state, challenges and strategies of the industry, as well as the economic, social and environmental benefits are highlighted.*

*Key words: rural tourism, sustainable development, Uzbekistan, tourism economy, tourism infrastructure, investments in tourism.*

### **Введение**

Сельский туризм — это уникальная возможность для устойчивого развития и укрепления экономики сельских районов, которая особенно актуальна для стран с богатым культурным и природным наследием, таких как Узбекистан. Этот вид туризма позволяет местному населению использовать свои природные, исторические и культурные ресурсы для привлечения туристов, что в свою очередь способствует росту доходов и улучшению качества жизни.

Узбекистан, страна с богатым историческим прошлым и уникальными природными ландшафтами, представляет огромный интерес для развития сельского туризма. Имея в своем распоряжении более 74,000 объектов



культурного наследия, включая древние города, мавзолеи и уникальные природные парки, страна обладает значительным потенциалом для привлечения туристов из различных уголков мира.

Развитие сельского туризма в Узбекистане предполагает не только увеличение доходов местного населения и сохранение культурного и природного наследия, но и способствует диверсификации экономики, сокращению бедности и улучшению инфраструктуры. Однако для реализации этого потенциала требуется комплексный подход, включающий развитие инфраструктуры, обучение местного населения, маркетинговые исследования и создание благоприятного инвестиционного климата.

### **Анализ текущего положения сельского туризма в Узбекистане**

После пандемии COVID-19, которая существенно повлияла на туристическую отрасль по всему миру, включая Узбекистан, страна активно работает над восстановлением и дальнейшим развитием этого сектора. Сельский туризм, как часть общей туристической индустрии, занимает особое место в стратегии экономического восстановления и развития.

Узбекистан разработал "Новую стратегию развития Узбекистана на 2022-2026 годы", которая включает в себя планы по трехкратному увеличению объема услуг в сфере туризма и созданию 3.5 миллионов новых рабочих мест. Предполагается, что количество местных туристов достигнет более 12 миллионов, а иностранных - 9 миллионов.

Во время пандемии были приняты решения по поддержке отрасли, включая освобождение туроператоров, турагентов и отелей от земельных и имущественных налогов до 31 декабря 2020 года и сокращение социальных налогов. Эти меры помогли снизить финансовое бремя на предприятия, связанные с туризмом.

Туризм признан одним из секторов, способных создавать новые рабочие места, что критически важно для страны, где значительное количество граждан вынуждено искать работу за рубежом. Туристическая индустрия может предложить занятость в сфере обслуживания, в гостиницах, ресторанах, а также в сопутствующих малых бизнесах, таких как ремесленные мастерские и производство сувениров.

Министерство туризма и культурного наследия Узбекистана разрабатывает стратегию развития туризма до 2030 года, учитывая глобальный кризис и новые условия конкуренции. Важным аспектом является соответствие стратегии целям устойчивого развития ООН, что предполагает долгосрочное и эффективное развитие туризма, с учетом экологического, социального и экономического баланса.

Узбекистан делает значительные шаги в развитии сельского туризма как важной части своей экономики, направленной на улучшение жизни в сельской местности и сохранение культурного наследия. Дальнейшее продвижение и развитие этого направления потребует интеграции

различных стратегий, включая инфраструктурное развитие, образование, маркетинг и международное сотрудничество.

### **Проблемы и вызовы развития сектора сельского туризма в Узбекистане**

Развитие сельского туризма в Узбекистане, несмотря на его значительный потенциал, сталкивается с рядом проблем и вызовов, которые могут замедлить или ограничить его рост и успех. Вот некоторые из ключевых проблем и вызовов:

*Инфраструктурные ограничения:* Одна из главных проблем – это недостаточное развитие инфраструктуры, включая дороги, транспорт, связь и туристические удобства, особенно в отдаленных и сельских районах. Это затрудняет доступ к туристическим объектам и снижает качество туристических услуг.

*Недостаточное финансирование и инвестиции:* В сектор часто не вкладывают достаточно средств для развития инфраструктуры, маркетинга, обучения и поддержки местных инициатив. Нехватка инвестиций ограничивает возможности развития и улучшения качества услуг.

*Нехватка квалифицированных кадров:* Отсутствие специалистов в области управления туризмом, гостеприимства и маркетинга затрудняет развитие профессиональных и качественных туристических услуг.

Для успешного развития сельского туризма в Узбекистане необходимо адресовать эти проблемы через комплексный подход, включающий улучшение инфраструктуры, привлечение инвестиций, обучение кадров, устойчивое управление ресурсами, развитие маркетинга и упрощение бюрократических процедур. Также важно укрепить сотрудничество между правительством, бизнесом и местными сообществами для достижения общих целей развития и улучшения качества жизни в сельских районах.

### **Заключение**

Исследования в области сельского туризма в Узбекистане подчеркивают его значительный потенциал как инструмента экономического и социального развития. Уникальное природное и культурное наследие страны создаёт благоприятные условия для развития туризма. Однако для его реализации необходимо серьезное внимание к инфраструктурным, образовательным и маркетинговым аспектам, чтобы удовлетворить потребности и ожидания туристов.

В перспективе, с усиленной поддержкой и внедрением комплексных стратегий развития, сельский туризм может стать важной составляющей экономики Узбекистана, способствуя улучшению качества жизни в сельской местности, сохранению исторического и культурного наследия и устойчивому использованию природных ресурсов.

Взяв во внимание текущие исследования и тенденции, можно с уверенностью сказать, что будущее сельского туризма в Узбекистане

выглядит многообещающим. С правильной стратегией и поддержкой, этот сектор сможет способствовать устойчивому развитию страны и улучшению жизни её жителей.

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## **РЕШЕНИЕ ПРОБЛЕМ СОЦИАЛЬНОГО ХАРАКТЕРА ПРИ ВЗАИМОДЕЙСТВИИ ОРГАНОВ ВЛАСТИ И ОБЩЕСТВА**

*Аннотация. В статье рассматриваются основы взаимодействия власти и общества для решения социальных задач. Представлена статистика социальных проблем РФБ и обозначены пути их решения.*

*Ключевые слова: «Точка Термидора»; институциональные преобразования; экономические и социальные критерии решения проблем.*

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## **SOLVING SOCIAL PROBLEMS IN THE INTERACTION OF LSG BODIES AND SOCIETY**

*Abstract. The article discusses the basics of interaction between government and society to solve social problems. Statistics of social problems of the Russian Federation are presented and ways to solve them are outlined.*

*Keywords: "Thermidor point"; institutional transformations; economic and social criteria for solving problems.*

В процессе становления нового капитализма, власть и бизнес так и не нашли приемлемых путей решения социальных проблем населения. Передав ряд своих экономических полномочий бизнесу, государство рассчитывало на то, что он возьмется и за решение социальных проблем общества. Однако не все представители бизнеса считают, что кроме уплаты налогов они должны решать и социальные задачи граждан.

Постепенно в решение социальных проблем общества стали включаться негосударственные, некоммерческие организации, но слаженного механизма взаимодействия власти, бизнеса и общества в решении социальных проблем населения пока не создано.

В то же время в экономике произошли коренные изменения в методах, используемых государственными и муниципальными органами власти для решения социальных проблем, на основе объединения усилий и поиска баланса интересов участников данного процесса. Частный бизнес и государство все активнее вступают в сотрудничество в поисках эффективных путей решения задач общества на основе национальных проектов, получения самостоятельных заказов.

Используется механизм тендеров при выборе государством партнеров для решения социальных задач на федеральном, региональном и муниципальном уровнях управления. До 2022 года привлекалась часть иностранных партнеров для выполнения инфраструктурных проектов.

Однако экономический рост во многом еще сдерживается слабым решением таких социальных проблем общества, как улучшение демографической ситуации, снижение уровня бедности, обеспечение граждан жильем, социальной защитой пенсионеров и молодежи.

Вместе с тем, в мировой практике взаимодействия власти, бизнеса и общества, адаптируемой к российским условиям, широко используются такие механизмы решения социальных проблем граждан, как:

- выявление доминирующих тенденций развития социального пространства территорий и их использования при формировании стратегии социальной политики и механизмов ее реализации;

- проведение институциональных преобразований в социальной сфере и структурных реформ в экономике создающих недостающие условия для решения социальных проблем населения;

- выстраивание социального баланса поколений;

- развитие экономических и организационных основ социального партнерства и формирование деловых отношений его участников, отвечающих требованиям времени;

- использование социальной рекламы в качестве инструмента повышения социальной культуры населения.

Сегодня становится все более очевидным, что Конституция РФ (Основной закон), федеральные законы, определяющие основу деятельности нижележащих органов управления и самоуправления, не дают реальных гарантий на осуществление права на социальное обеспечение и социальную защиту населения.

В этих условиях трудно переоценить роль регионов как субъектов Федерации в формировании социальной политики. Региональное законодательство, соответствуя нормам и принципам федерального

законодательства, должно расширять права граждан на данной территории по сравнению с общефедеральным уровнем.

Между тем, проявляются большие противоречия в осуществлении поддержания основ жизнедеятельности населения в рамках определенного территориального организма не только между Федерацией и регионом, регионом в целом и его отдельными территориями, но также между региональным государственным управлением и муниципальным самоуправлением.

Главное, в чем убеждает новый общественный опыт, на практике экономические и социальные критерии решения конкретных задач постоянно находятся в конфликте, что заставляет отдавать предпочтение либо тем, либо другим. Вот почему назрело требование времени предпринять серьезную попытку для изменения процесса формирования и управления системы социальной защиты.

Проблема заключается и в том, чтобы создать условия для конкуренции между всеми - и государственными, и негосударственными организациями - за саму возможность оказания социальных услуг, сделать эту сферу эффективной, прозрачной и четкой.

Рассматривая статистику по социальным проблемам в России за 2021-2022 год необходимо указать следующие данные представленные в таблице 1.

Таблица 1 – Социальные проблемы в РФ.

№		2021 - 2022 год
1	Алкоголизм и наркомания	1 965 321 обращение - 2021 год
2	Люди живущие с ВИЧ	1 896 260 обращение - 2022 год
3	Гендерное неравенство	1280 женщин на 1000 мужчин
4	Дети из семейособо нуждающиеся	7 781 348 семей
5	Инвалидность	11 670 236 человек -2022 год
6	Иностранцы постоянно живущие в России	1 235 676 человек -2021 год
7	Онкология	4123 236 человек -2021 год
8	Дети сироты	510 369 детей- 2022 год
9	Деменция	1 856 324 человек - 2022 год
10	Разрыв между богатыми и бедными	15 раз – 2022 год

Представленные данные в таблице с течением времени и предпринимаемых усилий со стороны государства и общества не меняются. Роль органом власти при тесном взаимодействии с обществом не может решить часть проблем. Например, онкология и деменция, как медицинские заболевания на генном уровне не могут подчиниться органам власти. но сопровождение таких больных на протяжении течения заболевания, власть может включиться и снизить тот порог депрессии которые испытывают как больной, так и его близкие.



Проблемы экономического характера в полной мере ложатся на плечи власти. Экономические проблемы могут быть искоренены в РФ, но как показывает практика, с течением времени, а особенно за последние 10 лет, происходит сильный разрыв между богатыми и бедным, что крайне негативно сказывается на «общем самочувствии нации». «Точка Термидора» перейдя которую, уже невозможно будет вернуться в прежнее состояние, крайне негативно может отразиться на судьбе государства в целом.

Именно поэтому тесное взаимодействие власти и общества, диалог между властью и обществом и выполнение своих обязанностей по социальной защите особенно слабозащищенных слоев населения положительно скажется на безопасности государства и ее населения.

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## **ИННОВАЦИОННЫЙ МЕТОД ПОДСЧЁТА ШТУЧНОЙ ПРОДУКЦИИ**

*Аннотация. Научная статья посвящена исследованию по разработке фоторезисторов марки LDR, осуществляющего качественный подсчёт количества штучной продукции, возможности их использования при обосновании расчётных данных теоретическим путём. В статье полностью описывается устройство и принцип работы разработанной установки.*

*Ключевые слова: датчик, сигнал, подсчёт, ножка, табло, напряжение.*

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## **INNOVATIVE METHOD FOR COUNTING PIECES PRODUCTS**

*Abstract. The scientific article is devoted to the research on the development of LDR brand photoresistors, which performs a qualitative calculation of the number of piece products, the possibility of their use in substantiating the calculated data in a theoretical way. The author fully and fundamentally gives the device and the principle of operation of the installation during operation.*

*Key words: Sensor, signal, counting, leg, scoreboard, voltage.*

**Введение.** В современном мире интенсивного развития производственных процессов особое место имеет учёт количества выпускаемой продукции. В связи с этим сейчас используют фотодатчики, с помощью которых быстро и легко можно вести учёт количества поступающего сырья и выпускаемой готовой продукции. Быстрый рост технической и энергетической вооружённости сельскохозяйственного труда, бурное развитие научных исследований с использованием современной научной аппаратуры, широкое использование достижений полупроводниковой микроэлектроники и диспетчерского управления,

переход на комплексную автоматизацию технологических процессов способствует интенсификации производства.

**Методы и материалы.** В последнее время существуют оптоэлектронные методы измерения и контроля с успехом применяются для количественного и качественного анализа веществ и материалов. Высокая точность и чувствительность, экономичность и безопасность являются их преимуществами по сравнению с другими физико-химическими методами анализа.

Суть оптоэлектронного метода анализа состоит в том, что любое вещество отражает или поглощает, или излучает свет. При этом в зависимости от химического состава вещества и количественного соотношения составляющих его элементов изменяется интенсивность светопоглощения, угол отражения и другие характеристики взаимодействия светового излучения и вещества.

При контроле нефти и нефтепродуктов оптоэлектронными методами можно косвенно судить о содержании в них асфальто-молистых веществ, влаги, о глубине очистки нефтепродуктов, о превалировании тех или иных групп углеводородов, о возрасте и происхождении нефти, содержание одного вещества в другом и т. п. В зависимости от того, какой параметр светового излучения положен в основу, различают различные оптические методы анализа, классификация которых показана на.

В зависимости от **физических явлений**, изменяющих параметры светового потока, прошедшего через исследуемую среду, оптические устройства для контроля физико-химических параметров нефти и нефтепродуктов можно подразделить на три группы: фотометрические, рефрактометрические, поляриметрические.

В зависимости от **области применения** этих устройств их можно подразделить на пять групп: оптические средства для изучения структуры и состава жидкостей, оптические концентромеры, оптические средства для определения и контроля кинетики различных физических и химических процессов, т.е. для изучения взаимодействий и превращений веществ, оптические расходомеры.

Поляриметрический метод анализа продуктов основан на измерении угла вращения плоскости поляризации луча света, прошедшего через оптически активную среду.

Фотометрический метод в основном применяется для анализа жидких веществ и растворов. В этом методе либо сравниваются цвета анализируемой жидкости со стандартным раствором, либо измеряется степень поглощения света (разного цвета).

Широкое внедрение средств автоматизации стало возможным после осуществления комплексной механизации и электрификации сельскохозяйственного производства. В сельском хозяйстве на сегодняшний день развернута большая организационная и научно-

исследовательская работа по созданию систем автоматизации и приборов специального назначения.

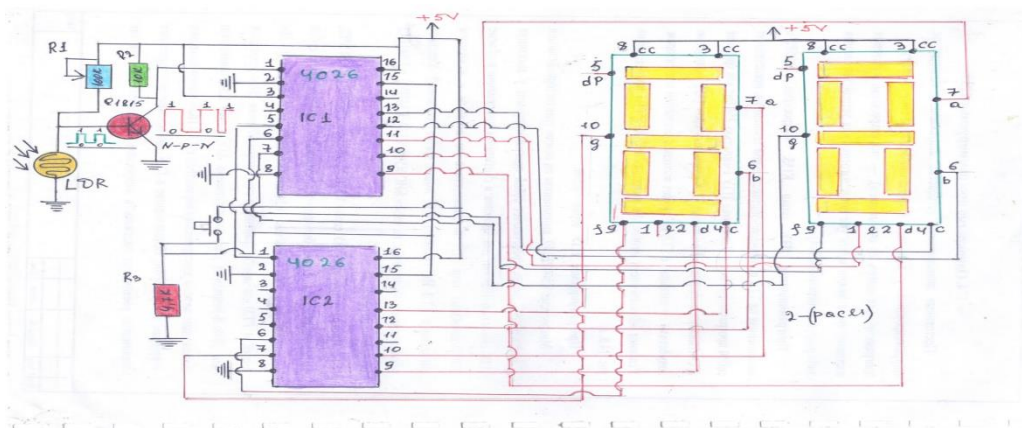
Например, созданное устройство, для подсчёта штучной продукции, перемешиваемый конвейером относится к системе автоматического управления транспортированием произведённой готовой продукции и изделий, и главное к автоматическому подсчёту штучной продукции любой отрасли народного и сельского хозяйства перемещаемому по конвейерному транспортёру.

Известна также разработка для подсчёта штучной продукции, перемещаемой конвейером, в конструкции которого имеется фотодатчик, подключённый к сумматору и исполнительный элемент. Однако данное устройство не даёт контролировать прохождение специальных штучных товаров и их заторы. Преимущество этого устройство в том, что известной степени производит учёт штучной продукции за счёт содержащего в нём датчика наличия штучной продукции, соединённый с сумматором.

В зависимости от применяемых средств измерений методы подразделяются на измерительные, регистрационные, расчётные, социологические, экспертные и органолептические [1].

Регистрационные методы - это методы определения показателей качества продукции, осуществляемые на основе наблюдения и подсчета числа определенных событий, предметов и затрат. Эти методы основываются на информации, получаемой путем регистрации и подсчета определенных событий, например, подсчета числа дефектных изделий в партии и т.д.

Внедрение средств автоматики способствует научно-техническому прогрессу в сельском хозяйстве. В процессе сортировки овощей и фруктов, помимо разделения их на сорта, возникает необходимость отделения из общей массы повреждённых и сгнивших во время транспортировки от поля до места переработки. Ведь потери во времени порождают потери в весе, а это отражается на себестоимости готовой продукции. Во избежание этого датчики фоторезисторы устанавливаются в конце транспортёрной ленты конвейера и ведётся не только подсчёт, но и отделение загнивших и незрелых овощей и фруктов. Основным исполнительным элементов разработанной установки для подсчёта штучной продукции является фоторезистор. Фоторезисторы - это резисторы, у которых меняется сопротивление в зависимости от действия света на светочувствительную поверхность.



**Рис. Микросхема для учёта количества продукции**

Сопротивление не зависит от величины напряжения, в отличие от обычного резистора. Разработанную установку можно применить для продукции сельского хозяйства: падающее количество штучной продукции, например, помидоры, движущиеся по ленточному транспортёру. Падающие помидоры, проходя мимо LDR датчика, образуют тени, которые изменяют сопротивление этого датчика. Далее транзистор Q1815, чувствуя, воспринимает эти теневые сигналы. Выходящий сигнал из коллектора транзистора поступает на 1-ю ножку микроконтроллера CD4026 считывает этот сигнал и передаёт на табло. Ниже приведённая схема состоит из основных элементов 1-фоторезистор LDR, 2- микроконтроллер 2CD4026, 3-цифровое табло. Чувствительность фоторезистора не изменяется даже при мало освещённых помещениях. Установка легка в управление и очень компактна. Автоматическое измерение с использованием фоторезисторов позволяет измерять и передавать информацию на специальный прибор, который считывает и передаёт на базовый учётный элемент. Основные комплектующие элементы этой установки приобретены в местных торговых точках. Проблем с заменой комплектующих элементов не существует.

**Вывод.** Таким образом, при внедрении рекомендуемого устройства повышается точность автоматического учёта готовой произведённой продукции и изделия появляется возможность полностью снять рабочих с этой операции, увеличивается оперативность учёта штучной продукции и управления транспортной системой. Достигается получение экономического эффекта ресурса и энергосбережения, создаются удобства обслуживания и технико-экономических расчётов и системы для замены физического и умственного труда.

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## **ИСТОРИЯ СОЗДАНИЯ И РАЗВИТИЯ ОСОБО ОХРАНЯЕМЫХ ПРИРОДНЫХ ТЕРРИТОРИИ**

*Аннотация. В статье рассматривается история создания и развития особо охраняемых территории. Особо охраняемые природные территории – это участки земли, водной поверхности и воздушного пространства, которые имеют особое природоохранное, научное, культурное, эстетическое, рекреационное и оздоровительное значение.*

*Ключевые слова: экосистема, биологическое разнообразие, охрана, заповедники, заказники, памятники природы.*

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## **HISTORY OF CREATION AND DEVELOPMENT OF SPECIALLY PROTECTED NATURAL AREAS**

*Annotation. The article discusses the history of the creation and development of specially protected areas. Specially protected natural areas are areas of land, water surface and air space that have special environmental, scientific, cultural, aesthetic, recreational and health value.*

*Key words: ecosystem, biological diversity, protection, reserves, sanctuaries, natural monuments.*

Особо охраняемые природные территории (ООПТ) — одна из форм сохранения природы, поэтому относятся к объектам общенационального достояния, сохраняя уникальные и типичные экосистемы, биологическое и ландшафтное разнообразие.

Истоки создания охраняемых природных территорий уходят корнями в глубокую древность. Люди на самых ранних этапах своего развития, обращали внимание на необычные явления природы — водные источники с особо чистой или целебной водой, выходы примечательных горных пород и минералов, деревья-патриархи, места концентрации полезных растений и животных. Понимая их значение, они брали их под охрану, объявляя священными [2].

Практика организации первых ООПТ (изъятие из традиционного природопользования отдельных природных объектов, территорий и установление особого режима охраны) насчитывает несколько тысячелетий. Предпосылки создания таких объектов, которые с рядом оговорок можно считать первыми ООПТ, оказались двоякого рода – духовные и прагматические [7].

Духовные предпосылки обязаны в основном религиозным верованиям наших предков. Различные «культовые заповедники», «священные рощи», «шаманские места» известны со времен древнейших цивилизаций Индии, Вавилонии, Древней Греции [5].

Прагматические предпосылки также были известны с древних времен. В результате создавались ООПТ для охраны и воспроизводства охотничьих видов животных.

Особо охраняемые природные территории (ООПТ) – участки земель, недр, водных пространств, лесов, которые выполняют экологическую, культурно-оздоровительную и иные близкие к ним функции и требуют к себе самостоятельной охраны от негативного воздействия со стороны хозяйственной деятельности человека. Центральное место в ООПТ занимает единый природный заповедный фонд, который представляет собой совокупность всех территорий и объектов, наделённых особой охраной [3,8].

В период феодализма на первое место вышли прагматические предпосылки: знать стала заботиться об охране своих территорий и в том числе охотничьих угодий. Сеньор личным указом мог запретить не только охоту, но и просто посещение каких-либо своих земель. Например, в Англии с X по XV в. появилась целая система заповедных королевских лесов.

Королевский заповедный лес (*Royal Forest*) – это массивы лесов, которые в средневековой Европе были собственностью королей. Браконьерство каралось очень жестко. Так, по указу Вильгельма Завоевателя в XI в. человека, убившего оленя в королевском лесу, ослепляли.

Шаманское дерево, священную рощу или королевский лес можно считать прототипами наших современных особо охраняемых природных территорий (ООПТ) – участков акваторий и суши с уникальным ландшафтом или редкими растениями и животными. Поскольку такие территории всегда относятся к особым объектам общенационального и

мирового достояния, государство официально вводит на них разнообразные охранные меры, начиная с ограничения всей хозяйственной деятельности и заканчивая ее полным прекращением [6].

С научной точки зрения и создания сети ООПТ люди задумались лишь в XIX в. Причиной резкого сокращения площади лесов и исчезновения массы видов растений и уникальных животных стали промышленная революция и усиление антропогенного влияния окружающую среду. В начале XIX века в странах Западной Европы появились первые памятники природы. Это были реликтовые буковые леса, необычные геологические объекты и иные природные достопримечательности. Официальная дата рождения государственных природоохранных территорий является 1872 год, когда, в США был создан Йеллоустонский национальный парк. С тех пор их число неуклонно увеличивается, что свидетельствует о несомненном признании в мире [7].

Заповедники (nature reserves) — это территории, на которых действуют природоохранные ограничения, введенные для сохранения местной биосферы в целом или отдельных ее элементов. Основное назначение заповедных территорий — сохранение и изучение биоразнообразия планеты [1].

Национальные парки – это природоохранительные учреждения, территории (акватории) которых включают природные комплексы и объекты, имеющие особую экологическую, историческую и эстетическую ценность, предназначенные для использования в природоохранных, рекреационных, просветительских, научных и культурных целях. Задачей национальных парков наряду с природоохранной функцией является создание условий для регулируемого туризма и отдыха в природных условиях. При этом предусматривается разработка и внедрение научных методов сохранения природных комплексов в условиях рекреационного использования. На территориях национальных парков устанавливается дифференцированный режим охраны с учетом местных природных, историко-культурных и социальных особенностей [4].

Памятники природы – уникальные ценные в культурном, эстетическом, научном, познавательном отношении природные объекты, требующие охраны. К числу памятников природы относятся редкие эталонные или типичные ненарушенные участки естественной растительности, геологические обнажения, имеющие в своём составе археологические элементы, места произрастания либо проживания редких видов растений или животных, уникальные формы рельефа, старовозрастные экземпляры деревьев, отдельные объекты живой или неживой природы.

Государственные природные заказники – территории (акватории), имеющие особое значение для сохранения или восстановления природных комплексов и их компонентов и поддержания экологического баланса.

Государственные природные заказники могут иметь различный профиль, в том числе быть:

➤ комплексными (ландшафтными), предназначенными для сохранения и восстановления природных комплексов (природных ландшафтов);

➤ биологическими (ботаническими и зоологическими), предназначенными для сохранения и восстановления редких и исчезающих видов растений и животных, в том числе ценных видов в хозяйственном, научном и культурном отношении;

➤ палеонтологическими, предназначенными для сохранения ископаемых объектов; гидрологическими (болотными, озерными, речными, морскими), предназначенными для сохранения и восстановления ценных водных объектов и экологических систем;

➤ геологическими, предназначенными для сохранения ценных объектов и комплексов неживой природы.

Таким образом, особо охраняемые природные территории (ООПТ) как одна из форм сохранения природы, является объектам общенационального достояния, сохраняет уникальные экосистемы и биологическое разнообразие.

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## **ХАРАКТЕРИСТИКА И СОСТАВ ГИПСОВЫХ ФОРМОВЫХ МАТЕРИАЛОВ**

*Аннотация. Изучены свойства гипсовых смесей, приготовленных из  $\alpha$ - и  $\beta$ -полугидратов сульфата кальция. Определены зависимости прочностных и структурных характеристик затвердевших смесей от их состава и вида пластифицирующих добавок.*

*Ключевые слова: гипсовые вяжущие вещества, добавки, пластификатор, водопоглощение, пористость.*

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## **CHARACTERISTICS AND COMPOSITION OF GYPSUM MOLD MATERIALS**

*Abstract: The properties of gypsum mixtures prepared from  $\alpha$ - and  $\beta$ -calcium sulfate hemihydrates have been studied. The dependences of the strength and structural characteristics of hardened mixtures on their composition and type of plasticizing additives are determined.*

*Key words: gypsum binders, additives, plasticizer, water absorption, porosity.*

### **Влияние пластификаторов на нормальную плотность гипсовых смесей.**

При введении добавки-пластификатора время загустения гипсового теста сокращается, а по мере увеличения концентрации добавки ускоряется схватывание.

Принцип действия пластификаторов этого типа основан на изменении электроотрицательности  $\chi$ -потенциала поверхности частиц гипсового вяжущего. Электростатическое диспергирование происходит в результате адсорбции пластификатора на поверхности частиц, что сильно смещает  $\chi$ -потенциал в отрицательную зону.

Разбавление частиц гипсового вяжущего происходит в начале гидратации. Таким образом, облегчается подвижность и обращение с пластифицированной смесью, но существенно снижается водопотребность смеси [6].

Адсорбция молекул пластификатора на частицах вяжущего и продуктах его гидратации, а также снижение водопотребности гипсового вяжущего приводит к образованию короткостолбчатых призматических кристаллов дигидрата сульфата кальция, образующих плотную структуру [7].

Кроме того, %	Состав гипсовой смеси						
	$\alpha$ -ЯГ	$\beta$ -ЯГ	20% $\alpha$ -ЯГ+ 80% $\beta$ -ЯГ	40% $\alpha$ -ЯГ+ 60% $\beta$ -ЯГ	60% $\alpha$ -ЯГ+ 40% $\beta$ -ЯГ	80% $\alpha$ -ЯГ+ 20% $\beta$ -ЯГ	$\alpha$ -ЯГ
СДж-2 / АСС Polimix JBI 20							
0	49	58	57	55	53	51	0
0,2%	40/40	56/55	52/52	49/49	46/46	43/43	0,2%
0,3%	34/34	53/54	50/53	47/47	43/43	36/39	0,3%
0,5%	32/24	50/49	48/46	45/44	40/36	30/28	0,5%

Уменьшение водопотребности гипсового вяжущего приводит к уплотнению структуры гипсового камня. Введение добавок-пластификаторов влияет на пористость и водопроницаемость затвердевших образцов. С увеличением концентрации добавок пористость существенно уменьшается, и соответственно снижается и величина водопоглощения (рис. 3).

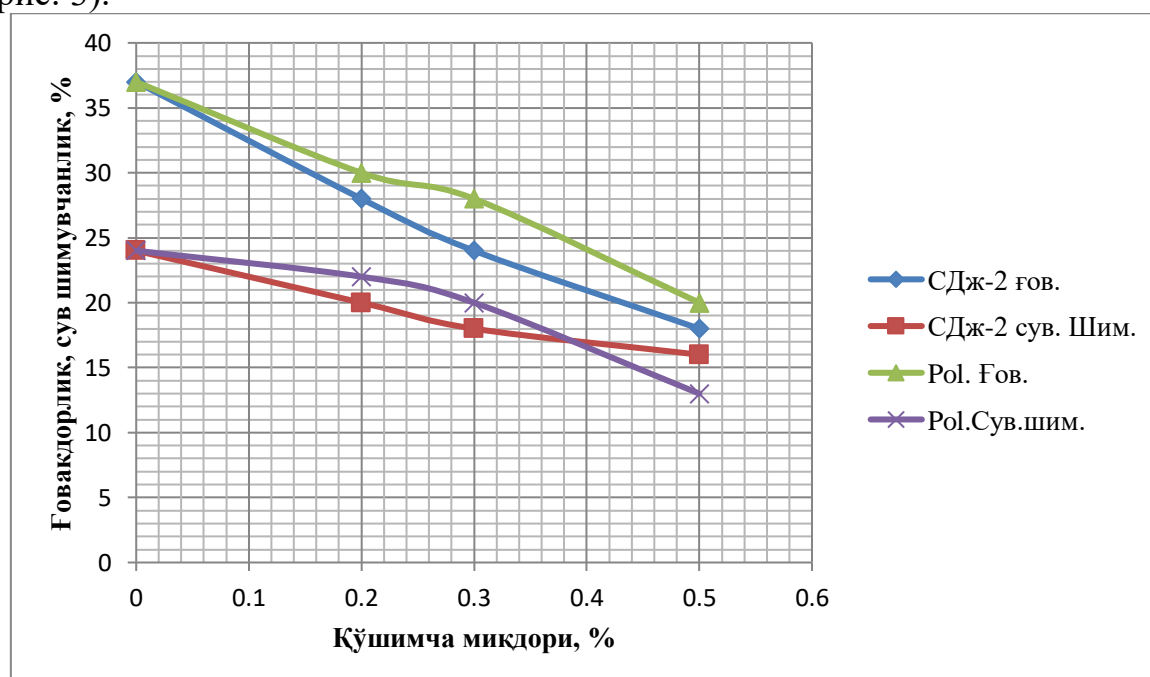


Рисунок 3. 60%  $\alpha$ -НАГ + 40%  $\beta$ -НАГ. Влияние добавок пластификаторов на пористость и водопоглощение гипсовой смеси  
 Например, показатели водопоглощения для  $\alpha$ -ЯГ изменились с 24,3% для состава без добавок до 15,9% и 13,3% с включением СДж-2 и АСС Polimix JBI 20 соответственно.



В концентрациях 0,2 и 0,3% масс. Добавки СДж-2 и АСС Polimix JBI 20 оказали одинаковое влияние на свойства гипсовых смесей. Но увеличиваем количество добавки АСС Polimix JBI 20 до 0,5%. вызывает значительное снижение пористости и водопроницаемости гипсового камня. Столь низкое значение этих параметров отрицательно влияет на формовочную массу.

### **ЗАКЛЮЧЕНИЕ**

Получены гипсовые смеси на основе полугидратов  $\alpha$ - и  $\beta$ -сульфатов кальция и определены их технические свойства.

С увеличением доли  $\alpha$ -модификации полугидрата сульфата кальция в смеси нормальная толщина гипсовой пасты уменьшается и увеличивается период прикуса.

Прочность на сжатие изменяется пропорционально увеличению доли  $\alpha$ -ЯГ в гипсовой смеси. Прочность гипсового камня, высушенного до постоянной массы, увеличивается с 10,1 до 21,3 МПа с увеличением количества  $\alpha$ -ЯГ.

При введении добавок-пластификаторов снижается водопотребность гипсовых смесей, что приводит к уменьшению пористости и водопоглощения, увеличению прочности. Для состава 60%  $\alpha$ -ЯГ + 40%  $\beta$ -ЯГ пористость гипсового камня снизилась с 35,7% до 22,1 и 18,4% при добавлении пластификаторов СДж-2 и АСС Polimix JBI 20 в количестве 0,5%, соответственно.

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## **ПРОБЛЕМЫ С ГИПСОВОЙ ПЛЕСЕНЬЮ ОСНОВНЫЕ ХАРАКТЕРИСТИКИ И СОСТАВ**

*Аннотация. Изучены свойства гипсовых смесей, приготовленных из  $\alpha$ - и  $\beta$ -полугидратов сульфата кальция. Определены зависимости прочностных и структурных характеристик затвердевших смесей от их состава и вида пластифицирующих добавок.*

*Ключевые слова: гипсовые вяжущие вещества, добавки, пластификатор, водопоглощение, пористость.*

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## **PLASTER MOLD ISSUES MAIN CHARACTERISTICS AND COMPOSITION**

*Abstract. The properties of gypsum mixtures prepared from  $\alpha$ - and  $\beta$ -calcium sulfate hemihydrates have been studied. The dependences of the strength and structural characteristics of hardened mixtures on their composition and type of plasticizing additives are determined.*

*Key words: gypsum binders, additives, plasticizer, water absorption, porosity.*

В настоящее время гипсовые вяжущие широко используются не только в строительстве, но и в ряде других отраслей промышленности. Одной из областей их использования является керамическая промышленность. Гипсовые вяжущие традиционно используются для изготовления моделей и форм для производства керамических изделий. Такие формы должны быть способны к быстрому водопоглощению и обезвоживанию шликера, иметь достаточную прочность и пористость. За счет улучшения этих свойств увеличивается срок службы гипсовых форм и качество готовых керамических изделий может быть значительно увеличено.

Структурой и свойствами гипсовых форм можно управлять, используя для приготовления формовочных масс различные модификации гипсовых вяжущих. Это достигается смешением  $\alpha$ - и  $\beta$ -модификаций сульфата кальция. Также свойствами гипсового камня можно управлять путем добавления специальных функциональных добавок [1-3].

Целью данного исследования является изучение свойств гипсовых смесей и оценка возможностей использования их в качестве формовочных гипсовых смесей, а также улучшение таких свойств, как прочность и пористость, путем подбора состава смеси и добавления в нее пластификаторов.

#### МАТЕРИАЛЫ И МЕТОДЫ ИССЛЕДОВАНИЯ

В исследованиях использовали строительный гипс ( $\beta$ -ИАГ) ООО «Кнауф-Гипс» и высокопрочный гипс ( $\alpha$ -ИАГ), полученный из отходов форм ООО «ЭКОКЕРАМА» [4]. Фазовый состав вяжущих представлен полугидратом сульфата кальция (табл. 1).

1-жадвал.

#### Технические характеристики используемых материалов

Свойства материала	$\alpha$ -ЯГ	$\beta$ -ЯГ
Нормальная плотность, %	43	58
Предел прочности при сжатии образцов, МПа		
- После 2 часов затвердевания	11,5	1
- после высыхания до постоянного веса	28	9
Продолжительность укуса, мин		
- начало	10-30	8-00
- окончание	14-30	13-00

С целью повышения пластичности гипсового теста и снижения водно-гипсового отношения были использованы комплексная полимерно-минеральная добавка марки СДж-2 и гиперпластификатор нового поколения марки АСС Polimix JBI 20, полученные из местного сырья. использован [5].

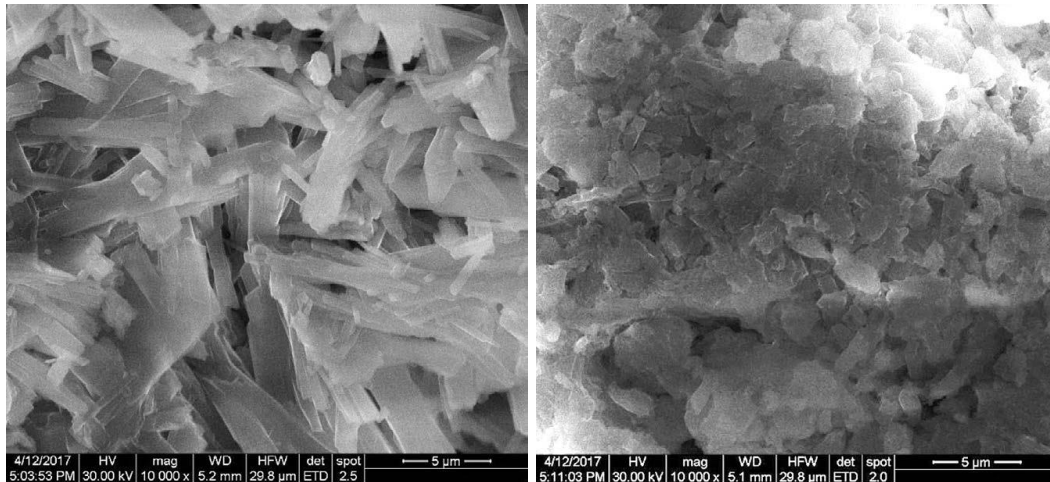
Водопотребность гипсового теста определяли на вискозиметре Саттарда, кинетику загустения на оборудовании «Вика», прочность затвердевшего гипса определяли по ГОСТ 23789-79 на образцах размером 4×4×16 см.

#### РЕЗУЛЬТАТЫ И ИХ ОБСУЖДЕНИЕ.

На первом этапе исследований готовили гипсовые смеси из  $\alpha$ -ИАГ и  $\beta$ -ИАГ сульфата кальция с интервалом 20 % по массе.

Структура затвердевших  $\alpha$ - и  $\beta$ -модификаций полугидрата отличается друг от друга: у  $\alpha$ -ЯГ кристаллы крупные и мелкие, а у  $\beta$ -ЯГ – мелкие и неправильной формы (рис. 1).

а) б)



**1-расм.  $\alpha$ -ЯГ (а) ва  $\beta$ -ЯГ (б) ларнинг микроскопик тасвирлари.**

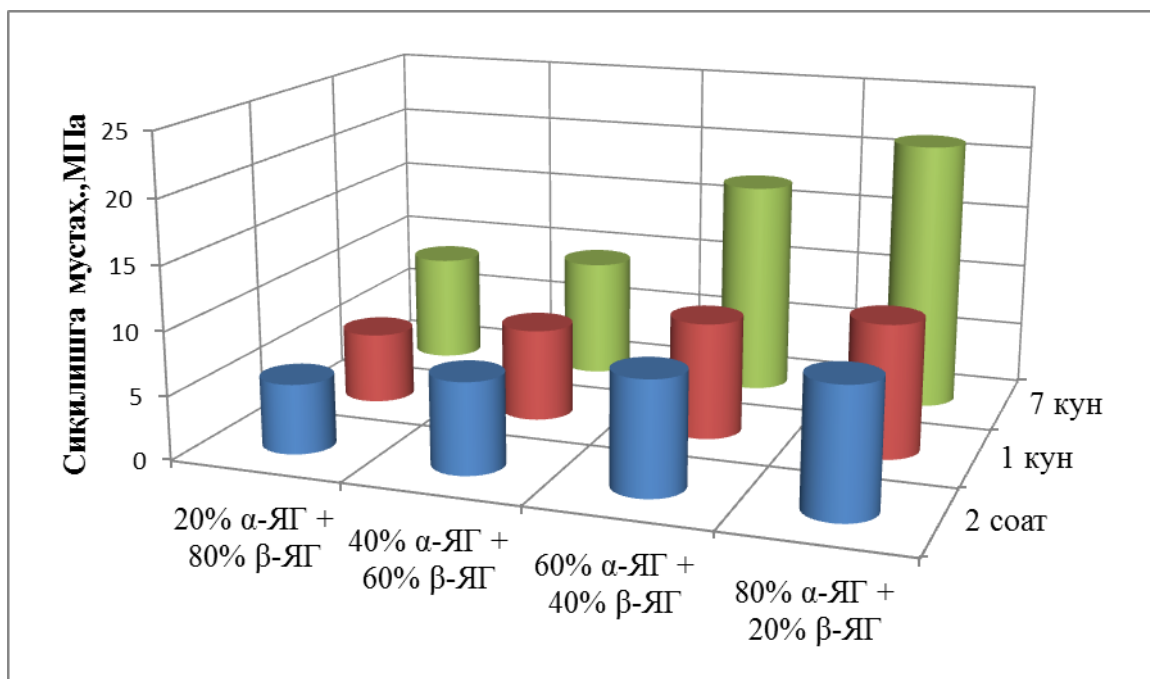
С увеличением количества сульфата кальция  $\alpha$ -ИАГ в гипсовой смеси время твердения увеличивается, но в то же время снижается значение нормальной жесткости сульфата кальция из-за снижения водопотребности  $\alpha$ -ИАГ. Чем больше количество  $\beta$ -ИАГ в смеси, тем раньше начинается процесс затвердевания (табл. 2).

Таблица 2

**Периоды пререзывания зубов и нормальная густота гипсовых смесей**

№	Таркиб	НҚ, %	Время поклевки, мин-сек	
			Начало	Конец
1	$\alpha$ -ЯГ	49	10-30	14-30
2	$\beta$ -ЯГ	58	8-00	13-00
3	20% $\alpha$ -ЯГ + 80% $\beta$ -ЯГ	57	8-30	11-00
4	40% $\alpha$ -ЯГ + 60% $\beta$ -ЯГ	55	9-00	12-30
5	60% $\alpha$ -ЯГ + 40% $\beta$ -ЯГ	53	9-30	12-30
6	80% $\alpha$ -ЯГ + 20% $\beta$ -ЯГ	51	9-30	13-30

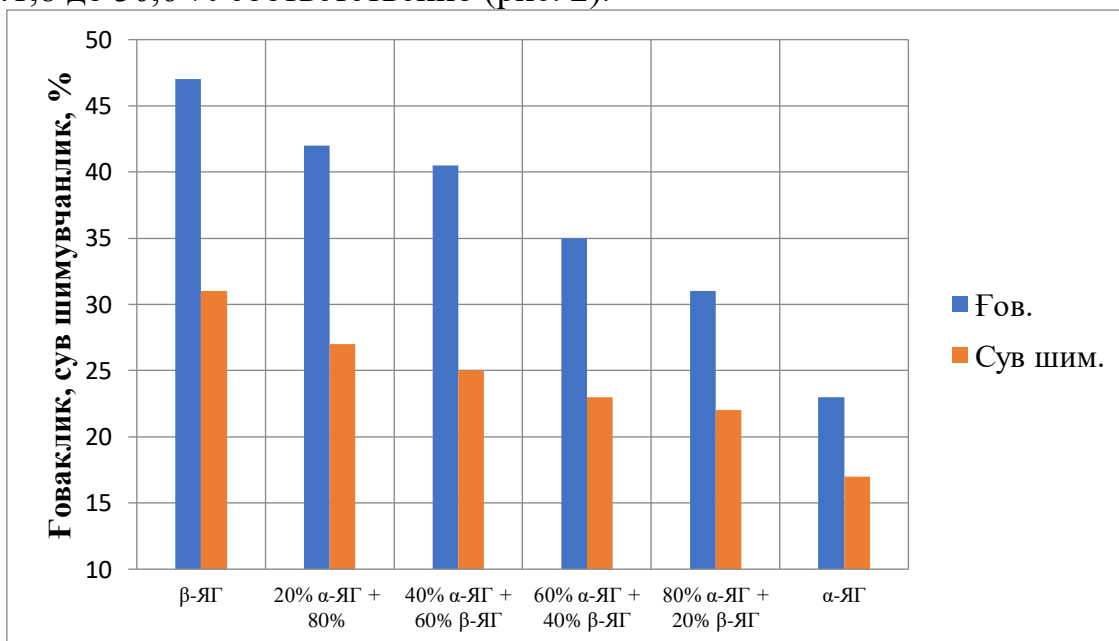
С увеличением количества сульфата кальция  $\alpha$ -ЯГ улучшались прочностные свойства гипсовой смеси. Так, прочность на сжатие высушенных до постоянной массы образцов составила 21,3 и 8,6 МПа для смесей, содержащих 80 и 20 %  $\alpha$ -YaG соответственно (рис. 1).



**Рисунок 1. Влияние состава гипсовой смеси на прочность**

Образцы с высоким содержанием  $\alpha$ -YAG обладают высокой пористостью и водопоглощением. Например, 20%  $\alpha$ -НАГ + 80%  $\beta$ -НАГ и 80%

Пористость композитов, содержащих  $\alpha$ -YaG + 20 %  $\beta$ -YaG, снизилась с 41,8 до 30,6 % соответственно (рис. 2).



**Фигура 2. Влияние состава гипсовой смеси на гладкость и водопоглощение**

На втором этапе исследований изучено влияние комплексной полимер-минеральной добавки марки СДж-2 и гиперпластификаторов

марки АСС Полимикс ЖБИ 20 на свойства гипсового камня. Показано, что введение пластификаторов снижает NQ гипсового теста. При добавлении СДдж-2 в количестве 0,2% NQ смеси 60%  $\alpha$ -ЯГ + 40%  $\beta$ - снизился с 53 до 46%. При добавлении такого же количества АСС Polimix JBI 20 значение NQ не изменилось (табл. 3). Пластифицирующие добавки снижали водопотребность гипсового вяжущего на 10-15 % по сравнению с составами без добавок.

### ЗАКЛЮЧЕНИЕ

Получены гипсовые смеси на основе полугидратов  $\alpha$ - и  $\beta$ -сульфатов кальция и определены их технические свойства.

С увеличением доли  $\alpha$ -модификации полугидрата сульфата кальция в смеси нормальная толщина гипсовой пасты уменьшается и увеличивается период прикуса.

Прочность на сжатие изменяется пропорционально увеличению доли  $\alpha$ -ЯГ в гипсовой смеси. Прочность гипсового камня, высушенного до постоянной массы, увеличивается с 10,1 до 21,3 МПа с увеличением количества  $\alpha$ -ЯГ.

При введении добавок-пластификаторов снижается водопотребность гипсовых смесей, что приводит к уменьшению пористости и водопоглощения, увеличению прочности. Для состава 60%  $\alpha$ -ЯГ + 40%  $\beta$ -ЯГ пористость гипсового камня снизилась с 35,7% до 22,1 и 18,4% при добавлении пластификаторов СДдж-2 и АСС Polimix JBI 20 в количестве 0,5%, соответственно.

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## **МЕТОД СКАНИРУЮЩЕЙ ТУННЕЛЬНОЙ МИКРОСКОПИИ В ИССЛЕДОВАНИИ ЭЛЕКТРИЧЕСКИХ СВОЙСТВ ПОВЕРХНОСТИ ПРИМЕСНОГО КРЕМНИЯ**

*Аннотация. В обзорной статье излагается работы исследовании примесного кремния методом сканирующей туннельной микроскопии (СТМ). На сегодняшний день исследование и сравнение электрических свойств на поверхности примесного кремния на макро и микроуровне является актуальным для создания фотоэлементов и электронных устройств. Были приведены работы по изучению поверхностного потенциала, проводимости, р-п перехода, структуры и дефектов примесного кремния.*

*Ключевые слова: Кремний, Сканирующая туннельная микроскопия, примесный кремний, Атомно-силовая микроскопия.*

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## **THE METHOD OF SCANNING TUNNELING MICROSCOPY IN THE STUDY OF THE ELECTRICAL PROPERTIES OF THE SURFACE OF IMPURITY SILICON**

*Abstract. The review article describes the work on the study of impurity silicon using scanning tunneling microscopy (STM). Today, the study and comparison of electrical properties on the surface of impurity silicon at the macro and micro levels is important for the creation of photovoltaic cells and electronic devices. Works on studying the surface potential, conductivity, p-n junction, structure and defects of impurity silicon were presented.*

*Keywords: Silicon, Scanning tunneling microscopy, impurity silicon, Atomic force microscopy*

В работе [1] исследовали туннельную проводимость атомных кластеров (C60, Si6Hx, AsSi2Hx), нанесенных на окисленные поверхности Si(100) р-типа, с помощью сканирующей туннельной микроскопии, где

металлический зонд/вакуумный барьер/кластер/оксид/кремниевые структуры образуют наноразмерный асимметричный туннель с двойным барьером (АОСТ). Усиление проводимости наблюдалось при прямом смещении, возникающем при резонансной инжекции электронов через незанятую орбиталь кластеров, которая была пространственно локализована в пределах диаметра  $\approx 1$  нм для  $C_{60}$ . Положения резонансных пиков и слабый поверхностный диполь указывали на то, что орбитальные энергии  $C_{60}$  и  $Si_6H_x$  находились за пределами запрещенного энергетического зазора Si и смещен относительно энергии Ферми кремния для сильно легированных подложек. Напротив, орбитальная энергия легированных кластеров  $AsSi_2H_x$  была ниже уровня Ферми кремния. Эти результаты демонстрируют, что конфигурация АОСТ-перехода выявляет электронную связь кластеров с поверхностями полупроводника.

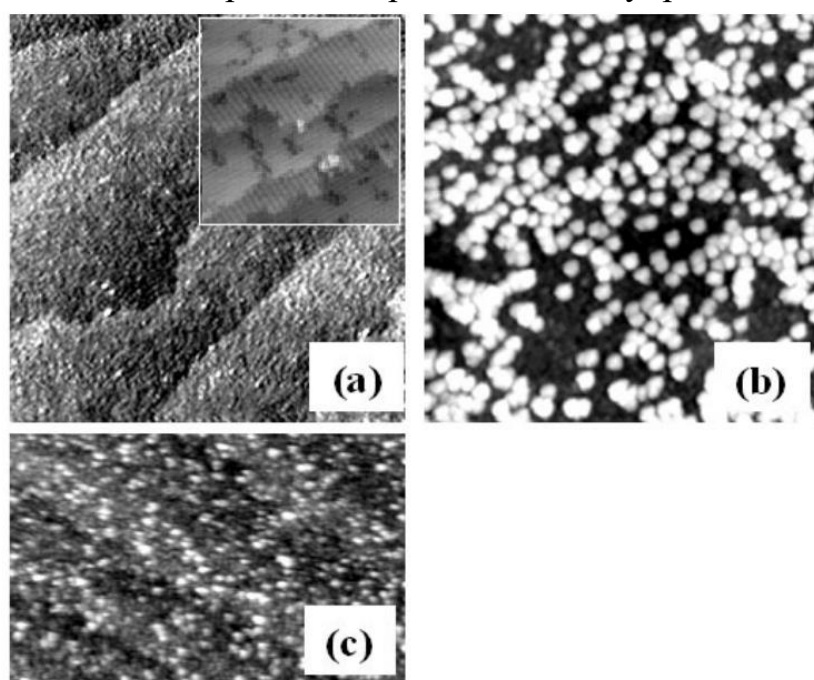


Рис. 1. STM Топографии поверхности окисленного  $Si(100)-(2 \times 1)$  толщиной  $\approx 0,3$  нм до (а) и после осаждения кластеров  $C_{60}$  (б) и  $Si_6H_x$  (в). Плотность скоплений составляла  $\approx 3 \times 10^{12} \text{ см}^{-2}$  в (с) и  $\approx 2 \times 10^{13} \text{ см}^{-2}$  в (б). Области изображения составляют  $50 \times 50 \text{ нм}^2$  в (а) и (б) и  $50 \times 30 \text{ нм}^2$  в (с). На вставке (а) показана поверхность  $Si(100)-(2 \times 1)$  площадью  $20 \times 20 \text{ нм}^2$ , полученная после мгновенного нагрева при  $1100 \text{ }^\circ\text{C}$ . Начальное напряжение составляло  $+2 \text{ В}$ , а туннельный ток -  $0,3 \text{ нА}$ .

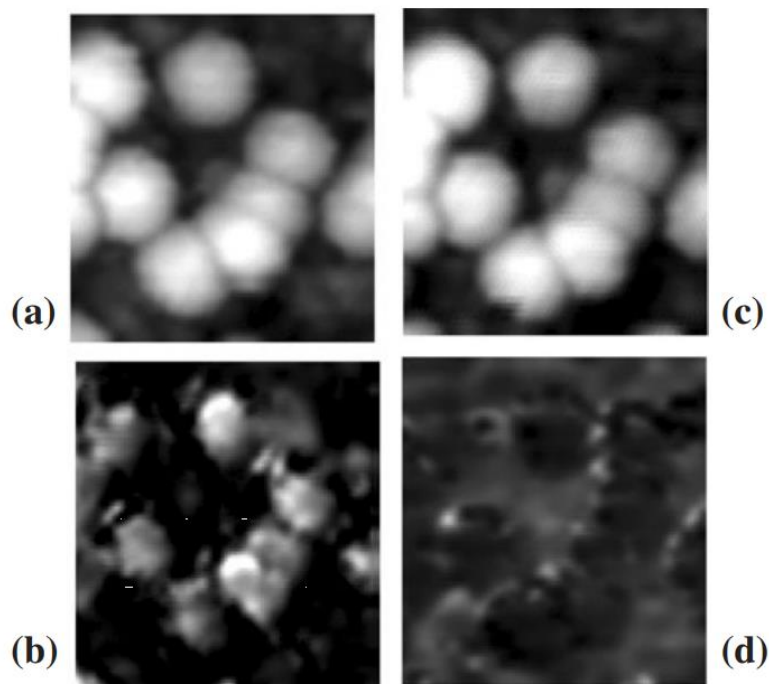
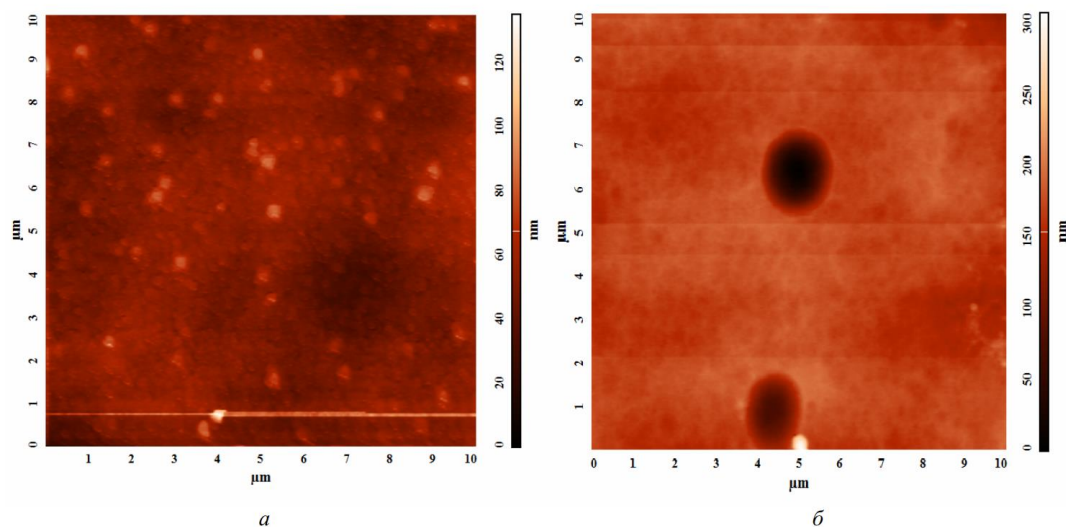


Рис. 2. STM топографии поверхности окисленного Si(100)-(2 × 1) толщиной  $\approx 0,3$  нм до (а) и после осаждения кластеров  $C_{60}$ (б) и  $Si_6H_x$  (в). Плотность скоплений составила  $\approx 3 \times 10^{12}$  см $^{-2}$  в (с) и  $\approx 2 \times 10^{13}$  см $^{-2}$  в (б). Области изображения составляют  $50 \times 50$  нм $^2$  в (а) и (б) и  $50 \times 30$  нм $^2$  в (с). На вставке (а) показана поверхность Si(100)-(2 × 1) площадью  $20 \times 20$  нм $^2$ , полученная после мгновенного нагрева при 1100°C. Начальное напряжение составляло +2 В, а туннельный ток составлял 0,3 нА.

Были исследованы СЭ на основе монокристаллического кремния (100), произведенные методом бестигельной зонной плавки [2]. Исследование проводилось с помощью сканирующего зондового микроскопа на базе платформы зондовой нанолaborатории NTEGRA AURA компании NT-MDT. Процесс исследования топографии поверхности СЭ осуществлялся в контактном режиме АСМ.



На рисунке 3. Представлены АСМ-изображения размером  $10 \times 10$  мкм рабочей поверхности СЭ, СЭ № 1 (рисунок, а) и СЭ № 2 (рисунок, б). Рисунок иллюстрирует то, что поверхность СЭ отличается по особенностям рельефа, не смотря на одинаковую технологию производства.

На АСМ-изображении (рисунок, а) наблюдаются дефекты структуры поверхности после травления, предположительно связанные с осадками примесей кислорода или углерода при взаимодействии с кремнием, которые называются преципитатами.

Изучены [3] электронные свойства оборванной связи (ОС) атомного масштаба (ОС) и проволок ОС на поверхностях Si(100)- $2 \times 1$ :H с помощью сканирующей туннельной микроскопии в сверхвысоком вакууме (UHV-STM). Распад состояний ОС, близких к средней щели, индуцированный неспаренным ОС, зависит от кристаллической ориентации Si(100) поверхность. Длина затухания ОС-состояний непарного провода ОС может составлять  $\sim 2,5$  нм вдоль направления димерного ряда. Также продемонстрировано возмущение от непарного ОС к соседнему парному ОС.

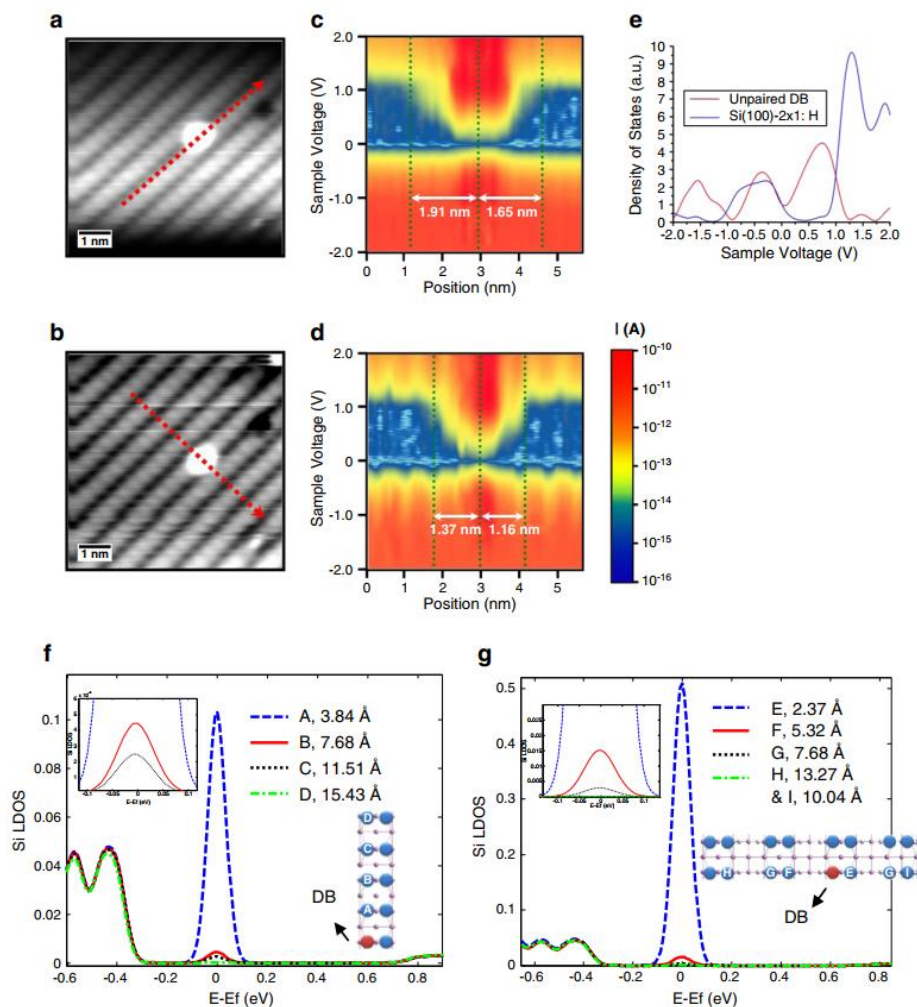




Рис. 4. (а) STM-изображение непарной оборванной связи в заполненном состоянии на поверхности Si(100)-2×1:H. ( $V_s=-2,0$  В,  $I_t=50$  Па) (б) STM-изображение БД в том же димере Si после переключения положения слева направо. (с, d) Логарифмические спектры I–V, построенные в зависимости от положения в (с) для непарного ОС в (а) и в (d) для ОС в (б). Красные пунктирные стрелки в (а) и (б) указывают, где были получены карты I-V спектров. Зеленые пунктирные линии в (с) и (d) используются для выделения положений центра непарного ОС и где ширина запрещенной зоны Si полностью равна восстановленный. (е) спектры DOS-V непарного ОС в (а) и кремниевой подложке. (f) Смоделированные LDOS атомов Si вдоль направления димера Si с расстоянием от ОС. (Вставка показывает увеличенный вид для атомов В, С и D.) (g) Смоделированные LDOS атомов Si в направлении димера Si с расстоянием от ОС. (Вставка показывает увеличенный вид атомов F, G, H и I.).

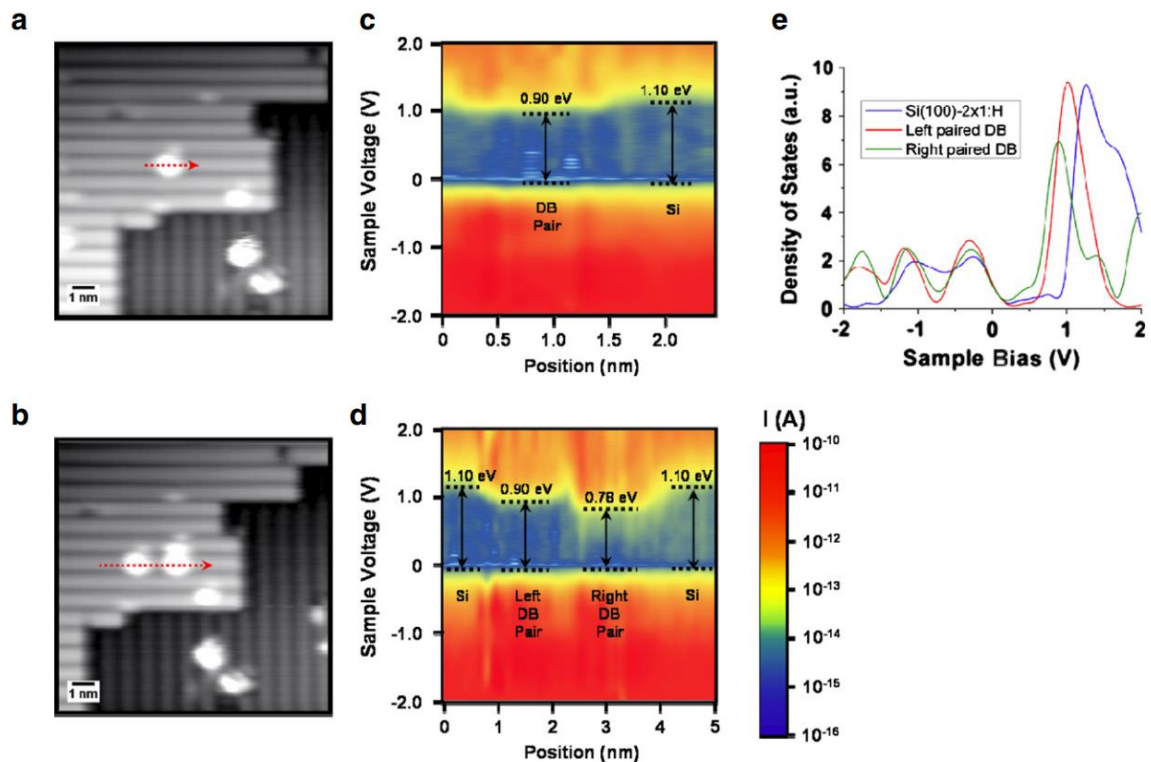


Рис. 5. (а) STM-топографическое изображение парного ОС, полученное путем удаления двух атомов водорода из одного и того же димера Si. (б) STM-топографическое изображение кластера ОС, сформированного справа от парного ОС на (а). (с) Логарифмическая карта I–V спектров, полученная для парной базы данных, как указано красной пунктирной стрелкой в (а). (d) Логарифмическая карта I–V спектров, полученная для обеих парных баз данных в (б) вдоль красной пунктирной стрелки. (е) Спектр DOS-V как для парных ОС, так и для подложки Si в (б).

Суммарно, были исследовали латеральный распад состояний ОС вокруг непарного ОС. Длина распада анизотропна для Si(100) поверхность. Состояние, близкое к средней щели, непарного ОС распадается на  $\sim 1,9$  нм на соседние атомы Si вдоль ряда димеров Si, в то время как состояния ОС исчезают на  $\sim 1,4$  нм поперек рядов димеров Si, и моделирование согласуется с этими экспериментальными значениями. С увеличением взаимодействий в направлении димерного ряда длина затухания непарного провода ОС увеличивается до  $\sim 2,5$  нм в направлении димерного ряда Si, в то время как длина затухания в направлении, перпендикулярном димерному ряду, составляет сравнимо с непарным ОС. Мы также продемонстрировали, что непарный ОС может нарушать электронные свойства соседнего парного ОС, уменьшая ширину запрещенной зоны парного ОС с 0,90 эВ до 0,78 эВ. Другой спаренный ДБ на расстоянии 1,9 нм от непарного ДБ остается невозмутимым.

Способность определять расположение легирующих примесей фосфора в кремнии имеет решающее значение [4] для проектирования, моделирования и анализа наноразмерных устройств на основе атома для будущих приложений квантовых вычислений. Мы определяем эффекты, которые играют решающую роль в моделировании STM-изображений и должны быть точно смоделированы для STM-визуализации скрытых примесей и кластеров с несколькими примесями для получения надежной информации о местоположении. Были продемонстрированы, что метрология, сочетающая STM-визуализацию с моделированием плотной связи, может привести к выраженной неопределенности из-за орбитальной модели наконечника, эффектов оборванных связей и выбора локальной атомной основы для представления плотной связи.



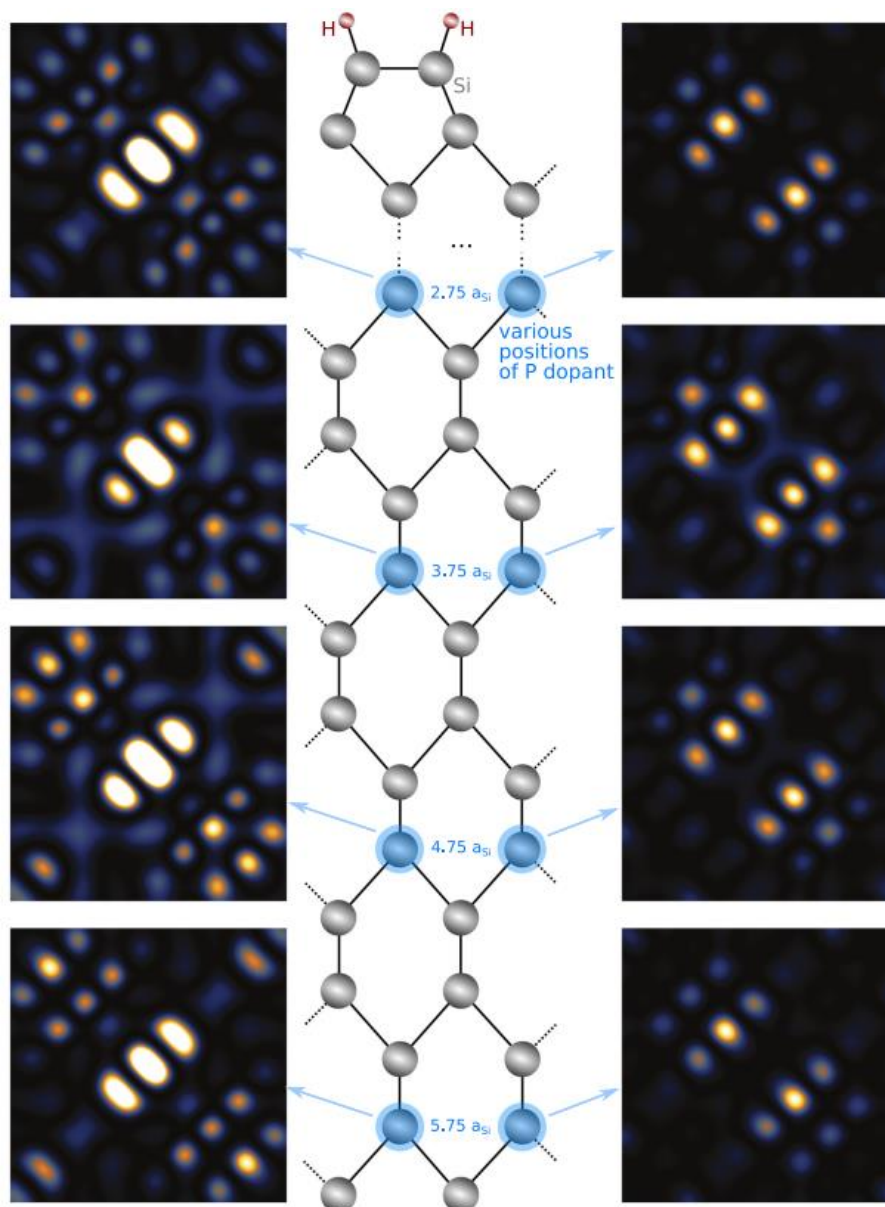


Рис. 6. Смоделированные изображения STM для различных местоположений примесей. На всех изображениях используется одно и то же общее состояние наконечника. Каждое изображение независимо нормализовано, чтобы выделить изменения относительной интенсивности элементов на каждом изображении вместо общего уменьшения интенсивности, зависящего от глубины.

Были даны краткое описание результатов исследований [5], полученных в экспериментах, посвященных выяснению механизмов электропроводности поверхностных фаз на кремнии. Исследования проводились в условиях сверхвысокого вакуума с использованием дифракции электронов низкой энергии, сканирующей туннельной микроскопии и метода измерения удельного сопротивления с помощью четырехточечного зонда. Влияние морфологии поверхности и, в частности, плотности островков адсорбата на электрическое сопротивление

электропроводность для такой поверхности показана на примере субмонослойных систем  $\text{In/Si}(100)c(4 \times 12)\text{-Al}$  и  $\text{Al/Si}(100)c(4 \times 12)\text{-Al}$ , взятых в качестве примеров. Кроме того, представлены результаты исследований анизотропии электропроводности поверхностных фаз  $\text{Si}(111)\sqrt{3} \times \sqrt{3}\text{-In}$  и  $\text{Si}(111)4 \times 1\text{-In}$ . Отмечено влияние кристаллической структуры поверхностных фаз на проводящие свойства таких систем.

Поверхность кремния (111), закаленная при высоких температурах, была исследована [6] методами атомно-силовой микроскопии (АСМ), сканирующей туннельной микроскопии (СТМ) и отражательной электронной микроскопии (РЭМ). Показано, что треугольные отрицательные островки глубиной менее ангстрема наблюдались на кремнии (111) после закалки. Предполагается, что образование поверхностных вакансий во время  $(1 \times 1) \Rightarrow (7 \times 7)$  поверхностного фазового перехода отвечает за образование отрицательных островков.

В рукописи [7] об исследовании одиночных оборванных связей (ОС) на поверхности кремния с водородной связью (100) с использованием низкотемпературного сканирующего туннельного микроскопа (LT-STM). Исследуя образцы, полученные при различных температурах отжига, мы установили критическую роль подповерхностных примесей мышьяка в электронных свойствах ОС. Мы показываем, что когда приповерхностная концентрация легирующих примесей снижается в результате кратковременного отжига при температуре  $1250^\circ\text{C}$ , отдельный ОС демонстрирует резкий скачок проводимости в своей  $I(V)$  спектроскопии, который не обусловлен эффектом плотности состояний, а скорее соответствует Переход БД в состояние заряда. Положение напряжения этого перехода идеально коррелирует с зависящими от смещения изменениями в STM-изображениях БД при различных состояниях заряда. Расчеты по теории функционала плотности (DFT) дополнительно подчеркивают роль подповерхностных примесей в свойствах ОС, демонстрируя влияние расстояния между ОС и легирующей добавкой на состояние ОС. Мы обсуждаем возможные теоретические модели электронного переноса через ОС, которые могли бы объяснить наши экспериментальные наблюдения.

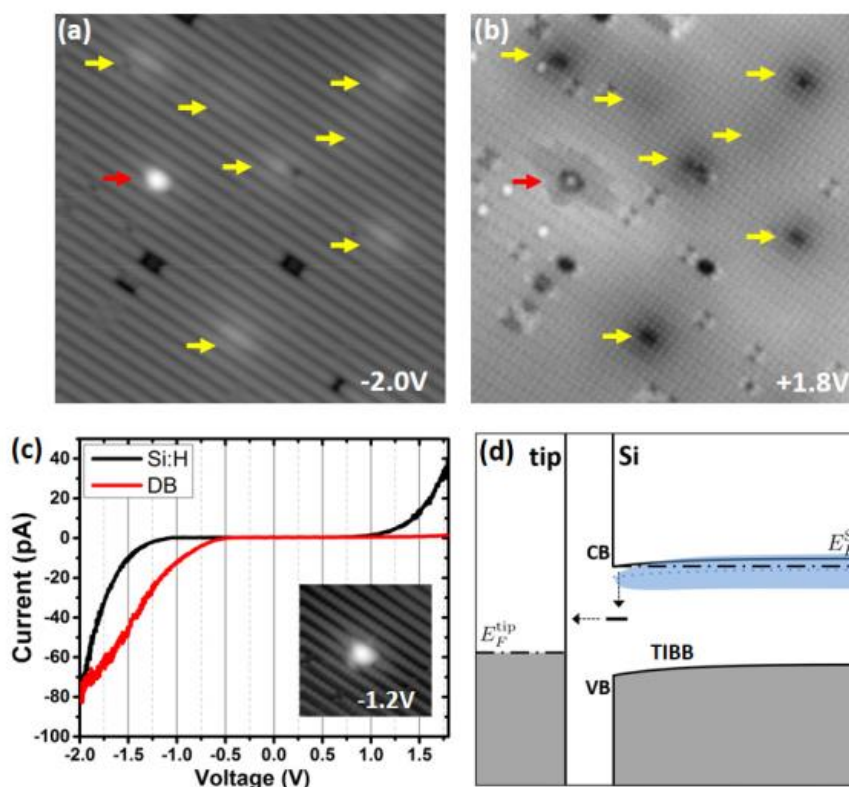


Рис. 7.  $(20 \times 20)$  нм<sup>2</sup> при постоянном токе (30 пА) заполненное состояние (а) и пустое состояние (б) STM-изображения поверхности Si(100): H -  $2 \times 1$  образца, обработанного вспышкой при 1050°C. Желтые стрелки указывают на подповерхностные примеси (As), в то время как красная стрелка указывает на единственный DB. (с) I(V) спектроскопия, полученная на единичном DB (красная кривая) и поверхности Si:H (черная кривая). Вставка на (с) показывает изображение STM с постоянным током, на котором одиночный DB выглядит ярким при -1,2 В. (d) Схематическая диаграмма энергетического диапазона, показывающая механизм туннелирования через DB в случае высоколегированного образца при 1050°C. Штрих-пунктирные линии представляют уровни Ферми наконечника и образца,  $E_F^{tip}; Si$ . Заштрихованная синяя область указывает на образование донорной полосы, которая сливается с зоной проводимости.

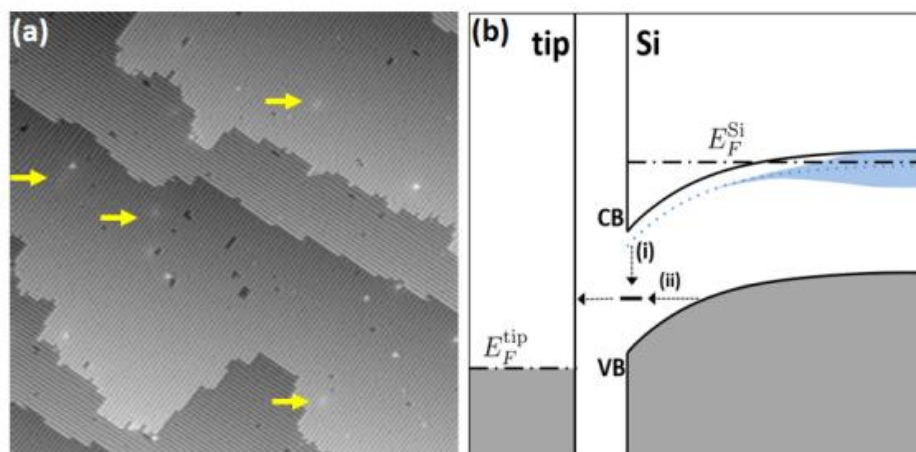


Рис. 3. (а)  $(80 \times 80)$  нм<sup>2</sup> изображение STM с постоянным током (40 пА) в заполненном состоянии при  $-2:0$  В. Желтыми стрелками указаны подповерхностные примеси. (б) Схематическая диаграмма энергетического диапазона, показывающая возможную динамику во время STS ДБ в занятых состояниях для образца, разогретого до  $1250^\circ\text{C}$ . Штрихпунктирные линии представляют уровни Ферми наконечника и образца, тип ссылки; Si, а синяя пунктирная линия представляет энергию связанного состояния донора. Заштрихованная синяя область указывает на образование донорной полосы, которая сливается с СВ. Римские цифры обозначают процессы, которые извлекают или инжектируют электроны из значения DB. Energies и TIBV преувеличены для наглядности.

Электросиловая микроскопия (EFM) и визуализация поверхностного потенциала (SP) - это два метода АСМ, которые характеризуют материалы по электрическим свойствам [8]. Проводящий наконечник АСМ взаимодействует с образцом посредством кулоновских сил дальнего действия. Эти взаимодействия изменяют амплитуду и фазу колебаний кантилевера АСМ, которые регистрируются для создания изображений EFM или SP (см. Резонансный сдвиг, стр. 8). На изображении EFM (рис. 1) фаза, частота или амплитуда колебаний кантилевера нанесены на график в каждой плоскости (X,Y) координаты. Эта фаза, частота или амплитуда связаны к градиенту электрического поля между наконечником и образцом. На изображении SP (рис. 2) показаны изменения поверхностного потенциала на образце. АСМ-наконечник, переносящий напряжение, также позволяет производить электрическую модификацию материалов на поверхности или под ней, как показано на рисунках 1 и 10. EFM используется для отображения вертикального (Z) и почти вертикального градиента электрического поля между наконечником и образцом в зависимости от координат в плоскости X и Y. Это делается с помощью LiftModeTM (см. стр. 8). Поле из—за захваченных зарядов - на образце или под ним поверхность — часто достаточно велика для создания контраста на изображении EFM. В противном случае можно создать поле, приложив



напряжение между наконечником и образцом. Напряжение может подаваться непосредственно от электроники микроскопа под управлением программного обеспечения АСМ или от внешнего источника питания с соответствующими токоограничивающими элементами. EFM выполняется в одном из трех режимов: определение амплитуды, определение фазы или приложения включают анализ электрических сбоев, обнаружение захваченных зарядов, количественную оценку контактной разности потенциалов (CPD) между металлами и/или полупроводники, отображение относительной силы и направления электрической поляризации, проверка электрической непрерывности и выполнение электрического считывания/записи.

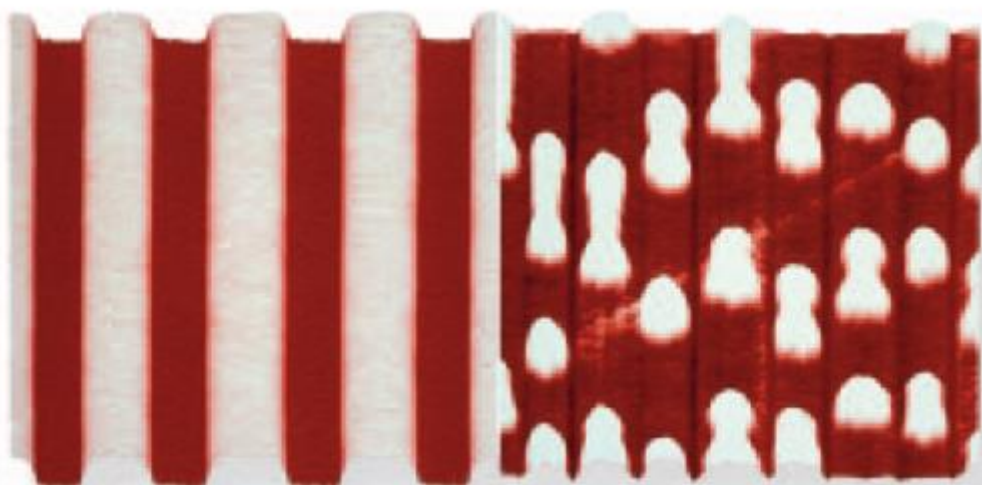


Рис 8. Топография (слева) и SP-изображение (справа) CD-RW. На SP-изображении указано положение битов. Изображения любезно предоставлены Ясуо Итикавой, Tokyo Corporation, Токио, Япония. сканы размером 5 мкм.а.в.

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## **О МЕТОДАХ И ИНСТРУМЕНТАХ АНАЛИЗА БОЛЬШИХ ДАННЫХ**

*Аннотация. В статье рассматриваются вопросы использования технологии Big data для обработки, хранения и использования больших данных. Также рассмотрены методы и инструменты искусственного интеллекта и машинного обучения. Наряду с этим перечислены методы обработки структурированной и неструктурированной информации, а также инструментарий больших данных. Представлено современное состояние и тенденции развития технологий Big Data в предприятиях.*

*Ключевые слова. Искусственный интеллект, машинное обучение, Big data, 3V модель данных, нейронные сети.*

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## **ABOUT METHODS AND TOOLS FOR BIG DATA ANALYSIS**

*Annotation. In this article the Big data technologies and the process of storing and using big data with AI and ML are discussed. Methods and tools of artificial intelligence and machine learning are also considered. Along with this, the methods for processing structured and unstructured information, as well as big data tools, are listed. The current state and development trends of Big Data technologies in enterprises are presented.*

*Keywords. Artificial intelligence, machine learning, Big data, 3V data model, neural networks*

### **Введение**

С интенсивным развитием Интернета и цифровых технологий во всем мире все более возникают вопросы обработки накапливаемых электронных данных. В современном этапе поиск и совершенствование методов и средств эффективной обработки накопившихся данных в финансовых и бизнес структурах становятся все более актуальными.

Необходимо отметить что, термин Big Data появился в 2008 году. Впервые его употребил редактор журнала Nature - Клиффорд Линч. Он рассказывал про взрывной рост объемов мировой информации и отмечал, что освоить их помогут новые инструменты и более развитые технологии. С увеличением генерации и накопления объема данных остро возникло вопрос их обработки и систематизации.

Big Data – это концепция обработки, анализа и интерпретации огромных массивов данных, которые невозможно обработать с помощью традиционных методов. Например в банковской и финансовой сфере они представляют собой информацию о клиентах, транзакциях, кредитных историях, а также о киберинцидентах и т.д.

Big data – это совокупность структурированных, неструктурированных и полуструктурированных данных, генерируемые из различных источников данных, такие как информационные системы, ресурсы и порталы, поисковые системы (Google, Yandex, Yahoo и др.), веб сайты, социальные сети (Facebook, Twitter, LinkedIn и др.), сенсорные датчики и автоматизированные системы управления производством (IoT, AI и др.) и другие. (1)

Большие данные (Big Data) стали неотъемлемой частью банковской, финансовой и социальной сферы, поскольку позволяют им принимать более обоснованные решения, основанные на анализе данных. Они помогают предсказывать поведение клиентов, выявлять мошеннические действия, а также снижать операционные издержки и повышать эффективность их деятельности.

Применение современных технологий анализа данных позволяет им привлечь и удерживать клиентов, увеличить прибыль и обеспечить безопасность операций.

Для решения подобных задач, анализа больших данных (Big Data) на сегодняшний день широко стали применять различные инструменты и методы, в частности искусственный интеллект (*на англ. Artificial Intelligence, сокр. AI*) и машинное обучение (*на англ. Machine Learning, сокр. ML*). Они стали главными инструментами в обработке больших потоков данных.

В качестве определяющих характеристик для больших данных традиционно выделяют «3V»: объём (Volume), скорость (Velocity), многообразие (Variety). Набор признаков 3V изначально выработан Meta Group в 2001 году вне контекста представлений о больших данных как об определённой серии информационно-технологических методов и инструментов, в нём, в связи с ростом популярности концепции центрального хранилища данных для организаций, отмечалась равнозначимость проблематик управления данными по всем трём аспектам. В дальнейшем появились интерпретации с «четырьмя V» (добавлялась veracity — достоверность, использовалась в рекламных материалах IBM), «пятью V» (в этом варианте прибавляли viability — жизнеспособность, и value — ценность), и даже «семью V» (кроме всего, добавляли также variability — изменчивость, и visualization) (2).

Учитывая разнородность, сложность и объём скапливаемой информации возникает необходимость правильной обработки и упорядочивание данных для того чтобы использовать их для принятия тех или иных решений. Существующие методы и инструменты сбора, анализа

и обработки больших данных можно структурировать данные для из последующей обработки (3,4,5).

### **Методы исследования**

Ниже рассматривается ряд инструментов и методов сбора и анализа структурированных и неструктурированных данных. В зависимости от области применения методы и инструменты различаются и имеют место предназначения.

Изначально в совокупность подходов и технологий Big Data включались средства массово-параллельной обработки неопределённо структурированных данных, такие как СУБД NoSQL, алгоритмы MapReduce и средства проекта Hadoop. В дальнейшем к технологиям больших данных стали относить и другие решения, обеспечивающие сходные по характеристикам возможности по обработке сверхбольших массивов данных, а также некоторые аппаратные средства.

MapReduce — модель распределённых параллельных вычислений в компьютерных кластерах, представленная компанией Google. Согласно этой модели, приложение разделяется на большое количество одинаковых элементарных заданий, выполняемых на узлах кластера и затем естественным образом сводимых в конечный результат.

NoSQL (от англ. Not Only SQL, не только SQL) — общий термин для различных нереляционных баз данных и хранилищ, не обозначает какую-либо одну конкретную технологию или продукт. Обычные реляционные базы данных хорошо подходят для достаточно быстрых и однотипных запросов, а на сложных и гибко построенных запросах, характерных для больших данных, нагрузка превышает разумные пределы и использование СУБД становится неэффективным.

Hadoop — свободно распространяемый набор утилит, библиотек и фреймворк для разработки и выполнения распределённых программ, работающих на кластерах из сотен и тысяч узлов. Считается одной из основополагающих технологий больших данных.

R — язык программирования для статистической обработки данных и работы с графикой. Широко используется для анализа данных и фактически стал стандартом для статистических программ.

### **Обсуждение**

**Аппаратные решения.** Корпорации Teradata, EMC и др. предлагают аппаратно-программные комплексы, предназначенные для обработки больших данных. Эти комплексы поставляются как готовые к установке телекоммуникационные шкафы, содержащие кластер серверов и управляющее программное обеспечение для массово-параллельной обработки. Сюда также иногда относят аппаратные решения для аналитической обработки в оперативной памяти, в частности, аппаратно-программные комплексы Hana компании SAP и комплекс Exalytics компании Oracle, несмотря на то, что такая обработка изначально не

является массово-параллельной, а объёмы оперативной памяти одного узла ограничиваются несколькими терабайтами.

*Справочно: Консалтинговая компания McKinsey, кроме рассматриваемых большинством аналитиков технологий NoSQL, MapReduce, Hadoop, R, включает в контекст применимости для обработки больших данных также технологии Business Intelligence и реляционные системы управления базами данных с поддержкой языка SQL, а также выделяет 11 методов и техник анализа, применимых к большим данным.*

Методы класса Data Mining (добыча данных, интеллектуальный анализ данных, глубинный анализ данных) — совокупность методов обнаружения в данных ранее неизвестных, нетривиальных, практически полезных знаний, необходимых для принятия решений. К таким методам, в частности, относятся обучение ассоциативным правилам (association rule learning), классификация (разбиение на категории), кластерный анализ, регрессионный анализ, обнаружение и анализ отклонений и др.

Краудсорсинг — классификация и обогащение данных силами широкого, неопределённого круга лиц, выполняющих эту работу без вступления в трудовые отношения

Смешение и интеграция данных (data fusion and integration) — набор техник, позволяющих интегрировать разнородные данные из разнообразных источников с целью проведения глубинного анализа (например, цифровая обработка сигналов, обработка естественного языка, включая тональный анализ, и др.)

Машинное обучение, включая обучение с учителем и без учителя — использование моделей, построенных на базе статистического анализа или машинного обучения для получения комплексных прогнозов на основе базовых моделей

Искусственные нейронные сети, сетевой анализ, оптимизация, в том числе генетические алгоритмы (genetic algorithm — эвристические алгоритмы поиска, используемые для решения задач оптимизации и моделирования путём случайного подбора, комбинирования и вариации искомым параметров с использованием механизмов, аналогичных естественному отбору в природе)

Имитационное моделирование (simulation) — метод, позволяющий строить модели, описывающие процессы так, как они проходили бы в действительности. Имитационное моделирование можно рассматривать как разновидность экспериментальных испытаний

Пространственный анализ (spatial analysis) — класс методов, использующих топологическую, геометрическую и географическую информацию, извлекаемую из данных

Статистический анализ — анализ временных рядов, A/B-тестирование (A/B testing, split testing — метод маркетингового исследования; при его использовании контрольная группа элементов

сравнивается с набором тестовых групп, в которых один или несколько показателей были изменены, для того чтобы выяснить, какие из изменений улучшают целевой показатель)

Визуализация аналитических данных — представление информации в виде рисунков, диаграмм, с использованием интерактивных возможностей и анимации как для получения результатов, так и для использования в качестве исходных данных для дальнейшего анализа. Очень важный этап анализа больших данных, позволяющий представить самые важные результаты анализа в наиболее удобном для восприятия виде.

### **Заключение**

Применение Big Data в экономике предоставляет компаниям уникальные возможности для оптимизации процессов, принятия обоснованных решений и улучшения клиентского опыта. Несмотря на определенные вызовы и препятствия, оно остается важным инструментом для современных компаний.

Таким образом, вышеуказанные технологии подразумевает работу с информацией колоссального объема и разнообразного состава, часто обновляемой и находящейся в различных источниках в целях увеличения эффективности работы, формирования новых сервисов, создания инновационных маркетинговых инструментов, продвижения продуктов и услуг, оптимизации расходов, улучшения точности прогнозирования и минимизации рисков, и, наконец, повышения конкурентоспособности бизнеса. Главное во всем этом правильно научиться использовать инструменты и методы сбора и обработки больших данных в зависимости от области их применения.

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## **ПУБЛИЧНАЯ ВЛАСТЬ В РОССИЙСКОЙ ФЕДЕРАЦИИ И ЕЕ ОРГАНИЗАЦИЯ**

*Аннотация. В данной статье рассмотрены основные проблемы несогласованности органов публичной власти. Главным образом рассматривается Конституция Российской Федерации и ее основной принцип – принцип разделения властей. Рассматривается проблема несбалансированности законодательной и исполнительной власти.*

*Ключевые слова: публичная власть, разделение властей, уровни власти, федерализм.*

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## **PUBLIC AUTHORITY IN THE RUSSIAN FEDERATION AND ITS ORGANIZATION**

*Annotation. This article discusses the main problems of inconsistency of public authorities. The Constitution of the Russian Federation and its main principle, the principle of separation of powers, are mainly considered. The problem of imbalance between legislative and executive power is considered.*

*Keywords: public power, separation of powers, levels of government, federalism.*

В Российской Федерации, согласно Конституции, принцип территориальности играет важную роль в организации публичной власти. Россия является федеративным государством, что подразумевает разделение властей на различных уровнях. Вертикальное разделение полномочий основано на принципе разграничения власти между уровнями государственной власти. Этот принцип также имеет горизонтальное значение, что означает его применение на одном уровне власти.



В федеративной форме российского государства, федерализм рассматривается как принцип конституционного строя и конституционно-правовая ценность, призванная обеспечить государственное и социокультурное единство многонационального российского народа. Федерализм в России может быть представлен как двухуровневая или трехуровневая система. Однако, применительно к России, такое разделение является спорным, учитывая некоторые особенности этой страны. В федеративных государствах, как правило, выделяют два уровня публичной власти - федеральный и уровень субъектов федерации.

Осуществление публичной власти в России происходит на различных уровнях. Центральные органы государственной власти отвечают за федеральный уровень, а субъекты федерации, образующие политико-территориальную структуру Российской Федерации, занимаются региональным уровнем. Однако природа третьего уровня публичной власти, а именно муниципального, неоднозначна согласно научным определениям. В то же время, Конституция Российской Федерации предоставляет основание для того, чтобы считать, что федерализм в России представляет собой систему власти, состоящую из двух уровней.

В системе публичной власти в России, при более глубоком изучении, можно заметить, что институты местного самоуправления гармонично вписываются, хотя и с некоторыми особенностями. Конституционный Суд Российской Федерации впервые затронул вопрос муниципального уровня публичной власти в своей судебной практике в 1998 году, используя понятия «местная публичная власть» и «публичная власть на местах, осуществляющая функции самоуправления». Конституционный Суд Российской Федерации более подробно рассматривал данную тему.

Главный судья Конституционного Суда Российской Федерации пришел к выводу, что местное самоуправление является третьим уровнем российского федерализма. Он утверждает, что субъекты Российской Федерации представляют собой форму децентрализации всего государства, а муниципальные образования внутри этих субъектов представляют собой еще большую степень децентрализации.

Таким образом, российский федерализм можно разделить на три уровня публичной власти: федеральный, региональный (субъекты Российской Федерации) и местный (муниципальный). Федеральный и региональный уровни считаются государственной властью.

Государственная власть, согласно ст. 12 Конституции Российской Федерации, не включает в себя органы местного самоуправления. Однако, М.Н. Марченко подчеркивает, что государственная власть является разновидностью общественной власти, которая осуществляется либо самим государством, либо с его санкции. Права и Д.М. Ильягуева утверждают, что независимость местного самоуправления от органов государственной

власти имеет условный и декларативный характер, так как каждое цивилизованное государство устанавливает рамки для него.

В России горизонтальное разделение власти основано на принципе распределения полномочий между властными субъектами в соответствии с дифференциацией власти на законодательную, исполнительную и судебную. Организация публичной власти в России по горизонтали вызывает много вопросов, связанных с принципом разделения властей. Также следует отметить, что в современной России имеется дисбаланс между тремя ветвями власти, несмотря на то, что принцип разделения властей формально закреплен в Конституции Российской Федерации.

В Конституции Российской Федерации можно заметить гипертрофированный принцип разделения властей, как указал Н.И. Матузов [9]. Его точка зрения основывается на условном разделении власти на ветви с единым стволом и корнями, представляющими волю народа. Однако в России такое единство трех ветвей власти минимизировано, что приводит к разобщенности в проведении правовой политики [7] и конфронтации между законодательными и исполнительными структурами.

Когда говорят о противоречиях между объемом и содержанием полномочий ветвей государственной власти, обычно имеется в виду противостояние между законодательной и исполнительной властью. В настоящее время законодательная власть находится в прямой и сильной зависимости от Президента Российской Федерации.

Глубокие корни и противоречия, связанные с несбалансированностью законодательной и исполнительной власти в России, закладываются не только в законодательных положениях, но и в практике их реализации. Фактическое доминирование исполнительной власти и ее большое влияние на Президента Российской Федерации являются основными проблемами организации публичной власти в России. В этой связи, одной из острых проблем является неопределенность места и роли Президента в системе разделения властей.

Вопрос о форме правления в конкретном государстве оказывает большое влияние на реализацию и выражение принципа разделения властей. Чаще всего глава государства находится вне всех ветвей власти или одновременно входит в законодательную и исполнительную власти, а иногда только в исполнительную.

Из-за неопределенности конституционного положения Президента Российской Федерации в системе разделения властей нет единства мнений о форме правления в России. Конституция Российской Федерации устанавливает республиканскую форму правления. Однако в научном сообществе нет единого мнения о том, какой вид республики является Россия, особенно учитывая сильную президентскую власть в стране.

В России, при анализе формы правления, особое внимание уделяется президентской власти, поскольку она проявляется более ярко, чем другие.

После внесения поправок в Конституцию Российской Федерации в 2020 году, президенту страны фактически присваивается главенствующая роль в исполнительной власти.

Подводя итог, можно отметить, что организация публичной власти в современной России сопровождается рядом проблем и противоречий. Проблемы неопределенности места муниципальной власти в системе публичной власти страны отражаются в организации публичной власти по вертикали [5].

В горизонтальной организации публичной власти возникают множество проблем, связанных с дисбалансом между тремя ветвями власти. Кроме того, неясно, какое место занимает Президент Российской Федерации в системе разделения властей, и несоответствие между конституционно закрепленным статусом Президента и его реальной властью. Мы считаем, что с учетом норм действующей Конституции Российской Федерации, Россия может быть смело названа президентской республикой.

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## **ФИНАНСОВЫЙ РЫНОК РОССИИ: ФОРМИРОВАНИЕ И ОСОБЕННОСТИ РАЗВИТИЯ В УСЛОВИЯХ ПРИМЕНЕНИЯ САНКЦИЙ**

*Аннотация. Статья содержит определение сущности финансового рынка России. Раскрыты особенности финансовой сферы и приведены пути решения возникших проблем в условиях применения к России международных экономических санкций.*

*Ключевые слова: финансовые рынки, санкции, антикризисные меры, курс рубля, экономическое развитие.*

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## **FINANCIAL MARKET OF RUSSIA: FORMATION AND FEATURES OF DEVELOPMENT UNDER THE APPLICATION OF SANCTIONS**

*Abstract. The article contains a definition of the essence of the Russian financial market. The features of the financial sector are revealed and ways to solve the problems that have arisen in the context of the application of international economic sanctions against Russia are given.*

*Keywords: financial markets, sanctions, anti-crisis measures, ruble exchange rate, economic development.*

Финансовый рынок выполняет одну из важнейших функций для экономики государства, которая заключается в распределении временно свободных денежных средств между субъектами экономических отношений, которое для развития экономики должно быть эффективным.

По мнению Рябичевой О.И., финансовым рынком является глобальная мировая структура по обеспечению различных институтов финансовыми средствами. Финансовый рынок в целом, с точки зрения экономики, является средством распределения, а затем уже использования денежных средств [5].

Как считает Мисько О.Н., российская экономика в данный момент находится в уникальном положении. С одной стороны, санкции, применяемые в отношении к нашему финансовому сектору, являются беспрецедентными по своему размаху и срокам действия. Конечно, они наносят значительный ущерб финансовым институтам, экономическим субъектам, юридическим и физическим лицам, государственным институтам. В настоящий момент все испытывают влияние санкций, но, безусловно, в разной степени.

При этом, с другой стороны, эти же санкции создают для экономики в целом и для финансового сектора в частности, значительные возможности для развития, поиска новых путей и инструментов реализации экономической политики, достижения новых параметров состояния отечественной экономики и финансовой сферы, запуска новых проектов и точек экономического роста.

Одной из ключевых проблем, волнующих всех участников рынка, безусловно является курс рубля и размер ставки рефинансирования Центрального банка. Результаты опросов стали достаточно интересными, требующими глубокого анализа. Для национального финансового сектора определение бинарной пары «курс — ставка» является основной задачей. Исходя из того, насколько правильно она будет определена, зависят многие показатели состояния и развития нашей экономики [2].

Опрос показал, что отечественные производители хотят курс в районе 70-90 рублей за доллар, а ставку 5-7 %, все это говорит о том, что экспортеры желают зарабатывать на экспорте больше доходов, и кредитоваться под более низкий процент, который позволил бы им осуществлять инвестиционные проекты. В этом случае в проигрыше оказывается население, которое явно не в полном составе работает на экспортных предприятиях, так как понижение курса рубля — это путь к инфляции, а низкие ставки — невозможность защитить свои сбережения от обесценения.

В связи с этим возникает вопрос: Что для нас сейчас важнее? Зарабатывать на ситуации вокруг рынков энергоносителей, продовольствия и сырья, или ударными темпами финансировать стартапы, промышленные



проекты, все, что связано с импортозамещением и созданием новейшей индустриальной модели?

В ответ на это правительство объявило о пакете антикризисных мер, которые включают введение механизма субсидирования процентной ставки по кредитам организациям торговли, получаемым на формирование запасов продуктов питания и товаров первой необходимости, а также застройщикам в рамках проектного финансирования; предоставление кредитным организациям возможности временного неухудшения оценки качества обслуживания долга; предоставление отсрочки по налоговым платежам отраслям, пострадавшим от ухудшения ситуации; расширение программы субсидирования доступа субъектов малого и среднего бизнеса к заемным средствам и возможности реструктуризации ранее выданных кредитов и многое другое.

Также, в декабре 2022 года Банком России были одобрены основные направления развития финансового рынка Российской Федерации на 2023 год и плановый период 2024-2025 годов который включает в себя следующие цели:

1. Развитие современного финансового рынка для удовлетворения потребностей российской экономики в инвестициях для структурной трансформации, а также в эффективных платежных механизмах.

2. Укрепление доверия розничного потребителя и инвестора к финансовому рынку через усиление его защищенности, повышения финансовой грамотности расширения доступности финансовых услуг для граждан и бизнеса.

3. Обеспечение финансовой стабильности – бесперебойного функционирования финансового рынка [4].

Все это говорит о том, что руководство страны всячески старается помочь всем сферам деятельности, показывая важность обоих направлений, указанных ранее, но при этом, как считает Глазьев С.Ю., вся разумность и, возможно, эффективность для отдельных сегментов экономики данных мер, не затрагивают фундаментальных причин уязвимости России от мирового кризиса и американской агрессии. Главная из них заключается в полной открытости российской финансовой системы для атак валютных спекулянтов и подчинении денежно-кредитной политики их интересам. Без приведения политики Банка России в соответствие с требованиями национальной безопасности конституционными обязанностями обеспечения устойчивости рубля и целями опережающего развития экономики усилия президента и правительства окажутся тщетными [1].

Реализация изложенной выше стратегии опережающего экономического развития предполагает кардинальное повышение ответственности федеральных органов исполнительной власти за уровень и качество жизни граждан.

При любом сценарии дальнейшего развертывания глобального кризиса Россия должна сохранять возможность самостоятельной политики и влияния на глобальную ситуацию. Наличие надежного природно-сырьевого и оборонного потенциала дает нам для этого объективные возможности. Даже при катастрофическом сценарии глобального кризиса Россия имеет необходимые ресурсы не только для самостоятельного выживания, но и для опережающего развития. Поэтому в международных инициативах необходимо ориентироваться исключительно на собственные интересы, бесповоротно отказаться от прежней политики кредитования США и других стран НАТО и следования у них на поводу. При самых плохих сценариях глобального кризиса, проводя политику в собственных интересах, Россия сможет улучшить свое положение в мировой экономике.

Исходя из всего вышеизложенного следует, что Российской Федерации, которая подверглась масштабным санкциям в принципе и в финансовой сфере в частности, приходится очень непросто, но при максимально эффективной реализации предложенных правительством мер, возможно предотвратить те последствия, которые могут привести к куда более масштабным проблемам, в сравнении с уже имеющимися.

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## **ҚИШЛОҚ ХЎЖАЛИГИНИ ДАВЛАТ ТОМОНИДАН ТАРТИБГА СОЛИШ ТИЗИМИНИ ШАКЛЛАНТИРИШНИНГ АСОСИЙ ТЕНДЕНЦИЯЛАРИ**

*Аннотация. Мақолада иқтисодиётни самарали давлат томонидан тартибга солиш масаласи, қишлоқ хўжалиги тармоғида давлат томонидан ишлаб чиқарувчиларини қўллаб-қувватлаш механизми билан боғлиқ мураккаб жараён баён қилинган. Мазкур масала юзасидан иқтисодчи олимларнинг зоялари, фикр ва мулоҳазалари, шунингдек, мақолада “давлат томонидан тартибга солиш” тушунчасини таққослама таснифи келтирилган. Қишлоқ хўжалиги ишлаб чиқаришини давлат томонидан тартибга солиш концепция сифатида тармоқ хусусиятини акс эттириши, қишлоқ хўжалигининг ўзига хос хусусиятлари очиб берилган.*

*Калит сўзлар: давлат, иқтисодиётни давлат томонидан тартибга солиш, инвестиция, бозор мунособатлари, давлат томонидан қўллаб-қувватлаш.*

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## **THE MAIN TENDENCIES OF FORMING THE SYSTEM OF STATE REGULATION OF AGRICULTURE**

*Abstract. The article describes the issue of effective state regulation of the economy, a complex process related to the mechanism of state support for producers in the agricultural sector. The ideas, opinions and opinions of economists on this issue, as well as a comparative classification of the concept of "regulation by the state" are presented in the article. State regulation of agricultural production as a concept reflects the nature of the network, specific characteristics of agriculture are revealed.*

*Key words: state, state regulation of the economy, investment, market relations, state support.*

**Кириш.** Иқтисодиётни самарали давлат томонидан тартибга солиш масаласи ҳар доим назариясида ҳам, уни амалга ошириш амалиётида ҳам

энг қийин соҳалардан бири ҳисобланган. Кўпгина тадқиқотчилар ушбу иқтисодий ҳодисанинг муҳим жиҳатларини - давлат аралашуви, иқтисодий жараёнларни давлат томонидан тартибга солиш кабиларни ўрганишга ҳаракат қилганлари ва ҳозирда ҳам тадқиқ қилишлари бежиз эмас.

Сўнги йилларда Ўзбекистон қишлоқ хўжалиги барқарор ва рақобатбардош ривожланиш траекториясига интилмоқда. Ўзбекистон Республикаси Президентининг 11.09.2023 йилдаги ПФ-158-сонли Фармони билан тасдиқланган “ЎЗБЕКИСТОН — 2030” стратегиясида Қишлоқ хўжалигида ҳосилдорлик ва рентабеллик даражасини кескин ошириш – мақсад қилиб олинган. Унга кўра, аграр соҳага жами 15 миллиард доллар инвестицияларни жалб қилиш орқали қишлоқ хўжалигини давлат томонидан тартибга солиш ва соҳада кўзланган мақсадлар учун молиявий қўллаб-қувватлашнинг аниқ параметлари белгиланган [1].

**Методлар ва тадқиқотлар.** Таҳлил давомида статистик таҳлил, синтез, индукция, дедукция, статистик гуруҳлаш, эксперт баҳолаш ва илмий абстракция ҳамда регрессив таҳлил усулларида фойдаланилди.

**Тадқиқот ва натижалар.** Мазкур масала узоқ йиллар давомида иқтисодчи олимларнинг диққат марказида бўлган ва турли илмий мактаблар ва йўналишлар амалиётчиларнинг ўзаро кескин, зиддиятли қарашлари, ёндашувларининг тадрижий кураши асосида шаклланган. Иқтисодиёт ривожланишида давлатнинг роли масаласида ҳозирги замон иқтисодиёти назарияси асосчилари ҳисобланган олимлар А.Смит (1723-1790) ва Д.Рикардо (1772-1823)ларнинг қарашлари давлатнинг ҳар қандай аралашуви натижада иқтисодий тараққиётни секинлаштиради, деган фикрлар билан изоҳланади. Масалан, А.Смит ғояси қуйидагича: «Бозор иқтисодиёти ўзини-ўзи бошқаришга мослашган, унинг асосида кўпроқ фойда олишга ҳаракат қилиш билан боғлиқ «кўринмас қўл», яъни шахсий манфаат ётади». А.Смит хулосасига кўра, иқтисодиётни тартибга солишда давлат аралашуви камайтирилса, иқтисодиёт самарали амал қилади ва бозор бутунлай эркин бўлиши зарур [2], деб таъкидлайди.

Энди бевосита қишлоқ хўжалиги тармоғида давлат томонидан ишлаб чиқарувчиларини қўллаб-қувватлаш механизми билан боғлиқ бундай мураккаб мавзунини тадқиқ қилишга ўтсак, соҳани давлат томонидан тартибга солиш тизимида биз биринчи навбатда иқтисодиётни давлат томонидан тартибга солиш тушунчасининг ўзига аниқлик киритишга, бу соҳадаги етакчи олимларнинг нуқтаи назарини тушунишга ҳаракат қиламиз.

Шундай қилиб, ўзбек изоҳли луғатида давлат тушунчаси қуйидагича таъриф берилади: “Ўзбекистон фуқароларининг ижтимоий-сиёсий ҳуқуқларини ҳимоя қилувчи, бунга қарши турувчи кучларни қаршилигини синдирувчи, ҳокимият органлари ва сиёсий ташкилотлар тизимига эга бўлган мустақил мамлакат” [3] ”таниқли рус тилининг изоҳли луғати давлат тушунчасини жамиятнинг асосий сиёсий ташкилоти, унинг бошқарувини

амалга оширадиган ва унинг иқтисодий ва ижтимоий тузилишини ҳимоя қилувчи сифатида белгилайди.

Ўзбекистон Миллий энциклопедиясида “давлат –мамлакат миқёсида жамиятни уюштириш масалаларини ҳал қилиш, унинг ташқи муносабатларини белгилаш ваколатлари бўлган ҳукмрон тузилма. Давлат жамиятни ўз қонун-қоидаларига кўра идора қилади, турли тип, шаклларда ташкил топади” [4].

Институционал ёндашувга мувофиқ унинг асосий моҳиятини “трансакция харажатлари” категориясидан фойдаланган ҳолда Д.Норт қуйидагича таърифлайди, “давлат –зўрликни амалга оширишда қиёсий устунликларга эга бўлган, чегаралари унинг фуқароларга солиқ солиш қобилияти билан белгиланган жуғрофий ҳудудни қамраб олувчи ташкилот” [5]. Бинобарин, давлат томонидан тартибга солиш, энг аввало, давлатнинг жамият манфаатлари йўлида унинг мавжудлиги, намоён бўлишининг турли соҳаларида мақсадли фаолиятидир.

Шундай қилиб, машхур Б. А. Раизберг, Л. Ш. Лозовский ва Е. Б. Стародубцеванинг “Замонавий иқтисодий луғати” [6] иқтисодиётни давлат томонидан тартибга солишни “... давлат органлари томонидан ифодаланган давлатнинг иқтисодий объектлар ва жараёнларга таъсири ҳамда уларда иштирок этувчи шахслар манфаатлари, жараёнларга уюшқоқлик тус бериш, хўжалик юритувчи субъектлар фаолиятини тартибга солиш, қонун ҳужжатларига, давлат ва жамият талабларига риоя этилишини таъминлаш мақсадида амалга оширилади”.

Уларнинг фикрича, давлат томонидан тартибга солиш сўзнинг кенг маъносида “...прогнозлаш, режалаштириш, молиялаштириш, бюджетлаштириш, солиққа тортиш, кредитлаш, маъмуриятчилик, ҳисобга олиш, назорат қилиш”ни ўз ичига олади.

Нуфузли олимларнинг фикрича, давлат томонидан тартибга солиш марказлашган иқтисодиётда ҳам, бозор иқтисодиётида ҳам содир бўлади, лекин тартибга солиш шакллари сезиларли даражада фарқланади. Масалан, марказлашган иқтисодиётни кўриб чиқсак, у директив режалаштириш ва бошқарувга эътибор беради, лекин бозор иқтисодиёти аллақачон бюджетлаштириш, солиққа тортиш, шунингдек, кредитлаш, давлат харидлари ва қонунчилик такомиллашуви билан изоҳланади.

Бозор муносабатлари шароитида давлат томонидан тартибга солиш иқтисод жамият тараққиётининг объектив иқтисодий қонуниятларига ва энг аввало талаб ва таклиф қонунига, қиймат қонунига ва бошқаларга асосланади. Давлат томонидан тартибга солиш бозор тизимининг ишлаши учун ҳуқуқий асосни таъминлашга қаратилган бўлиб, унда ишлаб чиқарувчилар, етказиб берувчилар ва маҳсулот истеъмолчилари ўртасида ҳуқуқий ва самарали муносабатлар ўрнатилади.

Бошқа қарашлар ҳам мавжуд. Шундай қилиб, А. Б. Борисов [7] Катта иқтисодий луғатда давлат томонидан тартибга солишга ўзининг таърифини

бериб, уни давлат органлари томонидан ифодаланадиган давлатнинг иқтисодий объектлар ва жараёнларга ва уларда иштирок этувчи шахсларга таъсири сифатида белгилайди. У давлат томонидан тартибга солиш функциялари орасида қуйидагиларни ажратиб кўрсатади: ижтимоий-иқтисодий муносабатларга уюшган характер бериш, жараёнлар, хўжалик юритувчи субъектларнинг тартибли фаолият юритиши, қонунларга риоя этилишини таъминлаш, давлат ва жамият манфаатларини ҳимоя қилиш.

Хориж манбаларида масалан, Оксфорд расмли энциклопедиясида [8] давлат томонидан тартибга солиш давлат томонидан тегишли соҳада таклиф этилаётган фаолият қоидаларини белгиловчи қонунлар ва бошқа норматив-ҳуқуқий ҳужжатлар чиқариш орқали жамият ҳаётининг муайян соҳасини ташкил этишга давлатнинг мақсадли таъсири сифатида талқин этилади. Давлат томонидан тартибга солиш ва ушбу масала бўйича тегишли таърифларни соддалаштириш учун асосий муаллифларни аниқлаш учун биз махсус жадвал ишлаб чиқдик, унинг бир қисми қуйида келтирилган (1-жадвал).

**1 – жадвал. “Давлат томонидан тартибга солиш” тушунчасини таққослама таснифи**

<b>Аниқлаштириш</b>	<b>Манба</b>	<b>Таянч иборалар</b>	<b>Қисқа мазмун ва моҳияти</b>
Давлат томонидан тартибга солиш	Б. А. Райзберг, Л. Ш. Лозовский, Стародубцева Е.Б. Современный экономический словарь. – 5-е изд., перераб. и доп. – М.: ИНФРА-М, 2006.– С.80.	Давлат томонидан тартибга солиш, иқтисодий объектлар, таъсир доираси, жамоат манфаатлари	Давлат томонидан тартибга солиш давлат органларининг иқтисодий объектлар ва жараёнларга, уларда иштирок этувчи шахсларга таъсири орқали амалга оширилади. Бундан кўзланган мақсад хўжалик юритувчи субъектлар фаолиятини тартибга солиш, қонунлар, давлат ва жамият манфаатларига риоя этилишини таъминлашдан иборат [9].
Давлат томонидан тартибга солиш	Новый экономический словарь / под ред. А. Н. Азрилияна. – М.: Институт новой экономики, 2006. – С.734.	Давлат томонидан тартибга солиш, иқтисодий тартибга солиш, ижтимоий тартибга солиш.	Давлат томонидан тартибга солишда иқтисодий ва ижтимоий турларига ажратилиб кўрсатилган.
Давлат томонидан тартибга солиш	Беркинов Б.Б. Институционал иқтисодиёт. Ўқув қўлланма. 2-нашр, қайта ишланган. - Т.: Иқтисодиёт, 2013.-153-бет.	Давлатнинг иқтисодиётга аралашуви, иқтисодиётни тартибга солиш, иқтисодиёт субъектлари,	Давлатнинг жамиятманфаатларини кўзлаб, иқтисодиётга аралашуви ва уни тартибга солиши жараёнлари ва бунда давлат билан иқтисодиёт субъектлари ўртасида юзага келадиган



		сиёсий, ижтимоий-иқтисодий муносабатлар	сиёсий, ижтимоий-иқтисодий муносабатлар йиғиндиси ташкил этади [10].
Давлат томонидан тартибга солиш	Ҳ.П.Абулқосимов М.Ҳ. Абулқосимов С.Р. Топилдиев Иқтисодиётни давлат томонидан тартибга солиш Иқтисодиёт, 2019.	иқтисодиётни давлат томонидан тартибга солиш, давлатнинг иқтисодий сиёсати, иқтисодиётни ривожлантириш ва ижтимоий-иқтисодий жараёнлар	иқтисодиётни давлат томонидан тартибга солишга қаратилган давлатнинг иқтисодий сиёсати – давлатнинг иқтисодиётни ривожлантириш ва ижтимоий-иқтисодий жараёнларга таъсир этиш мақсадида бозор иқтисодиётининг амал қилиши учун қулай шароитларни яратишга қаратилган мақсадли чоратадбирлари йиғиндисидир [11].
Давлат томонидан тартибга солиш	Государственное регулирование экономики / Т. Г. Морозова, Ю. М. Дурдыев, В. Ф. Тихонов и др.; Под. ред. проф. Т.Г. Морозовой. – М.: ЮНИТИ-ДАНА, 2002. –255 с.	Иқтисодиётни тартибга солиш, давлат аралашуви ва иштироки, ижтимоий ва иқтисодий жараёнларга таъсир қилиш усуллари ва воситалари	Давлат томонидан тартибга солиш – бозор муносабатларини самарали шакллантириш мақсадида ижтимоий ва иқтисодий жараёнларга таъсир қилиш усуллари ва воситалари ёрдамида давлат аралашуви ва иштироки [12]
Давлат томонидан тартибга солиш	Экономика. – М.: Юристъ. А.С. Булатов. 1999.	Давлат томонидан тартибга солиш, иқтисодий жараёнлар, иқтисодий сиёсат.	Иқтисодиётни давлат томонидан тартибга солиш – “давлатнинг жамиятнинг иқтисодий ҳаётига ва у билан боғлиқ ижтимоий жараёнларга таъсир кўрсатиш жараёни бўлиб, бу жараёнда давлатнинг иқтисодий ва ижтимоий сиёсати муайян таълимотга асосланган ҳолда амалга оширилади”.
Давлат томонидан тартибга солиш	Бурханов А.Х. Қишлоқ хўжалиги иқтисодиёти. дарслик. “Зиё маатба-нашриёти”, 2022 йил 105- бет.	Давлат аралашуви, қишлоқ хўжалиги, ишлаб чиқариш.	Давлат аралашувисиз қишлоқ хўжалиги ишлаб чиқаришини тўғри даражада ушлаб туриш муаммосини ҳал қилиб бўлмайди [13].

Ҳозиргача иккита муҳим илмий мактаб мавжуд бўлиб, улардан бири йирик қишлоқ хўжалиги ишлаб чиқариши позициясида (академиклар В.

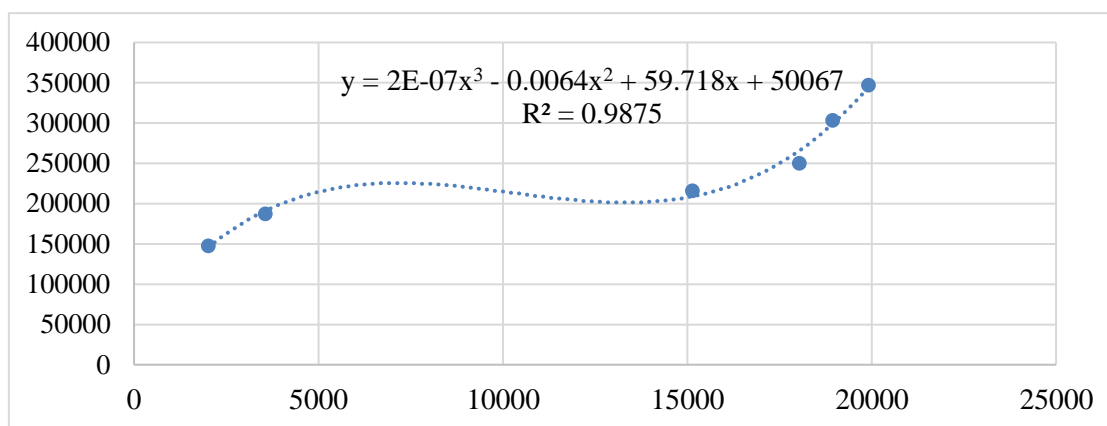
Добринин, В. Милосердов, Г. Беспяхотний ва бошқалар) [14], иккинчиси самарали деҳқон хўжалиги позициясини ҳимоя қилади (В.Башмачников, В. Узун, В. Тихонов ва бошқалар) [15]. Бу олимлар қишлоқ хўжалиги ўзига хос тармоқда бозор механизмлари иқтисодиёт реал секторининг бошқа тармоқларидаги каби тўлақонли фаолият юрита олмайди, деб ҳақли равишда таъкидлайдилар.

Академик В.В.Милосердов каби олимлар қишлоқ хўжалиги ишлаб чиқаришини давлат томонидан бошқаришнинг кўплаб вариантлари ва механизмларини таклиф қилди, бунда тармоқни бозор ривожланишининг самарали воситаларини инкор этди; маҳаллий қишлоқ хўжалиги ишлаб чиқаришини, агросаноат комплексининг асосий соҳаларини ривожлантиришга давлатнинг ўзига хос аралашуви сифатида баҳолайдилар [16]. А.Бурхановнинг фикрича, давлатнинг иқтисодиётга аралашуви аграр соҳадаги муносабатлар, энг аввало, ишлаб чиқарилаётган маҳсулотларга нарх сиёсатига бозор тамойилларини жорий этишда ўз аксини топиши керак [17] деб ҳисоблайди, ундан ташқари А.Бурханов қишлоқ хўжалигида инновацион фаолиятни ривожлантириш ташкилий масалаларни ривожланган давлатлар даражасида унга мотивация, стимул бериш, давлат томонидан қўллаб қувватлаш, бу борада фермер ва деҳқон хўжаликларини раҳбарлари ва мутахассисларини ўқитиш, малакасини ошириш, субсидия кўринишидаги имтиёзли кредит, солиқ имтиёзлари каби воситалардан фойдаланиб потенциал имкониятларни тўлиқ ишга солиш зарур [18] деб таъкидлайди.

Бозор муносабатлари шароитида 2017-2022-йилларда қишлоқ хўжалигида асосий капиталга қўйилган инвестициялардаги улуши шу даврда 9,9 баробарга ошди. Ушбу даврда қишлоқ хўжалиги ялпи маҳсулотининг умумий ҳажми 2,3 мартага ўсган ва 2022 йилда 347600 млрд. сўмни ташкил этган (1-жадвал).

**1-жадвал. Қишлоқ хўжалигига киритилган инвестициялар ва унда яратилган ялпи маҳсулот ҳажми**

йиллар	2017	2018	2019	2020	2021	2022
Қишлоқ хўжалигига киритилган инвестициялар, млрд. сўм.	2004,3	3561,1	15141	18025,5	18934,9	19900
Қишлоқ хўжалигида яратилган ялпи маҳсулот, млрд.сўм.	148199,3	187425,6	216283,1	250250,6	303415,5	347600



**1-расм. Қишлоқ хўжалигига киритилган инвестицияларнинг яратилган ялпи маҳсулотга боғлиқлигининг иқтисодий модели**

1-расмдаги моделдан кўришиб турибдики,  $R^2=0,9875$  қишлоқ хўжалигига киритилган инвестициялар ва қишлоқ хўжалигида яратилган ялпи маҳсулот ўртасида жуда кучли боғлиқликни кўрсатади. Бундан шундай хулоса келиб чиқадики, қишлоқ хўжалигига қанча кўп инвестиция киритилса, унинг самарасини қишлоқ хўжалигида яратилган ялпи маҳсулот ҳажми ўсишида намоён бўлади.

### Хулоса

Қишлоқ хўжалиги ишлаб чиқаришини давлат томонидан тартибга солиш концепция сифатида тармоқ хусусиятини ақс эттириши, қишлоқ хўжалигининг ўзига хос хусусиятларини – табиий омилларга боғлиқлигини ҳисобга олиши керак. Дала ишларининг мавсумийлиги; меҳнатни тежаш, қишлоқ хўжалиги техникасидан унумли фойдаланиш, ишлаб чиқариш қувватларининг чекланган имкониятлари, қишлоқ хўжалиги меҳнатининг консерватив характери, иқтисодий ва экологик омилларнинг чамбарчас боғлиқлигини кўрсатади.

Қишлоқ хўжалигига субсидиялар, имтиёзли кредитлаш ва солиққа тортиш, божхона ва тарифларни тартибга солиш, меҳнат мотивациясини ошириш ва қишлоқ жойларини ижтимоий ривожлантиришнинг самарали механизмларини излаш орқали давлат томонидан қўллаб-қувватлаш заруриятини келтириб чиқаради. Қишлоқ хўжалигини давлат томонидан тартибга солиш, биринчи навбатда, озиқ-овқат хавфсизлиги тизимининг марказий бўғини ёки агросаноат мажмуасининг ишлаб чиқариш соҳасининг самарали ишлашини таъминлашга қаратилган бўлиши зарур.

Қишлоқ хўжалигига киритилган инвестицияларни кўпайтириши тўғридан-тўғри қишлоқ хўжалигида яратилган ялпи маҳсулот оширишга олиб келади.

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## **АНАЛИЗ ТЕКУЩЕГО СОСТОЯНИЯ ГОСУДАРСТВЕННОГО РЕГУЛИРОВАНИЯ ДЕЯТЕЛЬНОСТИ РЫНКА ЦЕННЫХ БУМАГ**

*Аннотация. В данной статье анализируется текущее состояние государственного регулирования деятельности рынка ценных бумаг. Исходя из этого, именно на этот вопрос направляются усилия органов государственного управления рынком ценных бумаг, учреждений его инфраструктуры, ученых и практиков всех уровней.*

*Ключевые слова: акционерное общество, ценная бумага, облигация, депозит, фондовый рынок.*

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## **ANALYSIS OF THE CURRENT STATE OF GOVERNMENT REGULATION OF THE SECURITIES MARKET**

*Annotation. This article analyzes the current state of government regulation of the securities market. Based on this, it is precisely this issue that the efforts of government authorities of the securities market, institutions of its infrastructure, scientists and practitioners at all levels are directed at.*

*Keywords: joint stock company, security, bond, deposit, stock market.*



## Введение

Роль государственных органов в координации и развитии рынка ценных бумаг неопределима. Например, Центр координации и контроля деятельности рынка ценных бумаг совместно с Госкомимуществом и “Национальным депозитарием времени” в 1999 году подготовил постановление Кабинета министров Республики Узбекистан об организационных мерах по созданию центрального депозитария ценных бумаг Республики Узбекистан.

**Таблица 1**

Динамика соотношения долевого и долгового рынков корпоративных ценных бумаг в Республике Узбекистан

№	Годы	Фондовый рынок		Рынок облигаций	
		Размер (млрд. Сум)	доля в %	Размер (млрд. Сум)	доля в %
1	2014 год	400,8	98,2	7,1	0,17
2	2015 год	705,7	99,6	2,6	0,04
3	2016 год	748,1	99,8	1,5	0,02
4	2017 год	1477,3	87,9	203,8	12,1
5	2018 год	1501	93,6	102,6	6,4
6	2019 год	1987,4	94,9	106,1	5,1
7	2020 год	910,4	93,1	67	6,9

По данным таблицы 1 выше мы видим, что на фондовом рынке Рынок акций составляет основную часть. То есть 98,2% рынков акций и облигаций в 2020 году, то есть 400,8 млрд сумов составляет 0,17%, то есть 7,1 миллиарда долларов, если рынок акций сформирован. суммарный рынок облигаций. К 2018 году мы можем увидеть относительный рост рынка облигаций. В 2018 году 93,1% рынков акций и облигаций, то есть 910,4 млрд сумов составляют 6,9% рынка акций, то есть 67 млрд сумов был создан рынком облигаций.

Центром разработаны три нормативных документа, которые зарегистрированы в Министерстве юстиции Республики Узбекистан:

\* “Положение об инвестиционном лицензировании учреждений на рынке ценных бумаг”;

\* “Положение о переаттестации физических лиц на право совершения операций с ценными бумагами”;

\*“Порядок продажи акций приватизационных паевых инвестиционных фондов населению при первоначальном распределении”.

Вместе с квалифицированными участниками рынка ценных бумаг: финансовыми брокерами, дилерами, инвестиционными консультантами, инвестиционными компаниями, инвестиционными фондами, управляющими компаниями, депозитариями, расчетными клиринговыми палатами, хранителями реестров владельцев ценных бумаг, номинальными хранителями ценных бумаг, инфраструктуру рынка ценных бумаг составляют Республиканская фондовая биржа и другие виды инвестиционных институтов.

**Таблица 2**

Соотношение первичного и вторичного рынка акций в Республике Узбекистан

№	Годы	Первичный рынок		Вторичный рынок	
		Размер (млрд. Сум)	доля в %	Размер (млрд. Сум)	доля в %
1	2014 год	268,9	67,1	131,9	32,9
2	2015 год	483,4	68,5	222,3	31,5
3	2016 год	560,4	74,9	187,7	25,1
4	2017 год	930	63	547,3	37
5	2018 год	634,8	42,3	866,2	57,7
6	2019 год	1148,4	57,8	839	42,2
7	2020 год	748,9	82,3	161,5	17,7

В таблице 2 приведены показатели соотношения первичного и вторичного рынков акций в Республике Узбекистан за 2014-2020 годы. Согласно данным этой таблицы, в 2014 году на первичном рынке было продано 67,1% акций, то есть 268,9 млрд сумов, против 32,9%, то есть 131,9 млрд сумов мы видим, что он продается на вторичном рынке. Мы можем видеть, что соотношение акций на первичном и вторичном рынках сильно изменилось за эти годы. Например, в 2019 году 82,3% от общего количества

акций, то есть 748,9 млрд сумов на первичных рынках, 17,7%, т. е. 161,5 млрд сумов мы видим, что он продается на вторичных рынках.

Вместе с формированием нормативно-правовой базы в нашей республике сформировалась и институциональная инфраструктура рынка ценных бумаг. на сегодняшний день функционируют все его основные институты. Несмотря на активное формирование инфраструктуры фондового рынка, практически отсутствует ряд институтов, сумевших найти прочное место на зарубежном фондовом рынке.

Примером таких институтов может служить институт, который предоставляет услуги трансферного агентства, то есть услуги приема-передачи документов между финансовыми учреждениями и их клиентами. Формирование сети трансферного агентства дает инвестору возможность пользоваться услугами неограниченных инвестиционных институтов, обращаясь только к одному трансферному агенту, независимо от его местонахождения. Также нет специальных инвестиционных институтов, известных как «промоутеры», которые готовят и помогают в листинге акций. Деятельность страховых организаций на фондовом рынке республики практически незаметна, но в целях защиты прав инвесторов в мире широко используется страховая механизм. Этот механизм дает возможность возложить инфраструктурные риски на специализированные компании.

### **Заключение**

В заключение следует отметить, что финансовый рынок в нашей стране вносит достойный вклад в обеспечение устойчивого активного финансового обеспечения всех отраслей экономики, а также в развитие общества. Поэтому внедрение в практику научно-теоретических предложений и рекомендаций с нашей стороны послужило бы положительным стимулом к более эффективной организации проводимых мероприятий. Это, в свою очередь, послужит развитию финансового рынка в республике, а также адаптации коммерческих банков страны к международным рынкам капитала через финансовый рынок.

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## **ФОРМИРОВАНИЕ ОПЫТА МЕЖЛИЧНОСТНЫХ ОТНОШЕНИЙ У СТУДЕНТОВ И ПРИНЦИПЫ ЕГО ОТБОРА**

*Аннотация. В данной статье рассмотрено понятие межличностных отношений, типы и влияние на формирование личности и индивидуальности. Сформулированы основные стадии развития взаимоотношений в студенческой группе, а также определена роль преподавателя в формировании взаимоотношений в группе.*

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## **FORMATION OF EXPERIENCE OF INTERPERSONAL RELATIONS IN STUDENTS AND PRINCIPLES OF ITS SELECTION**

*Abstract: this article discusses the concept of interpersonal relationships, types and influence on the formation of personality and individuality. The main stages of development of relationships in a student group are formulated, and the role of the teacher in the formation of relationships in the group is defined.*

Умение общаться и выстраивать отношения с людьми необходимо каждому человеку. Это относится и к отношениям, складывающимся в студенческих группах, так как общение является обязательным условием осуществления процесса воспитания и обучения студентов.

Сегодня вузам нужны не просто педагоги, а специалисты, способные творчески подойти к своей деятельности, способные выстраивать хорошие отношения между студентами, что способствует формированию будущего специалиста. Актуальность проблем межличностных отношений в студенческих группах состоит в том, что в этот период определяются особенности взаимоотношений личности с окружающими, которые влияют на ее формирование и развитие.

Межличностные отношения – это вид отношений личности, раскрывающихся в отношениях к другим людям. Они эмоциональны и сопровождаются симпатиями и антипатиями по отношению друг к другу.

Различают деловые и личные или (межличностные отношения). Деловые отношения связаны с учебной или трудовой совместной

деятельностью. Личные отношения могут быть оценочными (восхищение, популярность) и действенными (связанными с взаимодействием).

В психологии выделяют три типа межличностного общения: императив, манипуляцию и диалог.

В условиях вуза проявляется третий тип общения, т.е. диалогическое общение. Это равноправное субъект-субъектное взаимодействие, которое имеет целью взаимное познание, самопознание партнеров по общению. Его эффективность во многом определяется строгим соблюдением правил: психологический настрой на состояние собеседника; безоценочное восприятие личности партнера; восприятие партнера как равного, имеющего собственное мнение. Этот вид общения требует от преподавателя большого опыта в работе с людьми, а также определенных личностных качеств; сдержанности, уважения к собеседнику, терпения и т.д.

Важнейшей составляющей межличностных взаимоотношений является эмоциональный компонент. Эмоции и чувства, которые студенты могут переживать по отношению друг к другу, чрезвычайно разнообразны: чувство уважения, безразличие, ненависть, готовность пожертвовать ради друга всем. Все эмоции и чувства, связанные с межличностными отношениями, можно разделить на две группы – группу положительных и группу отрицательных чувств и эмоций.

Симпатии и антипатии как важный психологический элемент межличностных отношений действуют на психологический климат группы, и курса в целом. Также на характер межличностных взаимоотношений влияет положение личности в системе групповых отношений, что характеризуется, прежде всего, ее статусом и выполняемыми ролями.

Характер развития межличностных отношений в малой группе может быть многосторонним и противоречивым. В них проявляется множество разнообразных ситуаций, отражающихся на поведении, действиях, поступках, самочувствии и настроении не только того или иного члена группы, но и всей группы в целом, на ее сплоченности и результатах деятельности. При воспитании межличностных отношений преподаватель должен принимать во внимание и учитывать стихийно складывающиеся неформальные микрогруппы, носящие положительную или отрицательную направленность, имеющие ту или иную степень влияния на людей.

Развитие взаимоотношений студенческого коллектива и личности проходит через несколько стадий:

1. Адаптация студента как члена новой группы. Прежде чем реализовать свою потребность проявить себя как личность, он должен усвоить действующие в группе нормы и освоить приемы и средства деятельности, которыми обладают все другие ее члены. Через это у него возникает объективная необходимость «быть таким, как все», что достигается за счет утраты тех или иных индивидуальных черт.

2. Индивидуализация. Она заключается в обострении противоречий между достигнутым результатом адаптации (тем, что студент стал «таким, как все») и потребностью студента в максимальном проявлении себя как неповторимой личности, которая имеет свою индивидуальность, которая при этом не удовлетворяется. Студент начинает искать способы и средства для выражения своей индивидуальности, и демонстрации ее в группе.

3. Интеграция личности в группе: студент сохраняет только те индивидуальные черты, соответствующие необходимости и потребностям группового развития, а также собственную потребность осуществить значимый вклад в жизнь группы. Группа при этом в определенной степени меняет свои групповые нормы, впитывая те черты студента, которые признаются группой как значимые для ее развития. Так происходят взаимные превращения личности и группы.

Если студенту не удастся преодолеть трудности адаптации, то это может привести к появлению таких качеств как: безынициативность, ненависть к себе, что приводит к занижению самооценки. Оказать положительное воздействие на формирование здорового психологического климата в группе должен ее преподаватель, посредством решения групповых задач, предполагающих взаимную ответственность. Созданию благоприятной атмосферы в группе способствуют игровые формы обучения и социально-психологические тренинги.

Работа преподавателя должна быть направлена на адаптацию студента, создание доверительных отношений в группе, на формирование социально одобряемого поведения студента, на профессиональное самосовершенствование.

Успешное завершение совместного группового учебного мероприятия, в котором приняли участие все студенты, улучшает межличностные отношения. Совместное переживание успеха сближает студентов, стирает социальные и экономические барьеры между ними, снимает конфликты, способствует улучшению внутреннего микроклимата группы.

Работа преподавателя должна проводиться в тесном контакте со старостой, учитывая знание ею статусно-ролевой структуры группы и индивидуальных особенностей студентов. К психологически изолированным студентам необходимо быть внимательным и осторожным в оценочных суждениях, не подчеркивать публично их недостатки.

Все вышесказанное свидетельствует о том, что становление личности студента происходит в студенческой группе, которая находится на определенном этапе своего развития. Характер развития личности определяется уровнем развития группы. В тех студенческих группах, которые достигли в своем развитии уровня коллектива, складываются благоприятные условия для осуществления учебного процесса, что



оказывает влияние на формирование у студентов положительных качеств личности, необходимых современному специалисту.

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## **ПРОБЛЕМА ФОРМИРОВАНИЯ ПРОФЕССИОНАЛЬНОЙ МОТИВАЦИИ СТУДЕНТОВ В ПРОЦЕССЕ ОБУЧЕНИЯ В ВУЗЕ**

*Аннотация. Статья посвящена проблеме формирования профессиональной мотивации студентов в процессе практического обучения в вузе. Авторы рассматривают такие средства практики, влияющие на эффективность процесса становления мотивации к профессиональной деятельности, как рабочая среда, руководство практикой, участие в научно-практических конференциях по итогам практического обучения. Особое внимание уделено исследованию взаимосвязи мотивации, и Я-концепции студента. Акцент сделан на успешном развитии сценария формирования профессиональной мотивации у студентов вуза.*

*Ключевые слова: мотивация студентов, профессиональная мотивация студентов, практика, средства практики, практическое обучение, Я-концепция студента.*

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## **THE PROBLEM OF FORMING PROFESSIONAL MOTIVATION OF STUDENTS DURING PRACTICAL TRAINING AT A UNIVERSITY**

*Abstract: the article is devoted to the problem of forming professional motivation of students in the process of practical training at a university. The authors consider such means of practice that influence the effectiveness of the process of developing motivation for professional activity, such as the work environment, practice management, participation in scientific and practical conferences based on the results of practical training. Particular attention is paid to the study of the relationship between motivation and the student's self-concept. The emphasis is on the successful development of the scenario for the formation of professional motivation among university students.*

*Key words: student motivation, professional motivation of students, practice, means of practice, practical training, student's self-concept.*

Успешность реализации задач среднего профессионального и высшего образования во многом зависит от профессиональной мотивации

обучающихся. Профессиональная мотивация выступает как внутренний движущий фактор развития профессионализма и личности обучающегося в образовательной организации, так как только на основе высокого уровня развития мотивации возможно достижение профессиональной образованности и культуры личности.

Под профессиональной мотивацией понимается действие конкретных побуждений, обуславливающих выбор профессии и продолжительное выполнение обязанностей, связанных с этой профессией [1]. По мнению М.В. Воробьевой, профессиональная мотивация будущего специалиста представляет собой совокупность устойчивых мотивов, проявление которых зависит от профессиональных взглядов, отношений, позиций, а также эмоций, чувств, профессиональных качеств личности.

Эффективным способом решения проблемы формирования профессиональной мотивации у студентов вузов является усиление ориентированного на практику характера образования, приобретение успешного профессионального опыта в период обучения в университете. При этом главным инструментом формирования положительного опыта профессиональной деятельности является студенческая практика.

Практика выступает в единстве с теорией и познавательной деятельностью обучающихся: студент как активный субъект целостного педагогического процесса эмпирическим путем познает мир профессии и фиксирует значимые свойства и закономерности будущей профессиональной деятельности. Студенческая практика является источником научного и практического познания, дает необходимый фактический материал, подлежащий обобщению и теоретической обработке. Полученные в ходе практического обучения знания используются в качестве руководства к действию по преобразованию действительности и удовлетворению запросов будущих специалистов. В ходе такого преобразования изменяется, совершенствуется и развивается «идеальный» план подготовки студента к будущей профессии и укрепляется профессиональная мотивация.

Структура практического обучения представлена системой взаимодействующих элементов: цель; целесообразная деятельность, средства деятельности, используемые в процессе целереализации; результаты – продукты деятельности.

Для нас представляют интерес средства практической деятельности. К средствам практики можно отнести отчетные конференции по итогам практики, установочные собрания студентов, производственную среду предприятий и организаций, сотрудничество с руководителем практики от организации, взаимодействие с вузовским руководителем практики и так далее.

Важно при этом отметить, что практика студентов связана с деятельностью организаций и, что самое главное, с деятельностью других

людей, затрагивает их личные и профессиональные интересы, в то время как деятельность других людей непосредственно и опосредованно влияет на практическую деятельность каждого отдельно взятого студента.

Организация практического обучения на факультетах управления и довузовской подготовки показывает, что к выбору социальных партнеров, организующих практику студентов среднего профессионального и высшего образования, нужно относиться тщательно и серьезно. Договоры о сотрудничестве в сфере профильной подготовки студентов заключаются с организациями и компаниями, зарекомендовавшими себя как профессионалы высокого класса в своей отрасли. Это отделения Государственной налоговой инспекции, комиссия по делам несовершеннолетних, отделы администраций муниципальных районов Ташкентской области и другие.

По опыту организации практического обучения, рабочая среда, существующая в этих учреждениях и организациях, способствует формированию профессиональной мотивации студентов разных специальностей и направлений подготовки. Это среда, которую отличает атмосфера инноваций, креативности, высокой производительности. В такой среде и сотрудники, и студенты не боятся пробовать что-то новое, все фокусируются на более качественном выполнении работы.

Обратившись к теории мотивации Фредерика Герцберга, можно подтвердить заявление о том, насколько важна для студента рабочая среда. Герцберг выделил два типа факторов, влияющих на процесс мотивации человека: гигиенические и мотивирующие. Ко второму типу относятся интересная работа, хороший коллектив, признание и одобрение результатов труда, а это и есть, другими словами, рабочая среда, в которой сотрудники работают в полную силу, не опасаясь критики и неодобрения. Это очень важно для получения максимальной отдачи от сотрудников и высвобождения незадействованного потенциала каждого из них

В менеджменте это называется создание эффективного рабочего пространства, в психологии речь идет об избавлении от страха, что позволяет сотруднику реализоваться, стать человеком стремления и самоактуализации. В педагогике мы можем говорить о создании для студентов в такой производственно-образовательной среде ситуации успеха.

Специалистами доказано, что в наше время люди чаще, чем прежде, руководствуются внутренними побуждениями выполнять работу лучшим образом (речь идет о Мотивации 3.0). В современной производственной среде большинство сотрудников делает свою работу потому, что хочет этого, а не потому, что приходится это делать. При этом иерархию мотивов никто не отменял. Для кого-то важны мотивы самоактуализации: работают хорошо, так как стремятся ответить на собственные внутренние вызовы и получить высокую оценку от других; мотивы причастности: хорошо относятся к своей организации, отсюда – уважение к работе и т.п.

Для организации практического обучения студентов вуза выбираются устойчивые и перспективные организации и компании, государственные и из частного сектора экономики. Это, как правило, предприятия, где создана особая производственная среда. Особая она потому, что руководители организаций большое внимание уделяют активизации в этой среде внутренних мотивов сотрудников, заставляющих их работать с высоким воодушевлением и вносить максимально возможный вклад в дело организации.

Задача учебных заведений как организаторов практического обучения студентов – предложить будущим специалистам такую рабочую среду, в которой будут устранены все негативные факторы, а факторы профессиональной мотивации – максимально усилены. В такой среде и у студентов появляются внутренние мотивы и стимулы вносить в рабочий процесс предприятия самое ценное, на что они способны. Задача вуза – подобрать такие организации, где студенты смогут максимально реализовать свои профессиональные задатки и приобрести новые компетенции.

Таким образом, выбор рабочей среды играет огромную роль в формировании и становлении у студентов мотивации к профессиональной деятельности.

Говоря о процессе формирования профессиональной мотивации студентов, хотелось бы подчеркнуть взаимосвязь таких важных понятий как мотивация и Я-концепция студента. Я-концепция студента - это его представления о себе, от которых зависит его эффективность в любой области деятельности, в том числе в профессиональном становлении.

Изменения и совершенствование в будущей профессии начинаются с изменений и улучшений представлений студента о себе. Поэтому, практическое обучение надо начинать с того, чтобы убедить студента, что у него всё получится на работе, что он может и готов выполнять профессиональные задачи. Это делается на общем установочном собрании по практике, которое проводится до начала практики в феврале-марте месяце учебного года. Но, лучше, чтобы будущие практиканты посетили отчетные конференции по итогам практики, которые проводятся в начале учебного года, где старшекурсники представляют материалы отчетов по практике и научно-практические выступления по итогам профессионального обучения.

Напомним, что Я-концепция состоит из трех составляющих: идеальное представление о себе, образ «Я» и самооценка.

Конференция по итогам практики помогает сформулировать идеал, то есть студенты видят и могут соотнести надежды, мечты, стремления и мысли по поводу профессионального будущего. Конференция может поспособствовать в формировании идеального профессионального «я». Кроме того, молодые люди подвержены влиянию примеров для

подражания, одного из важнейших элементов идеального представления о себе.

На конференции по итогам прохождения практики должны звучать ценности, цели и задачи профессионального становления, что важно для формирования идеального представления студента о себе в профессии, будь то профессия из сферы права, информационных технологий или государственного и муниципального управления.

Следующая компонента Я-концепции – это образ «Я», то есть осознание молодым человеком своих качеств, ценностей и поведения. Именно образ «Я» может определить эффективность студента как будущего профессионала. Правильный образ профессионального «Я» у студента может сложиться в том случае, если и преподаватели вуза, и руководители практики в организации будут обращаться с ним так, словно он – самый умный, ответственный, без него организация не смогла бы так хорошо работать. Студент должен считать себя таким же, и это постепенно станет частью его профессионального мировоззрения. Позитивный, в профессиональном плане, образ «Я» обучающийся переносит на общение с коллегами, клиентами.

В период становления личности большое внимание на молодого человека оказывают слова и поступки окружающих. Важно, чтобы люди, которые соприкасаются со студентом на практике, его коллеги, уважали практиканта. Это также поможет ему быть позитивным, приятным, располагающим к себе человеком в общении.

Образ «Я» студента улучшается, когда его руководитель чаще говорит, что тот отлично выполнил свою работу, он отмечает, что его ценят и признают значимость. Мотивация к профессии становится более устойчивой, появляется желание заниматься своей профессией еще больше, заниматься вдумчиво и результативно. Практикант слушает руководителя практики чтобы понять, хороший ли он работник, как справляется со своими заданиями и поручениями, следовательно, именно руководитель практики может оказывать сильное влияние на образ «Я» студента и практиканта. В этом случае, руководитель практики выступает для студента значимым взрослым, к которому прислушиваются и чьи одобрение и похвалу стремятся заслужить, он не только носитель информации и воспитатель, но и консультант, исследователь, эксперт.

Самооценка студента, третья составляющая Я-концепции, влияет на его профессиональное становление как специалиста своего дела. Студент с высокой самооценкой может быть креативным и продуктивным сотрудником. В основе высокой самооценки – умение нравиться себе. Чем больше студент нравится себе, тем более высокие результаты получает в работе. Самооценка очень влияет на само эффективность.

Чем больше поведение студента согласуется с образом идеального профессионального «Я», чем больше он ценит себя как сотрудника, тем



более профессиональной личностью он становится, успешнее проходит процесс профессионального становления. Специалисты отмечают взаимосвязь развития профессиональной мотивации и профессионального становления личности. Так, Т.В. Ярлова рассматривает последнее как процесс прогрессивного изменения личности студента под влиянием социальных воздействий, профессиональной деятельности и собственной активности, профессиональное становление наполняет жизнедеятельность молодого человека особым смыслом, придает формирующейся профессиональной биографии значительность

Выше речь шла об успешном развитии сценария формирования мотивации к профессиональной деятельности в процессе практического обучения студентов. Вместе с тем, практическое обучение студентов помогает проследить и иные сценарии становления профессиональной мотивации студентов.

Специалисты отмечают, что в процессе обучения в вузе у студентов, зачастую формируются отдельные признаки дезадаптации, проявляющиеся снижением, вплоть до полной потери, мотивации к обучению и дальнейшей деятельности.

Проведенные специалистами В.Е. Капитанаки, А.С. Скороход, С.В. Чермяниным исследования свидетельствуют, что на этапе практического обучения в вузе возможны трудности обучения, обуславливающие снижение мотивации. Например, у части студентов младших курсов после первой производственной практики отмечается некоторое разочарование в профессии, потеря интереса к учебе и закономерное снижение профессиональной мотивации.

Снижение уровня профессиональной мотивации у студентов в данном случае, в основном, носит ситуативный характер. В период подготовки к производственной практике отмечается ухудшение функционального состояния, вызванное ожиданием практики. Представления студентов о предстоящем взаимодействии с персоналом организации вызывают опасения и тревогу у большинства студентов, принявших участие в обследовании. Негативные ожидания от предстоящего взаимодействия с персоналом, необходимость адаптироваться в новом для обучающегося коллективе, представления о реализации задач практики и возможных трудностях провоцируют у студентов младших курсов «редукцию профессиональных интересов, обесценивание деятельности будущего специалиста и снижение значимости профессиональных компетенций»

Необходимо отметить, что профессиональные интересы большинства третьекурсников в большей степени ситуативны и, скорее, связаны с тематикой предметов, изучаемых в текущем семестре, чем являются следствием осознанного профессионального выбора. Поэтому выбор баз практики не должен осуществляться студентами самостоятельно, преимущественно в соответствии с их собственными интересами, без учета

специфики контингента, которому предстоит работать на практике. Зачастую студенты не идентифицируют деятельность в рамках производственной практики с будущей профессиональной деятельностью, а ведущим мотивом выбора места практики является мотив «испытать» себя в этой роли. Следовательно, мотивационные установки к практической деятельности студентов могут в большей степени определяться ожиданиями от предстоящей практики, а не степенью сформированности их профессиональных компетенций.

Студенты старших курсов в преддверии практики более адаптированы к переходу на новую, практически направленную модель обучения. У них, с учетом уже имеющегося опыта, отсутствуют трудности с планированием и структурированием собственной практической деятельности. Их в большей степени тревожит возможное несоответствие требованиям, предъявляемым к будущему менеджеру, юристу, специалисту банковского дела, экономисту и недостаточная сформированность профессиональных компетенций. Ревизия собственных личностных качеств и степени сформированности практических навыков и теоретико-методологической подготовки может отрицательно сказываться на уровне мотивации к профессиональной деятельности. Основным мотивом для выбора практики может являться максимальное исключение вероятности демонстрации профессиональной некомпетентности. Следовательно, мотивационные установки студентов старших курсов в большей степени зависят от их субъективной оценки сформированности профессиональных компетенций и экспертных оценок.

На завершающем этапе обучения в вузе актуальным становятся сопоставление желаемого и достигнутого уровней профессиональных компетенций, а также самостоятельное определение дальнейшего профессионального пути. Зачастую результаты такого рефлексивного анализа также приводят к снижению уровня профессиональной мотивации.

Для выпускников практика являет собой возможность получения базы данных, которые будут положены в основу выпускной квалификационной работы. Поэтому место прохождения практики они выбирают в соответствии с собственными практическими или научными интересами

В любом случае их отношение к практике характеризуется не учебной, а именно профессиональной направленностью. Они так же, как и студенты младших курсов, ориентированы на положительную оценку их деятельности, но готовы принимать активное участие в образовательном процессе в организации, проявлять инициативу и отстаивать собственные профессиональные позиции.

У студентов старших курсов может наблюдаться снижение мотивационных установок и в ситуации отсутствия профессионального самоопределения. Студенты, имеющие более четкие представления о направлении и месте будущей деятельности в качестве специалиста (после

окончания вуза), не манифестируют снижение мотивации к практической деятельности. В то же время у студентов, не имеющих четких профессиональных представлений и планов, наблюдается снижение мотивации и разочарование в собственном профессиональном выборе.

С целью формирования мотивационных установок к практической деятельности и развития профессиональных качеств будущих бакалавров преподаватели-исследователи предлагают проводить динамический психолого-педагогический мониторинг мотивационных установок студентов на различных этапах обучения; поддерживать студентов, испытывающих трудности профессионального обучения и демонстрирующих снижение профессиональной направленности; актуализировать мотивационные установки к практической деятельности будущих специалистов путём проведения тренингов и психолого-педагогических занятий, направленных на сохранение и повышение мотивационных установок к дальнейшей профессиональной деятельности в качестве специалиста по избранной профессии и развитие необходимых для успешной профессиональной деятельности личностных свойств и качеств.

Таким образом, практическое обучение в вузе, являясь неотъемлемым компонентом образовательного процесса, играет важную роль в формировании у будущего специалиста устойчивой мотивации к осуществлению профессиональной деятельности. Тщательный отбор средств практического обучения обеспечивает целостность, высокую результативность практики, положительную мотивацию к будущей профессиональной деятельности, способствует формированию современного типа профессионального поведения студентов.

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## **РАЗРАБОТКА КИНЕМАТИЧЕСКОЙ СХЕМЫ, ДИНАМИЧЕСКОЙ МОДЕЛИ И УРАВНЕНИЯ ДВИЖЕНИЯ ДЛЯ МОДЕЛИРОВАНИЯ МАШИНЫ ДЖИН НОВОЙ КОНСТРУКЦИИ**

*Аннотация. Описание джин-машинного нового устройства для отделения хлопкового волокна от семян высокого качества и кинематической схемы, динамической модели и уравнений движения хлопкоочистительной машины, а также динамической модели и уравнений движения для пильных цилиндров теоретического типа.*

*Ключевые слова: устройство, питатель, свайный барабан, грохот, пневмоцилиндр, шнек для грязной смеси, пильный цилиндр, система продувки воздухом, верхняя колонна, система вытягивания волокна, шнек для волокна, гребенка, нижняя колонна, рабочая камера.*

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## **DEVELOPMENT OF A KINEMATIC SCHEME, DYNAMIC MODEL AND EQUATION OF MOTION FOR SIMULATING A GIN MACHINE OF A NEW DESIGN**

*Abstract. Motion of the new construction gin machine with high quality separator of cotton fiber from the seed and the kinematic diagram, dynamic model and equations of motion of the gin machine and the dynamic model and equations of motion for saw cylinders theoretically analyzed.*

*Keywords: gear, feeder, pile drum, screen, pneumatic cylinder, auger for dirty mixture, saw cylinder, air blowing system, upper column, fiber pulling system, fiber screw, comb, lower column, working chamber.*

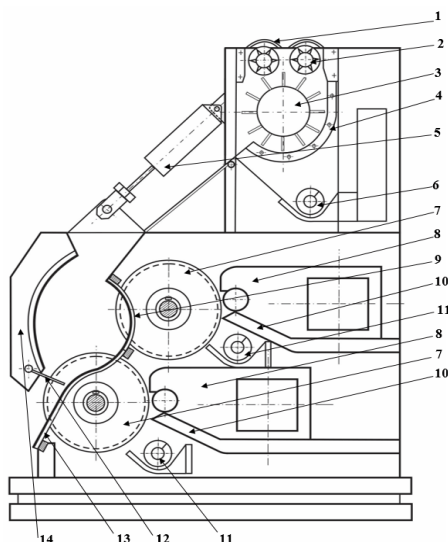
### **Введение.**

Хлопковое волокно занимает важное место в экономике Узбекистана. Этому вопросу уделяется особое внимание не только в современных исследовательских работах, но и во многих научно-исследовательских работах, проводимых в любой период нашей Республики. В настоящее время вопрос использования энергосберегающих, безопасных и

высокоэффективных технологических устройств в процессе извлечения высококачественного волокна в этой области всегда был и остается актуальным. После процесса отжима на хлопкоочистительном заводе хлопковые волокна после очистки от различных примесей отправляются на прессование. Очищенные семена направляются на такие процессы, как линтование и делинтригование, и из них производятся волокнистые продукты, такие как пуха и шерсть. Линтерирование и делинтрирование семян хлопчатника, то есть отделение волокон и коротковолокнистости после измельчения, чрезвычайно важно в качестве основного процесса. В результате предварительной обработки посеянного хлопка на хлопкоочистительных предприятиях получают волокно, коротковолокно, семенной и технический посевной материал, шерсть и шерстяные изделия.

Компании "Lummus" из США, "Shandon" из Китая и "Bajaj" из Индии являются лидерами в разработке методов и технологий предварительной обработки хлопка и технологических машин на уровне современных требований. В нашей стране стремительное развитие машиностроения существует в производстве ученых, необходимо срочно проводить научные исследования, направленные на совершенствование рабочих органов в технологических машинах и разработку трансмиссий на научной основе, а также создание национального машиностроительного бренда машиностроения с учетом новых научно-технических технологических решений, локализованных в отрасли. является одной из задач [1].

В связи с этим результат анализа оборудования предприятий первичной переработки хлопка, принадлежащих хлопкоочистительным текстильным кластерам нашего государства, показывает, что большинство из них оснащено пильными станками DP-130, ZXDD, XDD, 4DP-130, 5DP-130 производства прошлого века. Они обладают низким КПД, высоким уровнем шума и вибрации и потребляют много электроэнергии. Повышенная вибрация в пильных цилиндрах этих устройств приводит к неполному удалению волокна с зубьев пилы. Качественное волокно, оставшееся от зубьев пилы, снова смешивается с сырьем и постепенно приводит к увеличению перс в содержании волокна и ухудшению качества семян, а также к увеличению потребления электроэнергии из-за увеличения трения и снижению производительности труда. Кроме того, недостаточно обеспечена безопасность операторов, работающих на машинах [2].



**Рисунок 1. Схема джин-машины новой конструкции**

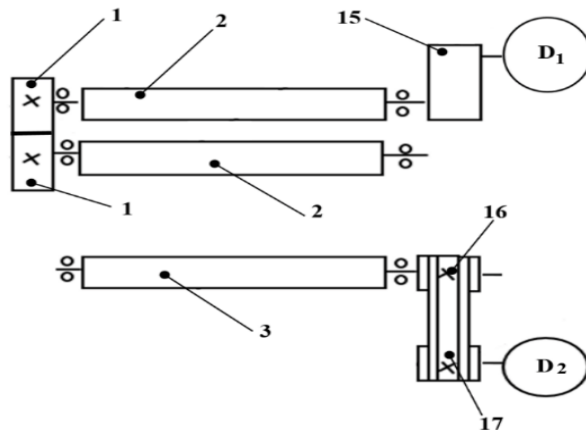
1 -редуктор, 2-питатель, 3-штабелирующий барабан, 4-сито, 5- пневмоцилиндр, 6-шнек для грязной смеси, 7-пильный цилиндр, 8-система обдува воздухом, 9 - верхняя колонна, 10-система вытягивания волокна, 11- шнек для волокна, 12- гребенка, 13 - нижняя колонна, 14- рабочая камера

### **МАТЕРИАЛ ПО МЕТОДАМ.**

Особое внимание уделяется изучению научных, практических и сравнительному анализу причин возникновения этих недостатков. Неравномерное вращение пильного цилиндра может привести к ухудшению процесса формования и повреждению волокна. Снижение нагрузки на пильные цилиндры в новой конструкционной пиле повысило эффективность распиливания и привело к улучшению качества производимого продукта. Используя второе уравнение Лагранжа, мы формулируем уравнения движения станочного блока пильного цилиндра, чтобы определить неравномерность вращения пильного цилиндра и снизить энергопотребление [3].

Пильный джин новой конструкции предназначен для отделения волокна от семян хлопкового сырья средней влажности 7-9% в технологическом процессе. Кинематические схемы джин-машины новой конструкции показаны на рис. 1 в последовательности прядения хлопка [4].



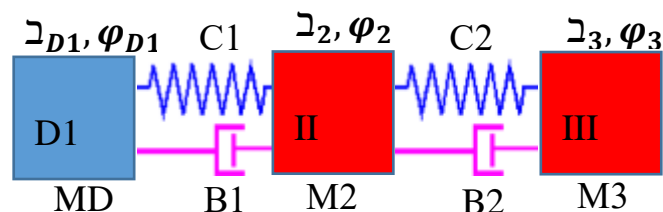


**Рисунок 2. Кинематика роликов и стопочного барабана, обеспечивающая джин-машину новой конструкции.**

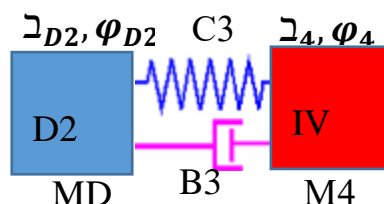
D1 - электродвигатель подающего ролика, D2 - электродвигатель свайного барабана, 1-я передача, 2-я подача, 3-й барабан, 15-й редуктор, 16-й шкив барабана ременной передачи, 17-й электрический шкив ременной передачи

**Результаты.**

Мы создаем схему динамической модели движения роликов и свайного барабана, которые обеспечивают модуль подачи джин-машины новой конструкции [5-6].



**Рисунок 3. Динамическая модель подающих роликов.**

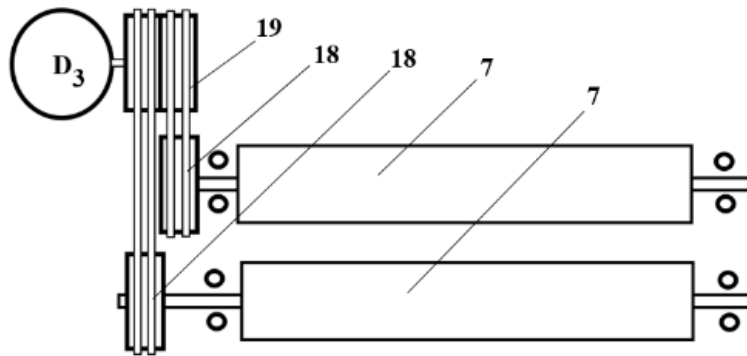


**Рисунок 4. Динамическая модель свайного барабана.**

Мы строим уравнения движения, используя второе уравнение Лагранжа, в зависимости от модели поставщика и динамического движения модуля снабжения.

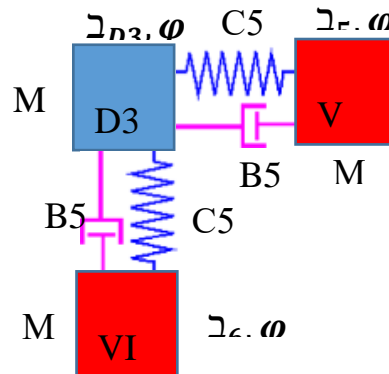
$$\begin{cases} J_{D1} * \ddot{\varphi}_{D1} = M_{D1} - c_1 * (\varphi_{D1} - i_{D12} * \varphi_2) - b_1 * (\dot{\varphi}_{D1} - i_{D12} * \dot{\varphi}_2): \\ J_2 * \ddot{\varphi}_2 = c_1 * i_{D12} * (\varphi_{D1} - i_{D12} * \varphi_2) + b_1 * i_{D12} * (\dot{\varphi}_{D1} - i_{D12} * \dot{\varphi}_2) \\ \quad - c_2 * (\varphi_2 - i_{23} * \varphi_3) - b_2 * (\dot{\varphi}_2 - i_{23} * \dot{\varphi}_3) - M_2: \\ J_3 * \ddot{\varphi}_3 = c_2 * i_{D23} * (\varphi_{D2} - i_{D23} * \varphi_3) + b_2 * i_{D23} * (\dot{\varphi}_{D2} - i_{D23} * \dot{\varphi}_3) \\ \quad - c_3 * (\varphi_3 - i_{34} * \varphi_4) - b_3 * (\dot{\varphi}_3 - i_{34} * \dot{\varphi}_4) - M_3: \\ J_{D2} * \ddot{\varphi}_{D2} = M_{D2} - c_4 * (\varphi_{D3} - i_{D34} * \varphi_4) + b_4 * (\dot{\varphi}_{D3} - i_{D34} * \dot{\varphi}_4) \\ J_4 * \ddot{\varphi}_4 = c_4 * i_{D34} * (\varphi_{D3} - i_{D34} * \varphi_4) - b_4 * i_{D34} * (\dot{\varphi}_{D3} - i_{D34} * \dot{\varphi}_4) - M_4: \end{cases}$$

Здесь  $J_{D1}, J_{D2}, J_{D3}, J_{D4}$  – поставщиком модуль вращающихся масс момент инерции кг-м<sup>2</sup>;  $\dot{\varphi}_{D1}, \dot{\varphi}_2, \dot{\varphi}_3, \dot{\varphi}_4$  – поставщиком модуль системы вращающихся масс угловых скоростей,  $M_{D1}, M_{D2}, M_2, M_3, M_4$  – поставщиком модуль поворотный на валы эффект деятель груза моменты,  $Z_1, Z_2, Z_3$  – Сила передачи с червяком пояс.  $B_1, B_2, B_3, B_4$  – эластичный передачи тепла коэффициентов



**Рисунок 5. Кинематика валов пыльных цилиндров джиновальной машины новой конструкции.**

D3 - электродвигатель пыльного цилиндра, 7- пыльный цилиндр, 18- шкив пыльного цилиндра ременной передачи, 19- шкив электродвигателя ременной передачи



**Рисунок 6. Динамическая модель валов цилиндров станковой пилы ДЖИН**

Мы строим уравнения движения, используя второе уравнение Лагранжа, основанное на модели движения валов цилиндров пильного станка [7].

$$\begin{cases} J_{D3} * \ddot{\varphi}_{D3} = M_{D3} - c_5 * (\ddot{\varphi}_{D3} - i_{D35} * \ddot{\varphi}_5) - b_5 * (\dot{\varphi}_{D3} - i_{D35} * \dot{\varphi}_5); \\ J_5 * \ddot{\varphi}_5 = c_5 * i_{D35} * (\ddot{\varphi}_{D3} - i_{D35} * \ddot{\varphi}_5) + b_5 * i_{D35} * (\dot{\varphi}_{D3} - i_{D35} * \dot{\varphi}_5) - M_5; \\ J_6 * \ddot{\varphi}_6 = c_5 * i_{D36} * (\ddot{\varphi}_{D3} - i_{D36} * \ddot{\varphi}_6) + b_5 * i_{D36} * (\dot{\varphi}_{D3} - i_{D36} * \dot{\varphi}_6) - M_6 \end{cases}$$

Здесь  $J_{D3}, J_5, J_6$  - с пилой цилиндр вращающихся масс момент инерции кг-м<sup>2</sup>;

$\dot{\varphi}_{D3}, \dot{\varphi}_5, \dot{\varphi}_6$  - с пилой цилиндр системы вращающихся масс угловой скорости,

$M_{D3}, M_5, M_6$  - вращающийся с помощью пилы цилиндр, создающий грузовые моменты

$c_5$  - пильный ремень для прочности трансмиссий

$b_5$  - упругие коэффициенты рассеяния при передаче

$\eta_{ГК} = 0.905$  - это значение полезного рабочего коэффициента

$U^1 = 0,5$  - не передавайте ременным передачам номер

$n_1 = 1480$  об / мин - от частоты вращения двигателя:

$P_1 = 22$  кВт - увеличенная мощность двигателя

Момент вращения шкива двигателя мы считаем

$$T_1 = \frac{30P_1}{\pi \cdot n_1} = \frac{30 \cdot 22000}{3,14 \cdot 1480} = 144,886 \text{ н} \cdot \text{м};$$

Открываем ГОСТ1284.3-96, согласно пункту 3.2 (Таблица 1 и таблица 2) динамический коэффициент нагрузки и режим работы устанавливаем  $C_p=1$  и записываем [10-11].

Не расширяя бухгалтерскую мощность, мы определяем  $R$  в кВт, в этой бухгалтерской книге через раздел ремешка находим

$$P = P_1 \cdot C_p = 22 \cdot 1 = 22 \text{ кВт}; \text{ В}$$

пункт 3.1 в ГОСТ 1284.3-96 согласно (Рисунок 1) beltсечения \_ и размеров and выбираем и' dimensionsC (B).we enter C (B)

Мы по ГОСТ20889-80 открываем, в соответствии с п. 2.2 и п. 2.3 малый шкив, рассчитанный с диаметром  $d_1=200$  мм, отмечаем и пишем [12].

Ремешки не пропускают линейную скорость, мы считаем  $v$ ,  $v$  м/с,

$$v = \frac{\pi \cdot d_1 \cdot n_1}{60000} = \frac{3,14 \cdot 200 \cdot 1480}{60000} = 15,2 \text{ м/сек};$$

распиливаем цилиндр по диаметру шкива, который считаем

$$D_2 = d_1 \cdot U^1 = 200 \cdot 0,5 = 400 \text{ мм};$$

по ГОСТ 20889-80 Согласно пункту 2.2, мы увидели цилиндр шкива расчетного диаметра  $D_2 = 400$  Определим это как мм

Передай число, которое мы считаем

$$U = \frac{D_2}{d_1} = \frac{400}{200} = 2;$$

При последней передаче отношения мы вычисляем начальное дельта-отклонение  $D$  %, и в примечании указано значение разрешения  $done$  с помощью давайте сравним [13]

$$\Delta = \frac{U-U^1}{U^1} = \frac{2-0.5}{0.5} = 3\%;,,$$

частоту вращения распиленного цилиндра шкива рассчитываем по следующей формуле

$$n_2 = \frac{n_1}{U} = \frac{1480}{2} = 724 \frac{\text{минут}}{\text{времени}};$$

распиленный цилиндр регулятора мощности давайте выясним

$$P_2 = P_1 \cdot FIK = 22 \cdot 0,905 = 19,910 \text{ kvt};$$

момент вращения распиленного цилиндра, за который мы принимаем большой шкив

$$T_2 = \frac{30P_2}{3,14 \cdot n_2} = \frac{30 \cdot 19,910}{3,14 \cdot 724} = 262,243 \text{ Н} \cdot \text{м}; \text{ В}$$

$Saw$  мы рассчитываем минимальное значение межосевого расстояния между цилиндрами и двигателем

$$a_{min} = 0,7 \cdot (d_1 + D_2) = 0,7 \cdot (200 + 400) = 420 \text{ мм};$$

$Saw$  мы рассчитываем минимальное значение межосевого расстояния между цилиндрами и двигателем

$$a_{max} = 2 \cdot (d_1 + D_2) = 2 \cdot (200 + 400) = 1200 \text{ мм};$$

Получил к результатам и the project to the construction looking с пилой цилиндра andдвигателяengine international \_ \_ the distance value  $a^1 = 700\text{mm}$ приемкуthat acceptance we do [14..

Полученные результаты поиска ремешка не пропускают ленту, при подсчете длины мы находим [14]

$$L_{p1} = 2 \cdot a^1 + \left( \frac{\pi}{2} \cdot (d_1 + D_2) \right) + \frac{(D_2 - d_1)^2}{4 \cdot a^1} = 2357 \text{ мм};$$

Мы открываем крышку и в соответствии с пунктом 1.1 (таблица 2) из ширины режущей ленты в мм выбираем  $L_p = 2500$  мм., межосевое расстояние снова вычисляем, значение в миллиметр находим

$$a = 0,25 \cdot \left( L_p - \frac{\pi}{2} \cdot (d_1 + D_2) + \left( \left( L_p - \frac{\pi}{2} \cdot (d_1 + D_2) \right)^2 - 8 \cdot \left( \frac{(D_2 - d_1)^2}{2} \right)^{0,5} \right)^{0,5} \right)$$

$$= 772\text{mm};$$

Позже обмотайте шкив, то есть шкив двигателя, лентой, закрыв угол, который мы найдем

$$A = 2 \cdot \arccos \left( \frac{D_2 - d_1}{2a} \right);$$

Согласно ГОСТ 1284.3-96 п.3.5.1 (таблицы 5-17) на одной планке P0 номинальную мощность, подлежащую передаче, обозначают в кВт, записываем P0=9,99кВт

В соответствии с ГОСТ 1284.3-96 п.3.5.1 (таблица 18) определяем угловой коэффициент покрытия СА и вводим СА=0,982

Узнаем коэффициент длины ленты CL по ГОСТ 1284.3-96 п.3.5.1 (Таблица 19) и записываем CL=0,920

Согласно ГОСТ 1284.3-96 п.3.5.1 (таблица 20) в расширении в планках СК числовой коэффициент идентификации пишем при СК=0,760

Количество ремней приблизительное, необходимое для определения

$$K' = P / (P_0 * SA * CL * SK) = 3,2 \text{ шт.}$$

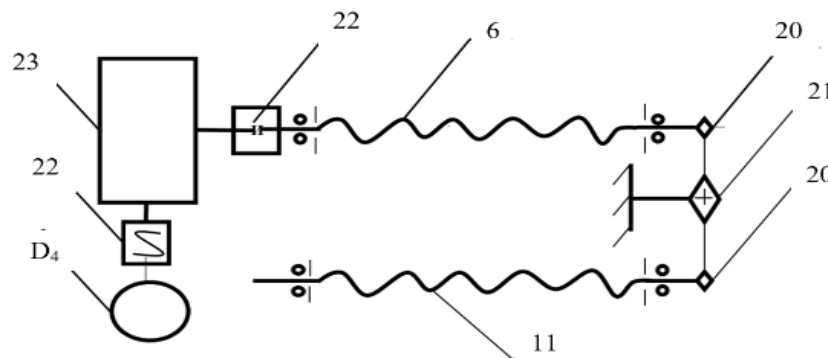
Наконец, число К поясов, которое мы определяем, что К = 4 равно почти целому числу бедер, мы округляем до (К') Полос, предполагая, что число равно 4, которое мы делаем

Здесь  $J_{D3}, J_5$ , валы шнеков shafts, вращающиеся с моментом инерции масс, кг-м<sup>2</sup>;

$\varphi_{D4}, \ddot{\varphi}_7, \ddot{\varphi}_8, \ddot{\theta}$  - валы шнеков системы угловых скоростей вращения масс,  $M_{D4}, M_7, M_8, M_9$  - вращающиеся валы шнеков, создающие грузовые моменты,

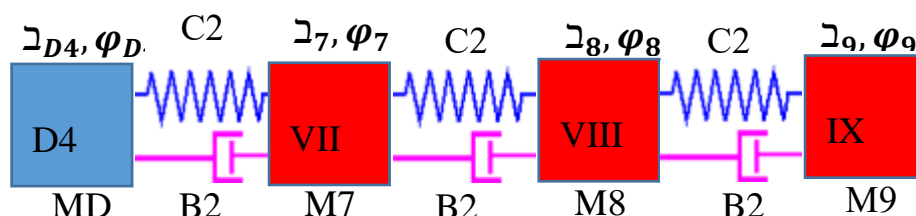
$c_6, c_7, c_8$  - шнековая планка на планке прочности трансмиссий

$b_6, b_7, b_8$  - коэффициенты диссипации упругих передач



**Рисунок 7. Новый конструкторский демон его машины для выпуска мертвых волокон уделяет особое внимание кинематике.**

D 4 - шнека, 6- шнек для грязной смеси, 11- шнек для волокна, 20 - цепной привод, 21 - звезда натяжителя цепи, 22 - переходник, 23- редуктор,



**Рисунок 8. Динамическая модель винтовых валов джин - машины для высвобождения омертвевших волокон.**

Мы строим уравнения движения, используя второе уравнение Лагранжа, основанное на динамической модели шнековых валов джиновой машины для извлечения омертвевших волокон

$$\begin{cases} J_{D4} * \ddot{\varphi}_{D4} = M_{D4} - c_6 * (\varphi_{D4} - i_{D47} * \varphi_7) - b_6 * (\dot{\varphi}_{D4} - i_{D47} * \dot{\varphi}_7): \\ J_7 * \ddot{\varphi}_7 = c_6 * i_{D47} * (\varphi_{D4} - i_{D47} * \varphi_7) + b_6 * i_{D47} * (\dot{\varphi}_{D4} - i_{D47} * \dot{\varphi}_7) \\ \quad - c_7 * (\varphi_7 - i_{78} * \varphi_8) - b_7 * (\dot{\varphi}_7 - i_{78} * \dot{\varphi}_8) - M_7 \\ J_8 * \ddot{\varphi}_8 = c_7 * i_{78} * (\varphi_7 - i_{78} * \varphi_8) + b_7 * i_{78} * (\dot{\varphi}_7 - i_{78} * \dot{\varphi}_8) \\ \quad - c_8 * (\varphi_8 - i_{89} * \varphi_9) - b_8 * (\dot{\varphi}_8 - i_{89} * \dot{\varphi}_9) - M_8: \\ J_9 * \ddot{\varphi}_9 = c_8 * i_{89} * (\varphi_8 - i_{89} * \varphi_9) + b_8 * i_{89} * (\dot{\varphi}_8 - i_{89} * \dot{\varphi}_9) - M_9: \end{cases}$$

Уравнения движения шнековых валов джин-машины для извлечения омертвевших волокон.

### **ЗАКЛЮЧЕНИЕ**

Была создана общая чертежная схема новой конструкции gin machine. Была подготовлена кинематическая схема роликов и свайного барабана, которые обеспечивают работу джин-машины новой конструкции. Была создана схема модели динамического движения роликов и стопочного барабана, которые питают модуль подачи джин-машины. Мы сформулировали уравнения движения, используя второе уравнение Лагранжа, в зависимости от поставщика и динамическую модель движения модуля снабжения. Мы подробно рассмотрели эту часть, поскольку основным рабочим органом в нашей конструкции являются пильные цилиндры. В этом была создана кинематическая схема распиловки валов цилиндров джин-машины новой конструкции. Основываясь на модели движения валов цилиндров пильного станка, мы создали уравнения движения, используя второе уравнение Лагранжа. Момент вращения двигателя по шкиву мы посчитали. Мы не увеличивали расчетную мощность. мощность распиленного цилиндра регулятора мы определили  $P_2=19,91$  кВт, момент вращения распиленного цилиндра мы рассчитали  $T_2=262,243$  Нм. Длину ремня мы определили  $L_{p1} = 2357$ мм. распилили, чтобы цилиндры вращались для ремней, подсчитав количество, мы определили, что  $K = 4$  равно почти целому размеру бедра, давайте округлим в большую сторону. Была создана новая кинематическая схема демонтажа его автомобиля dead fiber release snack. В соответствии с динамической моделью винтовых валов мертвого волокна машины Jin, уравнения



движения были построены с использованием второго уравнения Лагранжа.  $J_{D1}, J_2, J_3, J_{D2}, J_4, J_{D3}, J_5, J_6$  - момент инерции масс которого валы вращаются кг-м<sup>2</sup>;  $\ddot{\varphi}_{D1}, \ddot{\varphi}_2, \ddot{\varphi}_3, \ddot{\varphi}_4, \ddot{\varphi}_{D3}, \ddot{\varphi}_5, \ddot{\varphi}_6, \ddot{\varphi}_{D4}, \ddot{\varphi}_7, \ddot{\varphi}_8, \ddot{\varphi}_9$  - угловые скорости вращающихся масс на валу системы;  $M_{D1}, M_{D2}, M_2, M_3, M_4, M_{D3}, M_5, M_6, M_{D4}, M_7, M_8, M_9$  - моменты нагрузки, воздействующие на вращающиеся валов; - сила ременным приводом  $b_1, b_2, b_3, b_4, b_6, b_7, b_8$  мы коэффициентов диссипации и других ценностей в упругих передачах из книг ГОСТ и справочник конструктор mashinostroitelya и справочник из хлопка первичной обработки.

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## **ПОЭТ, КОТОРЫЙ НАБИРАЕТ ЖЕМЧУЖИНЫ МУДРОСТИ**

*Аннотация. Абдул Хамиду удалось подчинить поэтические веса волнующему сердцебиению, сочный голос поэта звучит синхронно велением – заповедью его души, каждое стихотворение – это своего рода ритм, череда аллюзий, чистых эмоций, фарсовых вдохов, которых нет у других. Книга "Страна мудрости" -это душевная тетрадь поэта, воплощающая в себе уважение и благодарность, прекрасное выражение детской любви к Родине.*

*Ключевые слова: поэзия, поэт, сердце, вдохновение, родина, любовь.*

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## **THE POET WHO COLLECTS PEARLS OF WISDOM**

*Abstract. Abdul Hamid managed to subordinate poetic weights to an exciting heartbeat, the poet's rich voice sounds synchronously with the commandment of his soul, each poem is a kind of rhythm, a series of allusions, pure emotions, farcical breaths that others do not have. The book "The Land of Wisdom" is a sincere notebook of the poet, embodying respect and gratitude, a wonderful expression of children's love for the Motherland.*

*Keywords: poetry, poet, heart, inspiration, homeland, love.*

### **Вступление**

Я знаю поэта Абдул Хамида много лет, он занимается научной и педагогической деятельностью в Ферганском политехническом институте. Его историко-просветительская эпопея "Замок сердца" была опубликована в 2007 году и произвела большое впечатление на любителей литературы.

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также

теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

Творческий ученый и поэт назвал свой следующий поэтический сборник "Страна мудрости". Когда мы читаем примеры творчества, вошедшие в сборник, которые являются воплощениями реалий и идеалов народной мечты, перед нами предстает целостный художественный образ нашей родины-Узбекистана, историческое творчество нашего народа, мужество самоотверженных людей на пути к Независимости нашей Родины, которая имеет богатую историю, уникальные культурные традиции. и образовательное, и научное наследие воплощаются на наших глазах. Лирический герой поэта - Патриотичный человек, который на предыдущих веках нашей Независимости вдохновляет народ к добру.

#### **Результаты и обсуждение:**

Поэт в своих стихах – несравнимая душевная муза, словесный художник природных пейзажей, способная обеспечить тонкий уровень гармонии глубокой философии и изящного лирического образа. Его слова цельны, не перенапрягают слово, не ласкают фразы, которые играют как требование стихотворного веса, рифм и слогов. Напротив, умея подчинять поэтические веса волнующим ударам сердца, сочный голос поэта резонирует в гармонии с решением веления его души – его повелением, каждое стихотворение – имеет свой собственный ритм, представляет собой набор жажды, чистых эмоций, торжествующего вдохновения, которых нет у других.

#### **Вывод:**

Короче говоря, книга "Страна мудрости" – это прекрасное выражение сыновней любви к Матери-Родине, "Дар Независимости" поэта и Евангелие благодарения. Дорогой читатель! Прочитав книгу, вы также сделаете свой собственный вывод. Давайте обсудим оставшуюся часть предложения после прочтения [1].

*Приложение*

### **МАЯКОВСКИЙ ТОЙ ПОРЫ (эссе)**

Реквием...

Анны Ахматовой...

Таких вещей создает чрезвычайно редкий разум...

Речь о важности,

Непревратности

Человеческой жизни,

Как из Библии,

Таврота,

Корана!..  
Слова  
Прошлого,  
Сего  
И грядущего,  
Благосклонного  
Богатого  
И нищего  
Непоколебимого  
Поколения!  
Ради озарения человечности  
И прозрачной вечности,  
Без всякой невзгоды,  
Для душевной свободы,  
Ради независимости  
С решимостью!  
Но поэтический герой –  
Жизненная богиня  
Человеческой природы,  
Изнутри,  
Кажется,  
Ищет истину,  
Предпочитает не кричать,  
Не раскручивать  
Маховика грешной,  
Обманутой,  
Оплаканной души...  
Это  
Не так просто,  
Произведение –  
Божественное везение,  
Несколько образов слиты в едино!  
Но  
Не всем понятно сейчас...  
Напоминает рейс  
Корабля без дна...  
Для некоторых  
Личностей – актёров  
Солидных  
Поэтесса – дура,  
Эссе – авантюра,  
Считают пусто...  
Я несмотря,

На это  
Сумасшествие,  
Все равно  
Поздравляю  
Поэтессу,  
Сердечно скажу  
Ура!  
И подразумеваю  
Поэтесса – чудеса,  
Чудеса – поэтесса!  
Несмотря,  
На идиотизм,  
Космополитизм,  
Религиозность,  
Наши уже  
Удерживают свою психозность,  
Ценят виртуозность,  
Не говорят долой!  
Надежда для нас,  
Придет тот час,  
Всем благополучно  
И созвучно  
Если  
Читать наизусть  
Даже другой  
Поэтессой,  
В будущем порой,  
Когда в обществе никакой класс,  
Человек станет в стране независимым,  
Страна тоже станет как здоровый организм,  
Если собирается недостижимо разумный Кворум,  
Не похожий для нас [2]!

Абдул Хамид

### **АЛЫЕ ЗАМЕТКИ МУЖИКА-КРЕСТЬЯНИНА**

Иногда бывает брак народа,  
Красный порой – дурак народа,  
Про героя самоотверженца  
Негодяй скажет: “Враг народа!”

Злые карьеристы Бухарина рода,  
Баню устроили у отвода,



Газеты пишут грязные вещи,  
Чёрными клеймят “Враг народа!”

Мужик не знал, кормил урода,  
Хвалился, воспитал садовода,  
Тот хояина избил пенками,  
И нагло сдал: “ Враг народа!”

У большевичек такая парода,  
Если встретит раз парохода,  
Даже без развода буйно свестит:  
“Муж брал за горло, он – враг народа!”

Новая церковь нашел хоровода,  
Утром “Интернационал” – ода,  
А рота не откроет божий мужик,  
Грозит тройка: “Враг народа!”

Видели, бывает брак народа,  
Про них скажем дурак народа,  
Из верного ишут изменника,  
Божий мой, Есенин – “Враг народа [2]?!”

Абдул Хамид

## ПОРТРЕТ СЕРГЕЯ ЕСЕНИНА

Сергей Есенин!.. Нет сравнимого поэта!  
Стараюсь не сцене нарисовать иконного портрета:  
По ночам любил ходит по крышам без парапета,  
Очарован белой берёзе, не терпел красного цвета!  
Полководец смель, всегда входил в бой без жилета!  
Скандалист, стихами дерзал музей маск муниципалитета!  
Музикант, один сам сыграл целога квартета!..  
Поезд истории редько встретит такого пассажира,  
Жаль, хмурый проводник принял его как без билета [2]!

Абдул Хамид

## ПОКЛОННИК ПОЭЗИИ

Подражание не парок и для Руса,  
Есть поклонников отлично от Иусиса,  
Гения подражали слова Карана,  
Восточной поэзии, легенд Аруза!

Четырнадцать стишье Пушкина как муза,  
Оды сплетены как виноградная луга,  
Не ради милости говорю истину,  
Такую вещь не найдешь даже у француза!

Давно у церкви восемь аккордов хруста,  
Музой выгоняли иск демона-труса,  
Прадеды, буквоеды наслаждались хором,  
А Шаляпин запевал выше на два яруса!

В азартной мгле шестёрка палит туза,  
Разорённый ломает барного бруса,  
Соловье пение успокоитлихача,  
Вот что изучать у бунтарного Руса!

Поэзия – седло, для наездника не обуза,  
Никто не отбросит золотого груза,  
Когда на поляне конёк Есенина,  
Жаль, не завидовала горная Тулуза!

Поют сверх беспощадную “Марселезу”,  
Красные тожь не принимают Мать Терезу,  
Вавилов горит: “Русь – не лесь красной дравы,  
Ничем не заменить белую берёзу!»

\*\*\*

Красота любит открытость без иллюзии,  
Ока красы против занавесов, шатров жалюзи...  
Я Маяковского –  
Бунтарь,  
Царь  
Ступенчатых рифм  
И реформ.  
Новые нормы  
Не признают бывшие формы,  
Поэт реформатор,  
С окна отбросил штор,  
Жаркий поэт не терпел буржуйной печи,  
Жаль, семья над печью поставила свечи...  
Здесь нет никакой фальсификации,  
Так было до электрификации...  
Мастер-ас мотивации,  
Поэтической активаци,

Словно полковник Запорожной сечи,  
Славно играет мечами речи!  
Владику прессы  
Бесит герой эссэ:  
«Вдохновение – с небеса,  
Как вода речного беса,  
Мощнее «ГЭС»а,  
Рвется на водопад, отбросив шлюзы!»

\*\*\*

Чем караваны плавно ездят паруса  
Краткие волны-слоги – поэтичность Руса,  
Муза как ледакол открыла дальний путь,  
За тем на парусе яхт – стан альбатроса!

Следовать истине – исповедь Христоса,  
Как цветы сада равны верные голоса,  
Поэтам есть подражать ламам Тибета,  
Язычным верам, легендам Лаоса [2]...

Абдул Хамид

## ТОЛКОВЫЙ СЛОВАРЬ

Пик, перевал – юксак тоғ, довон,  
Девятый вал – довулли уммон,  
Владимир Даль – изоҳли комус,  
С корабля на бал – омадли меҳмон!

Абдул Хамид

## ДЕВУШКА МАШЕТ У КОЛОДЦА...

Девушка машет у колодца,  
Позовёт юного молодца:  
“Смотри, с колодца уйдет луна,  
Меня тоже найдешь у отца [2]!”

Абдул Хамид

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## **ОСОБЕННОСТИ ЦИФРОВИЗАЦИИ РОССИЙСКОЙ ЭКОНОМИКИ**

*Аннотация. В статье представлено определение категории «цифровая экономика», систематизированы возможности и угрозы цифровизации российской экономики, приведены планируемые результаты реализации программы «Цифровая экономика Российской Федерации»*

*Ключевые слова: цифровая экономика, цифровизация.*

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## **FEATURES OF DIGITALIZATION OF THE RUSSIAN ECONOMY**

*Abstract: the article presents the definition of the digital economy category, systematizes the opportunities and threats of digitalization of the Russian economy, and presents the planned results of the implementation of the Digital Economy of the Russian Federation program*

*Keywords: digital economy, digitalization.*

Значительные трансформации в российской экономике определены переходом к шестому технологическому укладу и постиндустриальной экономике, закономерным этапом развития которой в условиях современности является цифровая экономика.

Цифровая экономика представляет собой хозяйственную деятельность, в которой ключевыми факторами производства являются данные в цифровом виде, обработка больших объемов и использование результатов анализа которых по сравнению с традиционными формами хозяйствования позволяют существенно повысить эффективность различных видов производства и обслуживания, технологий, оборудования, хранения, продажи, доставки товаров и услуг [5].

Вступление в стадию цифровой экономики влечет за собой всесторонние изменения во всех сферах человеческой жизни, влияющие в том числе и на ее качество. Цифровая экономика открывает новые

возможности, но при этом процесс цифровизации российской экономики усложняется действием комплекса внутренних и внешних угроз. Возможности и угрозы цифровой экономики с точки зрения присутствия в их основе количественных и качественных характеристик систематизированы в таблице 1 [1, 3, 4, 6].

Таблица 1 – Возможности и угрозы цифровизации российской экономики

Возможности		Угрозы	
качественного характера	количественного характера	качественного характера	количественного характера
- создание новых продуктов и услуг и новых способов оказания услуг	- общий рост производительности и труда	- несовершенство и неподготовленностью нормативно-правовой базы	- сокращение рабочих мест и снижение заработной платы
- обеспечение большего уровня доступности товаров и услуг	- снижение издержек в производственной сфере и ускорение бизнес-процессов	- нехватка квалифицированных кадров в сфере информационно-коммуникационных технологий	- рост числа киберпреступлений и цифровое мошенничество
- возникновение принципиально новых бизнес-моделей и новых форм бизнеса	- повышение уровня удовлетворенности как уже известных, так и новых потребностей людей	- неприятие необходимости изменения традиционного способа ведения бизнеса, настороженное отношение к нововведениям	- достаточно низкий уровень общей информатизации
- прозрачность экономических отношений и процесса их мониторинга	- ускорение процессов аккумулирования и передачи значительных массивов данных	- зависимость российской экономики от сырьевых рынков	- недостаток инвестиций, в том числе на приобретение и внедрение новых технологий

Приоритетными задачами реализуемой программы развития цифровой экономики в Российской Федерации является повышение доступности и качества товаров и услуг, произведенных с использованием современных цифровых технологий, увеличение степени информированности и цифровой грамотности, улучшение доступности и качества государственных услуг для граждан, а также безопасности как внутри страны, так и за ее пределами [2, 5].

Результатом реализации программы «Цифровая экономика Российской Федерации» должно быть достижение к 2024 году следующих показателей эффективности (таблица 2) [4, 5].

Таблица 2 – Планируемые показатели эффективности реализации программы «Цифровая экономика Российской Федерации»

Показатель	Планируемое значение к 2024 г.
Число выпускников, профессия которых связана с информационно-коммуникационными технологиями	120000 человек
Число выпускников, имеющих достаточные компетенции в области информационных технологий на среднемировом уровне	800000 человек
Доля населения, имеющего цифровые навыки	40 %
Доля домашних хозяйств, имеющих широкополосный доступ к сети Интернет	97 %
Доля граждан, повысивших свой уровень компетентности в сфере информационной безопасности и медиапотребления	50 %
Доля населения, использующего средства киберзащиты	97 %
Доля субъектов, оснащенных по самым высоким стандартам безопасности коммуникаций государственных и общественных институтов	75 %
Количество реализуемых проектов в цифровой экономике на сумму более 100 млн. рублей	30
Число ведущих организаций – участников крупных проектов на сумму 3 млн. долларов	10
Уровень взаимодействия граждан и предпринимателей посредством цифровых технологий	70 %
Уровень предоставления государственных услуг и сервисов без личного посещения государственных органов	100 %

Следовательно, несмотря на выявленные угрозы, российская цифровая экономика и меры, предпринятые на государственном уровне в области ее развития, направлены на повышение эффективности государственного управления, рост результативности бизнеса, создание благоприятной социодигитальной среды и повышение качества жизни граждан.

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## **ИССЛЕДОВАНИЕ СТАТИЧЕСКИ НЕОПРЕДЕЛИМЫХ НАГРУЗОК НА ПЛАСТИНЫ ОСЕСИММЕТРИЧНЫЕ СОБСТВЕННОЙ ЧАСТОТЕ НА СТАТИЧЕСКИ НАГРУЖЕННЫХ КОЛЬЦЕВЫХ ПЛАСТИНАХ**

*Аннотация. В данной статье исследуется статически неопределимые нагрузки на теории тонких и толстых пластин по таким теориям как Миндлина, Кармона, Кенинг и др. которые выполняется в различных степенях по-разному и комбинируются с граничными условиями.*

*Ключевые слова. Статическая неопределенность, пластины, нелинейности, механика, жесткость, модель, частоты, расчёт, условия.*

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## **RESEARCH OF STATICALLY UNDETERMINABLE PLATE LOADS AXISYMMETRICAL NATURAL FREQUENCY ON STATICALLY LOADED RING PLATES**

*Abstract. This article examines statically indeterminate loads on the theories of thin and thick plates according to theories such as Mindlina, Carmona, Koenig, etc., which are carried out to different degrees in different ways and are combined with boundary conditions.*

*Keywords. Static uncertainty, plates, nonlinearities, mechanics, rigidity, model, frequencies, calculation, conditions.*

Теории пластин подразделяются на теории тонких и толстых пластин. Теории толстых пластин, такие как теория Миндлина, учитывают напряжения сдвига по всей толщине пластины и хорошо применимы к проблемам с дисками. Теории тонких пластин не учитывают сдвиг по толщине пластины. Теории тонких пластин подразделяются на линейные и нелинейные теории. Линейные теории учитывают только небольшие отклонения и не учитывают эффекты напряжений в плоскости. Нелинейные теории объясняют большие отклонения и эффекты в плоскости. Наиболее часто используемой нелинейной теорией тонких пластин является теория фон Кармана. Тонкие круглые пластины широко используются в

механической, гражданской и атомной технике. Круглые пластины с концентрическим отверстием или жестким выступом в центре моделируются как кольцевые пластины [1].

Кениг [3] использовал эту линейную модель для расчета собственных частот кольцевых пластин с учетом нескольких комбинаций граничных условий. Раджу [4] использовал ту же модель для расчета собственных частот кольцевой пластины с учетом девяти простых комбинаций граничных условий. Фогель и Скиннер провели расчеты для тех же случаев, используя другую численную процедуру. Они также провели эксперименты на кольцевых пластинах со свободным и свободным зажимом.

В последние годы было предпринято несколько попыток использовать различные приближенные методы для повышения точности результатов, полученных с помощью линейных моделей, и сравнения эффективности этих методов. Сонцогни и др. В использован метод Рэлея-Ритца для расчета собственных частот кольцевой пластины при четырех сочетаниях граничных условий. Амабили и др. использовали метод предполагаемой моды для расчета собственных частот кольцевой пластины с учетом девяти простых комбинаций граничных условий. Габриэльсон сравнил собственные частоты, полученные им с помощью энергетического метода, с частотами, полученными путем оценки точного решения, и обнаружил хорошее согласие между обоими подходами. Вонг и др.

Насколько нам известно, попыток изучить влияние больших статических деформаций на собственные частоты и формы колебаний кольцевых пластин не предпринималось. Эта информация представляет ценность для проектировщиков и структурных аналитиков, работающих с реальными конструкциями, в которых используются кольцевые пластины. В этой статье мы использовали теорию фон Карма (теорию тонких пластин) для учета больших статических деформаций в осесимметричных кольцевых пластинах. Собственные частоты и формы колебаний получены численно для серии равномерных нагрузок от нуля до уровня нагрузки, при котором максимальное отклонение в два раза превышает толщину пластины. Сообщается о взаимосвязи между приложенной безразмерной нагрузкой, собственными частотами, прогибом и соответствующими изменениями формы колебаний.

Исследуем осесимметричные поперечные собственные частоты кольцевых пластин, изгибаемых под действием постоянной поперечной нагрузки  $p$ . Осесимметричные уравнения движения:

$$D\nabla^4 w + \rho h \frac{\partial^2 w}{\partial t^2} = \frac{1}{r} \left( \frac{\partial^2 w}{\partial r^2} \frac{\partial \Phi}{\partial r} + \frac{\partial w}{\partial r} \frac{\partial^2 \Phi}{\partial r^2} \right) + p \quad (1)$$

$$\nabla^4 \Phi = -\frac{Eh}{r} \frac{\partial^2 w}{\partial r^2} \frac{\partial w}{\partial r} \quad (2)$$

где  $w(r, t)$  — поперечный прогиб,  $t$  — время,  $\rho$  — плотность материала,  $h$  — толщина пластины,  $\Phi$  — функция напряжения. Модуль из жесткость  $D$

$$D = \frac{Eh^3}{12(1-\nu^2)}$$

где  $E$  — модуль Юнга, а  $\nu$  — коэффициент Пуассона. Осесимметричный дифференциал оператор  $\nabla^4$  является

$$\nabla^4 = \frac{\partial^4}{\partial r^4} + \frac{2}{r} \frac{\partial^3}{\partial r^3} - \frac{1}{r^2} \frac{\partial^2}{\partial r^2} + \frac{1}{r^3} \frac{\partial}{\partial r} \quad (3)$$

Введем безразмерные переменные, обозначаемые шляпками и определяемые следующим образом:

$$\hat{r} = \frac{r}{R}, \hat{w} = \frac{w}{h}, \hat{\Phi} = \frac{\Phi}{Eh^3},$$

$$\hat{p} = 12(1-\nu^2) \frac{p}{E}, \hat{t} = \sqrt{\frac{D}{\rho h}} \frac{t}{R^2} \quad (4)$$

где  $R$  — внешний радиус кольцевой пластины. Подставив уравнение (4) в уравнения (1) и (2) и сняв шляпы, получим

$$\nabla^4 w + \frac{\partial^2 w}{\partial t^2} = \frac{12(1-\nu^2)}{r} \left( \frac{\partial^2 w}{\partial r^2} \frac{\partial \Phi}{\partial r} + \frac{\partial w}{\partial r} \frac{\partial^2 \Phi}{\partial r^2} \right) + \alpha p \quad (5)$$

$$\nabla^4 \Phi = -\frac{1}{2r} \frac{\partial}{\partial r} \left( \frac{\partial w}{\partial r} \right)^2 \quad (6)$$

Где

$$\alpha = \left( \frac{R}{h} \right)^4$$

Выразим прогиб пластины и функцию напряжений как сумму статических составляющих, обозначаемых  $w_s(r)$  и  $\Phi_s(r)$ , и динамических составляющих, обозначаемых  $u(r, t)$  и  $\varphi(r, t)$ ; то есть,

$$w(r, t) = w_s(r) + u(r, t) \quad (7)$$

$$\Phi(r, t) = \Phi_s(r) + \phi(r, t) \quad (8)$$

Эта процедура повторяется для каждой формы моды и связанной с ней собственной частоты и функции напряжения с использованием различных наборов начальных предположений о форме моды, собственной частоте и функции напряжения.

Представлена численная процедура решения задачи осесимметричных колебаний кольцевых пластин. Модель учитывает геометрические нелинейности из-за больших деформаций. Мы использовали эту процедуру для получения собственных частот и форм линейных незатухающих мод для шести комбинаций граничных условий. Сравнение первых двух собственных частот зажатой плоской пластины с имеющимися в литературе показывает хорошее согласие, что подтверждает нашу процедуру. Наши результаты показывают, что большие статические отклонения оказывают существенное влияние на собственные частоты пластины. В отличие от предсказаний линейной теории, было обнаружено, что собственные частоты значительно увеличиваются при отклонениях, меньших толщины пластины, что ставит под сомнение использование линейной теории в этом диапазоне.

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## **ИССЛЕДОВАНИЕ ПРИМЕНЕНИЯ МЕТОДА КОНЕЧНЫХ ЭЛЕМЕНТОВ ДЛЯ РЕШЕНИЯ СТАТИЧЕСКИ НЕОПРЕДЕЛИМЫХ СИСТЕМ СТЕРЖНЕЙ**

*Аннотация. В данной статье рассматривается применение метода конечных элементов (МКЭ) для решения статически неопределимых систем стержней. МКЭ является мощным численным методом, который позволяет эффективно решать сложные задачи, учитывая различные физические эффекты и оптимизируя дизайн системы стержней.*

*Ключевые слова. Метод конечных элементов, неопределимые системы, численный метод, задачи, эффекты, воздействия, стержни, модель.*

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## **STUDY OF THE APPLICATION OF THE FINITE ELEMENT METHOD FOR SOLVING STATICALLY INDETERMINATE SYSTEMS OF RODS**

*Annotation. This paper discusses the application of the finite element method (FEM) to solve statically indeterminate member systems. FEM is a powerful numerical method that can effectively solve complex problems by taking into account various physical effects and optimizing the design of the rod system.*

*Keywords. Finite element method, indeterminate systems, numerical method, problems, effects, influences, rods, model.*

Метод конечных элементов (МКЭ) является одним из наиболее эффективных численных методов для решения дифференциальных уравнений. Он широко используется в различных областях науки и техники, включая механику деформируемого твердого тела. В данной статье мы рассмотрим применение МКЭ для решения статически неопределимых систем стержней.

Статически неопределимые системы стержней представляют собой системы, в которых количество уравнений связи между перемещениями стержней меньше, чем количество самих стержней. Это означает, что такие



системы не могут быть однозначно определены статически и требуют дополнительных условий для их решения.

Для применения МКЭ к статически неопределимым системам стержней необходимо использовать метод конечных элементов в пространстве. В этом методе система стержней разбивается на маленькие элементы, и решение дифференциального уравнения внутри каждого элемента приближается с помощью базисных функций. Затем решение дифференциального уравнения на всей системе стержней находится путем объединения решений каждого элемента.

При использовании МКЭ для решения статически неопределимых систем стержней необходимо учитывать дополнительные условия, которые обеспечивают корректность решения. Одним из таких условий является использование метода сил, который позволяет определить силы, действующие на каждый элемент системы стержней. Эти силы могут быть использованы для обеспечения равновесия системы или для задания дополнительных условий связи между перемещениями стержней.

Применение МКЭ для решения статически неопределимых систем стержней имеет ряд преимуществ. Во-первых, этот метод позволяет эффективно решать сложные задачи, которые не могут быть решены аналитически. Во-вторых, он позволяет учитывать различные физические эффекты, такие как нелинейность свойств материала или взаимодействие с другими системами. В-третьих, МКЭ позволяет проводить оптимизацию дизайна системы стержней, изменяя ее параметры для достижения определенных целей.

Однако, при использовании МКЭ для решения статически неопределимых систем стержней необходимо учитывать некоторые ограничения. Например, точность решения может зависеть от выбора базисных функций и параметров элементов. Кроме того, решение может быть чувствительным к выбору дополнительных условий связи между перемещениями стержней.

Применение метода конечных элементов для решения статически неопределимых систем стержней является эффективным и мощным инструментом в механике деформируемого твердого тела. Он позволяет решать сложные задачи, учитывая различные физические эффекты и оптимизируя дизайн системы стержней. Однако, для достижения точного и надежного решения необходимо учитывать ограничения этого метода и тщательно выбирать параметры и дополнительные условия связи.

Одной из причин, почему МКЭ может успешно решать сложные задачи, является его способность аппроксимировать сложные геометрии и физические явления. При использовании МКЭ система стержней разбивается на маленькие элементы, и решение дифференциального уравнения внутри каждого элемента приближается с помощью базисных функций. Затем решение дифференциального уравнения на всей системе

стержней находится путем объединения решений каждого элемента. МКЭ позволяет учитывать различные физические эффекты, такие как нелинейность свойств материала или взаимодействие с другими системами. Это делает его особенно полезным для решения сложных задач, где аналитические методы могут быть неэффективными или невозможными. В механике деформируемого твердого тела МКЭ может использоваться для моделирования поведения конструкций при различных нагрузках. Он может учитывать нелинейность свойств материала, такую как пластичность или нелинейная упругость, а также взаимодействие с другими системами, такими как жидкости или газы. МКЭ позволяет проводить оптимизацию дизайна системы стержней, изменяя ее параметры для достижения определенных целей. Это может быть полезно, например, при проектировании зданий или мостов, где нужно найти оптимальное соотношение между прочностью и стоимостью.

Метод конечных элементов (МКЭ) является мощным инструментом для проведения оптимизации дизайна стержней. Он позволяет изменять параметры системы стержней для достижения определенных целей, таких как увеличение прочности или снижение стоимости. Оптимизация дизайна стержней с помощью МКЭ основана на решении целевой функции, которая учитывает различные факторы, такие как прочность, стоимость или вес системы стержней. Целью оптимизации является нахождение наилучшего сочетания параметров, которое обеспечивает достижение заданных целей.

Процесс оптимизации дизайна стержней с помощью МКЭ включает несколько шагов. Сначала необходимо определить целевую функцию и ограничения, которые должны быть учтены при изменении параметров системы стержней. Затем необходимо определить переменные параметры, которые будут изменены в процессе оптимизации.

Далее, используя МКЭ, необходимо решить дифференциальное уравнение для каждого варианта параметров и оценить значения целевой функции и ограничений. Затем, используя методы оптимизации, такие как метод градиентного спуска или генетические алгоритмы, необходимо найти оптимальное сочетание параметров, которое обеспечивает достижение заданных целей.

Важно отметить, что процесс оптимизации дизайна стержней с помощью МКЭ может быть сложным и требует тщательного выбора целевой функции и ограничений. Кроме того, необходимо учитывать ограничения, связанные с возможностями материалов и конструктивными ограничениями.

МКЭ может использоваться для проведения оптимизации дизайна системы стержней, изменяя ее параметры для достижения определенных целей. В этом случае формулы для оптимизации могут быть различными в зависимости от выбранной целевой функции и ограничений. Некоторые из формул, используемых в оптимизации дизайна стержней, могут включать

градиентный спуск или генетические алгоритмы. Важно отметить, что формулы, связанные с МКЭ, могут быть более сложными и зависят от конкретной задачи и используемых методов. Однако, приведенные выше формулы являются основными и широко используются в практике применения МКЭ.

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## **СОВЕРШЕНСТВОВАНИЕ ТЕХНИКИ НАПАДЕНИЯ В ВОЛЕЙБОЛЕ**

*Аннотация. В статье рассматриваются особенности совершенствование техники нападения в волейболе. Нападающие удары - это самый эффективный способ атакующих действий команды. Выполняются эти технические приемы в прыжке с разбега у сетки.*

*Ключевые слова: игра, команда, способ, техника, требования, нападения, подготовка.*

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## **IMPROVING ATTACK TECHNIQUES IN VOLLEYBALL**

*Annotation. The article discusses the features of improving attack techniques in volleyball. Offensive strikes are the most effective way for a team to attack. These techniques are performed in a running jump at the net.*

*Key words: game, team, method, technique, requirements, attacks, preparation.*

Нападающие удары – это самый эффективный способ атакующих действий команды. Выполняются эти технические приемы в прыжке с разбега у сетки. Несмотря на внешнюю, кажущуюся, простоту игры, техника волейбола очень сложна. Эта сложность в первую очередь объясняется тем, что все технические приемы игры выполняются при кратковременном соприкосновении рук и мяча. К тому же, эти приемы нужно выполнять всегда эффективно, несмотря ни на какие изменения условий игры [2,5].

Современный волейбол предъявляет высокие требования к техническому мастерству спортсменов. Поэтому внимание к технической подготовке волейболистов приобретает большую значимость.

Наблюдая за нападающими игроками можно увидеть, как возросло значение физической подготовки. Они должны обладать большим набором технических приемов, которые невозможно выполнить без должной физической подготовки: это - прием, атака, силовая подача, перемещения и защитные действия на задней линии, блок.

Есть все основания характеризовать нападающий удар как самый важный, решающий технический элемент игры - 60-65% выигранных командой очков приносит нападение.

Техническая подготовка — это процесс обучения волейболиста технике движений и действий, служащих средством ведения игры, а также совершенствования. Спортивная техника должна рассматриваться в тесной взаимосвязи с уровнем развития физических качеств. Чем выше уровень физической подготовленности, тем успешнее идет обучение в совершенствование.

Основными задачами технической подготовки являются:

- . Расширение запаса разнообразных навыков и умений, что позволяет правильно выполнять новые движения и быстрее овладевать ими.

- . Овладение рациональной техникой (правильная структура движений, выполнение их без излишних напряжений).

- . Улучшение деталей техники за счет выявления причин появления ошибок (при выполнении технических приемов) и их устранения.

- . Совершенствование техники за счет изменения формы движений, создавая определенные трудности при выполнении технических приемов.

- . Совершенствование техники игры в соревновательных условиях.

Техническая подготовка - это многолетний процесс, который условно можно разделить на два этапа начальное обучение технике игры дальнейшее совершенствование [6,8].

При описании техники нападающего удара в волейболе и разработке упражнений использовались научные знания российских физиологов М.М. Богена (1985) П.Я. Гальперина (1969), а также И.П. Павлова (1951).

Технику волейбола составляют специальные технические, которые волейболисты применяют в процессе игры. Приемы техники волейбола следующие: перемещения, подачи, прием и передачи, нападающие удары, блокирование. Каждый прием содержит несколько способов его выполнения. Мастерство волейболиста и определяется тем, насколько разнообразна и совершенна его техника.

Перемещения - это способы передвижения игрока на площадке для выполнения технических приемов и тактических действий. Если игрок хорошо выполнит, то или иное перемещение, то он будет находиться в удобном исходном положении. Такое исходное положение в волейболе называют стойками. Способы перемещений в волейболе различают такие: приставные шаги, двойной шаг, скачок, бег, прыжки, падения. Приставные

шаги применяются для перемещения, когда у игрока имеется достаточно времени.

Двойной шаг применяется при перемещениях вперед и назад, когда требуется быстро выйти к мячу и приставными шагами игрок сделать это уже не успеет.

Скачок - более быстрый способ перемещения, чем двойной и приставные шаги. Выполняется как двойной шаг, так и приставной. Скачок может также выполняться после бега и перемещения приставными шагами.

Бег применяется в тех случаях, когда надо быстро преодолеть сравнительно большое расстояние, например, когда мяч выходит за пределы площадки. Прыжки применяются при выполнении главным образом нападающих ударов и блокирования [1].

Подачей начинается игра в волейбол. Сильнейшие волейболисты используют подачу и как средство нападения. Технический прием подачи выглядит так: игрок располагается за лицевой линией, подбрасывает мяч и ударом одной руки направляет его на сторону противника. На выполнение подачи игроку дается 8 секунд.

В подаче различают: исходное положение, подбрасывание мяча и замах, удар по мячу и движение после удара по мячу. Успех в выполнении подачи зависит от умения согласовывать свои движения по отношению к летящему так, чтобы удар по мячу был произведен в высшей точке что обеспечивает эффективность подачи (силу и точность). По своему характеру подачи можно разделить на силовые, нацеленные и планирующие. полета в самых неожиданных направлениях.

По способу выполнения подачи можно разделить на нижнюю прямую, верхнюю прямую, верхнюю боковую, в прыжке [2].

Прием и передачи мяча. Когда игроки принимают мяч от противника, говорят о технике приема мяча. Когда мяч игроки направляют своему партнеру для нападающего удара, говорят о технике передачи мяча.

Существуют различные способы приема и передачи мяча. Эти способы следующие: верхняя передача двумя руками вверх-вперед, над собой, вверх-назад, прием мяча снизу двумя руками; прием мяча сверху двумя руками с последующим падением; прием мяча снизу одной рукой с последующим падением.

*Нападающие удары* - это самый эффективный способ атакующих действий команды. Выполняются эти технические приемы в прыжке с разбега у сетки. Основной способ нападающего удара - прямой нападающий удар «по ходу», когда направление полета мяча совпадет с направлением разбега игрока перед прыжком.

*Нападающий удар с переводом* - разновидность прямого дара, это такой удар, когда направление полета мяча после дара не совпадает с направлением разбега игрока перед прыжком.



*Блокирование* – эффективное средство борьбы против нападающих ударов непосредственно над сеткой. Ориентируясь по направлению передачи, блокирующий выходит в зону предполагаемой атаки и наблюдает за действиями нападающего игрока. Момент начала прыжка при блокировании зависит от действий нападающего игрока.

В момент удара по мячу нападающего игрока блокирующий переносит руки через сетку, стремясь встретить удар на стороне противника.

Успех в блокировании зависит от таких основных факторов; выбор места для блокирования, своевременный прыжок и постановка рук в момент удара (собственно блокирование).

Нападающие удары изучают в такой последовательности: прямой нападающий удар по ходу разбега, нападающий удар с переводом влево, затем вправо боковой нападающий удар, который тоже может быть с переводом.

Таким образом, технику нападения волейбола составляют специальные технические приемы. Мастерство волейболиста и определяется тем, насколько разнообразна и совершенна его техника.

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## **ИНФОРМАЦИОННОЕ ОБЕСПЕЧЕНИЕ ГРАДОСТРОИТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ**

*Аннотация. В статье рассматривается роль и значение информационного обеспечения для градостроительной деятельности в муниципальных образованиях.*

*Ключевые слова: информационное обеспечение; государственный заказ; инвестиционно-строительный комплекс.*

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## **INFORMATION SUPPORT FOR URBAN PLANNING ACTIVITIES**

*Abstract. The article discusses the role and importance of information support for urban planning activities in municipalities.*

*Key words: information support; government order; investment and construction complex.*

В современных хозяйственных условиях, когда реально функционирующие бизнес-субъекты вынуждены преодолевать последствия экономического кризиса, особую значимость приобретают проблемы поиска дополнительных возможностей для обеспечения устойчивости организаций в динамике внешних факторов.

Системы управления в организациях различного типа пытаются решить подобную проблему за счет привлечения мер государственной поддержки, формирующихся в системе госрегулирования и способных оказать действенную помощь в реализации многих задач и, в первую очередь, задачи обеспечения заказами. Вполне закономерен, в этой связи, повышенный интерес представителей реального сектора к

государственному заказу, который формируется сегодня в рамках относительно нового, самостоятельного направления - государственного предпринимательства, видоизменяющего традиционную систему госрегулирования.

Государственный заказ, как экономическое явление, получило наибольшее развитие в инвестиционно-строительной сфере с ее ярко выраженной спецификой - нацеленностью на достижение социального (а значит общегосударственного) эффекта, способностью к формированию целостной градостроительной среды, ориентированной на синтезирование нескольких аспектов: строительства, инвестирования, градоразвития и создания условий жизнедеятельности населения, развития организаций, участвующих в инвестиционно-строительном процессе.

Ключевым звеном в совокупности рассматриваемых составляющих служит инвестиционно-строительный комплекс (ИСК), который является по-сути проблемно-ориентированным хозяйственным комплексом, обладающим четкой территориальной (региональной) принадлежностью.

Региональные ИСК нуждаются в привлечении адекватных управленческих механизмов, таких, которые способны создать баланс предпринимательских интересов, детерминировать единство инновационных инициатив субъектов ИСК и комплекса в целом. В управлении инвестиционно-строительной сферой особую роль играют градостроительные компоненты.

Следует учитывать, что эффективность градостроительного регулирования обусловлена согласованностью действий всех участников этого процесса, причем не только тех, что оказывают на него прямое воздействие, но субъектов косвенного воздействия, формирующих благоприятную среду, способствующую реализации целей, задач, устремлений субъектов региональных ИСК.

Достижение согласованности (многоплановой и сложной по своей экономической природе) возможно в том случае, если в сфере градостроительства функционируют структурно целостные информационные системы, соответствующие принципам необходимости и достаточности. Информационные системы способны обеспечить создание взаимосвязей в ИСК; создать фундамент для исключения противоречий, который могут затормозить реализацию региональных градостроительных программ, а также сформировать условия для снижения издержек, которые в капитальном строительстве весьма высоки.

В современном мире градостроительство невозможно без комплексного информационного обеспечения. Оно включает в себя анализ больших данных, использование ГИС-технологий и интеграцию различных информационных систем.

Большие данные позволяют анализировать тенденции развития городов, паттерны перемещения населения и эффективность использования

земельных ресурсов. ГИС-технологии же применимы для картографирования, планирования землепользования и управления инфраструктурой.

Интеграция информационных систем способствует координации действий всех участников процесса: от застройщиков до муниципальных служб. Это обеспечивает прозрачность процесса принятия решений и повышает эффективность градостроительной политики.

Таким образом, информационное обеспечение является ключом к созданию устойчивых и функциональных городских пространств, способствующих комфорту жителей и экологическому благополучию.

При этом рационализация информационного обеспечения в градостроительной деятельности является одним из реальных шагов к установлению информационного общества, что позволяет рассматривать его как важнейшую макроэкономическую задачу.

Информационная система обеспечения градостроительной деятельности (ИСОГД) — организованный в соответствии с требованиями Градостроительного кодекса РФ систематизированный свод документированных сведений о развитии территорий, их застройке, о земельных участках и иных сведениях, необходимых для обеспечения органов государственной власти, органов местного самоуправления, физических и юридических лиц достоверной информацией, необходимой для осуществления градостроительной, инвестиционной и иной хозяйственной деятельности.

### **Федеральный уровень ведения ИСОГД**

«Новый» Градостроительный кодекс, принятый в 2004 году до 2011 года исключал ведение ИСОГД на федеральном уровне и устанавливал обязательность ведения ИСОГД только на муниципальном уровне (а именно, на уровне городских округов и муниципальных районов).

Изменением в Градостроительный кодекс от 20 марта 2011 г. введена новая статья № 57.1, которая определяет Федеральную государственную информационную систему территориального планирования (ФГИС ТП).

Оператором ФГИС ТП является Министерство экономического развития Российской Федерации (с 26 декабря 2014 года по настоящее время).

### **Региональный уровень ведения ИСОГД**

Повсеместное ведение региональных ИСОГД в настоящее время Градостроительным кодексом РФ пока не предусмотрено. Однако, это не ограничивает субъекты Российской Федерации самостоятельно принимать нормативные акты, регулирующие создание и ведение ИСОГД регионального уровня.

По состоянию на сегодняшний день ведение региональных ИСОГД действует лишь в части регионов:

Белгородская область, Волгоградская область, Калининградская область, Калужская область, Московская область, Оренбургская область, Тюменская область, Ярославская область.

Для реализации проектных решений по системе и территориального планирования и градостроительства субъектов Российской Федерации и согласования реализации проектных решений документов территориального планирования муниципальных образований необходимо определить порядок взаимодействия субъектов градостроительной деятельности по формированию и ведению единого информационного банка данных субъектов градостроительной деятельности региона.

Только так возможно повышение деятельности органов муниципальной и региональной власти в системе градостроительства.

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## **ВЛИЯНИЕ ЗОЛЫ ТЭЦ «АНГРЕН» И ХИМИЧЕСКОЙ ДОБАВКИ СУПЕРПЛАСТИФИКАТОРА НА ТЕПЛОПРОВОДНЫЕ СВОЙСТВА ГАЗОБЕТОНА**

*Аннотация. В статье изложено состояние развития неавтоклавного газобетона путем использования летучей золы для улучшения тепловых свойств конструктивных элементов здания. Рассмотрена возможность использования техногенных отходов в качестве заполнителя легкого бетона путем использования топливной золы бурого угля.*

*Ключевые слова: бетон, цемент, летучая зола, прочность, газобетон, пористость, суперпластификатор.*

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## **FOREIGN EXPERIENCE IN RECYCLING SOLID FUEL COMBUSTION PRODUCTS FROM COAL-FIRED POWER PLANTS**

*Abstract. The article outlines the status of development of non-autoclaved aerated concrete through the use of fly ash to improve the thermal properties of building structural elements. The possibility of using technogenic waste as a filler for lightweight concrete through the use of brown coal fuel ash is considered.*

*Key words: concrete, cement, fly ash, strength, aerated concrete, porosity, superplasticizer.*

Газобетон представляет собой цементный или известковый раствор, классифицируемый как легкий бетон, в котором воздушные пустоты улавливаются в матрице раствора с помощью газообразователя. По общим характеристикам, газобетон относится к группе ячеистых бетонов. Важным преимуществом газобетона является его легкий вес, что позволяет экономить при проектировании несущих конструкций, в том числе



фундамента и стен нижних этажей. Обеспечивает высокую степень теплоизоляции и значительную экономию материала за счет пористой структуры. При соответствующем методе производства можно получить газобетон в широком диапазоне плотностей (300-1800 кг/м<sup>3</sup>), что обеспечивает гибкость в производстве продукции для конкретного применения (конструкционных, перегородочных и изоляционных марок). В прошлом было проведено много исследований свойств газобетона. Газобетон изначально задумывался как изоляционный материал, возобновился интерес к его структурным характеристикам ввиду его меньшего веса, экономии материала и возможности крупномасштабной утилизации твердых отходов, таких как пылевидная топливная зола [1].

В последние годы при производстве бетона в строительной практике все шире применяются высокоэффективные поликарбоксилатные суперпластификаторы. В зарубежной литературе суперпластификаторы этой группы называются «гиперпластификаторами». Эти виды пластификаторов высокоэффективны даже в сравнительно небольших дозах и независимо от типа и состава цемента позволяют сохранять первоначальную плотность и нерасслаивающиеся свойства бетонной смеси в течение длительного времени даже при низких водоцементных соотношениях [2, 3].

Пористый легкий бетон сегодня применяется при строительстве общественных зданий, несмотря на его невысокую цену и преимущества физико-механических свойств, основными его недостатками являются низкая прочность, водопоглощение и высокие требования к используемым наполнителям. В настоящее время проводятся различные научно-исследовательские работы по использованию различных химических и минеральных добавок для их устранения и снижения себестоимости продукции. Сегодня для повышения различных свойств бетона становится популярным модифицировать его с помощью различных химических добавок.

Использование суперпластификаторов на основе поликарбоксилата важно для устранения имеющихся у них недостатков и улучшения свойств при приготовлении газобетонов. При использовании золы-уноса в качестве наполнителя при производстве газобетонных блоков улучшаются водопоглощение, морозостойкость, прочностные и теплопередающие свойства газобетона, но увеличивается потребность в воде из-за мягкости золы-уноса для приготовления такой смеси. На основании изложенных данных для устранения этого недостатка и повышения качества приготовления смесей, экономии энергии и ресурсов, повышения прочности цементного камня необходимо использовать суперпластификаторы на основе поликарбоксилатов.

Газобетон обладает превосходной теплоизоляцией благодаря своей ячеистой структуре. Теплопроводность газобетона зависит от плотности,

влажности и состава материала. Поскольку теплопроводность во многом зависит от плотности, с точки зрения теплопроводности не имеет большого значения, является ли продукт влажным или автоклавным. Количество пор и их распределение также имеют решающее значение для теплоизоляции. Чем мельче поры, тем лучше изоляция. Поскольку на теплопроводность влияет содержание влаги (увеличение влажности на 1% по массе увеличивает теплопроводность на 42%), ее не следует указывать в сухом состоянии в печи. Основываясь на требованиях к тепловым характеристикам зданий, Тада предложил оптимальную конструкцию материала [4]. Теплопроводность ( $\lambda$ ) варьируется от 0,1 до 0,7 W/(m °C) при значениях сухой плотности 400-1700 кг/м<sup>3</sup> и примерно в 2-20 раз меньше, чем у бетона нормальной массы, который находится в диапазоне 1,6-2,0 W/(m °C) [5, 6]. Как правило, в газобетонах коэффициент теплопроводности во многом зависит от плотности и не зависит от автоклавирования.

Мелкий порошок переработанного бетона можно использовать в качестве хорошего вспомогательного вяжущего материала для производства неавтоклавного газобетона, а температура отверждения неавтоклавного метода оказывает большое влияние на пористую структуру неавтоклавного газобетона. С повышением температуры отверждение пористости неавтоклавного газобетона увеличивается, количество и объемная доля макропор меняется. Увеличение пористости приводит к снижению теплопроводности и прочности неавтоклавного газобетона при растяжении.

Изучено влияние рецептурных факторов на структурообразование и свойства неавтоклавного газобетона с улучшенными характеристиками. Неавтоклавные газобетоны с заменой части цемента от 4% до 16% микрокремнеземом показали более высокие прочностные характеристики по сравнению с газобетонами, в которых часть цемента заменена на добавку из доменного молотого шлаком и комплексную добавку из микрокремнезема.

Сопоставление результатов с результатами других авторов. Они предложили использовать рецептурные коэффициенты для улучшения физико-механических свойств газобетона; прирост прочности на сжатие колебался от 16% до 22%. Исследования по повышению прочности газобетона за счет рецептурных коэффициентов по сравнению с контрольным составом составило до 46%.

Ими проанализированы не только качественные и количественные закономерности улучшения качества газобетона, но и проанализирована принципиальная сущность процесса структурообразования неавтоклавного газобетона, что доказало хорошую совместимость применяемых рациональных компонентов, а именно микрокремнезем, для лучшего формирования микроструктуры, что было подтверждено на микроуровне. То есть предлагаемые ими частицы, являющиеся модификаторами газобетона, выступают в роли центров кристаллизации, позволяя создать

плотную упаковку частиц в межпоровых перегородках, одновременно корректируя правильную рациональную структуру пор и создавая бетон не только с повышенными прочностными характеристиками, но и с улучшенной структурой.

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## **ЭНЕРГО- И РЕСУРСΟΣБЕРЕГАЮЩИЕ ТЕХНОЛОГИИ ПРОИЗВОДСТВА БЕТОНА НА ОСНОВЕ ИСПОЛЬЗОВАНИЯ СОЛНЕЧНОЙ ЭНЕРГИИ**

*Аннотация. В статье рассматриваются вопросы производства строительных материалов, значимость отрасли для экономики каждой страны, её высокий уровень материалоемкости. Кратко изложены перспективы использования солнечной энергии для термообработки различных видов бетонов, что позволит сэкономить до 50 % традиционных видов топлива.*

*Ключевые слова: энергоэффективность; ресурсосбережение; солнечная энергия; бетон; арболит; пенобетон; температура; влажность.*

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## **ENERGY- AND RESOURCE-SAVING TECHNOLOGIES FOR CONCRETE PRODUCTION BASED ON THE USE OF SOLAR ENERGY**

*Abstract. The article discusses the issues of production of building materials, the importance of the industry for the economy of each country, its high level of material intensity. The prospects for using solar energy for heat treatment of various types of concrete are briefly outlined, which will save up to 50 % of traditional fuels.*

*Keywords: energy efficiency, resource saving, solar energy, concrete, wood concrete, foam concrete, temperature, humidity.*

Проблема рационального использования энергетических ресурсов становится все более актуальной во всем мире и ее решение становится стратегической задачей для многих государств. Продолжающийся мировой экономический кризис, устойчивый рост цен на природные энергоресурсы,



проблемы экологии, увеличение выбросов вредных веществ и парниковых газов в атмосферу обуславливают необходимость принятия комплексных мер по решению вопросов энергосбережения и энергоэффективности.

Производство строительных материалов является важной отраслью экономики страны, имеет развитую структуру и в значительной степени обеспечивает потребности внутреннего строительства. В то же время данная отрасль характеризуется большим потреблением энергоресурсов, издержками производства и высоким уровнем материалоемкости. Удельный вес используемого импортного сырья, материалов, покупной продукции, топлива в себестоимости продукции остается высоким.

Проблема поиска новых источников энергии является одной из важнейших, поскольку от нее зависит дальнейшее развитие всех отраслей промышленности во всех странах мира. Для снижения энергоемкости, материалоемкости, себестоимости строительной отрасли необходимо активно привлекать инновационные технологии, в том числе с использованием возобновляемых источников энергии. Как известно, для существующих и используемых в настоящее время технологий, источники углеводородов – нефть и газ незаменимы и, вероятно, в конце этого столетия их запасы на Земле исчерпаются. Использование солнечной энергии является одним из самых простых и недорогих [1, 2].

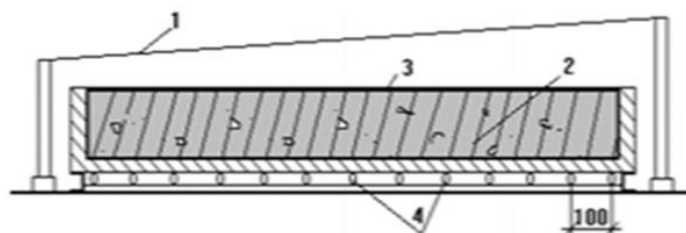
Одной из первых задач является проблема теплообмена производимого изделия с окружающей средой. Передача тепла при нагреве бетона происходит через стенки формы на ранней стадии с повышением температуры бетона со сторон формы, обращенных к солнцу. При нагреве бетона температурные поля претерпевают определенные изменения и происходит теплообмен при перемещении тепла от бетона наружу. Когда формованные изделия выдерживаются в пленочных камерах, передача тепла происходит наружу до того, как бетон достигнет максимальной температуры; то же самое происходит при охлаждении. Расчеты показали, что теплообмен со средой в процессе нагрева не имеет решающего значения при термической обработке бетона летом. В холодные месяцы или в дождливую пасмурную погоду, когда разность температур окружающего воздуха и бетона очень заметна, этот процесс имеет большое значение. В этом случае необходимо либо продлить время выдержки бетона в форме, либо использовать дублирующий источник прогрева. Исследование вопросов теплопередачи позволяет разработать технологию термической обработки изделий [3, 4].

На основе теоретических и экспериментальных исследований разработана технологии производства различных бетонных изделий на заводских полигонах с термической обработкой продукции на основе использования солнечного теплового излучения. Технология осуществляется следующим образом. Подготовленные к укладке бетона формы на полигоне должны быть зачищены после распалубки от ранее



изготовленных изделий и смазаны. Далее устанавливается арматура с крепежом, обеспечивающая заданный проектом защитный слой бетона. Бетонная смесь может быть доставлена от бетоносмесителя в форму различными способами (автотранспорт, бункеры, автобетононасосы), затем последовательно производится уплотнение, выравнивание поверхности изделий и укладка формованного изделия с плотным прилеганием к бокам формы. Для более эффективного использования солнечной энергии формовку изделия следует начинать с 8 часов утра, чтобы наиболее мощный поток излучения солнца дал возможность в течение суток передать бетону больше тепла, а, следовательно, обеспечить быстрое затвердевание бетона.

При разработке технологии серьезное внимание должно быть уделено определению оптимальных режимов выдержки изделия в форме. Исследования показали, что за сутки бетон приобретает прочность, равную 50-60 % проектной, но в особо жаркие дни прочность за сутки достигает 70-75 %. Далее производят распалубку затвердевшего изделия, укладывают на полигоне штабелями, накрывают брезентом или полиэтиленовой пленкой и оставляют в таком положении на 24 часа, в течение которых бетон достигает проектной прочности до 70-80 %. При хранении изделий на полигоне их штабеля лучше накрывать брезентом, который рекомендуется поливать водой через каждые 2-3 часа в течение дня.



**Рис. 1. Схема интенсификации твердения бетона электрическими трубчатыми нагревателями в светопрозрачной камере. 1 – светопрозрачное покрытие, 2 – свежеформованное изделие, 3 – пленкообразующий состав, 4 – электрические трубчатые нагреватели.**

Исследования показали, что формованные изделия удобно удерживать в световой камере изготовленного из полиэтиленовой пленки. Эту камеру надвигают на штабель, а изделие держат в ней, как в теплице, которая продолжает нагреваться от проникающих через пленку солнечные лучи. В холодное время года формованные изделия укладываются в пленочную камеру, в которую сверху и снизу подается тепло от ТЭНов или инфракрасных излучателей. Такой дополнительный подвод тепла к солнечному излучению позволяет обеспечить в течение суток достижение проектной прочности бетона до 75-80 %. При использовании данной технологии поверхность бетона и изделий покрывают пленкообразующей жидкостью, которая через 20-30 минут застывает в виде невидимой пленки

толщиной 100 микрон и надежно защищает бетон от потери влаги (рис. 1). Для дополнительного подогрева бетона в этом случае расходуется от 20 до 60 кВт электроэнергии на 1 м<sup>3</sup> бетона, что значительно меньше, чем при паровом или электрическом нагреве. Настоящий процесс проводится только при разнице температур бетонной поверхности и окружающего воздуха не более 20 °С [5, 6, 7].

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## **РОЛЬ УЧЕБНЫХ ДИСКУССИЙ В СОВЕРШЕНСТВОВАНИИ МОНОЛОГИЧЕСКОЙ И ДИАЛОГИЧЕСКОЙ РЕЧИ СТУДЕНТОВ- ЮРИСТОВ**

*Аннотация. В статье говорится о роли учебных дискуссий в развитии монологической и диалогической речи у студентов-юристов. Особое внимание в данной статье уделено развитию коммуникативно-речевых умений, прежде всего умениям формулировать свою позицию, слушать и учитывать точку зрения партнеров по общению, строить тексты, убеждать в своей правоте, соблюдать требования к правильному поведению во время спора и обсуждения. В статье анализируются и сопоставляются с точки зрения их значимости для формирования общекультурных компетенций, полемика, дискуссия и дебаты. Автор определяет полемику и дискуссию как разновидности спора, а дебаты как разновидность обсуждения.*

*Ключевые слова: дискуссия, полемика, спор, обсуждение, общекультурные компетенции, коммуникативно-речевые умения, разновидность обсуждения, разновидность обсуждения, монологическое высказывание, диалогическая речь.*

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## **THE ROLE OF EDUCATIONAL DISCUSSIONS IN IMPROVING THE MONOLOGUE AND DIALOGIC SPEECH OF LAW STUDENTS**

*Abstract. The article talks about the role of educational discussions in the development of monologue and dialogic speech among law students. Particular attention in this article is paid to the development of communication and speech skills, primarily the ability to formulate one's position, listen and take into account the point of view of communication partners, construct texts, convince oneself that one is right, and comply with the requirements for correct behavior during a dispute and discussion. The article analyzes and compares polemics, discussions and debates from the point of view of their significance for the formation of general cultural competencies. The author defines polemics and discussion as types of dispute, and debate as a type of discussion.*

*Key words: discussion, controversy, argument, discussion, general cultural competencies, communicative speech skills, type of discussion, type of discussion, monologue statement, dialogical speech.*

Изменения в жизни нашего общества затронули все сферы его жизнедеятельности, в том числе и образование в целом. В настоящее время большое внимание уделяется методике обучения государственному (узбекскому) языку, однако русский язык продолжает играть роль средства общения между странами СНГ и между разными национальностями внутри страны. Сегодня методическая наука усовершенствует задачи, содержание и методы обучения родному, русскому и иностранным языкам. В этих условиях важное значение приобретают проблемы взаимосвязанного обучения русскому (иностранному) и родному языкам во взаимодействии с национальной культурой их носителей, удовлетворении языковых потребностей обучающихся.

Одной из задач многогранной работы со студентами и учащимися является развитие и совершенствование связной речи, привитие им навыков и формирование у них умений конструировать монологическое высказывание (текст) в определенной композиционной форме.

Однако опыт работы показывает, что студенты, владея прочными грамматическими знаниями и определенным словарным запасом, испытывают значительные затруднения при составлении собственного высказывания.

Главной причиной такого положения, на наш взгляд, следует считать низкий уровень практических умений обучающихся, что объясняется отсутствием специальной и целенаправленной работы по их формированию.

Таким наиболее точным и продуктивным в методическом плане подходом мы предлагаем признать рассмотрение культуры речи как культуры речевой деятельности. Культура речевой деятельности предполагает осознанную и целенаправленную деятельность обучающихся, сочетает в себе все виды речевой деятельности. В этом контексте с точки зрения культуры оценивается не только продукт, но и процесс, и результат речевой деятельности.

И именно этот подход в наибольшей степени отвечает запросам современных процессов в сфере образования, ориентированных на поднятие уровня общей культуры обучаемых. Не случайно компетентностная модель, закрепленная в программу предмета, на основе которой развивается культура речи, в обязательном порядке включает общекультурные компетенции, необходимые для представителей всех специальностей.

Готовность и способность вести диалог, слушать и слышать, выступать публично, обсуждать различные профессиональные и

социальные проблемы, вести споры – это все ключевые компетенции, наиболее сложной из которых является способность грамотного разрешения разногласий, связанных с проведением дискуссий, полемики и дебатов. Что же делает дискуссии и дебаты эффективным средством совершенствования культуры речи? Эти речевые жанры оказывают неоценимую помощь, главным образом, в развитии крайне важного с точки зрения культуры речи умения формулировать свою позицию и не только доказывать ее, но и убеждать в своей правоте, строить выверенные логически аргументированные тексты, подбирать и формулировать убедительные аргументы, выстраивать их в наиболее выигрышном для говорящего порядке, учитывать их силу относительно данной аудитории (адресата), иллюстрировать эти аргументы примерами, использовать различные средства демонстрации, придающими еще большую убедительность всему тексту и т.д.

В ходе подготовки к дискуссии или дебатам, в ходе их проведения и анализа результатов студенты-юристы отрабатывают все основные действия и операции, характерные для грамотной речевой деятельности, для реализации всех норм общения и литературного языка. На разных этапах речевой деятельности участникам спора необходимо использовать как письменные виды речевой деятельности (при подготовке своих высказываний, при подборе материала и т.д.), так и устные – на самих дискуссиях или дебатах. При этом обязательность немедленного реагирования на выступления других участников спора или обсуждения обуславливает отработку умений активно создавать импровизационные высказывания во внутренней и внешней речи, определяет усиление степени ее устности, в том числе и в использовании невербальных компонентов. Немаловажно и то, что публичный характер высказываний и свойственная подобным ситуациям повышенная речевая ответственность развивает также максимально высокий контроль всех компонентов речи. Очевидно, что все перечисленные умения крайне необходимы каждому выпускнику юридического вуза и что включение дискуссий и дебатов в перечень основных общекультурных компетенций только подчеркивает их значимость. Не случайно дискуссия во многих европейских системах образования признается также и одним из ведущих методов обучения. Что необходимо иметь в виду преподавателю, использующему в обучении различные виды спора и обсуждения?

Дискуссия представляет собой такой жанр публичного спора, который, по сравнению с полемикой, для образовательных целей обладает целым рядом преимуществ. Поскольку в дискуссии оппоненты спорят ради достижения истины, это существенно развивает ее коммуникативную направленность и внимание к другим участникам общения – к оппонентам и зрителям. Существенным преимуществом дискуссии относительно других речевых жанров, требующих создания аргументированного текста,



безусловно, относится и стремление всех участников к максимальной убедительности, для чего в наибольшей степени ими используются различные варианты способов и видов доказательства.

Однако, как в процессе, так и в результате дискуссии неизменно происходит, и наибольшая поляризация позиций участников, которая обусловлена тем, что, стремясь убедить других в своей правоте, риторы в первую очередь еще больше убеждают в ней себя и своих оппонентов. Необходимость противостоять оппонентам также добавляет желания отстоять свою точку зрения, ни в чем не согласиться с ними. Все это в совокупности, как правило, приводит к тому, что участники дискуссии становятся еще более непримиримыми.

Дебаты, в свою очередь, обладают рядом своих особенностей и преимуществ в совершенствовании культуры речи. Оговорим, что среди множества разновидностей жанра в плане совершенствования культуры речи наиболее эффективны те, цель которых – как можно более глубоко и всесторонне обсудить выдвинутую проблему. Цель «обсудить» определяет и характер взаимодействия, и результат дебатов. Разногласия в дебатах – это не прямо противоположные позиции по обсуждаемому вопросу, а такие, при которых различия проявляются либо не по всем пунктам, либо только в некоторых аспектах.

В результате оппоненты сосредотачиваются не на противоречиях, а на дополнении или корректировке представлений о том или ином аспекте проблемы, а в конечном счете – на поисках оптимального пути решения поставленной проблемы. В ходе дебатов, участники которых, как правило, воспринимают друг друга как партнеров, происходит сближение изначально противоположных позиций, смягчение категоричности утверждений.

Различия между дебатами и дискуссией ставят перед преподавателем проблему выбора наиболее целесообразного жанра в качестве активной инновационной формы проведения занятий. Для этого важно оценить, какова должна быть глубина рассмотрения выбранной студентами-юристами темы (дебаты позволяют рассмотреть вопросы с нескольких сторон), каково реальное соотношение приверженцев обеих точек зрения (если они примерно равны, полноценная дискуссия возможна, если нет – лучше предпочесть дебаты). Кроме того, необходимо учитывать и численность студентов в группе.

В дискуссии часто происходит ситуация, когда основные аргументы ЗА и ПРОТИВ высказываются в первые минуты. И тогда остальные студенты начинают либо повторять сказанное, либо отказываются от выступления на основании того, что не знают, что еще можно сказать по теме дискуссии. В дебатах этого не происходит, поскольку обсуждение делится на несколько этапов – подвопросов.

Таким образом, каждый из рассмотренных нами жанров – спора,



обсуждения, учебных дебатов и дискуссий имеет огромный потенциал в развитии монологической и диалогической речи и совершенствовании культуры речи студентов юридических вузов, однако эффективность их использования во многом будет определяться выбором дискуссии или дебатов на основании понимания их особенностей и возможностей.

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## **РАСЧЁТ НОРМ ВРЕМЕНИ ОТ ВНЕДРЕНИЯ ТОРМОЗНОЙ КОЛОДКИ НА ОСНОВЕ БАЗАЛЬТОВ**

*Аннотация. В данной статье приводятся сведения о нормах времени на единицу измерителя, а также машинное время на спуско-подъёмные операции (СПО).*

*Ключевые слова. Машинное время, нормативы времени.*

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## **CALCULATION OF TIME STANDARDS FROM IMPLEMENTATION OF BRAKE PADS BASED ON BASALT**

*Annotation. This article provides information on time standards per unit of meter, as well as machine time for tripping operations.*

*Keywords. Machine time, time standards.*

Норма времени на единицу измерителя работ определяется по формуле:  $H_{BP} = t_{on} \left( 1 + \frac{a_{отл}}{100} \right)$  (1)

где  $t_{on}$  – оперативное время на единицу измерения работ, мин;  $a_{отл}$  – время на отдых и личные надобности в процентах от оперативного времени.

Нормативы времени на отдых и личные надобности приведены в общей части любого сборника по нормам времени [1,2].

Оперативное время на операции подъёма и спуска бурильных свечей определяется по формуле:  $t_{on} = t_m + t_{mp} + t_p$  (2)

где  $t_m$  – машинное время на подъём и спуск одной бурильной свечи, мин;

$t_{mp}$  – машинно-ручное время на подъём и спуск бурильной свечи, мин;

$t_p$  – ручное время на подъём и спуск бурильной свечи, мин;

Нормативы времени на машинно-ручные и ручные приемы при подъёме и спуске бурильных свечей зависят от типа буровой установки и лебёдки [7,8,9,10].

Машинное время на подъём и спуск одной бурильной свечи или порожнего элеватора определяется по формуле:  $t_m = \frac{L \cdot K}{V_{cp}}$  (3)

где  $t_m$  – машинное время на свечу, мин;  $L$  – длина бурильной свечи, м;  $V_{cp}$  – средняя скорость подъёма крюка, м/мин;  $K$  – коэффициент, учитывающий замедление скорости подъёма крюка при включении и торможении барабана лебёдки, приведен в табл.1.

Таблица №1.

Средняя скорость подъёма крюка, м/мин	Оснастка талевой системы	
	3x4 и 4x5	5x6 и 6x7
	Коэффициент (К)	
10 – 19,5	1,05	1,05
19,5 – 32,5	1,15	1,15
32,5 – 45,4	1,20	1,20
45,4 – 54,3	1,25	1,25
54,3 – 67,2	1,35	1,30
67,2 – 90,0	1,45	1,40
90,0 – 120,0	1,50	1,45

Средняя скорость подъёма крюка определяется по формуле:

$$V_{cp} = \frac{\pi \cdot d_{cp} \cdot n_6}{i}, \text{ м/мин, (4)}$$

где  $i$  – число струи оснастки талевой системы;  $n_6$  – число оборотов барабана лебедки, об/мин.  $d_{cp}$  – средний расчётный диаметр барабана лебёдки с намотанными на него рабочими рядами каната, определяется по

формуле:  $d_{cp} = \frac{d_2 + d_n}{2}$ , (5)

где  $d_2$  – диаметр барабана лебедки второго рабочего ряда каната, м;  
 $d_n$  – диаметр барабана лебедки с последним рабочим рядом каната, м.

При расчётах принято, что на барабане постоянно намотан не участвующий в работе один ряд каната (первый ряд) [11,12].

При наматывании на барабан лебедки канат частично укладывается между витками предыдущего ряда, что дает увеличение диаметра барабана при наматывании следующего ряда каната, равное:

$$\frac{2\sigma + \sigma \cdot \sqrt{3}}{2} = 1,87 \cdot \sigma \text{ (6)}$$

Диаметр барабана лебедки вместе с намотанными на него рабочими рядами каната определяется по формуле:  $d_n = d + \sigma + 1,87 \cdot \sigma \cdot (n - 1)$ , (7)

где  $d$  – диаметр барабана лебедки, м;  $\sigma$  – диаметр талевого каната, м;  
 $n$  – порядковый номер наматываемого ряда каната.

Отсюда диаметр барабана с учётом каждого последующего ряда каната будет равен: для второго ряда  $d_2 = d + \sigma + 1,87 \cdot \sigma \cdot (2 - 1)$ ; для

третьего ряда  $d_3 = d + \sigma + 1,87 \cdot \sigma \cdot (3 - 1)$ ; для n-го ряда  $d_n = d + \sigma + 1,87 \cdot \sigma \cdot n$ .

Величина n зависит от длины рабочей части каната, наматываемого на барабан лебедки при подъёме бурильной свечи или порожнего элеватора. Длина рабочей части каната, наматываемого на барабан лебедки, зависит от длины свечи, оснастки талевого системы и определяется по формуле:  $l_k = (L + 0,5) \cdot i$ , м (8)

где 0,5 – высота подъёма свечи выше муфты труб, насаженных на элеватор, м.

Длина каната, наматываемого на барабан лебедки в первом ряду, определяется по формуле:  $l_n = \pi \cdot d_n \cdot a$ , (9)

где a – число витков каната, размещающихся в каждом ряду, определяется по формуле:  $a = \frac{l_{\sigma}}{\sigma} - c$ , (10)

где  $l_{\sigma}$  – длина рабочей части барабана лебедки, м; c – поправка на неплотное прилегание витков каната друг к другу, принимаемая равной единице [3,4].

После определения по формуле (9) длины каната, наматываемого в каждом ряду, путём сопоставления длины рабочей части каната, определенной по формуле (8), с последовательным суммированием длин каната, наматываемого в каждом ряду, устанавливается количество работающих рядов каната [5,6].

При нахождении среднего расчётного диаметра барабана лебедки с намотанными на него рядами каната последний рабочий ряд каната принимается за полный, если на него наматывается не менее 20 м каната, если менее 20 м – неполный ряд в расчёт не принимается [1,2].

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## РАСЧЁТ ЭКОНОМИЧЕСКОЙ ЭФФЕКТИВНОСТИ ОТ ВНЕДРЕНИЯ ПЕРЕСМОТРЕННЫХ НОРМ ТОРМОЗНОЙ КОЛОДКИ БУРОВОЙ ЛЕБЁДКИ

*Аннотация.* В данной статье приводятся сведения об экономической эффективности по типовой скважине, пересматриваются нормы, производится расчёт нормативной продолжительности бурения.

*Ключевые слова.* Нормативная трудоёмкость буровых работ, коэффициент снижения нормативной трудоёмкости, часовая тарифная ставка буровой вахты.

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## CALCULATION OF ECONOMIC EFFICIENCY FROM IMPLEMENTATION OF REVISED STANDARDS OF BRAKE PADS FOR DRILLING DAWCH

*Annotation.* This article provides information on the economic efficiency of a typical well, revises the standards, and calculates the standard drilling duration.

*Keywords.* Standard labor intensity of drilling operations, standard labor intensity reduction factor, hourly tariff rate for a drilling shift.

До определения экономической эффективности по типовой скважине площади, для которой пересмотрены нормы, производится расчёт нормативной продолжительности бурения по действующим и пересмотренным нормам [1,2,5].

Ожидаемая условная годовая экономия фонда заработной платы от внедрения пересмотренных норм на механическое бурение определяется по формуле [3,4]:

$$\mathcal{E} = O_p \cdot K_{сн} \cdot T \cdot K_{нр} \cdot K_{дон} \cdot K_{сс} - K_{тер} - \mathcal{З}, \quad (1)$$

где  $O_p$  – нормативная трудоёмкость буровых работ по площади на год в котором пересматриваются нормы, рассчитанная исходя из действующих норм на механическое бурение, ч;

$K_{сн}$  – коэффициент снижения нормативной трудоёмкости в результате пересмотра норм;



$T$  – часовая тарифная ставка буровой вахты с учётом рабочих по обслуживанию буровой и ИТР;

$K_{\text{доп}}$  – коэффициент, учитывающей дополнительную заработную плату;

$K_{\text{пр}}$  – коэффициент, учитывающей выплату премий;

$K_{\text{тер}}$  – коэффициент, учитывающей территориальные надбавки;

$K_{\text{сс}}$  – коэффициент, учитывающей отчисления на социальное страхование;

$Z$  – затраты на работы по пересмотру норм с учётом срока действия норм.

Нормативная трудоёмкость буровых работ по площади на год, в котором пересматриваются нормы, рассчитанная по действующим нормам на механическое бурение [5,6,7,11,12]

$$\Phi = P \cdot tg, (2)$$

где  $P$  – план проходки по площади на год, в котором пересматриваются нормы, м;

$tg$  – трудоёмкость буровых работ на 1 м проходки исходя из действующих норм, ч.

$$tg = \frac{O_1}{H}, (3)$$

где  $O_1$  – нормативная продолжительность бурения типовой скважины данной площади по действующим нарядам на механическое бурение, ч; [3,4].

$H$  – проектная глубина типовой скважины, м.

Коэффициент снижения нормативной трудоёмкости в результате пересмотра норм определяется по формуле [8,9,10]:

$$K_{\text{сн}} = \frac{O_1 - O_2}{O_1}, (4)$$

где  $O_2$  – нормативная продолжительность бурения типовой скважины данной площади, рассчитанная по пересмотренным нормам, ч.

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**ЭКСПЕРИМЕНТАЛЬНОЕ ОБОСНОВАНИЕ МЕХАНИЗМА  
ВЛИЯНИЯ ОСНОВНЫХ ФАКТОРОВ, ВЫЗЫВАЮЩИХ  
МОЧЕКАМЕННУЮ БОЛЕЗНЬ, НА МОРФОФУНКЦИОНАЛЬНОЕ  
СОСТОЯНИЕ МОЧЕВЫВОДЯЩИХ ПУТЕЙ**

*Аннотация. Данная работа исследует влияние основных факторов, вызывающих мочекаменную болезнь, на морфофункциональное состояние мочевыводящих путей. Она освещает физиологические аспекты и морфофункциональные изменения, происходящие в органах мочевыводящих путей под воздействием основных факторов, вызывающих мочекаменную болезнь. Рассматриваются механизмы, через которые основные факторы, вызывающих мочекаменную болезнь оказывает влияние на работу почки, мочеточника и других органов мочевыводящих путей. Полученные результаты могут способствовать разработке методов профилактики и терапии для улучшения состояния мочевыводящих путей при воздействии основных факторов, вызывающих мочекаменную болезнь.*

*Ключевые слова: мочевыводящих путей, уролитиаз, мочевых камней, мочекаменную болезнь, гиперкальциемия.*

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**EXPERIMENTAL SUBSTANTIATION OF THE MECHANISM OF THE  
INFLUENCE OF THE MAIN FACTORS CAUSING URINOSIS  
DISEASE ON THE MORPHOFUNCTIONAL STATE OF THE  
URINARY TRACT**

*Annotation. This work examines the influence of the main factors causing urolithiasis on the morphofunctional state of the urinary tract. It covers the physiological aspects and morphofunctional changes occurring in the organs and morphofunctional state of the urinary tract under the influence of the main factors causing urolithiasis. The mechanisms through which the main factors causing urolithiasis affect the functioning of the kidney, ureter and other organs of the urinary tract are considered. The results obtained may contribute to the development of methods of prevention and therapy to improve the condition of the urinary tract when exposed to the main factors causing urolithiasis.*

*Key words: urinary tract, urolithiasis, urinary stones, urolithiasis, hypercalcemia.*

Актуальность. Мочекаменная болезнь является одной из главных проблем современной медицины, как наиболее часто встречающаяся патология органов мочевыделительной системы. Заболевание встречается во всех регионах земного шара, как у мужчин, так и у женщин, и детей всех возрастов. уролитиаз являясь одним из наиболее распространенных урологических заболеваний, встречается не менее чем у 3% населения.

По литературным данным, около 5-10% всего населения Европы и Северной Америки страдают уролитиазом. По тем же данным, в развитых странах ежегодно появляется 1.500-2.000 случаев первичного камнеобразования на 1 млн. населения.

Во многих странах отмечен рост заболеваемости уролитиаз и удельный вес ее составляет 30-58% всех больных урологических стационаров. В России доля уролитиаз среди урологических заболеваний составляет 33,9%, в Казахстане -42,2%, в Таджикистане - 56,1%, в Киргизстане - 58,2% в Узбекистане 55,3% и при этом сохраняется тенденция к ее росту.

Все перечисленные выше факторы приводят к огромным материальным затратам на лечение уролитиаза, и обуславливает необходимость четкого учета больных уролитиаза с целью изучения процесса камнеобразования и создания возможных эффективных средств профилактики и лечения уролитиаза.

Материалы и методы. Мы провели литературный обзор научных трудов за последние 20 лет, используя ресурсы поисковых систем PubMed и Elibrary, по вышеуказанным ключевым словам. Для данного метаанализа мы использовали статьи, содержащие доказательную экспериментальную и клиническую базу по наиболее современным вопросам, касающимся эпидемиологии, этиологии и патогенезе уролитиаза.

Цель работы: обобщить имеющиеся литературные данные о распространённости, причинах и патогенезе механизма влияния основных факторов, вызывающих мочекаменную болезнь, на морфофункциональное состояние мочевыводящих путей.

Основная часть. Мочекаменная болезнь - комплекс энзимопатий, приводящий к нарушениям обмена литогенных веществ, изменению физико-химических и биологических свойств мочи с последующим кристалло-и камнеобразованием. Под термином «Уролитиаз» подразумевают все виды камнеобразования, включая первичное - микролиты сосочков почки (бляшки Рэндела) и кальциноз Карра, и вторичное - вследствие перенесенного воспаления, уростаза, имплантации различных предметов и материалов, и коралловидный нефролитиаз. В зависимости от локализации конкрементов в научной литературе часто употребляют термины «нефролитиаз», «уретеролитиаз» и «цистолитиаз».

Необходимо отметить, что в России 13,1% случаев выявлены инфекционные (струвит, апатит, витлокит), в 64,6% - кальций оксалатные (вевеллит -51,5%, ведделлит - 13,1%) и в 21,7% - состоящие из мочевой кислоты конкременты. Метаанализ химической структуры конкрементов

мочевыделительной системы у жителей Австралии за последние 30 лет показал, что достоверно уменьшилась в популяции только доля струвитных камней (14% в 1970-х годах, 12% в 1980-х и 7% в 2011 году), при этом доля конкрементов других формаций осталась практически неизменной. Оксалат кальция является доминирующим типом конкрементов (68% в 1970-х и 1980-х годах, 64% в 2011 году), следующую степень занимают конкременты мочевой кислоты (16% в 1970-е годы, 17% в 1980-е годы, 16% в 2011 году). Исследования, проведенные в Японии, показали, что самой частой формацией мочевых камней являются оксалат кальция / фосфата кальция, их доля в общей популяции увеличилась от 83,7% в 1965 году до 92% в 2005 г. В то время как частота струвитных конкрементов уменьшилась, у мужчин с 7,5% в 1965 г. до 1,4% в 2005 году), у женщин с 23,3% в 1965 г. до 5,1% в 2005 году. При этом доля мочекислых конкрементов оставалась практически неизменной 4,6% в 1965 г. и 5,5% в 2005 г. Подобная ситуация и в Испании: оксалата кальция / фосфата кальция - преобладающий тип конкрементов (71,9% в 1979 г., 76,5% в 1987 году, и 81,2% в 1998 году) и тенденция к снижению струвитных конкрементов (12,5% в 1979 г., 9,8% в 1987 году и 6,7% в 1998 году). В Германии доля кальцийсодержащих конкрементов за период с 1977 по 2006 год увеличилась с 82% до 86% у мужчин и с 79% до 84% у женщин, соответственно. Определяющаяся, в последнее время, тенденция к увеличению доли урицитов и уменьшению струвитов, в общей популяции, может быть объяснена урбанизацией, улучшением качества жизни, потреблением большого количества белковой пищи (>2 гр/кг массы тела), малоподвижным образом жизни, с одной стороны, и улучшением антибактериальной терапии инфекций урогенитального тракта, с другой.

Этиология и патогенез уролитиаза связаны со сложными физико-химическими процессами как врожденного, так и приобретенного характера, происходящими не только в мочевой системе, но и в организме в



целом. Условно все факторы риска камнеобразования можно разделить на эндогенные и экзогенные.

К экзогенным факторам принято причислять:

- Пищевой рацион (потребление большого количества легкоусваиваемых углеводов и липидов);
- Водная нагрузка (прием менее 1 л/с);
- Двигательный режим (гиподинамия);
- Климатическая зона проживания (жаркий климат),
- Прием химических веществ (диуретики, препараты Са, алкоголь).

К эндогенным факторам относят:

- Анатомические нарушения мочевых путей, приводящие к уростазу;
- Генетическая предрасположенность (первичный гиперпаратиреоз, состояние инсулинорезистентности, подагра)
- Изолированные идиопатические или алиментарные дисметаболические состояния (регистрируемые лабораторно в виде гиперкальциемии/урии, гиперфосфатемии/урии, гиперурикоземии/урии, гипомагниемии/урии, гипероксалурии, гиперцистинурии, гипоцитратурии)
- Приобретенные метаболические нарушения (метаболический синдром, возрастной андрогенный дефицит, атеросклероз, гипертоническая болезнь)

Также интересно исследование М.М. Газымова (1985) в котором изучено распределение частот генов АВО у 1133 больных уролитиазом. Автор отмечает, что заболевание достоверно чаще встречается у лиц с О (I) группой крови и реже у лиц с В (III) и АВ (IV) группами. Процент резус-отрицательных лиц среди больных уролитиазом достоверно выше, чем у здоровых. Тем не менее, в большинстве отдельных клинических случаев не удается точно установить причинный фактор нефролитиаза.

Что касается механизма литогенеза, то этот вопрос, до сих пор остается открытым. Многие годы, ученые всего мира, пытаются раскрыть механизм камнеобразования, понять каждый этап этого многогранного процесса. Однако, невзирая на развитие технологий в медицине и науке в целом, в патогенезе уролитиаза имеется ещё много «темных пятен». Необходимо отметить, что все-таки понимание отдельных элементов патогенеза МКБ достаточно изучены и имеют внушительную доказательную базу, что придает сил молодым ученым в поиске истинных механизмов камнеобразования, и создания средств эффективной профилактики.

Учитывая то, что конкременты имеют различный химический состав, логично предполагать о разности и механизмов литогенеза, это особо актуально для конкрементов с генетической природой возникновения. Однако, существует ряд общих закономерностей применимых для формирования камней любой формации. Так, например, в процессе литогенеза выделяют определенные стадии: нуклеация (зарождение ядра



кристалла) кристаллизация (рост кристалла) агрегация (соединение с другими кристаллами адгезия (прикрепление к уротелию или любой внутривисочечной структуре клиническая манифестация (дальнейший рост до клинически значимого камня).

Кристаллы, как правило, образуются либо в почечных канальцах, либо межклеточной жидкости, которая перенасыщена этими веществами, что, в свою очередь, может быть следствием повышенной канальцевой экскреции, снижением объема мочи, изменением в рН мочи, или сочетанием этих факторов. Весь этот процесс контролируется балансом промоутеров и ингибиторов литогенеза.

К промоутерам литогенеза относят: повышенная экскреция веществ, концентрирование мочи.

К ингибиторам относят: цитрат (снижает агрегацию и адгезию Оксалат-Са за счет связывания ионов Са<sup>2+</sup>); пирофосфат (снижает агрегацию Фосфат- и Оксалат-Са, но не влияет на адгезию; Фитат (миоинозитгексафосфорная кислота).

Вопрос кислотности мочи, как фактора риска развития и прогрессии литогенеза неоднозначен, так как этот показатель играет диаметрально противоположную роль в генезе конкрементов той или иной природы. К примеру, известно, что урат амония, и большинство фосфатов имеют хорошую растворимость в кислой среде, поэтому кристаллизуются и выпадают в осадок при рН мочи более 7,5. Что касается конкрементов мочевой кислоты и конкрементов белкового происхождения, например, цистеиновые камни, как наиболее часто встречаемый представитель из этой формации камней, то их растворимость достигает максимума при рН мочи более 8,0. Оксалаты, как правило, плохо растворимы независимо от кислотности мочи. Эта взаимосвязь относительной кислотности мочи и растворимости конкрементов в зависимости от их состава.

Таким образом, неоднородность растворимости веществ в различных по кислотности средах, создает сложности в метафилактике мочекаменной болезни в популяции и требует индивидуального подхода к каждому пациенту.

Существует мнение, что даже при перенасыщении мочи солями конкременты могут не образовываться, и для камнеобразования необходим связующий компонент, которым служит органическая субстанция. Такой органической матрицей конкрементов могут быть коллоидные тельца диаметром 10-15 микрон, встречающиеся в просветах канальцев и лимфатических капиллярах стромы. В составе коллоидных телец обнаружены гликозаминогликаны и гликопротеины, мукопротеины и плазменные белки различного молекулярного веса. Чаще всего удается обнаружить уромукоид, гликопротеины (белок Тамма-Хорсфалла) и иммуноглобулины IgG и IgA. Однако, в последние годы в эксперименте *in vitro* установлена роль белка Тамма-Хорсфалла в развитии оксалатного

литоаза, как ингибитора кристаллизации, агрегации и адгезии фосфата-Са. Таким образом белковые структуры, вероятно, в различных условиях могут проявлять себя как промоутеры, так и как ингибиторы литогенеза.

Некоторые ученые при исследовании химического состава камней установили, что их формирование может начаться и на неорганической основе, приводя в пример субэпителиальные отложения минеральных веществ в виде бляшек Рэндела и кальциноза Карра. Эти исследования находят подтверждение в работах авторов, которые более 25 лет ведут дискуссии с научным миром о роли нанобактерий в развитии уролитоаза.

Таким образом, становится очевидным тот факт, даже на современном этапе развития медицины причины и механизмы возникновения уролитоаза продолжают оставаться недостаточно изученными. Многочисленные теории объясняют лишь отдельные звенья в большой цепи факторов, приводящих к уролитоазу, а изучение процесса камнеобразования до сих пор представляет большие трудности. Это объясняется тем, что не установлено, действуют ли многие из факторов в отдельности или совместно в различных комбинациях. Предполагается, что некоторые из них являются постоянными, а другие могут стать толчком к камнеобразованию и перестать существовать. Не установлено также, подчиняется ли образование различных видов камней одним и тем же закономерностям.

Распространенность мочекаменной болезни сильно варьирует в зависимости от региона проживания и климатических условий, например, в США составляет примерно 14%, в Канаде - 12 %, в Испании - 5,6%, в Италии - 4,1%, в Великобритании - 11,2%, в Бразилии - 5%, в Индии и Китае - 4%, в Тайвани - 7,4% [10], в Японии - 11%, в Турции - 14,8%, в Саудовская Аравии, Кувейте и ОАЭ - 20% и более.

Невзирая на значительный разброс заболеваемости в разных странах, есть одна общая для всех континентов черта - постоянный прирост заболеваемости уролитоаз в популяции. Как правило, этот прирост пропорционален уровню жизни в стране, а именно скорости улучшения качества жизни населения. Таким образом, наивысший прирост заболеваемости уролитоазом приходится на развитые страны с высоким качеством жизни и стремительным ростом экономики. Ранее для Японии не была свойственна высокая распространённость уролитоаз. Однако, учитывая один из самых высоких в мире темпов развития экономики данной страны, можем наблюдать следующие последствия.

За период с 1965 по 2005 заболеваемость уролитоаз удвоилась, и составила с 81 на 100 000 населения до 165 на 100 000 населения, соответственно. Заболеваемость уролитоаз в Японии одна из самых высоких в азиатском регионе и составляет 15,3% у мужчин и 6,8% у женщин. При этом в масштабном исследовании М.Н. Gault показано, что вероятность рецидива камней мочевыделительной системы в течение 20 лет

составляет 75-80%. В США заболеваемость МКБ также стремительно увеличивается с 5% в 1994 году до 14 в 2010 году. Интересно также, что гендерный коэффициент мужчин и женщин в 1994 году в среднем составлял 1,5, а в 2010 году он равняется 1,8. При том что он значительно разнится в зависимости от возрастной группы, так в возрасте 20-29 лет мужчин и женщин 1:1, а в возрасте 60-69 уже 2,1:1. В Великобритании пик заболеваемости приходится на возрастную группу 40-59 лет, тендерное соотношение мужчин и женщин 2,4:1. В Италии пик заболеваемости совпадает с таковым в Великобритании, однако, соотношение 1,2:1. В Германии пик заболеваемости приходится на 50-65 лет, и соотношение мужчин и женщин 1,4:1. В Южной Корее наивысший уровень заболеваемости встречается в 60-69 лет, соотношение 1,8:1.

Географическую неравномерность распространения уролитиаза различные авторы объясняют по-разному. С.Я. Аршба и Н.П. Изашвили (1977), а также Цинцадзе (1981) связывает географическую неравномерность уролитиаза с неравномерностью содержания молибдена в зеленой массе растений, используемых для приема в пищу. А.М. Погосян (1982) объясняет повышенное камнеобразование недостатком в окружающей среде кремния, который, обладая свойствами защитных коллоидов, удерживает кристаллоиды в растворенном состоянии. Что касается этнического распределения, то М. Modlin (1980) установил более редкую заболеваемость уролитиазом негроидной расы ЮАР по сравнению с европейцами. Наблюдения W.C. Thomas (1975) показали, что карбонатные конкременты образуются у представителей негроидной расы реже, чем у европеоидной. Связано это, по их мнению, с более благоприятным соотношением кальция/магний мочи, а также употреблением в пищу муки грубого помола у негроидной расы.

Согласно данным Министерства здравоохранения Российской Федерации за период с 1990 по 2014 года количество больных с впервые зарегистрированными заболеваниями мочеполовой системы увеличилось в 2,5 раза, и составило 2897 (19,6 на 100 тыс) в 1990 г., и 7164 (50,2 на 100 тыс) тыс. человек в 2014 г. При этом количество больных мочекаменной болезнью увеличилось в 3,47 раза, и составило 623 (52,9 на 100 тыс) и 2165 (183,7 на 100 тыс) тыс. человек в 1990 и 2014 годах, соответственно. Распространённость уролитиаза гендерно детерминирована, и в детском возрасте соотношение мужского и женского пола 1:1, во взрослом возрасте, по мнению разных авторов от 1,2:1 до 3:1. При этом коралловидный нефролитиаз составляет 1:2,3. Интересным остается тот факт, что колебание гендерного соотношения заболеваемости МКБ по России на протяжении четверть века, оказалось совсем незначительным и составило 2,1:1 ( $\pm 0,2$ ).

Заключение. В настоящее время сложность патогенетических механизмов развития МКБ, проблемы определения условий, при которых возможен литогенез и частый рецидив конкрементов, выбор метода

лечения, возможности прогнозирования течения мочекаменной болезни, оценка качества жизни пациента после оперативного лечения по-прежнему являются актуальными вопросами современной урологии. Это также подтверждает постоянный рост заболеваемости уролитиаз в Узбекистане и в общемировой популяции, в целом.

Эта неопределенность должна побуждать докторов всех специальностей прибегнуть к комплексному оцениванию метаболического статуса пациента, с рутинным определением химического состава камня у каждого конкретного пациента. Только комплексный подход к диагностике мочекаменной болезни поможет в разгадке сложных механизмов литогенеза и позволит ученым и практикующим врачам использовать эти данные с целью создания эффективных средств метафилактики уролитиаза.

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## **ОЦЕНКА ФИНАНСОВОГО СОСТОЯНИЯ ПРЕДПРИЯТИЯ (ИЛИ ОРГАНИЗАЦИИ) И НАПРАВЛЕНИЯ ПО ЕГО УЛУЧШЕНИЮ**

*Аннотация. Актуальность исследования данной темы обусловлена необходимостью совершенствования и постоянной оценки финансового состояния предприятий. Оценка финансового состояния предприятия или организации является критическим аспектом стратегического управления. Он дает представление об общем здоровье и эффективности организации, что позволяет лицам, принимающим решения, определять области силы и слабости. Эта научная статья направлена на то, чтобы углубиться в оценку финансового состояния предприятия или организации и изучить потенциальные направления для его улучшения.*

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## **ASSESSMENT OF THE FINANCIAL CONDITION OF THE ENTERPRISE (OR ORGANIZATION) AND DIRECTIONS FOR ITS IMPROVEMENT**

*Annotation. The relevance of the research of this topic is due to the need to improve and constantly assess the financial condition of enterprises. Assessment of the financial condition of an enterprise or organization is a critical aspect of strategic management. It provides insight into the overall health and effectiveness of the organization, which allows decision makers to identify areas of strength and weakness. This scientific article aims to delve into the assessment of the financial condition of an enterprise or organization and explore potential areas for its improvement.*



## **ВВЕДЕНИЕ**

В сегодняшней высоко конкурентной и динамичной бизнес - среде понимание финансового состояния предприятия важно для его выживания и роста. Финансовое состояние относится к общему финансовому здоровью и стабильности организации, которая охватывает различные аспекты, такие как ликвидность, прибыльность, платёжеспособность и эффективность. Оценивая эти ключевые показатели, заинтересованные стороны могут принимать обоснованные решения, разработать эффективные стратегии и снижать потенциальные риски.

Оценка финансового состояния включает в себя всесторонний анализ финансовой отчетности, включая баланс, отчет о прибылях и убытках и отчет о денежном потоке. Эти финансовые отчеты обеспечивают снимок финансового положения, эффективности и денежного потока организации в течение определенного периода. [2] Изучив эти заявления, финансовые аналитики могут оценить способность компании получать прибыль, выполнять свои финансовые обязательства, эффективно управлять своими ресурсами и адаптироваться к изменяющимся рыночным условиям.

Кроме того, финансовые отношения играют решающую роль в оценке финансового состояния предприятия. Коэффициенты являются количественными показателями, которые дают представление о различных аспектах финансовых показателей организации. Обычно используемые соотношения включают коэффициенты ликвидности (например, коэффициент тока, быстрый коэффициент), коэффициенты прибыльности (например, валовая маржа прибыли, доходность активов), коэффициенты платежеспособности (например, соотношение долга к коэффициенту, коэффициент процентного покрытия) и коэффициенты эффективности (например, оборот инвентаря, оборот дебиторской задолженности). Эти соотношения позволяют значительно сравниваться между различными организациями, отраслевыми показателями и историческими показателями.

Оценка финансового состояния предприятия не только обеспечивает снимок его текущего состояния, но и служит основой для определения областей для улучшения. [1] Выявляя слабости и неэффективность, лица, принимающие решения, могут разрабатывать стратегии и планы действий по повышению финансовых показателей. Это может включать в себя реализацию мер по сокращению затрат, улучшение получения доходов, оптимизацию распределения ресурсов или изучение новых возможностей для бизнеса. Кроме того, понимание финансового состояния может помочь организациям принимать обоснованные решения относительно инвестиций, вариантов финансирования и управления рисками.

Улучшение финансового состояния предприятия требует целостного подхода, который охватывает различные аспекты, включая операционную эффективность, финансовое управление и стратегическое планирование. Крайне важно установить эффективный финансовый контроль, реализовать

надежные процессы бюджетирования и прогнозирования, а также постоянно контролировать и оценивать финансовые показатели. [3] Кроме того, организации должны сосредоточиться на повышении потоков доходов, снижении затрат, эффективном управлении оборотным капиталом и оптимизации структуры капитала.

Более того, использование технологических достижений и использование аналитики данных может значительно способствовать улучшению финансового состояния предприятия. Использование передовых систем управления финансами, инструментов автоматизации и прогнозной аналитики может оптимизировать процессы, повысить точность и предоставлять информацию в реальном времени для принятия решений. Используя мощностъ технологий, организации могут получить конкурентное преимущество и стимулировать устойчивый рост.

В заключение оценка финансового состояния предприятия или организации жизненно важна для принятия стратегических решений и устойчивого роста. Изучение различных аспектов, связанных с оценкой финансового состояния, включая анализ финансовой отчетности и использование финансовых соотношений. Кроме того, он будет углубляться в потенциальные направления для улучшения финансового состояния, таких как операционная эффективность, финансовое управление и технологические достижения. Понимая и решая финансовые проблемы, с которыми сталкиваются предприятия, лица, принимающие решения, могут ориентироваться в сложностях бизнес-ландшафта и добиться долгосрочного успеха.

Понимание и оценка финансового здоровья компании имеет решающее значение для принятия обоснованных решений, выявления областей улучшения и обеспечения долгосрочной устойчивости. [2] Анализируя такие статьи, профессионалы могут получить ценную информацию о финансовых показателях, показателях эффективности и стратегиях повышения прибыльности, эффективности и общего финансового благополучия. Эти знания могут помочь предприятиям процветать, адаптироваться к изменяющимся рыночным условиям и принимать обоснованные финансовые решения, которые способствуют росту и успеху.

### **Введение в оценку финансового состояния предприятия: основные концепции и методы анализа**

Финансовое состояние предприятия играет решающую роль в определении его долгого времени термин устойчивость и успех. Оценка финансового состояния включает анализ различных финансовых показателей и коэффициентов, чтобы получить представление об общем финансовом здоровье организации. В этом разделе введено введение в оценку финансового состояния предприятия, сосредоточенное на основных понятиях и методах анализа.

## 2. Финансовое условие: определение и важность

Финансовое состояние предприятия относится к его способности выполнять свои финансовые обязательства и получать прибыль с течением времени. Он включает в себя финансовое положение, производительность и денежный поток организации. Оценка финансового состояния необходима по нескольким причинам. Во -первых, это помогает заинтересованным сторонам, таким как инвесторы, кредиторы и менеджеры, принимать обоснованные решения относительно их участия в предприятии. Во -вторых, это позволяет предприятию выявлять области улучшения и разрабатывать стратегии для повышения его финансовой стабильности и роста. [4] Наконец, это позволяет сравнительному анализу против сверстников промышленности и конкурентов оценить относительную эффективность организации.

## 3. Основные понятия финансового анализа

Финансовый анализ - это систематический процесс оценки финансового состояния предприятия путем изучения ее финансовой отчетности и связанной с ним информации. Он включает в себя интерпретацию финансовых данных для определения тенденций, моделей, сильных сторон, слабостей и потенциальных рисков. Ниже приведены некоторые основные понятия финансового анализа:

а. Финансовая отчетность. Финансовая отчетность, включая баланс, отчет о прибылях и убытках денежных средств, предоставляют всесторонний обзор финансовых показателей и позиции предприятия. Эти заявления служат основой для финансового анализа.

б. Финансовые коэффициенты: финансовые коэффициенты являются количественными мерами, полученными из финансовой отчетности. Они помогают оценить ликвидность, платежеспособность и эффективность предприятия. Общие финансовые коэффициенты включают текущее соотношение, соотношение долга к собственному капиталу, доходность активов и валовую прибыль.

с. Анализ тенденций: анализ тенденций включает в себя сравнение финансовых данных в течение нескольких периодов для определения закономерностей и изменений. Это помогает определить, улучшается ли финансовое состояние предприятия или ухудшается с течением времени.

д. Вертикальный и горизонтальный анализ: Вертикальный анализ включает в себя выражение каждого элемента в финансовой отчетности в процентах от базовой суммы, обычно общие активы или общие продажи. Горизонтальный анализ сравнивает финансовые данные в разные периоды, чтобы определить изменения в абсолютных суммах или процентах. [5]

## 4. Методы финансового анализа

Несколько методов используются для оценки финансового состояния предприятия. Эти методы дают различные взгляды и понимание

финансового здоровья организации. Ниже приведены некоторые часто используемые методы финансового анализа:

а. Анализ соотношения: анализ коэффициентов включает в себя расчет и интерпретацию различных финансовых соотношений для оценки ликвидности, платежеспособности, прибыльности и эффективности предприятия. Это обеспечивает полное представление о финансовом состоянии организации и помогает определить области силы и слабости.

б. Анализ DuPont: Анализ DuPont - это метод, который разбивает доходность капитала (ROE) на свои компоненты, а именно маржи прибыли, оборот активов и финансовый рычаг. Это помогает определить драйверы ROE и дает представление о операционной и финансовой эффективности предприятия.

с. Анализ денежных потоков: Анализ денежных потоков фокусируется на способности организации генерировать и управлять денежными потоками. Он включает в себя анализ отчета о денежных потоках для оценки ликвидности предприятия, генерации денежных потоков и адекватности денежных потоков.

д. Сравнительный анализ: сравнительный анализ включает в себя сравнительный анализ финансовых показателей предприятия по сравнению с сверстниками или конкурентами отрасли. Это помогает определить относительные сильные и слабые стороны и дает представление о конкурентной позиции организации. [3]

### **ЗАКЛЮЧЕНИЕ**

В заключение, оценка финансового состояния предприятия или организации является критическим аспектом стратегического управления. Он дает ценную информацию об общем здоровье и эффективности организации, что позволяет лицам, принимающим решения, определять области силы и слабости. Оценивая финансовую отчетность и используя финансовые коэффициенты, заинтересованные стороны могут принимать обоснованные решения, разработать эффективные стратегии и снижать потенциальные риски. Оценка финансового состояния не только обеспечивает снимок текущего состояния предприятия, но также служит основой для определения областей для улучшения. Понимая и решая финансовые проблемы, лица, принимающие решения, могут ориентироваться в сложностях бизнес-ландшафта и добиться долгосрочного успеха. Улучшение финансового состояния требует целостного подхода, который охватывает оперативную эффективность, финансовое управление и стратегическое планирование. [1] Перенимания технологических достижений и использование аналитики данных может значительно способствовать улучшению финансового состояния предприятия. Изучая научные статьи о финансовой оценке и улучшении, профессионалы могут получить ценную информацию и практическое руководство по эффективному управлению и улучшению финансового

здоровья предприятия или организации. Эти знания могут помочь предприятиям процветать, адаптироваться к изменяющимся рыночным условиям и принимать обоснованные финансовые решения, которые способствуют росту и успеху.

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## **ОСНОВНАЯ ОБРАБОТКА ПОЧВЫ ПРОТИВ ВОДНОЙ ЭРОЗИИ**

*Аннотация. В статье представлен анализ факторов, влияющих на процесс водной эрозии на склоновых полях, их влияние на этот процесс и проведенные ранее работы.*

*Ключевые слова: почва, водная эрозия, технология, целинные земли, склон, обработка.*

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## **BASIC SOIL TREATMENT AGAINST WATER EROSION**

*Annotation: The article presents an analysis of the factors influencing the process of water erosion on slope fields, their influence on this process and previous work.*

*Keywords: soil, water erosion, technology, virgin lands, slope, processing.*

В южных регионах нашей республики большая часть территорий занимают плоскогория, на этих территориях также возделываются сельскохозяйственные культуры. И проблемой в этих регионах является водная эрозия. Причиной возникновения водной эрозии является в основном дождевая вода, под воздействием которой происходит размыв залегающего слоя, и урожайность почвы ухудшается. К основным задачам основной обработки эродированных водой почв относятся: улучшить водопроницаемость и впитывающие способности почвы, привести ее в состояние мелкозернистой размягченной структуры; создать микрорельеф,



который улавливает воду на поверхности склона; уменьшить размыв почвы. грунт под воздействием поверхностных течений; для углубления

Методы борьбы с водной эрозией условно делятся на две группы: методы, улучшающие водоотдачу и фильтрационные (поглощающие) способности почвы; методы, создающие микрорельеф на поверхности поля для устранения утечки воды и промывки почвы. Методы противоэрозионной обработки почвы, улучшающие способность к переносу и поглощению воды, включают: поперечную вспашку на склоне; вспашку углубляющими плугами или резцами; обработку без глубокого известкования; щелевое вскрытие; вскрытие лунки.

Существуют следующие типы водопоглощающих микрорельефов: канавы, кучи, микролиманы, прерывистые канавы, соты. При вспашке, согласно результатам исследований ученых вместе с сотами, микролиманам и сплошными канавами образование водных потоков увеличивается в 2-3 раза, содержание влаги в почве на 20-30 мм и урожайность

Увеличивается на 0,2-0,3 т/год.

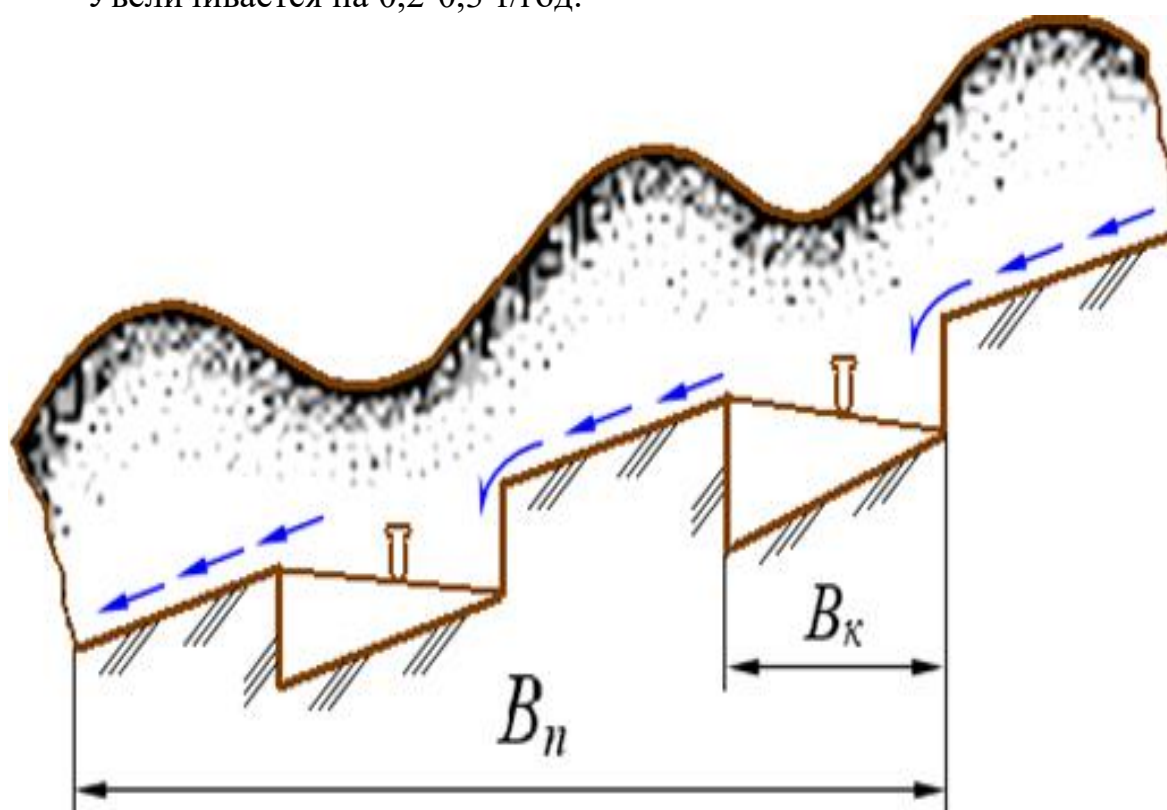
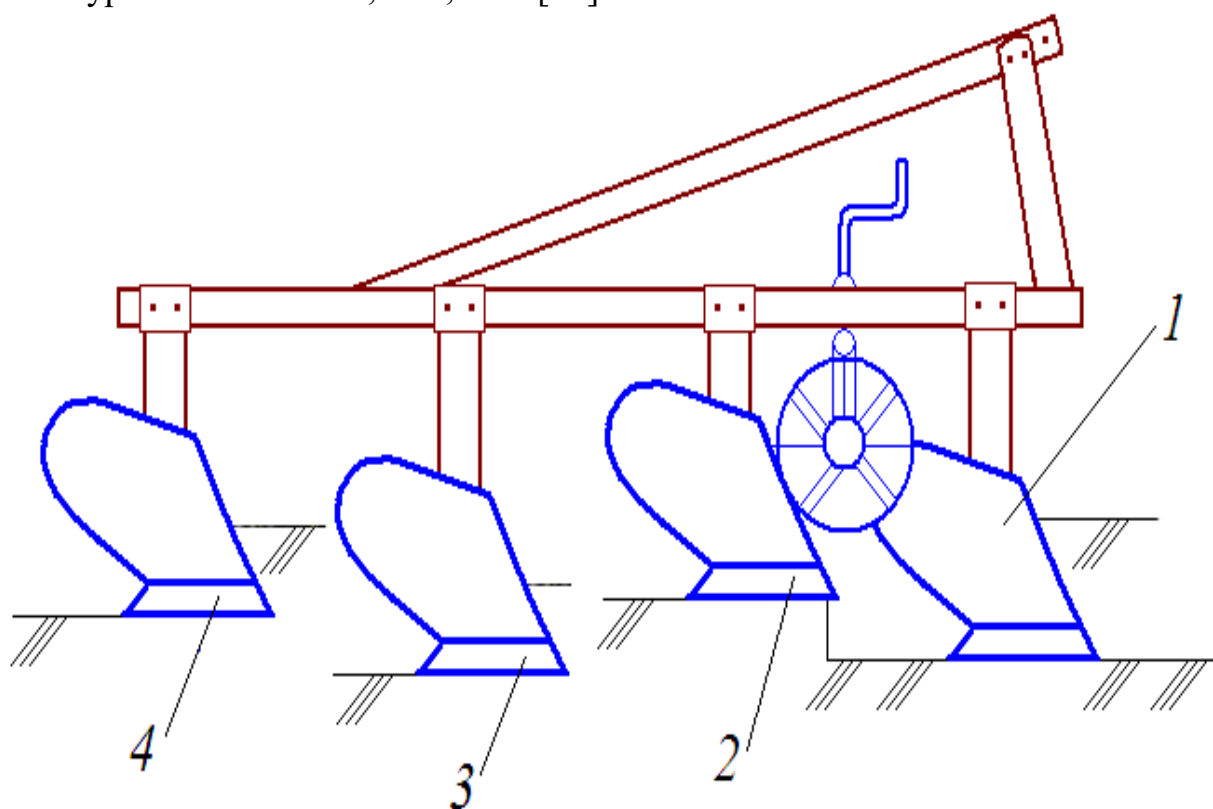


Рис.1. Постепенная вспашка на разной глубине

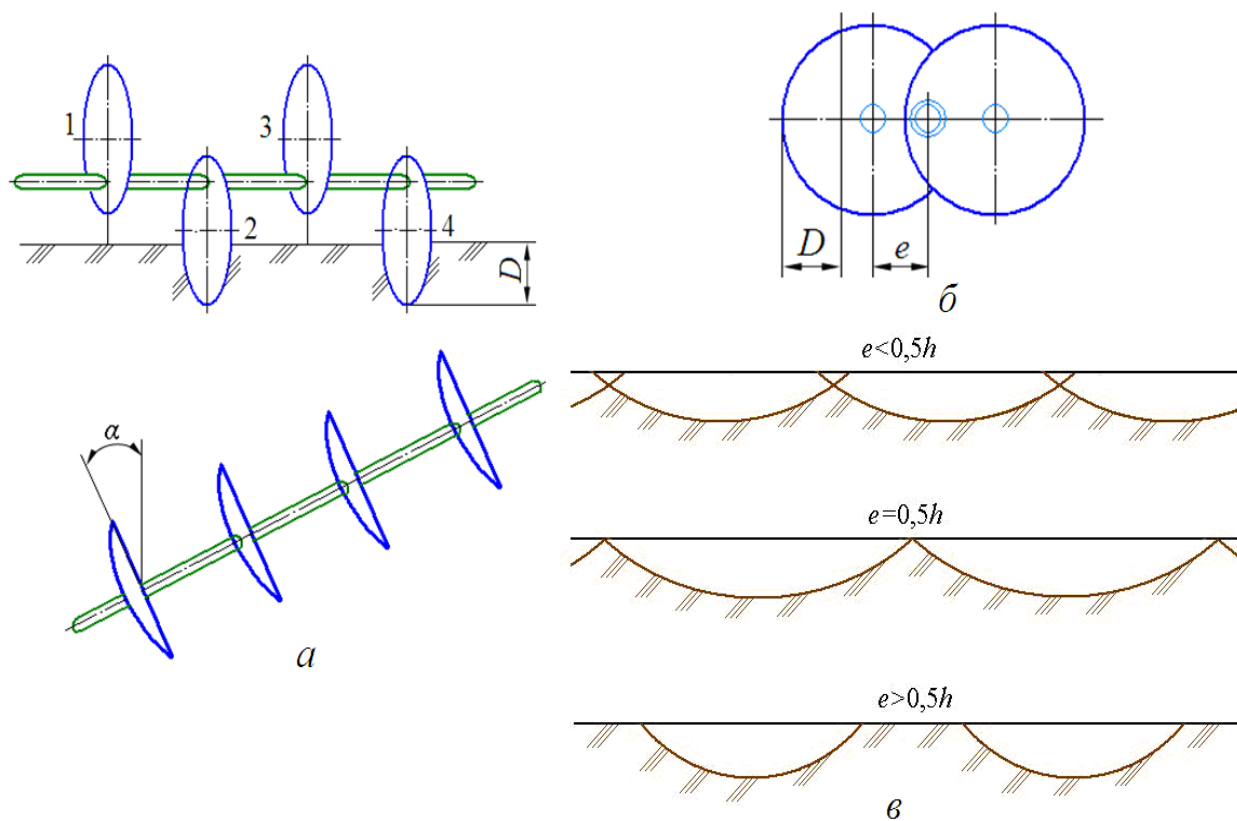
При вспашке на любую глубину, которая образует ступенчатый профиль в нижней части седловины (рис. 1), теряются потоки воды на поверхности плуга и внутри почвы. Такую вспашку проводят четырехкорпусным плугом (рис. 2), второй и четвертый корпуса которого вспахивают на глубину 20-22 см, первый и Третий корпуса - на 30-34 см. В

результате вспашки этим способом на поверхности плуга и на дне отвала образуется бугристый профиль. Согласно исследованиям, вспашка на каждую глубину шага увеличивает запас воды в 1-метровом слое на 90-330 м<sup>3</sup>/и урожайность на 0,17-0,43 т/ [42].



**Рис.2. Четырехкорпусный плуг для ступенчатой вспашки**

Для устранения водной эрозии формирование углублений для создания нанорельефа на поверхности поля осуществляется с помощью специальных формирователей углублений [43]. Для этого используются дискообразные лучильники с эксцентрично установленным на оси устройством (рис. 3а). Соты имеют длину 110-120 см, ширину 35-50 см, глубину 12-15 см. При использовании дисков с углом атаки 30° на гектар образуется до 13 тысяч сот объемом 250 м<sup>3</sup>/га. Эксцентриситет диска в зависимости от  $e$  (рис. 3в) формируются соты различной формы.



Т

**Рис.3. Схемы формирования выемок при различных эксцентриситетах дискообразного образования котлована и диска 1-4 сферические диски;  $e$  – эксцентриситет**

Веретенообразная вспашка - это тип вспашки пней, при которой на поверхности плуга образуются борозды, а на дне плуга образуются пни. Гравийно-щебнистая вспашка устраняет водную эрозию на полях с уклоном до 80 градусов. Простой плуг используется при ступенчатой вспашке, при которой его единый корпус выдвигается на 40-50 см. на агдаргичга эга. Бу известняк создает плуг, препятствующий потоку воды при каждом проходе приводного агрегата.

Анализ научных работ в этой области показывает, что агротехнические методы имеют большое значение в комплексной борьбе с эрозией. Основным требованием к защите от эрозии является формирование поверхности поля и дна грядки таким образом, чтобы она была устойчива к ветровой и водной эрозии и создавала условия для развития растений и формирования урожая.

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## **НЕКОТОРЫЕ ВОПРОСЫ ПРЕПОДАВАНИЯ ХИМИИ В КОНТЕКСТЕ ЕЕ МЕТОДОЛОГИЧЕСКИХ ПРОБЛЕМ**

*Аннотация. В данной статье раскрыты методологические проблемы и интеграция современной химии.*

*Ключевые слова: химизм, химической методологии, физико-химические, «простирает руки», металл материалов, хемо фобии.*

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## **SOME QUESTIONS OF TEACHING CHEMISTRY IN THE CONTEXT OF ITS METHODOLOGICAL PROBLEMS**

*Annotation. This article reveals methodological problems and the integration of modern chemistry.*

*Key words: chemism, chemical methodology, physico-chemical, “stretches out his hands”, metal materials, himo phobias.*

Химия как одна из фундаментальных наук естественнонаучного цикла интенсивно развивается и совершенствуется. «Информационный бум», охвативший всего человечества, прежде всего, касается и химии, и ее технологии. Область исследования этой науки слишком обширная, так как она соприкасается и продуктивно сотрудничает с физикой с одной стороны, и с биологией с другой. В основе химических превращений лежат физические процесс перемещения атомов-переходов от одной молекулярной структуры к другой, изменения состояний электронных оболочек атомов и молекул. Исходя из этих соображений, некоторые ученые-физики выдвигали тезис о том, что химия полностью поглощена

физикой, и она не обладает своей спецификой. Это не что иное, как физический «шовинизм». Химизм - гораздо сложный процесс, даже самый простейший химический акт не может быть полностью объяснена физикой. Физикализация всей химии, хотя и является одной из характерных черт развития современной химии и влияние физики весьма многообразно и охватывает широкий диапазон вопросов теоретической и экспериментальной химии, следует подчеркнуть, что физика не может взять на себя задачи объяснения химического мира, но в решении этой задачи она оказывает неоценимую помощь. В свою очередь, химия продуктивно влияет на биологию, помогает выявить секреты жизнедеятельности. Биология включает в себя и физику, и химию как важнейшие компоненты. Прямое перенесение в биологию химической методологии и последовавшие за этим ошибки повлекли за собой и обвинения всего направления в механицизме, и обвинение в грехах редукционизма. С точки зрения методологии научного познания биологические науки считаются в настоящее время менее совершенными по методам исследования, чем физико-химические. В биологических науках меньше, чем в физических, развиты экспериментальные методы исследования. Поэтому изучение живых объектов методами химии постепенно перешло в руки биологов. Сложился достаточно пестрый конгломерат научных направлений. Но во всех случаях химия сохраняет свое «лицо». Даже в таких смежных науках, как физическая химия и биологическая химия, химизм ярко выражен и определяет специфику этих наук. По образному выражению английского ученого, историка науки Дж. Бернала (он же является основоположником науковедения), современная химия базируется на «трех китах»: теория строения вещества, химической термодинамике и химической кинетике. И к счастью, ни один из 28 ISBN 978-5-9907724-5-8 19-20 ноября 2015 года ТОМ 4 \_ них, хотя они и «плывут и обитают» в безграничном научном «океане», не растворяются в нем.

Методологические проблемы современной химии ученые делят на три группы: онтологические, гносеологические и социальные. Все они взаимосвязаны и взаимообусловлены. От отдельно взятого вещества к их классу, от единичного до общего, от индивидуального до массового-таков диалектический путь химического познания объективного материального мира. Как и всякая наука, химия, прежде всего, должна служить обществу (человечеству). Сегодняшнее цивилизованное общество не может просуществовать без вмешательства химии.

Химия «простирает руки» в следующие глобальные задачи: 1. Проблема обеспечения общества с пищевыми продуктами, повышение продуктивности в животноводстве и урожайности в сельском хозяйстве, хранение и переработка сырья и продуктов питания. 2. Проблемы энергообеспечения, экологически чистого горючего и ее восстанавливаемых ресурсов. 3. Охрана окружающей среды. 4. Безвредные



и безотходные производственные технологии. 5. Охрана здоровья, лечение и профилактика болезней. 6. Совмещение химической технологии с биотехнологией. 7. Развитие регенеративной химии. 8. Техногенная экономия. 9. Координация макро- и микротехнологии с нанотехнологией. 10. Замещение металло материалов и сырья с неметаллическими полимерами и пластмассой.

Эти и другие вопросы должны отражаться в содержании курсов химии в системе непрерывного образования.

Государственные образовательные стандарты (ГОС) общего среднего, средне-специального, профессионального и высшего образования, разработанные и внедренные в практику, постепенно совершенствуются, динамически развиваются и проходят апробацию, согласно требованиям «Закона об образовании» и Национальной программы по подготовке кадров Республики Узбекистан.

Теоретических основ курсов химии составляют: а) атомно-молекулярное учение; б) основные стехиометрические законы; в) строение вещества и химическая связь; г) теория электролитической диссоциации; д) периодический закон и система химических элементов; е) учение о растворах; ж) окислительно-восстановительные процессы; з) скорость химических реакций и химическое равновесие; и) теория строения органических соединений и т.д.

Среди перечисленных вопросов особое место принадлежит химической атомистике, которая не только определила судьбу химии, но и оказала одно из решающих влияний на развитие всего естествознания. По всему курсу химии красной нитью должна пройти идеи химической атомистики, которая брала свои начала от работ великого английского ученого Дж. Дальтона, не менее известного своими исследованиями, кроме химии, в области цветного видения. Тут нельзя не вспомнить известные слова американского физика, лауреата Нобелевской премии Р. Фейнмана, в которых содержится адекватная оценка роли атомистики в истории науки: «Если бы в результате какой-либо мировой Поколение будущего: Взгляд молодых ученых - 2015 29.

Катастрофы все накопленные научные знания оказались бы уничтоженными и грядущим поколениям живых существ перешла бы только одна фраза, то какое утверждение, составленное из наименьшего количества слов, принесло бы наибольшую информацию? Я считаю, что это - атомная гипотеза...».

В действующих ГОС по химии осуществлена попытка сформулировать требования к знаниям и умениям каждого курса:

- 1) к знаниям теоретического характера (понятия, законы, закономерности, положения, теорий);
- 2) к знаниям, относящимся к языку науки;
- 3) к знаниям мировоззренческого характера;

4) к знаниям важнейших фактов химии;  
5) к умениям осуществлять приёмы умственных действий (операции логического мышления);

6) к учениям практического характера и т.д. Но к сожалению, эти директивно-нормативные документы ещё далеки от совершенства. Поэтому существует необходимость подготовки их в новой редакции и их модернизации.

В нынешних условиях, перед обучающих и обучаемым стоят ряд организационно-дидактические, научно-теоретические и учебно-методические задачи:

1. Обеспечение массовой химической грамотности.
2. Глубокое изучение теоретических основ химии.
3. Овладение техникой и методикой химического эксперимента-главного практического метода обучения химии.
4. Решение задач и упражнений, а также тестовых заданий.
5. Улучшение и укрепление материального обеспечения химического образования.
6. Повышение вклада внеурочных работ к основной организационной форме обучения - уроку.
7. Широкое включение местных материалов, отражение успехов химии, химической промышленности и технологии, достигнутые в годы независимости Республики Узбекистан, в содержании образования.
8. Внедрение современных технологий обучения.
9. Системное включение фактов и материалов из истории химии для более полного раскрытия генезиса химических знаний, в содержании образования.
10. Усиление практической направленности химического образования и т.д.

Большое значение для совершенствования обучения имеют межпредметные связи. От умелой реализации их зависит успех решения многих учебно-воспитательных задач: достижение осознанности усвоения знаний, их прочности, обучение умению применять знания, развитие познавательной деятельности учащихся и формирование их мировоззрения. Взаимосвязь современной химической науки с физикой и биологией должна отражаться и в содержании химического образования.

Правильная и научно-обоснованная постановка и организация процессов преподавания химии, в конце концов, должна привести к искоренению хемо фобии (хемиобоязни)-негативного общественного мнения среди населения, укреплению роли созидательной химии в росте благосостояния общества и, наоборот, уменьшению вреда разрушающей химии для природы и общества.

Исходя из современных методологических проблем химической науки необходимо грамотно организовать процессы преподавания. Только

таким образом можно добиться формированию массового химического мышления, химической культуры и химического сознания.

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## **АНАЛИЗ ОСНОВНЫХ ЭКОНОМИЧЕСКИХ ПОКАЗАТЕЛЕЙ УЧКУПРИКСКОГО РАЙОНА, ОБЩАЯ ХАРАКТЕРИСТИКА ДЕЯТЕЛЬНОСТИ ХОЗЯЙСТВЕННЫХ СЕТЕЙ**

*Аннотация. В данной статье проанализированы основные макроэкономические показатели Учкeприкского района Ферганской области и деятельность предприятий и организаций, действующих в районе, и основные показатели экономики района выражены в таблицах и диаграммах.*

*Ключевые слова. Макроэкономика, инвестиции, внешняя торговля, розничная торговля, экспорт, импорт, капитал, сельское хозяйство.*

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## **ANALYSIS OF THE MAIN ECONOMIC INDICATORS OF THE UCHKUPRIK DISTRICT, GENERAL CHARACTERISTICS OF THE ACTIVITIES OF ECONOMIC NETWORKS**

*Abstract. This article analyzes the main macroeconomic indicators of the Uchkeprrik district of the Fergana region and the activities of enterprises and organizations operating in the region, and the main indicators of the district's economy are expressed in tables and diagrams.*

*Keywords. Macroeconomics, investment, foreign trade, retail trade, export, import, capital, agriculture.*

**Введение:** Учкeприкский район образован 29 сентября 1926 года. 24 декабря 1962 года он был объединен с Багдадским округом, реорганизован 31 декабря 1964 года. Граничит с Багдадским и Бувайдинскими районами с востока, Дангаринским районом с севера, городом Коканда с запада,





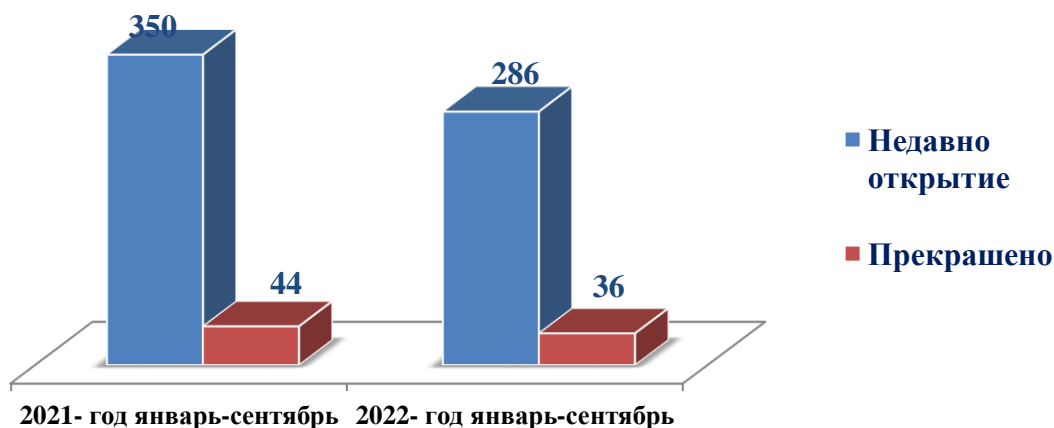
**Основные экономические показатели Учкуприкского района (в январе-сентябре 2022 г.)**

	<i>Итого</i>		<i>На душу населения</i>	
	<i>млрд. сумов</i>	<i>В % к январю до сентября 2021 года</i>	<i>тысяч сумов</i>	<i>В % к январю до сентября 2021 года</i>
Промышленность	1657,5	106,0	6923,9	103,5
Потребительские товары	1115,4	103,6	4659,6	101,2
Сельское, лесное и рыбное хозяйство	1543,7	104,4	6448,5	101,9
Инвестиции в основной капитал	854,6	153,9	3569,9	150,3
Строительство	213,2	112,1	890,4	109,5
Розничный товарооборот	1006,6	108,7	4204,7	106,1

**Место Учкуприкского района в области по основным экономическим показателям за январь-сентябрь 2022 года**

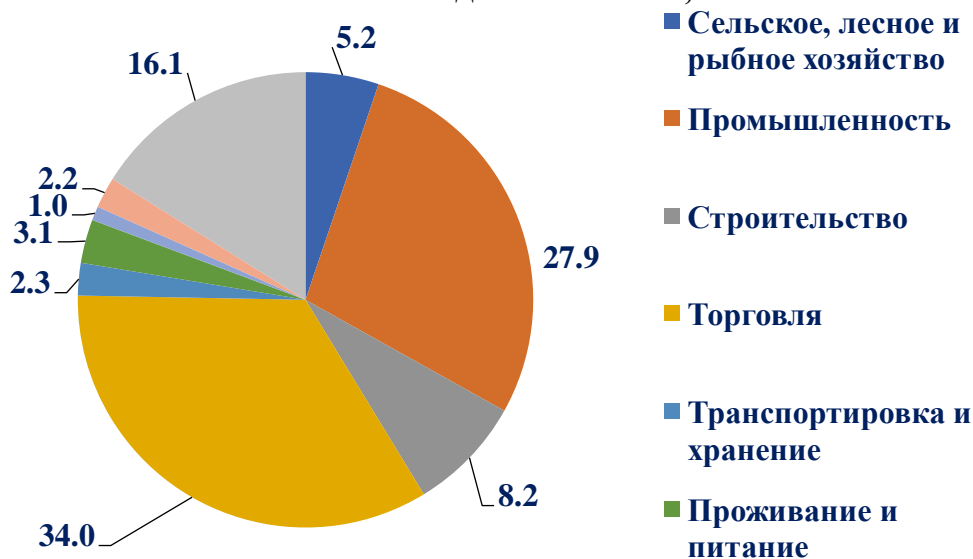


Предприятия и организации, зарегистрированные по видам экономической деятельности основную часть, составляют торговля 940 (34,5%), промышленность 762 (28,0%), другие виды услуг 432 (15,8%), строительство 219 (8,0%), сельское, лесное и рыбное хозяйство 144 (5,3%) и рыбное хозяйство 82 (3,0%). % услуги по размещению и питанию.



По состоянию на 1 октября 2022 года количество действующих предприятий и организаций (без фермеров и фермерских хозяйств) составило 2560, что по сравнению с аналогичным периодом прошлого года увеличилось на 147. 34,0% торговля, 27,9% промышленность, 8,2% строительство, 3,1% услуги проживания и общественного питания, 5,2% сельское, лесное и рыбное хозяйство, 2,3% транспорт и складирование, 1,0% информация и связь, 2,2% здравоохранение и социальные услуги и 16,1% другие виды деятельности. соответствует вкладу.

**Распределение предприятий и организаций, действующих на 1 октября 2023 года (без фермеров и фермерских хозяйств), по видам экономической деятельности, в %**



По состоянию на 1 октября 2022 года в Учкоприкском районе зарегистрировано 343 семейных предприятия, из них действуют 324, что на 6 больше, чем в прошлом году. Доля семейных предприятий, зарегистрированных в Учкоприкском районе области. Он равен 4,9% и снизился на 0,6% по сравнению с прошлым годом, соответственно доля действующих семейных предприятий в регионе снизилась на 0,4% и составила 5,0%. С начала года создано 26 семейных предприятий, к настоящему времени закрыто 7 семейных предприятий. По данным Единого государственного реестра предприятий и организаций, в 2022 году.

По состоянию на 1 октября количество зарегистрированных субъектов малого предпринимательства составляет 2 430, из них действующих – 2 273, или 93,5%. С начала года вновь создано 279 субъектов малого предпринимательства, ликвидировано 34 субъекта малого предпринимательства. Основную часть зарегистрированных предприятий и организаций по видам экономической деятельности составляют торговля 922 (37,9%), промышленность 759 (31,2%), строительство 219 (9,0%) и другие виды услуг соответствуют 164 (6,7%) отраслям.

Предприятия с иностранными инвестициями и инвестициями: По данным Единого государственного реестра предприятий и организаций, количество зарегистрированных по состоянию на 1 октября 2022 года предприятий с иностранными инвестициями и инвестициями составляет 21, из них действующих 19. С начала года количество предприятий с участием иностранных инвестиций и инвестиций установлено 4, ни одно предприятие с участием иностранных инвестиций и инвестиций не ликвидировано. Количество фермерских хозяйств, действующих в районе на 1 октября 2022 года 995. Из них 288 по направлению производства хлопка и зерна, 11 по направлению овощеводства и полисахарства, 612 по направлению садоводства и виноградарства, 31 по направлению животноводства (в том числе 1 по направлению птицеводства), рыболовства 26 по направлению и 27 по другим направлениям. С начала года создано 10 новых фермерских хозяйств, прекративших свою деятельность нет.

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## **АНАЛИЗ ВИДОВ ОГНЕУПОРНЫХ МАТЕРИАЛОВ И ИЗДЕЛИЙ**

*Аннотация. Большое значение в развитии производства керамического огнеупорного кирпича в нашей республике имеет использование местного сырья. В основу данной научной статьи положено производство жаропрочного огнеупорного керамического кирпича с использованием сырья в нашей стране.*

*Ключевые слова: корундовый, магнезиальный, доломитовый хромистый кварцевый или динасовый экзотермический синтез, связующее, огнеупорность, термостойкость, муллит, шамотного кирпича.*

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## **ANALYSIS OF TYPES OF REFRACTORY MATERIALS AND PRODUCTS**

*Annotation. The use of local raw materials is of great importance in the development of the production of ceramic refractory bricks in our republic. This scientific article is based on the production of heat-resistant refractory ceramic bricks using raw materials in our country.*

*Key words: corundum, magnesium, dolomite chromium quartz or dinas exothermic synthesis, binder, fire resistance, heat resistance, mullite, fireclay brick.*

Известны выдающиеся ученые-металлурги, металлофизики, физико-химики, керамисты, основополагающие работы которых заложили в 20 веке фундамент современной науки о материалах. В число этих исследователей необходимо отнести В.Г. Кудрямова, В.Н. Гриднева, К.П. Бунина, М.П. Арбузова, разработавших теорию фазовых превращений в сталях и в сплавах; И.Н. Францевича, И.М. Федорченко- основателей современной науки о порошковых и композиционных материалах; А.С. Бережного, П.П. Будникова, С.Г. Тресвятского - основателей научной школы в области физикохимии оксидной керамики и силикатных материалов. Это далеко не полный перечень замечательных ученых, вклад которых современное материаловедение неоценим. С именем выдающегося ученого Г.В.Самсонова связана эпоха в становлении современного

материаловедения тугоплавких соединений, как фундамента новейших композиционных материалов и технологий.

Основной, так часто называют глиноземный шамотный кирпич, так как это наиболее давно производящийся, проверенный практикой вид штучной огнеупорной продукции. Немаловажным фактором является и стоимость его приобретения, обходящаяся заказчикам ниже других разновидностей этого огнеупора. Шамотный кирпич – это основной печной материал в гражданском строительстве, коммунальной инфраструктуре населенных пунктов, включая котельные, ТЭЦ [1.2.].

Углеродистый или графитовый, создаваемый на основе свободного углерода. Огнеупорность таких штучных изделий, получаемых при обжиге до 2000°C шихты из каменноугольной смолы с графитом, просто огромна – до 3500 °C, поэтому не удивительно что они востребованы для футеровки плавильных печей в металлургии, на предприятиях энергетики, включая АЭС [1.2.].

Кварцевый или диносовый, работающих до предельных температур эксплуатации шамотного кирпича-1730 °C. Их используют для футеровки промышленных отопительных агрегатов.

Корундовый (выдерживает температуру до -1750°C) - применяют в установках, созданных для получения серной кислоты, печах с окислительной средой [2.].

Магнезиальный, выдерживающий длительный нагрев до 1900°C, обладает высокой механической прочностью, в том числе к истиранию, поэтому широко используется в металлургии [2.].

Доломитовый получают обжигом смеси оксидов CaO, MgO. Он обладает огнеупорностью до 2300 °C.

Хромистый, изготавливают из горной породы-хромита. Он инертен к кислоте, щелочной среде, в том числе к воздействию шлаков, образующихся при варке металлических сплавов. Предельная температура эксплуатации - 2180 °C.

**Циркониевый** – изготавливаемый из минерала бадделеита, с огнеупорностью до 2700 °C.

**Огнеупорные материалы** – изделия на основе минерального сырья, отличающиеся способностью сохранять свои свойства в условиях эксплуатации при высоких температурах, и которые служат в качестве конструктивных материалов и защитных покрытий [1.2.3.].

Сырье для *огнеупорных материалов* - простые и сложные оксиды (например, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, MgO, ZrO<sub>2</sub>, MgO-SiO<sub>2</sub>), бескислородные соединения (например, графит, нитриды, карбиды, бориды, силициды), а также оксинитриды, оксикарбиды, сиалоны [1.2.3.].

Эксплуатационные свойства *огнеупорных материалов* определяются комплексом химических, физико-химических и механических свойств.

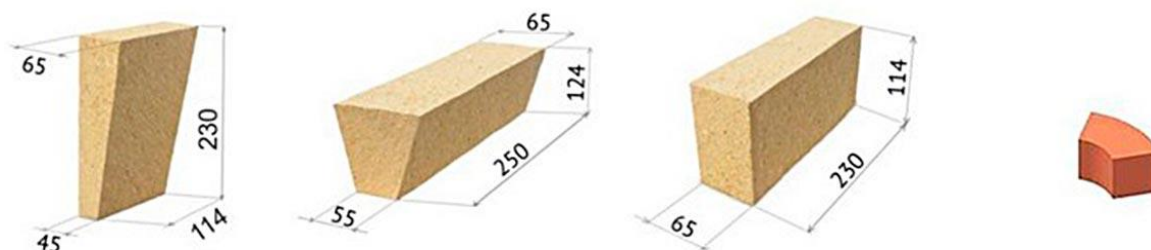


Основное свойство огнеупорных изделий - огнеупорность, т.е. способность изделия противостоять, не расплавляясь, действию высоких температур [4.5.]. Огнеупорность характеризуется температурой, при которой стандартный образец из материала в форме трехгранной усеченной пирамиды высотой 30 мм и сторонами оснований 8 и 2 мм (конус Зейгера) размягчается и деформируется так, что его вершина касается основания. Определенная таким образом температура обычно выше максимально допустимой температуры эксплуатации огнеупорных материалов.

Различают:

- ❖ собственно огнеупорные материалы (огнеупорность 1580-1770 °С);
- ❖ высокоогнеупорные (1770-2000 °С);
- ❖ материалы высшей огнеупорности (выше 2000 °С).

Огнеупоры могут быть общего назначения и для определения тепловых агрегатов и устройств, например, доменные, для сталеразливных ковшей и т.д., что указывается в нормативно-технической документации.



Средняя температура эксплуатации - это важная характеристика при выборе кирпича для аппаратов с длительным циклом эксплуатации [6.7.8.9.10.11.12.13.14.16.].

**Тепловая инерция**-способность к быстрому нагреву, медленному остыванию.

**Теплоемкость**-способность накапливать тепловую энергию для последующей передачи.

**Классификация по форме:**

- ❖ *Прямые.*
- ❖ *Трапецеидальные, клиновидные, арочные* –применяются для выкладки арочных проемов и сводов).
- ❖ *Фасонные* – нашли применение в отделочных работах.
- ❖ *Подвесные* – также идут на внутренние своды, но уже в мощных промышленных печах.

Со всеми существующими видами шамотного кирпича по форме и размерам можно ознакомиться в ГОСТ 8691-73 [6].

Назначение шамотного кирпича определяется по его маркировке:

■ **ША, ШБ, ШАК** – универсальный материал, используемый, чаще всего, для кладки топок каминов и печей. Изделия этого типа характеризуются оптимальным соотношением цены и качества.



✚ **ШКУ** – кошевой кирпич, используются для футеровки чугуновозных ковшей. Наиболее известные марки **ШКУ-32, 37, 39**. [6.7.8.9.10.11.].

✚ **ШУС, ШВ** – отличается наиболее высокой теплоемкостью, благодаря чему применяется в основном для обмуровки стен конвективных шахт и газоходов парогенераторов. [6.7.8.9.10.11.].

✚ **ШАВ** – назначение: футеровка вагранок.

✚ **ШПД** – необходим для кладки доменных печей, горнов.

✚ **ШК** – используется преимущественно в коксохимическом производстве.

✚ **ШЛ** – легковесный материал для футеровки печей, работающих при температуре не выше 1300 °С.

✚ **ШЦУ** – торцевые двусторонние изделия, предназначенные для кладки вращающихся печей.

✚ **ПВ и ПБ** – предназначены в основном для возведения дымовых труб, барбекю и мангалов.

Следующие за буквой значения необходимы для разделения продукции по размерам. Например, прямое изделие **Ш-5** имеют габариты **230x114x65**, торцевое **Ш-22-230x114x55**, ребровое **Ш-45-220x114x45** мм. [6.7.8.9.10.11.].

Марка	Размеры, мм	Марка	Размеры, мм
<b>ША-5</b>	230x114x65	<b>ШБ-22</b>	230x114x65/55
<b>ША-6</b>	230x114x40	<b>ШБ-23</b>	230x114x65/45
<b>ША-8</b>	250x124x65	<b>ШБ-25</b>	250x114x65/55
<b>ШБ-5</b>	230x114x65	<b>ШБ-29, 30</b>	300x150x65/55 (65/45)
<b>ШБ-8</b>	250x124x65	<b>ША-22</b>	230x114x65/55
<b>ШЛ-5</b>	230x114x65	<b>ША-23</b>	230x114x65/45
<b>ШЛ-8</b>	250x124x65	<b>ША-25</b>	230x114x65/45
<b>ПБ-5</b>	230x114x65	<b>ША-29. ША-30</b>	300x150x65/55

Сырьем для изготовления огнеупорных видов кирпичной продукции служат в основном горные породы с огнеупорностью не меньше 1580 °С, а также возвращенные в технологический процесс мелкоизмельченные бракованные изделия, неформованные материалы, отходы. [6.7.8.9.10.11.].

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**АНАЛИЗ ДЕЯТЕЛЬНОСТИ ГОСУДАРСТВЕННОГО КОМИТЕТА  
РЕСПУБЛИКИ БАШКОРТОСТАН ПО ЧРЕЗВЫЧАЙНЫМ  
СИТУАЦИЯМ И ГЛАВНОГО УПРАВЛЕНИЯ МЧС РОССИИ ПО  
РЕСПУБЛИКЕ БАШКОРТОСТАН. ВЫЯВЛЕНИЕ ИМЕЮЩИХСЯ  
ПРОБЛЕМ ФУНКЦИОНИРОВАНИЯ**

*Аннотация. В статье рассмотрены некоторые результаты деятельности Государственного комитета Республики Башкортостан по чрезвычайным ситуациям, освещение имеющихся проблем функционирования.*

*Ключевые слова: государственный комитет Республики Башкортостан по чрезвычайным ситуациям, Республика Башкортостан, чрезвычайные ситуации.*

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**ANALYSIS OF THE ACTIVITIES OF THE STATE COMMITTEE OF  
THE REPUBLIC OF BASHKORTOSTAN FOR EMERGENCY  
SITUATIONS AND THE MAIN DIRECTORATE OF THE EMERCOM  
OF RUSSIA FOR THE REPUBLIC OF BASHKORTOSTAN.  
IDENTIFYING EXISTING OPERATIONAL PROBLEMS**

*Abstract: The article discusses some of the results of the activities of the State Committee of the Republic of Bashkortostan for Emergency Situations, highlighting the existing problems of functioning.*

*Keywords: State Committee of the Republic of Bashkortostan for Emergency Situations, Republic of Bashkortostan, emergency situations.*

Эффективность государственной системы профилактики, предупреждения и ликвидации чрезвычайных ситуаций, мер, направленных на обеспечение общественной безопасности, оказывают существенное

влияние на обеспечение устойчивого развития экономики республики, а также на состояние общества.

Благодаря проведенным Главным управлением МЧС России по Республике Башкортостан, Госкомитетом РБ по ЧС, заинтересованными министерствами и ведомствами, сотрудниками полиции, также органами местного самоуправления совместным профилактическим мероприятиям достигнуто ежегодное сокращение погибших на воде. Всего в 2022 году проведено более 35 тысяч межведомственных профилактических рейдов и патрулирований на водных объектах, профилактическими группами муниципальных образований на опасных участках водных объектов республики установлено более 15 тысяч предупреждающих и запрещающих купание аншлагов, за нарушение Правил охраны жизни людей на водных объектах Республики Башкортостан административными комиссиями муниципальных образований к административной ответственности привлечено 995 человек, в средствах массовой информации размещено более 25 тысяч информационных контентов в СМИ, организовано проведение еженедельных брифингов, видеоконференций с муниципалитетами и межведомственного форума по обеспечению безопасности на водных объектах.

В результате совместных проведенных мер в республике в 2022 году спасены жизни 293 человек на водных объектах, в том числе 67 детей (АППГ – 256 человек, в том числе 54 ребенка).

При этом в функционировании системы государственного регулирования чрезвычайных ситуаций Государственным комитетом Республики Башкортостан по чрезвычайным ситуациям имеются некоторые проблемы, а именно:

1. Недостаточно эффективная система предупреждения чрезвычайных ситуаций, в частности, в сфере пожарной безопасности.

Так, за 12 месяцев 2022 года произошёл 10881 пожар (за аналогичный период прошлого года (АППГ) – 11440, -4,9%), на которых погибло 233 человека (АППГ – 278, -16,2%), в том числе 12 несовершеннолетних (АППГ – 14, -14,3%), получили травмы 267 человек (АППГ – 231, +15,6%). Зарегистрированный материальный ущерб составляет 457 млн. 736 тыс. рублей (АППГ – 649 млн. 561 тыс., -30%).

На пожарах спасено 1206 человека (АППГ – 1277, -6%), эвакуировано 5487 человек (АППГ – 3680, +49%).

В среднем ежемесячно происходило 907 пожаров, на которых погибало 19 человек, получали травмы 22 человека, огнем уничтожалось 91 строение.

Количество погибших на 100 тыс. человек населения – 5,7 человека (АППГ – 6,9), количество травмированных на 100 тыс. населения – 6,5 человек (АППГ – 5,7) (рис.2.3).

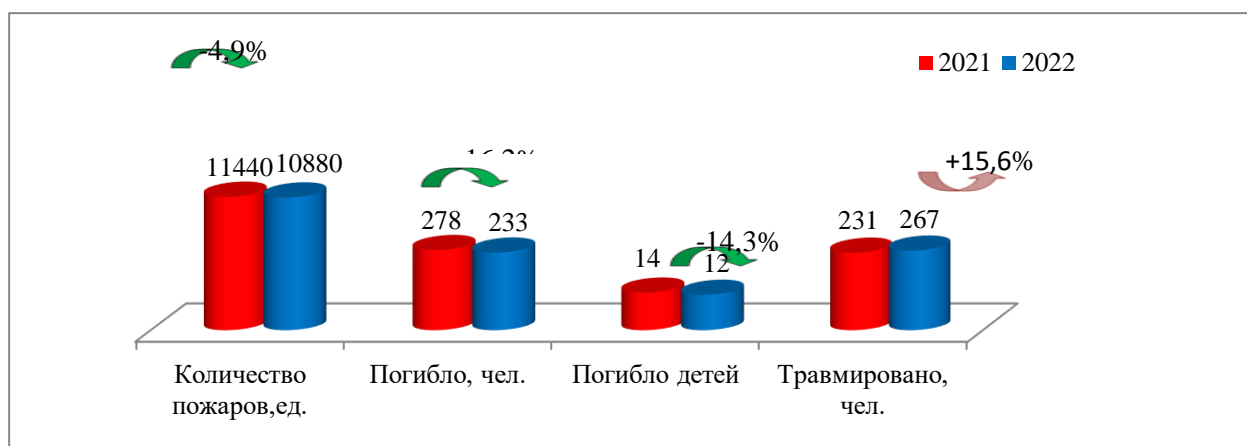


Рисунок 1 – Динамика показателей пожарной обстановки в Республике Башкортостан

На неподнадзорных объектах произошло 10259 пожаров (АППГ – 10760, -4,7 %), на которых погибло 230 человек (АППГ – 258, -10,8%).

В торгово-развлекательных центрах и подобных объектах зарегистрировано 6 пожаров (АППГ – 6, на уровне с АППГ), на которых погибших не зарегистрировано (АППГ – 0) и травмированных не зарегистрировано (АППГ – 0).

Наибольшее количество людей погибло на пожарах в вечернее, ночное и утреннее время (в период с 20.00 по 6.00) – 109 человек (46,7% от общего количества). В 1 случае момент гибели человека не установлена (рис.2).

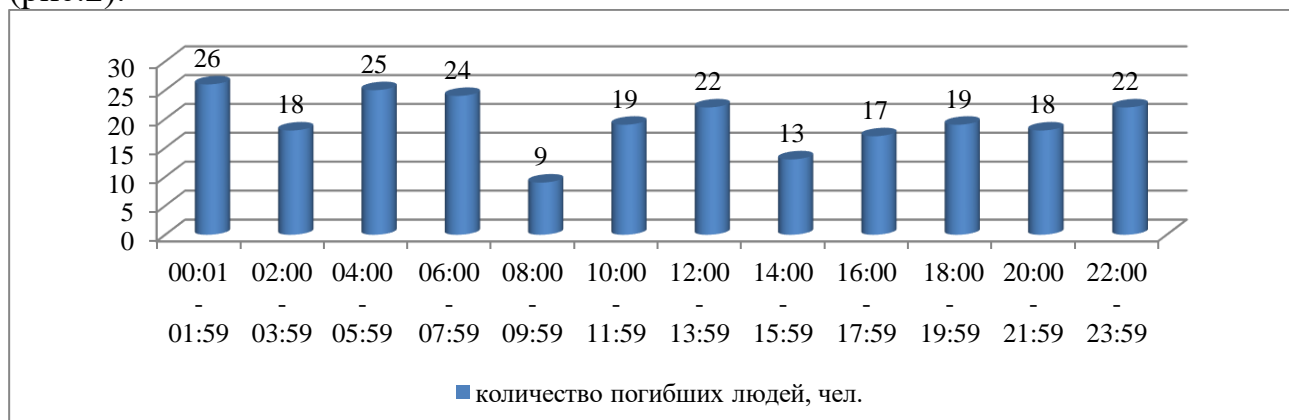


Рисунок 2 – Динамика показателей пожарной обстановки в Республике Башкортостан

В 16 муниципальных образованиях и городских округах Республики Башкортостан отмечается рост количества пожаров (рис. 3). Кроме того, в 16 муниципальных образованиях и городских округах Республики Башкортостан зарегистрировано увеличение количества погибших на пожарах людей (рис. 4).

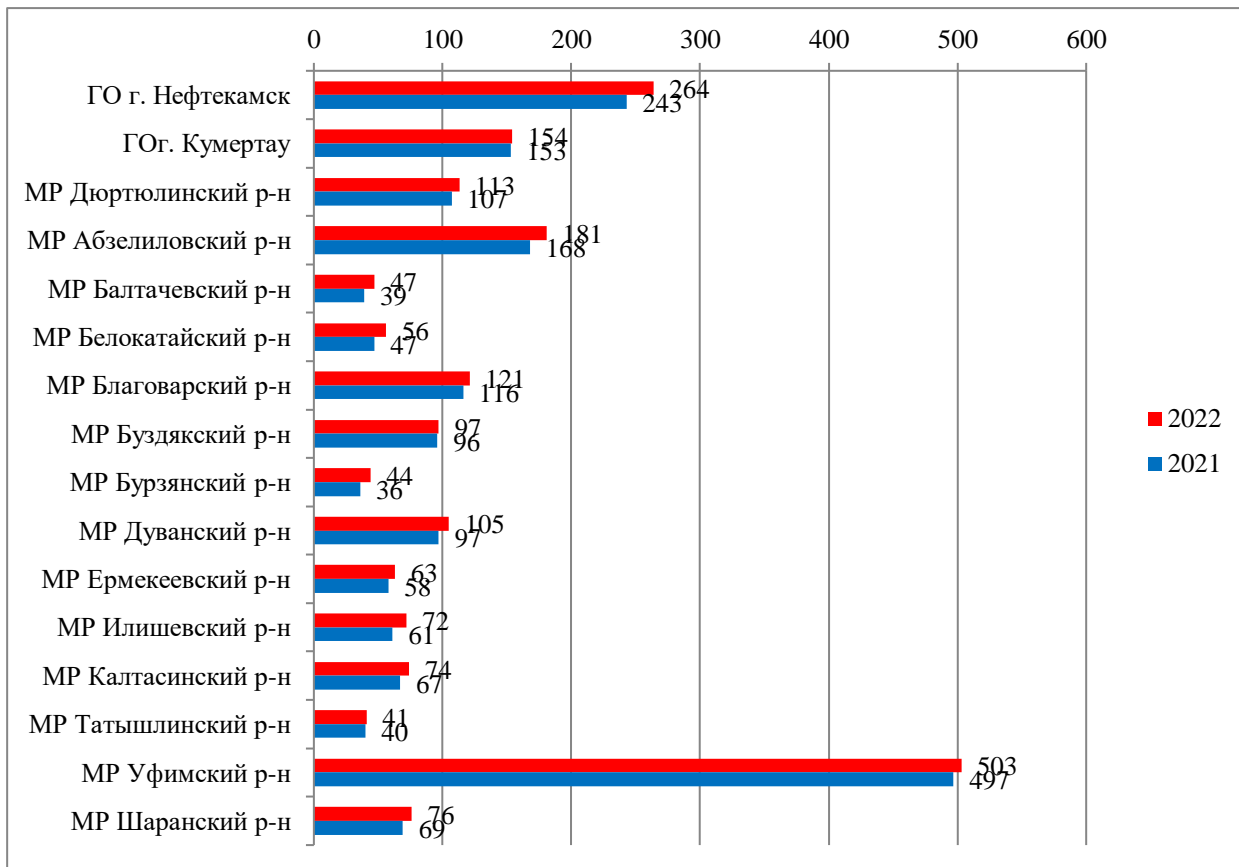


Рисунок 3 – Динамика показателей пожарной обстановки в Республике Башкортостан

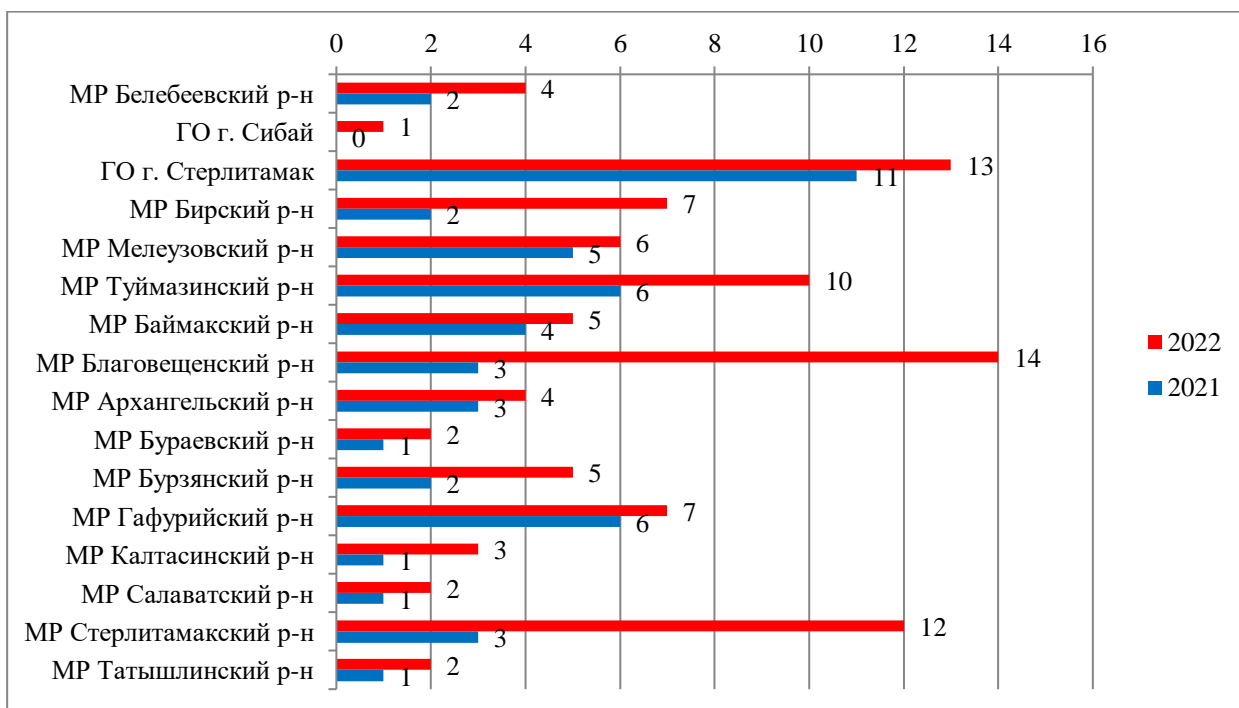


Рисунок 4 – Динамика показателей пожарной обстановки в Республике Башкортостан



В 4 муниципальных образованиях Республики Башкортостан зарегистрировано увеличение количества погибших на пожарах детей.

МР Стерлитамакский район погибло 5 детей (АППГ-0);

МР Бурзянский район погибло 2 детей (АППГ-0);

МР Туймазинский район погиб 1 ребенок (АППГ-0);

МР Иглинский район погиб 1 ребенок (АППГ-0).

В 27 муниципальных образованиях и городских округах Республики Башкортостан зарегистрировано увеличение количества травмированных на пожарах людей.

2. Вторая проблема – недостаточный контроль чрезвычайных ситуаций в рамках надзорной деятельности.

Согласно внесенным изменениям в федеральное законодательство, Госкомитет РБ по ЧС с 1 января 2022 года осуществляет 2 вида государственного надзора в области защиты населения и территорий от чрезвычайных ситуаций:

- региональный государственный надзор;
- государственный надзор за реализацией органами местного самоуправления Республики Башкортостан соответствующих полномочий (рис. 5).



Рисунок 5 – Информация о проведенных проверках за 2022 год

Проведение плановых надзорных мероприятий в отношении объектов надзора в зависимости от присвоенной категории риска осуществляется с определенной периодичностью:

- а) для категории среднего риска – один раз в 4 года;
- б) для категории умеренного риска – один раз в 6 лет;
- в) для категории низкого риска – плановые контрольные (надзорные) мероприятия не проводятся (рис. 6).



Рисунок 6 – Объекты надзора Госкомитета РБ по ЧС

Данная ситуация влечет за собой ряд инцидентов.

Так, в 2022 году в торговом центре «Меркурий» в г. Уфа произошел крупный пожар. Предварительной причиной пожара в уфимском торговом-развлекательном центре «Меркурий» стала аварийная работа электрооборудования.

Таким образом, можно сделать вывод о том, что несмотря на активное развитие системы государственного регулирования чрезвычайных ситуаций Государственным комитетом Республики Башкортостан по чрезвычайным ситуациям, в ее работе имеются определенные проблемы и пробелы, которые определенно, нуждаются в разрешении и урегулировании.

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## **ГИСТОЛОГИЧЕСКОЕ СТРОЕНИЕ ПОЛУШАРИЙ ГОЛОВНОГО МОЗГА В НОРМЕ И ПРИ ПАТОЛОГИИ**

*Аннотация. Данная исследовательская работа фокусируется на гистологическом и морфологическом анализе полушарий головного мозга в условиях нормального функционирования и в случаях патологий. Авторы рассматривают микроструктурные компоненты, такие как слои коры, состав белого вещества и особенности базальных ганглиев. Анализируются изменения в гистологической архитектуре при различных патологиях, включая церебральные кисты, опухоли, дегенеративные процессы и воспалительные реакции. Статья охватывает также аспекты сосудистых нарушений и изменения в структуре белого вещества. Подчеркивается важность точной диагностики, основанной на современных методах образования, для более глубокого понимания гистологических аспектов неврологических заболеваний.*

*Ключевые слова: Нейронные клетки, белое вещество, базальные ганглии, гистология, магнитно-резонансная томография, биопсия, диагностика.*

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## HISTOLOGICAL STRUCTURE OF THE HEMISPHERES OF THE BRAIN IN NORMAL AND IN PATHOLOGY

*Abstract. This research work focuses on the histological and morphological analysis of the cerebral hemispheres under conditions of normal functioning and in cases of pathology. The authors review microstructural components such as cortical layers, white matter composition, and features of the basal ganglia. Changes in histological architecture are analyzed in various pathologies, including cerebral cysts, tumors, degenerative processes and inflammatory reactions. The article also covers aspects of vascular disorders and changes in the structure of white matter. The importance of accurate diagnosis based on modern educational methods is emphasized for a deeper understanding of the histological aspects of neurological diseases.*

*Keywords: Neuronal cells, white matter, basal ganglia, histology, magnetic resonance imaging, biopsy, diagnosis.*

Гистологическое строение полушарий головного мозга в норме и при патологии

Головной мозг – сложная и великолепно организованная структура, играющая ключевую роль в функционировании организма. Он состоит из различных зон и ядер, каждое из которых выполняет определенные функции. Полушария головного мозга, левое и правое, являются его крупнейшими частями и отвечают за высшие нервные функции, включая мышление, речь, память и чувства [1].

Нормальное гистологическое строение полушарий головного мозга:

Каждое полушарие состоит из трех основных слоев: коры, белого вещества и базальных ганглиев. Кора представляет собой сложную сеть нервных клеток, называемых нейронами, и их волоконных проекций. Эти нейроны образуют различные слои, каждый из которых имеет свою специфическую функцию [2].

Белое вещество состоит из миелинизированных нервных волокон, обеспечивающих передачу нервных импульсов между различными участками мозга. Базальные ганглии играют важную роль в регуляции двигательной активности и координации движений.

Гистологические изменения при патологии:

Церебральные кисты и опухоли: Появление кист и опухолей в полушариях может привести к искажению архитектуры тканей, сдавливанию сосудов и повреждению окружающих нейронов [3].

Дегенеративные заболевания: Некоторые заболевания, такие как болезнь Альцгеймера или боковой амиотрофический склероз, сопровождаются утратой нейронов и изменениями в структуре коры.

Воспалительные процессы: Инфекции или воспалительные процессы могут вызвать изменения в гистологической структуре, включая инфильтрацию иммунных клеток и реакцию астероцитов.

Сосудистые нарушения: Инсульты и другие сосудистые проблемы могут привести к нарушениям кровоснабжения и некрозу тканей [4].

Патологии белого вещества: Дегенерация миелина, как в множественной склерозе, может вызвать нарушения в передаче нервных сигналов.

Диагностика и лечение:

Для диагностики патологии гистологического строения полушарий головного мозга используются различные методы образования, включая магнитно-резонансную томографию и биопсию. Лечение зависит от типа патологии и может включать хирургическую интервенцию, лекарственную терапию, физиотерапию и реабилитацию.

Заключение:

Гистологическое строение полушарий головного мозга в норме и при патологии представляет собой сложную тему, требующую внимательного изучения. Понимание этих изменений существенно для разработки эффективных методов диагностики и лечения неврологических заболеваний, которые оказывают влияние на качество жизни пациентов.

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## **ВЛИЯНИЕ ЯЗЫКА НА ФОРМИРОВАНИЕ СОЦИАЛЬНЫХ СТРУКТУР**

*Аннотация. Данная статья исследует влияние языка на формирование социальных структур в обществе. Рассматривается роль языка как средства коммуникации, отражающего культурные и социальные ценности, а также определяющего социальные отношения и структуры. В статье анализируются лингвистические маркеры, образы обращения, традиции и обычаи, которые формируются и поддерживаются через язык.*

*Ключевые слова: Социум, коммуникация, мировоззрение, языковое разнообразие, социальный статус, этническая принадлежность.*

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## **THE INFLUENCE OF LANGUAGE ON THE FORMATION OF SOCIAL STRUCTURES**

*Annotation. This article explores the influence of language on the formation of social structures in society. The role of language as a means of communication reflecting cultural and social values, as well as determining social relationships and structures, is considered. The article analyzes linguistic markers, forms of address, traditions, and customs that are formed and maintained through language.*

*Key words: Society, communication, worldview, linguistic diversity, social status, ethnic affiliation.*

Язык и социальные структуры — это два ключевых понятия, которые играют важную роль в формировании и функционировании общества.

Язык является основным средством коммуникации между людьми и позволяет им выражать свои мысли, чувства и потребности. Каждый язык имеет свою грамматику, лексику и фонетику, а также связан с определенной

культурой и историей. Язык также отражает социальные отношения и структуры общества, поскольку в различных социумах существуют различия в языковых нормах, диалектах и способах общения.

Кроме того, язык также влияет на формирование мировоззрения людей и их способность к восприятию окружающего мира. Например, в языках с различными грамматическими конструкциями может существовать различное понимание времени, пространства и даже отношений между людьми. Это означает, что язык формирует культурные шаблоны и образ мышления людей, влияя на их поведение и взаимодействие в обществе. [1]

Социальные структуры — это организационные формы, в которых люди взаимодействуют друг с другом в рамках общества. Социальные структуры включают в себя такие элементы, как институты, роли, статусы, классы, группы и организации. Они определяют способы организации общества, распределение власти, ресурсов и возможностей, а также социальные отношения между людьми. Социальные структуры также влияют на формирование социальной и культурной идентичности людей, определяют их поведение, возможности для самореализации и социальную мобильность.

Тесная взаимосвязь между языком и социальными структурами проявляется в том, что язык отражает социальные отношения и различия в обществе. Например, в различных социумах существуют различия в уровне уважения к различным диалектам или языковым группам, а также в доступе к языковому образованию. Социальные структуры также оказывают влияние на использование языка: определенные социальные группы могут использовать специфический язык или речевые обороты для выражения своей принадлежности к определенной социальной категории. [2]

В современном мире с его многообразием языков и культур взаимосвязь между языком и социальной структурой становится еще более сложной. Миграция, глобализация и межкультурное взаимодействие приводят к появлению многоязычных и мультикультурных обществ, где язык становится не только средством коммуникации, но и символом культурной и социальной идентичности.

Язык как инструмент коммуникации играет решающую роль в процессе формирования социальных структур. Через язык люди обмениваются информацией, выражают свои мысли, чувства и потребности. Коммуникация с помощью языка позволяет людям строить отношения, создавать сообщества и организации, а также передавать ценности, традиции и культурные особенности. [3]

Одновременно язык оказывает влияние на социальный статус и идентификацию людей в обществе. В различных культурах существуют различия в уровне формальности, уважении и дистанции, которые отражены в языковых нормах и обычаях. Например, использование определенных

форм обращения или выражений может отражать социальный статус говорящего или его отношения с адресатом. Также язык может служить индикатором этнической или региональной принадлежности, что влияет на восприятие и оценку личности в обществе.

Вместе с тем, язык оказывает влияние на формирование групповой идентичности и социальной принадлежности. Люди объединяются на основе общего языка, диалекта или рода речи, что создает основу для формирования социальных групп и сообществ. Язык может стать мощным инструментом для укрепления групповой солидарности, сохранения традиций и ценностей, а также для борьбы за признание своей культурной и языковой идентичности. [4]

Понятие "язык и социум" представляет собой важную тему, которая отражает сложные взаимосвязи между языком и обществом. Язык, как основное средство коммуникации, играет ключевую роль в формировании социума, а социум, в свою очередь, оказывает влияние на развитие языка и его использование.

Язык несет в себе не только функцию передачи информации, но также отражает социальные отношения, культурные ценности и социальную структуру общества. В различных социумах существует языковая дифференциация, где различные языки ассоциируются с определенными социальными группами или классами. Например, в многоязычных обществах знание определенного языка может быть связано с привилегированным положением в обществе, а языковые барьеры могут стать препятствием для социальной мобильности.

В свою очередь, социум оказывает влияние на развитие языка. Социальные изменения, политические процессы и культурные трансформации могут привести к изменениям в языке: появлению новых лексических единиц, изменению грамматических конструкций или даже формированию новых диалектов. Таким образом, язык является отражением социальных изменений и динамики развития общества. [5]

Итак, язык является неотъемлемой частью культуры и общества, и его влияние на социокультурные нормы трудно переоценить. Таким образом,

- язык является неотъемлемой частью культуры и традиций народа. Слова, выражения, пословицы и поговорки несут в себе глубокий смысл, отражающий историю, мировоззрение и ценности общества. Например, в разных культурах существуют уникальные термины, которые сложно перевести на другие языки без потери смысла. Это свидетельствует о том, что язык формирует специфическое мышление и восприятие мира.

- Язык может содержать лингвистические маркеры, которые указывают на пол, возраст, социальное положение или принадлежность к определенной группе. Это влияет на формирование социальных норм и поведенческих стандартов.

- Язык может быть использован для установления и поддержания социокультурных норм. Через язык передаются обряды, традиции, религиозные убеждения и моральные ценности. Слова могут быть использованы для поддержания общественного порядка и соблюдения правил поведения в обществе. [6]

Однако, следует отметить, что язык также может быть использован для создания стереотипов, дискриминации и ущемления определенных групп людей. Язык является одним из самых мощных инструментов, которые мы используем для общения. Он может быть использован для создания стереотипов, которые затем могут привести к дискриминации определенных групп людей. Например, часто используемые выражения или слова могут создавать устойчивые представления о том, какие должны быть определенные группы людей. Это может привести к тому, что люди начинают видеть других иначе, исходя из этих стереотипов, что в свою очередь может привести к дискриминации на работе, в образовании или в повседневной жизни.

Одним словом, язык имеет огромную силу в формировании общественных отношений и влияет на то, как мы воспринимаем других людей. Поэтому важно осознавать ответственность за то, как мы используем язык и какие эффекты — это может оказать на окружающих. Образование и осознанное общение могут помочь сократить использование языка для создания стереотипов, дискриминации и ущемления определенных групп людей. [7]

Для того чтобы эффективно управлять многоязычными обществами, необходимо развивать политику языкового многообразия, поддерживать равноправие языковых сообществ и создавать условия для межкультурного диалога. Также важно развивать мультиязычное образование, которое позволит людям различных языковых групп получить доступ к знаниям и возможностям, а также сохранять и развивать свои языки и культуры.

Исследование влияния языка на социальные структуры имеет большое значение для понимания современного общества, его динамики и разнообразия. Понимание этого влияния также поможет разработать стратегии устойчивого развития и гармоничного сосуществования различных культур и языков в мире. [8]

Таким образом, изучение влияния языка на формирование социальных структур не только расширяет наши знания о социальных процессах, но и способствует созданию более справедливого, равноправного и гармоничного общества, где каждый человек имеет возможность выражать свою культурную и языковую идентичность.

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## **ЦИФРОВИЗАЦИЯ В ОРГАНАХ ГОСУДАРСТВЕННОЙ ВЛАСТИ: ПРЕИМУЩЕСТВА И ВЫЗОВЫ**

*Аннотация. Цифровизация в органах государственной власти является актуальной темой, которая привлекает все большее внимание в современном обществе. В данной статье рассматриваются преимущества и вызовы, связанные с внедрением цифровых технологий в государственные органы. Анализируются основные аспекты цифровизации, такие как электронное правительство, электронные услуги и электронное управление. Также рассматриваются примеры успешной цифровизации в различных странах и предлагаются рекомендации по эффективному внедрению цифровых технологий в органы государственной власти.*

*Ключевые слова: цифровизация, государственная власть, электронное правительство, электронные услуги, электронное управление, Республика Башкортостан.*

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## **DIGITALIZATION IN PUBLIC AUTHORITY: ADVANTAGES AND CHALLENGES**

*Abstract. Digitalization in public authorities is a hot topic that is attracting increasing attention in modern society. This article examines the benefits and challenges associated with the introduction of digital technologies in government agencies. The main aspects of digitalization, such as e-government, e-services and e-government, are analyzed. Examples of successful digitalization in various countries are also discussed and recommendations are offered for the effective implementation of digital technologies in government bodies.*

*Keywords: digitalization, state power, e-government, e-services, e-government, Republic of Bashkortostan.*



Цифровизация, или процесс применения цифровых технологий в различных сферах деятельности, становится все более значимым фактором в современном мире. Органы государственной власти не являются исключением, и цифровизация в этой сфере имеет свои особенности и преимущества. В данной статье мы рассмотрим, какие преимущества и вызовы возникают при внедрении цифровых технологий в органы государственной власти.

Ниже рассмотрим некоторые значимые аспекты применения цифровых технологий:

#### 1. Электронное правительство:

Одним из основных аспектов цифровизации в органах государственной власти является развитие электронного правительства. Электронное правительство предполагает использование информационно-коммуникационных технологий для улучшения работы государственных органов и предоставления электронных услуг гражданам. Это позволяет сократить бюрократические процедуры, улучшить доступность государственных услуг и повысить эффективность работы органов государственной власти.

#### 2. Электронные услуги:

Цифровизация также предоставляет возможность для развития электронных услуг. Государственные органы могут предоставлять гражданам и предприятиям различные электронные услуги, такие как онлайн-регистрация, электронное голосование, онлайн-подача документов и другие. Это упрощает взаимодействие граждан с государственными органами, сокращает время на получение услуг и повышает удовлетворенность граждан.

#### 3. Электронное управление:

Цифровизация также влияет на процессы управления в органах государственной власти. Внедрение цифровых технологий позволяет автоматизировать многие процессы, улучшить аналитику и принятие решений, а также повысить прозрачность и открытость работы государственных органов. Это способствует эффективному управлению и повышению доверия граждан к государственным органам.

Для эффективного внедрения цифровых технологий в органы государственной власти необходимо учитывать следующие рекомендации:

1. Разработка стратегии цифровизации, которая будет ориентирована на конкретные потребности и цели органов государственной власти.

2. Обеспечение качественной подготовки и обучения сотрудников органов государственной власти для работы с цифровыми технологиями.

3. Установление надежных систем безопасности для защиты информации и данных граждан.

4. Взаимодействие с частным сектором и активное использование инноваций для развития цифровых решений.  
5. Постоянное обновление и развитие цифровых технологий, чтобы они соответствовали изменяющимся потребностям и требованиям государственных органов.

Изучая зарубежный опыт внедрения цифровых технологий, мы видим, что многие страны уже успешно внедрили цифровые технологии в органы государственной власти.

Например, Эстония известна своим электронным правительством и считается одной из самых цифровых стран в мире. Они внедрили электронную идентификацию, что позволяет гражданам получать доступ к государственным услугам онлайн, включая голосование на выборах. Также в Эстонии внедрена электронная система налогообложения, что значительно упростило процесс подачи налоговой декларации.

Кроме того, Сингапур активно развивает цифровую экономику и ставит цифровизацию в центр своей стратегии развития. Они внедрили систему "Smart Nation", которая объединяет различные аспекты жизни горожан, включая умные дома, транспорт, здравоохранение и образование. В Сингапуре также активно используются цифровые платформы для предоставления государственных услуг и управления городской инфраструктурой.

Рассматривая опыт Швеции, мы видим, что она известна своими инновационными подходами к цифровизации. Они активно используют технологии Интернета вещей (IoT) для улучшения городской инфраструктуры, такой как умные светофоры и системы управления отоплением. Шведская система здравоохранения также полностью цифровизирована, позволяя пациентам получать медицинскую помощь и рецепты онлайн.

Также, Южная Корея является одной из самых цифровых стран в мире. Они активно развивают технологии связи следующего поколения, такие как 5G, и внедряют их в различные сферы жизни, включая здравоохранение, образование и городскую инфраструктуру. Южная Корея также активно использует цифровые платформы для предоставления государственных услуг и управления городскими системами.

Важно отметить, что наряду с успешным развитием цифровых технологий в мировой экономике, Россия также успешно развивается в данном направлении. Благодаря внедрению цифровизации в органы государственного управления, в нашей стране значительно улучшилось качество предоставляемых услуг, а также повысилась эффективность работы государственных и коммерческих организаций. Вот некоторые из них:

1. Единая система электронного документооборота (ЕСЭД) – это государственная система, которая позволяет организациям обмениваться

электронными документами с государственными органами. Благодаря ЕСЭД, процесс обмена документами стал значительно ускорен и упрощен, что сэкономило время и средства для многих организаций.

2. Госуслуги – это портал, который позволяет гражданам получать государственные услуги онлайн. На портале Госуслуги можно оформить паспорт, заявление на получение социальных выплат, зарегистрировать автомобиль и многое другое. Это существенно упростило процесс получения государственных услуг и сэкономило время для миллионов граждан.

3. Цифровая трансформация в банковской сфере – многие банки в России активно внедряют цифровые технологии для улучшения качества обслуживания клиентов. Например, мобильные приложения банков позволяют клиентам проводить операции счетами, оплачивать счета, получать уведомления о транзакциях и многое другое. Это значительно упростило процесс работы с банковскими услугами и сделал его более удобным для клиентов.

4. Цифровизация образования – в России активно внедряются цифровые технологии в образовательный процесс. Например, многие школы и университеты используют электронные учебники, онлайн-курсы и платформы для дистанционного обучения. Это позволяет студентам и учащимся получать доступ к образованию в любое время и из любой точки мира.

Это лишь некоторые примеры успешной цифровизации в России. В целом, цифровые технологии активно внедряются в различные сферы жизни, что способствует повышению эффективности и улучшению качества предоставляемых услуг.

В Республике Башкортостан успешно реализован проект «Электронное правительство». В рамках этого проекта была создана единая платформа для предоставления государственных услуг онлайн. Граждане могут получить различные документы, подать заявления, оплатить налоги и сборы, а также получить информацию о государственных услугах через интернет. Это значительно упростило процедуру получения государственных услуг и сэкономило время граждан.

Еще один успешный пример цифровизации в Башкортостане - это проект "Электронное здравоохранение". В рамках этого проекта была создана единая электронная медицинская карта, которая содержит информацию о здоровье пациента, его медицинских записях, результатах анализов и других данных. Это позволяет врачам быстро получать доступ к необходимой информации о пациенте, улучшает качество медицинского обслуживания и сокращает время ожидания результатов анализов.

Также в Башкортостане был запущен проект "Электронное образование". В рамках этого проекта была создана платформа для дистанционного обучения, которая позволяет учащимся получать

образование в онлайн-формате. Это особенно актуально в условиях пандемии COVID-19, когда школы были закрыты. Благодаря этому проекту учащиеся могут продолжать обучение дистанционно, а учителя могут проводить уроки и контролировать успеваемость учеников через интернет.

Эти и другие проекты по цифровизации в Республике Башкортостан позволяют улучшить качество государственных услуг, повысить эффективность работы государственных органов и улучшить жизнь граждан региона.

Подводя итог, мы видим, что цифровизация в органах государственной власти предоставляет множество преимуществ, однако также сопряжена с вызовами и сложностями. Внедрение цифровых технологий требует стратегического подхода и учета специфики каждой страны. Однако успешные примеры цифровизации показывают, что это возможно и может принести значительные преимущества для государственных органов и граждан.

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## **ПОЭТ, ВДОХНОВЛЕННЫЙ НАУКОЙ**

*Аннотация. Новый сборник “Страна мудрости” нашего друга Абдула Хамида наглядно свидетельствует о том, что поэт стал намного старше и полон во всех отношениях. На основании чтения аботы заметно, что области научных интересов Абдул Хамида многогранны. Любопытно, что он обладал гораздо более серьезными, доскональными знаниями, никогда не оставлял его равнодушным к науке, и поэтому его чувства так ярко выражены, что он хочет передать современникам в виде стихотворных образов. Поэтому лирический герой поэта становится иногда историком естествоиспытателем, иногда математиком, иногда пропагандистом технических наук*

*Ключевые слова: поэт, поэзия, лирический герой, наука, логический подход.*

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## **A POET INSPIRED BY SCIENCE**

*Abstract: the new collection “The Land of Wisdom” by our friend Abdul Hamid clearly shows that the poet has become much older and full in all respects. Based on reading the work, it is noticeable that Abdul Hamid's research interests are multifaceted. Curiously, he possessed much more serious, thorough knowledge, never left him indifferent to science, and therefore his feelings are so pronounced that he wants to convey to his contemporaries in the form of poetic images. Therefore, the lyrical hero of the poet sometimes becomes a natural historian, sometimes a mathematician, sometimes a propagandist of technical sciences*

*Keywords: poet, poetry, lyrical hero, science, logical approach.*



## **Вступление**

Я читатель, который по истечению судьбы одним из первых познакомился с первой историко-просветительской поэмой поэта Абдула Хамида – “Крепость сердца”. Уже тогда (2007 год) я глубоко осознал, что его научное мышление с глубокими корнями, и поэтому его ранняя работа вскоре нашла своих поклонников [1].

## **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

А новый сборник “Страна мудрости” нашего друга Абдула Хамида наглядно свидетельствует о том, что поэт стал намного старше и полон во всех отношениях. На основании чтения работы заметно, что области научных интересов Абдул Хамида многогранны. Любопытно, что он обладал гораздо более серьезными, доскональными знаниями, никогда не оставлял его равнодушным к науке, и поэтому его чувства так ярко выражены, что он хочет передать современникам в виде стихотворных образов. Поэтому лирический герой поэта становится историком естествоиспытателем, иногда математиком, иногда пропагандистом технических наук [1].

## **Результаты и обсуждение:**

В это время его не оставляют равнодушными и судьбы современников, и творческая работа, осуществляемая в наше время, под влиянием которых поэт выстраивает в поэтические строки нежные чувства. Даже когда вы пишете строки, вы ищете запоминающиеся, игривые фразы, а не простые предложения. Хотя это относится ко всем поэтам, Абдул Хамид нашел в своем творчестве выражение в особом виде – в образе научной обоснованности искусства. В конце концов, ему удалось создать поэтическую интерпретацию ситуации, которая на первый взгляд казалась безразличной, запоминающейся.

В творчестве поэта использован стиль, переходящий от простого к сложному, от конкретного к абстрактному. Такой логический подход, в свою очередь, позволил сделать из рассказа вклад, т. е. заключительный философский вывод, служащий обеспечению теоретической общности, целостности практически в каждом стихотворении. Наверное, поэтому правильнее было бы сказать, что для того, чтобы продвинуться и глубоко понять красочные образы в стихах Абдула Хамида, необходима интеллектуальность, колоритные знания, специальная подготовка, если это уместно.



### **Вывод:**

Думаю, что данное произведение, увидев лицо мира, не только расширит круг поклонников Абдул Хамида, но и побудит каждого современника взглянуть на мир более пристально, вдохновит на глубокое созерцание пространства и времени, подарит читателям творческий настрой, величие, социальную активность, непосредственную причастность к проблемам Вселенной, вселенской личности-гражданина. планеты Земли.

Желаю нашему другу Абдул Хамиду крепкого здоровья и новой творческой продуктивности [1].

### **КРАТКАЯ И ЯСНАЯ БЕСЕДА**

Спросил у лорда и барона:  
Что светло, слово иль карона?

Они сказали, подражают восточным,  
«Божественной комедии» источным!..

Запад сочинял по следам Бедила,  
Пушкина изумили звоны, светила [2] !

### **О ПОЭТАХ**

Поэту – рыдать, не кричать,  
Не сломать, дверь стучать!  
Не даром дано огром крыло,  
Покровитель – мирных крылчат!..

Но, у каждого велик жажда,  
У русь – государь, турец – “пашша”,  
Но, у мирного – великая душа,  
Всем – земляк, своя, наша!..

Не даром, скажут цветы земли,  
Такая честь – награда, мало ли?!  
Ратно дают как солдат душу,  
Есль сломали, себя сломали!..

Поэту – рыдать, не кричать,  
Не сломать, дверь стучать!  
Не даром дано огром крыло,  
Покровитель – мирных крылчат [2]!.

## ИСКРЕННЫЙ РАЗГОВОР ПОД КОЛОКОЛЬНЫМ ЗВОНОМ

Здравствуй, моя мылая, Люда,  
Провожу, праздничного наряда...  
Вест такой..., знаешь... наряда подряда,  
Нахожусь на соседном отряде...  
Знаю, ты дома, не в опряте,  
Можь, не принести пищу сюда!..

Поговорим, не видать отсюда,  
Звонят ли колоколы рады,  
Разве ты тоже в обряде?!  
Глупо не ступай, божьи ради,  
Так не делают жены-маты!..  
Куда пошла, без меня Люда?!..

Не забудь, клятву под икон сияния,  
Верными останемся!.. До свидания!..  
Я верю, думаешь о мирном грудном...  
Как я думаю о ратном трудном!..  
Пусть звенят вечные колоколы,  
Искреннюю любовь не кроют золы [2]!..

## МАСКАРАД РИФМ

У поэта крыля – жажда, муза,  
Игрок размечтал короля. туза!..

У козырей не будет никакого маста,  
Нет парогов под судоходного моста!..

Пловца ведут с круиза весла,  
Но для жеребца обуза– седла!..

У ледокола ненец – кузнец,  
Без него везде – плохой вест!..

Нет крепче морского узла,  
Но скальнее горное русло!..

Мудрец дикого мирно обуздал,  
Ведь, он “Миру – мир!” – исповедь создал!..

Курагу, слихал, урюк без костей,  
Ураган – шквал бурных новостей [2]?!..

### **ВЕРА И СУЕВЕРИЕ**

У тебя есть шаблона,  
Значить есть поклона?!  
У тебя нет перилы,  
Значить нет балкона?!

У тебя глаза есть,  
Их как ока береги?!..  
Если рва – заразы есть,  
Значить нет мерилы [2]?!

### **ГОНЧАРОВА-УЗБЕЧКА**

(поэма)

Я не Пушкин,  
Но видал я,  
Живет душу покоряя,  
Как ангел красоты –  
Гончарова Наталья!

Родом – наш, из Ультармы,  
Знает, что чалмы-чармы,  
Всех ушедших обряд  
И модельерные нормы.

Пришла Независимость,  
Язычные оставили поста...  
Она любит лепешку,  
Рук не вынула из теста!..

Помнит кишлачный стан,  
Собрали всех христиан,  
Подали хлеб, суп-шурпу...  
Не забывать Узбекистан!

И послевоенные годы,  
Год засухи и невзгоды  
Проводила с узбеками  
Свадьбу женитьбы и роды...

Очень тяжело прошли роды...  
Матерью и младенцу нужна кровь  
Редчайшей породы!  
Весть обрела весь кишлак,  
Ультарма стоит на ногах,  
К роддому стягивала  
Махалла,  
От чайханчика до Аксакала!  
Спрашивает медсестра:  
“Для тебя кто Шермат ака?”

С утра  
Стучит, поверь,  
Если не пустим, сломает дверь!”  
“Милиционер,  
Пришел с поста,  
Друг отца!”..  
Три раза в неделю  
По требуемым литрам доноры давали  
Кровь,  
Здорово,  
У родных поднялись брови,  
Позады ночи суровы!  
В жилах Натальи и младенца  
Течет узбекская кровь!..

Без дров и угля не топится печка,  
Не даром говорим, Наталья – узбечка!

Любит поездку в Багдад,  
Там родные – Тимур и Фархад,  
На столах плов, рыба, дичь,  
Угостят соседей подряд!

Помнит родного дядю Рому,  
Инвалида войны,  
С почестью как узбеки  
Проводили в последний путь...

Поезда времени едут,  
Годы с вагона летят  
Как листья деревьев хвойных,

Но как будто корень,  
Наталье родной,  
Остаётся унылая душа в Багдаде!  
Помнит первую любовь до сейчас,  
Бессонница...  
К ней ещё ближе прилетал Пегас...

До сих пор к себе тянет поэзия,  
Как тропическая экзотика:  
Дальное море, солнце, ананас,  
Как буревестник  
На миг посетит  
Родину Хазини – Кенагас!

Любит поэзию,  
Читает Тютчева даже Эзопа,  
Расула Гамзатова, Кайсина Кулиева...  
Навои и Бобура всегда держит на стопке  
Великих!  
Об Ахматовой, Цветаевой  
Говорит, изумительно,  
Когда прочитаешь, как будто цветешь!  
Поэты и поэзия не признают преград,  
Поэзия сближает народы всех стран,  
У одного дворец, у друго ночлег-стан –  
Поэзия поставит всех в один ряд!

Дай бог, не отречься наугад,  
Словно, они посланники Доброты,  
Избранные цветы  
Человечества –  
Не просто люди,  
Как мы!

Эти слова Гончаровой не ради услады  
Души, здесь скрывается целая драма-пьеса,  
Наталья – не раскрывшаяся поэтесса!  
В таких моментах так горят глаза,  
Лучи доходят до неба Сартюза,

Очень красивы Натальи очи,  
Как звезды в ночи,  
Глазок сказать поэтично,

Смотреть долго неэтично!..

Однажды  
С мужем ходили по берегу  
Большого Ферганского,  
Вдруг  
Наталья в плавках  
Бросалась в канал,  
Весь круг парнями стонал.  
Ей было очень приятно,  
Выгляделась очень сочно,  
Но не ловко,  
Среди очарованной толпы  
Мужик бледный от страха пропал...

Радуют праздники-байрамы,  
Озарённые своды и рамы!  
Зачем настальгия прошлого,  
Отрезать от пальто бахрамы!

Она – узбечка, ещё как,  
Умеет варить сумалак,  
Из риса выделять сечку,  
Поднять дом-пахсу, гувалак.

Говорит:  
“Родину не искать  
Хоть дарят хурма  
И орехи мускат!  
Такой человечности нигде нет,  
Богом дарённого не отпускать!

Некоторые,  
От народа рубки  
Допускают мрачные ошибки,  
За границей горы богатств нет,  
Суворов вернулся без Шипки!  
Одни ищут казны Моисея,  
Другим заманчива Россия,  
Нет больше благородной на Земле,  
Только здесь!  
Трудись,  
Расти,



Сей!

Не завидно, кто борется за гребли  
“Мусульманского государства ливанте”,  
Где от бомб остается только пепел,  
Их гробы не принимает даже земля,  
Покрывают отрезанные градами стебли!  
Такую участь не воспринимал бы,  
Даже дальше от бога дикое племя!..

Незавидно отцам-матерям уродины,  
Их сыновья – изменники Родины!  
Кара суровая: сжимают, консервируют  
Как плоды чёрной дикой смородины!..

Родину не искать  
Хоть дарят хурма  
И орехи мускат!  
Такой человечности нигде нет,  
Богом дарённого не отпускать!”

Сейчас  
Она знатная ученая,  
Доцент в политехническом,  
Хорошо отзываются о ней.  
Научные отчеты держит кучкой,  
Сдавать бы ещё скорее!

Наука – Строительные материалы,  
Суглинки печеные  
Из природного сырца –  
Для неё бриллиантовый карат!  
Поэзия ради чего?  
Преподаст зодчего!  
Вдохновение – творческий заряд!..  
Сохранила младость лица –  
Красно-свежа испеченная!

Есть информации – утечки:  
Пока горят свечки,  
Возгорится под сандалом  
Гончарова – узбечка!..

Ежедневно мы встретимся  
На работе,  
По делу.  
Она всегда опережает:  
“Ассалом... Абдул Хамид!  
Как дела,  
В нашу сторону не хамят?  
Человека как тебя,  
Ценить да ценить!..”  
“Спасибо, творюсь на память,  
Дела без удела!”

Я не Пушкин,  
Но видал я,  
Живет душу покоряя,  
Как ангел красоты –  
Гончарова Наталья [2]!

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## **ОСНОВЫ МЕТОДИКИ ОБУЧЕНИЯ ТЕХНИКЕ ГАНДБОЛА**

*Аннотация. Статья посвящена основам методики обучения технике гандбола. Технику игры в гандбол составляют специальные приемы, выполняемые на месте и в движении. Технику гандбола необходимо разделять на технику нападения и технику защиты.*

*Ключевые слова: техника, нападения, конфликт, приемы, защита, передвижения, ловля мяча, стойка.*

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## **BASICS OF TEACHING HANDBALL TECHNIQUES**

*Annotation. The article is devoted to the basics of handball technique teaching methods. The technique of playing handball consists of special techniques performed on the spot and in motion. Handball technique must be divided into attack technique and defensive technique.*

*Key words: technique, attacks, conflict, techniques, defense, movements, catching the ball, stance.*

Гандбол относится к видам спорта с так называемой конфликтной деятельностью. Команды стремятся достичь преимущества над соперником, маскируя свои замыслы и одновременно пытаясь раскрыть планы противника. Поэтому рассматривать спортивную борьбу команд необходимо с позиций противоборства сторон. Процесс игры определяется наличием техники, тактики и стратегии. Без этих составляющих спортивное единоборство команд невозможно [4,9].

*Техника* – это комплекс приемов игры, представляющий собой систему рациональных движений для достижения победы над соперником. Технику игры в гандбол составляют специальные приемы, выполняемые на месте и в движении. Технику гандбола необходимо разделять на технику нападения и технику защиты.

*Техника нападения.* К основным техническим приемам игры в нападении относятся передвижения, передача, ловля, ведение мяча, броски по воротам, обманные действия, заслоны. Они выполняются игроками индивидуально и коллективно как на месте, так и в движении [1].

*Передвижения.* От умения спортсмена правильно и рационально передвигаться по площадке зависит организация игры, как в нападении, так и в защите. При помощи быстрых передвижений создаются условия игроку для выбора удобного места на площадке, освобождения от соперника, получения мяча и завершения атаки. Для обучения передвижениям лучше использовать специальные упражнения, игровые эстафеты, подвижные игры. От правильной техники перемещений зависит и эффективность выполнения технических приемов с мячом [6].

*Стойка готовности.* При обучении передвижениям, особое внимание обращается на умение занимающегося постоянно находится в стойке готовности, при которой вес тела распределяется равномерно на носки обеих ног, пятки слегка оторваны от пола, голову следует держать прямо и взглядом контролировать игрока с мячом.

*Держание мяча.* В гандболе держание мяча осуществляется двумя и одной рукой при ловле мяча, после ведения его, при подготовке к передаче или броску мяча игроку необходимо держать мяч всегда двумя руками, охватив его кистями [7].

*Ловля мяча* выполняется в основном двумя руками на месте и в движении. При ловле мяча, летящего на средней высоте, руки выставляются вперед ладонями вниз - вовнутрь, ноги слегка согнуты в коленях.

*Передача мяча в гандболе.* Наиболее распространенными являются: передача мяча одной рукой от плеча; передача одной рукой из-за спины; передача одной рукой над плечом; передача мяча за головой; передача мяча одной рукой снизу. Для выполнения передачи одной рукой от плеча после ловли, игрок перекладывает мяч в правую или левую руку, сгибает ее в локтевом суставе, отводит назад, локоть поднимает на высоту плеча, а кисть с мячом удерживает на уровне головы [2].

*Броски по воротам.* Броски мяча по воротам выполняются одной рукой с места и в движении, из опорного положения, в прыжке, с падением в сторону броска. Самыми распространенными бросками мяча в гандболе являются: - бросок согнутой рукой сверху выполняется из основной стойки, при которой левая нога впереди, мяч обхватывается пальцами руки и удерживается на уровне головы, локоть поднят до высоты плеча, рука с мячом слегка отводится в сторону.

Ведение мяча. Ведение мяча выполняется плавным толчкообразным движением руки и кисти. Рука должна быть согнута в локтевом суставе со свободно разведенными пальцами. Для того, чтобы добиться при ведении отскока мяча на нужную высоту, игрок должен производить мягкие и плавные движения кистью. При ведении необходимо туловище слегка наклонить вперед [3].

*Обманные действия.* Обманные действия представляют собой сочетание различных движений рук, ног, туловища, направленные на изменение действий соперника в сторону противоположную выполнения технического приема.

*Заслоны.* Заслон применяются для создания временного численного превосходства с целью освобождения игрока от опеки соперника. При помощи заслонов игроки могут затруднять действия защитников и создавать игровое преимущество. В зависимости от поставленной цели заслоны могут выполняться игроком с мячом и без него и подразделяются на подвижные, передние и боковые.

*Техника защиты.* К основным техническим приемам игры в защите относятся защитная стойка, передвижение в защитной стойке, блокирование, перехват мяча, игра вратаря [7].

*Защитная стойка.* В защитной стойке ноги слегка согнуты в коленях, левая или правая - немного впереди, туловище наклонено вперед, руки согнуты в локтевом суставе и находятся перед грудью, взгляд сосредоточен на мяче.

*Передвижение в защитной стойке.* Передвижение в защитной стойке выполняются приставными шагами вправо и влево, выпадами вперед и в стороны, прыжками вперед, в стороны бегом вперед спиной. При передвижении игрок должен всегда находиться на слегка согнутых ногах и перемещаться на носках.

*Блокирование.* Блокирование включает комплекс специальных движений, которые состоят из перемещений, прыжков, выноса и постановки рук, приземления. Выполняя блокирование, игрок энергично выносит руки вверх слегка вперед, пальцы рук широко расставлены, большие пальцы сведены вместе. Блокирование выполняется одним или группой игроков [5].

*Перехват мяча.* Перехват мяча применяется в том случае, когда защитник находится в непосредственной близости от игрока, владеющего мячом, или игрока, которому предполагается передача мяча. Самым главным требованием при организации перехвата мяча является умение предугадать момент", и направление передачи и умение выбрать самый эффективный способ передвижения для перехвата мяча.

Самой распространенной коллективной защитой ворот является зонная система защиты, сущность которой заключается в том, что каждый игрок должен активно оборонять определенную зону и блокировать находящегося в ней противника.

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## **СОВРЕМЕННЫЙ ПОДХОД К РАЗВИТИЮ ПОСЛЕОПЕРАЦИОННЫХ СПАЕК У ГИНЕКОЛОГИЧЕСКИХ БОЛЬНЫХ**

*Резюме. Проблема профилактики послеоперационного спаечного процесса остается актуальной вследствие высокой частоты развития перитонеальной адгезии после абдоминальных вмешательств.*

*Образование внутрибрюшинных и тазовых спаек, после перенесенных полостных операций отмечается в 60-100 % случаев, и наиболее часто после вмешательств на органах малого таза. У женщин репродуктивного возраста формирование послеоперационного спаечного процесса наряду с увеличением риска повторных операций, развитием болевого синдрома, ухудшением качества жизни и снижением трудоспособности сопряжено с развитием трубно-перитонеального бесплодия и внематочной беременности.*

*Ключевая слова: послеоперационная спаечная заболевания, беременность, репродуктивная возраст.*

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## **A MODERN APPROACH TO THE DEVELOPMENT OF POSTOPERATIVE ADHESIONS IN GYNECOLOGICAL PATIENTS**

*Resume. The problem of preventing the adhesive process after surgery remains relevant due to the high level of peritoneal adhesion after abdominal intervention.*

*The formation of intraperitoneal and pelvic adhesions after abdominal surgery is noted in 60-100% of cases and often after intervention in the pelvic organs. In women of reproductive age, the formation of postoperative adhesions, an increase in the risk of repeated operations, the development of pain syndrome, poor quality of life and decreased ability to work are associated with tubal-peritoneal infertility and the development of ectopic pregnancy.*

*Keywords: adhesive diseases after surgery, pregnancy, reproductive age.*

**Актуальность.** Очень часто спаечный процесс после гинекологических операций вообще не вызывает клинических проявлений,

однако учитывать наличие спаек необходимо, так как возможны ранние или отсроченные осложнения, включая бесплодие [3,6,10], тазовую боль и кишечную непроходимость, сопровождающиеся снижением качества жизни. Это часто требует повторной госпитализации и дополнительных более сложных хирургических вмешательств, что значительно увеличивает затраты на лечение [1,4,9]. Спайки являются патологической фиброзной тканью, появляющейся в нетипичных местах [2,5,11] из-за повреждения, нанесенного хирургической травмой, инфекцией, ишемией, действием инородных материалов. Спайки разделили на два типа: первичные, или *de novo* (те, которые сформированы на месте, где их не было прежде), и вторичные, или преобразованные (рецидивные), спайки (те спайки, которые подверглись адгезиолизису и вновь образовались в том же самом месте) [6,8,10].

Склонность к образованию спаек является индивидуальной особенностью каждого человека. Различные факторы, такие как питание, хронические заболевания, сахарный диабет и хронические инфекционные процессы ослабляют функции лейкоцитов и фибринолитическую активность, потенциально усиливают формирование спаек [5,7,9]. Доказано также, что частота развития послеоперационных спаек увеличивается с возрастом пациента, числом предыдущих операций и объемом хирургических вмешательств. Любая операция в брюшной полости может привести к формированию сращений даже при минимальной травме серозы, что приводит к склеиванию почти всех структур. Установлено, что спайки формируются у 60-90% женщин, которые подверглись радикальным гинекологическим операциям. Исследование А. Lower, проведенное в Шотландии, показало, что женщины, которым проведена одна операция, подвергаются повторной с 5% вероятностью, будучи госпитализированы из-за спаек в последующие 10 лет. Таким образом, спайки являются причиной госпитализации 20% пациенток.

**Цель исследования.** Снижение послеоперационного спайкообразования у больных после операций на яичниках и маточных трубах путем совершенствования реабилитационных мероприятий на основе проведения иммуноферментной терапии.

**Материалы и методы исследования.** Мы отобрали 70 пациентов с после операционным спаечным процессом в гинекологических больными.

**Результаты исследования.** У больных, оперированных по поводу патологии яичников и маточных труб, отмечается высокая частота факторов, предрасполагающих к развитию спаечного процесса — хронические воспалительные заболевания половых органов, часто специфического характера (40,7%), наличие крови в брюшной полости (19,4%), экстренность оперативного вмешательства (74,1%).

Оперативные вмешательства на придатках матки вызывают изменения в иммунной системе, проявляющиеся в развитии вторичной

иммунологической недостаточности Т звена и повышением активности В-лимфоцитов, снижении фагоцитарной активности, гиперактивации бактерицидного потенциала фагоцитов. Подобные изменения указывают на формирование хронического воспаления у больных с патологией яичников и маточных труб.

Проведение терапии иммуномодулятором с пролонгированной гиалуронидазной активностью у больных после операций на яичниках и маточных трубах достоверно увеличивает субпопуляции Т-, В- и NK - лимфоцитов, а также проявляется стойким повышением фагоцитарной активности нейтрофилов периферической крови, созданием достаточного фагоцитарного резерва и восстановлением кислородзависимого потенциала фагоцитов.

Коррекция нарушений иммунитета у больных после операций на придатках матки позволяет снизить частоту перитонеальной адгезии, так и степень выраженности спаечного процесса. При лапаротомном доступе при проведении курса терапии «ЛОНГИДАЗОЙ» частота спайкообразования была ниже на 26,6%, при лапароскопическом — на 7,7% ( $p < 0,05$ ).

Послеоперационный курс иммуноферментной терапии позволяет снизить частоту трубной окклюзии у больных, оперированных лапаротомным доступом, на 33,4%, лапароскопическим — на 10,9%, а также уменьшить частоту реконструктивных операций по поводу бесплодия у данной категории больных.

Использование с целью предотвращения спайкообразования «ЛОНГИДАЗЫ» позволяет сохранить репродуктивное здоровье у больных после вмешательств на маточных трубах и яичниках. После лапаротомических операций наступление беременности у пациенток, которым проводилась иммунокоррекция, отмечалась чаще на 35,4%, при лапароскопических — на 17%, по сравнению с больными которым проводился базисный объем реабилитации.

**Вывод.** На основании проведенного исследования обосновано использование иммуномодулирующей терапии и ферментов с пролонгированной активностью в послеоперационном периоде у больных с заболеваниями придатков матки с целью предотвращения спайкообразования и профилактики нарушений репродуктивной функции.

Определены наиболее адекватные схемы назначения Лонгидазы с целью предотвращения спайкообразования после операций на яичниках и маточных трубах.

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## ОЦЕНКА ИЗМЕНЕНИЙ ГЕМОДИНАМИКИ У ЖЕНЩИН С ТЯЖЕЛОЙ ПРЕЭКЛАМПСИЕЙ

*Резюме.* Несмотря на обилие информации о преэклампсии, в современной литературе отсутствуют четкие данные об их этиологии, причинах развития и патогенезе, что в сочетании с неправильной оценкой тяжести и достоверности диагностических критериев приводит к развитию осложнений и неэффективности терапии.

Однако наиболее важными факторами риска развития преэклампсии являются: артериальная гипертензия, симптоматическая артериальная гипертензия, аутоиммунные заболевания, хронические заболевания почек и почечная недостаточность, сахарный диабет 1 и 2 типа, ожирение, многоплодная беременность, первые роды, возраст старше 40 лет, личный (предыдущие случаи) и семейный анамнез и т.д.

Эта статья проливает свет на проблему преэклампсии и пути ее решения, которые актуальны сегодня в медицине Аманавии, особенно в акушерстве и гинекологических проблемах.

Ключевые слова: преэклампсия, материнство, беременность, гемодинамика.

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## ASSESSMENT OF HEMODYNAMIC CHANGES IN WOMEN WITH SEVERE PREECLAMPSIA

*Resume.* Despite the abundance of information about preeclampsia, there is no clear data in the modern literature on their etiology, causes of development and pathogenesis, which, combined with an incorrect assessment of the severity and reliability of diagnostic criteria, leads to the development of complications and ineffective therapy.

However, the most important risk factors for the development of preeclampsia are: hypertension, symptomatic hypertension, autoimmune diseases, chronic kidney disease and kidney failure, type 1 and type 2 diabetes mellitus, obesity, multiple pregnancies, first childbirth, age over 40 years, personal (previous cases) and family history, etc.



*This article sheds light on the problem of preeclampsia and ways to solve it, which are relevant today in Amanavia medicine, especially in obstetrics and gynecological problems.*

*Key words: preeclampsia, motherhood, pregnancy, hemodynamics.*

**Введение.** Преэклампсия (ПЭ) остается важной проблемой современного акушерства, что связано не только с частотой данного осложнения беременности, но и с теми осложнениями для матери и ребенка, которые наблюдаются при данной патологии [2,6].

Дискуссионность ряда аспектов этиологии и патогенеза, противоречивость перечисляемых факторов риска развития ПЭ на ранних сроках беременности подчеркивает необходимость углубленного анализа этой проблемы [1,9,11]. Очевидным становится необходимость в гемодинамических маркерах, с помощью которых была бы возможна не только ранняя диагностика ПЭ, следовательно, предупреждение развития тяжелых ее форм. При преэклампсии происходят патологические изменения функций всех органов матери, среди них в этот процесс чаще, а также в его более ранних стадиях вовлекаются почки [4,7,8].

Наиболее значительное влияние преэклампсии во многих случаях зависит от течения и степени процесса, происходящего в почках. В результате функциональной недостаточности органа, в первую очередь, образующийся в сосудистой системе и стойко развивающийся спазм приводит к нарушению перфузии. В то же время происходит снижение клубочковой фильтрации и вслед за этим уменьшение суточного диуреза [2,5,10].

Последствия перенесенной преэклампсии нередко проявляются в последующие годы жизни женщины и во время последующих беременностей, прежде всего, это касается функции почек.

В настоящее время повсеместно среди населения земного шара регистрируется высокая частота избыточной массы тела и ожирения. ВОЗ характеризует ожирение как пандемию с более высокой распространенностью среди женщин, в том числе репродуктивного возраста. Каждая четвертая беременная женщина имеет высокий индекс массы тела (ИМТ) [3,4,7].

Беременность – особый этап в жизни женщины, который характеризуется разнообразными гормональными, метаболическими и гемодинамическими изменениями представляя собой физиологическую модель метаболического синдрома.

Течение беременности при ожирении сопряжено с многократным повышением риска развития нарушений углеводного обмена, артериальной гипертензии, преэклампсии (ПЭ), невынашивания и макросомии плода. Дальнейшие осложнения, связанные с избыточной массой тела, заключаются в прогрессировании материнского ожирения и развитии



ожирения у ребенка. Данные о распространенности ожирения, патологической прибавки массы тела, метаболических нарушений в период беременности, гемодинамические изменения в сердечных и почечных сосудах в настоящее время изучены недостаточно [11].

**Цель исследования.** Выявить взаимосвязь между нарушениями гипокоагулирующей функции легких, кровообращения «мать-плацента-плод» и кислородтранспортной функции крови у беременных с преэклампсией и эклампсией, на основании полученных данных оптимизировать диагностику, профилактику и лечение для снижения частоты осложнений, материнской и перинатальной смертности.

**Материалы и методы исследования.** Мы отобрали в общей сложности 70 пациентов с гемодинамическими изменениями и преэклампсией для выполнения этой задачи и провели на них клинические наблюдения.

**Результаты исследования.** Состояние системы гемостаза у беременных с преэклампсией накануне родов характеризуется высокой частотой гиперкоагуляционного синдрома на фоне хронического ДВС-синдрома, который отмечается в 54,5% случаев при умеренной преэклампсии и в 68,4% - при тяжелой. В послеродовом периоде патология гемостаза реализуется только в тех случаях, когда она имела место до родов. При этом у 27,1% родильниц с умеренной преэклампсией и у 40,9% с тяжелой преэклампсией наблюдаются лабораторные признаки хронического синдрома ДВС, а гиперкоагуляционный синдром - у 31% и 50% родильниц соответственно. Восстановление параметров гемостаза происходит к 30 суткам послеродового периода. Изменения его отдельных показателей сохраняются в течение 3 месяцев после родов у женщин с умеренной преэклампсией и до 6 месяцев — при тяжелой преэклампсии.

Особенностью течения родов у женщин с преэклампсией на фоне гиперкоагуляционного синдрома, является высокая частота акушерских кровотечений (8%), послеродовых инфекционно-воспалительных осложнений (14,9%). Нормализация параметров центральной гемодинамики и периферического кровотока после родов связаны с состоянием системы гемостаза: у родильниц без нарушений системы гемостаза нормализация показателей гемодинамики происходит к 7 суткам после родов, у родильниц с гиперкоагуляционным синдромом при умеренной преэклампсии - к 10 суткам, при тяжелой - к концу 3 недели.

Факторами риска нарушений в системе гемостаза после родов у женщин с преэклампсией явились: НЦД по гипертоническому типу, хронический пиелонефрит, ожирение, самопроизвольные выкидыши, искусственные аборты, беременность, осложненная фетоплацентарной недостаточностью и ЗРП. Факторами риска длительных нарушений показателей системы гемостаза после родов явились рецидивирующая герпесвирусная инфекция, НЦД по гипертоническому типу, ожирение.

Терапия низкомолекулярными гепаринами после родов у женщин с преэклампсией позволяет сократить сроки нормализации параметров гемостаза, ускорить инволюцию клинических проявлений преэклампсии и достоверно уменьшить длительность послеродового пребывания в стационаре с  $6,4 \pm 0,5$  до  $5,8 \pm 0,5$  койко-дня для умеренной и с  $7,9 \pm 0,4$  до  $7,4 \pm 0,3$  койко-дня для тяжелой преэклампсии. Проведение антикоагулянтной терапии у пациенток с гемостатическими нарушениями снижает риск развития инфекционно-воспалительных осложнений в послеродовом периоде.

**Вывод.** Установлено, что риск нарушений в системе гемостаза после родов у женщин с преэклампсией определяется присутствием ряда анамнестических и клинических предрасполагающих факторов. В частности, нейроциркуляторной дистонией по гипертоническому типу, хроническим пиелонефритом, ожирением, самопроизвольными выкидышами, хронической рецидивирующей герпесвирусной инфекцией, беременностью, осложненной угрозой выкидыша, хронической фетоплацентарной недостаточностью и задержкой роста плода.

Подтверждена целесообразность назначения низкомолекулярных гепаринов при гиперкоагуляционном синдроме после родов; они способны ускорить нормализацию показателей системы гемостаза и уменьшить риск тромботических осложнений и, соответственно, сократить пребывание в стационаре в 1,4 раза.

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## **ТАЪЛИМ КЛАСТЕРИ ШАРОИТИДА КОМПЕТЕНЦИЯВИЙ ЁНДАШУВ НАЗАРИЯСИ ВА МЕТОДОЛОГИЯСИ**

*Аннотация. Мазкур мақолада компетенцияни шакллантиришга йўналтирилган таълим – ўқувчиларнинг назарий олган билимларини ўз шахсий, касбий ва ижтимоий фаолиятларида амалий қўллай олиш имкониятини шакллантириш ҳақидаги назариялар таҳлили келтирилган.*

*Калит сўзлар. Компетенция, узлуксиз таълим, фаол фуқаролик позиция, жаҳон таълими, ёндошув, таълим кластери.*

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## **THEORY AND METHODOLOGY OF THE COMPETENCY APPROACH IN EDUCATIONAL CLUSTER CONDITIONS**

*Annotation. This article presents an analysis of educational theory aimed at developing competence - creating the possibility of practical application of students' theoretical knowledge in their personal, professional and social activities.*

*Keywords. Competence, continuing education, active citizenship, global education, approach, educational cluster.*

Ўзбекистон Республикасида узлуксиз таълим ва тарбияни ривожлантиришнинг ҳозирги босқичи компетенцияга асосланган ёндашув билан характерланади. Сўнгги йилларда жамиятимизда "компетенция" тушунчаси тадқиқотчиларининг диққат марказидаги масалага айланиб, уларни ўзлаштирилиши инсонга ижтимоий ва иқтисодий, маънавий ва маданий муносабатлари тизимида муваффақиятли фаолиятига, юқори ижодкорликка эга бўлишига, шунингдек, бутун ҳаёти давомида ўзини ўзи ривожлантиришга замин бўлувчи шахсий масъулият ва мотивация эканлиги таъкидламоқдалар. Бунинг учун инсон нафақат маълум бир билим, кўникма, тажрибалар тўпламига, балки бир қатор шахсий фазилатларга ҳам эга бўлиши, янги билим ва тажрибаларни ўзлаштиришга кодир бўлиши ва уни ўз ҳаётида амалга ошириши керак. Жаҳон таълим амалиётида компетенция тушунчаси марказий, ўзига хос "тугунча" вазифасини бажаради:

-биринчидан, компетенция - таълимнинг интеллектуал имкониятлари ва кўникмаларини бирлаштиради;

-иккинчидан, компетенция - шаклланадиган таълим мазмунини талқин қилиш мафкурасини ўз ичига олади;

- учинчидан, компетенция - интеграл хусусиятга эга бўлиб, у маданият ва фаолиятнинг кенг соҳаларини (ахборот, ҳуқуқ, ижтимоий, иқтисодий ва ҳ.к.) бир-бирига чамбарчас боғлиқ бўлган бир қатор кўникма ва билимларни ўзда мужассамлаштиради<sup>1</sup>.

Миллий таълимни ривожлантиришнинг ҳозирги босқичи компетенцияга асосланган ёндашув билан узвий боғлиқ бўлиб, бу моҳиятан таълимдаги назарий билимлар базаси билан касбий ва амалий фаолиятнинг долзарб эҳтиёжлари ўртасида мутаносибликни таъминлашга қаратилган муҳим ижтимоий масаладир. Ушбу концепциянинг генезисини ўрганиш ва таҳлил қилиш муҳим аҳамият касб этиб, "компетентлик" тушунчасига эътибор қаратамиз.

"Компетенция" тушунчаси биринчи марта 1975 йилда Н.Хомский томонидан - тил назарияси билан боғлиқ ҳолда муомилага таклиф этилган бўлиб ва шу вақтдан бошлаб кўплаб олимлари асарларида қўлланила бошланган. Тадқиқотчи И.А.Зимней компетенцияга "инсоннинг интеллектуал шахсий аниқланган ижтимоий ва касбий фаолияти" -деган таърифни берган бўлса, бу соҳада илмий тадқиқот олиб борган В.И.Байденко ва Б.Оскарссонлар компетенция тўғридан-тўғри келажакдаги мутахассисларнинг шахсий ва асосий кўникмалари деган назарияни илгари суришган. А.М.Новиков ва Д.А. Новиковлар компетенция бу - ҳаддан ташқари профессионаллик ва асосий малакалар мажмуидир деган. С.Е.Шишов компетенция одамнинг билим ва қадриятларга мойиллигига асосланган умумий қобилияти бўлиб, бу билим ва вазият ўртасида боғлиқлик ўрнатган ҳолда мавжуд муаммога мос тартибда ҳаракат қилишган имкон беради деган бўлса, Ж.Равен эса компетенция бу - "Муайян мавзудаги аниқ ҳаракатни самарали бажариш учун зарур бўлган ўзига хос қобилият ва юқори ихтисослаштирилган билим, субъектнинг махсус кўникмалари, фикрлаш услублари, шунингдек, ўз хатти-ҳаракатлари учун жавобгарликни англаш" - деган илмий фаразни илгари сурган. В.И. Байденконинг фикрича компетенция - "Билим, тажриба, мотивация ва қадрият йўналишлари асосида муаммоларни ҳал қилиш қобилиятини белгилайдиган шахснинг ажралмас сифати"- деб эътироф этади. Тадқиқотчи М.В.Рыжаков қарашига кўра компетенция - "Талабанинг маълум ижтимоий ва шахсий муҳим соҳадаги фаолияти тажрибаси билан шартланган шахсий фазилатлари (қиймат-семантик) йўналишлари, билимлари, қобилиятлари ва кўникмаларидир". Л.Е.Курнешова назариясига кўра "Муайян жамият учун муҳим муаммоларни ҳал қилишга қаратилган ҳаракатларининг самарадорлигини баҳолаш натижасида одамга берилган хусусият: Билим,

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<sup>1</sup> Бахир М. А., Ильинский, С. В. Олимпиада школьников по географии как одна из форм оценки географической компетентности учащихся / М.А. Бахир, С.В. Ильинский // География в школе. – 2014. – №5. – С. 61-63; Бахир М. А. Оценка географических знаний как компонента географической компетентности учащихся / М.А. Бахир // Известия Российского государственного педагогического университета им. А.И. Герцена. – 2013. – № 161. – С. 238-244.

кўникма, қобилият, мотив, қадрият ва эътиқодлар компетенциянинг мумкин бўлган таркибий қисмлардир”.

Тадқиқотчиларнинг ушбу назария ва илмий фаразларини таҳлили шуни кўрсатадики, улар томонидан ўрганилган концепциянинг тузилиши алоҳида таркибий қисмлар ва муҳим жиҳатларини ўз ичига олади, бироқ концептуал аҳамиятга эга бўлган таркибий-мазмунли интеграл тушунишни англамайди.

Бизнингча "компетенция" моҳиятини тушуниш ва қўллаш учун тизим интеграцияси (комбинаториал) ёндашуви масаласига эътибор қаратиш мақсадга мувофиқдир. Компетенция шунчаки шахснинг маълум шартли билим ва кўникмалар тўплами эмас. У ҳар қандай танланган фаолият соҳасида шахсни муваффақият ва самарали фаолиятига ҳисса қўшадиган хатти-ҳаракатлар мажмуи ва индивидуал хусусиятлар фаоллигидан иборат бўлиб, у-ўқувчининг мактабда ёки дарсликда берилган маълумотлар базаси билан чекланиб қолмасликни, қўшимча адабиётлар бинан ишлаш ва ундаги зарурий маълумотларни филтр қила олиш кўникмасини англатади.

Шундан келиб чиққан ҳолда ва "ёндашув" ва "компетенция" тушунчаларининг таърифларига асосланиб, биз "компетенцияга асосланган ёндашув" категориясини қуйидагича изоҳлашимиз мумкин - бу таълим мақсадларини аниқлаш, таълим мазмунини танлаш, ўқув жараёнини ташкил этиш ва таълим натижаларини баҳолашнинг умумий тамойиллари мажмуидир.

Республикамизда компетентликка асосланган таълим ёндашувнинг пайдо бўлиши, мамлакатда таълимга бўлган муносабатнинг ўзгариши, мавжуд ижтимоий-иқтисодий, сиёсий шароитларни бозор иқтисодиёти талабларига мувофиқ ташкил этилаётганлиги билан изоҳлаш мумкин. Чунки компетенцияга асосланган ёндашув янги, истиқболли мақсадлар ва касб-ҳунар таълими натижаларини баҳолашга қаратилган бўлиб, шу билан боғлиқ ҳолда у ўқув жараёнининг бошқа таркибий қисмларига, яъни мазмунига, педагогик технологияларига, назорат ва баҳолаш воситаларига ўз талабларини қўяди.

Тадқиқотчи И.А.Зимняянинг таъкидлашича, таълим жараёнида компетенцияга асосланган ёндашувни шакллантириш уч босқичда амалга оширилган. Биринчи босқич - 1960 йилдан 1970 йилгача бўлган таълим соҳасидаги компетенциявий ёндашувни шакллантириш босқичи бўлиб, "компетенция" тоифасини илмий муомалага киритиш, "компетенция" ва "компетентлик" каби тушунчаларни фарқлаш учун зарур шартларни яратиш ҳамда “коммуникатив компетенция” тушунчасини жорий этиш даври бўлган<sup>1</sup>.

Иккинчи босқич - 1970 йиллардан 1990 йиллар оралиғида тилларни ўқитиш назарияси ва амалиётида "компетенция" тоифасининг пайдо

<sup>1</sup> Зимняя И.А. Ключевые компетенции – новая парадигма результата образования // Высшее образование сегодня. 2003. № 5. С. 3—10.



бўлиши, менежмент ҳамда "ижтимоий компетенция" тушунчасини муомалага киритилиш даври бўлди.

1970 йилларда АҚШда пайдо бўлган компетенция таълими хорижий ва маҳаллий ўқитувчилар, психологлар ва тилшуносларнинг профессионал қизиқишини уйғотади. Шундай қилиб, машғулотлар маҳаллий педагогикада катталар компетенциясини шакллантиришга йўналтирилган бўлиб, Н.В.Кузмина "ўқитишда компетенция", Л.А.Петрова "коммуникатив компетенция", А.К.Маркова "ўқитувчининг касбий тузилишини белгиловчи компетенцияси", Л.М.Митина "ўқитувчининг ижтимоий-психологик ва коммуникатив жиҳатларини ўрганиш компетенцияси"ни назарий ва амалий жиҳатдан ўргандилар. Ж.Равен тадқиқотлар алоҳида эътиборга молик бўлиб, унда инсон фаолияти турига боғлиқ бўлмаган компетенция модели ишлаб чиқилган. Ушбу компетенция моделининг ўзига хос хусусияти шахсни қиймат-мотивацион устувор аҳамиятини тан олишдир. Ишда компетенция "кўп сонли таркибий қисмлардан ташкил топган ва бир-биридан нисбатан мустақил бўлган мураккаб ҳодиса..." эканлиги кўрсатилган.

Учинчи босқич – 1990 йиллардан 2000 йилларга қадар компетенцияни илмий категория сифатида ўрганиш билан боғлиқ даврдир<sup>2</sup>. ХХІ асда таълим бўйича ЮНЕСКО халқаро комиссиясининг президенти Ж.Делорнинг нутқида таълимга асосланган бўлиши керак бўлган тўртта асосий масала юзасидан гапириб жумладан шундай дейди - "Фақатгина касбий малакаларни эмас, балки янада кенг маънода - турли хил вазиятларга дош беришга ҳамда гуруҳда ишлашга имкон берадиган компетенцияни эгаллаш учун нима ва қандай қилишни ўрганиш".

Илм-фанда қатор ютуқларга эришган айрим мамлакатларнинг таълимдаги компетейцион ёндашувини таҳлил этадиган бўлсак ўтган асрнинг иккинчи ярмида россия олимлари парадигма, илмий ёндашув ва комбинация нуқтаи назаридан ўрганилаётган концепциянинг талқинига дидактик-услубий позицияда психологик жиҳатдан ҳам маълум натижаларга эришган. Бу борада тадқиқотчи А.К.Маркованинг "касбий компетенция"ни психологик факторларини ёритиб берганлиги алоҳида аҳамиятга моликдир.

АҚШда 1960 йилдан бери америкалик тадқиқотчилар таълим натижаларини битирувчиларнинг хулқ-атвори ва ўзлаштирган билимларини амалда қўллаш қобилияти билан боғлиқ илмий кузатишларни олиб борганлар. Бундан кўзланган мақсад ўқув жараёнида шаклланган тайёргарлик ва юқори мотивация туфайли битирувчилар амалиётда мутахассис сифатида қобилиятларини намоён этаолишлиги ўрганилган. Америкалик олимлар когнитив компетенция ва мотивацион тенденциялар ўртасидаги муносабат "... инсоннинг атроф-муҳит билан самарали ўзаро

<sup>2</sup> Зимняя И.А. Иерархическо-компонентная структура воспитательной деятельности // Воспитательная деятельность как объект анализа и оценивания: [сборник] / под общ. ред. И.А.Зимней. Москва, 2003.

алоқасини таъминловчи омил" - деб таърифладилар ва битирувчиларнинг шахсий хусусиятлари орасида компетенциядан ташқари "компетенция мотивацияси" ҳам бўлиши керак, деган тахминни илгари суриб, у шаклланган қобилият натижаси деган илмий фаразни илгари суришган.

Буюк Британияда 1980 йилдан таълим тизимида компетенция атамаси билан параллел равишда функционал ёндашув тушунчаси кенг ишлатилиб келинади. Функционал ёндашув, авваламбор, яхлитлик ва тизимлилик тушунчаси билан тавсифланиб, билимларни бирлаштириш, битирувдан сўнг профессионал сифатида касбий кадрият ва кўникмаларни англаш ҳамда амалиётда самарали қўллаш олишни акс эттиради. Олинган таълим натижалари сифатини баҳолаш доирасида "компетенция" атамасини талқин қилишнинг инглизча мазмун-моҳияти одатда америка тушунчаси билан таққослаганда анча кенгдир<sup>1</sup>.

Франция таълим тизимида 1990 йилдан бери кўп ўлчовли ёндашув кенг қўлланилиб келинади. Францияда компетенцияга асосланган ёндашув қоидаларини шакллантириш мантиғи (бу кўпинча кўп ўлчовли деб номланади) икки хил йўналишда: шахсий ва жамоавий бўлиб, ҳар бир талабанинг хулқ-атворини хусусиятларига йўналтирилган ва жамоа ишини самарали ташкил этиш учун зарур бўлган компетентлик моделини шакллантиришга қаратилган. Таърифланган ёндашувнинг кўп ўлчовлилиги у ёки бу қутб томон тортишиш ва ҳар хил кўламларни қуришни талаб қиладиган мукаммал компетенцияларни шакллантиради.

Германия таълим тизими 1990 йиллардан бошлаб бошқалардан фарқли равишда дастлаб ҳаракат компетентциясига йўналтирилди. Ёндашувнинг ўзига хос хусусияти шундаки, у асосий эътиборни касбий тайёргарлик тизимининг ўқув дастурларига қаратди. Ҳар бир ўқув режа бошида ҳар бир предметга хос бўлган ва асосан ўқишнинг устувор йўналишларини, шунингдек, ассимиляция қилиш учун режалаштирилган билим, кўникма ва малакаларни белгилайдиган компетенциялар тўплами жойлаштирилади. Стандарт ваколатлар типологияси таълим муассасалари битирувчиларининг келажакдаги касбий фаолияти соҳасига йўналтирилган ва предметли, шахсий ва ижтимоий компетенцияларни ўз ичига олади<sup>3</sup>.

Хорижий давлатларнинг компетенцияга оид илмий назарий ёндашувлари тажрибасини таҳлил этар эканмиз функционал ва кўп ўлчовли компетенциялар АҚШ таълим соҳасидаги "хулқ-атвор ёндашуви" компетенцияси таъсирида остида шаклланганлигини кузатиш мумкин. Франция ва Германияда ўзига хос илмий тафаккурнинг ривожланиши билан "компетенцияга асосланган ёндашув" янада яхлит тузилишга эга бўлиб,

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<sup>1</sup> Звонников В.И., Чельшкова М.Б. Контроль качества обучения при аттестации: компетентностный подход: учебное пособие. Москва: Университетская книга, Логос, 2009. С-22-24.

<sup>3</sup> Звонников В.И., Чельшкова М.Б. Контроль качества обучения при аттестации: компетентностный подход: учебное пособие. Москва: Университетская книга, Логос, 2009. С-25-26

унда билим, кўникма, малака, хулқ-атвор ва мотивацион жиҳатлар билан мукамаллаштирилиб, компетенцияларни умумий кластер тузилишининг таркибий қисмлари сифатида киритилди.

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## **ИСПОЛЬЗОВАНИЕ ЭЛЕКТРОННОЙ ЛИТЕРАТУРЫ ПРИ ИЗУЧЕНИИ РУССКИХ ИСТОРИЧЕСКИХ РЕАЛИЙ В АУДИТОРИИ С УЗБЕКСКИМ ЯЗЫКОМ ОБУЧЕНИЯ**

*Аннотация. В данной статье речь идет об использовании электронной литературы при раскрытии значения русских исторических реалий. Также речь идет о беспереводном методе семантизации, который включают в себя: демонстрацию предметов, жестов, действий, картин, рисунков, диапозитивов, слайдов и раскрытие значений реалий на русском языке, для чего могут использоваться определения - описания значения нового слова уже известными словами.*

*Ключевые слова: реалия, лакуна, семантизация, наглядность, толкование, комментарий, этнокультуроведение, национальная культура, сопоставление сходных явлений, факты русской истории и культуры, пассивный минимум, образ-посредник.*

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## **USAGE ELECTRONIC LITERATURE WHEN STUDYING RUSSIAN HISTORICAL REALITIES IN AN UZBEK-TEACHING CLASSROOM**

*Abstract. This article is about the use of electronic literature in revealing the meaning of Russian historical realities. We are also talking about a non-translation method of semantization, which includes: demonstration of objects, gestures, actions, paintings, drawings, transparencies, slides and disclosure of the meanings of realities in Russian, for which definitions can be used - descriptions of the meaning of a new word in already known words.*

*Key words: reality, lacuna, semantization, clarity, interpretation, commentary, ethnocultural studies, national culture, comparison of similar phenomena, facts of Russian history and culture, passive minimum, intermediary image.*

Как известно, при изучении языка чтение иностранного текста является заданием повышенной трудности. И одним из препятствий к его пониманию является отсутствие у обучаемых знаний в области **истории и культуры** страны изучаемого языка. Представляется, что в этой ситуации

оригинальный литературный текст на определённом этапе обучения становится средством фасилитации (to facilitate – облегчать; способствовать; содействовать) обучения иностранному языку. При изучении иностранного языка, прибегая к литературному тексту, мы понимаем, что литературный первоисточник способствует изучению языка не только наличием в нём больших языковых богатств, но и необходимых для полного понимания текста и погружения в языковую среду культурологических сведений.

Введение русских **исторических** реалий на занятиях по русскому языку и литературе в группах с узбекским языком обучения лицеев, техникумах, языковых и неязыковых вузов идёт в определённой последовательности и имеет характерные особенности.

Как известно, лексика с культурным компонентом относится к пассивному минимуму программы по языку. Методисты В.Г.Гез, М.В.Ляховицкий и др. считают, что для объяснения лексики, относящейся к пассивному минимуму, характерны следующие особенности: объяснение слов должно идти от языковой формы к понятиям, которые передаёт слово; для каждого нового слова или словосочетания сообщаются различные значения, зафиксированные в лексическом минимуме; для правильного и быстрого узнавания лексики в тексте объясняются его информативные структурные признаки, отличие от омонимов, возможное контекстуальное окружение; ознакомление с новой лексикой может идти как на печатном, так и на звучащем тексте; при ознакомлении с лексикой необходима установка на узнавание слов при слушании и чтении.

Раскрытие значение этнокультуроведческих реалий (семантизация) может осуществляться переводным и беспереvodным методами. К переводному методу семантизации относится **перевод-толкование**, при котором помимо эквивалента на родном языке студентам сообщаются сведения о совпадении или расхождении в объёме значения лакун. Например, граф - граф (наслдан наслга утиб борган дворянин унвони). Беспереvodные методы семантизации включают в себя:

- демонстрацию предметов, жестов, действий, картин, рисунков, диапозитивов, слайдов, которые содержат разнообразный материал для иллюстрации лакун, например, в произведении А.С.Пушкина «Дубровский» волостное дворянство и быт помещицкой усадьбы; портреты (одежда, внешний вид современников А.С.Пушкина, реалии быта и труда русского народа);

- раскрытие значений реалий на русском языке, для чего могут использоваться определения - описания значения нового слова уже известными словами.

Способ семантизации при помощи дефиниции нами применяется, когда слово не имеет эквивалента на родном языке студентов, на продвинутом этапе обучения русскому языку. Например, горничная -



работница для уборки комнат и других домашних (но не по кухне) работ; картуз - мужской головной убор с жёстким козырьком, фуражка; кучер - человек, который правит лошадьми в экипаже.

В методике преподавания русского языка и литературы прочно утвердилось мнение о том, что **средства наглядности** позволяют наиболее эффективно познакомить студента с новым для них предметом или явлением, восполнить то, чего не хватает им для восприятия словесного образа.

Методисты предлагают использовать репродукции известных картин русских художников, которые облегчают знакомство студентов с реалиями быта и труда русского народа, встречающихся в изучаемых произведениях русской литературы XIX века.

Следующий приём раскрытия значения реалий – **комментарий**.

Термин «комментарий» происходит от латинского слова “commentaries”, что значит «заметки», «толкование».

Многие учёные (Б.В.Томашевский, С.А.Рейсер, Д.С.Лихачёв, Ю.М.Лотман, И.В.Арнольд и др.) исследовали комментарий с разных точек зрения. Так А.Г.Гурочкина [1:224] трактует «комментарий» двояко: в широком и узком понимании этого понятия.

Под широким пониманием этого слова, А.Г.Гурочкина, имеет в виду «множество разнообразных явлений, общими признаками которых являются вторичность и оценочность содержащейся в них информации» [1:225]. Сюда исследователь относит внетекстовый комментарий (предложения и сверхфразовые единства, включённые в повествование, в любые части текста и содержащие оценку событий, людей, предметов) и внутритекстовый комментарий (примечания после глав, отдельные главы, эпиграфы, постраничные примечания, предисловия). В узком же понимании комментарий, по А.Г.Гурочкиной, это «объяснение/толкование какого-либо фрагмента текста, сообщение дополнительной информации» [1:225]. При этом выделяются следующие виды комментария: **лингвистический, историко-текстовый, историко-литературный и реальный**. Особое значение на занятиях по русскому языку и литературе в узбекской аудитории приобретает **лингвострановедческое комментирование реалий**.

В комплексном страноведческом комментарии З.С.Смелкова выделяет четыре этапа: 1) предварительный; 2) вступительный или вводный; 3) в процессе работы над текстом; 4) приобщение учащихся к самостоятельному комментированию [2:82].

В комплексном комментировании В.М.Черкезова выделяет:

1. Комментирование географических условий, что поможет восприятию нерусскими обучающимися природы России (климата, растительного, животного мира, рельефа и т.д).

2. Комментировани национально-специфических бытовых реалий, предметов русского быта, обычаев, которые не имеют соответствия в языке и культуре изучающего русский язык и литературу. Значение бытовых реалий особенно важно при раскрытии особенностей национального характера, которые часто проявляются в быту [3:49].

Национальный уклад, обычаи, т.е. лакуны – реалии занимают немаловажное место в художественном произведении. Необходимо объяснить студентам значения слов, обозначающих эти предметы национального быта, указать на те из них, которые доживают последние дни, уходят в прошлое, объяснить, какие социально-исторические условия способствовали формированию этих уходящих в прошлое черт.

3. Историко-культурное комментирование, т.е. раскрытие тех или иных фактов русской истории и культуры, нашедших отражение в изучаемом произведении, неизвестных студентам узбекских групп или обусловленных своеобразием национальной эстетической системы.

Изучив труды М.Н.Скаткина, В.А.Сарапулова, А.Ф.Баранникова, Е.И.Пассова, В.И.Загвязинского, В.И.Андряновой, П.И.Пидкасистого, И.П.Подласого, Ю.К.Бабанского, в основу определения системы принципов которых положены личностно-деятельностный и управленческий подходы, мы выделили несколько основных принципов обучения в современной школе и вузе, применением которыми руководствовались **при создании электронного мультимедийного учебного пособия (14)** и организации работы с ним на занятиях по русскому языку в узбекской аудитории при раскрытии значения русских исторических реалий.

За основу мы взяли **принцип коммуникативности**, который предоставляет широкие возможности для овладения языковым материалом как средством общения. Важно, что этот принцип позволяет соединить в процессе обучения основные задачи: лингвистические и коммуникативные. Практический опыт работы с мультимедийным учебным пособием показывает, что на разных этапах обучения уточнение, корректировка и углубление знаний языкового материала могут осуществляться наиболее эффективно в процессе самостоятельной работы по русскому языку с помощью ЭВМ, способствующей активизации познавательной деятельности студентов, формированию творческой личности, способной к самообразованию на основе приобретенных навыков.

Указанный фактор стал определяющим для всей дидактической системы работы с использованием нашего электронного учебного пособия, призванной обеспечить предметно-тематическое и коммуникативно – направленное содержание процесса обучения языку. Наше электронное учебное пособие вызывает весьма ценную с методической точки зрения ценную реакцию: пробуждает интерес. Оно развивает творческую активность, которая, в свою очередь, способствует формированию речевых навыков и умений обучаемых, поскольку в основе нашего материала лежат

специфические потребности обучающихся – коммуникативные, познавательные и эстетические. Кроме того, электронное учебное пособие основывается и на таких общедидактических принципах, о которых говорилось выше, как сознательность, наглядность, научность, доступность, прочность и активность.

Виды работы на основе текста и в связи с ним помогают преодолеть барьер между аудиторной и реальной ситуацией общения, облегчают переход к условиям реальной коммуникации. Использование фрагментов видео ускоряет процесс постановки и корректировки русского произношения: происходит комплексное и наглядное предъявление учебного материала и формируются навыки самоконтроля фонетико-интонационного оформления речи. Развитие слухо-произносительных навыков осуществляется на основе целого связного текста или его фрагментов.

Здесь следует сказать о взаимообусловленности принципа коммуникативности с развитием познавательно-ценностного направления нашего учебного пособия. Постановка и совершенствование учебных умений развивается параллельно с формированием и расширением общекультурного кругозора учащихся и студентов узбекских групп, благодаря чему интенсивно развиваются память, логику и мышление, чувства и эмоции.

Тем самым материал учебного пособия поддерживает и усиливает интерес учащихся и студентов национальных групп к стране изучаемого языка, что в свою очередь способствует реализации принципов связи обучения с жизнью и развития познавательной активности учащихся.

Так как школьники и студенты знакомятся с **историческими** реалиями русской жизни прежде всего через слово, за которым встает определенное явление в жизни, культуре народа, обусловленное историческим процессом социального и духовного развития нации и нашедшее художественное отражение в литературе, то этнокультуроведческая лексика в курсе русской литературы должна стать объектом повышенного внимания при изучении произведений писателей России в узбекской аудитории. Задача преподавателя – сформировать «...сведения, которыми располагают все члены определенной этнической и языковой общности, т.е. те фоновые знания, которые, с одной стороны, являются частью национальной культуры и, с другой, - они суть ее производное» [5:53].

Таким образом, нами сделана попытка решить одну из проблем повышения качества обучения языку учащихся и студентов Республики Узбекистан на основе инновационных педагогических методов обучения языку и литературе.

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## **ПРОБЛЕМЫ И РЕШЕНИЯ ОРГАНИЗАЦИИ МЕЖДУНАРОДНЫХ ТРАНСПОРТНЫХ КОРИДОРОВ И ЛОГИСТИЧЕСКИХ ЦЕНТРОВ В УЗБЕКИСТАНЕ**

*Аннотация. В результате реализуемых в Узбекистане экономических реформ увеличивается объем производства промышленных товаров. При экспорте промышленных товаров на внешние рынки необходимо создавать максимально эффективные альтернативные транзитные коридоры, обеспечивающие их доступ на международные рынки. Для этого особое внимание уделяется развитию транспортных коридоров и логистических центров в Узбекистане. В данной статье описаны реформы, проводимые в Узбекистане для развития транспортно-логистического сектора, возможности создания международных логистических коридоров и логистических центров.*

*Ключевые слова: международные транспортные коридоры, логистические центры, мультимодальные транспортные коридоры, интермодальные транспортные коридоры, интермодальные логистические центры, внешняя торговля, транзит.*

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## **PROBLEMS AND SOLUTIONS OF ORGANIZING INTERNATIONAL TRANSPORT CORRIDORS AND LOGISTICS CENTERS IN UZBEKISTAN**

*Abstract. As a result of the economic reforms implemented in Uzbekistan, the volume of production of industrial goods is increasing. When exporting industrial goods to foreign markets, it is necessary to create the most efficient alternative transit corridors to ensure their access to international markets. To achieve this, special attention is paid to the development of transport corridors and logistics centers in Uzbekistan. This article describes the reforms being carried out in Uzbekistan to develop the transport and logistics sector, the possibility of creating international logistics corridors and logistics centers.*

*Key words: international transport corridors, logistics centers, multimodal transport corridors, intermodal transport corridors, intermodal logistics centers, foreign trade, transit.*



*Введение. Международные транспортные коридоры имеют важное значение для развития торгово-экономического сотрудничества между странами, а также для укрепления региональной экономической интеграции.*

На фоне увеличения объема перевозок между Азией и Европой все более актуальной становится задача увеличения пропускной способности и стабилизации функционирования международных транспортных коридоров, в том числе мультимодальных.

В Стратегии развития Нового Узбекистана одним из приоритетных направлений определено повышение транзитных возможностей, создание «зеленых коридоров» для внешней торговли и увеличение объемов транзитных грузов.

Определены 53 цели стратегии «Узбекистан-2030» «Углубление интеграции Республики Узбекистан в глобальные транспортно-логистические сети и повышение потенциала национальной транспортной системы».

Показатели эффективности целей, которые будут достигнуты до 2030 года:

Доведение объема перевозки транзитных грузов через территорию республики до 16 миллионов тонн.

Сокращение сроков перевозки грузов по железной дороге в северном направлении на 40 процентов.

Увеличение объемов услуг пассажирских и грузоперевозок в 3 раза.

Доведение доли электрифицированных железных дорог до 65 процентов.

Увеличение количества авиаполетов в 4 раза.

Строительство и ремонт 56 тысяч километров дорог.

Переход на рыночные принципы при формировании тарифов на услуги пассажирских и грузоперевозок на железнодорожном и воздушном транспорте, а также привлечение в сферу частных и зарубежных операторов.

Строительство в общем объеме 5,5 тысячи километров дорог с цементобетонным покрытием, пролегающих из районных центров до сельских населенных пунктов.

Строительство новых автомобильных дорог по маршрутам «Ташкент — Самарканд» и «Ташкент — Ферганская долина» на основе государственно-частного партнерства.

Полный охват городов и районов общественным транспортом, доведение количества новых автобусов до 5 тысяч и электробусов — до 2 тысяч.

Строительство новых скоростных железных дорог в направлениях «Ташкент — Самарканд», «Самарканд — Навои — Бухара», увеличение количества пассажироперевозок на скоростных поездах в 2,5 раза.

Модернизация низкорентабельных региональных аэропортов на основе государственно-частного партнерства и их передача в доверительное управление.

Модернизация 6 крупных аэропортов республики, в том числе на основе государственно-частного партнерства, и доведение количества частных авиакомпаний до 10.

Внедрение режима «Открытое небо» со стратегическими партнерами во всех аэропортах, доведение авиапарка республики до 100.

Основная часть

В настоящее время в Узбекистане созданы 5 международных логистических центров «Навои», «Ангрен», «Ташкент», «Термиз» и «Поп». Эти логистические центры успешно работают.

В настоящее время, внешнеторговые грузоперевозки Узбекистана осуществляются по следующим основным транспортным коридорам:

*коридор 1* – в направлении портов прибалтийских государств (транзитом через Казахстан и Россию) – Клайпеда (Литва), Рига, Лиепая, Вентспилс (Латвия), Таллинн (Эстония);

*коридор 2* – в направлении стран ЕС, через Беларусь и Украину (транзитом через Казахстан и Россию) – погранпереходы Чоп (Украина) и Брест (Беларусь);

*коридор 3* – на украинский порт Ильичевск (транзитом через Казахстан и Россию), с выходом на Черное море;

*коридор 4* – в направлении Транскавказского коридора (транзитом через Туркменистан, Казахстан и Азербайджан), с выходом на Черное море, который известен как коридор ТРАСЕКА;

*коридор 5* – на иранский порт Бандар-Аббас (транзитом через Туркменистан) с выходом на Персидский залив;

*коридор 6* – в восточном направлении через казахско-китайский погранпереход (Достык/Алалшанькоу) до восточных портов Китая, а также Дальневосточных портов Находка, Владивосток др.;

*коридор 7* – на китайские порты (транзитом через Кыргызстан) с выходом Желтое, Восточно-Китайское и Южно-Китайское моря;

*коридор 8* – в связи с урегулированием афганской проблемы открываются новые перспективы по разработке южных альтернативных транспортных коридоров на иранские и пакистанские порты Бандар-Аббас, Чахбахар (ИРИ), Гвадар и Карачи (ИРП) транзитом через Афганистан.

Транспорт является важным звеном экономики любой страны. Несмотря на то, что Узбекистан не имеет прямого выхода к морю, страна пытается активнее участвовать в мировой торговле. При этом появляются новые возможности и проблемы.

Узбекистан удачно расположен сточки зрения транзитных потоков, через него проходит исторический Шелковый путь, соединяющий Азию, Ближний Восток и Европу. На данный момент ряд среднеазиатских

государств позиционируют себя как транзитные страны, но этим странам необходимо кооперироваться и координировать свои усилия друг с другом. Это означает тщательный подход к выбору коридоров, в которые инвестируются средства. Кроме того, странам стоит фокусироваться не только на международных коридорах, но и на локальной транспортной связности, или так называемой логистической взаимосвязке, между отдельными городами, предприятиями, а также между странами в регионе.

Кроме этого, Узбекистан обладает хорошо налаженной железнодорожной системой, но всегда есть возможность усовершенствования. Производительность труда может быть улучшена до показателей соседей, таких как Казахстан, например, и выше. Кроме того, для повышения эффективности, Узбекистану, возможно, следует рассмотреть в будущем аутсорсинг некоторых непрофильных видов деятельности, а также постепенное открытие рынка железнодорожных перевозок.

В настоящий момент и автодорожная, и железнодорожная сеть постепенно восстанавливаются после многих лет недостаточного финансирования. Недостаточное финансирование повышало стоимость для пользователей из-за снижения скорости и дополнительных расходов на ремонт транспортных средств.

Узбекистан построил автодороги мирового уровня, такие как шоссе, между Ташкентом и Самаркандом, тем не менее, качество некоторых важных автодорог все еще ниже мировых стандартов, что, опять же, ведет к снижению скорости и более быстрому износу транспортных средств.

Создание фонда по финансированию дорожного строительства и ремонта, а также дальнейшее повышение эффективности во всех сферах - это то, что Центрально-азиатские страны могли бы улучшить, и то, что принесет экономические выгоды в регион.

Первое – это хаос в товарных потоках и несогласованность разных подразделений (закупок, производства, продаж и логистики), при котором часть этих подразделений не подчинена единой цели максимизации прибыли на долгосрочный и тактической перспективе – каждый выполняет свою функцию по максимуму, но не смотрит, как это выполнение влияет на другие подразделения.

Вторая проблема — несоответствие спроса и доступности запасов в конкретный момент времени. Запасы продукции могут быть большие, но на складе могут отсутствовать товары, которые необходимы для продажи в данный момент.

Далее следуют такие проблемы, как неэффективные каналы дистрибуции, низкая утилизация складов и операции, не приносящие никакой ценности на этих складах, а также низкое качество планирования потребности в транспорте и маршрутизации.

Одновременно с этим необходимо подобрать оптимальную модель управления запасами, при которой будет доступна вся необходимая часть востребованной покупателями продукции и при этом не будет в избытке.

Также нужно сравнить эффективность моделей дистрибуции с 3PL, инхаус распределенной логистикой. Например, в России эта тенденция уже подходит к концу, когда ритейлеры в значительной степени выместили дистрибьюторов. Но и дистрибуция начинает заходить на поле ритейла.

### **Заключение**

Для эффективной организации деятельности международных транспортных коридоров и логистических центров в Узбекистане желательно реализовать следующее:

Во-первых, четкий правовой механизм создания транспортно-логистических центров, работающих по принципу «точное время» и «от двери до двери», предоставляющих полный комплекс услуг в сфере таможенного, транспортно-экспедиторского, складского хозяйства. и информационная логистика, а также непосредственно регулируют деятельность по формированию единой части, издающей законы или правовые документы;

Во-вторых, снижение тарифов в сфере транспорта и логистики в нашей республике в настоящее время;

В-третьих, резко увеличить долю частного сектора в создании международных транспортно-логистических центров в Узбекистане;

В-четвертых, необходимо создать ведомственную структуру, координирующую деятельность транспортно-логистических центров;

В-пятых, повысить уровень привлекательности транспортно-логистической отрасли в нашем национальном законодательстве с целью привлечения частного сектора (аутсорсинг) и международных компаний к развитию транспортно-логистических сетей (центров) в нашей стране.

В-шестых, необходимо развивать в нашей республике многопрофильные транспортно-экспедиторские услуги.

В заключение можно сказать, что для развития транспортно-логистического сектора можно добиться диверсификации внешнеторговых маршрутов, прежде всего, за счет развития логистическо-экспедиторских услуг и мультимодальных логистических центров.

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## **СОСТОЯНИЕ И АНАЛИЗ РАЗВИТИЯ ИНФРАСТРУКТУРЫ ТРАНСПОРТНЫХ УСЛУГ В УЗБЕКИСТАНЕ**

*Аннотация. Развитие торгово-экономических связей в Узбекистане, увеличение объемов промышленного производства оказывает большое влияние на развитие транспортной инфраструктуры при доставке и транспортировке грузов. В данной статье рассмотрено состояние дорожно-транспортной инфраструктуры Узбекистана и основные пути развития.*

*Ключевые слова: транспортные услуги, инфраструктура, инфраструктура транспортного обслуживания, автомобильные и железные дороги, международные транспортные коридоры, дороги общего пользования.*

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## **STATUS AND ANALYSIS OF DEVELOPMENT OF TRANSPORT SERVICES INFRASTRUCTURE IN UZBEKISTAN**

*Abstract. The development of trade and economic relations in Uzbekistan, the increase in industrial production volumes has a great impact on the development of transport infrastructure for the delivery and transportation of goods. This article examines the state of the road transport infrastructure of Uzbekistan and the main development paths.*

*Key words: transport services, infrastructure, transport service infrastructure, roads and railways, international transport corridors, public roads.*

Вклад транспортной инфраструктуры в экономический рост и причинно-следственная связь между ними получили большое внимание в эмпирических исследованиях в экономической литературе. Транспортная инфраструктура всегда была политическим инструментом для лиц, принимающих решения, отраженным в государственных программах и реализуемым посредством государственной политики, направленной на сокращение неравенства и неравенства, а также на стимулирование экономического роста. С экономической точки зрения инфраструктура дорог и требует большого объема капитала, который имеет значительную



долю государственных расходов и оказывает давление на органы государственной власти, но как часть государственного капитала, особенно транспортной инфраструктуры, она является наиболее мощным инструментом для стимулирования мировой экономики «колеса» любой экономической деятельности рассматриваются как метафора. Транспортная система государства играет важную роль во всех его социально-экономических сферах. На сегодняшний день самым популярным видом транспорта является автомобильный транспорт, который обеспечивает как международные, так и внутренние грузовые и пассажирские перевозки.

Отрицательным моментом организации пассажирских перевозок в крупных городах является увеличение количества автобусов за счет автотранспорта, находящегося в собственности физических лиц, который сложно контролировать в целях обеспечения требований безопасности движения; это приводит к необходимости совершенствования правового механизма регулирования пассажирских перевозок. Одной из острых проблем организации пассажирского транспорта в малых городах и поселках городского типа является использование автомобильного транспорта как единственного общественного транспорта. Таким образом, для решения эксплуатационных задач, связанных с перевозкой пассажиров автомобильным транспортом, необходимо решить ряд различных задач, в том числе:

- 1) Создание благоприятных экономических условий для населения;
- 2) Планирование сети централизованных маршрутных улиц и дорог, обеспечивающих благоприятные условия для использования автотранспортных средств (соблюдение требований нормативно-технических документов при движении по указанному маршруту);
- 3) Создание единой основы правового регулирования автотранспортных услуг на уровне муниципальных образований путем отраслевой унификации регионального законодательства.

Кроме того, инфраструктура транспортных услуг классифицируется как эффективная государственная статья расходов, поскольку экономика может получить выгоду от транспорта за счет ускорения доступа к услугам и открытия экспортных рынков, увеличения рыночной и трудовой мобильности, сокращения разрыва в уровне благосостояния, снижения деловых издержек и улучшения социального благосостояния.

Инфраструктура транспортных услуг важна для экономического развития и может способствовать экономическому росту как прямо, так и косвенно. Косвенные последствия с точки зрения развивающихся стран заключаются в том, что транспортная инфраструктура может поддерживать отрасли, поставляющие товары и услуги, для облегчения прямых инвестиций. Справочная теория показывает три причины, почему выбор инфраструктуры важен для экономического роста:

1. Повышение общей производительности производственных подразделений;

2. Содействие распространению технологий во всей экономике;

3. Повысить рентабельность предприятий, связанных с транспортными услугами, за счет увеличения объемов их продаж и снижения затрат на производство и/или доставку.

Развитие инфраструктуры имеет решающее значение для удовлетворения социальных и экономических потребностей человечества, включая ускорение глобального энергетического перехода к целям «чистого нуля». Это особенно актуально для развивающихся стран, где миллионы людей не имеют доступа к основным услугам, таким как вода, энергия, транспорт и телекоммуникации.

Развитие транспортной инфраструктуры в Республике Узбекистан считается одним из важнейших приоритетов социально-экономического развития страны. С помощью транспортной инфраструктуры создаются все условия для связи отраслей, сетей внутри отраслей, предприятий внутри сети между собой, бесперебойного функционирования производственного процесса. Транспорт обеспечивает связь между производством и потреблением. Он влияет на объем совокупного потребительского продукта за счет перемещения рабочей силы, инструментов и продуктов труда из одного места в другое. С помощью транспортной инфраструктуры материальные ресурсы приближаются к потреблению в результате перемещения из одного места в другое. Рост потребительской ценности и организованности ускорится. Специфика транспортной инфраструктуры обуславливает необходимость ее широкого использования во всех сферах производства материальных благ. Транспортная инфраструктура сокращает затраты времени на производство, выполнение заказов, доставку готовой продукции, реализацию, снижает затраты и повышает производительность труда. Основные показатели транспортной инфраструктуры Республики Узбекистан представлены в таблице 1.

Таблица 1

Основные показатели транспортной инфраструктуры Республики  
Узбекистан

№	Показателей	Количество
1.	Общая протяженность дорог	184000 км
2.	Общая протяженность железных дорог включая: электрифицированная часть	4258 км  727 км
3.	Количество аэропортов включая: взлетно-посадочная полоса заасфальтирована взлетно-посадочная полоса неасфальтированная	53  33 20
4.	Общая длина магистральных (магистральных) трубопроводов	14280 км

	включая: длина газопроводов длина нефтепроводов	10253 км 868 км
5.	Длина водных путей	1100 км
6.	Количество портов и терминалов	1

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В соответствии с международными соглашениями Республики Узбекистан дороги, входящие в международную сеть автомобильных дорог, являются частью автомобильных дорог международного значения. Общая протяженность международных автомобильных дорог составляет 3979 км. Через территорию Узбекистана проходят 20 международных транспортных коридоров, направленных в страны Евросоюза, Кавказа, Турцию, Иран, Афганистан, Пакистан, Россию и Китай. Информация о международных автомобильных дорогах Узбекистана представлена в таблице 2.

Таблица 2

Автомобильные дороги международного значения в Узбекистане

Номер шоссе	Название шоссе	Длина (км)
М-34	Ташкент - Душанбе (Ташкент – Янгийёл – Сырдарья – Гулистан – Ховос – Душанбе на территории Республики Узбекистан)	160
М-37	Самарканд – Ашхабад – Туркманбаши Бухара – Чорджой, через Мари (Самарканд – Иштихон – Каттакорган – Кармана – Бухара – Чорджой, на территории Республики Узбекистан)	365
М-39	Алматы - Бешкек - Ташкент - Термез Шымкент через Самарканд (граница РК - Гиштакوپрик - Ташкент - Чиноз - Джизак - Самарканд - Термиз) ветвь: а) Въезд в Хайратон (на территории Республики Узбекистан) С общей веткой:	628 30 658
М-41	Бишкек – Душанбе – Термез Через Ош и Хорог (граница Республики Таджикистан – Денов – Жаркурган – Термез)	191
А-373	Ташкент - Ош Через Кокан и Андижан (Ташкент – Тойтепа – Ангрэн – Кокан – Шахрихан – Андижан – Ош. на территории Республики Узбекистан) шахобка: а) В аэропорт Сиргалы с общей ветвью:	399 5

		404
A-376	Кокан - Джизак Канибадом, Ходжент, Бекобад через Хавос (Кокан - Бешарик - территория Республики Таджикистан - Бекобад - Хавос - Джизак)	168
A-377	Самарканд-Айны На территории Республики Узбекистан	37
A-378	Самарканд - Карши	138
A-379	Навои – Учкудук Через город Зарафшан	289
A-380	Гузор - Нукус - Кунгират - Бейну Через город Бухару (Гузор - Карши - Мубарак - Бухара - Газли - Дулдул - Торткол - Нукус - Ходжалы - Кунгирот - граница РК - Бейнеу)	1204
A-381	Хужайли - Ташховуз На территории Республики Узбекистан	12
Всего международных дорог		3626

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Административные центры областей и районов Республики Узбекистан, областные города, культурные и промышленные центры, обеспечивающие транспортное сообщение, и эти центры с дорогами международного значения, аэропортами, железнодорожными станциями, портами и местами стоянки судов, а также дорогами, соединяющими с соседними странами, включены в перечень транспортных средств государственного значения. Общая протяженность автомобильных дорог государственного значения в Узбекистане составляет 16 909 км.

За последние пять лет произошли изменения в протяженности автомобильных дорог общего пользования, преимущественно в Ташкентской области и Республике Каракалпакстан. По значимости автомобильные дороги делятся на международные, государственные и местные. В таблице 3 представлена информация о протяженности автомобильных дорог общего пользования в зависимости от их значимости в разрезе регионов.

**Таблица 3**

**Протяженность автомобильных дорог общего пользования по значимости в разрезе регионов (к концу 2021 года, км)**

Области	По значимости дорог:			Итого
	международный	государственный	местный	
Республика Каракалпакстан	664	986	2604	4254
Андижан	103	800	1560	2463
Бухара	486	1120	2406	4012

Джизак	168	1428	1005	2601
Кашкадарья	437	926	2124	3487
Навои	356	2536	1125	4017
Наманган	91	1026	2260	3377
Самарканд	385	979	2733	4097
Сурхандарьинская	351	990	1502	2843
Сырдарья	259	505	686	1450
Ташкент	400	1292	2324	4016
Фергана	202	873	2956	4031
Хорезм	113	717	1391	2221
<b>Всего по республике</b>	<b>4015</b>	<b>14178</b>	<b>24676</b>	<b>42869</b>

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Из таблицы 3 видно, что из всех регионов нашей республики проходят автомобильные дороги общего пользования международного значения. По протяженности дорог общего пользования международного значения Республика Каракалпакстан (664 км), Бухарская область (486 км), Кашкадарьинская область (437 км), Ташкентская область (400 км), Самаркандская область (385 км), Навойская область (356 км), Сурхандарьинская область (351 км) лидирует по сравнению с другими регионами. Первые места по протяженности автомобильных дорог общего пользования государственного значения занимают Навойская область (2536 км), Джизакская область (1428 км), Ташкентская область (1292 км) и Бухарская область (1120 км).

Сегодня важное значение имеет развитие транспортной системы, а также определение масштабов сети, технических норм и сроков строительства транспортной инфраструктуры, заполнение пробелов в дорожной сети страны, оптимизация структуры и функций сети, использование потенциала существующих объектов, научное и рациональное использование, повышение эффективности транспорта в распределении ресурсов, а также содействие скоординированному и комплексному развитию регионов.

Трансформация представлений о транспортной инфраструктуре и ее использовании была связана с интеграционными процессами на транспорте, поскольку она является основой стратегического видения будущего, в котором грузы и пассажиры перемещаются без барьеров, а транспортная инфраструктура выступает динамичным двигателем экономического роста и процветание.

**Описание факторов, определяющих уровень развития транспортной инфраструктуры регионов.**

Группа факторов	Описание факторов	Особенности проявления в региональной экономике
Формирование гипотез	Факторы, определяющие состояние региональной транспортной инфраструктуры, могут быть нециклическими (постоянными) и циклическими (связанными с изменением циклов).	Периодичность: экономические угрозы и риски; вероятность их возникновения; рецессия, восстановление, депрессия, региональный экономический бум; инфляция; сезонность. Циклическость: научно-техническое развитие, потребление материальных ресурсов, социальные конфликты, стихийные бедствия.
Социальное	Численность населения в районе; безработица и занятость в регионе; цены на транспортные услуги (тарифы); привлечение населения к использованию транспортных услуг; предоставление личного транспорта.	Определение приемлемых цен (тарифов) на транспортные услуги; стимулировать население пользоваться транспортными услугами; низкий уровень охвата потребителей доступными транспортными услугами препятствует развитию региональной транспортной инфраструктуры и, как следствие, снижает уровень социально-экономического развития региона.
Институциональный	Прозрачность и последовательность законодательства, регулирующего транспортную инфраструктуру региона; Уровень развития механизма ГЧП; уровень развития общих социально-экономических институтов; механизм взаимного сотрудничества органов государственной власти по вопросам развития региональной транспортной инфраструктуры	В настоящее время данная группа факторов находится на стадии разработки в Республике Узбекистан: разработана и утверждена концепция развития региональной транспортной инфраструктуры; совершенствование нормативно-правовых документов, регулирующих процессы и отношения региональной транспортной инфраструктуры
Экономический	Экономическая и финансовая устойчивость предприятий транспортной	Более низкие ставки фрахта; наличие транспортных услуг; расширение потребительского



	<p>инфраструктуры;  эффективность использования средств производства;  рентабельность предприятий региональной транспортной инфраструктуры;  соотношение спроса и предложения на транспортные услуги;  уровень конкуренции субъектов транспортной инфраструктуры</p>	<p>сегмента; спрос потребителей транспортных услуг;  минимизация суммы денежных средств, необходимых для поддержания товарно-материальных запасов за счет предсказуемости потребления транспортных услуг</p>
<p>Инновационный</p>	<p>Скорость распространения инноваций на предприятиях транспортной инфраструктуры на региональном уровне;  уровень использования и развития инновационных технологий потребителями транспортных услуг;  дифференциация регионов Узбекистана по уровню технической оснащенности транспортной инфраструктуры; скорость транспортного обслуживания</p>	<p>Низкий уровень инновационного развития предприятий региональной транспортной инфраструктуры снижает их конкурентные преимущества; высокие затраты на транспортные услуги снижают конкурентоспособность региональных хозяйствующих субъектов, тем самым сокращая поступления в бюджет в виде налогов и отчислений, сокращая количество рабочих мест.</p>
<p>Организационно-структурный</p>	<p>Большое количество субъектов региональной транспортной инфраструктуры;  повышение концентрации субъектов транспортной инфраструктуры региона;  разные уровни корпоративного управления транспортной инфраструктурой региона;  децентрализация транспортной инфраструктуры и усиление конкуренции между транспортными компаниями, отсутствие интеграции механизма взаимного сотрудничества транспортной</p>	<p>Большое количество субъектов транспортной инфраструктуры региона - необходимость координации и интеграции деятельности предприятий транспортной инфраструктуры с целью повышения эффективности их взаимного сотрудничества; операторы транспортной инфраструктуры; нерешенность вопросов субъектов транспортной инфраструктуры, деловых связей и сотрудничества органов государственной власти не позволила разработать единую концепцию деятельности транспортной инфраструктуры региона.</p>

	инфраструктуры и субъектов предпринимательства.	
Информация	Уровень развития информационного обеспечения субъектов транспортной инфраструктуры региона; наличие (отсутствие) унифицированных планов перевозок для всех участников, что позволяет создать удобную систему взаимного сотрудничества, возможную за счет интеграции информационных ресурсов региональной транспортной инфраструктуры всех видов транспорта и спроса на предприятия транспортного обслуживания.	Низкий уровень связи снижает возможности интеграции всех видов транспорта, ограничивая формирование макроинтегрированных систем и, как следствие, транспортно-технологических систем.

Все, что показано в таблице, позволяет предложить объяснение характера транспортной инфраструктуры регионов. Транспортная инфраструктура регионов – совокупность территориально рассредоточенных организаций и всех видов транспорта, взаимодействующих в информационном поле, свою деятельность в процессе формирования системы транспортного обслуживания регионов, удовлетворения потребностей предприятий транспортного обслуживания. В регионе транспорт и связанные с ним вопросы направлены на обеспечение благоприятных условий для экономической интеграции транспортной инфраструктуры, направленной на быстрый и бесперебойный поток информации.

Сегодня развитие транспортной инфраструктуры ограничено влиянием внешней среды, что увеличивает неопределенность и меры управления рисками, реализуемые в бартерном секторе: выбор оптимального варианта груза; оперативное планирование логистических и транспортно-технологических процессов; разработать эффективный рабочий процесс; подготовка аналитической базы для принятия управленческих решений; ускорение информационных потоков и других операций между элементами транспортной инфраструктуры и субъектами хозяйствования. Таким образом, существует двусторонняя связь: как транспортная инфраструктура влияет на потребителей, а характеристики потребителей влияют на динамику развития транспортной инфраструктуры,

где важную роль играет осведомленность о спросе и предложении транспортных услуг.

Это, в свою очередь, показывает, что дальнейшее развитие транспортной инфраструктуры регионов возможно только на основе взаимного сотрудничества и интеграции субъектов транспортной инфраструктуры и хозяйствующих субъектов (потребителей). В таких условиях на первый план выходят вопросы повышения эффективности использования ресурсов, снижения затрат и формирования эффективной информационной среды взаимного сотрудничества, обеспечивающей доступность транспортных услуг в рамках системы транспортных услуг.

Автомобильный транспорт занимает важное место в социальной и экономической сферах государства. При этом объемы автомобильного транспорта постоянно растут, и для некоторых малых городов он является одним из доступных видов транспорта. Ориентация на глубокое распространение новых технологий, повышение уровня цифрового и интеллектуального развития транспорта, устранение институциональных барьеров, ограничивающих качественное развитие транспорта, содействие единой открытости и упорядоченной конкуренции на рынке транспортных услуг; и продвигать транспорт для повышения эффективности, расширения функций и увеличения кинетической энергии.

Перед работниками автомобильного транспорта должна быть поставлена четкая цель: сделать автомобильный транспорт наиболее массовым, мобильным и гибким видом транспорта, способным объединить всю транспортную систему страны, повысить ее надежность и эффективность работы в рыночных условиях.. Прежде всего, основной целью такой транспортной системы нашей страны должно стать обеспечение потребностей граждан, грузовладельцев и общества в целом в перевозке пассажиров и грузов наиболее эффективным и безопасным способом.

Для достижения этой цели необходимо решить следующие важнейшие задачи:

- осуществление экономических, организационных и технологических изменений на автомобильном транспорте в рамках проводимых реформ и создание на этой основе конкурентного свободного рынка, обеспечивая тем самым благоприятные условия для бизнеса;

- развитие современного законодательства и нормативной правовой базы, обеспечивающей работу автомобильного транспорта в максимально свободных и конкурентных рыночных условиях, где защищены интересы потребителей транспортных услуг и безопасность транспортного процесса;

- формирование и развитие гибкой тарифной и финансово-кредитной политики на автомобильном транспорте, учитывающей интересы граждан и национальной экономики, умело сочетающей поддержку социально значимых видов услуг и повышение эффективности рынка;

- создание системы регулирования автомобильного транспорта, сочетающей в себе нормативно-правовую систему участников рынка и большую независимость от государства в рамках регулирования;
- снижение безопасности автотранспортной деятельности и ее негативного воздействия на окружающую среду до уровня международных стандартов;
- техническое перевооружение и модернизация автопарка нашей страны до уровня, заданного международными стандартами;
- разработка и реализация мероприятий по улучшению условий труда, социальной защите работников автомобильного транспорта, особенно работников, осуществляющих перевозки социально значимых грузов;
- организация системы поддержки целевым государством особо важных видов автотранспортной деятельности;
- обеспечить развитие кадрового потенциала отрасли и создание благоприятной социальной и профессиональной среды на автомобильном транспорте за счет совершенствования системы профессиональной подготовки, переподготовки и ориентации в соответствии с экономическими условиями; а также формирование новой системы трудовых отношений на автомобильном транспорте.

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## **СОВРЕМЕННАЯ ТЕХНОЛОГИЯ ИЗГОТОВЛЕНИЯ ДЕТАЛЕЙ ДЛЯ ТРАКТОРОСТРОЕНИЯ**

*Аннотация. Статья описывает современные технологии изготовления деталей для тракторостроения, включая компьютерное моделирование, станки с ЧПУ, лазерную резку, гидроабразивную резку, литье под давлением и другие методы производства. Эти технологии позволяют создавать более точные и прочные детали, что улучшает качество и эффективность тракторов. Статья также рассматривает задачи и преимущества использования станков с ЧПУ и технологии литья под давлением при производстве деталей для тракторов.*

*Ключевые слова: тракторостроение, компьютерное моделирование, станки с чпу, лазерная резка, гидроабразивная резка, литье под давлением, детали для трактора, технология изготовления деталей, точность и качество, производительность и надежность тракторов.*

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## **MODERN TECHNOLOGY FOR MANUFACTURING PARTS FOR TRACTOR BUILDING**

*Abstract. The article describes modern technologies for manufacturing parts for the tractor industry, including computer modeling, CNC machines, laser cutting, water jet cutting, injection molding and other production methods. These technologies enable the creation of more precise and stronger parts, which improves the quality and efficiency of tractors. The article also examines the challenges and benefits of using CNC machines and injection molding technology in the production of tractor parts.*

*Key words: tractor manufacturing, computer modeling, CNC machines, laser cutting, waterjet cutting, injection molding, tractor parts, parts manufacturing technology, accuracy and quality, productivity and reliability of tractors.*

Современная технология изготовления деталей для тракторостроения включает в себя использование компьютерного моделирования, станков с ЧПУ, лазерной резки, гидроабразивной резки, литья под давлением и других

современных методов производства. Эти технологии позволяют создавать более точные и прочные детали, что улучшает качество и эффективность тракторов.

Детали для трактора необходимы для создания полноценного функционирующего механизма. Они выполняют ряд задач, таких как передача силы от двигателя к колесам, управление поворотом и наклоном трактора, а также обеспечение безопасности и комфорта оператора. Каждая деталь играет важную роль в работе трактора и должна быть надежной и качественной.

Компьютерное моделирование является одним из наиболее важных инструментов в современном тракторостроении. Эта технология позволяет инженерам и дизайнерам создавать детальные 3D-модели тракторов и их компонентов, что упрощает проектирование, сокращает время разработки и снижает стоимость производства.

Процесс компьютерного моделирования начинается с создания цифровой модели трактора или его компонента. Эта модель может быть создана с помощью специализированного программного обеспечения для трехмерного моделирования, такого как SolidWorks, CATIA или AutoCAD. В процессе создания модели инженеры учитывают все необходимые параметры, такие как размеры, форму, материалы и функциональность компонента.

После создания цифровой модели инженеры могут использовать ее для проведения различных анализов, таких как анализ напряжений, анализ потока жидкости или газа, анализ теплопередачи и другие. Эти анализы позволяют определить, как компонент будет работать в реальных условиях эксплуатации, и помогают оптимизировать его дизайн и конструкцию.

Кроме того, компьютерное моделирование позволяет инженерам проводить виртуальные испытания тракторов и их компонентов. Виртуальные испытания позволяют проверить, как трактор будет работать в различных условиях, таких как разные грунты, скорости и нагрузки. Это помогает определить, как трактор будет вести себя в реальной жизни и позволяет оптимизировать его производительность и безопасность.

Компьютерное моделирование также позволяет инженерам создавать детальные модели тракторов и их компонентов для использования в производственном процессе. Эти модели могут быть использованы для создания шаблонов, по которым будут изготавливаться детали, а также для создания программного обеспечения для станков с ЧПУ.

В целом, компьютерное моделирование является незаменимой технологией в современном тракторостроении. Она позволяет инженерам и дизайнерам создавать более эффективные, безопасные и надежные тракторы, что в свою очередь улучшает производительность и экономичность сельскохозяйственных работ.



Станки с ЧПУ (числовым программным управлением) являются одним из основных инструментов в современном тракторостроении. Они используются для изготовления деталей с высокой точностью и качеством, что является необходимым условием для создания надежных и эффективных тракторов.

Основная задача станка с ЧПУ в тракторостроении заключается в том, чтобы обрабатывать детали с высокой точностью и скоростью. Для этого станок с ЧПУ оснащается специальным программным обеспечением, которое позволяет управлять его работой с помощью компьютера.

Процесс работы станка с ЧПУ начинается с создания цифровой модели детали, которую необходимо изготовить. Эта модель может быть создана с помощью специализированного программного обеспечения для трехмерного моделирования, такого как SolidWorks, CATIA или AutoCAD. Затем эта модель загружается в программное обеспечение станка с ЧПУ, которое автоматически переводит ее в код, понятный станку.

Когда станок с ЧПУ получает код от программного обеспечения, он начинает работу. Он использует различные инструменты, такие как фрезы, сверла, токарные ножи и другие, чтобы обрабатывать деталь в соответствии с заданными параметрами. Станок с ЧПУ может выполнять различные операции, такие как фрезерование, токарная обработка, сверление, нарезание резьбы и другие, чтобы создать деталь с необходимыми размерами, формой и поверхностной обработкой.

Одной из главных преимуществ станков с ЧПУ является их высокая точность и скорость работы. Они могут обрабатывать детали с точностью до нескольких микрометров, что позволяет создавать детали с высокой производительностью и качеством. Кроме того, станки с ЧПУ могут работать автономно, без участия оператора, что позволяет сократить время производства и снизить стоимость изготовления деталей.

В целом, станки с ЧПУ являются незаменимыми инструментами в современном тракторостроении. Они позволяют создавать детали с высокой точностью и качеством, что улучшает производительность и надежность тракторов, а также сокращает время и стоимость их производства.

Технология литья под давлением является одной из наиболее распространенных технологий производства деталей для тракторов. Она позволяет создавать детали с высокой точностью и качеством, что является необходимым условием для создания надежных и эффективных тракторов.

Процесс литья под давлением начинается с создания формы для будущей детали. Форма может быть изготовлена из различных материалов, таких как дерево, пластик или металл. Затем форма помещается в специальную камеру, где создается высокое давление, которое позволяет расплавленному металлу заполнить форму и принять ее форму.

После того, как металл остынет и затвердеет, форму разбирают и вынимают готовую деталь. Деталь может потребоваться дополнительная

обработка, такая как фрезерование, токарная обработка или шлифование, чтобы достичь необходимой точности и качества.

Одним из главных преимуществ технологии литья под давлением является ее высокая производительность и качество. Она позволяет создавать детали с высокой точностью и однородностью, что улучшает производительность и надежность тракторов. Кроме того, технология литья под давлением позволяет создавать детали с различными формами и размерами, что расширяет возможности дизайна тракторов.

В целом, технология литья под давлением является незаменимой в современном тракторостроении. Она позволяет создавать детали с высокой точностью и качеством, что улучшает производительность и надежность тракторов, а также сокращает время и стоимость их производства.

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## **ОСОБЕННОСТИ ВЕДЕНИЯ ОВЦЕ- И КОЗОВОДСТВА И ЕГО ЭПИЗООТОЛОГИЧЕСКОЕ ЗНАЧЕНИЕ ПРИ ОСПЕ МЖЖ**

*Аннотация. В статье обобщены результаты изучения пастбищная система ведения овце и козоводства, чему способствуют уникальные природно-климатические условия и более чем 3 млн. 800 тыс. га летних и зимних пастбищ.*

*Плотность размещения овец и коз в районах и областях зависит в основном от наличия пастбищ, расположенные на различной высоте от уровня моря – от 300 до 3000 метров. И мигрируется более двух миллионов овец и коз на зимние и летние пастбища.*

*Ключевые слова: вирус оспы овец, вирус оспы коз, вспышках, МЖЖ - мелкие жвачные животные, Горно-Бадахшанская автономная область, РРП – районы республиканского подчинения, Хатлонской область.*

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## **FEATURES OF SHEEP AND GOAT HUSBANDRY AND ITS EPIZOOTOLOGICAL SIGNIFICANCE IN CASE OF SMALLPOX**

*Abstract. The article summarizes the results of the study of the pasture system of sheep and goat breeding, which is facilitated by unique natural and climatic conditions and more than 3 million 800 thousand ha of summer and winter pastures.*

*The density of sheep and goats in districts and regions depends mainly on the availability of pastures located at different altitudes from sea level - from 300 to 3000 meters. And more than two million sheep and goats migrate to winter and summer pastures.*

*Key words: sheeppox virus, goatpox virus, outbreaks, small ruminant animals, Gorno-Badakhshan Autonomous Region, RRS - districts of republican subordination, Khatlon region.*

**Введение.** В Таджикистане 95% овец и коз (более 5 млн. голов) являются частной собственностью и в основном содержатся в подворьях или круглый год мигрируют по сезонным пастбищам.

Анализ литературы и методология. Соотношение поголовья овец и коз по регионам республики также отличаются. Так, в Согдийской области

население и дехканские хозяйства предпочтительно содержат овец породы «джойдори» и таджикский тип ангорской породы коз.

Обсуждение. Большая часть территории Таджикистана находится на высоте более 2500 метров над уровнем моря основная часть, которой используется в качестве летних пастбищ для овец и коз. Тип и площадь пастбищ приведен в рисунках 1, 2, 3 и 4.

Как видно из диаграммы летние пастбища составляют более 2 млн. га и основная их площадь находится в Горно-Бадахшанской автономной области и Районах республиканского подчинения (РРП) – Центральный Таджикистан.

Из летних пастбищ Горно Бадахшанский Автономный Область (ГБАО) только 62,7 тыс. га. (Дарвазский район, Сагирдашт) используются животными из других областей, в основном Хатлонской, остальная часть местными владельцами животных.

На данной территории в летний период содержатся 120-150 тыс. овец и коз многих хозяйств районов Хатлонской области, с различным иммунным статусом против инфекционных болезней.

На зимние пастбища Хатлонской области возвращаются не только животные хозяйств этой области, но из РРП и Согдийской области, имеющие разный иммунологический статус и являющиеся потенциальными носителями различных инфекций.

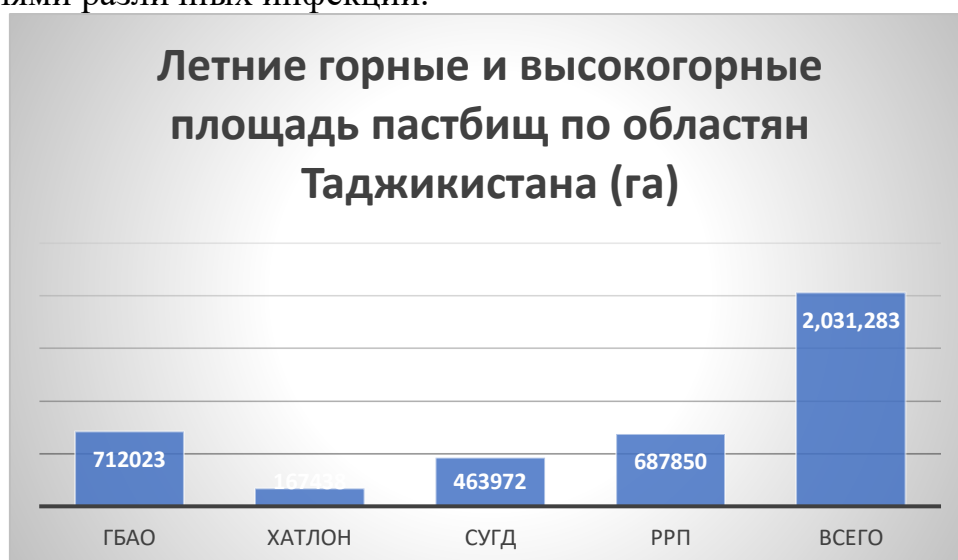


Рис. 1. Тип и площадь пастбищ по областям Таджикистана



**Рис.2. Тип и площадь пастбищ по областям Таджикистана**

На летних пастбищах Согдийской области содержатся только местное поголовье, из других регионов республики животные не перегоняются.

Из зимних пастбищ Вахшской долины животные возвращаются на летние пастбища только Айнинского и Пенджикентского района Согдийской области. Это отчасти и способствует относительно благополучию хозяйств области относительно регистрирующим в республике чуме мелких жвачных животных, плевропневмонии коз, оспе и другим болезням.

Основная площадь зимних пастбищ республики (659,1 тыс. га.) находятся на территории Хатлонской (557,5 тыс. га) и Согдийской области (101,6 тыс. га).

В Хатлонской области зимние пастбища расположены на территории 16 сельских районов из 24. Наибольшая площадь пастбищ расположены в административных районах Дангара (109,2 тыс. га.), Темурмалик (64,8 тыс. га.), Шохин (22,8 тыс. га) и Фархор (20,3 тыс. га.) Кулябской зоны области.

В Вахшской долине Хатлонской области зимние наибольшие площади пастбищ находятся в Шаартузском (107,6 тыс. га.), Кабадиянском (89,2 тыс. га.), Вахшском (60 тыс. га.), Н. Хусравском (55,1 тыс. га.) и Джайхунском (40,9 тыс. га.) районах. Большинство районов области и их зимние пастбища граничат с Афганистаном.

Зимние пастбища имеют скудный травостой из-за малого количества осадков в весенне-осенний период года, частых засух и большого количества пасущихся животных.

Из общей площади сельскохозяйственных угодий республики (4,1 млн. га.) 76% занимают пастбища и луга.

Овцы и козы дехканских хозяйств в Таджикистане содержатся в смешанных отарах, состоящих из 600-1200 голов животных, и круглый год находятся на летних или зимних пастбищах.

**Заключение.** Для Таджикистана характерна традиционная пастбищная система ведения овце и козоводства, чему способствуют уникальные природно-климатические условия и более чем 3 млн. 800 тыс. га летних и зимних пастбищ.

Плотность размещения овец и коз в районах и областях зависит в основном от наличия пастбищ, расположенные на различной высоте от уровня моря – от 300 до 3000 метров. Имеет место миграция более двух миллионов овец и коз на зимние и летние пастбища.

Традиционно овцы и козы содержатся в смешанных отарах. В период миграции отары проходят от 100 до 400 км. Трассы перегона животных зачастую пролегают по горным кишлакам, где часто происходит обмен и продажа животных.

Кроме того, имеет место значительная официальная и не официальная трансграничная миграция животных на сезонные пастбища, особенно овец и коз между Таджикистаном, Узбекистаном и Кыргызстаном.

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## **ДОГОВОРНОЕ РЕГУЛИРОВАНИЕ ИНВЕСТИЦИОННОЙ ДЕЯТЕЛЬНОСТИ В РЕСПУБЛИКЕ УЗБЕКИСТАН**

*Аннотация. В данной научной статье анализируются вопросы договорного регулирования инвестиционной деятельности в Республике Узбекистан, особенности договоров в сфере инвестиционной деятельности и недостатки в их правовом регулировании. Обсуждаются пробелы и проблемы в законодательстве, и предлагаются альтернативные решения. Представлены авторские комментарии к некоторым нормативно-правовым актам и предложения по внесению в них изменений и дополнений.*

*Ключевые слова: инвестиционный договор, инвестиция, соглашение о государственно-частном партнерстве, соглашение о разделе продукции, инвестиционный проект.*

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## **CONTRACTUAL REGULATION OF INVESTMENT ACTIVITIES IN THE REPUBLIC OF UZBEKISTAN**

*Annotation. This article analyzes the issues of contractual regulation of investment activities in the Republic of Uzbekistan, the features of contracts in the field of investment activities and shortcomings in their legal regulation. Gaps and*

*problems in the legislation are discussed and alternative solutions are proposed. The author's comments on some legal acts and proposals for making changes and additions to them are presented.*

*Key words: investment agreement, investment, public-private partnership agreement, production sharing agreement, investment project.*

Договорное регулирование инвестиционной деятельности представляет собой систему правовых норм и договорных отношений, регулирующих взаимоотношения между инвесторами и другими сторонами, участвующими в инвестиционной деятельности. Оно включает в себя такие аспекты, как заключение инвестиционных соглашений, урегулирование прав и обязанностей сторон, условия инвестирования, иные вопросы, связанные с инвестиционной деятельностью.

Договорное регулирование инвестиционной деятельности может включать в себя регулирование инвестиционных проектов, соглашений о совместной деятельности, финансовые сделки, а также защиту прав и интересов инвесторов. Это позволяет участникам рынка инвестиций устанавливать прозрачные и взаимовыгодные отношения, а также обеспечивать защиту их инвестиций. Договорное регулирование инвестиционной деятельности имеет важное значение для создания стабильной и предсказуемой инвестиционной среды, что способствует привлечению инвестиций и развитию экономики в целом.

Нормативно-правовая база инвестиционной деятельности в Республики Узбекистан представляет собой ряд нормативно-правовых актов, как законов, так и подзаконных актов, направленных на регулирование данной сферы. В частности, Закон Республики Узбекистан «Об инвестициях и инвестиционной деятельности» от 25.12.2019 г. № ЗРУ-598, Закон «О государственно-частном партнерстве» от 10.05.2019 г. № ЗРУ-537, Закон Республики Узбекистан «О соглашениях о разделе продукции» от 07.12.2001 г. № 312-II, Положение о порядке заключения, изменения, прекращения и реализации инвестиционных договоров между Правительством Республики Узбекистан, утвержденное Постановлением Кабинета Министров Республики Узбекистан от 2 августа 2005 года № 180 и др. Первостепенное значение и главную роль в их ряду занимает Закон «Об инвестициях и инвестиционной деятельности» от 25.12.2019 г. № ЗРУ-598 (далее Закон).

До 2020 года инвестиционная деятельность в Республике Узбекистан регулировалась законами «Об иностранных инвестициях» от 1998 года, «О гарантиях и мерах защиты прав иностранных инвесторов» от 1998 года и «Об инвестиционной деятельности» от 2014 года, а также многими подзаконными актами. Однако с принятием Закона, вышеуказанные законы утратили силу, а нормы, предусмотренные этими законами, унифицированы.

Преимуществом принятия Закона является то, что данный Закон играет важную роль в развитии экономики и привлечении инвестиций в страну, содействует созданию благоприятного инвестиционного климата, устанавливает равный правовой режим для всех инвесторов и регулирует их деятельность. Цель Закона состоит в том, чтобы обеспечить гарантии и защиту прав инвесторов, установить прозрачные правила и процедуры для привлечения и реализации инвестиций, создать правовую базу для инвестиционной привлекательности Республики Узбекистан. Он определяет правила ведения бизнеса, защищает инвесторов от непредвиденных рисков и несправедливых действий. Принятие данного Закона также способствует улучшению деловой репутации страны и привлечению иностранных инвесторов. Закон демонстрирует государственную поддержку инвестиций и стремление к стабильной и предсказуемой бизнес-среде.

Институт правового регулирования инвестиционной деятельности обширен и многогранен и, естественно в рамках одной статьи охватить все аспекты правового регулирования инвестиционной деятельности не представляется возможным. В связи с этим целью настоящей статьи является попытка анализа нормативно-правовой базы и выявления имеющихся проблем в сфере правового регулирования договорной базы инвестиционной деятельности в Республике Узбекистан.

#### **Порядок заключения инвестиционных договоров.**

В соответствии с Законом «Об инвестициях и инвестиционной деятельности», инвестор вправе заключать договоры с юридическими и физическими лицами для осуществления инвестиционной деятельности, а также исполнять договорные обязательства, принятые им в связи с инвестированием. Хотя в данном Законе установлено право участников инвестиционной деятельности заключать инвестиционные договоры между частными субъектами, однако порядок заключения такого договора не предусмотрен. Более того, ни в одном существующих и действующих нормативно-правовых актов, непосредственно или опосредованно регулирующих инвестиционную деятельность, не предусмотрен порядок заключения инвестиционного договора между хозяйственными субъектами. В связи с этим правомерно возникает вопрос регулирования порядка заключения инвестиционного договора между хозяйственными субъектами. Договорные отношения регулируются Гражданским кодексом Республики Узбекистан, имеющим наиболее общий характер, и специальным законом – Законом Республики Узбекистан «О договорно-правовой базе деятельности хозяйствующих субъектов» от 29.08.1998 г. В особенной части Гражданского кодекса не предусмотрены нормы, регулирующие инвестиционные сделки или договора. Вместе с тем Гражданский кодекс не

запрещает заключение договора, не предусмотренного кодексом<sup>32</sup>. Следовательно, нормы Гражданского кодекса о договорах и сделках применимы и к инвестиционным отношениям. Закон Республики Узбекистан «О договорно-правовой базе деятельности хозяйствующих субъектов» регулирует договорные отношения в сфере предпринимательской деятельности, то есть коммерческие договора, заключаемые хозяйствующими субъектами в сфере экономики. Инвестиционные договора по цели также являются коммерческими и, следовательно, к ним применимы нормы данного Закона.

Как было указано выше в Законе предусмотрен порядок заключения инвестиционного договора с Правительством Республики Узбекистан. Согласно статье 40 Закона, Правительство Республики Узбекистан может заключать инвестиционный договор в целях обеспечения выполнения обязательств иностранными инвесторами, которым предоставляются по взаимному согласию дополнительные гарантии и меры поддержки (льготы и преференции). В то же время статья 43 Закона определяет, что инициирование предложения по заключению инвестиционного договора с Правительством Республики Узбекистан осуществляется иностранным инвестором самостоятельно или совместно с органами государственного и хозяйственного управления, органами исполнительной власти на местах или хозяйствующими субъектами. Исходя из того, что диспозитивная формулировка части первой статьи 40 Закона, допускает широкое толкование, разночтения в ее понимании (неспециалист в этой области может подумать, что инициатором заключения инвестиционного договора является Правительство, и, кроме того, такая формулировка создает поле для «злоупотребления правом» и является коррупционной), и статья 43 этого же Закона в качестве инициатора определяет иностранного инвестора, считаем целесообразным внести изменения в статью 40, изложив ее «Иностранный инвестор может заключать инвестиционный договор с Правительством Республики Узбекистан в целях получения по взаимному согласию дополнительных гарантий и мер поддержки (льготы и преференции)». Также считаем необходимым отдельное правовое регулирование взаимных прав и обязанностей сторон инвестиционного договора с Правительством Республики Узбекистан, которые можно было бы раскрыть в статье 45 Закона, озаглавив статьи «Права и обязанности сторон по инвестиционному договору с Правительством».

### **Правовое регулирование расторжения инвестиционного договора.**

До принятия Закона порядок заключения инвестиционного договора до регулировался Законом «О гарантиях и мерах защиты прав иностранных

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<sup>32</sup> Гражданский Кодекс Республики Узбекистан от 21.12.1995 г., статья 354 // Национальная база данных законодательства, 25.10.2023 г., № 03/23/871/0797

инвесторов»<sup>33</sup>, а также Положением о порядке заключения и реализации инвестиционных договоров, утвержденным постановлением Кабинета Министров Республики Узбекистан от 2 августа 2005 года № 180. После утраты Законом «О гарантиях и мерах защиты прав иностранных инвесторов» юридической силы, в Положение были внесены существенные изменения, в том числе в наименование, и в новой редакции оно названо «Положение о порядке заключения, изменения, прекращения и реализации инвестиционных договоров между Правительством Республики Узбекистан и иностранными инвесторами»<sup>34</sup>. Несмотря на это между Законом и вышеуказанным Положением есть некоторые несоответствия, которые могут существенно влиять на правоприменительную практику при реализации их положений.

В соответствии с пунктом 17 Положения о порядке заключения, изменения, прекращения и реализации инвестиционных договоров между Правительством Республики Узбекистан и иностранными инвесторами, прекращение инвестиционного договора осуществляется:

- по истечении срока действия инвестиционного договора или исполнения иностранным инвестором в полном объеме своих обязательств по инвестиционному договору;
- по взаимному соглашению Сторон;
- по инициативе Правительства Республики Узбекистан, в случае нарушения или неисполнения иностранным инвестором принятых обязательств по инвестиционному договору.

Исходя из этих оснований, очевидно, что иностранный инвестор не может быть инициатором расторжения договора в случае, если Правительство Республики Узбекистан не выполнит или ненадлежащим образом выполнит свои обязательства, тогда как, в случае нарушения или неисполнения иностранным инвестором принятых обязательств по инвестиционному договору, по инициативе Правительства договор может быть прекращен. В соответствии со статьёй 44 Закона, одним из оснований прекращения действия инвестиционного договора является односторонний порядок прекращения и определяется, что инициатива по расторжению договора может исходить от обеих сторон. Однако не определено по каким основаниям иностранный инвестор может инициировать досрочное расторжение договора. Согласно части шестой статьи 44 Закона, при досрочном прекращении инвестиционного договора с Правительством Республики Узбекистан по инициативе иностранного инвестора,

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<sup>33</sup> Закон Республики Узбекистан «О гарантиях и мерах защиты прав иностранных инвесторов» от 30.04.1998 г. № 611-I, статья 4 // Собрание законодательства Республики Узбекистан, 2005 г., № 37-38, ст. 278; 2008 г., № 52, ст. 513; 2014 г., № 4, ст. 45; 2017 г., № 37, ст. 978 (\*Закон утратил силу)

<sup>34</sup> Постановление Кабинета Министров Республики Узбекистан «О внесении изменений в Постановление Кабинета Министров от 2 августа 2005 г. № 180 «О мерах по реализации Указа Президента Республики Узбекистан «О дополнительных мерах по стимулированию привлечения прямых частных иностранных инвестиций»» от 30 апреля 2020 г., № 264



заключившего инвестиционный договор с Правительством Республики Узбекистан, в одностороннем порядке, иностранный инвестор уплачивает суммы налогов и платежей, не уплаченных в бюджет вследствие предоставленных по инвестиционному договору с Правительством Республики Узбекистан дополнительных гарантий и мер поддержки (льгот и преференций) в рамках государственной поддержки инвестиций и инвестиционной деятельности. Так как в Положении порядок расторжения инвестиционного договора с Правительством по инициативе иностранного инвестора не предусмотрен, возникает вопрос, если инициатива иностранного инвестора по досрочному расторжению инвестиционного договора будет вызвана неисполнением или ненадлежащим исполнением своих обязательств со стороны Правительства Республики Узбекистан, какие правовые последствия наступят и должен ли иностранный инвестор уплачивать суммы налогов и платежей, не уплаченных в бюджет вследствие предоставленных по инвестиционному договору льгот и преференций?

Кроме того, как указано выше инвестиционный договор с Правительством может быть прекращен по соглашению сторон, то есть иностранный инвестор и Правительство могут прийти к взаимному соглашению расторгнуть договор. В этом случае, также непонятно положение статьи 44 Закона «Об инвестициях и инвестиционной деятельности», в котором говорится, что в случае расторжения инвестиционного договора с Правительством Республики Узбекистан иностранный инвестор уплачивает суммы налогов и платежей, не уплаченных в бюджет вследствие предоставленных по инвестиционному договору с Правительством Республики Узбекистан дополнительных гарантий и мер поддержки (льгот и преференций) в рамках государственной поддержки инвестиций и инвестиционной деятельности. Если Правительство само соглашается расторгнуть договор, не совсем логично возложение на иностранного инвестора обязательства по уплате налогов и иных платежей, от которых он был освобожден вследствие предоставления ему льгот и преференций. По нашему мнению, правильно было бы указать, что при одностороннем порядке расторжения договора по инициативе Правительства, иностранному инвестору необходимо возвращать суммы налогов, не уплаченных в бюджет вследствие предоставленных по инвестиционному договору льгот и преференций. Потому что, при неисполнении либо ненадлежащем исполнении иностранным инвестором обязательств по инвестиционному договору, Правительство расторгает договор.

### **Правовое регулирование соглашения о государственно-частном партнерстве.**

Одним из видов соглашений в рамках инвестиционной деятельности является соглашение о государственно-частном партнерстве. Данное соглашение является сотрудничеством государственного партнера и



частного партнера, основанное на объединении их ресурсов для реализации проекта государственно-частного партнерства<sup>35</sup>. Порядок заключения данного соглашения регулируется Законом «О государственно-частном партнерстве» от 10.05.2019 г. № ЗРУ-537 (далее – Закон о ГЧП). Положения данного Закона также применяются к проектам, осуществляемым в рамках концессионного договора, хотя закон не охватывает все аспекты концессионного договора. Следует отметить, что Закон о ГЧП регулирует многие вопросы касательно данного соглашения, так как является основным нормативно-правовым актом в этой области и не имеется подзаконного акта, его детализирующего или уточняющего. Однако имеются подзаконные акты по реализации проектов государственно-частного партнерства в определенных областях. К примеру, Постановление Кабинета Министров Республики Узбекистан «О мерах по созданию условий для развития государственно-частного партнерства в сфере дошкольного образования»<sup>36</sup>, «О создании централизованной клинико-диагностической лаборатории на основе государственно-частного партнерства»<sup>37</sup>, «О мерах по созданию условий для развития государственно-частного партнерства в сфере физической культуры и спорта»<sup>38</sup>, «О мерах по развитию государственно-частного партнерства в сфере здравоохранения»<sup>39</sup>, «Об утверждении Положения о порядке осуществления государственно-частного партнерства при финансировании разработки проектов детальной планировки частей населенных пунктов»<sup>40</sup> и т.д. Согласно данным официального веб-сайта Агентства по развитию государственно-частного партнерства при Министерстве финансов Республики Узбекистан, 90% и более проектов, осуществляемых в рамках государственно-частного партнерства, принадлежат юридическим лицам Республики Узбекистан и доля иностранных инвесторов значительно мала<sup>41</sup>. Это можно объяснить

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<sup>35</sup> Закон Республики Узбекистан «О государственно-частном партнерстве» от 10.05.2019 г. № ЗРУ-537 // Национальная база данных законодательства 29.11.2023 г., № 03/23/880/0905

<sup>36</sup> Постановление Кабинета Министров Республики Узбекистан ««О мерах по созданию условий для развития государственно-частного партнерства в сфере дошкольного образования» от 25.06.2018 г. № 475 // Национальная база данных законодательства, 27.06.2018 г., № 09/18/475/1400, 13.12.2019 г., № 06/19/5893/4150

<sup>37</sup> Постановление Кабинета Министров Республики Узбекистан «О создании централизованной клинико-диагностической лаборатории на основе государственно-частного партнерства» от 17.08.2018 г. № 674 // Национальная база данных законодательства, 20.08.2018 г., № 09/18/674/1779

<sup>38</sup> Постановление Кабинета Министров Республики Узбекистан «О мерах по созданию условий для развития государственно-частного партнерства в сфере физической культуры и спорта» от 01.03.2019 г. № 184 // Национальная база данных законодательства, 08.07.2022 г., 09/22/375/0618

<sup>39</sup> Постановление Президента Республики Узбекистан «О мерах по развитию государственно-частного партнерства в сфере здравоохранения» от 16.04.2019 г. № ПП-4290 // Национальная база данных законодательства, 13.07.2023 г., № 06/23/109/0469

<sup>40</sup> Постановление Кабинета Министров Республики Узбекистан «Об утверждении Положения о порядке осуществления государственно-частного партнерства при финансировании разработки проектов детальной планировки частей населенных пунктов» от 26.02.2019 г. № 169 // Национальная база данных законодательства, 26.02.2019 г., № 09/19/169/2671

<sup>41</sup> <https://www.pppda.uz/ru/reyestr-ga-olingan-loyihalar>, «ПЕРЕЧЕНЬ ЗАРЕГИСТРИРОВАННЫХ ПРОЕКТОВ ГОСУДАРСТВЕННО-ЧАСТНОГО ПАРТНЕРСТВА»

двумя причинами, во-первых, это может быть связано, что проекты, реализуемые в рамках государственно-частного партнерства, не настолько перспективные или прибыльные, что не привлекают иностранных инвесторов и, во-вторых, на рынке установлены косвенные ограничения для иностранных инвесторов в виде бюрократических барьеров, что усложняет их участие. Более того, если анализировать сроки соглашений о государственно-частном партнерстве, заключенных в последние три года, то большинство соглашений были заключены на 10 лет, а максимальный срок составил 30 лет<sup>42</sup>.

### **Правовое регулирование соглашения о разделе продукции.**

Следующим видом инвестиционных соглашений является соглашение о разделе продукции, что является договором, в соответствии с которым Республика Узбекистан предоставляет иностранному инвестору на возмездной основе и на определенный срок исключительные права на поиски, разведку месторождений и добычу полезных ископаемых на участке недр, указанном в соглашении, и на ведение связанных с этим работ, а инвестор обязуется осуществить проведение указанных работ за свой счет и на свой риск<sup>43</sup>. Порядок заключения данного вида соглашения регулируется Законом Республики Узбекистан «О соглашениях о разделе продукции» от 07.12.2001 г. № 312-II (далее Закон о СРП). Данное соглашение может быть заключено путем публичных торгов или прямых переговоров. Срок данного соглашения не урегулирован законом, поэтому стороны сами определяют срок действия соглашения исходя из вида проектов. Если рассмотреть практику Республики Узбекистан, то такие соглашения заключаются в основном в сфере энергетики. В соответствии с Постановлением Президента Республики Узбекистан «О мерах по организации деятельности Министерства энергетики Республики Узбекистан» от 01.02.2019 г. № ПП-4142, Министерству энергетики Республики Узбекистан передан функции Министерства экономики и промышленности Республики Узбекистан и АО «Узбекнефтегаз» по реализуемым соглашениям о разделе продукции. В Постановлении Кабинета Министров Республики Узбекистан «О мерах по дальнейшей реализации соглашений о разделе продукции» от 17.06.2019 г. № 503, перечислены ряд реализуемых соглашений в сфере энергетики, такие как:

– *Соглашение о разделе продукции по доработке месторождения «Шахпахты» между Национальной холдинговой компанией «Узбекнефтегаз» и консорциумом инвесторов в составе закрытого акционерного общества «Зарубежнефтегаз» и компании «Gas Project Development Central Asia AG» от 14 апреля 2004 года;*

<sup>42</sup> <https://www.pppda.uz/ru/reyestruga-olingan-loyihalar>, «ПЕРЕЧЕНЬ ЗАРЕГИСТРИРОВАННЫХ ПРОЕКТОВ ГОСУДАРСТВЕННО-ЧАСТНОГО ПАРТНЕРСТВА»

<sup>43</sup> Закон Республики Узбекистан «О соглашениях о разделе продукции» от 07.12.2001 г. № 312-II // Национальная база данных законодательства, 12.10.2021 г., № 03/21/721/0952

– Соглашение о разделе продукции в отношении участка Кандымской группы месторождений, участков Хаузак и Шады, а также Кунградского участка между Республикой Узбекистан и консорциумом инвесторов в составе открытого акционерного общества «Нефтяная компания «Лукойл» и Национальной холдинговой компании «Узбекнефтегаз» от 16 июня 2004 года;

– Соглашение о разделе продукции в отношении месторождений на территориях Юго-Западного Гиссара и Устюртского региона Республики Узбекистан между Республикой Узбекистан и компанией «Союзнефтегаз Восток Лимитед» от 23 января 2007 года;

– Соглашение о разделе продукции в отношении инвестиционного блока «Узбекистон мустақиллиги» с доразведкой и разработкой месторождения «Мустақилликнинг 25 йиллиги» со строительством газохимического комплекса в Сурхандарьинской области Республики Узбекистан между Республикой Узбекистан и консорциумом инвесторов в составе «Gas Project Development Central Asia AG», «Altmax Holding Ltd» и АО «Узнефтегаздобыча» от 5 апреля 2017 года;

– Соглашение о разделе продукции в отношении месторождения Джел между Республикой Узбекистан и компанией «Газпром ЭП Интернэшнл Б.В.» от 18 октября 2018 года.

По вышеуказанным соглашениям, уполномоченным органом является Министерство энергетики Республики Узбекистан<sup>44</sup>.

Анализ Закона о СРП в сравнении с другими нормативно-правовыми актами, регулирующими вопросы инвестирования, свидетельствует о наличии определенных недостатков, заключающихся в следующем. Согласно статье 12 Закона, основными условиями выполнения работ по соглашению являются:

– предоставление юридическим лицам Республики Узбекистан при прочих равных условиях преимущественного права на участие в этих работах в качестве подрядчиков, поставщиков, перевозчиков или в ином качестве на основании договоров с инвесторами;

– привлечение к этим работам граждан Республики Узбекистан в количестве не менее чем восемьдесят процентов состава всех привлеченных работников в среднегодовом исчислении.

Вместе с тем, в соответствии с частью первой статьи 46 Закона «Об инвестициях и инвестиционной деятельности», иностранным инвесторам и иностранным инвестициям предоставляется справедливый и равноправный режим, полная и постоянная их защита и безопасность<sup>45</sup>. Очевидно, что

<sup>44</sup> Постановление Кабинета Министров Республики Узбекистан «О мерах по дальнейшей реализации соглашений о разделе продукции» от 17.06.2019 г. № 503 // Национальная база данных законодательства, 27.06.2020 г., № 09/20/411/1000

<sup>45</sup> Закон Республики Узбекистан «Об инвестициях и инвестиционной деятельности» от 25.12.2019 г. № ЗРУ-598, статья 46 // Национальная база данных законодательства, 25.10.2023 г., № 03/23/871/0797

меры, предусмотренные в статье 12 Закона о СРП, предприняты для развития и защиты национального предпринимательства, но вместе с тем, на лицо противоречие норм двух законов.

Статья 20 Закона о СРП предусматривает, что инвесторы, **а также их подрядчики и субподрядчики** освобождаются от уплаты установленных в Республике Узбекистан всех видов налогов и других обязательных платежей, связанных с проведением поисковых и разведочных работ на участках недр, определенных в соглашениях. В то же время статья 476 Налогового кодекса Республики Узбекистан предусматривает, что иностранный инвестор, за исключением случаев, предусмотренных законодательством о соглашениях о разделе продукции, в течение срока действия соглашения о разделе продукции уплачивает все налоги и другие обязательные платежи по ставке, установленным для резидентов Республики Узбекистан. Проблема в том, что Налоговый кодекс и Закон о СРП не определяют порядок налогообложения иностранных подрядчиков и субподрядчиков в рамках соглашения о разделе продукции.

Обобщая вышеизложенное, можно сказать, что несмотря на некоторые недостатки и неясности в нормативно-правовых актах, регулирующих договорные правоотношения между участниками инвестиционной деятельности, договорное регулирование инвестиционной деятельности в Республике Узбекистан направлено на создание благоприятной инвестиционной среды, защиту прав и интересов инвесторов, а также стимулирование экономического развития страны, так как договорное регулирование инвестиционной деятельности играет важную роль в обеспечении стабильности и прозрачности инвестиционной среды, снижении рисков для инвесторов и обеспечении роста инвестиционной активности.

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## **УСТОЧИВОСТЬ ПРОВОКАЦИЯМ – НАДЕЖНАЯ ЗАЩИТА ПРОДУКТИВНОЙ ТВОРЧЕСКОЙ ДЕЯТЕЛЬНОСТИ**

*Аннотация. Провокация – это психологическая манипуляция, «вызов» направленная на то, чтобы заставить жертву вести себя определённым образом. Обычно речь идёт о нежелательном поведении, подразумевающим с вредными последствиями для жертвы, которые при этом выгодны провокатору. Даже распознав провокатора, эффективно противостоять ему получается не всегда. Если вы понимаете, что поддались на провокацию – внимательно проанализируйте это положение.*

*Ключевые слова: провокатор, агрессор, психопат, сплетник, самоанализ, защита.*

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## **RESISTANCE TO PROVOCATIONS – RELIABLE PROTECTION OF PRODUCTIVE CREATIVE ACTIVITY**

*Annotation. Provocation is a psychological manipulation, a “challenge” aimed at making the victim behave in a certain way. Usually we are talking about undesirable behavior, which implies harmful consequences for the victim, which at the same time are beneficial to the provocateur. Even after recognizing a provocateur, it is not always possible to effectively resist him. If you understand that you have succumbed to provocation, carefully analyze this situation.*

*Key words: provocateur, aggressor, psychopath, gossip, introspection, defense.*

### **Вступление**

Изменение самого действующего человека — это, таким образом, неотъемлемая сторона всякой человеческой деятельности в той степени, в какой человек оказывается перед необходимостью жить и действовать, в том числе и адаптироваться в мире, который во многом создан все той же деятельностью. Сегодня мы видим множество примеров того, что адаптация человека и человечества к изменениям, порожденным предшествующей



деятельностью, нередко становится далеко не простой проблемой, если говорить, скажем, о тех переменах, которым подвергается наша среда обитания [1].

При этом большинство людей легко на них поддается, поскольку не умеет не только противостоять им, но даже и распознавать их. Пользуясь этим, **умелые провокаторы «играют» своими жертвами**, выставляя их в дурном положении и добиваясь своих целей [2].

Провокация – это психологическая манипуляция, «вызов» направленная на то, чтобы заставить жертву вести себя определённым образом. Обычно речь идёт о нежелательном поведении, подразумевающим **вредные последствия для жертвы, которые при этом выгодны провокатору**. В повседневной жизни провокации чаще всего направлены на то, чтобы вывести соперника из равновесия, заставив его вести себя неадекватно и убедив всех сослуживших в его неправоте.

Чтобы вывести соперника из себя, провокатор может использовать особые вопросы и утверждения, которые произносит спокойным тоном:

- «Это информация из авторитетного источника? А из какого?»;
- «Я имею право высказать своё мнение. Или свободу слова отменили?»;
- «Вы можете доказать это? Или это пустые слова, как обычно?»;
- «Вы выдумываете то, чего не было!»;
- «Ну и что?!».

Можно привести множество разнообразных примеров. Но существует несколько типичных видов провокации, которые чаще всего встречаются в повседневной жизни и обыгрываются в художественных произведениях [2].

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

В жизни провокация часто используется в близких отношениях для того, чтобы вызвать конфликт и при этом **выглядеть жертвой, а не агрессором**. К примеру, супруги используют такой подход при выяснении отношений, чтобы обеспечить себе заведомо выигрышную позицию и убедить «половинку» в том, что именно она виновата в ссоре. Такая «игра» обычно происходит на личном уровне между двумя людьми, но иногда бывает направлена на широкую публику.

*Существует различные виды провокаций:*

Эксплуатация амбиции и тщеславия. Провокация не всегда направлена на негативную реакцию. Умелые манипуляторы могут

использовать её, чтобы заставить собеседника вести себя определённым образом. Известный пример описан в басне «Ворона и лиса»: при помощи похвалы Лиса усыпляет бдительность Вороны и заставляет её выронить сыр. Провокации часто встречаются в художественных произведениях. К примеру, провокатор-шпион может «восхититься» тем, насколько важен и влиятелен собеседник, чтобы разговорить его, заставив хвастаться и выдавать секреты.

*Проверка границ самостоятельности.* К ней очень часто неосознанно прибегают дети, которые нарушают ограничения родителей и попечителей, **чтобы понять, как далеко можно свободно зайти и какие будут последствия.** Это не потому, что они такие умелые провокаторы, просто дети любят экспериментировать, таким путём на деле просчитывают реакцию взрослых. Такой подход выбирают, сообразуют и на работе, при смене начальствующего состава [4].

*Требование доказательств и доводов для оправдания* используется в публичных раздорах, чтобы убедить окружающих в собственной правоте. Её суть заключается в том, что **провокатор обвиняет оппонента в чём-либо и ждёт реакции.** Оппонент же оказывается в проигрышной ситуации. Он может отрицать обвинения или начинать оправдываться – для окружающих он всё равно будет выглядеть виновным.

*Другой вид провокации – проверка на «слабо»*, здесь провокатор требует, чтобы оппонент доказал свою решительность или смелость, выполнив какое-то опасное, безрассудное и, как правило, совершенно бессмысленное действие. Проверку на «слабо» часто используют, чтобы добиться выгодных для себя действий. К примеру, **продавец на рынке может показательно усомниться в платежеспособности покупателя** и предложить ему более дешёвую вещь. Тот же, возмущившись, требует дать ему самую дорогую, а потом платит за неё гораздо больше, чем изначально намеревался потратить, лишь для того, чтобы не ударить лицом в грязь [6].

#### **Результаты и обсуждение:**

Все виды провокаций можно разделить на две большие группы:

- *Демонстративные.* Так называют провокации, которые очевидны для самой жертвы и для окружающих, а также имеют понятные цели. Это могут быть прямые оскорбления, ложь, клевета, буллинг и прочие варианты вызывающего поведения. Большинство людей реагирует на подобные выпады в свой адрес эмоционально и несдержанно. **Именно это обычно и нужно провокатору.** Позитивная провокация за счёт лести, похвалы и восхищения также может быть явной, но сама жертва часто её не замечает, поскольку приятные слова усыпляют её бдительность.

- *Скрытые.* Так называют провокации, которые сложно распознать. Кроме того, даже если провокация становится очевидной, её цели всё равно остаются непонятными. По сути, это скрытое манипулирование жертвой.

Провокатор добивается своих целей, жертва же ни о чём не догадывается, а значит, не может оказать сопротивление.

С провокаторами всё несколько сложнее, чем с провокациями. Чтобы выбрать оптимальную тактику противостояния, нужно правильно идентифицировать «вид» провокатора. Можно выделить 5 основных видов:

- *Провокатор-политик*. Провокаторы, относящиеся к этому виду, готовы тратить время и силы на то, чтобы разрабатывать хорошо продуманные планы. Их цели могут быть разными. Но в любом случае они очень опасны, особенно если учесть, что они неплохо маскируют свою «подрывную» деятельность. Обнаружив такого провокатора среди знакомых, нужно сразу уяснить, что он очень опасен. С ним нельзя сильно сблизиться, но и ссориться лишний раз не нужно, ведь противостоять ему на его же территории будет очень сложно [5].

- *Вампир*. Многие провокаторы – это обычные энергетические вампиры, которые дестабилизируют обстановку вокруг себя ради получения «подпитки» от окружающих. Представители этого вида менее опасны, чем провокаторы-политики. И всё же от них тоже лучше держаться подальше, ведь хорошие дружеские отношения с ними всё равно построить не получится.

- *Сплетник*. Некоторым людям просто нравится собирать, множить и распространять сплетни. Оказавшись с вами наедине, они начинают «перемывать косточки» приятелям, коллегам и другим знакомым, которых нет рядом. С такими людьми нужно быть очень осторожным, поскольку в другой компании они точно так же ведут, могут распространять сплетни и обвинения так и о вас. Лучшая тактика общения со сплетником заключается в том, чтобы максимально отдалиться и стать для него «неинтересным», порой даже «ненужным».

- *Флагман справедливости*. Есть люди, изображающие из себя рьяных праведников, всеми силами бьющихся за правду. При этом сами они далеко не святые, но им это безразлично. Зато чужие прегрешения они старательно изобличают. Как правило, они очень агрессивны и при этом всегда уверены в своей правоте, в связи с чем могут представлять серьёзную опасность [7].

- *Обычный психопат*. Это может быть социопат или просто человек с неустойчивой психикой, агрессивно реагирующий на большинство внешних раздражителей. Как правило, у такого человека нет чёткой мотивации, но ему сложно держать себя в руках, и любое событие может вывести его из себя. Такие люди скандалят в очередях, хамят продавцам и кассирам, вызывая себе шумиху в общественных местах. Агрессивную реакцию они проявляют даже в компании людей, которых давно и хорошо знают [8].

#### **Вывод:**

Как мы уже выяснили, провокация может быть демонстративной или скрытой. Явная провокация обычно очевидна, а вот неявную распознать

сложно. О её наличии обычно сигнализирует чувство дискомфорта, возникающее при общении с провокатором, даже если он никак себя не выдаёт. Одна из причин этого чувства заключается в том, что такие люди неявно пробиваются через психологическую защиту жертвы, стараясь никак себя не выдавать. Если общение с каким-то человеком вызывает чувство дискомфорта, скорее всего, происходит неявная провокация.

Даже распознав провокатора, эффективно противостоять ему получается не всегда. Есть три важных правила, соблюдение которых, обеспечивает надежную защиту против агрессиям-провокациям:

- *Стоять на своём.* Человек, сомневающийся в себе – верная жертва провокаций. Поэтому надо всегда быть уверенным в своих словах и собственном мнении. Как бы ни вёл себя провокатор, нельзя показывать ему, что он заставил вас усомниться, поставил вас в не ловкое положение.

- *Никому никогда, ничего не объясните излишне.* Если вы осознали, что собеседник пытается вывести вас из себя или взять под контроль ваши эмоции, вы теряете самообладание, смело прекращайте разговор и сразу уйдите с того места. Таким путём вы сэкономите нервы, а провокатор не добьётся своего, то есть, не сможет побеждает вас [5].

- *Изучать себя [3].* Провокаторы сразу реагируют на слабые стороны своих жертв. Каждому преуспевающему человеку важно постоянно заниматься самоанализом, находить свои слабые стороны, честно признавать их наличие и заранее продумывать способы противостояния провокаторам, эксплуатирующим ваши слабости и недостатки [9].

Если вы понимаете, что поддались на провокацию – внимательно проанализируйте это положение. Догадывайтесь, какие именно слабости берет на прицел агрессор, как и почему он их нашёл, как ему удалось ими воспользоваться. Очень важно обдумать провокационную ситуацию и не оставлять её без внимания, не передавать её исход на произвол ежедневных обстоятельств, даже судьбы [10].

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## **МИР ТРЕТЬЕГО РЕНЕССАНСА: КРИТЕРИЯ МЫШЛЕНИЯ ИЛИ СОВРЕМЕННАЯ ИНТЕЛЛЕКТУАЛЬНАЯ ПОЭЗИЯ**

*Аннотация. в творчестве Абдул Хамида преобладают образцы стихов интеллектуального характера, многогранного, то есть полифонического тина: в строфах, парой. в слове даже, сожержатся, слиты несколько. образов, смыслов одновременно в едино. Тому, кто читает такие стихи, не следует торопиться с пониманием того, о чем идет речь. Стихи иногда требуют активного интеллектуального труда, творческого воображения и осмысления поклонника поэзии: в связи с чем возникла историческая личность или события, упомянутые поэтом, какова их причастность к идее данного стихотворения...*

*Ключевые слова: поэзия, поэт, сердце, вдохновение, родина, любовь*

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## **THE THIRD RENAISSANCE: CRITERIA OF THINKING OR MODERN INTELLECTUAL POETRY**

*Abstract. Abdul Hamid's work is dominated by samples of poems of an intellectual nature, multifaceted, that is, polyphonic tin: in stanzas, in pairs. in the word, even, they will survive, several are merged. images and meanings are simultaneously united. Anyone who reads such poems should not rush to understand what is being discussed. Poems sometimes require active intellectual work, creative imagination and comprehension of a poetry fan: in connection with*



*which a historical person or events mentioned by the poet arose, what is their involvement in the idea of this poem...*

*Keywords: poetry, poet, heart, inspiration, homeland, love.*

### **Вступление**

В 70-х и 80-х годах прошлого века пресса республик за рубежом и внутри страны бывшего союза начала развивать принцип, согласно которому термин "интеллектуальная поэзия" стал одним из самых необычайно активных слов, и, если не сказать больше, его следует считать авангардным проявлением современной поэзии [1]. Другими словами, поэтический продукт был искусственно разделен на два типа: традиционная поэзия, вытекающая из ее старого, испытанного древнего "я", и интеллектуальная поэзия, ищущая новую форму и содержание, которые было трудно понять. Насколько я помню, вчера начались споры о деятельности таких всемирно известных поэтов, как Леонид Мартынов, Эдуардас Межелайтис, Юстинас Марсинкявичюс, Ян Рисос. Естественно, эти споры начали находить отклик даже на границах узбекской литературы. В то время такие учителя, как Аскад Мухтар, Рауф Парфи, смогли создать прекрасные образцы интеллектуальной поэзии, которые открывали новое лицо, чуть позже исследования Абдували Кутбиддина, Бахрома Рuzимухаммада добавили новый цвет, новые тона в это направление.

Однако, после обретения независимости, гласности развитие художественного слова и литературной критики не слишком приветствовали метод анализа поэзии, отделяя его от традиционного диалекта, не смогли раскрывать сущность, логику, философию интеллектуальной поэзии. Потому что некоторые стихотворения такого рода появляются на свет простыми, беглыми, даже певучими, а некоторые чрезвычайно сложны, приближаясь к статусу загадки, если не сказать больше. Естественно, что образцы поэзии первой категории имеет много фанфар, потому что они, в основном, поэмы, были на поле поэтической битвы тысячи лет, пила воду из чаш народного устного творчества и носила платье игривых тонов. Обычно такие стихи легко запоминаются, быстро переходят с языка на язык, легко находят общий язык с мелодией. Второй тип стихотворений читается и понимается не всеми или не понимается вообще. Пятнадцать-двадцать лет назад в литературоведении вопрос "Объясните ли вы свое стихотворение?!" возник не зря [1].

В этот момент возникает логически обоснованный вопрос: должна ли поэзия вообще быть одинаково понятной всем? Что же, если упражнения некоторых поэтов понятны не всем читателям, не как два на два четыре, парой не быть более или менее сложны?!

Я думаю, что всегда останусь на сформированной позиции: современной поэзии понадобятся образцы обоих стихотворений. Причина в том, что точно так же, как некоторым поклонникам поэзии не нравятся

простые для понимания стихи, и некоторым невыносимо спокойствие до тех пор, пока не найдут мудрость, скрытую в глубинах строф. Они, даже если непомерные трудности, обязательно находят истинную сущность и все содержания многоликовых слов лирического героя! Подобная ситуация также неоднократно возникала в классической литературе, например, споры о смысле и содержании газелей Навои веками продолжаются. А также наличие 13 различных содержаний в одном четырех стихий (рубои) Абдулкадыра Бедила – не секрет. Вспомните легенду о том, что 14-е содержание было рассказано самим поэтом [1]!

В творчестве Абдул Хамида преобладают образцы стихов вышесказанного интеллектуального характера, многогранного, то есть полифонического типа: в строфах, парой. в слове даже, сожержатся, слиты несколько. образов, смыслов одновременно в едином. Тому, кто читает такие стихи, не следует торопиться с пониманием того, о чем идет речь. Стихи иногда требуют активного интеллектуального труда, творческого воображения и осмысления поклонника поэзии: в связи с чем возникла историческая личность или события, упомянутые поэтом, какова их причастность к идее данного стихотворения...

Обратимся к творчеству поэта:

“Сказано царю и нищему,  
Даже на Адам идущему:  
Противиться явной правде –  
Беда, волномысль Всевысшему!”  
Абдул Хамид

(В оригинале:  
“Сўзим шоху гадога [1]!  
Ҳатто Одам Атога:  
Ҳақиқатга қаршилиқ –  
Ширк келтириш Худога!”  
Абдул Хамид)

Те, кто говорят, что я легко откушу твердую кору, окружающую ядро идеи этой четверки, мне кажется, ошибаются. Потому что не пустяк является залогом призыва, брошенного в середину в самой первой строфе. Призыв к чести Адама в следующей строфе также является сигналом к действию. Тому, кто попытается пойти против истины, кем бы он ни был, королем или Крестным отцом, суждено однажды ответить. А делать что-то противоречащее Справедливости - это не что иное, как вод с Богом. Следовательно, даже король, обладающий неограниченной властью в своих руках, независимо от того, в каком веке он жил, когда-нибудь понесет ответственность за тиранию, которую он, совершил, безусловно [2].

## Материалы и методы

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

"Поэзия - это математика мысли", - говорит бескомпромиссный критик Вахаб Рахман. "Настоящее стихотворение может заключать в себе несколько скрытых слоев", - любил повторять признанный литератор Батирхан Акрамов, - "примеры такой поэзии будут у гениальных поэтов. Например, у Чулпан, Рауфа Парфиды и еще... у некоторых (учитель с уважением упомянул бы имя талантливого поэта Музаммеда Салиха, который сейчас живет за границей). Три, а то и четыре слоя поэзии иногда могут оказаться не в состоянии объяснить даже самое гениальное стихотворение критики. Если возникнет такая ситуация, можно будет ожидать последнего спасения от самого поэта" [2].

### Результаты и обсуждение:

Книга 7 в сборнике называется "Сад дружбы". В ней содержатся образцы упражнений поэта на русском языке. Создание стихотворения на русском языке узбекским поэтом не является экстраординарным уникальным явлением. Но все прекрасно знают, что создание на другом языке сопряжено с особой ответственностью: построение слов и предложений, порядок слов, удалось ли четко выразить цель - все это требует от создателя бдительности, чуткости, ответственности. Приятных аспектов двуязычности, конечно, много: каким образом используется лексическое значение каждого слова, не происходит ли излишнего абстрагирования, сомнительности, что это также привлечет внимание человека, который это читает. Например:

Муза натягивает милые струны [2],  
У клёна листопад подобно стону,  
Дрожь дошла аж до дубровы, по тому  
И звон души – на языке лесной страны!  
Абдул Хамид  
(В оригинале:  
"Соз торини илхом таранглар [2],  
Барг тўкади тинглаб заранглар,  
Куйдан титраш эманга етди,  
Ўрмон боғда созим жаранглар!"  
Абдул Хамид)

На наш взгляд, выражение "звонящий" в русском языке так брестяше, как в узбекском.

Из наших наблюдений можно сделать вывод, что творения, законченные на русском языке, создают впечатление, что наш поэт пришел в мир в процессе многократного видоизменения публикаций, вышедших на русском языке, изучения подробностей жизни и деятельности таких великолепных поэтов, как Пушкин, Лермонтов, Тютчев, Фет, Есенин, Маяковский, Бунин, кажется даже в тонких деталях наслаждался и увлекался всерьёз их своеобразными художественными стилями и приемами. Так что это тоже естественно. Постоянное чтение, неутомимое изучение предыдущих поэтов – ежедневная потребность даже для врожденных талантов. Давайте, вместе прочитаем стихотворение Абдул Хамида "Портрет Сергея Есенина":

*Сергей Есенин!.. Нет сравнимого поэта!  
Стараюсь на сцене нарисовать иконного портрета:  
По ночам любил ходит по крышам без парашюта,  
Очарован белой берёзой, не терпел красного цвета!  
Полководец смель, всегда входил в бой без жилета!  
Скандалист, стихами дерзал музей маск муниципалитета!  
Музикант, один сам сыграл целога квартета!..  
Поезд истории редько встретит такого пассажира,  
Жаль, хмурый проводник принял его как без билета [2]!*

Эти стихи, проникнутые легкой иронией, ехидством, но в то же время неподдельным чувством жалости, невозможно читать без волнения. "Хмурый пороводник" – образ культа дичности. Мы очень хорошо знаем, что достоинство талантливого человека для безжалостного, озлобленного правителя было одним вкусом. Возвращаясь к тому факту, скажу что таланты для диктаторов, тиранов, инквизиторов, палачей и пособников-исполнителей везде и всегда считались "опасными"... Но, на данный момент если скажу, что светская цивилизация, толерантность, дружба народов, блага человечества, прославление мира, Назависимость родной страны и родного народа стали лейтмотивом творчества Названного поэта, уверяю, будет сказана проявленная и неопровержимая истина [2]!

#### **Вывод:**

Можно много и хорошо говорить об образцах поэзии, сконцентрированных в сборнике. Однако заметно, что они не являются поддельными разработками, случайно попавшими на бумагу. Кажется, что у каждого стихотворения есть своя причина для создания и прототипы. На мишени сатиры и юмора поэта – люди, которые ходят вокруг нас, самодовольные расчетливые и фальшивые деятели, литераторы, одним словом – флюгеры, которые склонны меняться ежесекундно, алчные лидеры

и работададеди, в то же время наивные работяги, у которых трудовой пот на лбу, национальное бескорыстие, совестливые граждане, готовые жертвовать свои жизни за Родину, за справ...

К счастью, среди нас есть наши честные и непредубежденные соотечественники, которые высоко ценят человечество, которые могут оптимистично смотреть в наше завтрашнее день. Хотя мы не знаем их всех близко, даже если мы их не знаем, мы чувствуем, что мы их современники, знающие и живущие им подобными чувствами. Мы получаем от них идеологическую обработку, мы опираемся на них духовно. И нет никаких сомнений в том, что мы заложим фундамент третьего Возрождения вместе с такими чистыми, совершенными в вере личностями!

Стихи Абдул Хамида произвели на нас такое обнадеживающее впечатление [2].

### **МОЛОДЕЖЬ**

Как поэт прославился Ахад Каюм [2],  
Говорят, дай споем, дай споем!  
Как информатик вложив себя,  
В душе выиграл звонкий заём!

Эта независимость стиха и пения,  
Сердец показал искусного биения!  
В других областях случается тоже самое,  
Молодые профессионалы бьют гения!  
Пусть говорят люди про них всяких слов,  
Они словно кажутся как рыбаки без улов,  
Злостью ругают каждое сочное живое дерево,  
Не сумев найти для своих удочек сухих дров...

Сейчас молодым открыты все замки,  
Распахнуты все двери и ворота,  
Снимают со дверей именитые рамки,  
Одарённых приравнивают на золото!  
Везде признают талант есть талант,  
Достойным подарят льготный грант!

Уже старь путь  
Через ситовой воронки!  
Это заветное предназначение  
Независимости,  
Гения народной прозорливости!  
Молодежь, тебя считаем намного умнее нас,  
Вложи,

Покажи  
Себя  
В любой области!  
Родина от молодежи  
Ждет достойных наград,  
Ради чего не снимает совершенства наряд!

### **С ДЕТСТВА ЛЮБЛЮ ПАШНЮ...**

С детства люблю пашню,  
Водонапорную башню,  
На одной хожу, в другой лезу,  
В той и другой спою  
Песню [2]!

### **НА ПЕРЕВАЛЕ**

Куда скатываешься лошадинья?  
– “Жеребёнок мой на перевале,  
Где гонка без пощадины!  
Разве опережать стальных людей на воле!

Вот исконное резюме:  
Народа как  
Узбеки  
Догнать – безумие!

У них скоростные поезда,  
Конечно, уступит лошадиная езда!..  
Дайте, жеребцу  
Вагон-площадку,  
Задыхает, не подтянет до разъезда [2]!”

### **ЛЮБЛЮ ОТЧИЙ КРАЙ...**

Люблю отчий край, родной народ [2],  
У него есть свое, не стучит у других ворот...  
На пути помчится завидный корабль  
Достоинно, держит волн водоворот!

#### **Использованные источники:**

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## **МЕТОД ПОДГОТОВКИ ЛЕГЕНДЫ КАРТ НАСЕЛЕНИЯ**

*Аннотация. В данной статье освещается метод и методология картографирования населения, процесс и последовательность их создания.*

*Ключевые слова: население, карта, компоновка, легенда, типологическая легенда, объект, авторский оригинал, этнографический состав, картографический метод.*

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## **METHOD FOR PREPARING POPULATION MAP LEGENDS**

*Annotation. This article highlights the method and methodology of population mapping, the process and sequence of their creation.*

*Key words: population, map, layout, legend, typological legend, object, author's original, ethnographic composition, cartographic method.*

**Введение.** Карты населения занимают особое место среди социально-экономических карт, поскольку население непосредственно участвует в производстве и потреблении, естественном и многократном воспроизводстве. Население взаимосвязано с экономической и социальной сферой и требует совершенного знания условий, в которых оно живет. Знания о народонаселении преподают география, демография, этнография, социология, экономика и история.

**Основная часть.** Легенда карт населения должна быть полной, соответствующей содержанию и обозначениям оборудования, понятной,

краткой, логически структурированной по определенной системе, компактной. В зависимости от содержания конкретной темы, на социально-экономических картах могут использоваться разносторонние легенды, а именно, от простых легенд до самых сложных – типологических легенд. Если легенда описывает классификацию объектов (национальный состав и плотность населения), легенда представляется в виде таблицы, в которой указывается связь между объектами.

Но в большинстве случаев, например, классификация событий, нанесенных на карты движения населения, представлена в легенде в параллельном или последовательном порядке. При использовании пути последовательности необходимо решить задачу размещения объектов в одинаковом порядке. Обычно в легенде сначала приводятся качественные показатели, отражающие характер явлений, а затем приводятся количественные показатели, отражающие их относительные показатели. Если на карте населения показаны как точечные, так и площадные объекты, сначала размещается легенда точечного объекта, а затем легенда площадного объекта.

Разработка легенды типологических и синтетических карт – один из сложных процессов. При этом учитывается классификация между объектами: первым ставится высший класс, последующие места занимают низшие классы. В легенде синтетических карт условные обозначения необходимо определять логически.

Необходимо уметь подбирать и использовать условные обозначения при создании общегеографических и тематических карт, в том числе карт механического перемещения населения. Условные знаки должны быть выбраны в простой форме, в соответствии с содержанием, в то же время они должны быть совместимы с современными технологиями. Легенда очень важна при создании карт населения, поэтому легенду еще называют ключом к карте, потому что она раскрывает содержание карт населения. Прежде чем начать читать карту, ознакомьтесь с ее легендой. Легенда карты создается с помощью картографического программного обеспечения и поставляется с копией карты. При разработке легенды условные знаки, обозначающие различные особенности населения, должны не только соответствовать содержанию карты, но и быть логически законченными, простыми, разборчивыми и краткими.

**Составление карты населения.** Прежде чем начать говорить о компоновке карты, давайте познакомимся с сутью словосочетания компоновка.

Название карты, рамка, изображаемая область, врезка (разрез), карты, легенды, диаграммы, схема, таблица, профиль, графики и другие дополнительные ресурсы, которые помогают обогатить содержание карты, облегчить ее чтение. называется компоновкой.

**Авторский оригинал** – карта, нарисованная от руки или с помощью компьютерной графики, полностью выполненная на основе легенды, отвечающая всем техническим требованиям, точности и оснащенности. Процесс подготовки карт к публикации начинается с создания публикационных оригиналов (оригиналов). Они должны полностью соответствовать принятым технологиям и техническим требованиям получения бланков публикации. Оригиналы издания подготовлены методом фоторепродукции. Они должны быть в точности правильными и соответствовать содержанию оригиналов карты. Все их линии, цвета, полутоновые элементы и штриховые рисунки должны быть высокого графического качества.

Виды публикации оригинала.

**Оригинал строчной печати.** Композиция оригиналов штрихового рисунка составляется в зависимости от количества линейных элементов на печатаемой карте и количества использованных в печати цветов. Их называют разделенными, т.е. отдельными линейными печатными копиями (оригиналами) и готовятся они отдельно для каждого элемента карты. Например, линейная копия (оригинал) гидрографии - синего цвета, линейная копия рельефа - коричневого цвета, линейная копия железных и автомобильных дорог - черного цвета и т. д.

**Оригинал (копия) цветных фонов.** Копии цветных фонов, отдельные копии (оригиналы) цветных фонов изготавливаются для изображения контуров местности подготавливаемой к публикации карты своим цветом. Для каждого цвета создается отдельный цветной фон или копия цветовой сетки (оригинал). Например, водная поверхность океана, моря, озера и других гидрографических сооружений окрашена в синий цвет, контуры лесов — в зеленый, а песчаные пустыни - в коричневые точки и т. д.

**Оригинал (копия) записей.** Для всех записей на карте, готовящейся к публикации, готовится копия записей. Для представления качества и количества объектов на карте могут использоваться различные цветные метки топонимов, названий населенных пунктов, названий гидрографических объектов и текстов. Для каждого цвета изготавливаются отдельные письменные копии (оригиналы). Например, названия гидрографических объектов выполняются синим цветом, названия мест и населенных пунктов - черным, а названия природных заповедников и других особо охраняемых территорий - красным цветом.

Полутоновые копии.

Полутоновые печатные копии (оригиналы) изготавливаются с изображением постепенного затемнения или осветления цвета на готовящейся к публикации карте. Обычно экземпляры таких изданий готовятся в изображении рельефа (отмывки) и в изображении цветных кайм по границам государства.

Вышеуказанные печатные копии (оригиналы) изготавливаются путем нанесения рисунка на прозрачные основы, гравировки на пластике или методами электронной печати изображения печатных копий на фотопленке. Количество экземпляров (оригиналов) издания и последовательность их изготовления зависит от количества цветов, использованных в готовящейся к изданию карте, и принятой издательской технологии. Одной из главных проблем этого процесса является увеличение тиража издания. Процесс подготовки некоторых сложных карт к изданию, количество экземпляров (оригиналов) издания превышает 20 штук. Решение этой проблемы находится в использовании метода фотовоспроизведения, основанного на электронной подборке цветов и цветоделении. Подготовка высококачественных растровых печатных пленок, разделенных на цвета, осуществляется путем сканирования исходной синей карты, подготавливаемой к печати, с помощью электронных устройств подбора цвета и цветокоррекции. Он включает в себя следующие три процесса:

1. Процесс фоторепродукции фотографий, то есть формирование и составление фотоформата оригинала карты, готовящейся к публикации.

2. Подготовка бланка публикации, то есть подготовка бланка публикации на основе фотоформ.

3. Опубликовать карту. Тиражирование копии карты с использованием подготовленных бланков публикации, т.е. распечатка карты.

При электронном цветоподборе и цветоделении достаточно взять три негатива, исправленных по цвету и его тону. Первый - синий, второй - желтый, третий - красный. В процессе печати карты цвета этих негативов можно суммировать для печати карты в виде линий, цветов, полутонов и текстовых элементов любого желаемого цвета и тона. Четвертый негатив подготовлен для элементов черной карты.

При подготовке карт к изданию использование электронных лазерных систем цветоселекции и цветоделения, т. е. методики Кима, полностью освобождает подготовку издательских экземпляров от ручного труда. Они дают возможность быстро подготовить надежные и качественные фотоформаты из цветных карт и фотокарт достаточно большого формата (1-2м и больше) в автоматическом режиме.

Для увеличения тиража карты подготавливаются бланки публикации. Для этого визуальное содержание (фото) оригинальной публикации переносится на поверхность пластины или цилиндра из металла, резины или пластика, не меняющего своего состояния при высоких и низких температурах. Печатные формы имеют два разных печатных элемента, которые создают открытые пространства на первой бумаге.

В процессе публикации карты сначала распечатывается образец полосовых элементов, затем распечатывается образец цветных элементов (красочная проба) и получается их образец, т.е. оттиски. Путем сложения и

сравнения полученных изображений определяется значение элементов карты, напечатанных разными цветами. Проверяется точность и качество копии, полученной с элементов стержня. Учитываются подбор цветов фона и соответствие контуров, градация и растушевка гамм, правильность написания и размещения нот. Шаблон полосовых элементов и шаблон цветных элементов используются для корректуры карты в процессе печати и исправления ошибок печати.

Перед печатью карты и увеличением тиража распечатывается предварительный контрольный образец карты. На основании этой выборки определяют техническое состояние и режим работы издательского устройства. При этом проверяется, чтобы цвета и краски ложились четко и равномерно, цвета соответствовали контурам, цвета сливались друг с другом, исправлялись ошибки. После этого весь тираж будет опубликован.

При издании географических атласов, альбомов и других картографических произведений отпечатанные листы разрезаются по композиции атласа, сгибаются и переплетаются по блокам.

**Заключение.** Чтобы картографировать население в больших масштабах, необходимо сначала провести перепись населения и провести обширные исследования масштаба и содержания карт населения. Кроме того, необходимо будет подготовить географические информационные системы (ГИС) и автоматизированный банк данных для расширения картографирования населения.

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## **ФОРМИРОВАНИЕ И РАЗВИТИЕ ОАЗИСНЫХ ЛАНДШАФТОВ КАК ТИПА АНТРОПОГЕННЫХ ЛАНДШАФТОВ**

*Аннотация. Ландшафты оазисов являются составной частью антропогенных ландшафтов, которые за многие годы были изменены в результате интенсивного земледелия, а также прямого и косвенного антропогенного воздействия. Изучение формирования и развития оазисных ландшафтов, являющихся составной частью антропогенных ландшафтов, и их исследование приобретают актуальное значение. В данной статье рассматриваются факторы формирования и развития оазисных ландшафтов.*

*Ключевые слова: антропогенный ландшафт, ландшафтно-экологическая проблема, селитебные ландшафты, агроирригационные залежи, агроландшафты.*

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## **FORMATION AND DEVELOPMENT OF OASIS LANDSCAPES AS A TYPE OF ANTHROPOGENIC LANDSCAPES**

*Annotation. Oasis landscapes are a component of anthropogenic landscapes that have been altered over many years by intensive farming and direct and indirect human impacts. Studying the formation and development of*

*oasis landscapes, which are a component of anthropogenic landscapes, and their research are becoming important. This article examines the factors of formation and development of oasis landscapes.*

*Key words: anthropogenic landscape, landscape-ecological problem, selective landscapes, agroirrigated deposits, agrolandscapes.*

**Введение.** В последнее столетие в результате развития человека и научно-технической революции в значительной степени ускорилось распространение ландшафтных комплексов, созданных деятельностью человека на поверхности земли. В результате увеличения и расширения городов и деревень, резкого увеличения посевных площадей, строительства территорий, занятых автомобильными и железными дорогами, природные ландшафты сменились ландшафтами, созданными руками и разумом человека. Их широкое распространение на земной поверхности приводит к возникновению и бурному развитию особой отрасли ландшафтоведения - науки об антропогенном ландшафтоведении.

**Основная часть.** В научной литературе широко распространены различные варианты классификации антропогенных ландшафтов. Ф. Н. Мильков констатировал, что достаточно изменить любой из его компонентов, чтобы природные ландшафты стали антропогенными. А. А. Абдулкасимов, занимающийся исследованием оазисных ландшафтов Средней Азии и их морфологической структуры, определяет оазисные ландшафты следующим образом: « оазисный ландшафт – зональный тип антропогенного ландшафтного комплекса, это орошаемые сельскохозяйственные угодья, покрытые агробиоценозами, сформировавшимися под влиянием хозяйственной деятельности человека, широко освоенными в аридных климатических районах и постоянно управляемыми человеком». Ф. Н. Мильков считает орошаемые оазисы Средней Азии типом антропогенных ландшафтов с сильно измененными природными условиями, а А.Н.Ходжиматов рассматривает оазисные ландшафты пустынной зоны Узбекистана как результат взаимодействия двух разнокачественных систем - природы и общества.

Оазисные ландшафты отличаются от природных продуктивностью, улучшением состава, увеличением количества гумуса в почве и его равномерным распределением по почвенным слоям, наличием агроирригационных отложений. В результате интенсивного земледелия в оазисах на протяжении многих веков естественные почвы и растительный покров были заменены окультуренными почвами и растительностью.

Ландшафты оазисов являются прямым результатом орошаемого земледелия и многолетнего человеческого труда. Большое значение в создании и формировании оазисов имели освоение и агротехнические мероприятия, проводимые людьми. Хотя оазисные ландшафты считаются антропогенным ландшафтом, образовавшимся в результате изменения и

облегчения природных ландшафтов, они также могут превращаться в полностью нарушенные ландшафты вследствие неправильного воздействия человека на природу. Такие процессы вызваны развитием экологических проблем в оазисах, что в свою очередь вызывает неприятные ландшафтно-экологические проблемы в оазисах.

Как написано в исторических данных, между городами Бухара и Хива в древности существовали поселения с плотным населением, занимавшиеся орошаемым земледелием. В результате проведенных с годами ирригационных работ засоление почвы увеличилось, и жители были вынуждены покинуть свои дома. Некоторые оазисы сменяются селитебными (городами и деревнями) пейзажами. Исходя из этого, И. Р. Солиев предложил изучать процессы возникновения, формирования и развития оазисных ландшафтов на следующих этапах:

Этап 1. На этом этапе меняются природные ландшафты, появляются возделываемые поля. Мир растений и животных в природе претерпевает значительные изменения. Почвы сохраняют свое естественное состояние. Количество гумуса относительно невелико, гумусовый слой тонкий, продуктивность низкая, исчезают агроирригационные залежи. На этом этапе формирования оазиса характеристики микроклимата мало чем отличаются от климата природных ландшафтов. Население относительно немногочисленно.

Этап 2. На этом этапе культурные растения широко распространяются, и дикорастущие растения начинают уступать место культурным культурам. Некоторые виды животного мира меняют места своего обитания. Заметно интенсивное развитие животноводства и земледелия. Количество гумуса в почве увеличивается, образуются агроирригационные залежи, утолщается гумусохранилище, словом, повышается плодородие почвы и формируются окультуренные почвы. Плотность населения относительно увеличится. Образуются промышленные предприятия, обслуживающие преимущественно сельское хозяйство.

Этап 3. К этому этапу возрастут различные антропогенные нагрузки на оазисы. Резко увеличится плотность населения, разовьются экологические проблемы в результате неправильного природопользования, увеличится количество промышленных предприятий, уплотнятся дороги и укрепления населения. Дикие виды растений и животных сокращаются. Сельскохозяйственные поля сменяются антропогенными ландшафтами. Почвы становятся полностью окультуренными, агроирригационные отложения уплотняются, местами (в местах нарушения функции коллекторов и арыков) увеличивается количество солей в почве, местами она становится заболоченной.

Агроландшафты являются основной составляющей оазисных ландшафтов. Агроландшафты построены в различных формах

микрорельефа на разных гипсометрических высотах, и влияние на них фильтрационных вод также различно.

Кроме того, развитие культурных растений обеспечивается искусственным орошением несколько раз в течение вегетационного периода. Жаркие летние температуры активизируют процесс испарения влаги. В результате происходит засоление агроирригационных отложений и почвенного покрова, разбросанных по оазисам. Этот процесс существовал еще со времен древнего земледелия, и орошаемые земли имели возможность засоления на разных уровнях.

**Заключение.** В заключение, оазисные ландшафты представляют собой зональный тип антропогенных комплексов, отличающихся от окружающей среды не только природными условиями, но и сложностью морфологического строения. Поэтому оазисные ландшафты представляют собой зональную форму антропогенных геосистем, характеризующуюся хозяйственной деятельностью человека, распространенным орошаемым и весенним земледелием, покрытые агроценозами и постоянно контролируемые человеком. Желательно изучить возникшие в регионах ландшафтно-экологические проблемы, всесторонне проанализировать их, определить причины изменения масштабов оазисов, выявить проблемы эффективной организации орошения в этих регионах и разработать рекомендации по эффективной организации орошения.

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## **ЛАНДШАФТЫ РОЦА ХОРЕЗМСКОЙ ОБЛАСТИ И НЕКОТОРЫЕ ВОПРОСЫ ИХ МОНИТОРИНГА**

*Аннотация. Статья посвящена методам наблюдения за роцями, являющимися одним из природных ландшафтов Хорезмской области, по спутниковым данным, анализу динамики и устойчивости их развития. Показана важность данных спутника Sentinel 2A в этой работе.*

*Ключевые слова: ландшафты роца, пустыня, климат оазиса, Sentinel 2A, Copernicus, QGIS, ArcMap.*

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## **TUGAY LANDSCAPES OF KHOREZM REGION AND SOME ISSUES OF THEIR MONITORING**

*Annotation. The article focuses on the methods of observing the tugays, which are one of the natural landscapes of Khorezm region, using satellite data, and analyzing their development dynamics and stability.*

*Key words: tugay landscape, desert, oasis climate, Sentinel 2A, Copernicus, QGIS, ArcMap.*

**Введение.** В настоящее время среди компонентов природы, затронутых хозяйственной деятельностью человека, увеличивается

изменение и исчезновение растительного мира. Увеличение спроса на древесину и превращение лесных массивов в сельскохозяйственные угодья создают множество серьезных экологических ситуаций.

Сохранение ландшафты роцца Хорезмской области является одной из актуальных локальных экологических проблем современности, и долг всех нас способствовать сохранению естественных лесных ландшафтов и передаче их будущим поколениям.

Площадь ландшафты роцца Хорезмской области с каждым годом уменьшается из-за хозяйственной деятельности людей. Для сохранения лесных ландшафтов региона важно адекватно изучить эволюцию его развития и влияние деятельности человека.

**Основная часть.** Роцца – красивейший природный ландшафт Хорезмской области, микроклимат и флора, фауна и почвы развивались по особым законам. Роцци являются частью оазиса, богатого флорой и фауной.

Понятие «роцца» на самом деле является местным названием всех видов растений, которые растут в долинах рек в пустынных и бесплодных зонах. В некоторых случаях под роццами понимаются леса, встречающиеся только по берегам рек. Э.П. Коровин (1961) называет роццами леса, кустарники и растения, растущие по берегам рек. По нашему мнению, под термином «роцца» понимаются ландшафты, непосредственно связанные с водным режимом реки, формирующиеся в пустынно-бесплодной зоне, компоненты которых сложно связаны между собой, состоящие из травы, кустарников и деревьев.

Помимо влияния на эволюцию развития роццы реки Амударья, роцца также влияют на характеристики речной системы. Например, явление эрозии, замедляющее размыв берегов реки, обеспечивает устойчивость русла на определенный период. Географическое положение роццы в регионе, оазисный климат и водная составляющая обусловили их уникальность. Нынешние роцци занимают бассейн Амударьи и северо-восточную часть области по ее берегам. Основной растительный покров — деревья, а растительный мир исследователи делят на группы кустарников и трав.

В настоящее время активно ведется оценка развития роццы по реке Амударья области. По мере изменения русла Амударьи эти лесные ландшафты также могут стать остаточными лесными ландшафтами. Большое влияние на протекание этого процесса оказывает регулирование водного режима реки.

Роцци Хорезмской области можно разделить на 2 группы. Это:

1. Леса ценных деревьев;
2. Заросли с кустарниками и травами.

На сегодняшний день развитые зарубежные страны запустили в космос спутники различного назначения, и информация, полученная с них, активно используется практически во всех сферах. В частности,



пространственная информация особенно полезна в ландшафтных исследованиях.

Одним из таких является спутник Sentinel, который был запущен Европейским космическим агентством в рамках программы Copernicus для наблюдения за лесами, управления стихийными бедствиями и наблюдения за изменениями на поверхности Земли.

Их информация может быть использована для следующих целей.

- - мониторинг состояния земной поверхности для охраны окружающей среды;
- - сельскохозяйственные исследования, такие как продовольственная безопасность, мониторинг и управление урожайностью;
- - идеальная растительность, мониторинг леса, концентрация хлорофилла в листьях, выделение углекислого газа;
- - мониторинг прибрежных территорий и их картографирование;
- - мониторинг внутренних вод и ледников, их картографирование, мониторинг снежного покрова;
- - картирование паводков и управление ими.

Для получения данных Sentinel-2 необходимо авторизоваться и зарегистрироваться на сайтах Национального агентства по аэронавтике и исследованию космического пространства (NASA) США <http://earthexplorer.usgs.gov> и <http://glovis.usgs.gov> и Европейского космического агентства <https://ssihub.copernicus.eu>. Данные собираются в необходимые месяцы и выбирается регион объекта исследования.

Используя данные Sentinel-2A, теперь можно получать регулярный, актуальный сбор данных, эволюцию и информацию о землепользовании, убранных, заготовленных и выжженных площадях.

В таблице 1 ниже представлены сводные данные о диапазонах (слоях) Sentinel-2A.

**Таблица 1.**

**Сводка диапазонов (слоев) Sentinel-2A**

Слой Sentinel-2	Центральная длина волны (µm)	Пространственная точность (m)	Ширина слоя (nm)
Слой 1 - Прибрежные аэрозоли	0.443	60	20
Слой 2 - Синий	0.490	10	65
Слой 3 - Зеленый	0.560	10	35
Слой 4 - Красный	0.665	10	30
Слой 5 - Растительность (Red edge)	0.705	20	15
Слой 6 - Растительность (Red edge)	0.740	20	15
Слой 7 - Растительность (Red edge)	0.783	20	20
Слой 8 - Ближний инфракрасный (NIR)	0.842	10	115
Слой 8A - Верх близок к инфракрасному (Narrow NIR)	0.865	20	20
Слой 9 - Водяной пар	0.945	60	20

Слой 10 - Коротковолновое инфракрасное излучение для перистых облаков (SWIR-Cirrus)	1.375	60	20
Слой 11 - Коротковолновый инфракрасный (SWIR)	1.610	20	90
Слой 12 - Коротковолновый инфракрасный (SWIR)	2.190	20	180

Данные, полученные с этого спутника, очень полезны при мониторинге и анализе динамики лесных ландшафтов, что является одним из объектов нашей исследовательской работы. Благодаря этому вы можете создавать большие карты.

По геоизображениям Sentinel-2A можно определить основные ареалы распространения и площади рощы. Разработав программу на основе информационных технологий, можно создать новую базу данных, введя в программу полевые данные и другие крупномасштабные данные. Программы ArcGIS и QGIS можно использовать для мониторинга лесов по полученным геоизображениям.

***Заключение.** В заключение, используя данные Sentinel-2A, можно регулярно собирать актуальные данные об эволюции, землепользовании, лесах, вырубленных, вырубленных и выжженных площадях.*

Среди них можно будет отслеживать изменения деревьев, кустарников и растений, разбросанных по рощам с течением времени, определять типы деревьев, их возраст и размер древесины, непрерывную идентификацию и измерение мониторинга жизненного цикла, увеличение насаждений путем оптимизации рощ, здоровье деревьев: определение аномалий здоровья путем мониторинга листьев, определение такой информации, как влажность, индекс площади листьев и уровень хлорофилла. Используя периодическую точность Sentinel-2A, мы можем анализировать изменения рощ с годами, расширяются они или сокращаются.

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# СОВРЕМЕННЫЕ ТЕХНОЛОГИИ УПРАВЛЕНИЯ ОРГАНИЗАЦИЕЙ

УДК: 004

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## TECHNICAL CONDITIONS, DEADLINES AND BASIC PRINCIPLES OF STANDARDS IMPLEMENTATION

*Abstract: standardization is always aimed at solving important practical problems and serves scientific and technological progress. As we have already said, the development and revision of existing state standards of a new type is carried out in accordance with the “republican standardization plan for the development and revision of existing state standards of a new type”, which is formed annually. It is conducted according to certain principles*

*Keywords: standard, specification, implementation, principle, action, order.*

### **Introduction**

In modern conditions of trade with foreign countries, international economic relations, and certification, there is an increasing need to improve the quality of products, increase their competitiveness, and conduct regular tests. Tests are often performed by a so-called third party or organization. The testing organization (individual) acts absolutely independently, protecting the interests of all interested parties, primarily the supplier (first party) and the buyer (second party) [1,2].

The concept of certification in a broad sense is any verification of compliance of a product or process with technical standards, working methods, rules, carried out by a third-party tool. Therefore, considering certification as a check, it is necessary to understand the conditional check carried out by bodies carrying out technical supervision to ensure safety during operation of pressure vessels, explosion-proof devices, ships, watercraft, aircraft, nuclear reactors and mining equipment [3,4,5,6,7].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations,

surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The subject actively involved in activities related to certification is an expert auditor. He can usually participate in the certification of quality systems, production processes and products, as well as in the accreditation of testing laboratories.

An expert auditor is a certified person who has the right to evaluate and control the activities of institutions and enterprises in the field of certification.

An expert auditor may be a private person with sufficiently deep knowledge and experience of working with pilot production enterprises, scientific, educational and design institutions, as well as with established regulatory documents and experimental testing facilities certified in accordance with the procedure established by Uzstandard [1].

### **Results and discussion:**

The expert auditor performs the following functions:

- certification of products, processes, services, quality systems and production;

- monitor the characteristics of certified products, processes and services, as well as certified quality systems and production stability;

- control over the activities of accreditation and certification bodies, testing laboratories;

- give recommendations on certification.

Expert auditors have certain rights and obligations under the responsibilities assigned to them.

Currently, international ISO 9000 series standards are widely used.

The standards of this series are the main standards for quality control and assessment – international models designed for the implementation of quality systems worldwide, and serve to coordinate activities in the following areas [8,9,10,11,12]:

ISO 9000 - "Standards for general quality management and quality assurance. Guidelines for selection and application";

ISO 9001 - "Quality systems. A model that ensures quality in design, production, assembly and use";

ISO 9002 - Quality systems. A model that ensures quality during production and assembly";

ISO 9003 - "Quality systems. A model that ensures quality during comprehensive control and testing";

ISO 9004 - "Elements of common quality management systems. Guidelines";

ISO 10011 - "Guidelines for the verification of quality systems";

ISO 10012 - "Requirements ensuring the quality of measuring instruments".

There is a special standard in our republic to ensure uniformity of terms and definitions in the field of certification. This is the UzRST 5.5-93 standard. The

terms and definitions are called. This standard defines the definitions of terms and basic concepts in the field of certification used in science and technology. Similar definitions of the main terms are contained in the convention of the Republic of Uzbekistan "On certification of products and services" [16], in a number of national standards [13,14,15].

#### **Conclusion:**

The terms presented in the standard should be used in official documents if they are defined in the standards. In such documents, it is prohibited to use a synonym instead of a standardized term. However, it is allowed to change the form of presentation of the established definitions, if necessary, without violating the boundaries of the meaning of concepts [1].

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## **THE PERMISSIBLE ERROR OF THE MEASURING DEVICE AND THE RULES FOR CHOOSING THE MEASURING INSTRUMENT**

*Annotation. The marginal allowable error of a measuring instrument is the greatest error that a measuring instrument can be considered fit and allowed to use. When choosing measuring instruments, the following rules are followed: the accuracy parameter of the measuring instrument must be sufficiently higher than the accuracy of preparation of the object being measured. The labor requirement and cost of measurements should be small enough to ensure as high productivity as possible as well as savings.*

*Keywords: physical size, measuring instrument, measurement accuracy, selection.*

### **Introduction**

When analyzing the results of measurements, the actual quantities of physical quantities are compared with the results of the measurement [1,2]. The difference between the measurement result (X) and the actual amount (Q) of the magnitude being measured is called the error of measurement of the moment.

$$\Delta = X - Q(1)$$

The measurement results and the quality level indicating how close the actual quantity of the magnitude being measured are called the accuracy of the measurements.

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Measurements classify errors according to the causes and type of formation. In terms of the reasons for formation, size errors are decomposed into the following compositions.

The method error is the result of the imperfection of the measurement method. The style error is also structural and consists of a set of errors, such as some organizers: the display error of the instrument, the error associated with changes in tempe The count error is the result of not getting a sufficiently accurate

count from the measurement results, and depends on the personal characteristics of the count taker.

Tool error is the measurement tool error applied. The measurement tools error is divided into basic and additional errors. As the main error, errors characteristic of measuring instruments used under normal (regulatory) conditions are acceptable. An additional error is made up of the error caused by the measurement exchanger error and deviations from regulatory conditions. With fixed error limit setting, the errors of measuring instruments are normalized.

The marginal allowable error of a measuring instrument is the greatest error that a measuring instrument can be considered fit and allowed to use.

When choosing measuring instruments, the following rules are followed:

The accuracy parameter of the meter must be sufficiently high as the accuracy of preparation of the object being measured.

The labor requirement and cost of measurements should be small enough to ensure as high productivity as possible as well as savings.

Insufficient accuracy of measurements leads to the release of part of the suitable product into the defect, at the same time to the acceptance of the defect as a suitable product. The excessive accuracy of measurements is usually the cause of excessive labor demands and costs that go to control the quality of products.

### **Results and discussion:**

When choosing measuring instruments, the organizational, technical conditions of the implementation of the control or measurement process, the specific aspects of the controlled details in the system, the accuracy of preparation, as well as the effectiveness of the use of measuring instruments and a number of other factors affecting Metrological indicators are considered.

The main factors to follow when choosing measuring instruments:

type of production;

structural features and dimensions of controlled details;

the error of measurements allowed by standards.

The most fundamental factor in the choice of measuring instruments is the permissible error of measurement served by the Met of the moment.

the amount of met depends on the input of the preparation of the detail,  $t$ , which in turn is related to the nominal size and the quotient.

The fixed measurement error of the nut must be smaller than the controlled insertion  $T$  of the met object.

The basic principle of the choice of measuring instruments is based on the cross-comparison of the measurement error allowed by the marginal (most likely) correspondence of the dimension (the moment of the moment). Often the allowable measurement error (e.g. met) is found with respect to the preparation position ( $T$ ) of the detail by the formula:

$$\Delta_{\text{met}} = (0,2 - 0,35)T(2)$$

Thus, when choosing a measuring instrument (instrument), its marginal error is compared to the permissible measurement error (a MeT of a circuit). In this case, the fulfillment of the following relationship is checked:

$$\Delta_{\text{lim}} \leq \Delta_{\text{met}}(3)$$

At the expense of measurement errors, the separately measured X size is not calculated in general as the actual amount of this size. It is necessary to make several measurements to assess the accuracy of the measurement and determine the amount of the magnitude being measured at a certain probability. In this case, instead of the actual amount of the magnitude X being measured, its average arithmetic amount is assumed to be:

$$\bar{x} = \frac{1}{N} \sum_{i=1}^N x_i (4)$$

where N is the number of measurements; xi is the result of a separate measurement:

So that we have to X let's have a causal equality, to assess the accuracy of his probable infallibility to know the moment, i.e.  $\bar{x} - e_{\beta} < x < \bar{x} + e_{\beta}$

### Conclusion:

Using the student distribution, here: TG is the coefficient of probability of reliability it is the probability of reliability and the degree of freedom depends; s is the value of the average arithmetic deviation of the measured magnitude x [5]:r the amount of probable error can be estimated by the reliability of the output, or vice versa, through the given reliability of:

It is possible to evaluate the reliability of the result by means of a given amount of probable error by a given amount of error, or vice versa, the probability error by a given reliability of the result is found in the cell of a given error:

$$e_{\beta} = \text{tg}\beta S / \sqrt{N} (5)$$

where: TG is the smoothness coefficient u reliability probability depends on the degree of freedom of the moment and the degree of freedom of the moment; s is the value of the arithmetic mean deviation of the measured magnitude x [5]:

$$S = \sqrt{\sum_{i=1}^N (x_i - \bar{x})^2 / (N - 1)} (6)$$

As a degree of freedom (K), the quantity reduced by the number of observations (N) equal to the number of details(1) being determined is accepted (K=N-1). At a certain degree of freedom in K, one finds the Student coefficient by giving reliability:

$$\text{tg}\beta = e_{\beta} / \sigma_x = e_{\beta} \sqrt{N} / \sigma, (7)$$

( $\sigma_x = \sigma / \sqrt{N}$ ). where the mean square error for a set consisting of quantities  $\sigma_x$  - N mean is, ( $\sigma_x = \sigma / \sqrt{N}$ ).

You tgβ and  $\sigma_x$  the value of x is known, then  $e_{\beta} = \text{tg}\beta \cdot \sigma_x$ ,  $\sigma_x$  can also determine the interval for greater reliability. Then the measurement result can be written as follows [6]:

$$x = \bar{x} \pm e_{\beta}.(8)$$

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## **HALTER HARDENING AND QUALITY STANDARDS**

*Annotation. The concept of certification in a broad sense is any examination of the compliance of a product or process with a technical norm, style of work, rule by third-party means. Therefore, certification inspection is hsoblab, it is necessary to understand the conditional inspection carried out by the technical control installation agencies in order to ensure safety in the use of pressure vessels, explosion-proof devices, ships, floats, aviation vehicles, atomic reactors and Mountain Equipment*

*Keywords: standard, certificate, verification, testing, National, International, auditor.*

### **Introduction**

In the current conditions, the need for trade with foreign countries, international economic relations, improving the quality of ertifiable products, increasing the ability to compete, regularly testing them is growing. Tests are often carried out by a person or organization called a third party. A tester organization (individual) acts absolutely independently, protecting the interests of all parties with economic interests, first of all, the provider (First party) and the buyer (second party) [1,2].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The concept of certification in a broad sense is any examination of the compliance of a product or process with a technical standard, style of work, rule by third-party means. Therefore, certification inspection is hsoblab, it is necessary to understand the conditional inspection carried out by the technical control installation agencies to ensure safety in the use of pressure vessels, explosion-proof devices, ships, floats, aviation vehicles, atomic reactors and Mountain Equipment [3,4,5,6,7].

## **Results and discussion:**

An active participant in the activities related to certification is a sub - expert-auditor. It can usually participate in the accreditation of quality systems, manufacturing processes and product certification, as well as testing laboratories.

As an expert-auditor, it is said to an attested person who has the right to assess and control the activities of institutions and enterprises in the field of certification.

As an expert-auditor, a private person with sufficient in-depth knowledge and experience in working with experimental-production enterprises, scientific, educational and design institutions and established regulatory documents and experimental means, attested in the manner prescribed by Özdavstandart [1].

The expert-auditor performs the following tasks:

- certification of products, processes, services, quality systems and production;
- control the descriptions of certified products, processes and services and the stability of Certified Quality Systems and production;
- control over the activities of accreditation agencies, testing laboratories for certification;
- to make recommendations for certification.

Expert-auditors have certain rights and obligations on their responsible duties assigned to them.

Currently, ISO international standards in the 9000 series are widely followed.

The standards in this series are considered to be the main standards for quality control and estimation intended for the global implementation of quality systems – international models and serve to coordinate activities in the following areas [8,9,10,11,12]:

ISO 9000 is "Standards for overall quality management and quality assurance. Guidance on selection and application";

ISO 9001 - "Quality Systems. A model that provides quality in design, production, assembly and use";

ISO 9002 - "Quality Systems. Model that ensures quality in production and assembly";

ISO 9003 - "Quality Systems. A model that provides quality in complex control and testing";

ISO 9004 - "Elements of quality general management systems. Guidance";

ISO 10011 - "Quality systems inspection guidance";

ISO 10012 - "Requirements that ensure the quality of measuring instruments".

There is a special standard in our republic to ensure that terms and definitions in certification sox are uniform when laughing. this is standard UZRST 5.5-93. are referred to as terms and definitions. this standard defines the definitions of terms and basic concepts in the field of certification used in science



and technology. the definitions of such basic terms are given in the konun of the republic of Uzbekistan “On the certification of products and services” [16], and in a number of national standards ham [13,14,15].

from the official documents of the terms presented in the standard, they are defined in the standards without candide, so that the kilingan bulsa must be used in such cases. in such documents, it is forbidden to use its synonym in place of the standardized term. however, it is allowed to change the form of statement of defined definitions without violating the meaning limit of concepts when necessary [1].

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## **RULES FOR THE STATE CONTROL OF MEASURING INSTRUMENTS**

*Annotation. According to the law of the Republic of Uzbekistan "on metrology", the asossan - Uzbekistan technical regulation agency ("technical regulation agency") carries out state management of Metrology-related activities. The rules of procedure for conducting state control of measuring instruments are established by the law of the Republic of Uzbekistan "on Metrology" (in the new edition, April 7, 2020, number Orq-614), decrees and decisions of the president of the Republic of Uzbekistan, orders and decisions of the Cabinet of Ministers*

*Keywords: measurement, motor, control, metrology, system, rule.*

### **Introduction**

The rules of procedure for conducting state control of measuring instruments are established by the law of the Republic of Uzbekistan "on Metrology" (in the new edition, April 7, 2020, number OORQ-614), decrees and decisions of the president of the Republic of Uzbekistan, orders and decisions of the Cabinet of Ministers [1,2,3].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Including:

Law No. 412-I of the Republic of Uzbekistan "on the rational use of Energy" dated April 25, 1997

Law of the Republic of Uzbekistan "on metrology". The current law of the Republic of Uzbekistan dated April 7, 2020 Oorq-614 "on Metrology". amendments and additions to the law of the Republic of kiston were adopted in a new version based on the law".

Decree of the president of the Republic of Uzbekistan dated December 12, 2018 No. 4059 "on measures for the further development of technical regulation, standardization, certification and metrology systems

Decree of the Cabinet of Ministers of the Republic of Uzbekistan dated October 11, 2018 No. 815 "on the development of a network of compressor

stations for filling cars with gas and additional measures to ensure the phased transfer of vehicles to compressed natural gas, as well as the safe use of gasballon equipment in them

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan “on the application of size units in the Republic of Uzbekistan” dated January 10, 2018 No. 21;

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated February 15, 2018 No. 112 " on measures to improve the Metrological control of laboratory and diagnostic equipment used in medicine;

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated March 22, 2018 No. 211 " on measures to ensure the production of railway products that meet international quality standards and safety of use;

The decision of the Cabinet of Ministers of the Republic of Uzbekistan dated September 19, 2018 No. 745 " on urgent measures for the safe use of vehicles equipped with gas cylinders, as well as centralized boilers operating on natural gas;

The decision of the Cabinet of Ministers of the Republic of Uzbekistan "On the organization of the activities of the Research Institute of standardization, certification and technical regulation of the Özstandart agency” No. 220 dated March 14, 2019;

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 24, 2019 No. 348 “On measures to further improve the activities of the agency for Standardization, Metrology and certification of Uzbekistan”;

Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated May 28, 2019 “On approval of the concept of development and improvement of the national system of ensuring the unity of measurements for the period 2019-2023”No. 440;

The decision of the Cabinet of Ministers of the Republic of Uzbekistan dated August 20, 2019 No. 698 “On approval of administrative regulations for the provision of state services for the collection, comparison and installation of vest Energ, Natural Gas, drinking and hot water accounting equipment (meters) of legal entities and individuals;

The decision of the Cabinet of Ministers of the Republic of Uzbekistan dated August 29, 2020 No. 528 “ On additional measures to improve the procedure for providing metrology services in the Republic of Uzbekistan”.

### **Conclusion:**

According to the law of the Republic of Uzbekistan "on Metrology" asossan - the technical regulation agency of Uzbekistan ("Technical regulation agency") carries out state management of activities related to metrology [4,5].

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3. O`zbekiston Respublikasi Prezidentining 2021 yil 2 iyun PQ 5133-sonli “O`zbekiston Respublikasi Investitsiyalar va tashqi savdo vazirligi huzuridagi O`zbekiston texnik jihatdan tartibga solish agentligi faoliyatini tashkil etish chora-tadbirlari to`g`risida” Qarori.
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## **THE MAIN PARAMETERS DETERMINING THE QUALITY OF THE PRODUCT**

*Annotation. A quality indicator of a product is a quantitative detail of the properties considered taking into account certain conditions of creation, use or application of a product. Quality pointers are divided into separate and complex pointers. If a separate pointer represents one of its properties, the complex pointer takes note of several properties*

*Keywords: product quality, quality integral indicator, quality indicator level, quality control, standardization control, technical control.*

### **Introduction**

on the function of the product, indicate the suitability of the product to meet certain specified requirements. Quality is considered an objective detail and is formed as a result of the labor activity of those who are busy with the design, preparation and use of the product [1,2].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

It is said that the quality of an industrial and construction product is a set of properties that, depending

A product quality indicator is a quantitative detail of the properties considered taking into account certain conditions of creation, use or application of a product. Quality pointers are divided into separate and complex pointers. If a separate pointer represents one of its properties, the complex pointer takes note of several properties [3].

### **Results and discussion**

An integral indicator of product quality - a complex indicator, represents the ratio between the total useful effect obtained from the use or consumption of a product and the total costs that went to its creation, use or consumption. The base (base) indicator of quality is the indicator adopted for the base when comparing and evaluating the quality of a product [4].

Product quality indicator level is a relative detail based on the comparison of product quality indicators with indicators adopted for the basis.

Quality control-to check the compliance of the quality of the product with the requirements specified in the standards, technical conditions, supply agreement, passport of the item and other similar documents.

There are different manifestations of quality control in industry and construction.

Standardization control is carried out at the design stage, in the process of which the compliance of all technical documentation developed for the upcoming item with the current standards and regulatory and technical documentation is checked, as well as important indicators of the prospective item, indicators specific to the main task, the level of standardization and Unification, technological and other indicators are controlled.

In terms of Labor consumption, cost and complexity, quality control performed by technical control services is of great importance in the process of product preparation [5].

#### **Conclusion:**

Technical control-checking the processes of product preparation and the compliance of the finished product with the technical requirements. The main task of the enterprise technical control service is to prevent the output of products that do not satisfy the established requirements [6].

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## **METROLOGICAL TESTING IN THE BUILDING MATERIALS INDUSTRY AND TASKS OF ACREDITATED TESTING LABORATORIES**

*Annotation. Construction laboratories test materials, structures, objects and details, prepare documents for representatives of technical control offices, establish laboratory control over construction processes.*

*Key words: material, construction, testing, strength, time.*

### **Introduction**

Testing is the determination of the values and quality indicators of product parameters in an experiment, in the process of operation or in conditions that are approximated to working conditions. As test objects can be materials, nodes, structures, buildings and structures, whole-headed technical systems [1].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

In addition to nature tests, tests are also carried out on reduced or enlarged mockups made using a theory of similarity or in the size of the natura specially prepared from one material or another.

In the process of testing, the item is subjected to one or more effects. Thanks to this, the properties of interest in the study, details, parameters or quality indicators of the item are determined. When testing various materials and structures, it is common to study properties such as strength, stiffness, resistance to cold and heat, stagnation under the influence of aggressive environments, enveloping predisposition, fatigue, irritability, as well as cracking, water, air, heat and soundproofing]2].

### **Results and discussion:**

In terms of types of testing, each country has its own standards, which define the methods and conditions of testing, modes, shapes and sizes of samples.

Tests are divided into control and research tests on their objects.

Control tests are said to be tests performed only in natural samples, for control purposes in the production, use and storage process of product quality [3,4,5,6,7].

Research tests are said to be tests that take place with the aim of studying the parameters, properties and quality indicators of a product. These tests can be performed in natura or mockups [1].

In research tests, operational (use) tests of the finished product occupy a special place.

**Conclusion:**

Construction laboratories test materials, structures, objects and details, prepare documents for representatives of technical control offices, establish laboratory control over construction processes.

The following obligations are charged to the construction laboratories:

- control compliance with these recipes in the preparation of building mixtures, concretions, water protection compositions, anti-corrosion coatings, selection of compositions for finishing and roof coatings, composition of recipes and composition;

- testing of structures prepared at the enterprises of the Trust (Association) in accordance with norms, technical conditions and other regulatory and technical documents;

- taking samples of materials, concretions, mixtures, water protection compositions, paints used on construction sites and testing them;

- testing the grunt under the foundation;

- participation in the work of the board to determine the reasons for the poor quality of construction and installation work and the falakat that occurred in the construction;

- preparation of the necessary documents on the results of laboratory tests carried out to provide advertising when low-quality building material, items and structures arrive at the construction;

- control the heating mode of concrete and reinforced concrete structures laid in the winter season;

- Organization of systematic-based verification of measuring and testing instruments;

- to verify compliance with the requirements of the state standard in the procedure for using, servicing and maintaining measuring instruments;

- preparation of conclusions on inventions and proposals for rationalization, sending to the appropriate courts;

- study of the quality of industrial waste, the properties of materials intended for use in construction [1].

State sanitary control and state fire control check the fulfillment of the relevant requirements during the construction period, compliance of projects of new structures with sanitary and oil safety requirements [2].

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## **THE SYSTEM OF TECHNICAL AND ECONOMIC INDICATORS OF THE QUALITY OF INDUSTRIAL AND CONSTRUCTION PRODUCTS**

*Abstract: product quality management systems in industry and construction ensure the consistency of high rates of technical level development at the production stage. When developing complex and responsible products, special work plans are drawn up in the quality management process. The development of samples of new products is possible in special design research or design institutes, design and technological departments at industrial enterprises. The focus is on the fact that the sample of this item is new compared to the hakikat sample or that the items in production have been improved.*

*Keywords: product, production, machinery, technology, consumer, competition, quality, economic efficiency, social factor.*

### **Introduction**

The set of works, including the selection of a range of quality indicators of the specified products, the determination of the wear of these indicators and their comparison with the wear of the founder, is called an assessment of the level of product quality [1].

The rationale for choosing the nomenclature of product quality indicators is based on the following:

- Terms of use and product features;
- analysis of consumer demand;
- the described composition and structure of product quality;
- basic requirements for quality indicators [2].

### **Materials and methods"**

This includes empirical methods such as modeling, fact-finding, experimentation, description and observation, as well as logical and historical methods, theoretical methods such as abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. Research materials: scientific facts, results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The factors affecting product quality can be divided into four categories:

- a) technical;
- b) organizational;
- c) economic;
- g) social.

Technical factors include the equipment, the state of technical documentation for devices and controls; the quality of raw materials, raw materials, semi-finished products, and the like.

Organizational factors include planned work, maintenance and repair of equipment; availability of materials, components, equipment, technical documentation and equipment controls; production culture; scientific organization of labor; organization of meals and rest during working hours, etc.

Economic factors include the forms of payment for the cocktail, the amount of its monthly salary; material incentives for production and high-quality labor; deduction from the monthly salary for the unsuitability of the product; the level of its quality; cost; the price of the product and the like.

Social factors include recruitment, placement of personnel; organization of professional development; organization of scientific and technical creativity, creativity and ingenuity, living conditions, relationships, psychological climate in the team, educational work [3].

#### **Results and discussions:**

The formation of product quality is manifested at all its life stages -in research and design work, production, circulation; in consumption or the process of use.

Scientific research and design work occupy a crucial place in improving product quality. This stage is the beginning of the formation of quality, which is achieved both as a result of the application of scientific and technological progress, and as a result of the preparation of regulatory documents in compliance with the economic indicators established for the circulation, consumption or use of the product for its production. At this stage, the following activities are carried out [4]:

- a) development and implementation of regulatory documents;
- b) to carry out self-monitoring of compliance with the standard;
- c) forecasting and rationing of the product quality level;
- d) development of design and technological measures aimed at achieving the planned level of product quality, implementation of measures for the preparation, testing and control of various methods;
- d) analysis of information on the quality of similar products manufactured here and abroad;
- e) classification and determination of product quality indicators, as well as assessment of the quality level.

Product quality management systems ensure the constant development of the technical level at the production stage at a high rate [5\].

When developing complex and responsible products, special work plans are drawn up in the quality management process. The development of samples of new products is possible in special design research or design institutes, design and technological departments at industrial enterprises. The focus is on the fact that

the sample of this item is new compared to the hakikat sample or that the items in production have been improved [6].

Choosing the optimal technological processes at the stage of preparing a product for development is a difficult and responsible task, since at this stage there is a complexity of continuous technology and the need to improve the economic performance of production. Improving the quality of products at the preparation stage is one of the main tasks of the enterprise [7].

### **Conclusion:**

And at the stage of manufacturing the product, the following measures were supposed to be carried out [8]:

- a) direct preparation of the product;
- b) ensuring and quality control of equipment, equipment, control and measuring equipment at the proper level;
- c) preparation and implementation of measures to improve product quality, prevent spoilage, eliminate the causes of production of products that do not comply with regulatory documents [9];
- g) implementation and strict compliance with regulations;
- d) establishment of control of raw materials entering the enterprise at the entrance of materials, semi-finished products;
- g) establishment of control of products during work, acceptance and counting;
- h) compliance with audit control, regulations [10]
- I) collection, accumulation of information about the quality of the product at the stage of use, accounting and analysis of its unsuitability, possibilities about it;
- j) to ensure and control the transportation of raw materials, semi-finished products and finished products in warehouses, by intra-company transport in accordance with the requirements of regulatory documents;
- l) material and moral incentives for employees of the enterprise to produce products of a specified quality level, etc [11].

In production associations and enterprises, product quality management systems ensure the achievement of set goals and objectives at the production stage.

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- O'z DST ISO 14011 - Application for audit of quality management systems and environmental protection system

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## **INTERNATIONAL STANDARDS ISO 2000, 2001 – QUALITY MANAGEMENT SYSTEM AND REQUIREMENTS**

*Abstract: for effective and stable operation, each enterprise must ensure the planned volume of output, comply with deadlines, achieve low production costs and at the same time ensure the required level of quality. The difficulty in achieving these goals lies in the fact that in practice the issues involved conflict with each other. An increase in output and a reduction in time often leads to a decrease in quality, while improving quality usually requires additional costs and leads to a decrease in production rates.*

*Keywords: market economy, international cooperation, integration, quality management, standard, terms, glossary, sands.*

### **Introduction**

In a market economy, when an enterprise cannot predict the competitiveness of its product, no investment can save it from a financial crisis. High quality is the basis of competitiveness. Of course, competitiveness includes product price, delivery time, efficiency, guarantees and a number of other indicators besides quality, but quality accounts for 70% of the total competitiveness indicator. Buyers and customers prefer quality as the ultimate goal when choosing a product [1].

To ensure the necessary level of quality, it is necessary to have an appropriate material base, the ability to properly organize work well, in addition to qualified workers and staff, to increase the effectiveness of quality management aimed at achieving this goal [2].

For effective and stable operation, each enterprise must ensure the planned volume of output, comply with deadlines, achieve low production costs and at the same time ensure the required level of quality. The difficulty in achieving these goals lies in the fact that in practice the issues involved conflict with each other. An increase in output and a reduction in time often leads to a decrease in quality, while improving quality usually requires additional costs and leads to a decrease in production rates. At the same time, he is a well-known American scientist in the field of quality. Deming notes that improving the quality of production generates a positive "chain reaction": reduces the cost of unsuitable products and advertising, resulting in lower overall costs of the enterprise, increases the volume of production of unsuitable products, increases labor productivity. In addition, sales volumes of the organization's products are growing in the markets. That is why optimal requirements should be placed on the quality of products. A product

made with excessive quality is not always appreciated by the consumer. As a rule, it is often necessary to compromise with the consumer, to make mutual concessions, to look for the best option between the volume of products, production time, cost and quality [1].

After Uzbekistan gained independence, as a result of the transition of the economy to market relations, work in the field of quality is organized in our country with recognition of international best practices [3].

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experimentation, description and observation, as well as logical and historical methods, theoretical methods such as abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. Research materials: scientific facts, results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The International Organization for Standardization (ISO) was established in 1946, and Uzbekistan was admitted to it in 1992. In the field of quality management in our country, it is customary to adhere to ISO standards [4]. As a result of ISO's terminological activities, two international standards ISO 8402:1994 and ISO 9000:2000 have now been created [5].

The Uzbek Scientific Research Institute of Standardization, Metrology and Certification (Uzsiti) has carried out an accurate translation of these international standards into Uzbek in accordance with the ISO 8402:1998 standard "Quality management and quality assurance" in force until January 1, 2004. Dictionary "standard and new proprietary DST ISO 9000:2002 " quality management systems. Basic rules and vocabulary". The second standard contains 80 terms with definitions [5]. Of these, let's focus on relatively commonly used terms.

Quality is the degree to which a particular descriptive complex meets the requirements.

A demand is a need or an established expectation that is usually intended or required.

Graduation is a class, grade, category, or category that is assigned different quality requirements for products, processes, or systems designed for the same task.

A system is a set of interconnected and acting together elements.

Management is a mutually coordinated activity for the management and management of an organization.

A management system is a system for developing policies and goals, as well as achieving these goals.

A quality management system is a quality management system for the management and management of an organization.

The quality policy is the general goals and directions of the organization's activities in the field of quality, determined by the top management.

Quality management is a coordinated activity for the quality management and management of an organization.

Quality planning is a part of quality management aimed at setting quality goals and defining the necessary product lifecycle workflows and appropriate resources to achieve quality goals.

Quality management is a part of quality management aimed at meeting quality requirements.

Quality assurance is a part of quality management aimed at ensuring compliance with quality requirements.

Quality improvement is a part of quality management aimed at improving the ability to meet quality requirements.

Continuous improvement is a repetitive activity aimed at increasing the chances of meeting requirements.

An organization is a group of employees who are responsible, empowered and have the necessary tools for interaction.

A consumer is an organization or a person receiving the product.

Supplier is an organization or an individual who supplies the goods.

A process is a set of interrelated and interacting activities that transform inputs into outputs.

The product is the result of a process.

A procedure is an established way of carrying out an activity or process.

Information is meaningful information that matters.

Document-information and its carrier.

A regulatory technical document is a document that establishes requirements.

The Quality Handbook is a document defining the quality management system of an organization.

Verification is a procedure of evaluation by observation and reflection by making appropriate measurements, tests or calibrations.

Testing is the definition of one or more descriptions in accordance with the established procedure.

Description is a distinctive feature.

A qualitative description is a particular description of a product, process, or system based on their requirements.

Compliance is the fulfillment of a requirement.

Correction is an action performed to eliminate the identified discrepancy.

Disposal permit-permission to use or release products that do not meet the established requirements.

Audit (audit) is a systematic, independent and documented process of obtaining audit evidence and their objective assessment in order to determine the degree of compliance with agreed audit criteria.

An auditor is a person who has the right to conduct an audit.

The quality surface is a theoretical (conceptual) model of interrelated activities that affect quality at various stages, starting with the identification of needs and ending with the assessment of their satisfaction.

Loss of quality is a loss of quality caused by incomplete use of resource capabilities during processes and functioning.

A quality assurance model is a standardized or selective set of quality system requirements. These requirements are summarized in order to meet the quality assurance needs in a given situation.

Quality assessment is a systematic check of how well an object is able to meet the established requirements.

An expert quality auditor is a specialist qualified to conduct quality checks [5].

### **Results and discussions:**

Currently, international standards of the ISO 9000 category are recognized and accepted as national standards by all aging countries of the world. These standards are widely used in various industries (industry, construction, transport, healthcare, education and others), and, according to data, currently the number of quality systems of organizations created and certified on their basis in the world exceeds 300 thousand.

The ISO 9000 2000 series of standards consists mainly of four standards, which are currently translated into the state language and prepared for publication in the territory of Uzbekistan in the form of state standards. The main of these standards are:

1. Uz SS ISO 9000-2002 "Basic rules and glossary".
2. Uz SS DST ISO 9001-2002 " Quality management systems. Requirements".
3. UzSS ISO 9004 "recommendations for improving the functioning of quality management systems".
4. Uz SS ISO 14011 "Guidelines for the audit of quality management and environmental protection systems"

All these standards together form a coordinated set of standards related to the quality management system that contribute to consensus in national and international trade [1].

### **Conclusion:**

It is impossible to successfully lead an enterprise without compliance with the requirements of quality management. The goal can be achieved on the basis of constantly improving the quality management system, which takes into account the needs of all parties interested in the production of products, and maintaining it in a working State. In the management of an enterprise, in addition to quality management, it is necessary to focus on other aspects of management.

The Iso 9000-2000 standard defines the following eight basic principles of Quality Management [6].

- To do business for the consumer. Enterprises are subject to their consumers, and therefore must take into account their needs on this day and in the future, fulfill their requirements, achieve the preparation of quality products even more than they want.

- Leadership (leadership). Leaders ensure that the purpose and direction of the organization's activities are prioritized. It is necessary to create and maintain an internal environment in which employees can be involved in the performance of tasks set before the organization. [7]

- \* Staffing. Employees at all branches form the basis of the organization, and their full involvement in the work allows the organization to make the most of its staff abilities.

- Process approach. When the activities and available resources of the enterprise are managed in a holistic process, the results are more effective than expected [8].

- \* Systematic approach to management. The effectiveness of activities increases when the enterprise is systematically managed on the basis of identification, understanding of interconnected processes.

- Continuous improvement. Comprehensive development and continuous improvement of the activities of the enterprise should be considered by all employees as an unchanging goal [9].

- Making decisions based on facts. Effective decisions are formed on the basis of accurate data and information analysis and holistic assessment [10].

- Mutually beneficial relationship with suppliers. The economic activity of enterprises and suppliers of raw materials to them will be closely intertwined. The strengthening of mutually beneficial relations and the expansion of cooperation areas increase the chances of both parties to create material goods [11].

These eight principles of quality management have been taken into consideration in all standards regarding the quality management system, in the Iso 9000 category.

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## CERTIFICATION SCHEMES IN CONSTRUCTION

*Annotation. One of the main works when conducting certification work is the choice of a certification scheme xisoblanad. In the documents prepared by co-workers from the ISO composition of certification, eight schemes of certification are issued, which are carried out from a third party, and in our republic, this 8th scheme is implemented*

*Keywords: product, service, certificate, procedure, scheme, auditor.*

### **Introduction**

Certification of products is carried out by accredited certification bodies [1].

Accreditation of the certification body is the official recognition of the IOC for the transfer of products certification, quality and production systems in accordance with the requirements of specific documents in the established sphere of accreditation [2].

### **Materials and methods:**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The accreditation of the certification body is complemented by the following main stages:

- identification and examination of documents;
- appointment of the commission on verification;
- appointment of the commission on verification of the organization to be accredited;
- certification of an accredited organization;
- examination of documents and review of attestation results;
- granting the applicant an accreditation attestation.

One of the main works when conducting certification work is the selection of a Certification Scheme [3].

In the documents prepared by co-workers from the ISO structure for certification, eight schemes of certification are issued, which are carried out from

a third party, and in our republic, this 8th scheme is implemented. Below we recommend opening the leprosy of these schemes [4,5,6,7,8].

### **Results and discussion:**

The first scheme. Product sample testing (ispit. tipa). This scheme is characterized by a very simple scheme, in which it is determined that the corresponding NTX of the sample of the product, meets the technical requirements. The issuing authority is responsible for the certificate. The results of the certification according to this scheme cannot guarantee the provision of a constant quality of the product. The certification body does not organize a control of the HEC after the test, so there is no information on whether the product meets such then standard requirements, there is no information about whether the technological process can ensure the quality of the product. This yul is spread to some extent in national and international trade relations due to its simplicity and the fact that it does not require much cost.

Second scheme. In this scheme, the sample types of the product are tested in specially approved testing organizations, and then its quality is monitored on the basis of samples that are periodically obtained from sales outlets. This method makes it possible to evaluate the quality of the products of serial production with an assessment of the quality of the samples being poured. The cheapness of the method lies in its simplicity. Its disadvantage, on the other hand, is that depending on the result of the control tests, if it is determined that it is inappropriate for the standard requirements of the product, it can still be excluded from sales outlets will not be bullied or there will be some difficulties to exclude it.

The third scheme. The product is based on conducting types of samples in specially approved testing organizations, and then periodically monitoring the inspection of samples without sending them to the seller or consumer. The difference from the second scheme is that the Test control is carried out before the product falls into sales outlets, and if it is determined that it is inappropriate for the standard, the shipment of the product to the consumer is stopped and a poor-quality product release is obtained. In the third scheme, the certificate is issued to the fan for 12 months and is monitored every 6 months.

Turtleneck scheme. It is based on testing the types of samples of the product as if they were 1-3 schemes, and then the quality of the product is obtained by periodically conducting inspection control of samples obtained from the production in the Chamber of Commerce. In this case, the product is produced, which, after certain costs for its release, is determined to be in accordance with the requirements of the standard.

The fifth scheme. This scheme is based on conducting product sample types in approved testing organizations and assessing the quality of product production, and then periodically checking and controlling the quality of namun alar in the sales department and production. This method of certification not only monitors the quality of the product, but also monitors the quality of the product that will be released at the enterprise at the required level. This method is the most common

scheme in industrialized countries as well as in international certification systems. Compared to the first-fourth schemes, this scheme is the most complex and relatively expensive standing scheme, the advantage of which is that the consumer makes sure that the quality level of the product is high, which is the main criterion.

Sixth scheme. This scheme is intended only to conduct an assessment of the system by ensuring the quality of the product at the enterprise. This method is also referred to at some point as attestation of the enterprise - maker. In this kind of certification, only the ability of the enterprise to release products of the specified quality level is assessed.

Seventh scheme. This scheme is based on the selection of tests from a prepared batch of products. Depending on the results of the selection tests, a decision is made to increase the batch. For certification in this variety, the size of the sample should be, which depends on the level of quality that will be acceptable to the large size of the prepared batch. Basically, the collection of the sample in the received qai is carried out by authorized testing organizations.

Eighth scheme. This scheme is based on the determination of the compliance of the standard requirement of a customized particular item of Har passing tests. This certification method has a much higher provider liability than the above 7-schemes. Naturally, only items that have passed successful tests will receive a certificate or a successful mark. Scheme 8 applies when higher and more stringent requirements are imposed on a product based on use, or where failure to meet standard requirements as a result of the product's use can cause significant economic damage to the consumer. This kind of certification is more used in items made of precious metals and alloys. The main purpose of this is to check the specified amount of precious metals, their composition and the purity of the item.

#### **Conclusion:**

Sources on certification have analyzed the advantages and disadvantages of each certification scheme. Of these, the most perfect and complex is the fifth scheme. Since this scheme is complete, taking it as a basis, the modern international certification system is being created [9,10,11,12,13,14,15,16].

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## **QUALITY CIRCLES AND THEIR TASTE FOR PRODUCT QUALITY**

*Annotation. The main goal of Quality Circles is to realize the fundamental leprosy of quality improvement, introduce technological processes and proposals related to the organization of production. To do this, it is necessary to increase the reliability, durability of the manufactured product, increase the production of high-grade items, reduce non-standard products, increase the generality of cocktails, improve the pace of production, save resources and save economy*

*Keywords: product quality, quality Circle, initiative, economy, financial effect.*

### **Introduction**

Quality Circles are voluntary communities made up of workers, Mujahideen and servants. Their number and composition depend on the extensibility of production and specific operating conditions [1,2].

The organization of quality circles in enterprises is one of the most important factors in improving the quality of products.

The main goal of Quality Circles is to realize the fundamental leprosy of quality improvement, introduce technological processes and proposals related to the organization of production. To do this, it is necessary to increase the reliability, durability of the manufactured product, increase the production of high-grade items, reduce non-standard products, increase the generality of cocktails, improve the pace of production, save resources and save economy. Many mamalakats have achieved more or less, relying on certain activities, experiments to improve the quality of their products. Here are some examples.

We will see quality circles on the example of Japan, where the industry has developed. In Japan, Quality Circles appeared in the 1960s. Toglians make up 70% of the Japanese territory, with no significant amount of underground wealth. Without this, Japan could not provide its people with food, and could not develop the industry sufficiently. Raw ash from Tilla, kimmatbaho, brought from tashari for industry and energy, could be paid with stones and export products. These are not in Japan. So, suddenly, the development of export potential for Japan. Well, Japan had to spend all its knowledge and intelligence on the production of quality products that could withstand harsh conditions. Currently, most products are Japanese export leadership in kilmock. These include machine tools, optical instruments, photographic instruments, radiopriemniks, ships, light and cargo



vehicles, televisions, videomagnitophones, office supplies, watches, wheelchairs, fabrics from SU'niy Tola, etc [1].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

From 1962, the Japanese magazine “quality management for Masters and brigades” began chika. The purpose of this is to bring innovations in the quality management system to many, especially to workers in a timely manner, to improve the qualifications and layekatliveness of employees working in the quality control Sox, to promote quality control methods, etc. As a result, quality circles began to develop in Japan. If there were 10,000 yakins in 1967, it was 100,000 in 1979.

Circles in Japan poured before themselves the goal of improving production processes, to radically improve the quality of the product. Another characteristic aspect of the Japanese method is the systematic observation, study and laying of the work of circles by the Association of scientists and engineers.

Currently, quality clubs are actively working in the people's Republic of China in USA and European countries.

In USA members of the circle gather once a week in 1 hour during working hours. And the work of the circle was carried out at a time when the work was carried out, and they were paid a hack at the increased rates.

### **Results and discussion:**

In USA the following requirements are imposed on organizational groups in quality circles [1]:

1.To ' participation in the garage must be voluntary. The members of the circle and their leaders choose for themselves the problem that needs to be dealt with. In the circle, only problems related to the administration are not put.

2.To ' it is necessary that the leaders of the garak have sufficient qualifications bulmogi, trust cozonmok and consent to the management of the circle. They are required to be in contact with the firm's Chiefs and trade unions.

3.Specialists of all levels, technical specialists are obliged to help the work of the quality circle.

4.Firms that are small and in a state of urgency will have an employee who coordinates their quality circle work, while large firms may have more such individuals.

5.The urta within the firm is revered by the monks-Masters, technologists.

6.Ximoya plans of quality circles are guaranteed by the highest leadership of the firm.

In the use of quality circles, the owners of American enterprises conduct their work adapted to the maximum conditions, and therefore, in most cases, the activities of American circles are different from those in Japan. In particular, if in Japan only 50-60% of circles do their classes during working hours, while in America circles are held almost during working hours, according to their plans. The fact that the owners of enterprises in America fold workers in circles when introducing quality control circles is strongly encouraged. From this, it turns out that the direction of the circles to the “man”, in Aloxi, is occupied by urine. For example, ford announced the main goal of creating its circles as” improving the exchange of ideas of a person, increasing his quality in work, creative potential “ [4,5,6,7].

Some Garbi European companies are starting work by organizing quality clubs.

Judging by the opinions of experts, 96% of quality circles formed at enterprises will not have achievements.

In the following years, Ham quality circles in the people's Republic of China gradually increased.

In 1980, the country had over 400,000“quality clubs”, while by 1985 the number had grown to over 500,000. Chinese circles include muxandis-circles that unite technical personnel, workers and servants in the management Buginese.

#### **Conclusion:**

What all these events have led to, raises the question of what gives the industry. Initially, it consists in a clear knowledge and curation of their goals and objectives by the employees of the enterprise. Quality circles affect the team, mobilizing employees to ensure them a high level of quality of the product. Therefore, in many countries, this issue is considered one of the first issues. Rakbar and khayeti himself in takoza kilmock that the team will carry out the production with a humpback. And the improvement in the quality of products will serve to improve the enterprise, as well as the economic power of the country [1].

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9. ST ISO 14011 « Sifat menejmenti tizimlarini va atrof-muhitini himoya qilish tizimini audit o'tkazish bo'yicha qo'llanma»

## **TECHNICAL CO-OPERATION OF THE TECHNICAL REGULATORY AGENCY**

*Abstract: solving the problems of metrology, standardization, quality control and quality management requires a revision of existing state and industry standards and other regulatory documents in accordance with international standards, and the creation of new ones. The need to address these issues, in turn, is directly related to Uzbekistan's plans to become a full member of the World Trade Organization. The Technical Committee of the Republic of Uzbekistan for Standardization (TC) operates under the supervision of the Agency for Technical Regulation of Uzbekistan with the participation of republican ministries, state committees and equivalent agencies and departments*

*Keywords: agency, committee, industry, standard, task, problem, solution.*

### **Introduction**

Among the urgent tasks facing the technical regulation agency in the current market economic conditions are the achievements of Science, the application of new technologies, processes, bringing the quality of products to the level of international standards, ensuring competitiveness and increasing the volume of exports [4,5].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

### **Results and discussion:**

Solving the problems of Metrology, standardization, quality control and quality management assumes the consideration of existing state and network standards and other regulatory documents harmonized with international standards, the creation of new ones [6,7,8]. The need to solve these issues is also directly related to Uzbekistan's plans to become a full member of the World Trade Organization [1,2,3,4,5].

### **Conclusion:**

Under the control of the technical regulation agency of Uzbekistan, the technical committee for standardization of the Republic of Uzbekistan

(TQ) carries out foality with the participation of the ministries of the Republic, state committees and their equivalent agencies, Agencies [3]:

1. Communication and informatics
2. Architecture and construction
3. Highways
4. Leather-shoes, fur-making and blacksmithing industries
5. Cereals
6. Medicines and medical equipment
7. Electric energy
8. Electrical engineering
9. Emergency and fire safety
10. Geology search
11. Military and products used for two different purposes
12. Drinking water supply and sewerage
13. Silk industry products
14. Production of consumer and technical ethyl alcohol, alcohol products
15. Physical education and sports
16. Chemical industry
17. Labor protection
18. Management system
19. Alternative fuel and energy
20. Publishing-printing and information-library activities
21. Navurugnazorat
22. Özneftmahsulot
23. Cotton
24. Testing agricultural techniques and technology
25. Industrial safety
26. Standards Institute
27. Nature conservation
28. Transport
29. Tourism services
30. Continuing education standards
31. Light industrial products
32. Traffic Safety

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## **RATIONING AND STANDARDIZATION OF THE SIZE OF FUNCTIONAL AND INFRASTRUCTURAL STRUCTURES OF HYDRO- RECLAMATION, AGRICULTURE**

*Abstract: it allows to unify dimensions as needed and, thus, to use elements of building elements and equipment on the basis of interchangeability in limited types. The  $m$  100 mm is adopted as the main module in the design. When determining the dimensions of the premises, the agreed dimensions are observed. For this purpose, basic, enlarged and shared modules are used.*

*Keywords: building, structure, construction, size, norm, module, standard.*

### **Introduction**

The standardization of dimensions in the design of building products and buildings is based on "modular dimensional consistency in construction" [1]. It allows you to unify the dimensions at will and, thus, use elements of construction products and equipment based on interchangeability in limited types.

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experimentation, description and observation, as well as logical and historical methods, theoretical methods such as abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. Research materials: scientific facts, results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

### **Results and discussions:**

100 mm was adopted as the main module in the design [2]. When determining the dimensions of the premises, the agreed dimensions are observed. For this purpose, the main, enlarged and shared modules are used (Table 1).

Table 1.

**Coordinated modular dimensions**

Name	Mark	Size, mm	Name	Mark	Size, mm
Enlarged modules (mulpti- modules)	1M	100	Share modules	1M	100
	3M	300		1/2M	50
	6M	600		1/5M	20
	12M	1200		1/10M	10
	15M	1500		1/20M	5

	30M	3000		1/50M	2
	60M	6000		1/100M	1

The preferred modular dimensions of the main types of building structures are shown in Table 2.

Table 2

### Preferred modular dimensions of prefabricated elements

Parameters	Favorable values, mm
The length of interstory ceilings, roofs, external wall panels, crossbars; the height of columns, internal wall panels and curtain walls	It is selected depending on the main longitudinal and transverse steps of the building, as well as the height of the floors.
Width of interstory and gable panels	1200; 1500; 2400; 3000; 3600
Height of exterior wall panels	600; 900; 1200; 1500; 1800; 2100
Intermediate walls:	
height	Height of window openings
width	Multiplied by 300
The width of the staircases	1050; 1200; 1350; 1500; 1750; 2200
The width of the stairwells	In residential areas: 1200, 1500, 1800, 2100, 2400; in public buildings: 1000, 1150, 1300, 1600, 1900.
The thickness of the interstory ceilings and internal load-bearing walls	20 once

### Conclusion:

Technological tolerances and marginal deviations in construction are determined based on the geometric dimensions of the products in accordance with their accuracy class. The accuracy class is usually introduced based on the structural, technological and economic requirements for products, structures, buildings and structures. The technological rates set for the sizes of building structures and products are determined by the formula [3]:

$$\Delta x = iK, (1)$$

где I – единица ставки, мм; K-класс точности, указывающий количество единиц ставки в данном классе точности.

При изготовлении строительных изделий и элементов единица ставки определяется по формуле [4]:  $i = a_i (0,8 + 0,001 \sqrt{L}) (\sqrt[3]{L + 25} + 0,01 \sqrt[3]{L^2})$ , (2)

bu yerda: L – uzunlik o'lchami, mm;  $a_i$  – koeffitsiyent bo'lib, qiymati chiziqli o'lchamlar, to'g'rilik, tekislik va diagonallar tengligining qo'yimini hisoblashda 1 ga teng, elementlar perpendikulyarligi qo'yimini hisoblashda 0,6 ga teng olinadi [5,6].

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## **СОВЕРШЕНСТВОВАНИЕ СИСТЕМЫ ОЦЕНКИ ЗРЕЛОСТИ ПРОЦЕССОВ УПРАВЛЕНИЯ ПРОЕКТАМИ В ОРГАНАХ ВЛАСТИ**

*Аннотация. В статье рассматриваются направления развития системы оценки зрелости процессов управления проектами в органах власти. В качестве развития процессов проектной деятельности в государственном секторе предлагается выделить еще один блок «Результаты проектной деятельности», где будут оцениваться процессы достижения целевых показателей проектов различных уровней, так как целеполагание и результативность проектного управления очень важный аспект проектного менеджмента.*

*Ключевые слова: процессы проектной деятельности, оценка зрелости процессов управления проектами, управление проектами, органы власти, проектное управление.*

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## **IMPROVING THE MATURITY ASSESSMENT SYSTEM FOR PROJECT MANAGEMENT PROCESSES IN GOVERNMENT AGENCIES**

*Abstract: The article discusses the directions of development of the maturity assessment system for project management processes in government agencies. As a development of the processes of project activity in the public sector, it is proposed to allocate another block "Results of project activity", where the processes of achieving the targets of projects of various levels will be evaluated, since goal setting and effectiveness of project management is a very important aspect of project management.*

*Keywords: project activity processes, assessment of maturity of project management processes, project management, authorities, project management.*

Процессы управления проектами в государственном секторе требуют постоянного совершенствования в связи с ускорением изменений как во внешней среде, так и во внутренней среде реализуемых проектов, программ проектов и портфелей проектов и программ. Быстро изменяющаяся среда также диктует необходимость развития методов, инструментов, технологий и процессов проектного управления в органах власти.

Комплексное управление проектами в Самарской области реализовано на очень высоком уровне (реализуется 52 региональных проекта). По каждому проекту в цифровом виде отслеживаются показатели, контрольные точки и сравниваются результаты с планом, организован электронный документооборот [1].

На рисунке 1 показана система организации процессов управления проектами на всех этапах жизненного цикла проектов в органах власти в Самарском регионе, которая построена на основе нормативно-правовой базы проектной деятельности в органах государственного и муниципального управления Российской Федерации.

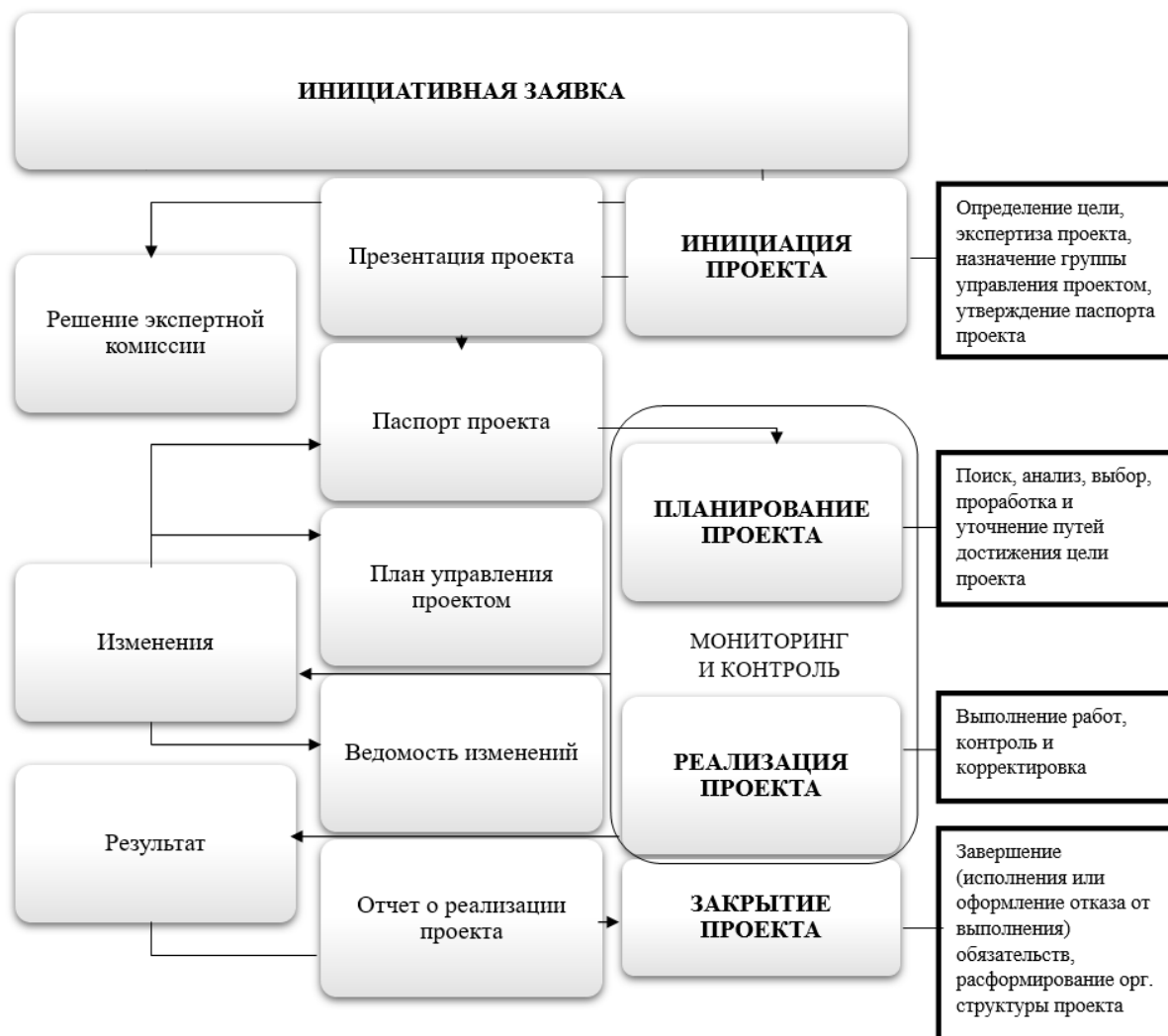


Рис. 1. Система организации процессов управления проектами в органах власти в Самарском регионе

Для оценки зрелости системы управления проектной деятельностью в органах власти Самарского региона используются Методические рекомендации (№9286п-П6 от 12 декабря 2017 года). Их графическая систематизация представлена на рисунке 2.

На наш взгляд, система оценки не учитывает оценку результатов процессов управления проектами, а именно достижение целей, показателей.



Рис. 2. Система оценки зрелости процессов управления проектами в органах власти

Так как «основными параметрами проекта является цель, показатели измерения достижений и выгод проекта (программы, портфеля), результат и контрольная точка» [1], необходимо при проведении оценки зрелости процессов управления проектами в муниципальных органах власти учитывать достижение целевых показателей и контрольных точек (рисунок 3).



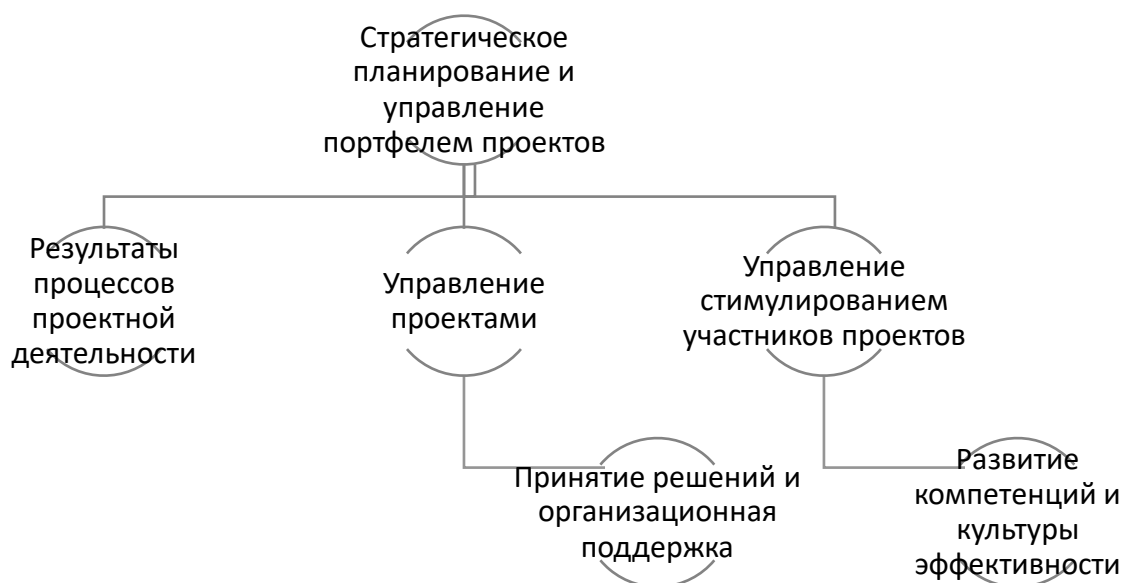


Рис. 3. Скорректированная система оценки зрелости процессов управления проектами в органах власти в Самарском регионе

Поэтому в качестве развития данной методики предлагается выделить еще один блок «Результаты проектной деятельности», где будут оценивать процессы достижения целевых показателей проектов различных уровней.

**Использованные источники:**

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## **УПРАВЛЕНИЕ КАЧЕСТВОМ ПРИ ПРОВЕРКЕ ТЕХНИЧЕСКОГО СОСТОЯНИЯ ЗДАНИЙ И КОММУНИКАЦИОННЫХ СООРУЖЕНИЙ**

*Аннотация: в результате обследования строительных конструкций выявляются дефекты качества, анализируются и на основании полученных выводов вносятся изменения в расчетную схему или расчет того или иного сооружения. В связи с этим осмотр конструкций имеет большое практическое значение. Важность и эффективность методов обследования зданий и сооружений очевидна в антисейсмических мероприятиях, применяемых в строительной практике на основе изучения последствий предшествующих землетрясений.*

*Ключевые слова: здание, сооружение, конструкция, прочность, устойчивость, жесткость, долговечность.*

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## **QUALITY MANAGEMENT WHEN CHECKING THE TECHNICAL CONDITION OF BUILDINGS AND COMMUNICATION STRUCTURES**

*Abstract: as a result of the inspection of building structures, quality defects are identified, analyzed and, based on the findings obtained, changes are made to the design scheme or calculation of a particular structure. In this regard, inspection of structures is of great practical importance. The importance and effectiveness of methods for examining buildings and structures is obvious in anti-seismic measures used in construction practice based on the study of the consequences of previous earthquakes.*

*Key words: building, structure, construction, strength, stability, rigidity, durability.*

### **Вступление**

Целью и задачей обследования и испытания технического состояния зданий и сооружений является разработка установленных методов и оборудования для оценки качественных показателей, характеризующих состояние и характер движущихся объектов, а также изучение протекающих

в них процессов, экспериментальное выявление конструктивных и эксплуатационных свойств конструкционных материалов и проверка их соответствия техническим условиям [1].

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

В результате обследования строительных конструкций выявляются дефекты качества, анализируются и на основании полученных выводов вносятся изменения в расчетную схему или расчет того или иного сооружения. В связи с этим осмотр конструкций имеет большое практическое значение [2].

Важность и эффективность методов обследования зданий и сооружений очевидна в антисейсмических мероприятиях, применяемых в строительной практике на основе изучения последствий предшествующих землетрясений. Изучив последствия землетрясения в Газли в 1976 году и приняв соответствующие антисейсмические меры и меры, здания и сооружения были частично повреждены в результате повторного землетрясения 1984 года. Землетрясение в Мексике в 1985 году разрушило более 500 зданий, в том числе 40 небоскребов, в то время как землетрясение не нанесло им значительного ущерба, поскольку в ряде зданий были приняты меры по снижению воздействия землетрясения. Землетрясение в кайраккуме в 1985 году полностью разрушило здание Кайраккумского коврового предприятия, построенное в 50-х годах без антисейсмических мер.

### **Результаты и обсуждение:**

Основная задача тестирования конструкций-установить, насколько реальное рабочее состояние соответствует их расчетной схеме. Инженерные сооружения состоят из механических систем, работающих в сложном напряженно - деформированном состоянии. Поэтому, несмотря на то, что строительная механика и динамика конструкций к настоящему времени достаточно развиты и продвинуты, в процессе проектирования приходится моделировать и упрощать расчетные схемы объектов. В частности, прочность на растяжение стали марки СТЗ, которая на практике считается однородной, равна  $n.C$ . При испытании стрессским было обнаружено, что предел текучести колеблется в диапазоне от 200 МПа до 320 МПа. Разброс по прочности бетона и дерева будет еще больше [3].

Испытание занимает очень важное место в оценке фактической прочности любого материала, приближении теоретических расчетов

конструкций к их фактическому рабочему состоянию, а также в совершенствовании алгоритмов расчета.

Основная цель теста - изучить состояние конструкций под нагрузкой.

Технологические процессы совершенствуются по мере развития науки и техники. В результате приходится заменять устаревшие технологические системы, оборудование на новое. С непосредственного обследования также начинается процесс восстановления сооружений, поврежденных стихийными бедствиями, военными действиями, такими как землетрясения, оползни, ветер.

Осмотр строительных конструкций состоит из 3 этапов:

- первичное ознакомление с проектной документацией, рабочими исполнительными чертежами и актами закрытия работ;

- визуальный осмотр объекта, определение соответствия объекта проекту, выявление видимых дефектов, составление плана осмотра сооружения, проведение комплексных исследований с использованием методов испытаний без нарушений;

- анализ состояния сооружения и разработка рекомендаций по устранению выявленных недостатков [4].

Контроль качества готовящихся строительных конструкций осуществляется с применением методов испытаний с нарушениями и без них. При испытании на разрушение мы получаем полную информацию о том, как конструкция ведет себя под нагрузкой и как она деформируется под напряжением. Но если бы мы определили консистенцию каждого готового продукта, чтобы проверить его на порчу, все продукты были бы непригодны для использования. С другой стороны, тестирование без нарушения не всегда дает полную информацию о тестируемой структуре. Даже при расчетах, выполненных с использованием вычислительной техники, невозможно получить исчерпывающую информацию о реальном рабочем состоянии реальных систем. Поэтому на практике необходимо сочетать теоретические исследования, методы испытаний с искажением и без искажения [5].

Одной из главных задач осмотра и испытаний сооружений является определение их фактического состояния и пригодности к дальнейшей эксплуатации. Эта проблема напрямую связана с оценкой надежности рассматриваемой системы.

Под надежностью понимается свойство выполнять функцию, поставленную перед системой в определенный промежуток времени, в определенных условиях эксплуатации. Надежность состоит из сложных характеристик, включая такие, как долговечность, долговечность и ремонтпригодность [6].

Ljkujdtxujcnp - свойство объекта сохранять работоспособность в течение определенного периода времени.

Долговечность - свойство объекта длительное время сохранять работоспособность, не впадая в предельное состояние.

Ремонтопригодность-свойство объекта проявлять себя до разрушения и пригодность к ремонту и ремонту.

Основной целью испытаний зданий, сооружений и конструкций является определение их несущей способности, цикличности и трещиностойкости. Тестирование также может проводиться на реальных конструкциях, макетах или моделях. Испытательные установки и способы их загрузки выбираются в соответствии с поставленными перед испытателем задачами.

При испытании реальных объектов может быть поставлена задача определения фактического рабочего состояния эксплуатируемых конструкций. При этом широко используются методы неразрушающего контроля. Наряду с методами неразрушающего контроля выбранных для эксперимента конструкций проводится и испытание на разрушение. При этом испытания продолжаются до тех пор, пока конструкция конструкции не потеряет несущую способность [6].

Метод тестирования определяется набором правил тестирования, основанных на конкретных принципах. По этим правилам разрабатываются методы формирования внешнего воздействия, подбора измерительной техники, обработки результатов. Поскольку проведение испытаний сопряжено с большими материальными затратами, а также в процессе испытаний используются дорогостоящие станки и оборудование, необходимо тщательно подготовиться к проведению испытаний [7].

Испытательная нагрузка на конструкции может быть возложена динамически и статически. По форме расположения в конструкции нагрузки делятся на приведенные, линейные и распределенные по поверхности [8].

Практически любой процесс загрузки происходит через определенные промежутки времени. Следовательно, нет реальной статической нагрузки. Для оценки характеристики нагрузки по времени необходимо сравнить период собственных колебаний рассматриваемого объекта со временем достижения наибольшего значения нагрузки. Если величина нагрузки изменяется линейно и достигает своего наибольшего значения за некоторый промежуток времени  $a$ , и она находится в соотношении  $a/t > 10$  с собственным периодом колебаний конструкции, то влияние силовой инерции в процессе нагрузки считается достаточно малым. Значение динамического коэффициента  $K_d$  не превышает 1,03, т. е.

$$K_d = U_d / U_c \leq 1,03 \quad (11.1)$$

где:  $U_c$  - прогиб конструкции, создаваемое статической нагрузкой;  $U_d$  - прогиб конструкции от динамической нагрузки (с учетом скорости загрузки). В такой ситуации конструкцию можно считать нагруженной статическим обр зом [4].

### **Вывод:**

Описание изменений динамических нагрузок переменной амплитуды будет неизвестно до проведения испытаний.

Динамические нагрузки являются подвижными и возбудимыми. Образование от действия стационарно установленного оборудования является возбудимым, а образование от движения людей, электромобилей, кранов - движущимися нагрузками.

Динамические нагрузки делятся на периодические и нелинейные, гармонические, а также импульсные типы, в зависимости от изменения собственного значения с течением времени.

Типы динамических нагрузок очень разнообразны. Они могут иметь переменную амплитуду и фиксированную амплитуду. Величина динамических нагрузок с постоянной амплитудой изменяется по определенному закону во времени. Такие нагрузки образуются при работе несбалансированных массовых механизмов, генераторов, электродвигателей и воздуходувок.

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## **ОСНОВНЫЕ ТЕРМИНЫ И ПОНЯТИЯ СЕРТИФИКАЦИИ**

*Аннотация. Продукция, в том числе программная и другая научно-техническая продукция, является объектом сертификации. Субъектами сертификации являются агентство по техническому регулированию Узбекистана, аккредитованные органы по сертификации, испытательные лаборатории (центры), инспекционные органы по сертификации, эксперты-аудиторы по качеству, сотрудники, участвующие в деятельности по оценке соответствия, а также юридические и физические лица, продукция которых подлежит сертификации.*

*Ключевые слова: термин, понятия, глоссарий, аудит, сертификат.*

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## **BASIC TERMS AND CONCEPTS OF CERTIFICATION**

*Annotation. Products, including software and other scientific and technical products, are the subject of certification. Subjects of certification are the technical regulation agency of Uzbekistan, accredited certification bodies, testing laboratories (centers), certification inspection bodies, quality auditors, employees involved in conformity assessment activities, as well as legal entities and individuals whose products are subject to certification.*

*Key words: term, concepts, glossary, audit, certificate.*

### **Вступление**

В Республике Узбекистан в настоящее время действуют следующие законы и нормативные правовые акты в области сертификации [1,2]:

1. Закон Республики Узбекистан "о сертификации продукции и услуг" (1993-12-28 № 1006-ХП)

2. Закон Республики Узбекистан "Об оценке соответствия" (2013-10-04 № УП-354)

3. Постановление Кабинета Министров Республики Узбекистан от 22 июля 2004 года № 349 "о мерах по внедрению на предприятиях систем управления качеством, соответствующих международным стандартам"

4. Постановление Кабинета Министров Республики Узбекистан от 5 августа 2004 года № 373 “О совершенствовании структуры и организации деятельности Государственного агентства по стандартизации, метрологии и сертификации Республики Узбекистан”.

5. Постановление Кабинета Министров Республики Узбекистан от 19 июня 2009 года № 173 “ О дополнительных мерах по расширению внедрения систем управления качеством на предприятиях республики, соответствующих международным стандартам”

6. Постановление Кабинета Министров Республики Узбекистан от 19 октября 2015 года № 298 "Об утверждении Программы развития качества национальной инфраструктуры на период до 2020 года"

7. Положение о порядке сертификации систем управления (Примечание АВ от 16.01.2016. № 2754)

О сертификации в Законе Республики Узбекистан "о сертификации продукции и услуг" (1993-12-28 № 1006-ХП)

основные термины и понятия имеют формальное определение как [3]:

"национальная система сертификации" - система, действующая на государственном уровне, имеющая свои процедуры и правила управления при проведении сертификации;

“сертификация продукции” (далее по тексту — » сертификация") - деятельность, связанная с подтверждением соответствия продукции установленным требованиям;

“сертификат соответствия" — документ, выдаваемый в соответствии с правилами системы сертификации для подтверждения соответствия сертифицированного продукта установленным требованиям;

"знак соответствия" - зарегистрированный в установленном порядке знак, наносимый на изделие или документ об оказанной услуге с целью указания на то, что конкретный товар или услуга соответствуют определенному стандарту или иному нормативному документу;

"система сертификации продукции (работ, услуг)" - система сертификации, относящаяся к конкретной продукции, работам или услугам, на которые применяются те же стандарты и правила;

"эксперт-аудитор по качеству" - специалист, прошедший аттестацию в установленном законодательством порядке, имеющий соответствующую квалификацию для проведения работ в области оценки соответствия;

"орган инспекции по сертификации" - юридическое лицо, аккредитованное в установленном законодательством порядке, осуществляющее инспекционный контроль за сертифицированной продукцией по поручению органов по сертификации;

“инспекционный контроль за сертифицированной продукцией " — процедура периодической повторной оценки сертифицированной продукции, осуществляемая с целью подтверждения соответствия

сертифицированной продукции требованиям, установленным при ее сертификации.

Агентство по техническому регулированию Узбекистана в соответствии с действующим законодательством:

осуществляет государственную политику в области сертификации, устанавливает общие правила проведения сертификации, публикует о них официальную информацию;

разрабатывает проекты программ совершенствования системы сертификации и представляет их на правительственное обсуждение;

Принимает по согласованию с Кабинетом Министров Республики Узбекистан решения о присоединении к международным системам сертификации, а также заключает соглашения о взаимном признании результатов сертификации, представляет Республику Узбекистан во взаимодействии с другими государствами и в международных организациях по вопросам сертификации;

определяет перечень продукции, подлежащей обязательной сертификации, и вносит его на утверждение Кабинета Министров Республики Узбекистан;

ведет государственные реестры сертифицированной продукции, аттестованных экспертов-аудиторов по качеству;

осуществляет государственный контроль за соблюдением требований обязательной сертификации;

приостанавливает действие сертификатов соответствия и знаков соответствия и аннулирует их за нарушение норм законодательства о сертификации.

Аккредитованные органы по сертификации продукции:

они создают системы сертификации продукции и обеспечивают их соблюдение.

Агентство по техническому регулированию Узбекистана вправе передать часть своих функций органам по сертификации продукции и испытательным лабораториям (центрам).

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

### **Результаты и обсуждение:**

Продукция, в том числе программная и другая научно-техническая продукция, является объектом сертификации.

Субъектами сертификации являются агентство по техническому регулированию Узбекистана, аккредитованные органы по сертификации, испытательные лаборатории (центры), инспекционные органы по сертификации, эксперты-аудиторы по качеству, сотрудники, участвующие в деятельности по оценке соответствия, а также юридические и физические лица, продукция которых подлежит сертификации.

Субъекты сертификации-юридические лица могут создавать системы сертификации в рамках национальной системы сертификации. Системы сертификации юридических лиц подлежат государственной регистрации в порядке, установленном Агентством технического регулирования Узбекистана.

В случае подтверждения соответствия продукта установленным требованиям орган по сертификации выдает сертификат соответствия, изготовитель имеет право использовать знак соответствия на основании этого сертификата [4].

Образцы сертификатов соответствия, формы и объемы Национального знака соответствия, используемые в системе сертификации, утверждаются агентством по техническому регулированию Узбекистана.

Сертификаты соответствия, знаки соответствия, свидетельства об аккредитации органов по сертификации и испытательных лабораторий (центров) должны быть переданы в Государственный реестр в порядке, установленном агентством по техническому регулированию Узбекистана.

Сертификаты соответствия, знаки соответствия, свидетельства об аккредитации органов по сертификации и испытательных лабораторий (центров), не зарегистрированные в государственном реестре, недействительны.

Право на использование сертификата соответствия, знака соответствия запрещается передавать заявителю другому юридическому или физическому лицу.

Органы по сертификации обязаны предоставить заявителю необходимую информацию для сертификации продукции по его требованию.

Организация работ по проведению обязательной сертификации возлагается на агентство по техническому регулированию Узбекистана или по его поручению на другие органы по сертификации (с их обязательной аккредитацией).

#### **Вывод:**

Испытания проводятся аккредитованными испытательными лабораториями (центрами) методами, установленными соответствующими нормативными документами, а при отсутствии таких документов-методами, разработанными соответствующими органами по сертификации [1,2].

Содержание основных терминов и понятий сертификации более подробно изложено в официальных документах, представленных в литературе [5,6,7].

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## **ПЕРСПЕКТИВЫ ВНЕДРЕНИЯ И РАЗВИТИЯ СИСТЕМЫ МЕНЕДЖМЕНТА КАЧЕСТВА В СТРОИТЕЛЬСТВЕ**

*Аннотация. В строительных процессах контроль качества осуществляют инженерно - технические работники строительства, технические работники заказчика, авторский надзор проектного института, государственный архитектурно - строительный надзор, банки, финансирующие строительство, государственный санитарный надзор, государственный пожарный надзор, технические структуры министерств и кабинетов, подразделения охраны труда профсоюзов*

*Ключевые слова: процесс, строительство, качество, контроль.*

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## **PROSPECTS FOR IMPLEMENTATION AND DEVELOPMENT OF THE QUALITY MANAGEMENT SYSTEM IN CONSTRUCTION**

*Annotation. In construction processes, quality control is carried out by engineering and technical workers of construction, technical workers of the customer, architectural supervision of the design institute, state architectural and construction supervision, banks financing construction, state sanitary supervision, state fire supervision, technical structures of ministries and offices, labor protection departments of trade unions*

*Key words: process, construction, quality, control.*

### **Вступление**

Контроль качества строительства осуществляют инженерно - технические работники строительства, технические работники заказчика, авторский надзор проектного института, государственный архитектурно - строительный надзор, банки, финансирующие строительство, государственный санитарный надзор, государственный пожарный надзор, технические структуры министерств и кабинетов, подразделения охраны труда профсоюзов [1,2].



## **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

### **Результаты и обсуждение:**

Инженерно-технический персонал осуществляет входной, оперативный и приемочный контроль в процессе строительства.

Технический контроль со стороны заказчика обычно осуществляется сотрудником отдела капитального строительства, в обязанности которого входит [2]:

- проверка наличия и содержания документов, свидетельствующих о количестве и качестве сырья и конструкций;
- недопущение использования сырья и изделий, не отвечающих требованиям государственных стандартов и нормативных документов и приводящих к снижению стоимости строительства [3,4,5,6,7];
- ежедневный контроль за ходом и качеством строительно-монтажных работ; контроль соответствия этих работ требованиям проекта, QM и Q;
- участие в отборе образцов и сырья для испытаний, знакомство со стилем и результатами испытаний;
- участие в проверке закрываемых работ и недопущение выполнения работ, стоящих в очереди, без подписания Акта о закрытии работ;
- контроль за правильностью ведения документации, содержащей допущенные при выполнении работ дефекты, нарушения технических условий, отступления от проекта;
- издавать определенные постановления и инструкции с указанием сроков и ответственных лиц по исправлению допущенных недостатков.

Авторский контроль осуществляется учреждением, спроектировавшим строящееся сооружение [1]. Контроль осуществляется от начала до конца строительства и охватывает все строительные, монтажные, отделочные, санитарно-технические и другие виды работ. Авторский контроль в основном осуществляется инженерами, разработавшими проект. В задачи авторского контроля входит:

- ведение журнала авторского контроля, в котором фиксируются все выявленные в строительном производстве отклонения от проекта, сметы и норм, указания по исправлению допущенных дефектов;
- контроль за своевременным и качественным выполнением инструкций и инструкций по устранению дефектов;

- участие в приемке некоторых особо ответственных конструкций (опорных и арочных конструкций мостов, несущих железобетонных и стальных конструкций) техническим контролем заказчика;
- участие в приеме закрываемых вакансий;
- проверка документов, свидетельствующих о поступлении сырья и конструкций на строительную площадку.

#### **Вывод:**

Государственный архитектурно-строительный надзор разрешает строительство различных зданий и сооружений. Обязанности государственного архитектурно-строительного надзора, следующие [1]:

- контроль качества строительных монтажных работ, а также работ по благоустройству и озеленению территорий, относящихся к строящимся зданиям;
- контроль качества сырья и изделий, поступающих на строительную площадку, на соответствие нормативным требованиям;
- контроль производства сырья и конструкций в строительстве;
- контроль за соблюдением проектно-технических требований, связанных с качеством исполнения архитектурных решений зданий и сооружений, фасадов;
- участие в работе государственных приемных комиссий по приемке зданий и сооружений в эксплуатацию;
- участие в расследовании аварий в строительстве;
- контроль и анализ качества в обрабатывающей промышленности строительных материалов и конструкций, при монтажных работах, обобщение результатов;
- разработка и представление соответствующим организациям предложений по улучшению качества возводимых сооружений.

Банковский контроль предусматривает поэтапный контроль объема и стоимости выполненных строительно-монтажных работ, а также качества восстановления сооружения. За строительно-монтажные работы, выполненные с отклонениями от норм и требований проекта, банки имеют право приостанавливать платежи и не взимать плату [2].

Государственный санитарный надзор и государственный пожарный надзор проверяют соблюдение соответствующих требований в период строительства, проекты вновь возводимых сооружений на соответствие санитарным требованиям и требованиям безопасности от осадков [1].

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# АКТУАЛЬНЫЕ ВОПРОСЫ ПОЛИТИКИ И ПРАВА

УДК 34- 346.5

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## ПРОБЛЕМЫ ПРАВОВОГО РЕГУЛИРОВАНИЯ ИНВЕСТИЦИОННОЙ ДЕЯТЕЛЬНОСТИ В РЕСПУБЛИКЕ УЗБЕКИСТАН

*Аннотация. В данной научной работе рассматриваются вопросы правового регулирования инвестиционной деятельности, проблемы и пробелы в инвестиционном законодательстве Республики Узбекистан. Анализируется законодательное регулирование централизованных инвестиций и концессионной деятельности. Представлены предложения автора по поводу некоторых существующих проблем.*

*Ключевые слова: инвестиция, централизованная инвестиция, инвестиционная деятельность, правовое регулирование, концессионная деятельность.*

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## PROBLEMS OF LEGAL REGULATION OF INVESTMENT ACTIVITIES IN THE REPUBLIC OF UZBEKISTAN

*Annotation. This scientific work examines issues of legal regulation of investment activities, problems and gaps in the investment legislation of the Republic of Uzbekistan. The legislative regulation of centralized investments and*

*concession activities is analyzed. The author's suggestions regarding some of the existing problems are presented.*

*Key words: investment, centralized investment, investment activity, legal regulation, concession activity.*

Законодательное регулирование инвестиционной деятельности является важным механизмом для обеспечения защиты интересов инвесторов, создания благоприятной инвестиционной среды и развития финансового рынка. Оно осуществляется через принятие и реализацию различных нормативно-правовых актов. Потому что, успешное законодательное регулирование инвестиционной деятельности способствует привлечению инвесторов, обеспечивает стабильность и прозрачность рынка, создает условия для экономического развития. Поэтому государство должно разрабатывать и совершенствовать нормативно-правовые акты, основываясь на передовой международной практике и учитывая текущие потребности и вызовы национальной экономики<sup>46</sup>.

Кроме того, необходимо учитывать, что инвестиционная деятельность является сложным и рискованным процессом, который требует эффективного и надежного законодательного регулирования. В связи с этим, государство уделяет больше внимание разработке эффективных нормативно-правовых актов, регулирующих инвестиционную деятельность. Несмотря на это, на практике существуют определенные проблемы в этой сфере, которые могут затруднять развитие инвестиционной сферы и создавать неблагоприятные условия для участников инвестиционной деятельности.

К числу этих проблем мы можем отнести следующие:

- недостаточная прозрачность;
- непредсказуемость правил;
- недостаток защиты прав инвесторов;
- бюрократические препятствия;

Недостаточная прозрачность заключается в том, что правила и требования, регулирующие инвестиционную деятельность, не всегда ясны и понятны для инвесторов. В результате, инвесторам может быть сложно понять, какие правила они должны соблюдать и с какими рисками они могут столкнуться при инвестировании. Более того, недостаточная прозрачность может создавать возможность для коррупции и злоупотреблений в сфере инвестиций. Если правила нечеткие и неясные, это может создать возможность для участников рынка использовать их в своих интересах и нарушать права инвесторов. К примеру, в соответствии со статьей 19 Закона

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<sup>46</sup> Мелибаева Гульнара Ачиловна, Рахманов Баходир Бахтиярович «Правовые основы регулирования иностранных инвестиций в Республике Узбекистан», Ж. «Экономика и финансы», 2017

«Об инвестициях и инвестиционной деятельности», действие гарантии от неблагоприятного изменения для инвестора в сфере приобретения концессий, включая концессии на разведку, разработку, добычу либо использование природных ресурсов начинается с даты регистрации концессионного договора в установленном законодательством порядке. Однако порядок регистрации концессионного договора не предусмотрен в законодательстве.

Непредсказуемость правил заключается в том, что невозможно точно предсказать все правила и положения, которые могут содержаться в нормативно-правовых актах в сфере инвестиционной деятельности. Законодательная среда может меняться в результате принятия новых законов и изменения уже действующих. Политические, экономические и социальные изменения могут вносить неожиданные коррективы в правовую систему страны. Это может приводить к изменениям в правилах инвестиционной деятельности. К примеру, в Закон «Об инвестициях и инвестиционной деятельности», хотя закон был принят недавно, уже внесены три поправки<sup>47</sup>.

Недостаточность механизмов прав инвесторов заключается в том, что правовое регулирование в законодательстве может быть недостаточно подкреплено реальными, действенными инструментами обеспечения соблюдения прав инвесторов. В результате, инвесторы, чьи права нарушены, могут иметь ограниченные возможности искать справедливое возмещение. К примеру, в соответствии со статьей 21 Закона «Об инвестициях и инвестиционной деятельности», инвестор вправе оспаривать в судебном и арбитражном порядке решение о реквизиции и экспроприации их собственности. Как правило, инвестиционные споры рассматриваются в экономическом или административном суде. Однако, по правилам Экономического процессуального кодекса Республики Узбекистан и Кодекса Республики Узбекистан об административном судопроизводстве, суды рассматривают инвестиционные споры, вытекающие только из инвестиционного договора<sup>48</sup>.

Бюрократия в регулировании инвестиционной деятельности является одним из главных препятствий для инвесторов. Она включает в себя различные административные процедуры и формальности, которые требуют время, ресурсы и усилия со стороны инвесторов. К примеру, в настоящее время Центральный банк Республики Узбекистан предлагает внести изменения в валютном регулировании. Если предложенные изменения будут приняты, то процедура покупки и вывода валюты за

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<sup>47</sup> Закон Республики Узбекистан «Об инвестициях и инвестиционной деятельности» от 25.12.2019 г. № ЗРУ-598 // Национальная база данных законодательства, 25.10.2023 г., № 03/23/871/0797

<sup>48</sup> Экономический процессуальный кодекс Республики Узбекистан от 01.04.2018 г., статья 301// Национальная база данных законодательства, 27.04.2023 г., № 03/23/833/0236  
Кодекс Республики Узбекистан об административном судопроизводстве от 01.04.2018 г.// Национальная база данных законодательства, 27.04.2023 г., № 03/23/833/0236



границу усложнятся. Усложнение процесса конвертации валюты и репатриации доходов иностранными инвесторами окажет негативное влияние на инвестиционный климат, поскольку барьеры для вывода капитала сократят приток иностранных инвестиций в страну<sup>49</sup>.

Вышеперечисленные проблемы свидетельствуют о необходимости разработки и внедрения эффективного и справедливого законодательного регулирования инвестиционной деятельности, которое обеспечит прозрачность, защиту прав инвесторов и устойчивость правовой системы. Это может быть достигнуто путём создания эффективных механизмов контроля и регуляции, а также постоянного обновления законодательной базы в соответствии с потребностями участников инвестиционной деятельности.

Если обратить внимание на законодательное регулирование инвестиционной деятельности в Республике Узбекистан, то взаимоотношения между государством и участниками инвестиционной деятельности до 2020 года регулировались законами «Об иностранных инвестициях» от 1998 года, «О гарантиях и мерах защиты прав иностранных инвесторов» от 1998 года и «Об инвестиционной деятельности» от 2014 года, а также многими подзаконными актами. Однако с принятием Закона Республики Узбекистан «Об инвестициях и инвестиционной деятельности» от 26 января 2020 года, вышеуказанные законы утратили силу, а нормы, предусмотренные этими законами, унифицированы.

Преимуществом принятия Закона «Об инвестициях и инвестиционной деятельности» является то, что данный Закон играет важную роль для развития экономики и привлечения инвестиций в страну, содействует созданию благоприятного инвестиционного климата, устанавливает правовой режим для инвесторов и регулирует их деятельность.

Роль закона состоит в том, чтобы обеспечить гарантии и защиту прав инвесторов, установить прозрачные правила и процедуры для привлечения и реализации инвестиций. Он определяет правила ведения бизнеса, защищает инвесторов от непредвиденных рисков и несправедливых действий. Принятие закона также способствует улучшению деловой репутации страны и привлечению иностранных инвесторов. Закон демонстрирует государственную поддержку инвестиций и стремление к стабильной и предсказуемой бизнес-среде.

Несмотря на это, существуют проблемы и пробелы в законодательном регулировании инвестиционной деятельности. В соответствии с частью второй статьи 1 Закона «Об инвестициях и инвестиционной деятельности», данный закон не регулирует отношения, связанные с централизованными инвестициями. При этом утратившим силу Законом Республики Узбекистан «Об инвестиционной деятельности» от 24 декабря 1998 года, было

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<sup>49</sup> Шомесов Д.В. «О регулировании инвестиций с точки зрения международного и внутреннего законодательства» // Вестник СГЮА. [Электронный ресурс], 2021. № 2

определено, что под централизованными инвестициями понимаются инвестиции, осуществляемые в рамках государственной инвестиционной деятельности путем: прямого финансирования за счет средств государственного бюджета и внебюджетных фондов, привлечения иностранных инвестиций и кредитов под гарантии Правительства Республики Узбекистан. Таким образом, порядок осуществления централизованных инвестиций, который регулировался аналогичным законом, утратившим силу, не регулируется Законом «Об инвестициях и инвестиционной деятельности». В этом случае возникает вопрос, каким нормативно-правовым актом регулируются вопросы осуществления централизованных инвестиций в Республике Узбекистан?

Также Законом установлено, что правоотношения в области концессионной деятельности регламентируются отдельным законом. Изучение законодательного регулирования данной деятельности показало, что нет определенного самостоятельного закона, регулирующего концессионную деятельность. Данная деятельность раньше регулировалась утратившим силу Законом Республики Узбекистан «О концессиях» от 30 августа 1995 года. В настоящее время концессионная деятельность регулируется как форма государственно-частного партнерства. В Законе Республики Узбекистан «О государственно-частном партнерстве» от 10 мая 2019 года, определено, что концессия — одна из форм государственно-частного партнерства, при которой государство предоставляет частному партнеру имущество и земельные участки с выдачей разрешения на осуществление определенного вида хозяйственной деятельности, предусмотренной концессионным договором. Более того, Законом «О государственно-частном партнерстве» предусматривается, что реализация концессионных проектов, а также заключение концессионных договоров осуществляются в порядке, установленном настоящим Законом для проектов государственно-частного партнерства. Таким образом в законе слова концессия почти больше не употребляются. Из этого вытекает, что отдельный порядок для регулирования концессионной деятельности не предусмотрен законодательством, а для регулирования концессионной деятельности применяются нормы государственно-частного партнерства. Однако Закон «О государственно-частном партнерстве» не охватывает все аспекты концессионной деятельности. К примеру, в соответствии с Законом «О государственно-частном партнерстве», юридические лица или объединения юридических лиц, уполномоченные государственным партнером, могут действовать со стороны государственного партнера, однако в концессионных договорах концессионными органами являются только органы государственного управления, а также органы государственной власти на местах. Кроме того, соглашение о государственно-частном партнерстве устанавливает порядок передачи прав собственности на спроектированный, созданный, профинансированный,

реконструированный, эксплуатируемый и обслуживаемый в рамках проекта государственно-частного партнерства объект частному партнеру в соответствии с решениями Президента Республики Узбекистан, однако в концессионных договорах концессионеру предоставляются только права владения и пользования предоставленным имуществом, а право собственности на него не передается<sup>50</sup>.

Обобщая вышеизложенное, можно сделать вывод о том, что несмотря на реформы в правовом регулировании инвестиционной деятельности, существуют пробелы и недостатки, препятствующие единообразному и эффективному применению норм в области инвестиционной деятельности. Вопросы правового регулирования централизованных инвестиций и концессионной деятельности недостаточно регламентированы в национальном законодательстве, что усложняет правоприменение в данной области.

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## THE LEVEL OF EFFICIENCY OF MANAGEMENT OF ACTIVITIES IN CONSTRUCTION MATERIALS INDUSTRY ENTERPRISES, INNOVATION ACTIVITY

*Abstract. Assessment of the economic potential of enterprises are considered one of the important tasks on the agenda. In this regard, it is of scientific and practical importance. To study the existing approaches and methods of assessing the economic potential of the enterprise.*

*Keywords: economic potential of construction, direction - economic potentiometry, However, at the same time, most economists evaluate, the components of economic, potential according to a system of indicators, because economic potentia, cannot be evaluated with a single indicator.*

Publications in local and foreign scientific literature testify to the extraordinary complexity of studying this issue, there are different opinions of scientists on the choice of the final measure of economic potential. Thus, according to EV Basalayeva, "It is not enough to define the economic potential theoretically, but it is necessary to develop reliable, understandable and convenient quantitative criteria for assessing its value. Therefore, it is necessary to urgently develop a new direction - economic potentiometry, the purpose of which is to study the qualitative and quantitative manifestations of economic potential. "

Some authors using labor resources, natural resources and cost indicators as evaluation criteria. The need to assess the economic potential of construction industry enterprises is that, on the one hand, it allows to determine the total value of all economic resources of the enterprise and at the same time to study the structure and dynamics of the components of economic potential, and on the other hand, it allows to compare the cost of resources with other economic indicators of enterprises. brings about. However, at the same time, most economists evaluate the components of economic potential according to a system of indicators, because economic potential cannot be evaluated with a single indicator, since the variety of properties and characteristics of various types of resources determine the level of economic development. will give. [1]

Today, the rapid economic development of the construction sector is explained by the growing role of this sector in the country's economy, including

in the GDP. From our side, the vertical analysis method was used in the analysis of economic indicators in this sector. During the research, we believe that it is appropriate to analyze economic indicators according to the coefficient of economic interest based on the approach presented in paragraph 1.3 of the first chapter. From the data in Table 3.1 below, it can be said that the growth of the construction industry in the studied period of 2011-2020 was rapid and the coefficient of interest was equal to 1.25. In turn, this means that in this period, it can be seen that the average interest rate of GDP in the country was also equal to 1.2. In addition, it can be seen that the coefficient of interest in the industrial sector was 1.23, and the average coefficient of interest in the sector of agriculture, forestry and fisheries was 1.19. From the analysis of the table, it can be seen that there is a difference between the coefficient of GDP and the income of the population, besides, there is a big difference between the coefficient of permanent population and the coefficient of employment in economic sectors. This also shows that today there is a big difference between population growth and employment growth. Another noteworthy aspect of this table is that during the 11 years under analysis, the average interest rate of investments in the construction sector in our country was equal to 1.67, which is higher than the index of interest of investments in all other industries and sectors. organized. The information in this table is not only general, but it is also possible to see how much the coefficient of interest has changed each year, and the information with all quantitative indicators of this table can be found in Appendix 1. [2]

Below shows the technological composition of investments in fixed capital in the form of percentages and their change in coefficients, where the main focus is on investments in fixed capital for construction and installation work, tools and equipment and all other Investments directed to capital works and expenses are presented in the form of a percentage and a ratio. It is noteworthy that the technological composition of capital investments in our country, i.e. investments for construction and assembly works, did not show a constant growth rate during the years 2013-2021, on the contrary, the highest rate was in 2016. it can be seen that it decreased a little in the following period, that is, it was 48.7 percent in 2012, 52.0 percent in 2016, and 44.1 percent in 2021. Correspondingly, the coefficients of change of the interest of investments in construction and assembly works were also different in different periods and were equal to 1.02 in 2013, 1.02 in 2016 and 1.08 in 2021. At the same time, we can see that the amount of investments made for tools and equipment has increased, i.e. 35.2% in 2013, 34.4% in 2016 and 48.4% in 2021, respectively. In addition, it can be seen that the coefficients of change of interest are different: 1.05 in 2013, 1.09 in 2016, and 0.98 in 2021. [3-4]

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## **THE PROSPECTS OF CALCULATION NORMALIZED DIFFERENCE SALINITY INDEX(NDSI) VIA LANDSAT 8 MULTISPECTRAL IMAGE USING GOOGLE EARTH ENGINE CODE EDITOR**

*Abstract. Due to the increasing amount of data per day and the possibility of using GIS technologies to collect and analyze them, the assessment of topical environmental issues such as salinity is becoming more accessible. In this paper the possibilities of soil salinity estimation in Google Earth Engine is presented for processing medium spatial resolution satellite images like Landsat in Sirdariya province of Uzbekistan. The result of NDSI (Normalized difference salinity index) is shown for 2022. It is implied, that the development of such approaches will speed up the data processing process and provide a unique opportunity to obtain reliable results while saving time and labor resources.*

*Key words. Soil salinity, remote sensing, Landsat 8 OLI, Uzbekistan, Google Earth Engine, NDSI.*

### *Introduction*

There are two major environmental factors that essentially reduce plant productivity: drought and salinity [1,2,3}. The monitoring of soil salinity is essential for maintaining water quality and ensuring the sustainability of aquatic ecosystems. The normalized difference salinity index (NDSI) is a widely used method for estimating salinity levels especially in water bodies. The normalized difference salinity index (NDSI) is a widely used method for estimating salinity levels in water bodies [4]. It is calculated based on the spectral reflectance values of two wavelengths, one in the visible range and the other in the near-infrared range. With the advancement of remote sensing technology, it is now possible to calculate NDSI using Landsat 8 multispectral imagery and Google Earth Engine Code Editor.

Landsat 8 is a satellite that captures multispectral imagery with a spatial resolution of 30 meters. It has two sensors, Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS), which capture data in nine spectral bands. These spectral bands cover a wide range of wavelengths, from visible to thermal

infrared, allowing for accurate estimation of various environmental parameters. Google Earth Engine Code Editor provides an easy-to-use platform for processing Landsat 8 imagery and calculating NDSI.

#### *Methods and materials*

The script was tested for Sirdarya region of Uzbekistan, which is located in the center of the country on the left bank of Syr Darya River. It borders with Kazakhstan, Tajikistan, Tashkent Region, and Jizzakh Region/ It covers an area of 4,276 square kilometres (1,651 sq mi) and is mostly desert, with the Starving Steppe taking up a significant part of the region's area. The great part of irrigated lands in Uzbekistan are affected by salinity problem in various levels. Due to the country's arid climate, and the geological and the hydrogeological conditions of irrigated areas. [5]

For fast and effective soil salinity calculations NDSI was calculated based on the spectral reflectance values of two wavelengths, one in the visible range and the other in the near-infrared range. With the advancement of remote sensing technology, it is now possible to calculate NDSI using Landsat 8 multispectral imagery and Google Earth Engine Code Editor. Landsat 8 is a satellite that captures multispectral imagery with a spatial resolution of 30 meters. The spectral bands cover a wide range of wavelengths, from visible to thermal infrared, allowing for accurate estimation of various environmental parameters ([www.nasa.gov](http://www.nasa.gov)).

The scrip was developed for Google Earth Engine Code Editor which provides an easy-to-use method for processing Landsat 8 imagery and calculating NDSI. The calculation of NDSI involves subtracting the reflectance value at the near-infrared wavelength from that at the visible wavelength and dividing it by their sum. The resulting value ranges from -1 to 1, with negative values indicating low salinity levels and positive values indicating high salinity levels (Khan et al, 2005).

$$NDSI = \frac{R - NIR}{R + NIR} (1)$$

After the necessary filtering is done in the Java programming language on the GEE code editor platform. Based on the NDSI calculation formula (1), selected items were added to the calculation. There is the written formula below.

#### *Results*

When applying the developed script, the image shown in Figure 1 was obtained. In this image, the most heavily saline areas are displayed in yellow, and the least saline ones are green. It was found that the area's most prone to salinization are located near water areas. It was also determined that about 80% of the entire territory is under the influence of salinity.

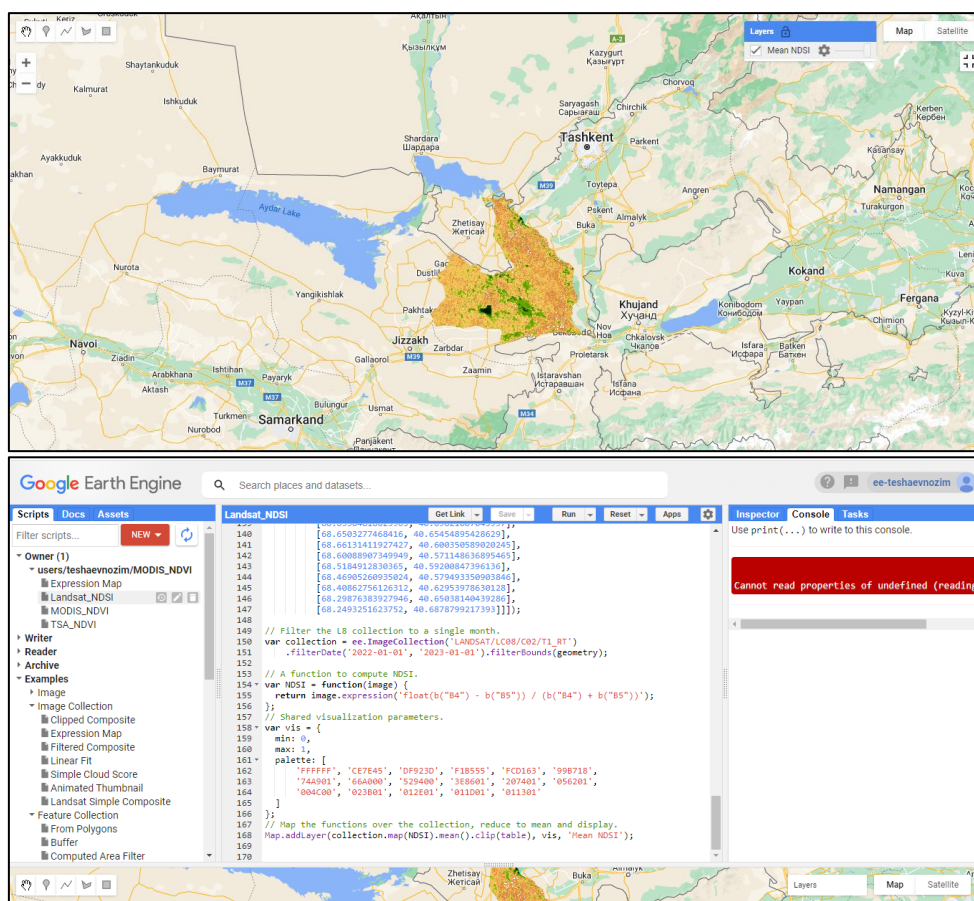


Figure 1. NDSI results for Sirdarya region.

### Conclusion

In conclusion, the prospects of calculating NDSI for Landsat 8 OLI via Google Earth Engine Code Editor are promising. The platform provides an easy-to-use interface for processing Landsat 8 imagery and calculating NDSI, while also providing functions for correcting atmospheric effects and other factors. This makes it a powerful tool for monitoring salinity levels in coastal and inland waters, contributing to the sustainable management of aquatic ecosystems. In ordinary way, most of scientists have been spending much time to assess spatial images. However, GEE can afford to save time and resources.

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## **THEORETICAL PRINCIPLES AND BASE CRITERIA FOR MEASURING THE TEMPERATURE OF A SUBSTANCE**

*Annotation. The degree of heating is described, which is determined by the internal kinetic energy generated by the thermal motion of molecules through the temperature of the body. In practice, it will be possible to measure the temperature of bodies only with the help of comparing the heating of one with respect to the other. State pointers of one of the physical properties that depend on temperature and are easily measured are also used when measuring the temperature of bodies.*

*Key coils: environment, substance, temperature, kinetic energy, heating, electrical properties.*

### **Introduction**

Temperature is an important parameter of biological and technological processes, which in practice has to be handled with both low and high temperatures [1]. Through the temperature of the body, the degree of heating is described, which is determined by the internal kinetic energy generated by the thermal motion of the molecules. In practice, it will be possible to measure the temperature of bodies only with the help of comparing the heating of one with respect to the other. State pointers of one of the physical properties that depend on temperature and are easily measured are also used when measuring the temperature of bodies.

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The bond between the average kinetic energy of molecules and the ideal gas temperature is expressed by the formula [1]:

$$E = \frac{3}{2} KT \quad (1)$$

where K is the Boltzmann constant,  $K=1,380 \cdot 10^{-23}$  J.; T – body absolute temperature, K.



If the temperature of the bodies is different, an equalization of energies occurs when they are tangled together; an object with higher temperatures and, hence, more kinetic energy in its molecules gives its heat (energy) to a lower temperature and, consequently, to an object whose molecules have less kinetic energy. Thus, temperature is a parameter describing both qualitative and quantitative aspects of heat exchange, heat transfer processes. But if the temperature cannot be measured directly, it will also be possible to determine it by some other physical parameter that depends on the temperature in one value. Temperature-dependent parameters include volume, length, electrical resistance, thermoelectric conducting force, energetic clarity of radiation, etc [2].

### Results and discussion:

The instrument measuring temperature was first recommended by Galileo in 1598. Then thermometer was developed by Lomonosov and Fahrenheit [2]. To find the numerical value of the measured temperature, it is necessary to set a scale of temperatures, that is, select the number head and the unit of measurement of the temperature range. A series of signs in the temperature range bounded by the boiling and melting points of chemically pure substances that are easily recovered (the main rapper and base) form a temperature scale. These temperatures are given values  $t^{\prime}$  and  $t^{\prime\prime}$ . Then the unit of Measure [3]:

$$1 \text{ градус} = \frac{t^{\prime\prime} - t^{\prime}}{n} \quad (2)$$

here:  $t^{\prime}$  and  $t^{\prime\prime}$  - easy-to-recover fixed temperatures;  $n$  -  $t^{\prime\prime} - t^{\prime}$  the temperature range between the base points is a divisible integer.

Equation of temperature scale:

$$t = t^{\prime} + \frac{v - v^{\prime}}{v^{\prime\prime} - v^{\prime}} \cdot (t^{\prime\prime} - t^{\prime}) \quad (3)$$

were:  $t^{\prime}$  and  $t^{\prime\prime}$  - base points of the substance (760 mm wire.who.at pressure and acceleration of the weight force  $980,665 \text{ cm/s}^2$ , the melting temperature of the moss and the boiling temperature of the water);  $v^{\prime}$  and  $v^{\prime\prime}$  -  $t^{\prime}$ ,  $t^{\prime\prime}$  the volume of a substance (liquid) at temperatures;  $v$  -  $t$  the volume of a substance (liquid) at temperature.

In nature, volumetric expansion and temperature in all cases do not contain interlinear connected fluids. The physical nature of a liquid substance (Mercury, alcohol, etc.) inside a thermometer has its effect in measuring temperature. That is why, with the development of Science and technology, the need arose to create a single temperature scale that was not associated with a single property of a substance put into a thermometer. In 1848, the English physicist Kelvin proposes to construct a new temperature scale based on the second law of thermodynamics. Equation of the thermodynamic temperature scale [3]:

$$T = \frac{Q}{Q_{100} - Q_0} \cdot 100\% \quad (4)$$

where:  $Q_{100}$  and  $Q_0$  are the amounts of heat corresponding to the boiling and melting temperatures of water;  $Q$  is the amount of heat corresponding to the temperature.

The decisions of the XI international conference on measurements and weights of 1960 and GOST 8550-61 envisage the use of two types of temperature scales, the thermodynamic scale measured by the Kelvin degree (K) unit of measurement and the International practical scale measured by the Celsius degree (0s) unit of measurement. The bottom point on the Kelvin thermodynamic scale is the absolute zero point (R), and the only experimental principal point is the triple point of water. The numerical value of this point is 273.15 K. The triple point of water, which is the equilibrium point in the phases of water's molten, liquid gas, stands 0.01 K higher than the molten melting point. Thermodynamic temperature is represented by the letter T, and number values by K.

Table 1.

**Main base points of IPTS-68**

№	Phase equilibrium states	Accepted international temperatures	value at practical
		$T_{68}, K$	$t_{68}, ^\circ C$
1	2	3	4
	Balance between the solid, liquid and gaseous phases of hydrogen (tertiary point of hydrogen)	13,81	-259,34
	Liquid and gaseous phases of hydrogen at a pressure equal to 33330.6 Pa (25/76 normal atmospheric pressure)	17,042	-256,108
	Balance between liquid and gaseous phases of hydrogen (boiling point of hydrogen)	20,28	-252,87
	Balance between the liquid and gaseous phases of neon (boiling point of neon)	27,102	-246,048
	Balance between the solid, liquid and gaseous phases of oxygen (boiling point of oxygen)	54,381	-218,789
	Balance between liquid and gaseous phases of oxygen (boiling point of oxygen)	90,188	182,962
	Balance between the solid, liquid and gaseous phases of water (tertiary point of water)	273,16	0,01
	Balance between liquid and vapor phases of water (boiling point of water)	373,15	100
	Balance between the solid, liquid and gaseous phases of zinc (solidification point of zinc)	692,73	419,58
	Balance between the solid, liquid and gaseous phases of silver (solidification point of silver)	1235,08	961,93
	Balance between solid, liquid and gaseous phases of gold (solidification point of gold)	1337,58	1064,43

The International Practical temperature scale used in practical measurements is processed in the form of a thermodynamic scale. This scale is based on the somewhat easily recoverable fixed boiling and melting points of chemically pure substances. Their numerical value was determined by gas thermometers, and the International Practical temperature scale (IPTS-68) was adopted at the XI General Conference on measurements and weights [4,5].

The temperature measured on the international practical scale is represented by the letter  $t$ , and the numerical value by the symbol  $0S$ . The relationship between the temperature expressed on the absolute thermodynamic scale and the expression of that temperature on the international scale is determined by the following equation [3]:

$$T=t + 273,15, (5)$$

where:  $T$  is the temperature  $K$  on the absolute thermodynamic scale;  $t$  is the temperature  $0s$  on the international practical scale

England and the United States apply the Fahrenheit scale ( $0F$ ), proposed in 1715. This scale is based on two points depending on the state of the water, namely the melting point of the Moss ( $32\ 0F$ ) and the boiling point of the water ( $212\ 0F$ ) [5].

There is the following relationship between the temperatures calculated on the international practical scale, absolute thermodynamic scale and Fahrenheit scale:

$$t\ 0C=t\ 0K - 273,15 = 0,556 (n\ 0F - 32) (6)$$

where:  $n$  is the number of degrees on the Fahrenheit scale.

### **Conclusion:**

Currently, the International Practical temperature scale (Hahsh-68) is used, adopted in 1968 and forcibly introduced from January 1, 1971 [4]. It consists of the practical application of the absolute thermodynamic temperature scale. This scale is chosen so that the temperature measured on it is close to the thermodynamic temperature, and the subtraction between them is within the limits of modern measurement accuracy. IPTS - 68 will be based on a system of constant, precisely recoverable stagnation temperatures. Their number values will be given. The most important fixed points (temperatures) of hahsh-68 are given in Table 1. Hahsh - 68 provides temperature measurement in the range from  $13.81\ 0K$  to  $6300\ 0K$  [6].

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## **ILMIY VA ILMIY-USLUBIY NASHRLARDA TEXNIK BELGILAR BIRLIKLARINING BELGILARINI TO'G'RI IFODALASH QOIDALARI**

*Annotatsiya: jismoniy miqdorlarning qiymatlarini ifodalash uchun harf yoki maxsus ramziy birliklar ishlatiladi. Xalqaro birliklar lotin yoki yunon alifbosidagi harflardan foydalanadi. O'lchov birliklarining harf belgilari to'g'ri shriftda yozilishi kerak birlik belgilari miqdorlarning raqamli qiymatlaridan keyin yozilishi va ular bilan bir qatorga joylashtirilishi kerak (keyingi qatorga o'tkazilmasdan). Raqamning oxirgi raqami va o'lchov birligi belgisi o'rtasida bitta harf kengligida bo'sh joy qoldiriladi.*

*Kalit so'zlar: jismoniy o'lcham, harf, maxsus belgi, lotin, yunon alifbosi, harflar, to'g'ri shrift.*

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## **RULES FOR THE CORRECT EXPRESSION OF SIGNS OF TECHNICAL FURNACE UNITS IN SCIENCE AND SCIENTIFIC AND METHODOLOGICAL PUBLICATIONS**

*Annotation. Units with a letter or special symbol are used to represent the values of physical magnitudes. International units use Latin or Greek alphabet letters. The letter symbols of the units of measurement must be written with the correct font the symbols of the units must be written after the numerical values of the quantities and placed with them in a single row (without moving to the next row). A space one letter wide is left between the last digit of the number and the symbol of the unit of measurement.*

*Key cots: physical size, letter, special character, latin, Greek alphabet, letters, correct font.*

### **Kirish**

Fizik kattaliklar qiymatlarini ifodalash uchun harfli yoki maxsus belgili birliklar (...°, ...' ...'') ishlatiladi]1,2,3,4,5]. Xalqaro birliklar latin yoki yunon alifbosi harflari ishlatiladi. Nisbiy hamda logorifmik birliklarning xalqaro va o'zbekcha belgilanishi quyidagicha: foiz (%), promille (‰), milliondan bir ulush

(rrm, mln.-1), bel (V, B), detsibel (dB, dB), oktava (–, okt), dekada (–, dek), fon (rhon, fon).

**Materiallar va usullar:**

Bunga modellashtirish, faktlarni aniqlash, eksperiment, tavsiflash va kuzatish kabi empirik usullar, shuningdek mantiqiy va tarixiy usullar, abstraktsiya, deduksiya, induksiya, sintez va tahlil kabi nazariy usullar, shuningdek evristik strategiyalar usullari kiradi. Tadqiqot materiallari: ilmiy faktlar, oldingi kuzatuvlar natijalari, so'rovlar, tajribalar va testlar; ilmiy yondashuvni idealizatsiya qilish va ratsionalizatsiya qilish vositalari.

O'lchov birliklarining harfli belgilari to`g`ri shrift bilan yozilishi kerak. Birliklarni belgilashda qisqartirish belgisi sifatida nuqta qo`yilmaydi [3].

Birliklarning belgilari kattaliklarning sonli qiymatlaridan keyin yozilishi hamda ular bilan bitta qatorga (keyingi qatorga ko`chirilmasdan) joylashtirilishi kerak.

**Natijalar va munozaralar:**

Sonning oxirgi raqami bilan o`lchov birligi belgisi o`rtasida bir harf kengligida bo`sh joy qoldiriladi.

*To`g`riNoto`g`ri*  
 200 kVt200kVt  
 180 % 180%  
 50° S50 °S; 50°S

Qator ustiga ko`tarilgan belgi ko`rinishidagi belgilashlar bundan istisno, ular oldida bo`sh joy qoldirilmaydi (...°, ...' ...").

*To`g`riNoto`g`ri*  
 20°20 °

4. Kattalikning sonli qiymatida o`nli kasr qatnashsa, birlik belgisini barcha raqamlardan keyin qo`yish kerak.

*To`g`riNoto`g`ri*  
 435,06 m435 m, 06  
 5,758° yoki 5°45,48'5°,758 yoki 5°45', 48  
 yoki 5°45'28,8''yoki 5°45' 28'',8

1-jadval

Namunaviy texnologik sarf o`lchash dastgohlarinihg texnik ko`rsatkichlari

Nominal sarf, m <sup>3</sup> /soat	Ko`rsatishlar-ning yuqori chegarasi, m <sup>3</sup>	Chetki o`ng g`ildirakning bo`lak qiymati, m <sup>3</sup> , ... dan ortiq emas	
40 va 60	100000	0,002	
100, 160,250, 400, 600 va 1000	1000000	0,02	
2500, 4000, 6000 va 10000	10000000	0,2	
Tortish quvvati, kVt	18	25	37
Gabarit o`lchamlar, mm			



Uzunligi	3080	3500	4090
Kengligi	1430	1685	2395
Balandligi	2190	2745	2770
G`ildiraklar oralig`i, mm	1090	1340	1823
Tirqish, mm	275	640	345

Kattaliklarning qiymatlarini chegaraviy chetlanishlar bilan birgalikda ko`rsatish zarur bo`lsa sonli qiymatlar chegaraviy chetlanishlar bilan birgalikda qavsga olinishi va birlik belgilari qavslardan keyin qo`yilishi yoki birlik belgilarini sonli qiymatlardan keyin hamda chegaraviy chetlanishlardan keyin ham qo`yish kerak bo`ladi.

*To`g`riNoto`g`ri*

(100,0±0,1) kg 100,0±0,1 kg

50 g±1 g 50±1 g

Texnik birliklar belgilarini jadvallarning ustun va satrlari sarlavhalarida ishlatish ham ruxsat etiladi (1-jadval):

Birlik belgilarini formulalarda ishlatilgan belgilarga izoh berishda ishlatish mumkin. Lekin kattaliklar yoki ularning sonli qiymatlari o`rtasidagi bog`lanishni ifodalovchi formulalar bilan bitta qatorda birlik belgilarini ishlatish tavsiya etilmaydi.

*To`g`riNoto`g`ri*

$v=3,6 \text{ s/tv}=3,6 \text{ s/t}$ , km/s,

v – tezlik, km/soats – yo`l, m,  $s=vt$

s – yo`l, mt – vaqt, s,  $t=s/v$

t – vaqt, s

Ko`paytma tarkibiga kiruvchi birliklarning harfli belgilari bir – biridan ko`paytiruv belgisi sifatidagi o`rta chiziqda joylashgan nuqtalar bilan ajratilishi kerak.

*To`g`riNoto`g`ri*

N·mNm

A·m<sup>2</sup>A m<sup>2</sup>

Pa·sPas

Agar tushunmovchilikka olib kelmasa, ko`paytma tarkibiga kiruvchi birliklarning belgilarini bir – biridan bo`sh joy bilan ajratib yozish ruxsat etiladi.

Birliklarning nisbatlarini ifodalovchi harfli belgilarda bo`lish belgisi sifatida faqat bitta qiya yoki gorizontal chiziq ishlatilishi kerak. Birlik belgilarining ko`paytmasida musbat va manfiy darajaga ko`tarilgan birlik belgilarini ishlatish ruxsat etiladi [3,4,5].

*To`g`riNoto`g`ri*

$Vt \cdot m^{-2} \cdot K^{-1} Vt / (m^2 K)$

Shuningdek, ...°, ...' ...", % va kabi maxsus belgilar bilan birliklarning harfli belgilarini birgalikda ishlatish ruxsat etiladi, masalan, ...°/s i va h.k.

Agar ifoda tarkibiga kiruvchi birliklarning birida manfiy daraja qatnashgan belgi (masalan, s<sup>-1</sup>, m<sup>-1</sup>, K<sup>-1</sup>) ishtirok etsa, bo`lish belgisi sifatida qiya yoki gorizontal chiziqni ishlatish ruxsat etilmaydi.

Agar qiya chiziq ishlatilsa, surat va maxrajdagi birlik belgilari bitta qatorda joylashtirilishi, maxrajda joylashgan birlik belgilari ko`paytmasi qavs ichiga olinishi kerak.

*To`g`riNoto`g`ri*

Vt/(m·K) Vt/m·K

Ikki va undan ortiq birlikdan tarkib topgan hosilaviy birlikni ko`rsatish uchun harfli belgilar va birlik nomlar aralashtirib ishlatish, ya'ni bir xil birliklarning belgisini ko`rsatgan holda boshqalarining nomini ko`rsatish ruxsat etilmaydi. Masalan:

*To`g`riNoto`g`ri*

80 km/soat80 km/s

soatiga 80 kilometrsoatiga 80 km

#### **Xulosa:**

Doimo sifatni ta'minlash va oshirish muammosi dolzarb va murakkab muammolardan biridir. Buni hal qilishda standartlash (texnik me'yorlash bilan birgalikda), metrologik o`lchov texnikasining holatini yaxshilash, zamonaviy sinash, o`lchash va sifat nazorati vositalari va uslublarini ken g'orijiy etish muhim o`rin tutadi [6,7,8,9,10,11,12,13,14].

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## **QUALITY MANAGEMENT WHEN CHECKING THE TECHNICAL CONDITION OF STRUCTURES OF BUILDINGS AND STRUCTURES**

*Annotation. The main task of testing structures is to study how compatible their actual working state with the accounting scheme is. Engineering houses consist of a working Mexican system in case of complex stress-deformation. Therefore, despite the fact that the construction kitchen and House dynamics have evolved and advanced greatly by the present time, in the design process comes information on the modeling and simplification of the accounting schemes of objects. A set of test rules is established, based on the exact principles of the test method. It develops methods for generating appearance, choosing measuring equipment, processing results according to the rules.*

*Keywords: building, structure, inspection test, true conditionm recommended.*

### **Introduction**

The purpose and task of checking and testing the technical condition of buildings and structures is to develop methods and equipment that characterize the state and nature of objects in motion, set for assessing quality indicators, as well as to study the processes taking place in them, to experimentally determine the constructive and operational characteristics of the materials of the structure. As a result of the examination of building structures, quality defects are found, analyzed and, based on the conclusions obtained, changes are made to the accounting scheme or account of this or that structure. In this regard, the inspection of structures is of great practical importance [1].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The importance and effectiveness of the methods of inspection of buildings and structures is evident in antiseismic measures implemented in the construction practice based on the study of the consequences of previous earthquakes. Building and structures built after studying the results of the 1976 earthquake in Gazli, carrying out appropriate antiseismic measures and measures, were partially

damaged in the 1984 re-repeated earthquake holos. In the 1985 Mexico City earthquake, more than 500 buildings were demolished, including 40 skyscrapers, while a number of buildings were not damaged by the earthquake, as measures were taken to reduce the impact of the earthquake. In the 1985 Qayroqkum earthquake, the building of the qayroqkum carpet enterprise, built in the 50s without antiseismic measures, was completely demolished [2].

### **Results and discussion:**

The main task of testing structures is to establish how appropriate the real working State is with their accounting scheme. Engineering structures consist of mechanical systems that operate in a state of complex stress - deformation. Therefore, despite the fact that the dynamics of construction mechanics and structures have evolved and advanced greatly by the present time, in the design process it is necessary to model and simplify the accounting schemes of objects. In particular, the stretchability strength of ST3 brand Steel, which is practically considered homogeneous, is N.S.A test by streletsky found that the threshold for fluidity varies between 200 MPa and 320 MPa. The dispersion in the strength of concrete and Wood will be even greater.

Testing plays a very important role in assessing the actual strength of any material, bringing the theoretical calculations of structures closer to their actual working state, and improving accounting algorithms.

The main purpose of the test is to study the condition of structures under loading.

While science and technology are developing, technological processes are improving. As a result of this, outdated technological systems will have to replace equipment with a new one. The process of restoring structures damaged by earthquakes, landslides, natural disasters such as winds, war actions also begins with direct inspection.

Structural structural inspection consists of 3 steps:

- primary dating with project documentation, worker performance drawings and case closure documents;
- visual inspection of the object, determining whether the object is suitable for the project, identifying visible defects, drawing up a plan for the inspection of the facility, conducting complex research using methods of indestructible testing;
- analysis of the state of the structure and the development of recommendations for the elimination of identified shortcomings.

Quality control of the construction structures being prepared is carried out using methods of demolition and indestructible testing. In distortion testing, we will have full knowledge of how the structure behaves under load and its strain-deformed state. But if we break down each prepared product and determine the strength of the test, then all the products would have become unusable. And a non-exhaustive test cannot always provide full information about the structure being tested. Even in calculations carried out using the calculation technique, full-fledged information about the actual working state of real systems cannot be

taken. Therefore, it is necessary to carry out theoretical research in practice, together with methods of testing without distortion and distortion.

One of the main tasks of inspecting and testing structures is to determine their true state and suitability for further exploitation. This problem is directly linked to the assessment of the serviceability of the system under consideration.

Reliability is understood as the property of performing a function placed in front of the system at a certain time frame, under certain operating conditions. Reliability consists of complex characteristics, including unevenness, long-term durability and serviceability for repair.

Uniqueness is the property of maintaining the operability of an object for a certain period of time. Long-term resilience is the property of an object to maintain operability without falling into a long-term bound state

Repairworthiness is the property that an object manifests itself before a breakdown and is fit to be repaired and repaired. The main purpose of testing buildings, structures and structures is to determine their load-bearing capacity, bikrity and crevi.ce. The test can also be carried out in realistic structures, layouts or models. Test facilities and methods of loading them are selected in accordance with the tasks set before the test.

When testing Real objects, the task of determining the actual working condition of the structures being exploited can be determined. Methods of indestructible testing are widely used in this. In addition to methods of non-destructive testing of structures selected for the experiment, distortion testing is also carried out. In this case, the test will continue until the structure of the structure loses its carrying capacity.

The test method is determined by a set of test rules based on specific principles. Under these rules, methods are developed for generating external influence, choosing measuring equipment, processing results. Due to the fact that the testing is associated with large material costs, as well as the use of expensive machines and equipment in the testing process, it is necessary to carefully prepare for the testing [3,4,5,6].

The test load on structures can be given in dynamic and static ways. In the construction, according to the layout form, the loadings are presented, divided into linear and surface-distributed types.

In practice, any loading process takes place at some time interval. Therefore, there is no real static load. In order to evaluate the description of the loading by time, it is necessary to compare the period of private oscillation of the object being viewed with the time of reaching the maximum value of the loading [7,8]. If the amount of the load changes linearly and reaches its greatest value at some given time interval, and it treats the structure's private oscillation period  $T$  with a cell/ $T > 10$ , the effect of force inertia during the loading process is sufficiently small. The value of the dynamic coefficient  $K_{\delta}$  does not exceed 1.03, i.e. [1]

$$K_{\delta} = U_{\delta} / U_s \leq 1,03(1)$$



where:  $U_s$  is the oscillation of a structure from a static load;  $U_d$  is the oscillation of the structure from a dynamic load (considering the loading speed). In such a situation, the construction can be considered loaded in a static way.

### **Conclusion:**

The change description of variable amplitude dynamic loads will be unknown until testing. Dynamic loadings are mobile and excitable. The result from the action of stationary mounted equipment is excitable, and the result from the movement of people, electrocars, cranes are moving loadings. Dynamic loadings are divided into periodic and non-linear, harmonic as well as and pulsed types, depending on the change in eigenvalue over time [9].

The types of dynamic downloads are very diverse. They can have variable amplitudes and fixed amplitudes. The value of dynamic loads with constant amplitude varies according to a specific law in time. Such loadings are formed by the work of unbalanced mass mechanisms, generators, electric motors and blowers [10].

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## THE MERIT OF MIRZO ULUGBEK IN THE FORMATION OF MODERN ASTRONOMY

*Abstract. Under the leadership of Ulugbek, Samarkand astronomers created the astronomical catalog "Zij Koragani". The catalog is also known as the "Ulugbek Star Map". These tables were the result of many years of work by scientists. In this catalog, 1018 celestial bodies are arranged according to their zodiacs (by star sets), ordinal numbers, names, location coordinates (distance and latitude from the Sun) in the celestial sphere are given. When assigning coordinates as a reference point in time, their position at the time of the equinox of 1437 according to the Solar calendar is assumed.*

*Keywords: astronomy, observatory, quadrant, ecliptic, celestial, luminaries, zodiac, coordinate, calendar.*

### **Introduction**

Ulugbek built an observatory on the Obi-Rahmat hill near Samarkand in 1420-29. The building had the shape of a three-storey circle with a diameter of 46-40 meters and a height of up to 30 meters. This is also evidenced by Zahiriddin Muhammad Babur. Historian Abdurazzak Samarqandiy wrote about the observatory: "The place was chosen from the northern side of Samarkand, where famous astrologers determined an auspicious day that was on the way to sending this work. The building was built on the basis of strength and grandeur. The foundations and columns were made so strong that even before the Day of Judgment they were not moved anywhere, they were not destroyed. The paintings and incomparable photographs that were placed inside these magnificent rooms of the castle, built high, depicted the seven floors of the celestial sphere, climates, mountains, rivers, deserts, everything that belonged to the Holy World, degrees, minutes, seconds and a tenth of a second of the nine disasters. Since then, it has been decided to start observing the movement of the Sun and planets, and record those who saw it." [1]

The main pylon of the observatory consisted of a very huge instrument (a vertical circle) measuring an angle with a radius of 40,212 meters and an arc length of 63 meters. The researcher of antiquity V.L.Vyatkin suggests that the preserved fragment of the structure was "nothing more than part of a large quadrant, half of which was below the horizon, and the other half protruded above the horizon" (Fig. 1) [2].

Under the leadership of Ulugbek, Samarkand astronomers created the astronomical catalog "Zij Koragani". The catalog is also known as the "Ulugbek Star Map". These tables were the result of many years of work by scientists.

"Ulugbek Ziji" consists of an introduction, that is, a theoretical part (this part is given, as a rule) and tables compiled on the basis of observations made at the observatory.

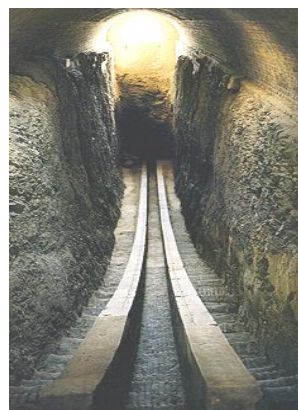


Figure 1. The large square of the Ulughbek Observatory

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

### **Results and discussion:**

The first book "Zij" is devoted to epochs and various calendars. It describes the eras of the Hijra, Greece and Yezdigard, the methods of their calculation, and the relationship between them. In addition, the Malikshah era, the Chinese and Uighur eras were also considered. The book also describes the issue of defining a leap year. Ulugbek says that there are 11 leap years for every 30 years [3].

The second book "Zij" is devoted to mathematics and spherical astronomy. His third book is devoted to trigonometric tables. These books contain tables of sines and tangents in decimal notation with ten-digit precision. This is considered to be a huge accuracy for the 15th century.

The third book, "Zij", devoted to applied astronomy and measurements, covers issues such as the inclination of the ecliptic to the equator, determining the coordinates of celestial bodies and determining the distances between satellites and planets [4].

To clearly show how accurate Ulugbek's calculation of the inclination of the ecliptic to the equator is, we present the calculations of scientists up to Ulugbek (Table 1).

This is part of a book on the theory of planetary motion that focuses on the "equation of time" - the difference between actual solar time and average solar time. There are two reasons why this difference is formed: firstly, the sun moves unevenly along the ecliptic, and secondly, the inclination of the ecliptic to the equator changes during the day.

Table 1

**The inclination of the ecliptic (trajectory of rotation) of the Sun to the equator of the Earth according to various scientists**

№	Name of the scientist (period of residence)	The results of the survey and calculation	The results of the survey and calculation
1.	Eratosthenes (276-194 BC)	230 51` 20``	+7' 35''
2.	Hipparchus (II century)	230 51` 20``	+8' 23''
3.	Ptolemy (II century)	230 51` 20``	+10' 10''
4.	Al-Battani (850-929)	230 35`	+0' 17''
5.	As-Sufi (903-986)	230 33` 45``	+0' 50''
6.	Abdul Wafa (940-998)	230 35`	+0' 35''
7.	Al-Kuhi (10th century)	230 51` 01``	+16' 36''
8.	Ibn Yunus (950-1009)	230 34` 52``	+0' 33''
9.	N.Tusi (1201-1274)	230 30`	+2' 9''
10.	Ulugbek (1394-1449)	230 30` 17``	+0' 32''

Taking into account the data that Ulugbek gave on the annual movement of the planets, astronomical calculations of our days show that the scientist achieved tremendous accuracy in his time (Table 2):

Table 2

**The inclination of the ecliptic (trajectory of rotation) of the Sun to the equator of some planets according to various scientists**

№	The name of the planet	According to the calculation of Ulugbek	According to modern calculations
1.	Zuhal (Saturn)	120 13' 39''	120 13' 36''
2.	Mushtari (Jupiter)	300 20' 34''	300 20' 31''
3.	Mirih (Mars)	1910 17' 15''	1910 17' 10''
4.	Zuhro (Venus)	2240 17' 32''	2240 17' 30''
5.	Utorud (Mercury)	530 43' 13''	530 43' 3''

In this book, Ulugbek also outlines the issues of determining the average distance over an arbitrary period, determining the true position of the planets on the celestial sphere, as well as solar and lunar eclipses. He argues that the period of lunar and solar eclipses can be determined in two different ways – using a table and direct calculation [4].

The role of Ulugbek Ziji in the star catalog also deserves attention. In this catalog, 1018 celestial bodies are located according to their zodiacs (according to the star sets), their ordinal numbers, names, location coordinates (distance and latitude from the Sun) in the celestial sphere are given. When assigning coordinates for the time reference point, their position at the time of the equinox of 1437 according to the Solar calendar is assumed [4].

### **Conclusion:**

It is interesting that when Western scientists endlessly argued among themselves about the correctness of the geocentric or heliocentric arrangement of the planets, including the Earth and the Sun, Eastern astronomical schools had been performing calculations for 6-7 centuries to determine lunar and solar eclipses, equinoxes on specific planets, even on distant stars.

Once he was able to perform the above-mentioned engineering calculations, it adequately comes to mind that the Ulugbek scientific school had the theoretical foundations of the heliocentric arrangement of the planets, initial hypotheses, axioms, theorems and calculated approximate underpinnings of the law of universal gravitation, the theories of Kepler, Copernicus and even Tsiolkovsky, knew about the two Southern and Northern polarities of the Sun, imagined that the axis and the ellipses of rotation of the Sun's satellites in the polar waters are narrowing, where the flight and winter periods of the year on the planets occur; at the midpoints between the poles, the axis of the ellipse of rotation of the satellites of the Sun acquires the most elongated forms, where the spring and autumn periods of the year occur on the planets.

Let's continue with adequate judgments: in the middle of the spring and autumn periods of the year, equinoxes are celebrated on the planets; in the middle of the flight period of the year, the "Longest day" is recorded on the planets; in the middle of the winter period of the year, the "Longest night" is observed on the planets...

It does not require proof that this is a great merit of Mirzo Ulugbek and his associates. Ulugbek is a teacher not only of Oriental, but also of all world astronomical schools!

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## **RESISTANCE TO PROVOCATIONS IS A RELIABLE PROTECTION OF PRODUCTIVE CREATIVE ACTIVITY**

*Abstract: provocation is a psychological manipulation, a "challenge" aimed at forcing the victim to behave in a certain way. Usually we are talking about undesirable behavior, which implies harmful consequences for the victim, which are beneficial to the provocateur. Even after recognizing the provocateur, it is not always possible to effectively resist him. If you realize that you have succumbed to provocation, carefully analyze this situation.*

*Keywords: provocateur, aggressor, psychopath, gossip, introspection, defense.*

### **Introduction**

The change of the acting person himself is, therefore, an integral part of all human activity to the extent that a person finds himself faced with the need to live and act, including adapting to a world that is largely created by the same activity. Today we see many examples of the fact that the adaptation of man and humanity to the changes generated by previous activities often becomes far from an easy problem, if we talk, say, about the changes to which our environment is exposed [1].

At the same time, most people easily succumb to yf, because they are not able not only to resist them, but even to recognize them. Using this, skillful provocateurs "play" with their victims, putting them in a bad position and achieving their goals [2].

Provocation is a psychological manipulation, a "challenge" aimed at forcing the victim to behave in a certain way. Usually we are talking about undesirable behavior, implying harmful consequences for the victim, which at the same time are beneficial to the provocateur. In everyday life, provocations are most often aimed at throwing an opponent off balance, forcing him to behave inappropriately and convincing all his colleagues that he is wrong.

To get the opponent out of himself, the provocateur can use special questions and statements, which he utters in a calm tone:

- "Is this information from an authoritative source? And from which one?";
- "I have the right to express my opinion. Or has freedom of speech been abolished?";
- "Can you prove it? Or are these empty words, as usual?";
- "You're making up something that didn't happen!";



- "So what?!".

There are many different examples. But there are several typical types of provocation that are most often found in everyday life and are played out in works of art [2].

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

In real life, provocation is often used in close relationships in order to cause conflict and at the same time look like a victim, not an aggressor. For example, spouses use this approach when clarifying a relationship in order to ensure a deliberately advantageous position for themselves and convince the "soulmate" that she is to blame for the quarrel. Such a "game" usually takes place on a personal level between two people, but sometimes it is aimed at the general public.

There are different types of provocations:

Exploitation of ambition and vanity. Provocation is not always aimed at a negative reaction. Skillful manipulators can use it to force the interlocutor to behave in a certain way. A famous example is described in the fable "The Crow and the Fox": with the help of praise, the Fox lulls the vigilance of the Crow and makes it drop the cheese. Provocations are often found in works of art. For example, a spy provocateur can "admire" how important and influential the interlocutor is in order to get him to talk, forcing him to brag and give out secrets.

Checking the boundaries of independence. It is very often unconsciously resorted to by children who violate the restrictions of their parents and guardians in order to understand how far they can freely go and what the consequences will be. This is not because they are such skillful provocateurs, it's just that children like to experiment, in this way they actually calculate the reaction of adults. This approach is chosen and coordinated at work, when changing the commanding staff [4].

The demand for evidence and arguments for justification is used in public disputes to convince others of their own rightness. Its essence lies in the fact that the provocateur accuses the opponent of something and waits for a reaction. The opponent finds himself in a losing situation. He can deny the accusations or begin to justify himself – to others he will still look guilty.

Another type of provocation is a test for "weakly", here the provocateur demands that the opponent prove his determination or courage by performing some dangerous, reckless and, as a rule, completely meaningless action. Checking for "weak" is often used to achieve beneficial actions for oneself. For example, a seller in the market may significantly doubt the solvency of the buyer and offer him a cheaper thing. The same one, outraged, demands to give him the most

expensive one, and then pays much more for it than he originally intended to spend, just so as not to lose face in the dirt [6].

### **Results and discussion:**

All types of provocations can be divided into two large groups:

- **Demonstrative.** This is what provocations are called, which are obvious to the victim himself and to others, and also have clear goals. These can be direct insults, lies, slander, bullying and other types of defiant behavior. Most people react to such attacks against themselves emotionally and intemperately. This is what a provocateur usually needs. Positive provocation at the expense of flattery, praise and admiration can also be obvious, but the victim herself often does not notice it, because pleasant words lull her to sleep.

- **Hidden.** This is what provocations are called, which are difficult to recognize. In addition, even if the provocation becomes obvious, its goals still remain unclear. In fact, this is covert manipulation of the victim. The provocateur achieves his goals, the victim does not know about anything, which means he cannot resist.

With provocateurs, everything is somewhat more complicated than with provocations. To choose the optimal tactics of confrontation, it is necessary to correctly identify the "type" of the provocateur. There are 5 main types:

- **The provocateur is a politician.** Provocateurs belonging to this species are willing to spend time and effort to develop well-thought-out plans. Their goals may be different. But in any case, they are very dangerous, especially when you consider that they mask their "subversive" activities well. Having found such a provocateur among friends, you need to immediately understand that he is very dangerous. You can't get too close to him, but you don't need to quarrel once again, because it will be very difficult to confront him on his own territory [5].

- **A vampire.** Many provocateurs are ordinary energy vampires who destabilize the situation around them in order to get "nourishment" from others. Representatives of this species are less dangerous than political provocateurs. And yet, it is also better to stay away from them, because you will not be able to build good friendships with them anyway.

- **The gossip.** Some people just like to collect, multiply and spread gossip. Once they are alone with you, they begin to "wash the bones" of friends, colleagues and other acquaintances who are not around. You need to be very careful with such people, because in another company they behave the same way, they can spread gossip and accusations about you as well. The best tactic of communicating with a gossip is to distance yourself as much as possible and become "uninteresting" for him, even "unnecessary".

- **Flagship of justice.** There are people who pretend to be zealous righteous men fighting with all their might for the truth. At the same time, they themselves are far from saints, but they do not care. But they diligently expose the sins of others. As a rule, they are very aggressive and at the same time always confident in their rightness, in connection with which they can pose a serious danger [7].

- An ordinary psychopath. This may be a sociopath or just a person with an unstable psyche who reacts aggressively to most external stimuli. As a rule, such a person does not have a clear motivation, but it is difficult for him to control himself, and any event can make him lose his temper. Such people brawl in queues, are rude to sellers and cashiers, and behave provocatively in public places. They show an aggressive reaction even in the company of people they have known well for a long time [8].

### **Conclusion:**

As we have already found out, provocation can be demonstrative or hidden. An explicit provocation is usually obvious, but an implicit one is difficult to recognize. Its presence is usually signaled by a feeling of discomfort that occurs when communicating with a provocateur, even if he does not give himself away in any way. One of the reasons for this feeling is that such people implicitly break through the psychological protection of the victim, trying not to give themselves away in any way. If communication with some person causes a feeling of discomfort, most likely, an implicit provocation occurs.

Even after recognizing the provocateur, it is not always possible to effectively resist him. There are three important rules, compliance with which provides reliable protection against aggression and provocations:

- Stand your ground. A person who doubts himself is a faithful victim of provocations. Therefore, you must always be confident in your words and your own opinion. No matter how the provocateur behaves, you can not show him that he made you doubt, put you in an awkward position.

- Never explain anything unnecessarily to anyone. If you realize that the other person is trying to get you out of yourself or take control of your emotions, you lose your composure, feel free to stop the conversation and immediately leave that place. This way you will save your nerves, and the provocateur will not achieve his goal, that is, he will not be able to defeat you [5].

- Study yourself [3]. Provocateurs immediately react to the weaknesses of their victims. It is important for every successful person to constantly engage in introspection, find their weaknesses, honestly admit their presence and think in advance about ways to confront provocateurs who exploit your weaknesses and shortcomings [9].

If you realize that you have succumbed to provocation, carefully analyze this situation. Guess exactly what weaknesses the aggressor takes aim at, how and why he found them, how he managed to take advantage of them. It is very important to think about a provocative situation and not to ignore it, not to transfer its outcome to the mercy of daily circumstances, even fate [10].

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## **MEASURE THE MOISTURE CONTENT OF SOLID AND ABSORBENT MATERIALS**

*Annotation. Methods for measuring the moisture content of solid and soluble materials are conditionally divided into several groups. High measurement accuracy, but the long duration of the measurement process (up to 10-15 hours), is a characteristic feature of measuring humidity by indirect methods. Indirect methods are characterized by very high speed execution, as well as low measurement accuracy. In technical measurements, almost all time indirect methods are used. Conductometric, dielkometric (capacitive), ultra-high repeatability, and optical methods are common in indirect moisture measurements.*

*Key coils: humidity, measurement, conductometric, dielkometric (capacitive), ultra-high repeatability and optical methods.*

### **Introduction**

Methods for measuring the moisture content of solid and fissile materials are conditionally divided into two groups [1]:

1) direct methods that allow you to determine the mass of a wet or dry substance in the sample (drying, extractive and chemical methods);

2) indirect methods that determine moisture by measuring the Associated parameter (conductometric, dielkometric, ultra-high-repetition, optical, nuclear magnetic resonance, thermovacuum, teplophysical methods).

High measurement accuracy, but the long duration of the measurement process (up to 10-15 hours), is a characteristic feature of measuring humidity by indirect methods. Indirect methods are characterized by very high speed execution, as well as low measurement accuracy. In technical measurements, almost all time indirect methods are used. Conductometric, dielkometric (capacitive), ultra-high repeatability and optical methods are common in indirect moisture measurement [2].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Many of the materials commonly used in industry are capillary-porous rocks in which water is stored in pores. The amount of moisture the Material can absorb depends on the shape, size and location of the capillaries, as in the case of the nature of the water binding to the material. Since moisture-dependent graded descriptions of solid and soluble materials are not always sufficient, there are certain complications in measuring their moisture content. Capillary-porous materials are dielectric substances with a specific resistance of  $10^8 \text{ Ohm}\cdot\text{m}$  and higher in their dry state. Capillary-porous materials can become conductors with a specific resistance of  $10^4 \text{ Ohm}\cdot\text{m}$  when moistened.

Conductometric moisture meters are widely used in measuring the moisture content of solid and absorbent materials. The conductometric method is based on the connection between the moisture content of a substance and its electrical resistance. This connection is expressed as [2]:

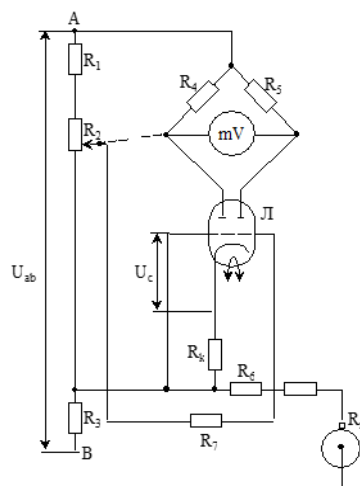
### **Results and discussion:**

By the conductometric method, capillary-porous materials are measured with high accuracy in their moisture content by means of interleaved proportions of their moisture with electrical resistance. The conductors of conductive moisture meters consist of two electrodes, which are processed in the form of flat plates, cylindrical tubes, wheels, etc. But the complex dependence of resistance on other factors (temperature, density of the material, chemical composition, the presence of electrolytes in it, etc.) does not give the opportunity to automatically and without proper measurement of moisture in a conductometric way. Therefore, the range of use of conductometric moisture meters is limited [2,3].

Among measurement schemes, the most effective are bridging schemes. Bridged measurement schemes have a high sensitivity with moderate to high (5... 25%) is used in moisture measurement, Figure 1 shows the principle scheme of an automatic moisture meter with a bridge measurement scheme.

The material being examined is passed between the wheelbarrow and the juva (the wheelbarrow is insulated from the Juva). The main element of the chain is the bridge, the R4 and R5 sails of the bridge are constant resistors, and the other two sails are internal resistors of the double triode (the scheme has two additional resistors R1 and R2). Along the diagonal of the bridge, a millivolptmeter is connected. The  $U_c$  negative voltage in the left-half lattice of the electron lamp is determined by a decrease in the voltage at the resistance  $R_x$  and is constant. Therefore, the resistance in the left half of the triode is also constant. The negative stress on the right triode lattice varies from  $U_s$  to  $IR_6$  magnitude. J electric current, on the other hand, depends on the  $R_X$  resistance of the material being viewed and the state of the R2 reochord slip. The reochord slider is moved from the zero position of the millivoltmeter shaft (the bridge muvonazate is broken) with a voltage drop at R2 until the voltage drop at R6 and R7 balances between them [2].





**Figure 1. Automatic moisture meter with Bridge measurement scheme**

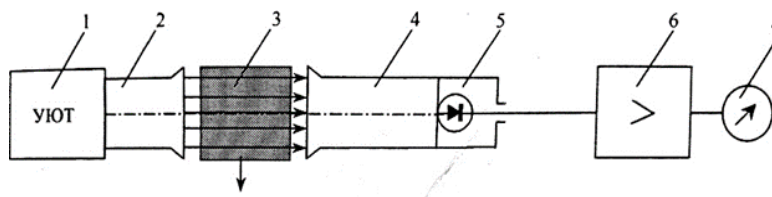
The dielectric method is based on the fact that with a change in the moisture content of capillary – porous bodies, dielectric absorption in them also changes. The dielectric refractive index of dry bodies is typically 1 to 6, while that of water is 81. The change in dielectric absorptivity caused by the change in the moisture content of the material is usually determined by the change in capacitor capacity in which the material being analyzed is placed between the coatings. The dielectric moisture meter Switch is made in the form of two flat plates or two concentric cylinders, and between them is filled with the material being analyzed. When the geometric dimensions are known, the capacitor capacitance can be expressed by the formula:

$$S = K \cdot \varepsilon, (2)$$

where: K is the geometric dimensions of the capacitor, a constant that is determined by the shape; a dielectric absorptivity that is determined by the moisture content of the flux - material.

Ultra-high-repetition (etching) moisture meters use a considerable (tens of times) difference in the electrical properties of water and dry matter. The moisture concentration is measured according to the attenuation of high-repeat radiation passing through the layer of the material being analyzed.

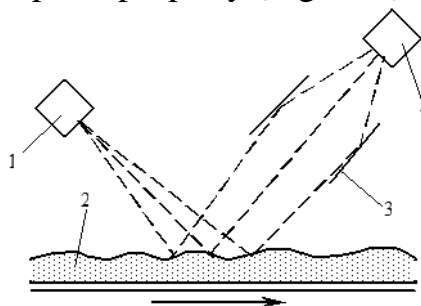
Determination of the moisture content of substances in the ultra-high-repetition (etching) method is carried out in the field of ultra-spectrum radio waves (3000... 10000 MHz) is based on the fact that the electrical properties of materials depend on the humidity in them. The structure scheme of output moisture meters is depicted in Figure 2 [4].



**Figure 2. Structure scheme of ultra-high-repetition moisture meter:**  
 1-Groove generator; 2 – absorbing antenna; 3 – material under investigation; 4 – receiving antenna; 5-receiving detector; 6-amplifier; 7-measuring instrument

The material being examined passes between the host antenna 2 of the 3-Groove generator (1) and the receiving antenna 4. The receiver receives a weakened signal of antenna 4 and detector 5 Oyut li radiation, and the amplifier 6 switches to the measuring instrument 7.

Optical moisture meters use a bond between the moisture content of a substance and its light absorption property (Figure 3).



**3-rasm. Optik namlik o`lchagich: 1 – nurlanish manbai; 2 – namligi tekshirilayotgan material; 3 – qaytgan nurlar; 4 – nur qabul qilgich**

The axial li method is contactless and inertial, and is less sensitive to uneven distribution of moisture between particles in scattering materials than other existing electrical methods. The extreme complexity of the structure of the tool is the main disadvantage of Groove moisture meters. In addition, these instruments require constant density levels or density information of the material being controlled. Oyut li moisture meters 0... Allows you to measure humidity with high accuracy in a wide range of 100%.

### **Conclusion:**

To achieve high measurement accuracy, such instruments use rays of the light spectrum in the infrared area. Infrared light is sent through Source 1 to a material 2 whose moisture is being detected, while 3 Rays returning from the material are recorded at receiver 4. (Figure 3). The greater the moisture content of the material, the better it absorbs infrared light, and the lower the amount of Return current [1].

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## **ETALONS AND THEIR TYPES USED IN THE CREATION OF UNITS OF MEASUREMENT AND METROLOGICAL SUPPLY**

*Annotation. Ensuring the uniformity of measurements the state system is considered a normative, legal basis in the Metrological provision of accuracy of measurements in the country, which is followed by all government agencies, enterprises and organizations. The étalon is a formally approved measuring instrument (body or device) that represents the unit of physical magnitude and provides storage, with the aim of incorporating its size into the means of measuring that type of magnitude through the lower inspection links.*

*Keywords: physical size, benchmark, State benchmark, international, interstate scientific benchmark, national benchmark.*

### **Introduction**

The organization of production based on the principles of broad specialization and co-operation, interchangeability, requires ensuring and maintaining uniformity of measurements on a nationwide scale. To this end, a state system has been developed to ensure uniformity of measurements [1]. It is considered a normative, legal basis in the Metrological provision of measurement accuracy, which is followed by all government agencies, enterprises and organizations [1].

### **Materials and methods:**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

State benchmark refers to the benchmark recognized by the decision of the authorized national body as a measure of the unit of measurement in the territory of the Republic of Uzbekistan.

The étalon is a formally approved measuring instrument (body or device) that represents the unit of physical magnitude and provides storage, with the aim of incorporating its size into the means of measuring that type of magnitude through the lower inspection links.

In maintaining uniformity of measurements, the following grading on accuracy has been adopted [2].

Étalones, étalones representing a single unit, are also primary and secondary. A primary étalon is an étalon that represents unity at the highest resolution in the country. Many primary ethalones are attested as state ethalones. According to its Metrological function, all étalones are divided into: primary étalon of primary - independent primary magnitude; derivative-to express the derivative unit concretely; étalon - to check the witness-State étalon for invariance, and the secondary étalon, which is intended to replace it in a distorted or lost state; étalon-copy - to transfer the unit size to the working étalons, that is, to use it in place of the primary étalon at work; comparative étalon-a secondary étalon designed to compare the étalons, that is, an étalon that acts as an intermediary in the middle in cases where, for one reason or another, the étalons cannot be directly compared with each other; worker étalon - a secondary étalon designed to.

### **Results and discussion:**

Information about these units of measurement and their reserves may have been recorded in certain regulatory technical documents. This unit of measurement in Uzbekistan has its own RST 8. 005-92 standard.

The centrally produced unit is absorbed using a special technical device. Such devices are called étalones. The étalon is such a technical device that it is used for the purpose of absorbing information about the size and storing it. Étalones are prepared and formally organized according to a special specification.

There are international, interstate scientific Etalons. At the moment, the main units of measurement are designed only centrally. There are 7 basic units of measurement in the international system.

They are second, meter, kilogram, Kelvin, Ampere, mole and Candella.

There were to be 7 main étalons, respectively. But there is no need for a mole benchmark. The 0.012 kg isotope s contains  $6,022 \cdot 10^{23}$  atoms. To determine the amount of any substance, if the value of the elements of the structure in it is clear, it is possible to determine the amount of that substance in moles, dividing this value by the number of Avagadro.

1 mol H<sub>2</sub> mass 2 gr

1 mol O<sub>2</sub> mass 32 gr

1 mol H<sub>2</sub>O mass 18 gr.

As shown above, measurements taken at different locations at different times must be provided uniformly in order to compare the measurement results obtained using different measuring instruments. That is, the measurement unit razors must be uniformly graduated in all measuring instruments [3].

To do this, it is necessary to absorb unit razors into measuring instruments with less accuracy than measuring instruments with greater accuracy. From the Etalons present in the SI system, the unit of measurement Jack is sent to the working measuring instruments through sample measuring instruments.

Sample measurement tools when machining cross-buysunnng discharge is induced. The following scheme describes how information about the unit of

measurement is transferred from the benchmark to the working meter, according to which a discharge meter with a relatively small ordinal number is superior to a meter with a large discharge, that is, its Metrological accuracy is considered higher.

Measuring instruments are divided by their Metrological indicators into Etalons, sample and working measuring instruments.

Étalon is a measuring instrument (or set of measuring instruments) designed to accommodate other measuring instruments, providing the reproduction and storage of a unit of measurement.

Étalones in themselves exhibit measuring devices with high stability and high accuracy, and are the foundation of work to ensure uniformity of measurements.

A benchmark (measurement scale or unit benchmark) is a set of measuring instruments or measuring instruments designed to reconstruct and (or) store a scale or unit of magnitude and approved as a benchmark in a prescribed manner in order to assimilate the size of a scale to subsystems in a scale – comparison Scheme [4].

Étalones are divided into the following types.

The international étalon is an étalon adopted as the international basis for an international agreement to coordinate the sizes of units that are renewable and maintained with national étalons.

The National étalon is the étalon recognized by the official decision that it serves as the starting étalon for the country.

The state benchmark is the benchmark recognized by the decision of the authorized state agency that it serves as the basis for determining the sizes of units, which is renewable with all other Trumps of this magnitude on the territory of the state. Often the concepts of national benchmark and state benchmark mean br.

A primary étalon is an étalon that ensures that the unit is recovered with the highest accuracy in the country (compared to other étalones of the same unit).

A special étalon is an étalon that ensures the regeneration of the unit under separate conditions and serves as a primary étalon for these conditions.

A secondary étalon is an étalon that takes the size of a unit from the primary étalon of that unit.

Copy-étalon is a binary étalon designed to internalize the size of a unit into working étalones.

A working étalon is an étalon designed to incorporate the size of a unit into working measuring instruments.

Sample measuring instruments are designed to transfer the unit of measurement from the étalones to the working measuring instruments.

According to the degree of accuracy AV Metrological subordination, sample measuring instruments are divided into discharges. Measurement discharges are determined by a special document – a comparison scheme, which



determines the process of mastering the size of the size for each muyayan magnitude.

Working measurement tools are used when performing all measurements that are not related to the absorption of the unit of magnitude measurement.

The above measuring instruments should only be used for their function. Working measuring instruments are not allowed to be used in Metrological comparison and clipping work, Huddy also prohibits the use of sample measuring instruments in measurement work that is not related to comparative work.

Measurements can be carried out only with the help of measuring instruments – special technical means with Metrological indicators of the norm.

### **Conclusion:**

According to its functional function, measuring instruments are divided into the following types::

a) templates, that is, serve to generate and maintain the magnitude in a given razmer (weighing stones, pliers, roulette, generator, etc.);

(b) measure modifiers, which are such measures that a certain property of an object is measured and another property is generated for reference (thermoparae);

c) measuring instruments, i.e. instruments that deliver direct results to the Observer (ammeter, voltmeter, barometer, etc.;

d)are integrated into a set of measuring devices, i.e. measuring instruments and auxiliary devices. (Electronic scales, analytical scales and hokazos);

e) measuring systems, that is, a measuring instrument, measuring instruments consist of a complex of communication channels of auxiliary parts and perform a concrete task [5].

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**GIYASIDDIN KOSHI IS A GREAT MATHEMATICIAN,  
ASTRONOMER, ARCHITECT, DESIGN ENGINEER**

*Abstract. Giasiddin Cauchy has made many innovations in the field of mathematics. The ratio of circumference to diameter found a 17-digit value of the number  $\pi$  among European scientists in this field almost two hundred years ago. Cauchy was the first in the world to apply the decimal fraction to scientific work. Similarly, the great mathematician and astronomer wrote a book on the theory of architecture as a mature architect and engineer of his time. It turns out that none of the other scientists had previously written about some parts of this field, as he himself notes. Considering that Giyasiddin Koshi was glorified by his contemporaries as the "sultan of engineers", it is natural to wonder whether the famous scientist was directly involved in the construction of the madrasah, Khanak and observatory in Samarkand, built under Ulugbek.*

*Keywords: mathematics, sterometry, Astronomy, Architecture, design, rationing.*

**Introduction**

One of the bright stars of science that shone over Samarkand in the first half of the XV century, Ulugbek's closest associate in his scientific research was Said Jamshid ibn Masud ibn Mahmud Giasiddin Koshi, head of the Samarkand Observatory. The note at the end of one of the famous Arabic manuscripts "Ziji Kuragani" is especially noteworthy. Sultan Ulugbek, after making observations in Samarkand, wrote a treatise on it, which was translated into Arabic and edited by Giyasiddin Jamshid [1].

Abdul Ali ibn Mahmud ibn Husayn al-Birjani, one of the scientists of the Ulugbek school of astronomy, the author of a number of scientific reviews, spoke highly of his mentor Giyasiddin Jamshid Koshi as the "Sultan of the Engineers", There is no doubt that this definition expressed the unanimous opinion of scientific specialists of that time. Thus, Giyasiddin Koshi is embodied not only in the field of mathematics and astronomy, but also as the "sultan of engineers", who was directly involved in the theoretical foundations of architectural creativity and gained authority and fame among scientists, architects and engineers. Birjani would not have raised his mentor so high if he had been an engineer older than Koshi in the time of Ulugbek [3].

## **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experimentation, description and observation, as well as logical and historical methods, theoretical methods such as abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. Research materials: scientific facts, results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Very little information has been preserved about Giyasiddin Koshi. The Koshi (Koshani) anachronism indicates that the scientist was born in the Persian city of Koshi. It is assumed that the name of the ceramic tile used to decorate binoculars was also assigned to the name of this city. But the fact that the scientist is called Cauchy can also be understood in the sense that he was a skilled Cauchy master, considered one of the most exquisite and complex decorations in architecture. Initially, Giyasiddin was in the service of the Timurids in Persia and Khorasan, and around 1414-1416 he was invited to Samarkand, where he became a permanent resident. According to some sources, Giesiddin Koshi died in 1436-1429 in Samarkand.

## **Results and discussions:**

Ghiyasiddin Koshi's book "Miftah Al-Husab Fil-arithmetic" is mainly devoted to arithmetic, and its special chapter, consisting of three sections on the measurements of buildings and structures, is entirely devoted to the theory of architecture.

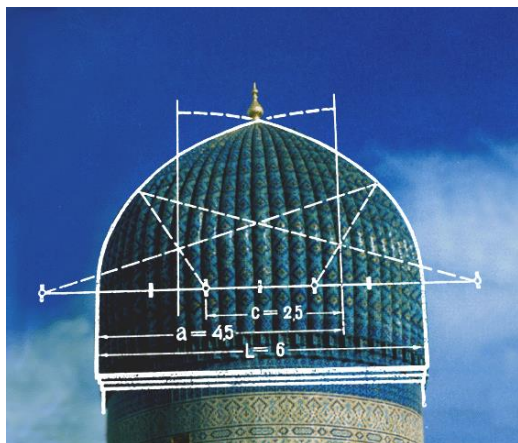
The author says that those who know the "science of architecture" have never thought about writing a paper about the need to measure structures and buildings before. With this in mind, I have included the science of building measurements among the necessary knowledge," he notes.

The first section is devoted to the measurement of odd and arched ones. The scientist explains a number of architectural terms, describing three types of dominant cylindrical walled volume – falaka, hulk and tambourine. Then it shows the difference between odd and arc-shaped shapes. "The difference between an arch and a vault is as follows: the height of the arch (rad) is less than the width, and the height of the vault is greater than the width. The thickness of the vine – the length of the arc-is called tulle." Cauchy cites five different geometric methods for making a dome of varying complexity. Studies of architectural monuments that have survived in our country so far show that during their construction, the architectural proportions outlined by Giesiddin Koshi were also observed (Fig.1). These forms themselves indicate how scientifically sound the art of drawing was in the architecture of that time [4].

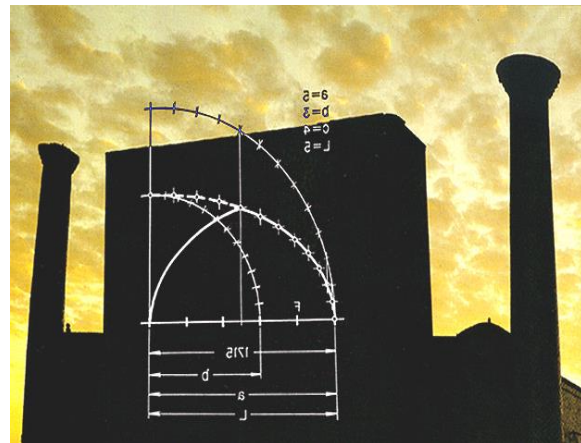
Giyasiddin Koshi also provided a table for determining the volume, multiplying the outer perimeter of the arches and vaults by their thickness, explaining the order and rules of calculation. He even showed a way to find dimensions related to the length of curved arcs using trigonometric functions (sine, cosine).

The second section, the dome, is devoted to the shape and order of measurement of domes. Cauchy describes four different types of domes, showing ways to calculate their surface and volume.

The third section is devoted to measuring the surface of the mukarnassus. The ornament on the inside of the Mukarnassus vaults and arches is an overlapping ornamental pattern consisting of a system of tosak bowls. It is based on a very complex drawing project. Cauchy cites the constituent elements of mukarnassus, their descriptive features and names. Cauchy calls the bowl of mukarnassus a byte, each of the overlapping rows a plate, and the largest and most important module of the bowl a scale.



a)



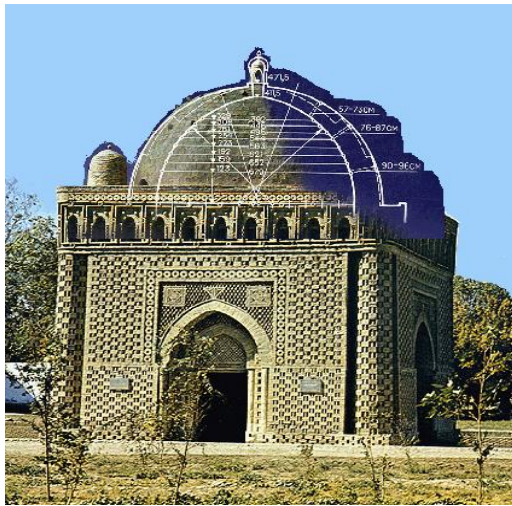
b)

**Figure 1. Engineering techniques embedded in the architecture of Central Asia in the Middle Ages: a) the project of forming vaults and arches; B) designing the shape of domes and vaults**

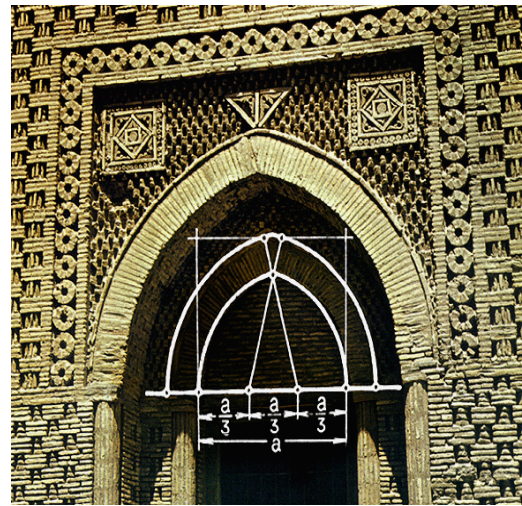
Provides information about four different types of mukarnas. Cauchy also shows the order of manufacture of the repeating elements of the bowl of mukarnasa. "Know," the scientist writes, "that master builders take the base of a straight quadrangle equal to the Mukarnass scale (modulus) and determine the height two fractions longer than it."

Cauchy's knowledge of the use of a large-scale modular block in the manufacture of a moukarnass is especially interesting and important for the history of architecture. In his work, he outlines the proportions that operated in architectural monuments, analyzes the laws and measurement methods used in practice in Central Asian architecture to create traditional geometric shapes and brings them to a unified scientific justification (Fig.2).





a)



b)

**Figure 2. Engineering laws observed in the design of the mausoleum of Ismail Samani (IX century): a) the design of the dome section; b) the method used in the manufacture of shapes of arches and vaults**

As you know, modern achievements in the field of architecture and construction technologies dictate how necessary a modular system, rationing, standardization, typing, unification of sizes of goods and components are, in light of the requirements of widespread implementation of the principles of interchangeability and economic efficiency. Scientific research is underway on their widespread use today. Even more important is the fact that back in the XV century, Samarkand scientists and architectural engineers carried out practical and theoretical work on the modular scale, seismic resistance, durability of monuments, wrote manuals and scientific books [4].

### **Conclusion:**

Giyasiddin Koshi has made many innovations in the field of mathematics. The ratio of the circumference to the diameter found the 17-digit value of the number  $a$  among European scientists in this field almost two hundred years ago. Cauchy was the first in the world to apply the decimal fraction to scientific work. Similarly, the great mathematician and astronomer wrote a book on the theory of architecture as a mature architect and engineer of his time. It turns out that none of the other scientists had previously written about some parts of this field, as he himself notes. Considering that Giyasiddin Koshi was glorified by his contemporaries as the "Sultan of Engineers", it is natural to wonder whether the famous scientist was directly involved in the construction of the madrasah, khanak (mosque temple with shelter for Muslim monks) and the observatory in Samarkand, built under Ulugbek. It remains for gifted historians and Orientalists to clarify this in order not to interpret the contents of centuries-old primary source manuscripts purely literarily, namely, and technically.

If we recall that Giyasiddin Koshi arrived in Samarkand in 1414-1416 and settled permanently, where world-famous monuments of the Ulugbek era were

erected during his lifetime, then there is no doubt that the great scientist, awarded the honorary title "Sultan of Engineers", performed exceptionally responsible and important creative tasks in the process of unprecedented creativity [5].

The research of scientists such as Ahmad al-Ferghani, Mirzo Ulugbek, Giyasiddin Koshi in the field of ultra-precise metrological, astronomical and architectural measurements has served to improve measuring instruments and methods in other fields. The rich scientific heritage left by our great compatriots in determining the annual motion of the planets, the period of rotation, has not lost its scientific significance in our time.

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## **THE PROBLEMS OF THE CREATIVE TEAM RELATED TO COMPLEXES OF PSYCHOEMOTIONAL INFERIORITY**

*Abstract: the article highlights the problems of the creative team associated with inferiority complexes. An inferiority complex is a set of psychoemotional attitudes that make a person feel flawed, useless, wrong and simply not good enough compared to others. It includes such elements as: unjustifiably low self-esteem; self-doubt, self-esteem and abilities; suppressed self-esteem; a feeling that others are better at everything; lack of ambition.*

*Key words: complex, inferiority, self-esteem, overcoming, ability, creativity.*

### **Introduction**

An inferiority complex is an insurmountable barrier to success in all spheres of life. At the same time, many of us are forced to live with him and do not even realize how many opportunities we lose because of him and what problems we get in return. Therefore, we are discussing what it is, why it occurs, what is dangerous and how to get rid of it [1].

An inferiority complex is a set of psychoemotional attitudes that make a person feel flawed, useless, wrong and simply not good enough compared to others. It includes such elements as: unjustifiably low self-esteem; self-doubt, self-esteem and abilities; suppressed self-esteem; a feeling that others are better at everything; lack of ambition [2].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

As a rule, people with an inferiority complex consider themselves losers, who generally do not have any abilities and positive qualities that could lead them to success.

The inferiority complex is often called the "loser complex". The concept of an "extra person complex" is also found in fiction.

The author of the term is considered to be the German psychoanalyst Alfred Adler. He suggested that the inferiority complex is based on a primal fear of being superfluous, unnecessary and rejected. He notes that the foundation of this complex is laid in childhood, when a child is faced with trials and fails to cope with them [1].

The symptoms of this condition are usually easily distinguishable, so an experienced specialist notices them almost immediately. In behavior, they manifest themselves in the form of fear of making mistakes, behaving incorrectly. Such a person is always afraid of not meeting the expectations of others, and he spends a lot of effort trying to meet them [2]. The external symptoms of an inferiority complex, first of all, are:

- modesty and closeness. A person with this complex constantly lives in fear that he will be exposed and everyone will find out about his "inferiority". He tries to be inconspicuous and inconspicuous, does not strive for fame, on the contrary, tries "not to stand out." He is characterized not only by modesty and shyness, these qualities acquire a pathological character in him;

- low self-esteem. A person with an inferiority complex lives with the belief that he is worse than others in all respects. Therefore, his self-esteem is very low, and this is noticeable in his behavior. He tries to be quiet and begins to interact with others only after they are the first to initiate contact. Sometimes it looks like he's waiting for the other person to let him talk to himself.;

- concealment of discontent. Such a person is afraid to admit that he is dissatisfied with something. He is hampered by the primitive fear that as soon as he says something, he will immediately be expelled from society. Therefore, he usually tolerates, although sometimes the accumulated discontent spills out in the form of an emotional outburst.

Subsequently, he becomes ashamed of his own behavior, and his self-esteem decreases even more. This is facilitated by:

- excessive demands on yourself. He is ashamed of his own "imperfection", so he constantly tries to be better, not to make mistakes, to do everything perfectly. This perfectionism, of course, hinders him and makes him make mistakes. And for every mistake such a person reproaches himself strongly and for a long time, which again negatively affects his self-esteem;

- dependence on other people's opinions. A person with an inferiority complex constantly needs the approval of others. He hopes, waits, does everything to get it. But even when he gets that approval, nothing changes. For a while he feels triumphant, it seems to him that he is finally worthy of the attention of the person who praised him. But if he does not praise him next time, the complex will awaken with renewed vigor in the following manners as: a tendency to justify oneself; an inability to defend one's interests; numerous fears; loyalty to rejoice in the success of oneself, the work team and social society [3].

### **Results and discussion:**

Representatives of the stronger sex are most afraid of being weak and insignificant. A man with an inferiority complex constantly feels that he cannot influence circumstances and is not able to succeed in anything at all. At the same time, he tries very hard to seem more successful than he is. Any oversight that others have noticed makes him feel like a loser. He spends all his energy on these experiences, and therefore he does not have the resources to achieve noticeable improvements in at least some of the areas of his life [4].

Representatives of the fair sex are more worried about their attractiveness and attractiveness. Therefore, the inferiority complex in women manifests itself in the fact that they feel ugly, uninteresting and unattractive. Such a woman is afraid that she will not be able to find a companion who will truly appreciate her. And even when she meets someone who wants to start a family with her, she still feels that he will soon stop loving her.

Alfred Adler established that the foundation of the future inferiority complex is laid in childhood. A child often faces limitations related to a lack of skills, knowledge, experience and other resources that are acquired with age. But he does not always understand this, so he may perceive these limitations as his own inadequacy or inferiority.

In adolescence, and then in adulthood, the inferiority complex is consolidated and strengthened under the influence of such factors as: various appearance flaws; an insufficiently slender and athletic body; poor eyesight and the need to wear glasses; continued overprotection on the part of parents, the work team and a condescending society as a whole; awareness of one's own lack of independence; various mental traumas; discrimination excessive criticism of failures from others.

### **Conclusion:**

This condition negatively affects all spheres of life, preventing a person from achieving success in any endeavor [5]. But its true danger lies in the fact that it can provoke such negative states and mental disorders as: chronic depression; suicidal mood; neuroses; self-pity; causeless guilt; additive behavior; dependence on other people; uncomplaining acceptance of a low level and degree of activity in all spheres of life [6].

It is important to use all the ways to increase self-esteem and build self-confidence. You can change your image, start paying more attention to your appearance, go in for sports and self-development, improve your professional competence, work on your behavior with your family, work team and creative society [7]. It is not necessary to become perfect and successful abruptly, but every person who aspires to work in a creative team, thanks to his unyielding diligence and diligence, is able to enrich his positive imagination, gradually become a little better and more useful [8].

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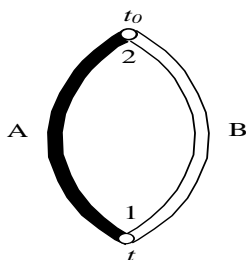
## **THERMOELECTRIC THERMOMETERS WITH AUTOMATIC TEMPERATURE CONTROL FOR SCIENTIFIC PURPOSES**

*Annotation. The thermoelectric method of temperature measurement is based on the formation of EDF under the influence of heat in conductors of a special composition. Thermoelectric thermometers (thermoparas) are widely used in various areas of the technique and in scientific and research work-in the measurement of temperatures from 200 0C to +2500 0C. If, when measuring the temperature, the temperature of the ends of the thermometer is equal to 0 0C, then the temperature being measured is immediately found from the grading detail. Such a grading detail establishes a one-valued mathematical relationship between Thermo EDF and the working connection temperature. The grading detail of thermoelectric thermometers is usually determined for a case where the temperature of the free ends is 0 0C.*

*Keywords: temperature, measurement, thermoelectricity, conductors, thermal effect, electromotive force.*

### **Introduction**

The measurement amoyil of thermoelectric thermometers is based on the thermoelectric phenomenon that Zeebec discovered in 1821. At the junction of a chain consisting of two different metal wires, the EYuK effect is formed due to the difference in temperatures. Let's consider a chain consisting of different conductors A and V [1].



**Figure 1. Dual conductor  
 thermometric chain:  
 1-the soldered end of the  
 thermoparticl e(hot connection);  
 2-the thermoparticle  
 free end (cold connection)**

The thermoelectric method of temperature measurement is based on the formation of EDF under the influence of heat in conductors of a special composition. Thermoelectric thermometers (thermoparas) are widely used in various areas of the technique and in scientific and research work-in the measurement of temperatures from -200 0S to +2500 0S.

## Materials and methods

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The tangent of the place of the thermopar in contact with the medium being measured is called the tangled end 1 (hot connection), and the position of the thermopar in the medium with a constant temperature  $t_0$  2 is called the free end (cold connection) (Figure 1). Conductors A and V are called thermoelectrodes. Such soldered conductors, on the other hand, are called termparas, the electric conducting force generated in them is called thermoelectric conducting force (EDF). The reason for the formation of EDF is the diffusion of electrons between the free electron density more metal and the free electron density less metal. At this time, the electric field that appears at the junction of the two different metals provides resistance to diffusion. When the diffusion rate of electrons is equal to their return rate under the action of an electric field, an equilibrium state is decided in motion. At this equilibrium, a subtraction of potentials occurs between metals A and V. The dynamism of electron diffusion is caused by the fact that the EDF formed on the first and second connections, also differ from each other [2].

## Results and discussion:

With this in mind, it is possible to determine the size of the EDF in the chain depicted in Figure 3.16. Observing the chain in the opposite direction to the clockwise movement, the following result follows:

$$E_{AV}(t_1t_0) = E_{AV}(t) + E_{VA}(t_0), (1)$$

The tangent of the place of the thermopar in contact with the medium being measured is called the tangled end 1 (hot connection), and the position of the thermopar in the medium with a constant temperature  $t_0$  2 is called the free end (cold connection) (Figure 1). Conductors A and V are called thermoelectrodes. Such soldered conductors, on the other hand, are called termparas, the electric conducting force generated in them is called thermoelectric conducting force (EDF). The reason for the formation of EDF is the diffusion of electrons between the free electron density more metal and the free electron density less metal. At this time, the electric field that appears at the junction of the two different metals provides resistance to diffusion. When the diffusion rate of electrons is equal to their return rate under the action of an electric field, the equilibrium in motion is here:  $E_{AV}(t_1t_0)$  is the cumulative EDF affected by both factors;  $E_{AV}(t)$  and  $E_{AV}(t_0)$  is the EDF formed by the difference in potentials caused by the difference in temperature at the ends of conductors A and V, respectively.

If the temperature is the same at the soldered ends of the chain, the EDF will be zero, since the value of the EDF formed on both Solvers will be equal to each other, heading in the opposite direction. So, if  $t=t_0$ , we have:



$$E_{AV}(t_0) = E_{AV}(t_0) + E_{VA}(t_0) = 0(2)$$

$$E_{VA}(t_0) = - E_{AV}(t_0)(3)$$

$$E_{AV}(t, t_0) = E_{AV}(t) - E_{AV}(t_0)(4)$$

As can be seen from the equations, it turns out that the EDF consists of a complex function of the temperature change in the chain.

The temperature of one of the connections is constant, for example if  $t_0 = \text{const}$  [3], then

$$E_{AV}(t, t_0) = f(t)(5)$$

the expression indicates that it is possible to determine the relationship between EDF and temperature by grading for this thermopara, solve the question of temperature measurement from the opposite side, that is, determine the value of the temperature by measuring the EDF of the thermopara.

To connect a measuring instrument, it is necessary to master either a chain in one of the connections (Figure 2, a) or one of the thermoelectrodes (Figure 2, b).

Let's consider the EDF, which is formed according to the options for connecting a third s conductor to the thermopara chain. Figure 1, for the variant in a:

$$E_{AVS}(t, t_0) = E_{AV}(t) + E_{VS}(t_0) + E_{SA}(t_0);(5)$$

$t = t_0$ , the expression refers to the interaction between EDF and temperature by grading for this thermopara, that is, if the temperature of the connections is equal,

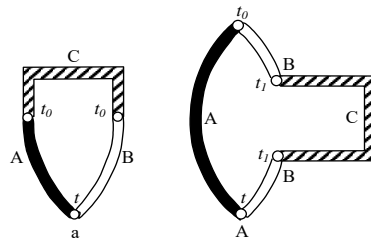
$$E_{AVS}(t_0) = E_{AV}(t_0) + E_{VS}(t_0) + E_{VS}(t_0) + E_{AS}(t_0) = 0(6)$$

It is known from this equation:

$$E_{VS}(t_0) + E_{AS}(t_0) = - E_{AV}(t_0).(7)$$

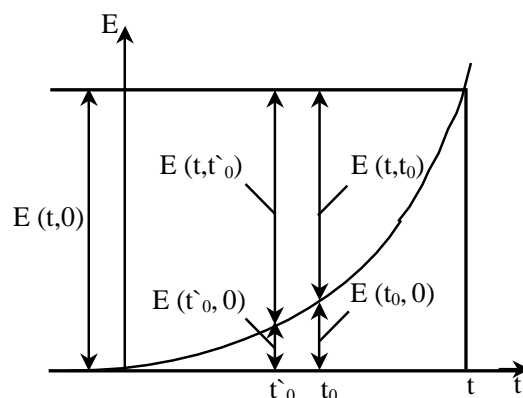
Putting the result of equation (6) in the expression (4), the equation (2) follows. 2, for the option in Figure B:

$$E_{AVS}(t, t_1, t_0) = E_{AV}(t) + E_{VS}(t_1) + t_{VS}(t_1) + E_{VA}(t_0).(8)$$



**Figure 2. Third conductor connection scheme: a-chain absorption at thermopara junction; B-thermoelectrode absorpti**

If we take into account  $E_{es}(T_1) = - E_{esv}(T_1)$  and  $E_{va}(t_0) = - E_{ab}(t_0)$ , equation (8) becomes equation (3).



**Figure 3. Correction to the temperature of the free ends of the thermoelectric thermometer**

From this it is possible to draw the following important conclusion: the TEYuK does not change even when a third conductor with the same temperature at the ends is connected to the chain of the thermopar. This means that it is possible to connect attenuation wires, measuring instruments and resistors to the thermopara chain.

If, when measuring the temperature, the temperature of the ends of the thermometer is equal to  $0^{\circ}\text{C}$ , then the temperature being measured is immediately found from the grading detail (tables, graphs) (Figure 3). Such a grading detail establishes a one-valued mathematical relationship between Thermo Eyük and the working connection temperature. The grading detail of thermoelectric thermometers is usually determined for a case where the temperature of the free ends is  $0^{\circ}\text{C}$ . If the temperature of the free ends is practically different from  $0^{\circ}\text{C}$ , but constant, then to find the working connection temperature from the grading detail, it is also necessary to know the thermo EDF that forms a thermoelectric thermometer, as well as the temperature of the free ends,  $t_0$ . When the temperature of the free ends is different from  $0^{\circ}\text{C}$ , it is necessary to add to the thermo EDF  $E(t, t_0)$ , which forms a thermoelectric thermometer, the EDF  $E(t_0, 0)$  that occurs at the expense of the initial temperature difference:

$$E(t_0, 0) = E(t, 0) - E(t, t_0). \quad (9)$$

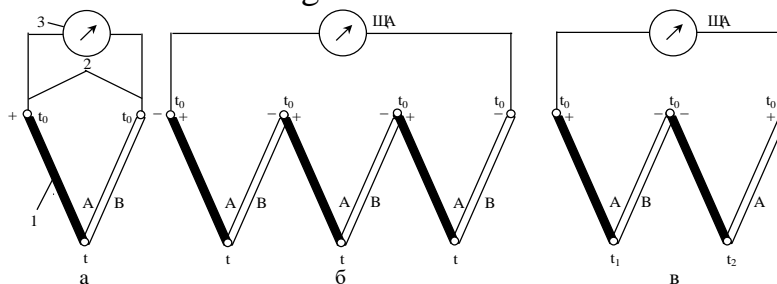
When the temperature of the thermoelectric thermometer working connection is  $t$  and the temperature of the free ends is  $0^{\circ}\text{C}$ , i.e. when the grading condition is met,  $E(t_0, 0) = 0$  and  $E(t, t_0) = E(t, 0)$  forms EDF.

If, during the measurement process, the temperature of the free ends accepts some new  $t_0$  value, then the thermo EDF  $E(t, t_0)$  (figure 3.18) that produces the thermometer and the correction to the temperature of the free ends will be  $E(t_0, 0)$ , while the EDF corresponding to the grading condition will be.

$$E(t, 0) = E(t, t_0) + E(t_0, 0) \quad (10)$$

The method of correcting the temperature of the free ends of a thermoelectric thermometer remains unchanged: in which way a value of  $E(t, 0)$  is obtained in the circuit, depending on the calculation or automatic correction input, this value is then added to the Thermopara EDF  $E(t, t_0)$ . The collection Thermo EDF  $E(t, 0)$  corresponds to the grading value.

Figure 4 shows a scheme for connecting a thermoelectric thermometer to a measuring instrument [2]. The thermometer kit includes a thermopara 1, a connecting cable 2 and a measuring instrument 3.



**Figure 4. Thermoelectric chains: a-connecting a thermometer to a measuring instrument; B-thermobatarea; v-differential thermometer; 1-thermopara; 2-connecting cable; 3-measuring instrument**

### Conclusion:

A differential thermoelectric thermometer is used to measure the temperature difference between two points. It is composed of two oppositely connected identical thermometers (Figure 4, v). If the temperature of the points being measured is equal, then the Teyuks that form a thermometer at those points are also equal. In this case, the current in the thermometer circuit will be zero, since when connected opposite, the EDF of one thermopar is balanced by the EDF of another thermopar, and the measuring instrument indicates zero [3,4]. If  $t_1$  and  $t_2$  have different temperatures, then depending on which temperature is higher, the chain electric current proportional to the difference in temperatures will correspond to the direction in question, as indicated by the measuring instrument [4].

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## **THE USE OF SPECTRAL INSTRUMENTS AND ANALYSIS METHODS IN BIOLOGICAL, BIO-CHEMICAL, MICROBIOLOGICAL, GEOLOGICAL AND THERMO-TECHNOLOGICAL RESEARCH**

*Annotation. The process of thermal radiation consists in the propagation of the internal energy of a radiating body in the manner of electromagnetic waves. When these waves are absorbed by other bodies, they are again reflected back into thermal energy. The bodies propagate electromagnetic waves of wavelengths from 0 to  $\infty$ . Many of the solid and liquid bodies have an unattractive spectrum of radiation, that is, they emit waves of all lengths. The principle of operation of radiation pyrometers is based on the measurement of the energy of radiation generated by the heat of the heated body itself. Radiation pyrometers are used to measure temperatures ranging from 20 °S to 6000 °S.*

*Keywords: temperature, wave, radiation, spectrum, pyrometer.*

### **Introduction**

All thermometers designed to measure temperature are assumed to have direct contact between the body or medium being measured by the sensitive element of the thermometer [1]. Therefore, such methods of temperature measurement are sometimes referred to as contact methods. The upper limit for the use of this method is 18,00 °S - 20,00 °S. But in industry and scientific research it is also necessary to measure temperatures higher than this. In addition, it is often impossible for a thermometer to be in direct contact with the body and environment being measured. In such cases, non-contact means of temperature measurement are used.

The principle of operation of radiation pyrometers is based on the measurement of the energy of radiation generated by the heat of the heated body itself. Radiation pyrometers are used to measure temperatures from 200 °S to 6000 °S [2].

### **Materials and methods:**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach

The process of thermal radiation consists in the scattering of the internal energy of the radiating body in the manner of electromagnetic waves. When these waves are absorbed by other bodies, they are again reflected back into thermal energy. The bodies propagate electromagnetic waves of wavelengths from 0 to. Many of the solid and liquid bodies have an unattractive spectrum of radiation, that is, they emit waves of all lengths. Other bodies (pure metals and gases) have a selective spectrum of radiation, that is, they emit waves that belong to a specific area of the spectrum. The wavelength of the spectrum  $\lambda = 0.4$  from the  $\lambda = 0,76$  pm mkm area of the visible light will come on. Each wavelength of the visible spectrum corresponds to a specific color.

### **Results and discussion:**

Infrared thermal rays of the spectrum with a length of  $\lambda > 0.76$   $\mu\text{m}$  are invisible.

As the temperature of a heated body is increased, its color changes, in which spectral energetic clarity, that is, waves of a certain length (clarity), quickly increases, as well as cumulative (integral) radiation increases significantly. The indicated properties of heated bodies are used to measure their temperature. Depending on these properties, radiation pyrometers are divided into quasimonochromatic (optical), spectral ratio (color), and full radiation (radiation) pyrometers.

Theoretically, an absolute black body can be based on a phenomenon of light emission, in which the coefficient of light emission is taken to be equal to 1. If an object completely absorbs the energy of the light falling on it, this object is called an absolute black body. All real physical bodies have the ability to repel some of the Rays falling on them. Therefore, the absorption coefficient of light of an object is less than one, at the same time it depends on the nature of a particular object as well as its shallow States. In nature, there is no absolute black body, but in its properties there are objects that are close to the absolute black body. For example, a body covered with black Ghadir-budir paint (oil dry) absorbs up to 96% of the energy of the light that falls on it.

Spectral energetic clarity and integral radiation depend on the physical properties of a substance or environment. Therefore, the pyrometers scale is graded by Absolute Black body radiation. The increase in spectral energetic clarity with increasing temperature is different for waves of different lengths and is characterized by the Vin equation for an absolute black body in the area of relatively low temperatures [2]:

$$E_{0\lambda} = S_1 \lambda^{-5} e^{-\frac{c_2}{\lambda T}} \quad (1)$$

in this case:  $E_0$  is the spectral energy clarity of an absolute black body for a wave of length  $\lambda$  in a given body, e.g.;  $T$  is the absolute temperature;  $S_1$  and  $S_2$  are the values of the constants of radiation dependent on the system of received units, i.e.  $S_1 = 2\pi^5 h^3 S^2$ ,  $h$  is the Planck Constant,  $s$  is the speed of light;  $S_2 = NhC/R_r^2$ ,  $n$  - Avogadro constant,  $R_r$  is the Universal Gas Constant;

Since the spectral energetic clarity of waves of different lengths is not the same, the Vin equation is used in optical pyrometry in the field of waves of certain lengths (usually for red with a wavelength of 0.65 or 0.66  $\mu\text{m}$ ). The Vin equation can be used for temperatures up to about 3000 K. At even higher temperatures, the intensity of the radiation of an absolute black body is expressed by the Planck equation: 
$$Y_{e_{0\lambda}} = S_1 \lambda^{-5} (y e^{-\frac{c_2}{\lambda T}} - 1)^{-1} \quad (2)$$

The integral radiation of an absolute black body is described by the Stefan-Bol'tsman equation:

$$E_0 = C_0 \left( \frac{T}{100} \right)^4 \quad (3)$$

where:  $C_0$  is the radiation constant of an absolute black body;  $T$  is the absolute temperature of the radiating surface, K.

Real physical bodies radiate energy with less intensity than an absolute black body. As a result of measuring the temperature with a quasimonochromatic pyrometer or with a full radiation pyrometer, the so-called conditional temperature (clarity temperature) is divided by the so-called temperature. The Vin equation is used to move from a conditional temperature to a real temperature [3,4].

### Conclusion

In terms of the light temperature  $T_R$  measured using a quasimonochromatic pyrometer of a physical body, the value of its actual temperature  $T$  is represented by the following equation [2]:

$$T = \left( \frac{1}{T_R} - \frac{\lambda}{C_2} \ln \frac{I}{\varepsilon_\lambda} \right)^{-1} \quad (4)$$

in this:  $T_R$  is the clarity (conditional) temperature of a body measured using a pyrometer, K;  $\lambda$  - wavelength,  $\text{mkm}$ ;  $S_2$  is the constant of the VIN equation;  $C$  - the degree of blackness of the body for a given wavelength.

The full value of the Real body temperature  $T$  is expressed by the formula:

$$T = T_y \sqrt[4]{\frac{1}{\varepsilon}} \quad (5)$$

in this:  $T_u$  is the conditional temperature measured by the pyrometer of full radiation;  $\varepsilon$  - for waves of all lengths, the degree of blackness of the body [1].

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## THE MERIT OF MIRZO ULUGBEK IN THE FORMATION OF MODERN ASTRONOMY

*Abstract. Under the leadership of Ulugbek, Samarkand astronomers created the astronomical catalog "Zij Koragani". The catalog is also known as the "Ulugbek Star Map". These tables were the result of many years of work by scientists. In this catalog, 1018 celestial bodies are arranged according to their zodiacs (by star sets), ordinal numbers, names, location coordinates (distance and latitude from the Sun) in the celestial sphere are given. When assigning coordinates as a reference point in time, their position at the time of the equinox of 1437 according to the Solar calendar is assumed.*

*Keywords: astronomy, observatory, quadrant, ecliptic, celestial, luminaries, zodiac, coordinate, calendar.*

### **Introduction**

Ulugbek built an observatory on the Obi-Rahmat hill near Samarkand in 1420-29. The building had the shape of a three-storey circle with a diameter of 46-40 meters and a height of up to 30 meters. This is also evidenced by Zahiriddin Muhammad Babur. Historian Abdurazzak Samarqandiy wrote about the observatory: "The place was chosen from the northern side of Samarkand, where famous astrologers determined an auspicious day that was on the way to sending this work. The building was built on the basis of strength and grandeur. The foundations and columns were made so strong that even before the Day of Judgment they were not moved anywhere, they were not destroyed. The paintings and incomparable photographs that were placed inside these magnificent rooms of the castle, built high, depicted the seven floors of the celestial sphere, climates, mountains, rivers, deserts, everything that belonged to the Holy World, degrees, minutes, seconds and a tenth of a second of the nine disasters. Since then, it has been decided to start observing the movement of the Sun and planets, and record those who saw it." [1]

The main pylon of the observatory consisted of a very huge instrument (a vertical circle) measuring an angle with a radius of 40,212 meters and an arc length of 63 meters. The researcher of antiquity V.L.Vyatkin suggests that the preserved fragment of the structure was "nothing more than part of a large quadrant, half of which was below the horizon, and the other half protruded above the horizon" (Fig. 1) [2].

Under the leadership of Ulugbek, Samarkand astronomers created the astronomical catalog "Zij Koragani". The catalog is also known as the "Ulugbek Star Map". These tables were the result of many years of work by scientists.

"Ulugbek Ziji" consists of an introduction, that is, a theoretical part (this part is given, as a rule) and tables compiled on the basis of observations made at the observatory.



Figure 1. The large square of the Ulugbek Observatory

### **Materials and methods**

This includes empirical methods such as modeling, fact-finding, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis, as well as methods of heuristic strategies. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

### **Results and discussion:**

The first book "Zij" is devoted to epochs and various calendars. It describes the eras of the Hijra, Greece and Yezdigard, the methods of their calculation, and the relationship between them. In addition, the Malikshah era, the Chinese and Uighur eras were also considered. The book also describes the issue of defining a leap year. Ulugbek says that there are 11 leap years for every 30 years [3].

The second book "Zij" is devoted to mathematics and spherical astronomy. His third book is devoted to trigonometric tables. These books contain tables of sines and tangents in decimal notation with ten-digit precision. This is considered to be a huge accuracy for the 15th century.

The third book, "Zij", devoted to applied astronomy and measurements, covers issues such as the inclination of the ecliptic to the equator, determining the coordinates of celestial bodies and determining the distances between satellites and planets [4].

To clearly show how accurate Ulugbek's calculation of the inclination of the ecliptic to the equator is, we present the calculations of scientists up to Ulugbek (Table 1).

This is part of a book on the theory of planetary motion that focuses on the "equation of time" - the difference between actual solar time and average solar time. There are two reasons why this difference is formed: firstly, the sun moves unevenly along the ecliptic, and secondly, the inclination of the ecliptic to the equator changes during the day.

Table 1

**The inclination of the ecliptic (trajectory of rotation) of the Sun to the equator of the Earth according to various scientists**

№	Name of the scientist (period of residence)	The results of the survey and calculation	The results of the survey and calculation
11.	Eratosthenes (276-194 BC)	230 51` 20``	+7' 35''
12.	Hipparchus (II century)	230 51` 20``	+8' 23''
13.	Ptolemy (II century)	230 51` 20``	+10' 10''
14.	Al-Battani (850-929)	230 35`	+0' 17''
15.	As-Sufi (903-986)	230 33` 45``	+0' 50''
16.	Abdul Wafa (940-998)	230 35`	+0' 35''
17.	Al-Kuhi (10th century)	230 51` 01``	+16' 36''
18.	Ibn Yunus (950-1009)	230 34` 52``	+0' 33''
19.	N.Tusi (1201-1274)	230 30`	+2' 9''
20.	Ulugbek (1394-1449)	230 30` 17``	+0' 32''

Taking into account the data that Ulugbek gave on the annual movement of the planets, astronomical calculations of our days show that the scientist achieved tremendous accuracy in his time (Table 2):

Table 2

**The inclination of the ecliptic (trajectory of rotation) of the Sun to the equator of some planets according to various scientists**

№	The name of the planet	According to the calculation of Ulugbek	According to modern calculations
6.	Zuhal (Saturn)	120 13' 39''	120 13' 36''
7.	Mushtari (Jupiter)	300 20' 34''	300 20' 31''
8.	Mirih (Mars)	1910 17' 15''	1910 17' 10''
9.	Zuhro (Venus)	2240 17' 32''	2240 17' 30''
10.	Utorud (Mercury)	530 43' 13''	530 43' 3''

In this book, Ulugbek also outlines the issues of determining the average distance over an arbitrary period, determining the true position of the planets on the celestial sphere, as well as solar and lunar eclipses. He argues that the period of lunar and solar eclipses can be determined in two different ways – using a table and direct calculation [4].

The role of Ulugbek Ziji in the star catalog also deserves attention. In this catalog, 1018 celestial bodies are located according to their zodiacs (according to the star sets), their ordinal numbers, names, location coordinates (distance and latitude from the Sun) in the celestial sphere are given. When assigning coordinates for the time reference point, their position at the time of the equinox of 1437 according to the Solar calendar is assumed [4].

### **Conclusion:**

It is interesting that when Western scientists endlessly argued among themselves about the correctness of the geocentric or heliocentric arrangement of the planets, including the Earth and the Sun, Eastern astronomical schools had been performing calculations for 6-7 centuries to determine lunar and solar eclipses, equinoxes on specific planets, even on distant stars. It does not require proof that this is a great merit of Mirzo Ulugbek and his associates. Ulugbek is a teacher not only of Oriental, but also of all world astronomical schools!

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## **СОСТАВ И СВОЙСТВА ПЕНОБЕТОНА С ПРИМЕНЕНИЕМ ИЗВЕСТКОВЫХ ОТХОДОВ**

*Аннотация. В статье проведен анализ применения известковых отходов (шлама) к пенобетону и результаты исследования теплоизоляции известковых отходов пенобетона и прочности на сжатие конструкционного пенобетона, изучены различные соотношения твердых известковых отходов к известковым отходам для более эффективного использования при разработке новых пенобетонных строительных материалов и на основании лабораторных экспериментов установлено, что известковые отходы (шлама) к пенобетону можно использовать в качестве наполнителя.*

*Ключевые слова: прочность, известковые отходы (шлам), пеногенератор, средняя плотность, теплоизоляция, конструктивная теплоизоляция.*

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## **COMPOSITION AND PROPERTIES OF FOAM CONCRETE USING LIME WASTE**

*Annotation. The article analyzes the application of lime waste (sludge) to foam concrete and the results of a study of the thermal insulation of lime waste foam concrete and the compressive strength of structural foam concrete, studies various ratios of solid lime waste to lime waste for more effective use in the development of new foam concrete building materials and based on laboratory experiments It has been established that lime waste (sludge) added to foam concrete can be used as a filler.*

*Key words: strength, lime waste (sludge), foam generator, medium density, thermal insulation, structural thermal insulation.*

**Введение:** основными компонентами при получении известкового пенобетона являются цемент и наполнители. Практика показала, что в зависимости от вида добываемого известково-отработанного пенобетона состав компонентов существенно меняется. Увеличение количества



наполнителя приводит к повышению прочности и средней плотности известкового пенобетона.

Кроме того, при использовании тяжелых крупнозернистых наполнителей пенобетонная смесь оседает. По этой причине при изготовлении пенобетона используют наполнители размером менее 2,5 мм- в основном песок, известковые отходы (шлам) и измельченные промышленные отходы.

Учитывая, что твердые частицы и минералогический состав песка и известковых (шлам) отходов различны, было рассмотрено влияние состава компонентов на свойства пенобетона, получаемого из известковых отходов.

**Методы работы:** исследования проводились в следующем порядке, изначально готовилась отдельная техническая пена. Количество пенообразователя составляло 0,5% воды. Пену готовили 3 минуты, затем в пену добавляли цемент и наполнитель (песок и золу). Перемешивание пенобетонной смеси заняло 2 минуты. Затем смесь заливали в металлические формы размером 15x15x15 см. отверждение образцов пенобетона производилось в естественных условиях. Характеристики полученных образцов были определены через 7, 14 и 28 дней.

При определении влияния гранулометрического состава песка в качестве наполнителя использовались песок и просеянный песок природного твердого состава в табл.1 и 0,63; 0,315; 0,14 и 0,14,а в табл. 2 в качестве наполнителя модуль крупности известкового отхода 300 мкм150 мкм0, 75 мкм и более.

Таблица 1

**Физические показатели ярового песка**

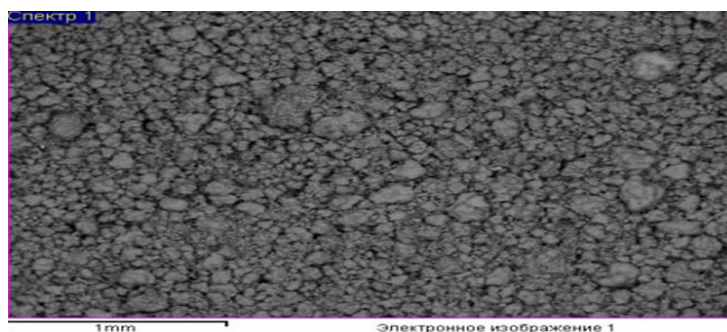
№	Указатели	Единицы измерения	Количество
1	Фактическая плотность	гр/см <sup>3</sup>	2,33
2	Модуль величины	-	1,6
2	Засыпная плотность	kg/m <sup>3</sup>	1,56
3	№ 063 остаток в сите	%	13,2
4	Количество крупных зерен: 10мм. 5мм. 0,16 мм.не менее	%	0,3 7 25
5	Количество глины и пыли	%	0,3

Таблица 2

**Физические показатели известкового отхода (шлама)**

№	Указатели	Единицы измерения	Количество
1	Фактическая плотность	гр/см <sup>3</sup>	2,69
2	Модуль величины	-	1,6
3	To'kma zichligi	кг/м <sup>3</sup>	1,025
4	№ 075 остаток в сите	%	53.91

5	Количество крупных зерен 300 мкм. 150мкм. 0,75мкм. не менее	%	0,3 5,12 25
6	количество порошкообразного вещества известкового отхода (шлам)	%	40,14



**Рис.1.Электронно-микроскопический анализ смеси известковых ОТХОДОВ.**

Таблица 3

**Влияние состава известковых отходов природного твердых частиц на свойства пенобетона**

Состав смеси	Жест - кость воды	Средняя плотность, кг/м <sup>3</sup>	Предел прочности на сжатие, МПа		
			Время затвердевания, сутки		
			7	14	28
<b>Цемент-60% известковые шлам– 40%</b>	<b>0,5</b>	<b>605</b>	<b>0,6</b>	<b>1,2</b>	<b>1,9</b>
<b>Цемент-50% известковые шлам– 50%</b>	<b>0,5</b>	<b>620</b>	<b>0,5</b>	<b>1,1</b>	<b>1,5</b>
<b>Цемент-40% известковые шлам– 60%</b>	<b>0,5</b>	<b>670</b>	<b>0,4</b>	<b>0,8</b>	<b>1,2</b>
<b>Цемент-30% известковые шлам– 70%</b>	<b>0,5</b>	<b>710</b>	<b>0,3</b>	<b>0,6</b>	<b>1,0</b>
<b>Цемент-20% известковые шлам– 80%</b>	<b>0,5</b>	<b>750</b>	<b>0,5</b>	<b>0,5</b>	<b>0,8</b>

**Анализ:** влияние известковых отходов на прочность пенобетона будет изучено в этой статье. Плотность пенобетона в сухом состоянии, используемого в этом эксперименте, составляет 600 кг/м<sup>3</sup>, что в основном используется в пенобетоне для сохранения тепла в строительстве. [3,4]

Для более эффективного использования твердых известковых отходов для разработки новых пенобетонных строительных материалов

исследуются различные соотношения известковых отходов, а в данной статье анализируется внешний вид плотности, механические свойства и микроструктура пенобетона в сухом состоянии различного срока службы.

Для проведения экспериментальных исследований использовались портландцемент марки ПС400 Д20 Кувасойцементного завода, состав пенобетона (табл.4, 5), Марка теплоизоляции и конструкционный пенобетон М800.

При экспериментальном исследовании различного состава пенобетона наблюдались высокие показатели эффективности компонентов при наличии в составе известковых отходов. Строительный пенобетон известковых отходов исследовали путем изготовления 2-х серийных образцов сдвоенных призм размером 4x4x16 см. Первая серия - с контрольными образцами, вторая-с известковым отвалом. Испытательные сроки-1, 3, 7, 14 и 28 дней после заделки. Результаты испытаний представлены в таблице.

Таблица 4

**Лабораторный состав с песком, теплоизоляционными и теплоизоляционными конструкционными пенобетонными смесями**

№	Название материала	Состав пенобетона смеси, кг	
		на 1 м <sup>3</sup>	Контроль теста в объеме 5 литров
1.	Цемент	300	1500
2.	фракция песка. 0-5 мм	300	1500
3.	Пена	50	250
4.	Вода, л	160	800

Таблица 5.

**Лабораторный состав с известковыми отходами, теплоизоляционными и теплоизоляционными конструкционными пенобетонными смесями**

№	Название материала	Состав пенобетона смеси, кг	
		на 1 м <sup>3</sup>	Контроль теста в объеме 5 литров.
1.	Цемент	260	1500
2.	Известковые отходы	240	1500
3.	Пена	50	250
4.	Вода, л	180	900

Введение известковых отходов в состав теплоизоляционного и теплоизоляционного конструкционного пенобетона повышает прочность теплоизоляционного и теплоизоляционного конструкционного пенобетона в течение всего периода затвердевания.

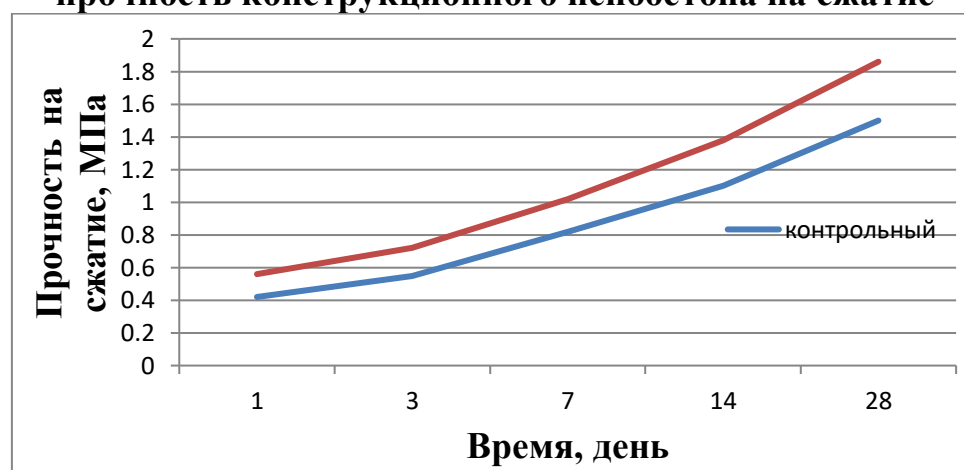
Таблица 6

**Результаты исследования прочности на сжатие теплоизоляционного и конструкционного пенобетона**

№	Название материала	Средняя плотность, кг/м <sup>3</sup>	Теплоизоляция и теплоизоляция прочность конструкционного пенобетона (МПа) и его прирост в течение суток (%).				
			1	3	7	14	28
1	Из песка пенобетон	700	0.85 100	1.55 100	2.9 100	3.8 100	4.2 100
2	Из известковые отходы пенобетон	605	0.96 113	1.72 114	3.25 112	4.3 113	4.75 113

График 1.

**Влияние теплоизоляции известковых отходов и теплоизоляции на прочность конструкционного пенобетона на сжатие**



**Вывод.** Так, экспериментально исследованы различные составы пенобетона с добавлением известкового мусора (суспензии) в качестве наполнителя при производстве химических удобрений в качестве вторичного ресурса, не теряя при этом прочности пенобетона, а, наоборот, повышая его прочность. Оказалось, что более высокие показатели известково-отработанного (шламового) пенобетона можно достичь с помощью различных суперпластификаторов.

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## **МЕСТНЫЕ МОДИФИЦИРУЮЩИЕ ДОБАВКИ К АММИАЧНОЙ СЕЛИТРЕ**

*Аннотация. Известно, что трудно представить растительный мир без азота (N), фосфора (P) и калия (K), которые считаются важными питательными веществами для сельского хозяйства. Из азотных удобрений, поставляющих азот, важное значение приобретает аммиачная селитра. Тем не менее, нитрат аммония имеет ряд недостатков. Для устранения этих недостатков используются модифицирующие его добавки.*

*В этой статье рассматривается использование бентонитовых и бентонитоподобных глин из местных модифицирующих добавок в химической промышленности и сельском хозяйстве. При этом важное значение имеет изучение физико-химических и технологических производных глин. В статье представлены результаты исследований по общему бентонитовому проекту или глине, а именно по материальному составу сырья месторождения «Лаган» бентонит, расположенного на территории Ферганской области нашей республики.*

*На основании собранных данных полученными результатами было доказано, что в природе не только глины с щелочным содержанием монтмориллонита, но и гидрослюдистые и монтмориллонит содержащие, смешанные слоистые образования могут обладать многими свойствами. Он также фокусируется на теоретической и практической важности таких новых типов глин.*

*Ключевые слова. Питательные элементы: азот, фосфор и калий. Бентонит, минеральные удобрения, аммиачная селитра, минеральные руды, улучшение свойств, сельское хозяйство, агротехника, снижение взрывоопасности, снижение гигроскопичности.*



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## **LOCAL MODIFYING ADDITIVES TO AMMONIUM NITERATE**

*Annotation. It is known that it is difficult to imagine the plant world without nitrogen (N), phosphorus (P) and potassium (K), which are considered important nutrients for agriculture. Among nitrogen fertilizers that supply nitrogen, ammonium nitrate becomes important. However, ammonium nitrate has a number of disadvantages. To eliminate these shortcomings, additives that modify it are used.*

*This article discusses the use of bentonite and bentonite-like clays from local modifying additives in the chemical industry and agriculture. In this case, the study of physicochemical and technological derivatives of clays is important. The article presents the results of research on the general bentonite project or clay, namely on the material composition of the raw material of the Lagan bentonite deposit, located in the Fergana region of our republic.*

*Based on the collected data, the results obtained proved that in nature, not only clays with an alkaline content of montmorillonite, but also hydromica and montmorillonite containing mixed layered formations can have many properties. It also focuses on the theoretical and practical importance of such new types of clays.*

*Keywords. Nutrients: nitrogen, phosphorus and potassium. Bentonite, mineral fertilizers, ammonium nitrate, mineral ores, improving properties, agriculture, agricultural technology, reducing explosiveness, reducing hygrosopicity.*

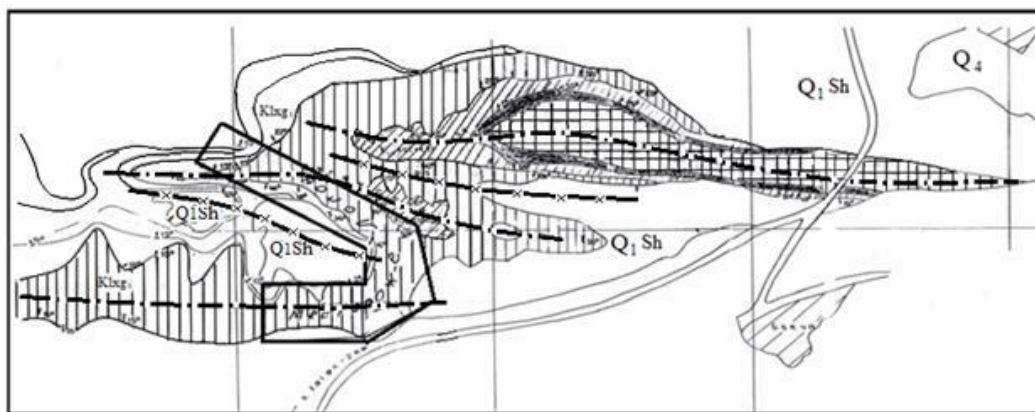
Бентонитовый ил – коллоидный осадок образовался в результате тектонических движений морского осадка. Термин бентонит введен в 1884 году Найтом л. назван так потому, что он был найден в районе города Форт-Бентон недалеко от Монтаны, США. В научных трудах Джордж Милло, М.В.Борзунова бентонитовая грязь представлена фуллеровой Землей в Англии, Понца в Италии, Сукновальные глины в России, кило-милло в Крыму и Турции, гумбрин в Грузии, Гил-Оби в Азербайджане, Джебель-огланы в Туркмении, сабунбалчык в Татарии, гилвута, гильмоя, гора-в Узбекистане было сказано, что его называли сало, кокшам, соц-кесак. Р.С.Шоболов, В.Герус, В.Г.Цагарейшвили, С.Г.Башуры утверждали, что

бентонитовая грязь, дешевое природное сырье, с ее физико-химическими свойствами, имеет особое значение в мировой науке. Бентонитовые компоненты содержат в основном мелкий минерал монтмориллонит, который определяет его физико-химические свойства. По содержанию остаточных фракций монтмориллонита определяют образование месторождения и его запасы. Самые крупные месторождения в Узбекистане находятся в Южном Агратате, Актоше, Майдане, Гузаре, Яккабаге, Пачкамаре, Дехканабаде и Ховдаке. Бентонитовые илы южной части республики характеризуются богатством макро-и микроэлементов в своем составе и наличием большого количества минералов, остатков цеолита, полевошпатовой слюды.

Монтмориллонит – один из основных минералов бентонитовой грязи, название которого связано с французским городом Монтморильон, впервые обнаруженным в виде пропластика в 1847 году. В природе встречается более 40 мелких минералов, отличающихся друг от друга физико-химическими свойствами и химической минералогией. Отдельную структуру из них составляют оксиды кремния и алюминия. Мелкие минералы имеют кристаллическое структурное состояние. По расположению кремнезема и мелких суглинков в кристаллических решетках его минералов его подразделяют на монтмориллонит и каолинит. Различные бентонитовые Илы могут содержать от 50% до 95% монтмориллонита, при этом каждый слой кристаллы окружен двойными гидроксильными ионами, один слой заполнен оксидом алюминия, а 2/3 пустого слоя заполнен алюминием. Алюминий, входящий в кристаллическую решетку монтмориллон, несет на себе три положительных заряда, и обмен любого из них означает, что даже при наименьшем заряде перехода ионов в катион  $Mg^{2+}$ ,  $Fe^{2+}$  электронное равновесие нарушается, и это изменение происходит, когда ионы с четырехзарядным зарядом  $Si^{4+}$  в тетраэдрическом слое обмениваются на Ион с трехзарядным зарядом  $Al^{3+}$ . Этот процесс распространяется на верхнюю корку минерального слоя, вызывая общий отрицательный заряд. Вместо этого изменения между слоями заполняются катионами. При этом в основном  $Na^{+}$ ,  $K^{+}$ ,  $Ca^{2+}$  и  $Mg^{2+}$  эти катионы обмениваются с катионами в свободном состоянии на поверхности минерала и между слоями. При таком структурном строении монтмориллонит обладает легким катионообменным свойством. В процессе ионного обмена нарушенное состояние кристаллических решеток изменяет электронное равновесие. Катионообменные свойства монтмориллонита определяются тем, что от 80 до 150 мг/экв составляют 1 грамм и, в зависимости от различных факторов, содержат разное количество молекул воды. Следовательно, свойство насыщения монтмориллонита в значительной степени зависит от силы гидратации, а состояние гидратации зависит от расположения катионов, поэтому происходит процесс насыщения водой за счет обмена ионов гидратации натрия и кальция в

разной степени. Натриевый монтмориллонит может поглощать воду в 6-7 раз больше своей массы, в то время как кальциевый монтмориллонит, как было показано, поглощает воду только в 3-5 раз больше. В мелких минералах реакции ионного обмена протекают как в водной, так и в безводной среде. Влияние ионного обмена на кристаллическую структуру минералов незначительно, но дает возможность контролировать физико-химические свойства минералов и знать их предопределенные свойства. В структуре монтмориллон натрия бентонита удельная поверхность макро-и микротрубочек составляет 700-800 м<sup>2</sup>/г, что обеспечивает высокую абсорбционную способность. Благодаря природным физико-химическим свойствам сухого монтмориллонита, техническая обработка позволяет применять его для определенных целей. Бентонит представляет собой железосодержащий сидерит, гематид, гетит или магнетит в монтмориллоните, до 8% в местных бентонитах, что придает ему характерный разнообразный цвет (от красного, зеленого до темно-коричневого). Его аморфные фракционные остатки могут различаться и чередоваться с химическими связями в этих желаемых биологических отношениях [9].

Бентонитовое месторождение Логан географически расположено в юго-западной части гор Логан-Кир, которые, в свою очередь, являются северными предгорьями алайских гор. Горы Логан-Кир геологически относятся к западному завершению карачотирского антиклинория, где широко распространены мезозойско-кайнозойские отложения [4]. Они тянутся в субширотном направлении и пересекаются с субмеридиональными долинами сухих ручьев. Действительно, основная часть территории проявления бентонитового месторождения Логан имеет субширотное направление, образуя полосы, ограниченные южным склоном холма, а вторая северо-восточная часть - субмеридиональное направление, при этом регион находится справа от самого большого сухого ручья. Ширина поля составляет около 100 метров, а длина около 2 км с минимальными затратами на сырье. Ли добывают открытым способом с поля. Геологическое строение лагунных бентонитовых и бентонит подобных глин простое, включает отложения верхнего мела и четвертичного периода (рис.1).



2-расм. Логон бентонит кони жойлашган худуднинг геологик харитаси

Миқёс 1:10 000

Шартли белгилар

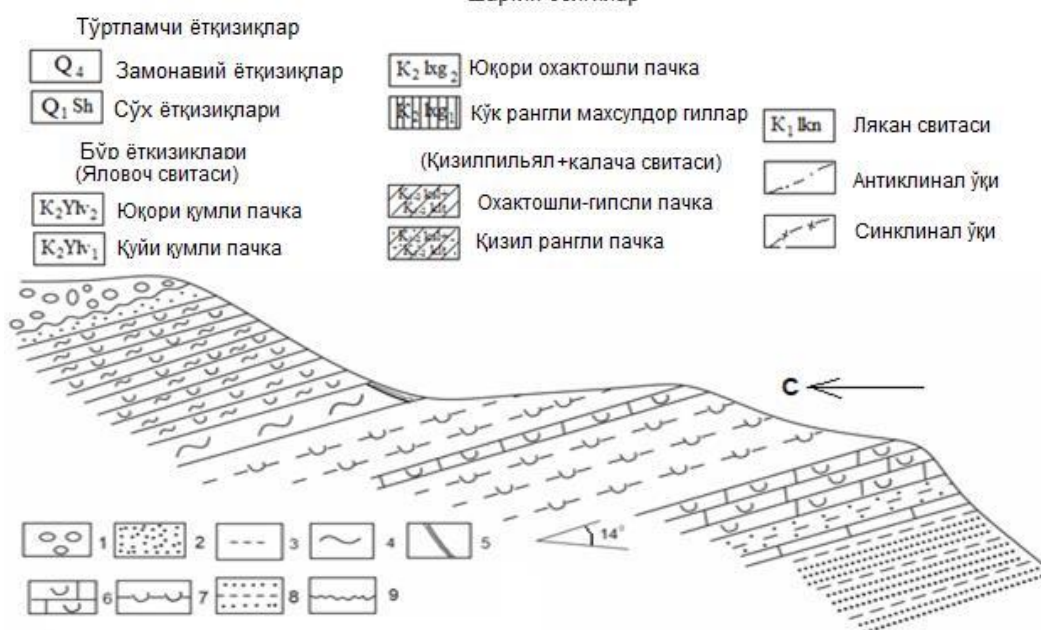


Рисунок 1. Разрез месторождения бентонитовых глин Логан (Турон)  
 1-конгломерат; 2-песчаник; 3-алевролит; 4-5 глин (продуктивный слой); 6- ракушечник-известняк; 7-ракушечник-глина; 8-глина-песчаник; 9- несогласованное залегание.

Вспученность-свойство бентонитовых глин поглощать воду и значительно (от 8 до 12 раз) увеличивать ее объем. Многие из них связаны с обменом катионов в октаэдрах. Чем больше таких обменов, тем выше содержание большей части бентонитовой глины. Щелочные бентониты обладают самым высоким свойством большинства [3]. Большинство образцов из бентонитового месторождения Логан, идентифицированных методом щелчка, показали [1] в 810 раз более высокую, чем у обычного бентонита, степень вязкости 20,0 (категория II по аттербергу). Химический состав (%) содержит: SiO<sub>2</sub>-55,84.

Образцы глины, привезенные из месторождения бентонит Логан, изучались с использованием ряда аналитических методов

(гранулометрический, химический, спектральный, рентгеновский дифракционный и электронно-микроскопический анализы; определение катионообмена, коэффициента мультипликации и свойств упругости).

Результаты определения гранулометрического состава бентонитовых глин Логана показывают, что содержание песчаной фракции в них (1-0,1 мм) колеблется от 0-0,4 до 5,6%, мелкозернистых глин (0,1-0,01 мм) - от 0,3 до 24%, а сверх мелкодисперсных глин (<0,01 мм) - от 73,6 до 99,7%. В глинистой фракции преобладают мелкодисперсные глины (<0,001 мм), количество которых колеблется от 38-40 до 60-64%. Фракции 0,005 мм в отдельных образцах достигают размера 82,2%.

Это свидетельствует о хорошем качестве лагунных бентонитовых глин. М.З.Закиров [3] считает, что именно дисперсность глин во многом определяет их технологические качества. В целом данные гранулометрического анализа свидетельствуют о том, что помимо чистых сортов глин в месторождении бентонитовых глин «Логан» имеются и низко сернистые сорта глин.

Химический состав образцов глин продуктивного горизонта бентонитового месторождения Логан (в среднем по 8 образцам) следующий (%): SiO<sub>2</sub> - 52,05; TiO<sub>2</sub> - 0,58; Al<sub>2</sub>O<sub>3</sub> - 14,3; Fe<sub>2</sub>O<sub>3</sub> + FeO - 5,49; MgO - 3,03; MnO - 0,03; CaO - 5,30; Na<sub>2</sub>O - 1,55; K<sub>2</sub>O - 4,8; P<sub>2</sub>O<sub>5</sub> - 0,10; SO<sub>3</sub> - 0,10; H<sub>2</sub>O - 1,05 -3,68; CO<sub>2</sub>-1,18, Р.п.п. - 12,45. Этот состав обычно соответствует среднему содержанию глин большинства бентонитовых месторождений (по сравнению, например, с бентонитовым месторождением «Навбахор») (табл.1).

"Навбахор" бентонитовый рудник	SiO <sub>2</sub>	TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	FeO	MgO	CaO	Na <sub>2</sub> O	K <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>3</sub>	ППП	Итого
Щелочной бентонит	57,91	0,35	13,69	5,1	-	1,84	0,48	1,53	1,75	0,43	0,75	16,17	100
Щелочно- земельный бентонит	56,23	0,61	13,56	6,5	-	3,76	0,69	0,98	2,2	0,92	0,49	14,06	100
Карбонатная глина	46,79	-	8,63	-	3,41	2,74	10,08	-	1,6	1,99	-	24,33	99,94
"Логан" бентонитовый рудник	52,05	0,58	14,3	6,1	0,18	3,03	5	1,55	4,8	0,1	0,1	12,25	100

Однако содержание Al<sub>2</sub>O<sub>3</sub> в них сильно колеблется (от 10,83% до 18,20%). По-видимому, это связано с присутствием минерала каолиновой глины в хлевой глине. Глина имеет гораздо более высокое содержание окрашивающих оксидов (Fe<sub>2</sub>O<sub>3</sub>+TiO<sub>2</sub>), что указывает на то, что глины относятся к группе с высоким содержанием окрашивающих оксидов (>3%). Высокое содержание Fe<sub>2</sub>O<sub>3</sub> объясняется частым присутствием минерала геотита в глине. Количество K<sub>2</sub>O превосходит Na<sub>2</sub>O. Об этом



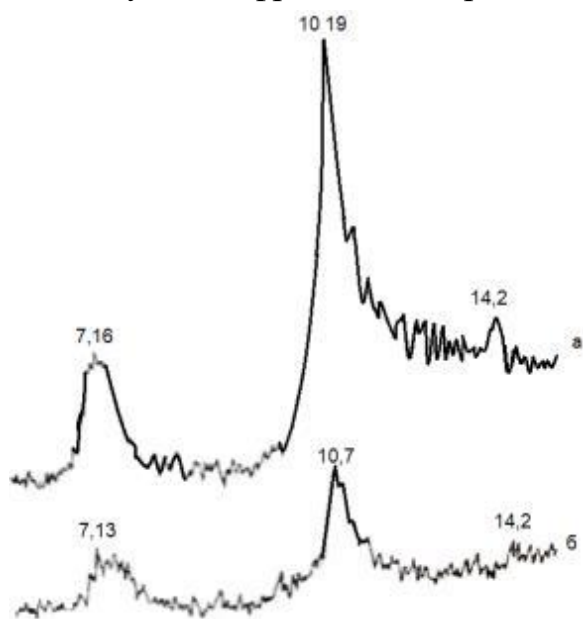
свидетельствует тот факт, что состав холевой глины состоит из значительной части гидрослюда и калийного полевого шпата. Высокое содержание СаО в некоторых образцах глины связано с их карбонизированными типами.

Глины, проанализированные по составу и количеству петрогенных элементов, соответствуют обычным бентонитовым глинам. Но резко отличается от них высоким содержанием  $K_2O$  (6,39). Этот случай свидетельствует о том, что они содержали слюдяные минералы. Кривые ДТА и потеря массы (согласно дериватографии) свидетельствуют о наличии в исследуемых глинах трех эндоэффектов (150, 510, 850°C) и небольшой потери массы, характерной для минерала гидрослюдяной глины, наряду с добавлением монтмориллонита, некоторых зерен грубой формы.

Электронно-микроскопические исследования изученных глин также подтвердили данные термического анализа и показали наличие редких фрагментарных зерен мелкодисперсного гидрослюдистого глинистого минерала вместе с включениями монтмориллонита, которые на электронных фотографиях проявляются в мутной форме.

#### Метод исследования.

Дифрактометрические исследования позволили поставить окончательный диагноз породообразующих минералов глин, обладающих большинством свойств (рис.2). Дифрактометрический анализ выявил следующие глинистые минералы в исследуемой глине и их межтекстовые расстояния [8]: гидрослюда - 10,19; 5,01; 3,33 Å; хлорит - 14,2; 7,16; 4,73; 3,55 Å; каолинит - 7,2; 3,58 Å, а также дифракционные максимумы кварцевого и калиевого полевого шпатов в диапазоне углов 5-90 наблюдается заметный шлейф  $2\theta$ , интенсивность которого увеличивается в направлении максимума дифракции гидролиза.



В дифракционной схеме препарата, обработанного глицерином, этот шлейф не наблюдается, и характерный для гидрослюда максимальный уровень дифракционного максимума немного смещен (10,07 Å).

На дифрактограмме, обработанной препаратом глицерин, дифракционный минимум, соответствующий хорошо упорядоченным природным образованиям со смешанным слоем (рекорит, коррексит), не определяется [7].

На основании совместной интерпретации дифрактограмм препаратов, обработанных сухим воздухом



и глицерином, можно сделать вывод, что в пробе участвует минерал, состоящий из смешанного слоя, высокодисперсных гидрослюдиных и монтмориллонитовых слоев, с содержанием гидрослюди 85-90% и монтмориллонитовых слоев 10-15%. Полуколичественная относительная оценка глинистых минералов в образцах глин - 50% для гидрослюды, 40-45% для минералов смешанного слоя, каолина - 5, хлорита - 2,3% [7].

Гранулированное минеральное удобрение, содержащее 80% аммиачной селитры и 20% дополнительных минералов, снижает содержание азота в готовом продукте до 27-28%, что снижает уровень пожарной и взрывобезопасности при хранении, транспортировке этого минерального удобрения, повышает агрохимическую эффективность удобрения, снижает количество внесения удобрений в почву, а также снижает негативное воздействие на окружающую среду [10].

Следует отметить, что аммиачная селитра по своим физико-химическим и пожарно-взрывным свойствам сходна с пероксидами: при разложении пероксидов, а также при разложении селитры выделяется кислород, оксиды азота, которые активизируют горение и могут вызвать взрыв [13].

### **Выводы**

Полученные результаты свидетельствуют о том, что в природе большинству свойственны не только глины с щелочным содержанием монтмориллонита, но и гидрослюдистые и монтмориллонитсодержащие, смешанные слоистые образования. Это дает основание утверждать, что в природе существуют и новые виды глин, имеющие как теоретическое, так и большое практическое значение, состоящие из смешанных слоистых образований, имеющих множественное происхождение. Этот случай, в свою очередь, еще больше расширяет возможности использования бентонитовых глин [7]. Включение этих природных минералов в аммиачную селитру происходит за счет уменьшения содержания азота в аммиачной селитре, вместо этого обогащая ее важным для растений питательным элементом калием и фосфором, а также микроэлементами Fe, Mg, Ca, Na, Ti и аналогичными микроэлементами. Это, в свою очередь, увеличивает положительное влияние этой минеральной травы на растения и снижает отрицательное влияние (уровень засоления) почвы. Эти природные минеральные добавки служат для снижения взрывоопасности и гигроскопичности аммиачной селитры, повышают ее прочность.

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## **ТРАВЕРТИН ЧИҚИНДИЛАРНИНГ МИКРОСТРУКТУРАСИ ВА УЛАР АСОСИДА ОЛИНГАН ГИПСОБЕТОННИНГ ХУСУСИЯТЛАРИ**

*Аннотация. Мақолада травертиндан пардозбоп қоплама плиталар ишлаб чиқаришда ҳосил бўлган чиқиндиларнинг микроструктураси ва улар асосида олинган гипсобетоннинг хусусиятларига таъсири бўйича ўтказилган тадқиқотларнинг латижалари баён қилинган. Чиқиндининг нано ва микро ўлчамдаги ўзига хос ипсимон заррачалари гипсобетон фазаларини шаклланиш жараёнларининг тезлаштириши, гипс тизимида морфологик жиҳатдан модификацияланган янги дигидратлар сонининг кўпайишига олиб келиши таъкидланган.*

*Калит сўзлар: травертин, гипсобетон, тўлдирувчи, микроструктура, электр ўтказувчанлик, мустаҳкамлик, ўртача зичлик.*

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## **MICROSTRUCTURE OF TRAVERTINE WASTE AND CHARACTERISTICS OF GYPSUM CONCRETE OBTAINED ON THEIR BASIS**

*Abstract. The article describes the results of the research on the microstructure of the waste produced in the production of travertine facing plates and the effect on the properties of gypsum concrete based on them. It is noted that the special thread particles of nano and micro size of the waste accelerate the processes of formation of gypsum concrete phases, increase the number of morphologically modified new dihydrates in the gypsum system.*

*Key words: travertine, gypsum concrete, filler, microstructure, electrical conductivity, strength, average density.*

Республикамизда травертиндан пардозбоп қоплама плиталар ишлаб чиқарувчи кўплаб корхоналар фаолият кўрсатмоқдалар. Уларнинг иш жараёнида таркибитравертин заррачаларидан иборат лой, кум ва чангдан таркиб топган суюқ шлам кўринишидаги чиқиндилар ҳосил бўлади. Уларни

миқдори қайта ишланган тош массасининг 25 дан 33% ини ташкил қилади ва атроф муҳитнинг экологияси учун хавф туғдиради [1-3]. Шунинг учун экологик-иқтисодий нуқтаи назардан ушбу чиқиндидан гипсобетон буюмларларини ишлаб чиқаришда тўлдирувчи сифатида фойдаланиш мақсадга мувофиқ ҳисобланади

Минерал тўлдирувчи сифатида Наманган вилояти, Чуст туманидаги «Ғалаба» МЧЖнинг куқунсимон травертин чиқиндиси ишлатилди.

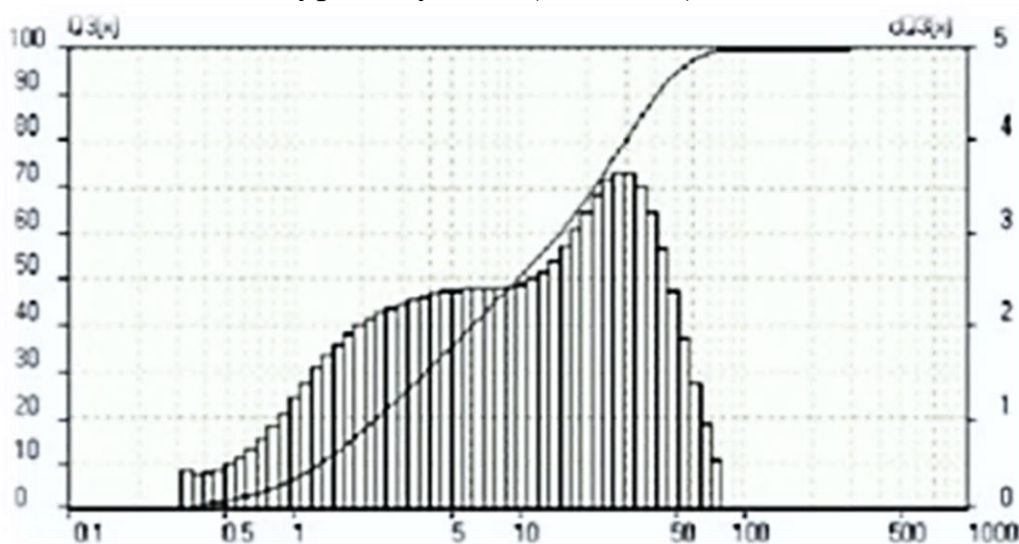
Кимёвий таркибига кўра травертин чиқиндиси 45,65% кальций ва 6,77% магний, 2,26% кремний диоксиди миқдори билан тавсифланади [4].

1-жадвал

### Травертин чиқиндисининг гранулометриқ таркиби

Заррачалар ўлчами, мкм	Миқдори, %	Заррачалар ўлчами, мкм	Миқдори, %	Заррачалар ўлчами, мкм	Миқдори, %
5	0,061	40	6,186	75	26,487
10	1,309	45	7,804	80	29,661
15	1,792	50	9,836	85	34,647
20	2,365	55	12,296	90	40,872
25	3,090	60	16,141	95	50,469
30	3,874	65	18,315	98	67,542
35	4,903	70	21,741	100	79,742

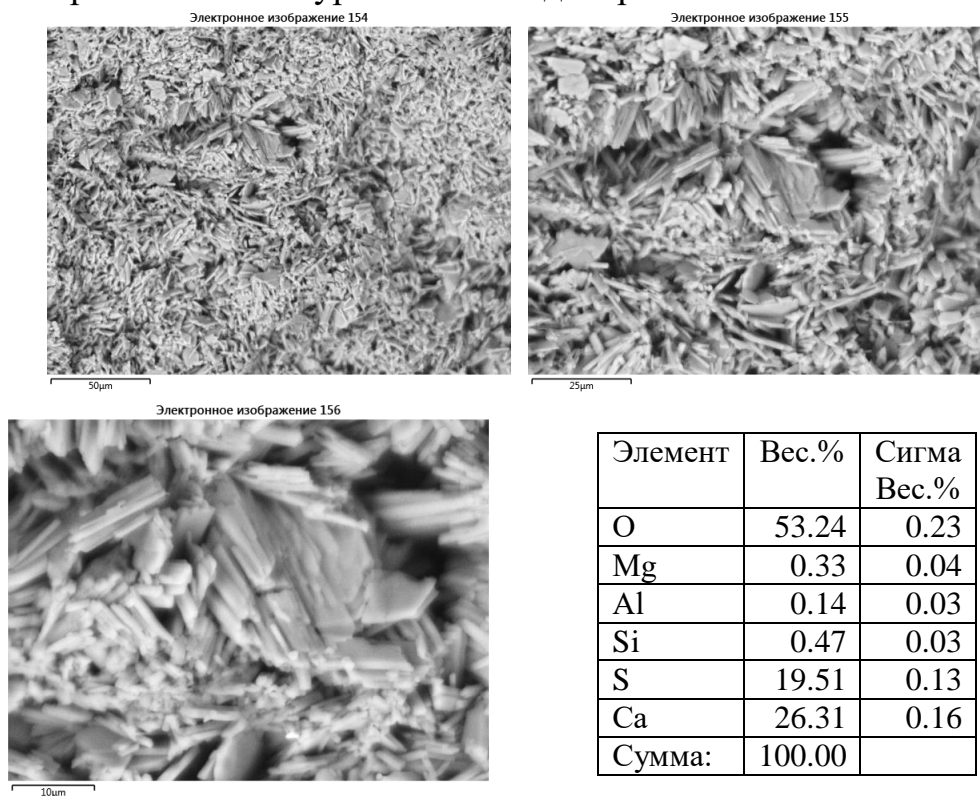
Лазер дифракцияси ёрдамида аниқланган гранулометриқ таркиб таҳлилига кўра, ушбу чиқинди нано ва микро ўлчамдаги заррачалардан ташкил топганлигини кўриш мумкин (1-жадвал).



**1-расм. Травертин чиқиндиси заррачаларининг ўлчамлари бўйича тақсимотининг интеграл ва дифференциал эгри чизиқлари**

Травертин чиқиндилари таркибида ўрганилаётган диапазондаги заррачалар ўртача ўлчами 19,431 микрон; 2 микрондан кичик заррачалар миқдори - 10,26% ни ташкил этади (1-расм, 1-жадвал).

Электрон микроскопик тадқиқотлар натижасида чиқинди ўзига хос, толасимон шаклдаги кальцит ( $\text{CaCO}_3$ )нинг полидисперс заррачалар кўринишига эга эканлигини кўрсатди (2-расм). Бундай тузилишни травертин тоғ жинсларидан пардозбоп қурилиш материаллари ва буюмлари олишдаги арралаш ва жилвирлаш жараёнлари билан тушинтириш мумкин. Бизнингча, бу жараёнларда жихозларни тошларга шакл беришда ишқаланиши ва қизиши оқибатида ҳосил бўладиган чиқиндиларни заррачалари толасимон кўринишни оладилар.



Элемент	Вес.%	Сигма Вес.%
O	53.24	0.23
Mg	0.33	0.04
Al	0.14	0.03
Si	0.47	0.03
S	19.51	0.13
Ca	26.31	0.16
Сумма:	100.00	

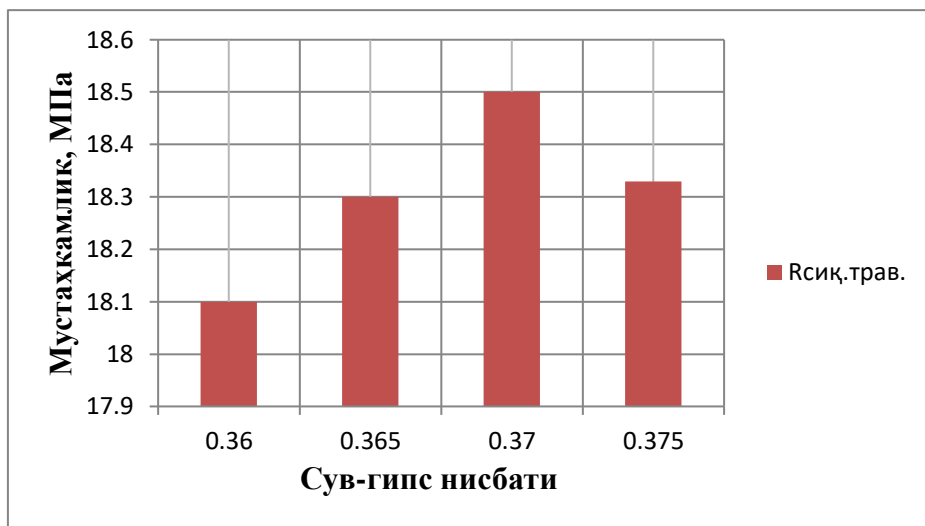
## 2-расм. Травертин чиқиндисининг микроструктураси.

Чиқинди кўшимчаларнинг гипснинг физик –механик хусусиятларига таъсирини ўрганишда боғловчи сифатида Г-10 марказдаги ( $R_{\text{сик.}} = 11,5\text{МПа}$ ;  $R_{\text{эг.}} = 4,8\text{МПа}$ ) гипсдан фойдаланилди.

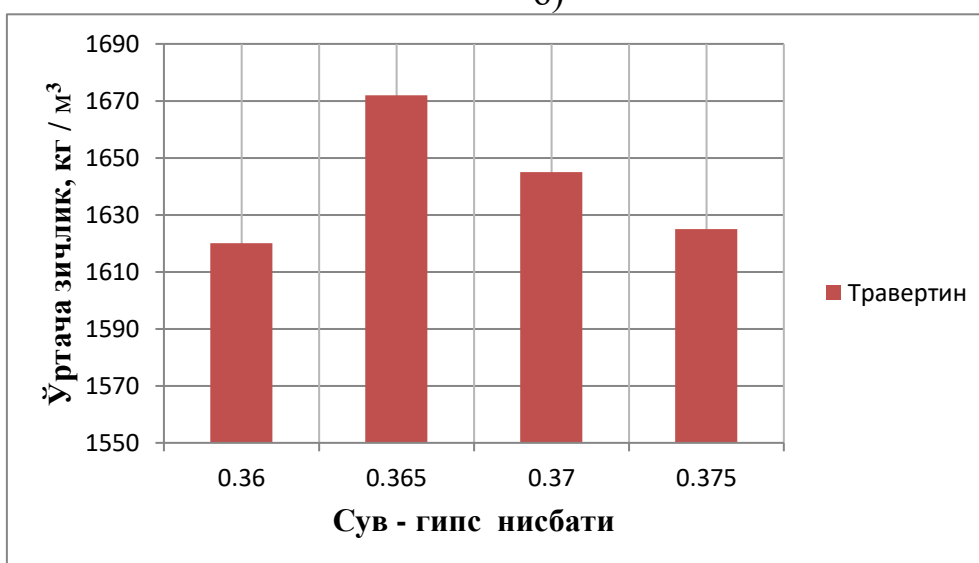
Олинган композицияларнинг физик-механик хусусиятлари ГОСТ 23789-79 талаблари бўйича тайёрланган намуна-таёкчаларини синаш орқали аниқланди. Сув-гипс нисбати 0,36 дан 0,375 гача, чиқинди кукунларининг миқдори гипснинг массасига нисбатан 6 дан 10% гача қилиб олинди. Синов натижалари гипс тошининг сиқилишдаги мустаҳкамлик чегараси травертин чиқиндилар миқдори 10% ни ташкил қилганда 18,5 МПа га тенг эканлигини кўрсатди (3а-расм).

а)





б)



**3-расм. Боғловчи ва чиқинди кукун кўшимчалари асосидаги гипс тошининг мустаҳкамлиги (а) ва ўртача зичлиги (б) нинг сув-гипс нисбатига боғлиқлиги**

Олиб борилган тадқиқотлар, травертин кукунлари билан модификацияланган гипс композицияларининг физик-механик хусусиятларининг ошиши, биринчи навбатда, гипснинг қотишидаги гетероген жараёнда травертиннинг эрувчан минералларининг кимёвий иштирокида янги фазалар ҳосил бўлиши ва травертин кукунларини заррачалари боғловчининг ғовак бўшлиғини тўлдириши билан гипс тошининг янада мукамал тузилишда шаклланишини таъминлашини кўрсатди деган хулоса чиқариш мумкин. Бу ҳодиса чиқиндидаги эрувчан моддалар мавжудлиги ва улар кристалланиш жараёнида иштирок этиши билан тушунтирилади [5]. Фазаларни шаклланиш жараёнларининг тезлашиши гипс тизимида морфологик жиҳатдан модификацияланган янги дигидратлар сонининг кўпайишига олиб келади [6].



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## **ЗАРУБЕЖНЫЙ ОПЫТ УТИЛИЗАЦИИ ПРОДУКТОВ СЖИГАНИЯ ТВЕРДОГО ТОПЛИВА УГОЛЬНЫХ ТЭС**

*Аннотация. В настоящей статье рассмотрены механические свойства и долговечность бетона, в котором цемент частично замещён летучей золой большого объема (HVFA). Увеличение процентного содержания летучей золы приводит к снижению механических свойств бетона HVFA, включая прочность на сжатие, изгиб, растяжение, при одновременном повышении некоторых свойств долговечности, включая водопоглощение, пористость и карбонизацию.*

*Ключевые слова: бетон, цемент, летучая зола, прочность, водопоглощение, пористость, карбонизация.*

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## **FOREIGN EXPERIENCE IN RECYCLING SOLID FUEL COMBUSTION PRODUCTS FROM COAL-FIRED POWER PLANTS**

*Abstract. This paper examines the mechanical properties and durability of concrete in which cement is partially replaced by high volume fly ash (HVFA). Increasing the percentage of fly ash results in a decrease in the mechanical properties of HVFA concrete, including compressive, flexural, and tensile strength, while increasing some durability properties, including water absorption, porosity, and carbonation.*

*Keywords: concrete, cement, fly ash, strength, water absorption, porosity, carbonization.*

Зольная пыль – это побочный продукт сжигания порошкообразного угля в теплоэлектростанциях. Проблема использования золошлаковых материалов (ЗШМ), образующихся на ТЭС при сжигании углей. ТЭС

работают на угле, содержащем до 63 % минеральных компонентов. При сжигании пылеобразного горючего при 1200–1700 °С образуются твердые отходы двух видов: зола уноса (летучая зола) и шлак. Примерно 80 % минеральной части угля переходит в золу уноса, улавливаемую в циклонах и на электрофильтрах, а до 20 % переходит в шлак, который накапливается в шлаковых бункерах под топкой [1]. Зола-унос относится к полиминеральным материалам, содержащим в зависимости от вида сжигаемого угля различное количество стекловидной фазы (40-65 %), в виде частиц шарообразной формы размером до 100 мкм, дегитратированные глинистые вещества, муллит, магнезит, кварц, различные соединения кальция, магния, серы. В отличие от породы углеобогащения в золе-уносе ТЭС уголь как таковой отсутствует, а горючая часть ее представлена различными модификациями коксовых остатков [2].

Лидером мирового рейтинга по объему переработки (до 30 млн. тонн ежегодно) является Индия. Экономический стимул: еще в начале 90-х индийские инженеры выработали свою технологию производства кирпича, в которой вместо привычной природной глины использовалась угольная зола. В итоге это привело к революции в строительной индустрии, и Индия начала увеличивать темпы застройки благодаря потоку зарубежных инвестиций в страну. Помимо изготовления кирпича, в Индии зола уноса применяется также для укрепления грунтов насыпи и для устройства покрытия. Лишь засыпка мокрых низин золой с дальнейшим продуктивным использованием земель оказалась нецелесообразным.

В Западной Европе ведущая роль среди стран в решении вопроса применения топливных отходов ТЭС в дорожном строительстве принадлежит Франции. Золой уноса используются во всех частях дорожных конструкций. В зависимости от их состава и свойств они могут включаться в тело насыпи как техногенный грунт и как минеральный материал, укрепленный гидравлическим вяжущим, в нижних слоях основания; в верхних слоях основания как компонент смешанного вяжущего или в качестве самостоятельного вяжущего; в асфальтобетонных покрытиях как минеральный порошок, в цементобетонных - как добавка, улучшающая характеристики бетона. Также в Нидерландах и Дании процент применения зол составляет почти 100 %.

В Великобритании впервые золу уноса от сжигания каменного угля применили в начале 60-х годов прошлого века в качестве материала для возведения насыпей. По результатам исследований выяснилось, что зола является подходящим материалом для сооружения насыпей и устройства нижних слоев основания дорожной одежды, которые должны располагаться на глубине не менее 40 см от поверхности покрытия, так как они недостаточно морозостойчивы. Такие же исследования золошлаковых смесей из отвалов тепловых электростанций показали их пригодность для

устройства оснований дорожных одежд и сооружения насыпей. Но было рекомендовано не сооружать насыпи из мелкого и влажного материала.

В России всего не более 10 % от 3 тонн ежегодно образующейся золы используется для последующей переработки в строительной индустрии, дорожном строительстве и прочих промышленных отраслях. В то время как в развитых странах используют 70-95 % от выхода ЗШО [3].

Несмотря на то, что было проведено множество исследований по «high-volume fly ash (англ.) – летучая зола большого объема» (HVFA), имеется мало данных о технических характеристиках бетона с HVFA, включая ряд используемых дополнительных добавок. Рашад и др. рассмотрены исследования HVFA, проведенные до 2014 г., основанные на различных свойствах летучей золы и бетона HVFA, а также прироста характеристик бетона с HVFA с добавлением других дополнительных материалов. Nimalatha et al. также рассмотрели высокий объем использования летучей золы в бетоне и влияние факторов, влияющих на механические свойства и долговечность. С 2014 года было проведено много новых исследований с использованием бетона HVFA, которые еще не подвергались систематическому обзору [4].

**Заключение.** В современных условиях усиливается острота проблемы утилизации золошлаковых материалов, получаемых в результате сжигания углей тепловых электростанций. Их накопление в возрастающих объемах приводит к стремительному росту экологических, социальных и экономических издержек из-за крайне низкого уровня утилизации.

Таким образом, применение золошлаковых отходов позволяет сэкономить на стоимости основных дорогостоящих материалов без ущерба качеству изделия, одновременно решая проблему утилизации золошлаковых материалов.

Были рассмотрены механические свойства и долговечность бетона HVFA, когда цемент был заменен летучей золой с (без ряда микро) нанодобавок. Следующие выводы можно резюмировать на основе общего обзора в рамках этого исследования.

– Бетон HVFA имеет низкую начальную прочность из-за медленной пуццолановой реакции летучей золы в раннем возрасте. Однако со временем непрореагировавшая летучая зола вступает в реакцию и приводит к увеличению прочности бетона из HVFA.

– Увеличение процентного содержания летучей золы приводит к снижению механических свойств бетона HVFA, включая прочность на сжатие, прочность на изгиб, прочность на растяжение при расщеплении и модуль упругости, при одновременном повышении некоторых свойств долговечности, включая водопоглощение, пористость и карбонизацию.

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## ВЛИЯНИЕ ИНФЛЯЦИИ НА ПОТРЕБИТЕЛЬСКУЮ КОРЗИНУ НАСЕЛЕНИЯ ПРИМОРСКОГО КРАЯ

*Аннотация. В исследовании проводится анализ изменений стоимости потребительской корзины населения Приморского края в условиях роста инфляции. Предметом исследования являются товары и услуги, которые широко используются населением для удовлетворения своих потребностей. Ключевые слова: инфляция, потребительская корзина, население, Приморский край, экономика, цены, товары, услуги, стоимость жизни, бюджет потребителя, рост цен.*

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## INFLATION IMPACT ON THE CONSUMER BASKET OF THE PRIMORSKY KRAI POPULATION

*Abstract. The article "Fundamentals of cost management in the fishing industry" examines the importance and methods of cost management in enterprises related to the fishing industry. The authors of the article draw attention to the fact that effective cost management helps the enterprise to achieve its financial goals and increase competitiveness in the market.*

*Keywords: inflation, consumer basket, population, Primorsky Krai, economy, prices, goods, services, cost of living, consumer budget, price growth.*

Инфляция – это повышение общего уровня цен на товары, работы и услуги (населения страны и предприятий) на длительный срок. При инфляции на одну и ту же сумму денежных средств по истечении некоторого периода времени можно будет купить меньше товаров, работ и услуг, чем прежде. В этом случае говорят, что за прошедшее время покупательная способность денег снизилась, деньги обесценились, то есть, деньги утратили часть своей реальной стоимости. Инфляцию следует

отличать от скачка цен, так как это длительный, устойчивый процесс. Инфляция не означает рост всех цен в экономике, потому что цены на отдельные товары, работы и услуги могут повышаться, понижаться или оставаться без изменения. Под влиянием инфляции потребительская корзина населения Приморского края неизбежно подвергается изменениям. В данной статье мы рассмотрим, какие последствия может иметь инфляция на поведение потребителей и их потребительскую корзину.

Инфляция, которая является постоянным и неизбежным процессом в экономике, оказывает негативное влияние на поведение потребителей и их потребительскую корзину. Население Приморского края, подвергаясь этой инфляции, сталкивается с изменениями в составе и объеме товаров и услуг, которые они могут приобрести. Это может привести к различным последствиям.

Инфляция является одной из основных экономических проблем, с которой сталкиваются многие страны, включая Россию. Она оказывает значительное влияние на экономическую ситуацию в регионах, в том числе на потребительскую корзину населения. В данной статье мы рассмотрим влияние инфляции на потребительскую корзину жителей Приморского края. Приморский край расположен на Дальнем Востоке России и имеет свои особенности в экономическом развитии. Он является крупным промышленным и торговым центром, а также имеет развитую сферу услуг. Влияние инфляции на потребительскую корзину населения Приморского края проявляется в нескольких аспектах.

Во-первых, инфляция влияет на цены на товары и услуги. Повышение уровня цен приводит к ухудшению покупательной способности населения. Жители Приморского края вынуждены тратить больше денег на покупку необходимых товаров и услуг, что негативно сказывается на их бюджете. Постоянное увеличение цен на товары и услуги означает, что за те же самые деньги можно купить меньше товаров. Из-за этого люди вынуждены сокращать свою потребительскую корзину, экономить и отказываться от определенных покупок. Например, семьям может потребоваться сократить количество покупаемых продуктов питания или искать более дешевые аналоги.

Во-вторых, инфляция влияет на уровень заработной платы. Повышение цен на товары и услуги требует повышения заработной платы, чтобы население могло покрыть свои расходы. Однако, в условиях инфляции, повышение заработной платы не всегда компенсирует рост цен. Это может привести к снижению уровня жизни населения и ухудшению его социального положения. При такой тенденции, что повышение заработной платы не компенсирует рост цен, предприятия и организации, особенно те, которые предоставляют услуги, такие как транспорт, коммунальные услуги и здравоохранение, вынуждены повышать свои тарифы или цены, чтобы компенсировать увеличение затрат. Это также отражается на

потребительской корзине населения, так как люди вынуждены тратить больше денег на эти услуги.

В-третьих, инфляция влияет на доступность кредитования. Повышение уровня цен может привести к повышению процентных ставок по кредитам, что делает кредитование менее доступным для населения. Это может затруднить получение кредитов на покупку жилья, автомобиля или других крупных товаров, что оказывает негативное влияние на уровень жизни населения. Инфляция также может оказывать влияние на сберегательные накопления населения Приморского края. Если степень инфляции превышает уровень процента по банковским депозитам или другим инструментам накопления, то реальная стоимость сбережений постепенно сокращается. В связи с этим, многие потребители вынуждены искать альтернативные способы сохранения своих денежных средств, чтобы минимизировать потери от инфляции.

Проанализируем уровень инфляции в России по годам с 2006 г. и по настоящее время, выраженной в таблице 1.

Восемнадцать лет – это большой период для страны, за который можно проследить ее развитие по многим показателям, в том числе и по уровню инфляции.

Данные таблицы свидетельствуют о том, что начало нового столетия для России были очень тяжелыми, инфляция в 2006г. составила 20,1%, это были последствия финансового кризиса 1998 г. и России потребовалось несколько лет для восстановления экономики.

Таблица 1 Уровень инфляции в России в 2000–2018 гг. (%)

Период	Инфляция за год
2006 г.	11.87
2007 г.	13.28
2008 г.	8.80
2009 г.	8.78
2010 г.	6.10
2011 г.	6.58
2012 г.	9,00
2013г.	6.45
2014 г.	11.36
2015 г.	12.91
2016 г.	5.38
2017 г.	2.52
2018 г.	4.27
2019 г.	6,45
2020 г.	3.05
2021 г.	8.39
2022 г.	11.92

Из таблицы мы видим, что наибольшие показатели инфляции наблюдались в 2006, 2007, 2014, 2015, 2022 годах

В период с 2016–2019 гг. инфляция находилась на приемлемом уровне – не превышала 6%. Период с 2021 по 2022 г. отмечен ростом инфляции, и ее рост составил 8,39% и 11,92% соответственно.

Это была реакция экономики на появления всемирной эпидемии «COVID-19» и также на введенные Западом и США санкции и как следствие – снижение цены на нефть и падение курса национальной валюты. Такая рекордно низкая инфляция в России оказала большое влияние на население и их потребительскую корзину.

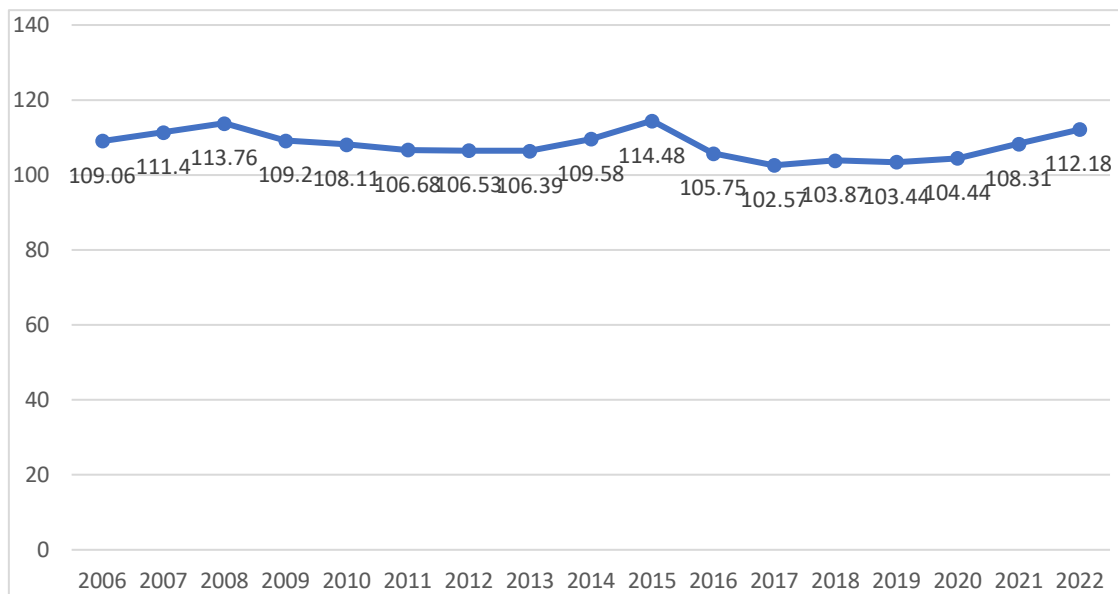
Показателем, характеризующим уровень инфляции, является индекс потребительских цен (ИПЦ), при расчете которого в РФ учитывается варьирование в базисном периоде времени затрат на приобретение определенных товаров и услуг, продовольственных и непродовольственных товаров.

Если взять ИПЦ за слишком долгий период, то инфляция будет уходить от цели по инфляции, а регулятор – принимать слишком резкие денежно-политические меры. Если взять ИПЦ за слишком короткий период, то крупные и персистентные колебания инфляции подорвут доверие к денежной политике. Банк России устанавливает цель для рассчитываемого Федеральной службой государственной статистики (Росстатом) полного ИПЦ (темпа прироста потребительских цен за месяц) к соответствующему месяцу предыдущего года.

ИПЦ ежемесячно составляет Федеральная служба государственной статистики, в качестве базового периода выступает предыдущий месяц или декабрь предыдущего года. Динамика обобщающего (сводного) индекса потребительских цен представлена на рисунке 1.

На графике видно, что самый большой рост потребительских цен в РФ в рассматриваемом периоде приходился на 2015 г. (12,91%). После такого как рост цен стабилизировался и стал находиться на одном уровне (не превышала 6%), вновь произошел рост цен (2021–2022 гг.) почти в два раза.

Такое скачкообразное повышение цен говорит о нестабильности в российской экономике и в большей степени на это влияет волатильность курса рубля и неадаптированность к введенным санкциям. В 2017 г. инфляция в потребительском секторе России составила всего 2,52%.

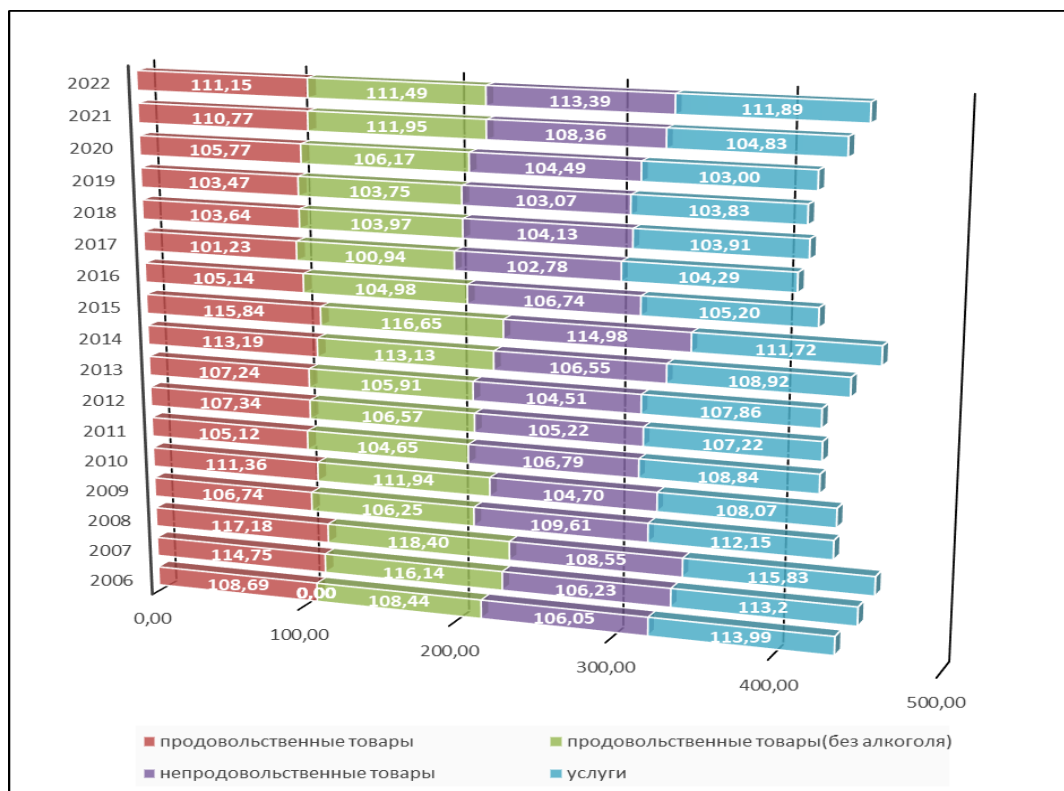


**Рис. 1. Индекс потребительских цен к декабрю предшествующего года (%).**

Рассмотрим в соотношении со сводным индексом динамику индексов цен на продовольственные и непродовольственные товары и услуги (рисунок 2).

Индексы потребительских цен на продовольственные, непродовольственные товары и услуги за 2017 г. стали ниже предыдущего 2016 г., что обеспечило снижение ИПЦ на 2,9 процентных пункта. Динамика индексных изменений по годам неравномерна.

Самый большой рост показателя отмечен в 2018–2019 гг. (на 18–20%), наименьший – за два последних года. Наибольшее влияние на общий прирост ИПЦ на протяжении анализируемых периодов оказывал индекс потребительских цен на услуги и только в 2014–2015 гг. индексы потребительских цен на продовольственные товары, а в 2015–2016 гг. индексы потребительских цен на непродовольственные товары.



**Рис. 2. Динамика индекса потребительских цен на конец периода (%)**

Небезынтересным является и то, как себя ведут цены в разрезе регионов, так Приморский край входит в рейтинг самых подверженных инфляции регионов.

Кроме того, инфляция оказывает влияние на стоимость жилья и коммунальных услуг. Повышение цен на строительные материалы и услуги строительства приводит к увеличению стоимости жилья. Это делает его недоступным для многих семей, особенно для молодых людей, которые только начинают свою самостоятельную жизнь. Также, повышение цен на коммунальные услуги, такие как электричество, газ, вода, также оказывает негативное влияние на бюджет семей. Так на примере приморского края, можем привести пример, недвижимость во Владивостоке входит в пятерку самых дорогих среди России.

Наконец, инфляция оказывает влияние и на развитие предпринимательства и инвестиций в Приморском крае. Рост цен на ресурсы, сырье и технические условия производства может стать препятствием для предпринимателей и инвесторов в регионе. При значительной инфляции они вынуждены сталкиваться с увеличением затрат на производство и снижением прибыльности, что может снижать потенциал экономического роста.

В результате проведенного исследования было выяснено, что инфляция оказывает значительное влияние на потребительскую корзину населения Приморского края.



Во-первых, рост инфляции приводит к увеличению цен на товары и услуги. Это означает, что жители края должны тратить больше денег на покупку необходимых продуктов, коммунальных услуг, медицинских услуг и других товаров, и услуг. Таким образом, инфляция негативно влияет на покупательскую способность населения и ухудшает их уровень жизни.

Во-вторых, инфляция меняет структуру потребительской корзины населения. В условиях повышения цен на одни товары и услуги, люди могут вынуждены сократить потребление этих продуктов и переключиться на более дешевые аналоги. Это может приводить к изменению питания, передвижению на транспорте, выбору места отдыха и другим изменениям в образе жизни населения.

Кроме того, инфляция оказывает влияние на сбережения населения. Повышение цен на товары и услуги может снижать реальную стоимость накопленных средств. Люди вынуждены тратить больше денег на приобретение необходимых товаров, что снижает возможность откладывать деньги на будущее.

Таким образом, инфляция оказывает негативное влияние на потребительскую корзину населения Приморского края, ухудшая покупательскую способность, меняя структуру потребления и уменьшая возможность сбережений. Для решения этой проблемы необходимо принимать меры по стабилизации цен и улучшению экономической ситуации в регионе. Это может быть достигнуто путем развития производства, сокращения бюрократических преград для бизнеса, контроля над денежной массой и монетарной политики.

Для смягчения влияния инфляции на потребительскую корзину населения Приморского края необходимо принимать соответствующие меры. Важно проводить антиинфляционную политику, направленную на сдерживание роста цен и стабилизацию экономической ситуации. Также необходимо развивать социальную поддержку населения, предоставлять льготы и компенсации для снижения негативных последствий инфляции. Только таким образом можно обеспечить стабильность и улучшение уровня жизни населения Приморского края.

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## **ОСНОВЫ УПРАВЛЕНИЯ ЗАТРАТАМИ НА ПРЕДПРИЯТИИ РЫБНОЙ ОТРАСЛИ**

*Аннотация. Статья "Основы управления затратами на предприятии рыбной отрасли" рассматривает важность и методы управления затратами на предприятиях, связанных с рыбной отраслью. Авторы статьи обращают внимание на то, что эффективное управление затратами помогает предприятию достичь своих финансовых целей и повысить конкурентоспособность на рынке.*

*Ключевые слова: бюджетирование, затраты, управление, предприятие, рыбная отрасль.*

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## **BASICS OF COST MANAGEMENT AT THE FISH INDUSTRY ENTERPRISE**

*Abstract. The article "Fundamentals of cost management in the fishing industry" examines the importance and methods of cost management in enterprises related to the fishing industry. The authors of the article draw attention to the fact that effective cost management helps the enterprise to achieve its financial goals and increase competitiveness in the market.*

*Keywords: budgeting, costs, management, enterprise, fishing industry.*

Управление затратами является одной из ключевых функций в рамках эффективного ведения дел на предприятиях рыбной отрасли. Точное планирование и контроль затрат могут существенно повлиять на успех предприятия, его прибыльность и конкурентоспособность на рынке.

В данной статье мы рассмотрим основные аспекты управления затратами на предприятиях рыбной отрасли, а также представим важные

рекомендации и стратегии, которые помогут повысить эффективность управления затратами.

Одной из первоочередных задач управления затратами является анализ и классификация всех расходов предприятия. Классификация расходов проводится в целях определения основных статей затрат и оптимизации их использования. Расходы на предприятиях рыбной отрасли могут включать следующие статьи:

1. Затраты на закупку сырья: здесь важно провести анализ и выбрать наиболее оптимальных поставщиков рыбы, а также использовать методы снижения себестоимости сырья.

2. Затраты на переработку сырья: они включают в себя расходы на оплату труда работников, эксплуатацию оборудования и энергозатраты. Оптимизация данной статьи затрат может быть достигнута с использованием современных технологий переработки рыбы, автоматизации рабочих процессов и обучения персонала.

3. Затраты на упаковку и хранение готовой продукции: данная статья затрат включает в себя затраты на упаковочные материалы, складское хозяйство и логистику. Эффективное управление затратами в этой сфере включает оптимизацию процессов хранения и доставки продукции, а также снижение потерь и брака.

4. Затраты на маркетинг и продвижение продукции: для успешного развития бизнеса рыбной отрасли необходимо активно осуществлять маркетинговые активности, такие как реклама, участие в выставках и промо-акции. Но важно контролировать затраты на маркетинг, чтобы они не превышали плановые бюджеты и не создавали дисбаланс в финансовой системе предприятия.

5. Затраты на административные и общезаводские расходы: данная статья затрат включает затраты на офисные помещения, коммунальные платежи, оплату труда административного персонала и другие общезаводские расходы. Оптимизация данных затрат включает меры по экономии энергии и воды, автоматизации рабочих процессов и оптимизации штатов сотрудников.

Управление затратами является одним из важнейших аспектов успешного ведения бизнеса в рыбной отрасли. Контроль и оптимизация затрат позволяют предприятию эффективно функционировать на рынке и максимизировать прибыль. Рассмотрим основы управления затратами на предприятиях рыбной отрасли и дадим несколько полезных рекомендаций:

1. Анализ себестоимости продукции.

Первым шагом в управлении затратами является анализ себестоимости продукции. Необходимо тщательно изучить все составляющие себестоимости, начиная от сырья и заканчивая транспортными расходами. Важно понимать, какие факторы оказывают

наибольшее влияние на себестоимость, и находить возможности для ее снижения.

## 2. Оптимизация процессов производства.

Один из способов снижения затрат заключается в оптимизации процессов производства. Рекомендуется пересмотр технологических процессов и поиск возможности для автоматизации и улучшения эффективности производства. Также очень важно помнить о рациональном использовании ресурсов, чтобы избежать излишних затрат.

## 3. Отслеживание расходов.

Не менее важным аспектом является отслеживание расходов на предприятии. Создание системы учета и контроля затрат, позволит всегда иметь представление о том, на что идут средства предприятия. Это поможет выявить «утечки» и потенциальные источники экономии.

## 4. Поставщики и контракты.

Работа с поставщиками и контрактами также играет важную роль в управлении затратами. Рекомендуется сравнивать условия и цены разных поставщиков, и выбирать те, где можно получить максимально выгодные условия. Также стоит периодически пересматривать договоренности и контракты с целью оптимизации затрат и поиска новых возможностей для сотрудничества.

## 5. Экономия энергии

Энергозатраты могут составлять значительную часть общих затрат предприятия. Поэтому важно искать пути для экономии энергии. Внедрение энергоэффективных технологий и оборудования может помочь сократить энергозатраты и в итоге снизить общие издержки.

## 6. Обучение персонала

Один из главных аспектов является образование и повышение квалификации сотрудников. Образованные и осведомленные сотрудники способны использовать ресурсы более эффективно и находить пути для снижения расходов. Рекомендуется инвестировать в обучение своего персонала и сознательно формировать приверженность к управлению затратами.

## 7. Мониторинг рынка

Рекомендуется отслеживать состояние рынка и экономики в целом. Это поможет предвидеть возможные изменения и принять меры заранее. Кроме того, мониторинг конкуренции позволит определить, в каких аспектах предприятие может быть более эффективным и конкурентоспособным.

## 8. Использование современных технологий

Современные технологии могут значительно упростить процессы ведения бизнеса и управления затратами. Внедрение специализированных программ и систем учета поможет автоматизировать отчетность и управлять финансами более эффективно.

## 9. Инновационные подходы

Инновационные подходы к управлению затратами могут принести значительные выгоды. Рекомендуются искать новые идеи и возможности для сокращения затрат, и не бояться рисковать и экспериментировать с инновационными подходами. Иногда небольшой шаг вперед может принести большие результаты в будущем.

## 10. Постоянное совершенствование

Управление затратами – это процесс, требующий постоянного совершенствования и анализа. Не стоит останавливаться на достигнутом, рекомендуется постоянно искать новые способы оптимизации расходов и развития бизнеса в целом.

Выделим основные задачи управления затрат:

- определение роли затрат как элемента, который повышает экономические результаты деятельности компании
- распределение затрат по подразделениям компании
- расчет затрат на единицу продукции
- поиск возможностей снижения затрат на всех этапах и во всех подразделениях компании

Основные виды затрат подразделяются:

- по экономическим элементам различают переменные и постоянные затраты;
- по статьям расходов, учитывая сферу деятельности компании;
- по отношению к технологическому процессу различают основные и накладные затраты;
- по отношению к готовому продукту – затраты на незавершенный продукт и на готовый продукт.

Управление затратами является важным аспектом успешного функционирования компании. Для эффективного управления затратами необходимо провести анализ всех расходов, разделив их на переменные и постоянные затраты. Переменные затраты зависят от объемов производства и включают расходы на сырье, материалы, топливо и энергию производства. Они изменяются пропорционально изменению объемов производства. С другой стороны, постоянные затраты остаются неизменными независимо от объемов производства. К ним относятся расходы на общепроизводственное использование материалов, топлива и энергии, а также амортизация зданий и оборудования.

Классификация затрат на переменные и постоянные играет важную роль в прогнозировании финансового результата компании. Такая классификация позволяет более точно определить элементы затрат и осуществлять планирование цен и ассортимента продукции. Общий финансовый результат рассчитывается путем вычета прямых переменных и прямых постоянных затрат из выручки, что позволяет определить промежуточную маржу. Управление затратами включает несколько



ключевых функций. Во-первых, это планирование затрат, которое является сложным процессом для каждой компании. В рамках этой функции определяются затраты на производство единицы продукции и расходы по каждому элементу и статье.

Плановые решения на плановый период времени основываются на учете и анализе затрат. Они помогают оценить эффективность использования ресурсов компании и выявить возможности сокращения расходов. Вторая функция - мотивация участников производства к соблюдению плановых затрат и поиску возможностей их снижения. Мотивационные меры направлены на воздействие на работников, чтобы они следовали установленным бюджетам и стремились к минимизации расходов. Также важной составляющей управления затратами является анализ отклонений между запланированными и фактическими затратами. В процессе управления затратами анализ «план-факт» помогает определить причины и последствия отклонений. Для того, чтобы эффективно вести контроль плана затрат, необходимо использование инструмента, который может задавать пределы ответственности и полномочий менеджеров и проводить анализ эффективности работы и качества планирования.

Основными задачами управления затратами являются: обоснование затрат на все направления деятельности в компании (затраты на оборудование, продвижение продукции, материалы, персонал и т.д.), анализ возможных экономических последствий при отклонениях от утвержденного плана, а также принятие управленческих решений по устранению негативных последствий.

Одним из самых сложных процессов управления/планирования затратами является составление калькуляции. Рассмотрим основные этапы калькулирования продукции. Составлением калькуляции занимаются экономисты. В процессе планирования затрат необходимо разделять затраты на нормируемые (Н) и ненормируемые (Не).

Нормируемые затраты (Н) = Норма расходов \* Цена

Нормы расходов предоставляются соответствующими подразделениями: служба технологов предоставляют нормы расходов сырья и материалов, служба энергетиков предоставляют нормы по топливу и энергии. Цены, которые включаются в калькуляцию, вытекают из закупочных бюджетов. Давальческое сырье - материал, который предоставляет заказчик для собственного изготовления конкретной продукции в кредит. При проведении планирования ненормируемых затрат используются два подхода.

Обычно планирование в центрах нестандартных затрат строится на основе исторических данных с поправками на инфляцию, сезонность, изменение объема работ и т. д.

На практике мы видим, что система планирования строится на основе корректировок к историческим данным и приводит к медленному, но стабильному росту затрат, что является негативным фактором.

Альтернативным методом планирования является тщательный анализ и обоснование сравнения плановых затрат по каждой операции, выполняемой структурным подразделением, без использования исторических данных. Это более затратный метод планирования с точки зрения трудоемкости, но он позволяет оценить оптимальный уровень затрат центров ответственности на основе различных субъективных и объективных показателей выполнения работ.

Отсутствие четкой зависимости затрат от использования ресурсов приводит к тому, что его бюджет характеризует только план расходов, не фиксируя результаты работы в конкретных изменениях.

Превышение бюджета является результатом сравнения планового и фактического использования ресурсов и свидетельствует о неэффективности работы центра ответственности и наоборот.

Эффективность планирования ненормируемых затрат нельзя оценивать только путем сравнения фактических и плановых затрат. Такое сравнение должно проводиться только на основе оценки целесообразности того или иного подразделения и изменений в планах. При разработке системы стимулирования нестандартных центров затрат следует ориентироваться на нефинансовые качественные характеристики деятельности конкретных подразделений (например, отсутствие взысканий со стороны МНС для бухгалтерии).

Оценка эффективности работы планирования ненормируемых затрат обычно основывается на субъективном мнении конкретного руководителя-компаратора. Решение о распределении премий между сотрудниками центра затрат принимается руководителем на основе субъективной оценки результатов работы каждого сотрудника. При распределении затрат на единицу продукции применяется система коэффициентов. Система позволяет более точно определить структуру затрат и учесть особенности производства. Для расчета коэффициента используется показатель затрат на оплату труда ключевых сотрудников на единицу продукции

Например, при расчете плановых затрат по статье "общехозяйственные расходы" необходимо сумму заработной платы ключевого сотрудника за единицу продукции умножить на коэффициент общехозяйственных расходов. Для получения коэффициента необходимо разделить сумму общепроизводственных расходов на сумму заработной платы ключевых сотрудников компании. Эти коэффициенты утверждаются плановым отделом и необходимы как для плановых, так и для фактических затрат.

В процессе планирования затрат также необходимо разрабатывать сметы затрат, которые объединяют данные по отдельным элементам и

статьям. Сметы затрат включают в себя прямые затраты, затраты на энергоресурсы, ремонт оборудования и другие составляющие. Эти сметы затрат разрабатывает плановый отдел компании, который занимается планированием конкретных элементов затрат.

В Таблице 2, представленной ниже мы можем наблюдать форму плана затрат по элементам и связь с затратами по направлениям деятельности, что позволяет проанализировать все расходы компании. Консолидированные формы также необходимы для анализа затрат. Они позволяют определить, какие затраты были необходимы и какое количество ресурсов требовалось для достижения поставленных целей в плановом периоде.

Консолидированная смета затрат по статьям показывает процентную разбивку каждой статьи затрат и каждой позиции продукта в общей стоимости, сгруппированной по позициям. В сметах затрат, расчетах и сводных формах используются показатели из одного и того же источника, что позволяет получить структуру затрат, которая более точно анализируется и оптимизируется для использования. Такой подход в планировании и анализе затрат является важным инструментом для эффективного управления производством в рыбохозяйственном комплексе.

Консолидированные формы в процессе планирования затрат необходимы для проведения анализа затрат. В результате можно увидеть, какие были необходимы затраты и какое количество для того, чтобы достичь поставленные цели за плановый период, распределение в процентах по затратам: зависящим (переменным) и не зависящим (постоянным) от изменения объемов производства, а также долю для каждого подразделения/отдела в отдельности. Сводная смета затрат по статьям демонстрирует долю каждой статьи затрат, долю каждой ассортиментной позиции в общем объеме затрат.

Консолидированные формы являются важнейшим аспектом планирования затрат, поскольку они позволяют завершить анализ затрат. Анализируя расходы и суммы, необходимые для достижения предбюджетных целей на плановый период, можно определить проценты расходов, которые зависят от изменения объема производства и не зависят от процентов, определенных каждым подразделением/отделом. Каждая статья затрат, а также процентная доля каждой ассортиментной позиции в общей себестоимости представлена в сводной калькуляции по позициям. Показатели из смет расходов, калькуляций, консолидированных форм затрат по элементам и статьям используются в планировании операционных бюджетов затрат и финансовых бюджетах.

**Таблица 2. Консолидированный план затрат по элементам на месяц**

Элемент затрат	Основное производство			Доля			Вспомогательное производство			Доля		
	1	2					1	2				
1.Переменные всего												
1.1.материалы												
1.2.сырье												
1.3.топливо												
1.4.отчисления												
2. Постоянные всего												
2.1. отчисления												
2.2. коммерческие расходы												
2.3. амортизация												
2.4.материалы назначения												
2.5.общехозяйственн ые расходы												
2.6. прочие расходы												
Общий итог:												

Планирование затрат по элементам производится одновременно с планированием затрат по статьям и калькулированием продукции. Основной проблемой в управлении затратами является расчет консолидированной формы плана затрат по статьям (см. таблицу 3).

**Таблица 3. Консолидированный план затрат по статьям на месяц**

Статьи затрат	А		Б			В			Общее количество
	А1	А2	Б1	Б2	Б3	В1	В2	В3	
Сырье									
Материалы									
Топливо									
Энергия									
Общепроизводственные расходы									
Итого(стоимость роизводства)									
Услуги вспомогательного производства									
Общехозяйственные расходы									
Всего									

Одним из главных аспектов системы управления затратами является планирование затрат на предприятии. Оно должно учитывать места, временные рамки и объемы расходования компанией ресурсов, а также эффективность использования данных показателей.

Неотъемлемая часть управления затратами на предприятиях рыбной отрасли является контроль затрат. Бюджетный контроль затрат позволяет анализировать отклонения между запланированными и фактическими затратами.

В рамках бюджетного контроля формируется разветвление отклонений, которое помогает понять причины расхождений в анализе планов и фактов, а именно отклонения как по цене, так и по объему. Этот процесс позволяет выявить благоприятные и неблагоприятные отклонения для предприятия.

Бюджетный контроль включает в себя две группы отклонений: контролируемые и неконтролируемые. Суть данных отклонений можно понять из их названий, но дадим им конкретные определения. Контролируемые отклонения находятся под контролем руководства, тогда как неконтролируемые - это рыночные отклонения, не зависящие от компании.

Метод "руководство по исключению" позволяет установить диапазоны допустимых отклонений. Руководство компании устанавливает пределы отклонения и фиксирует базовое отклонение. В случае, если отклонение выходит за установленные пределы, выявляются причины отклонения. В противном случае причины отклонения остаются неизвестными. Этот метод широко применяется в хозяйственной практике.

Таким образом, если компания принимает во внимание все факторы и применяет комплексный подход к управлению затратами, такой подход позволит достичь высоких экономических результатов в деятельности компании.

В заключение, можно сделать вывод, о том, что эффективное управление затратами на предприятиях рыбной отрасли является ключевым моментом для достижения прибыльности и конкурентоспособности. Классификация расходов, оптимизация их использования, контроль затрат и анализ их эффективности являются основами успешного управления затратами на предприятиях рыбной отрасли. Правильное планирование, контроль, оптимизация процессов, инвестиции в инновации, эффективное управление поставщиками и мотивация персонала реализация этих стратегий и рекомендаций позволит достичь более эффективного использования ресурсов и повысить прибыльность бизнеса.

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## **ЗАСЛУГА МИРЗО УЛУГБЕКА В СТАНОВЛЕНИИ СОВРЕМЕННОЙ АСТРОНОМИИ**

*Аннотация. Под руководством Улугбека самаркандские астрономы создали астрономический каталог "Зиджи Корагани". Каталог также известен как "Карта звезд Улугбека". Эти таблицы были результатом многолетней работы ученых. В этом каталоге 1018 небесных светил расположены по своим зодиакам (по звездным множествам), приведены порядковые номера, названия, координаты расположения (дальность и широта от Солнца) в небесной сфере. При назначении координат за точку отсчета по времени принято их положение в момент равноденствия 1437 года по Солнечному календарю.*

*Ключевые слова: астрономия, обсерватория, квадрант, эклиптика, небесная, светила, зодиак, координата, календарь.*

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## **THE MERIT OF MIRZO ULUGBEK IN THE FORMATION OF MODERN ASTRONOMY**

*Abstract. Under the leadership of Ulugbek, Samarkand astronomers created the astronomical catalog "Zij Koragani". The catalog is also known as the "Ulugbek Star Map". These tables were the result of many years of work by scientists. In this catalog, 1018 celestial bodies are arranged according to their zodiacs (by star sets), ordinal numbers, names, location coordinates (distance and latitude from the Sun) in the celestial sphere are given. When assigning coordinates as a reference point in time, their position at the time of the equinox of 1437 according to the Solar calendar is assumed.*

*Keywords: astronomy, observatory, quadrant, ecliptic, celestial, luminaries, zodiac, coordinate, calendar.*

### **Вступление**

Улугбек построил обсерваторию на холме Оби-Рахмат близ Самарканда в 1420-29 годах. Здание имело форму трехэтажного круга

диаметром 46-40 метров и высотой до 30 метров. Об этом также свидетельствует Захириддин Мухаммад Бабур. Об обсерватории историк Абдураззак Самаркандий писал: "Место было выбрано с северной стороны Самарканда, где знаменитые астрологи определили благоприятный день, который был на пути отправки этой работы. Здание было построено на основе прочности, величия. Фундаменты и колонны были сделаны настолько прочными, чтобы даже до судного дня они не были перемещены никуда, не разрушались. На картинах и несравненных снимках, которые были размещены внутри этих великолепных комнат замка, построенных высоко, были изображены семь этажей небесной сферы, климаты, горы, реки, пустыни, все, что принадлежало Святому миру, показаны градусы, минуты, секунды и десятая доля секунды из девяти бедствий. С тех пор было постановлено начать наблюдать за движением Солнца и планет, записывать тех, кто это видел" [1].

Главный пилон обсерватории состоял из очень огромного прибора (вертикального круга), измеряющего угол, радиус которого составлял 40 212 метров, а длина дуги - 63 метра. Исследователь древности В.Л.Вяткин предполагает, что сохранившийся фрагмент сооружения был "не чем иным, как частью большого квадранта, половина которого находилась ниже уровня горизонта, а вторая половина выступала над горизонтом" (рис. 1) [2].

Под руководством Улугбека самаркандские астрономы создали астрономический каталог "Зиджи Корагани". Каталог также известен как "Карта звезд Улугбека". Эти таблицы были результатом многолетней работы ученых.

"Улугбек Зиджи" состоит из введения, то есть теоретической части (эта часть дается, как правило) и таблиц, составленных на основе наблюдений, сделанных в обсерватории.

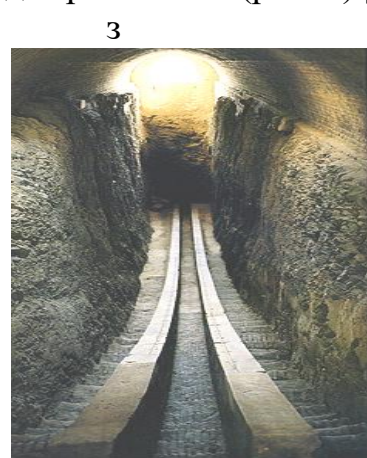


Рисунок 1. Большой квадрант обсерватории Улугбека

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

### Результаты и обсуждение:

Первая книга "Зидж" посвящена эпохам и различным календарям. В ней описываются эры Хиджры, Греции и Йездигарда, методы их исчисления, взаимосвязь между ними. Кроме того, рассматривались также эпоха маликшахов, китайская и уйгурская эпохи. В книге также описывается вопрос определения високосного года. Улугбек говорит, что на каждые 30 лет приходится 11 високосных лет [3].

Вторая книга "Zij" посвящена математике и сферической астрономии. Его третья книга посвящена тригонометрическим таблицам. В этих книгах приведены таблицы синусов и касательных в десятичной системе счисления с десятизначной точностью. Это считается огромной точностью для 15-го века.

Третья книга, "Zij", посвященная прикладной астрономии и измерениям, охватывает такие вопросы, как наклон эклиптики к экватору, определение координат небесных светил и определение расстояний между спутниками и планетами [4].

Чтобы наглядно показать, насколько точен расчет Улугбеком наклона эклиптики к экватору, мы приводим расчеты ученых вплоть до Улугбека (Таблица 1).

Это часть книги по теории движения планет, в которой основное внимание уделяется "уравнению времени" - разнице между фактическим солнечным временем и средним солнечным временем. Есть две причины, по которым образуется эта разница: во-первых, солнце неравномерно движется по эклиптике, а во-вторых, наклон эклиптики к экватору меняется в течение суток.

Таблица 1

#### Наклон эклиптики (траектории вращения) Солнца к экватору Земли по данным различных ученых

№	Имя ученого (период проживания)	Результаты обследования и расчета	Погрешность в сравнении современными расчетами
21.	Эротосфен (276-194 до нашей эры)	230 51` 20``	+7' 35''
22.	Гиппарх (II век)	230 51` 20``	+8' 23''
23.	Птолемей (II век)	230 51` 20``	+10' 10''
24.	Ал-Баттоний (850-929)	230 35`	+0' 17''
25.	Ас-Суфий (903-986)	230 33` 45``	+0' 50''
26.	Абдул Вафо (940-998)	230 35`	+0' 35''
27.	Ал-Кухий (X век)	230 51` 01``	+16' 36''
28.	Ибн Юнус (950-1009)	230 34` 52``	+0' 33''
29.	Н.Тусий (1201-1274)	230 30`	+2' 9''
30.	Улугбек (1394-1449)	230 30` 17``	+0' 32''

С учетом данных, которые дал Улугбек о годовом движении планет, астрономические расчеты наших дней показывают, что ученый достиг громной точности в свое время (Таблица 2):

Таблица 2

**Наклон эклиптики (траектории вращения) Солнца к экватору  
некоторых планет по данным различных ученых**

№	Название планеты	По расчету Улугбека	По современным расчетам
11.	Зухал (Сатурн)	120 13' 39''	120 13' 36''
12.	Муштарий (Юпитер)	300 20' 34''	300 20' 31''
13.	Мирих (Марс)	1910 17' 15''	1910 17' 10''
14.	Зухро (Венера)	2240 17' 32''	2240 17' 30''
15.	Уторуд (Меркурий)	530 43' 13''	530 43' 3''

Улугбек в этой книге также излагает вопросы определения среднего расстояния за произвольный период, определения истинного положения планет на небесной сфере, а также солнечных и лунных затмений. Он утверждает, что период лунных и солнечных затмений можно определить двумя различными способами – с помощью таблицы и прямым расчетом [4].

Заслуживает внимания также роль Улугбека Зиджи в звездном каталоге. В этом каталоге 1018 небесных светил расположены по своим зодиакам (по звездным множествам), приведены их порядковые номера, названия, координаты расположения (дальность и широта от Солнца) в небесной сфере. При назначении координат за точку отсчета времени принято их положение в момент равноденствия 1437 года по Солнечному календарю [4].

**Вывод:**

Интересно, что когда западные ученые между собой без конца спорились о правоте геоцентрического или гелиоцентрического расположении планет, в том числе Земли и Солнца, восточные астрономические школы уже 6-7 веков выполняли расчеты по определению лунных и солнечных затмений, моментов равноденствия на конкретных планетах, даже на дальних звездах. Не требует доказательств, что в этом огромная заслуга Мирзо Улугбека и его соратников. Улугбек является учителем не только восточных, одновременно и всех всемирных астрономических школ!

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## **КЛАССИФИКАЦИЯ ИЗМЕРИТЕЛЬНЫХ ПРИБОРОВ, ПРИБОРЫ ДЛЯ ИЗМЕРЕНИЯ МЕХАНИЧЕСКИХ КОЛЕБАНИЙ**

*Аннотация. Технические средства, имеющие нормируемое метрологическое описание и предназначенные для измерения, называются средствами измерений. Виброметры используются для измерения механических колебаний. Виброметры, предназначенные для определения повторяемости колебаний, называются повторителями, а виброметры, предназначенные для определения амплитуды колебаний, называются амплитудомерами.*

*Ключевые слова: индикатор, прибор измерения, измерительное оборудование, измерительные системы, колебания, вибромарка, виброграф.*

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## **CLASSIFICATION OF MEASURING DEVICES, DEVICES FOR MEASUREMENT OF MECHANICAL VIBRATIONS**

*Annotation. Technical means that have a standardized metrological description and are intended for measurement are called measuring instruments. Vibrometers are used to measure mechanical vibrations. Vibrometers designed to determine the repeatability of vibrations are called repeaters, and vibrometers designed to determine the amplitude of vibrations are called amplitude meters.*

*Key words: indicator, measuring device, measuring equipment, measuring systems, vibrations, vibration mark, vibrograph.*

### **Вступление**

Свойства, которые определяются без помощи органов чувств человека, должны быть определены каким-то образом и зафиксированы в чем-то. Технические устройства, предназначенные для определения физических свойств, называются индикаторами. Магнитная стрелка компаса является индикатором напряженности магнитного поля, лампочка электрического освещения-индикатором электрического напряжения,



лакмусовая бумага-индикатором активности ионов водорода в растворах [1].

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

С помощью индикаторов определяется наличие измеряемой физической величины. При этом индикаторы выполняют ту же функцию, что и органы чувств человека.

Поскольку индикаторы должны воспринимать возникновение свойств окружающей среды, их важным техническим описанием является точка касания (точка ощущения). Чем меньше точка воздействия, тем слабее свойства регистрируются на индикаторе [2].

Определение физической величины и ее измерение-это не одно и то же. Чтобы измерить, как уже упоминалось, необходимо сравнить неизвестный размер с известным размером, а первое выразить через второе в кратных или долях. Если существует физическая величина определенного размера, она используется для прямого сравнения. Например, длина измеряется линейкой, прямой угол-транспортиром, масса-обмотками и весами, а электрическое сопротивление-магазином сопротивлений. Если физическая величина определенной величины отсутствует, то определяется реакция измеряемой величины в приборе, в котором регистрируется влияние известной величины этой величины. Точно так же сила электрического тока определяется с помощью амперметра, напряжение электрического тока определяется с помощью вольтметра, спидометра скорости, манометра давления, термодинамического термометра температуры [2].

Измерительные приборы отличаются от индикаторов тем, что позволяют сравнивать влияние физической величины (известной и неизвестной). в целях облегчения сравнения во время подготовки прибора делится на шкалу в кратных и долевых соотношениях. Этот процесс называется градуировкой шкалы.

Технические средства, имеющие нормируемое метрологическое описание и предназначенные для измерения, называются средствами измерений. По назначению средства измерений подразделяются на [1]:

1. Шаблоны измерений (линейки);
2. Измерительные преобразователи;
3. Измерительные приборы;
4. Измерительные установки;

## 5. Измерительные системы.

Где 1, 2, 3-основные средства измерения, а 4 и 5-совокупность средств измерения.

1. Шкала (линейки) - служит для формирования и поддержания величины в заданном размере (весы, линейка, рулетка, генератор и др.).

2. Измерительные модификаторы-это такие средства измерения, при которых измеряется определенное свойство объекта, а для информации создается другое свойство (термопары).

3. Измерительные приборы-это приборы (амперметр, вольтметр, барометр и др.), которые передают результаты непосредственно наблюдателю.

4. Измерительные установки-составлены из комплекса средств измерений и вспомогательных устройств, объединенных между собой. (Электронные весы, аналитические весы и т. д.).

5. Измерительная система-это еще и измерительный прибор, измерительные приборы выполняют конкретную задачу, состоящую из комплекса вспомогательных деталей Алока-каналов.

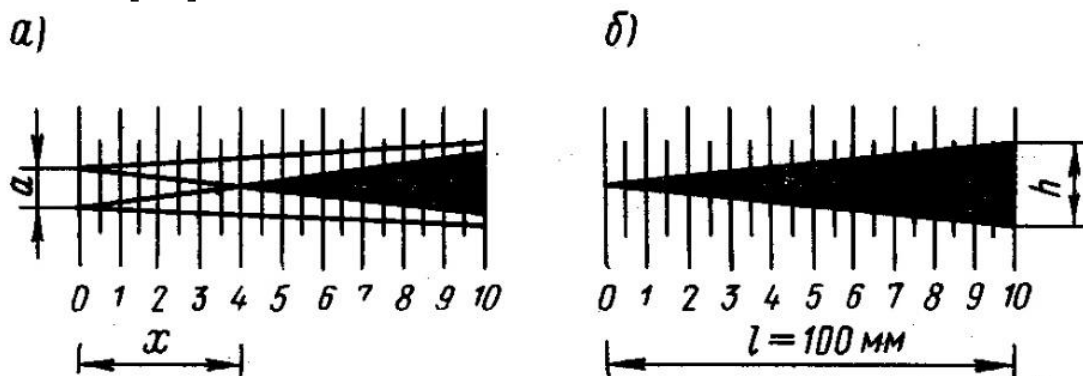
### **Результаты и обсуждение:**

Виброметры используются для измерения механических колебаний. Виброметры, предназначенные для определения повторяемости колебаний, называются повторителями, а виброметры, предназначенные для определения амплитуды колебаний, называются амплитудомерами.

Простейший датчик повторяемости состоит из набора стальных пластин (или проволоки) разной длины, один конец которых прикреплен к единой опоре, а на другой конец устанавливаются нагрузки. Нагрузки подбираются таким образом, чтобы каждая пластина настраивалась на определенную повторяемость. Инструмент устанавливается на качающуюся конструкцию и контролируется состояние его пластин. Если какая-либо из пластин находится в резонансном состоянии, это означает, что ее собственная повторяемость колебаний близка к повторяемости колебаний конструкции. Повторяемость колебаний пластины в резонансном состоянии известна заранее, а значит, по ней можно судить о повторяемости колебаний конструкции.

Для определения амплитуды колебаний без вибропрограммных записей в качестве измерительных приборов могут использоваться вибромарки, индикаторы, маятники и другие приборы. С помощью вибромарки можно быстро определить амплитуду колебаний, не требуя высокой точности. Вибромаркировка (рис.1) представляет собой кусок чертежной бумаги, состоящий из понижающего треугольника длиной 100 мм и высотой 5 мм. Вибромаркировка крепится к вертикальной поверхности качающейся конструкции. Определение амплитуды на основе вибромаркетов основано на зрительных характеристиках человеческого глаза. Когда повторяемость вибрации превышает 8 Гц, человеческий глаз не

замечает мгновенного изменения изображения треугольника и воспринимает его как целостное изображение в крайних (охватывающих) состояниях [4,5].

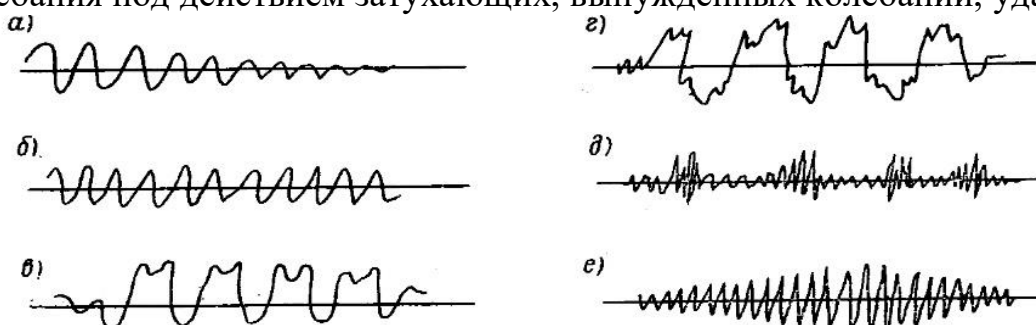


**Рисунок 1. Схема вибромаркировки: а – при вибрации; б – при отсутствии вибрации**

Невооруженный глаз видит вершину треугольника во время вибрации на расстоянии  $x$  от вершины исходного – неподвижного треугольника. Значение амплитуды колебаний находят с помощью свойств подобия треугольников:

$$\frac{a}{h} = \frac{x}{l}; \quad a = h \frac{x}{l} \quad (1)$$

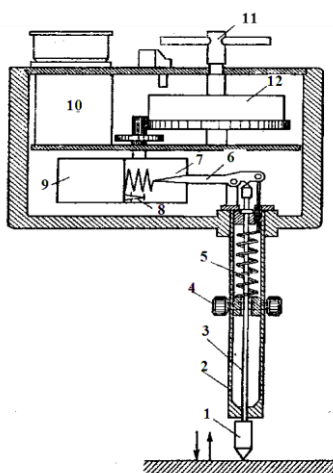
Виброграммы используются для определения периода, повторяемости, амплитуды и формы колебаний механических колебаний (рис.2). С помощью виброграмм можно исследовать динамические колебания под действием затухающих, вынужденных колебаний, ударов.



**Рисунок 2. Основные виды виброграмм, получаемых записью колебаний: а – затухающие колебания; б – однотонные простые колебания; в – двух тональные сложные колебания; г – трех тональные сложные колебания; е – колебания от удара; е – колебания в резонансном состоянии**

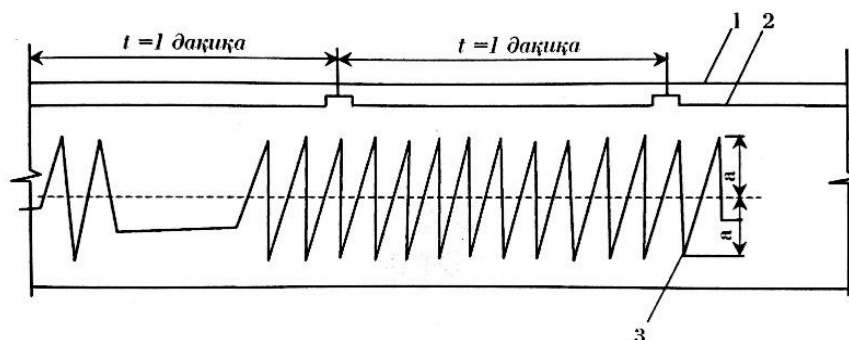
Виброграммы записываются с помощью вибрографов. Вибрографы могут быть прикреплены и не привязаны к исследуемому объекту во время испытания [4]. Вибрографы устанавливаются на испытываемую конструкцию

и вибрируют вместе с ней [6]. Виброграф представляет собой записывающее устройство, которое непрерывно записывает колебания (рис. 3).



**Рисунок 3. Схема устройства вибрографа ВР-1: 1 - тройник; 2 – трубка; 3 – штифт; 4 – зажимной винт; 5 – пружина; 6 – пишущий рычаг; 7 – записывающая лента; 8 – таймер; 9 – канцелярский отсек; 10 – батарейный отсек; 11 – гаечный ключ; 12 – пружина**

По окончании испытаний, связанных с записью колебаний, ленту отрывают, и запись подвергают анализу (рис.4).



**Рисунок 4. Схема записи амплитуды и повторяемости колебаний, полученных вибрографом ВР-1: 1 – записывающая лента; 2 – отметка времени; 3 – запись амплитуды**

#### **Вывод:**

Амплитуда колебаний находится по формуле [1]:

$$A = \frac{knd}{2} \quad (2)$$

где k – коэффициент прибора, n – удвоенная величина амплитуды, выраженная числом срезов шкалы микроскопа; d – значение одного среза микроскопа.

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## **СИСТЕМА АДМИНИСТРАТИВНОГО УПРАВЛЕНИЯ, ЭКОНОМИЧЕСКОГО ПЛАНИРОВАНИЯ И СТАТИСТИЧЕСКОЙ ДОКУМЕНТАЦИИ**

*Аннотация. Независимый Узбекистан стал активным участником международных экономических отношений, в связи с чем резко возросла потребность в создании и совершенствовании единой информационной системы и среды обмена информацией на международном уровне. Это обусловило создание системы национальных классификаторов, отвечающих требованиям международных стандартов и соответствующих статусу независимой страны. Кабинет Министров Республики Узбекистан 24 августа 1994 года принял постановление №433 “О государственной программе перехода Республики Узбекистан на систему отчетности и статистики, принятую в международной практике” и утвердил государственную программ.*

*Ключевые слова: информация, классификатор, кодирование, единая система, экономика, страна, отрасль, предприятие.*

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## **ADMINISTRATIVE MANAGEMENT, ECONOMIC PLANNING AND STATISTICAL DOCUMENTATION SYSTEM**

*Abstract. Independent Uzbekistan has become an active participant in international economic relations, and therefore the need to create and improve a unified information system and information exchange environment at the international level has sharply increased. This led to the creation of a system of national classifiers that meet the requirements of international standards and correspond to the status of an independent country. On August 24, 1994, the Cabinet of Ministers of the Republic of Uzbekistan adopted Resolution No. 433 “On the State program for the transition of the Republic of Uzbekistan to a system of reporting and statistics adopted in international practice” and approved the state program.*



*Keywords: information, classifier, coding, unified system, economy, country, industry, enterprise.*

## **Вступление**

Сотрудники министерств, кабинетов, организаций и товаропроизводителей, работающие с административно-управленческими, аналитическими отчетными документами, хорошо знают, что означают специальные номера организаций – коды ОКП, СООГУ, оконы, СОАТО, ОКПО, ИНН, и эффективно используют их в себестоимости. Данные коды входят в “единую систему классификации и кодирования технико-экономической и социальной информации”, действующую в нашей стране [1].

## **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

Единая система классификации и кодирования технико-экономической и социальной информации Республики Узбекистан в других сферах государственного управления Республики Узбекистан (Тии ТКЯТ) состоит из комплекса классификаторов, системы их ведения, нормативных документов по классификации и кодификации, организаций, занимающихся классификацией и кодификацией, основными целями которых являются:

- н-стандартизация информационного обеспечения процессов управления народным хозяйством с применением вычислительной техники;
- а обеспечение информационной гармонии в процессах управления народным хозяйством с применением вычислительной техники;

- обеспечение электронного обмена информацией на международном уровне.

- классификация и кодификация технико-экономической и социальной информации в системе управления народным хозяйством;

- обеспечение методологической единообразия в области разработки и внедрения классификаторов;

- создание взаимосвязанных классификаторов;

- обеспечение условий для автоматизации процессов обработки информации;

- обеспечение информационной совместимости комплексных систем автоматического управления народным хозяйством;

- согласование системы классификации и кодирования с международными системами классификации.

## **Результаты и обсуждение:**

К настоящему времени проведена работа по созданию следующих общегосударственных классификаторов для применения в отчетности и статистической практике в условиях рыночной экономики Республики Узбекистан:

Общегосударственный классификатор предприятий и организаций республики (ОКПО), включающий дополнительные классификационные признаки организационно-правовых форм и форм собственности [3];

Общегосударственный классификатор административно-территориального деления (СОАТО), который является неотъемлемой частью реестра Далат предприятий [4];

Общегосударственный классификатор органов управления (Коу), классификатор министерств, кабинетов, объединений, предприятий. Он создан на основе классификатора функций государственных органов международного статуса (кфго);

Общий классификатор видов экономической деятельности (ОКВЭД), основой которого послужил общеевропейский стандарт NACE;

Общегосударственный классификатор товаров и услуг (ОКП), стандарт статистической классификации товаров, действующий в Европейском экономическом сообществе по видам деятельности, принят и утвержден на основе NACE / SRA / PRODCOM [5].

Национальный стандартный классификатор обучения (нскз) отражает содержание обучения, профессий, должностей по укрупненным, структурным и основным видам, разработан и утвержден на основе международного стандарта МСКЗ-88 (1sco — 88).

Классификатор форм собственности (КФС), который разработан на основе Гражданского кодекса Республики Узбекистан. В период развития рыночных отношений и свободного предпринимательства форма собственности является одним из основных критериев хозяйствующих субъектов. Данный классификатор определяет статус двух видов собственности: частной собственности, публичной собственности (государственной собственности).

Организационно-правовой классификатор хозяйствующих субъектов (КОПФ), разработанный на основе Гражданского кодекса Республики Узбекистан, данный классификатор определяет две организационно-правовые формы субъектов: статус коммерческих и некоммерческих организаций [6].

Классификатор типов предприятий по количеству пунктов (КТФ), по которому определен статус четырех типов предприятий: микропредприятия, малые предприятия, средние предприятия и крупные предприятия;

Классификатор секторов экономики (КСЭ) выделяет следующие группы секторов экономики: общеэкономические; финансы; нефинансовые

корпорации; органы государственного управления; некоммерческие организации, обслуживающие домохозяйства; домохозяйства; остальные из них. Классификатор разработан на основе Гражданского кодекса Республики Узбекистан [7].

Классификатор стандартов (КС) предназначен для использования при составлении каталогов нормативных документов, показателей, тематических перечней. Классификатор стран мира (КСО создан на основе международного стандарта ИСО 3166;

Классификатор валют (кв), разработанный на основе международного ИСО 4217;

Классификатор системы обозначения единиц измерения (SOEI), он создан на основе международного классификатора единиц измерения (ЕЕКДАН), а также стандартов БО 31 — 0:1992, ИСО 1000:1992.

Стандарты, действующие в “единой системе классификации и кодирования технико-экономической и социальной информации ” Республики Узбекистан, в основном включают [3,4].

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**Вывод:**

Независимый Узбекистан стал активным участником международных экономических отношений, в связи с чем резко возросла потребность в создании и совершенствовании единой информационной системы и среды обмена информацией на международном уровне. Это обусловило создание системы национальных классификаторов, отвечающих требованиям международных стандартов и соответствующих статусу независимой страны. Кабинет Министров Республики Узбекистан 24 августа 1994 года принял постановление №433 “О государственной программе перехода Республики Узбекистан на систему отчетности и статистики, принятую в международной практике” и утвердил государственную программу реализации проекта [2].

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## **АКСИОМАТИЧЕСКИЕ ОСНОВЫ МЕТРОЛОГИИ**

*Аннотация. С метрологической точки зрения можно оценить полученный результат при наличии конкретных метрологических описаний. Для метрологического описания измерительного прибора требуется другой прибор, который измеряет еще более точно. Что ж, истинное значение величины не может быть измерено. Пока истинное значение не может быть измерено, в измерительном действии используется другое значение, значение которого близко к нему и которое может быть заменено допустимым значением. Эта функция содержит аксиомы и постулаты метрологии*

*Ключевые слова: метрология, измерение, значение, истинное, действительное, измеренное.*

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## **AXIOMATIC FUNDAMENTALS OF METROLOGY**

*Annotation. From a metrological point of view, it is possible to evaluate the obtained result if specific metrological descriptions are available. A metrological description of a measuring instrument requires another instrument that measures even more accurately. Well, the true value of a quantity cannot be measured. While the true value cannot be measured, the measuring action uses another value whose value is close to it and which can be replaced by the valid value. This function contains the axioms and postulates of metrology*

*Key words: metrology, measurement, value, true, actual, measured.*

### **Вступление**

Как и во всех дисциплинах, в метрологии сформировалась система аксиом. Аксиомы - это первичные понятия, которые принимаются без доказательств, в которых подтверждающие выражения вычисляются в рамках науки. Давайте рассмотрим три аксиомы, относящиеся к метрологии, наиболее основные и общие.

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

Рассматриваемые аксиомы уникальны для любой меры, и мы можем видеть во всех них, что эти аксиомы гармонизированы [1] независимо от того, являются ли они простыми, сложными, поверхностными, точными, ускоренными или совершенными.:

Предварительное измерение без данных выполнить невозможно (аксиома 1).

Прежде всего, мы ответим на вопрос о том, что такое "предварительная информация". Слово *Argior* означает *rgiogi* - набор информации, знаний, от начала, до определенного события, реальности или опыта, выражающий значение предыдущего, начального (латынь). Есть еще одно понятие, которое стоит в одном ряду с этим словом - апостериори (*a rosteriri*), означающее следующий, задний, заканчивающийся. Эти понятия были впервые введены в науку древнегреческими учеными. Их интерпретация заключается в том, что наука, информация или информативность, которую воспринимает каждый человек, воплощается после определенного опыта, реальности или действия (прохождения уроков, запоминания, чтения и т.д.). Информация о форме N будет увеличиваться на следующих этапах, и последующая информация за данный период станет предшествующей информацией.

### **Результаты и обсуждение:**

Таким образом, если смотреть с точки зрения теории измерений, то именно предварительная информация относится к этому измерению перед выполнением конкретного измерения. Если у нас нет этой информации, то и концепция измерения в целом также не может быть сформирована [2].

Действительно, прежде чем проводить (измерять) эксперимент, нам нужно будет обладать определенными данными и навыками, которые относятся именно к этому измерению, а именно предварительными данными [3].

Любое измерение означает сравнение (*comparision*) (аксиома 2)..

Измерение означает, проще говоря, определение величины исследуемого объекта. Например, возьмем необязательный предмет, который стоит перед нашими глазами, скажем, книжную полку. Если необходимо определить длину его сторон, то нам на глаза приходит длина, равная одному метру, и в сравнении с ней мы можем приблизительным образом получить информацию о ширине и высоте. Но это происходит так



быстро и таким простым способом, что у нас даже нет времени подумать об этом, мы не проходим через то, как проходил процесс один за другим.

Другой размер, например, давайте посмотрим на вкус блюда, от которого набивается живот. Эта величина - одна из тех, которые пока невозможно измерить. Ее можно только оценить. Оценка проводится индивидуально и на основе определенного критерия. Количество критериев в этом поле может быть одним или несколькими. Например, "хороший" и "плохой" (2 критерия); "хороший", "плохой" и "средний" (3 критерия); "хороший", "плохой", "средний", "очень хороший" и "очень плохой" (5 критериев) и т.д. Давайте посмотрим, хорош или плох только вкус или соль блюда. При этом мы берем значение той же величины (т.е. *micdor* соли), которое является хорошим, и отмечаем случаи, которые выше или ниже этого значения, то есть соль в пище "хорошая" и "плохая" (2 критерия); "хорошая", "плохая" и "средний" (3 критерия); мы используем понятия "хороший", "плохой", "средний", "очень хороший" и "очень плохой" (5 критериев) и другие оценки.

Результат, полученный в результате действия измерения, является случайным (аксиома 3)..

Теперь третья аксиома закреплена. Берем карандаш с нераскрытым концом и определяем длину этого карандаша с помощью линейки 10 раз. Давайте запишем результаты. Тогда при наименьшем значении значения, которые мы получим два или три раза, будут разными. Так почему же это происходит? В конце концов, объект и субъект не изменились! Эта вещь связана с понятиями случайности, случайной реальности.

Мы объяснили аксиомы, которые мы определили выше, только с помощью простых измерений. Если мы перейдем к сложным измерениям, мы сможем более внимательно воспринимать, видеть и понимать, насколько уместны эти аксиомы [4].

С метрологической точки зрения измерительный инструмент имеет определенные метрологические описания, и только после получения этих описаний мы можем оценить полученный результат. Для метрологического описания измерительного прибора, о котором мы говорим, потребуется другой прибор, который измеряет еще более точно. Это как если бы анальгин содержал кофеин, кофеин содержит кодеин, а кодеин содержит анальгин. Ну, истинное значение величины измерить невозможно. До тех пор, пока истинное значение не может быть измерено, при измерении используется другое значение, близкое к нему и которое может быть заменено допустимым значением. В этом отношении существуют три основных постулата метрологии [3]:

Существует истинное значение измеряемой величины (1-постулат).

Невозможно определить истинное значение величины (2-постулат).

В процессе измерения истинное значение величины является постоянным (3-постулат).

Теперь мы можем сказать, что было бы три значения измеряемой величины:

1. Истинное значение (его невозможно определить);
2. Действительное значение (близкое к истинному значению);
3. Результирующее значение (значение, полученное в результате эксперимента).

#### **Вывод:**

Естественно, возникает вопрос о том, где мы получаем правильное значение. На этот вопрос можно ответить на основе обработки результатов измерений с использованием методов математической статистики и теории вероятностей [5].

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## **ИНТРОСКОПИЧЕСКИЕ И ХИМОТРОННЫЕ ИЗМЕРИТЕЛЬНЫЕ ПРИБОРЫ**

*Аннотация. С помощью инструментов интроскопии можно исследовать структуру монокристаллов, определять степень чистоты материалов, которые считаются прозрачными для инфракрасного света, и неоднородные участки в структуре. Химотроника-это химическая электроника. Химотроны – это электрохимические преобразователи, созданные по электрохимическим законам. Химотроны-это устройства с очень высокой чувствительностью. Например, давление можно измерить с точностью до одной миллионной атмосферы с помощью химотронов.*

*Ключевые слова: интроскопия, химотронные, луч, измерение.*

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## **INTROSCOPIC AND CHEMOTRON MEASURING DEVICES**

*Annotation. Using introscopy tools, you can examine the structure of single crystals, determine the degree of purity of materials that are considered transparent to infrared light, and determine heterogeneous areas in the structure. Chemotronics is chemical electronics. Chemotrons are electrochemical converters created according to electrochemical laws. Chemotrons are devices with very high sensitivity. For example, pressure can be measured to within one millionth of an atmosphere using chemotrons.*

*Key words: introscopy, chemotron, beam, measurement.*

### **Вступление**

В последующие годы методы интроскопии широко используются в различных отраслях промышленности для контроля качества продукции без ущерба для нее. Электронно-оптические переключатели называются интроскопическими приборами. В их инструментах можно исследовать остаточные напряжения, возникающие после термической и механической обработки в металлах и других непрозрачных материалах, состояния однородности [1].

## **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

### **Результаты и обсуждение:**

Принцип работы интроскопов основан на замене невидимых инфракрасных лучей видимыми [2].

В инфракрасной области спектра света объекты с высоким коэффициентом пропускания кажутся полностью прозрачными в приборах интроскопии. С помощью инструментов интроскопии можно исследовать структуру монокристаллов, определять степень чистоты материалов, которые считаются прозрачными для инфракрасного света, и неоднородные участки в структуре [3].

Ультразвуковые лучи также позволяют видеть невидимое. С помощью коротких ультразвуковых лучей, излучаемых в виде пучков коротких лучей, можно исследовать оптически непрозрачные тела и внутренние дефекты в них. Потому что ультразвуковые лучи либо возвращаются и преломляются, как световые лучи, либо их также можно сфокусировать в виде звуковых изображений. Ультразвуковое изображение преобразуется в видимое с помощью специального электронно-акустического преобразователя. С помощью таких приборов регистрируют твердые тела и пузырьки газа в жидкостях, а также трещины, пустоты, шлак или металлические включения в металле и бетоне, оценивают размер [1].

Химотроника-это химическая электроника. Хемотроны-это электрохимические преобразователи, созданные по электрохимическим законам [3].

Химотроны-это устройства с очень высокой чувствительностью. Например, давление можно измерить с точностью до одной миллионной атмосферы с помощью химотронов.

Химотронные устройства обычно заменяют механическое воздействие электрическим сигналом. Хемотрон давления строится следующим образом: пластиковый цилиндр с резиновыми колпачками, заполненными электролитом, разделен карнизом на две части, в которых имеется небольшое или двустороннее отверстие, в которое помещается катод, а аноды-с обеих сторон карнизов; давление, оказываемое на резиновую мембрану, заставляет жидкость течь из одного отсека во второй отсек, что ускоряет перенос раствора йода на катод, что приводит к увеличению электрического тока в цепи, чем больше давление, тем выше электрический ток.

### **Вывод:**

Химотронные измерительные приборы, предназначенные для измерения шума, вибрации, ускорения и т. д., также разрабатываются с использованием аналогичных химических процессов [4,5,6,7].

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## **КРЕАТИВНЫЕ СТРАТЕГИИ ИНТЕЛЛЕКТУАЛЬНОГО ОБРАЗОВАНИЯ: ИСТОРИЯ, СЕГОДНЯ И ПЕРСПЕКТИВА**

*Аннотация. В статье приводятся суждения о перспективах применения эвристических стратегий в образовании и научно-творческой деятельности. Согласно одним источникам, понятие «эвристика» впервые появилось в трудах Папы Александрийского, жившего во второй половине III в. первый раз. Имеются также сведения о том, что учение об эвристических методах впервые было применено на практике Сократом. Ряд авторов упоминают, что Раймунд Луллия (ок. 1235-1315) внес большой вклад в эвристику, он пытался создать машину на основе общей классификации понятий для поиска решений различных задач еще в 14 веке. Имре Лакатос (1922 - 1974) в своем исследовании природы научных открытий ввел понятия положительной и отрицательной эвристики. В кругах научной школы некоторые правила определяют, по каким путям следует идти в дальнейших дискуссиях. Эти правила являются положительной эвристикой. Другие правила указывают, каких путей следует избегать, это отрицательная эвристика. В целом основы эвристики составляют современная философия науки, а также развивающаяся отрасль психологии, конкретно их творческое или продуктивное мышление.*

*Ключевые слова: эвристика, эвристические стратегии, теория познания, философия науки, интуитивизм, научные и управленческие решения, логический подход, эвристический подход, творчество, креативность.*

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## **CREATIVE STRATEGIES FOR INTELLECTUAL EDUCATION: HISTORY, TODAY AND PERSPECTIVE**

*Annotation. The article provides judgments about the prospects for using heuristic strategies in education and scientific and creative activities. According to some sources, the concept of "heuristics" first appeared in the writings of the Pope of Alexandria, who lived in the second half of the 3rd century. first time.*



*There is also information that the doctrine of heuristic methods was first put into practice by Socrates. A number of authors mention that Raymond Lull (c. 1235-1315) made a great contribution to heuristics; he tried to create a machine based on a general classification of concepts to find solutions to various problems back in the 14th century. Imre Lakatos (1922 - 1974) in his study of the nature of scientific discoveries introduced the concepts of positive and negative heuristics. In scientific circles, certain rules determine which paths should be followed in further discussions. These rules are positive heuristics. Other rules indicate which paths to avoid, this is a negative heuristic. In general, the foundations of heuristics are made up of modern philosophy of science, as well as the developing branch of psychology, specifically their creative or productive thinking.*

*Key words: heuristics, heuristic strategies, theory of knowledge, philosophy of science, intuitionism, scientific and management decisions, logical approach, heuristic approach, creativity, creativity.*

### **Вступление**

Каждый из нас, наверное, встречал такого человека, который удивлял нас своим необычайно развитым мышлением, оригинальным, интуитивным мышлением. Такого человека называют творческой личностью. Если в обществе будет больше творческих людей, развитие приобретает массовый характер и прогресс общества ускорится коренным образом. Хотя мы это знаем, мы не можем сказать, что развитию интуиции учащихся, способности быстро усваивать новые идеи, способности быстро усваивать новые идеи в средних школах, высших и средних специальных учебных заведениях уделяется достаточное внимание.

Педагоги ориентируются на логические методы даже при решении творческих задач [1]. Эвристические методы широко используются в учебных заведениях многих развитых стран, в различных курсах по бизнесу и менеджменту. Эвристические стратегии стремительно входят в систему образования наших стран.

Опираясь на эвристические методы, эффективно решаются задачи образовательного процесса, научных исследований, управления и корпоративного сотрудничества. Эвристическая стратегия заранее отбрасывает нелогичные варианты и не анализирует все варианты исходя из здравого смысла. В результате количество опций, включенных в набор выбора, будет уменьшено как минимум в 3 раза.

Если же необходимо разделить существующие способы решения творческих задач по приоритету логико-эвристических (интуитивных) подходов и сопутствующих им правил деятельности, то их можно разделить на две большие группы: а) логические методы - такие методы, в которых приоритетными являются логические правила анализа, сравнения, обобщения, классификации, индукции, дедукции и дедукции; б)

эвристические методы Термин «эвристика» происходит от греческого слова «heuresko», что означает «ищу», «открываю»

В настоящее время этот термин используется и понимается по-разному: - теоретико-практическая наука, изучающая творческую деятельность (в то же время следует отметить, что создатели ее теории и признанных основных правил официально не зафиксированы); - способы принятия решений по проблемным (творческим, нестандартным, креативным) вопросам в условиях неопределенности, такие способы обычно противопоставляют формальным методам, опирающимся на точные математические алгоритмы; - образовательный метод; - методы творческого поиска и научного поиска [2].

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперимент, описание и наблюдение, а также теоретические методы, такие как логические и исторические методы, абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалами исследования являются: научные факты, результаты предыдущих наблюдений, опросов, экспериментов и тестов; средства идеализации и рационализации научного подхода.

### **Результаты и обсуждение:**

Согласно одним источникам, понятие «эвристика» впервые появилось в трудах Папы Александрийского, жившего во второй половине III в. первый раз. Имеются также сведения о том, что учение об эвристических методах впервые было применено на практике Сократом. Ряд авторов упоминают, что Раймунд Луллия (ок. 1235-1315) внес большой вклад в эвристику, он пытался создать машину на основе общей классификации понятий для поиска решений различных задач еще в 14 веке. Имре Лакатос (1922 - 1974) в своем исследовании природы научных открытий ввел понятия положительной и отрицательной эвристики. В кругах научной школы некоторые правила определяют, по каким путям следует идти в дальнейших дискуссиях. Эти правила являются положительной эвристикой. Другие правила указывают, каких путей следует избегать, это отрицательная эвристика.

В целом основы эвристики составляют современная философия науки, а также развивающаяся отрасль психологии, конкретно их творческое или продуктивное мышление. Например, в вычислительной технике использование эвристических методов технического творчества (прямой и обратный мозговой штурм, эвристические методы, морфологический анализ и синтез) помогает учащимся развивать техническое воображение и способности, делать первые шаги к изобретательству, создавать новые технические идеи. дает возможность создавать решения.

Если эвристические пути являются предметом эвристической логики как готовые схемы действий, то реальные процессы эвристической деятельности являются предметом психологии. Но эвристические способы могут быть представлены как форма определенной логической схемы, то есть выражены математическим языком, и в то же время следует отметить, что на современном этапе развития науки эвристическая деятельность не имеет свою полную математическую интерпретацию, которую необходимо подчеркнуть.

### **Выводы**

В результате проведенного исследования были сформированы следующие выводы:

- повышение эффективности принимаемых решений в сфере управления является важным ресурсом повышения эффективности всего общественного производства;

- эвристическая стратегия заранее отбрасывает нелогичные, необоснованные варианты, взамен количество вариантов, входящих в набор выбора в процессе принятия решения, сокращается не менее чем в 3 раза, в результате значительно сокращается время, необходимое для принятия решения сокращено, обходя стереотипы, создавая возможности для необычайно новых,

- неожиданных и оригинальных персонажей; - эвристические методы повышают вероятность создания работоспособного решения, но не всегда могут гарантировать приемлемое решение по творческой работе, этого не позволяет неполнота той или иной теории, неполные и недостоверные данные;

- ориентация на объяснение и объяснение происходящих явлений означает уникальность эвристических методов, соответственно, на начальных этапах научного исследования появляются эвристические методы, а на заключительных этапах научного исследования, как правило, приоритетными становятся алгоритмические методы;

- эвристические стратегии эффективно используются в современных интерактивных методах обучения и других инновациях.

Дебатные клубы (клубы), действующие в ведущих высших учебных заведениях Соединенных Штатов Америки, Великобритании, Германии, Италии, Японии и Южной Кореи, привлекают большое количество студентов.

Научные семинары, проводимые известными учеными в Московском политехническом музее, имеют многовековую историю, в которых широкое место отводится дебатам и другим методам эвристических стратегий; - стоит отметить важность методов эвристической стратегии в формировании известных научных школ и достижении комплексных результатов.

Величайшие открытия и изобретения являются результатом взаимного обмена идеями, непрерывных споров и дискуссий внутри научных школ и между смежных школ.

Эвристические стратегии сыграли важную роль в развитии восточной мудрости и научного мышления. В Хорезмской академии Маъмуна, багдадской астрономической школе Байтул-Хикма, Ахмада Фаргани и Улугбека эвристические методы эффективно использовались при решении научных проблем и экономических и социальных вопросов [4].

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**ГИЯСИДДИН КОШИ – ВЕЛИКИЙ МАТЕМАТИК, АСТРОНОМ,  
АРХИТЕКТОР, ИНЖЕНЕР-КОНСТРУКТОР**

*Аннотация. Гиясиддин Коши сделал много инноваций в области математики. Отношение длины окружности к диаметру нашло 17-значное значение числа  $\pi$  у европейских ученых в этой области почти двести лет назад. Коши был первым в мире, кто применил десятичную дробь к научной работе. Точно так же великий ученый-математик и астроном написал книгу по теории архитектуры как зрелый архитектор и инженер своего времени. Оказывается, никто из других ученых до этого не писал о некоторых частях этой области, как он сам отмечает. Учитывая, что Гиясиддин Коши был прославлен современниками как «султан инженеров», естественно задаться вопросом, не принимал ли известный ученый непосредственного участия в строительстве медресе, ханака и обсерватории в Самарканде, построенных при Улугбеке.*

*Ключевые слова: математика, стереометрия, астрономия, архитектура, проектирование, нормирование.*

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**GIYASIDDIN KOSHI IS A GREAT MATHEMATICIAN,  
ASTRONOMER, ARCHITECT, DESIGN ENGINEER**

*Abstract. Giasiddin Cauchy has made many innovations in the field of mathematics. The ratio of circumference to diameter found a 17-digit value of the number  $\pi$  among European scientists in this field almost two hundred years ago. Cauchy was the first in the world to apply the decimal fraction to scientific work. Similarly, the great mathematician and astronomer wrote a book on the theory of architecture as a mature architect and engineer of his time. It turns out that none of the other scientists had previously written about some parts of this field, as he himself notes. Considering that Giyasiddin Koshi was glorified by his contemporaries as the "sultan of engineers", it is natural to wonder whether the famous scientist was directly involved in the construction of the madrasah, Khanak and observatory in Samarkand, built under Ulugbek.*



*Keywords: mathematics, sterometry, Astronomy, Architecture, design, rationing.*

### **Введение**

Одной из ярких звезд науки, сиявших над Самаркандом в первой половине XV века, ближайшим соратником Улугбека в его научных исследованиях был Саид Джамшид ибн Маъсуд ибн Махмуд Гиасиддин Коши, начальник Самаркандской обсерватории. Особенно примечательна заметка в конце одной из знаменитых арабских рукописей «Зиджи Курагани». На нем Султан Улугбек, проведя наблюдения в Самарканде, написал трактат, который был переведен на арабский язык и отредактирован Гиасиддином Джамшидом [1].

Абдул Али ибн Махмуд ибн Хусейн аль-Бирджани, один из ученых школы астрономии Улугбека, автор ряда научных обзоров, высоко отозвался о своем наставнике Гиасиддине Джамшиде Коши как о «Султане -инженов», Нет никаких сомнений в том, что это определение выражало единодушное мнение ученых-специалистов того времени. Таким образом, Гиасиддин Коши воплощается не только в области математики и астрономии, но и как «султан инженеров», непосредственно занимавшийся теоретическими основами архитектурного творчества и завоевавший авторитет и известность среди ученых, архитекторов-инженеров. Бирджани не поднял бы своего наставника так высоко, если бы он был инженером старше Коши во времена Улугбека [3].

### **Материалы и методы**

Сюда входят эмпирические методы, такие как моделирование, установление фактов, эксперименты, описание и наблюдение, а также логические и исторические методы, теоретические методы, такие как абстракция, дедукция, индукция, синтез и анализ, а также методы эвристических стратегий. Материалы исследования: научные факты, результаты предыдущих наблюдений, опросы, эксперименты и тесты; средства идеализации и рационализации научного подхода.

О Гиасиддине Коши сохранилось очень мало сведений. Коши (Кошанийский) анахронизм указывает на то, что ученый родился в персидском городе Коши. Предполагается, что название керамической плитки, используемой для украшения биноклей, также закрепилось за названием этого города. Но то, что ученого называют Коши, также можно понять в том смысле, что он был искусным мастером Коши, считающимся одним из самых изысканных и сложных украшений в архитектуре. Первоначально гиасиддин находился на службе у Тимуридов в Персии и Хорасане, а примерно в 1414-1416 годах был приглашен в Самарканд, где стал постоянным жителем. По некоторым источникам, Гиасиддин Коши умер в 1436 - 1429 годах в Самарканде.

### **Результаты и обсуждения:**

Книга Гиясиддина Коши "Мифтах Аль-хусаб Фил-арифметика" в основном посвящена арифметике, а ее специальная глава, состоящая из трех разделов об измерениях зданий и сооружений, полностью посвящена вопросам теории архитектуры.

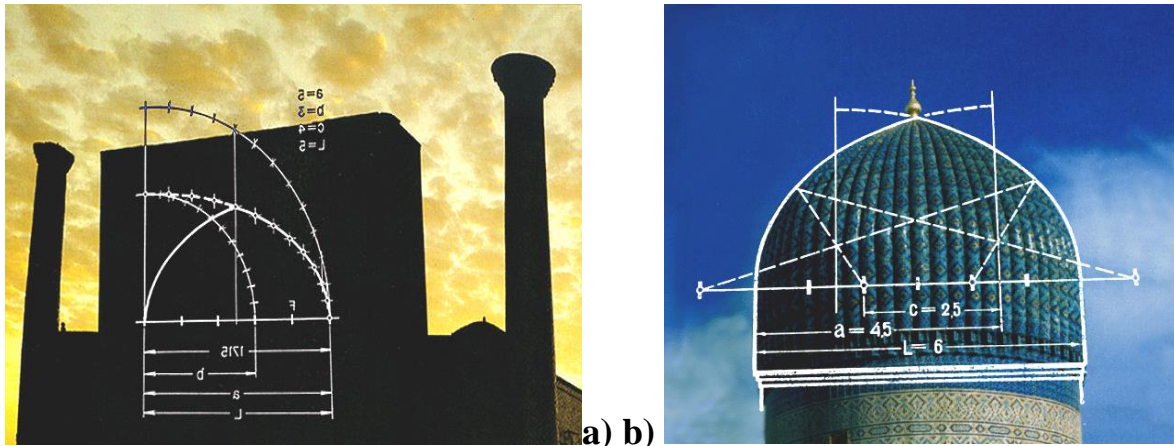
Автор говорит, что те, кто знает «науку об архитектуре», никогда раньше не думали о написании работы о необходимости измерения структур и зданий. Имея это в виду, я включил науку об измерениях зданий в число необходимых знаний», - отмечает он.

Первый раздел-посвящен измерению нечетных и арочных. Ученый объясняет ряд архитектурных терминов, описывая три типа доминирующего цилиндрического обнесенного стеной объема – фалака, халка и бубен. Затем он показывает разницу между нечетной и дугообразной формами. "Разница между аркой и свода заключается в следующем: высота арки (рад) меньше ширины, а высота свода больше ширины. Толщина лозы – длина дуги-называется тюлем». Коши приводит пять различных геометрических способов изготовления куполы различной сложности. Исследования архитектурных памятников, сохранившихся в нашей стране до сих пор, показывают, что при их возведении также соблюдались архитектурные пропорции, изложенные Гиясиддином Коши (рис.1). Сами по себе эти формы свидетельствуют о том, насколько научно обоснованным было искусство черчения в архитектуре того времени [4].

Гиясиддин Коши также привел таблицу для определения объема, умножив внешний периметр арок и сводов на их толщину, объяснив порядок и правила расчета. Он даже показал способ нахождения размеров, связанных с длиной кривых дуг, с помощью тригонометрических функций (синус, Косинус).

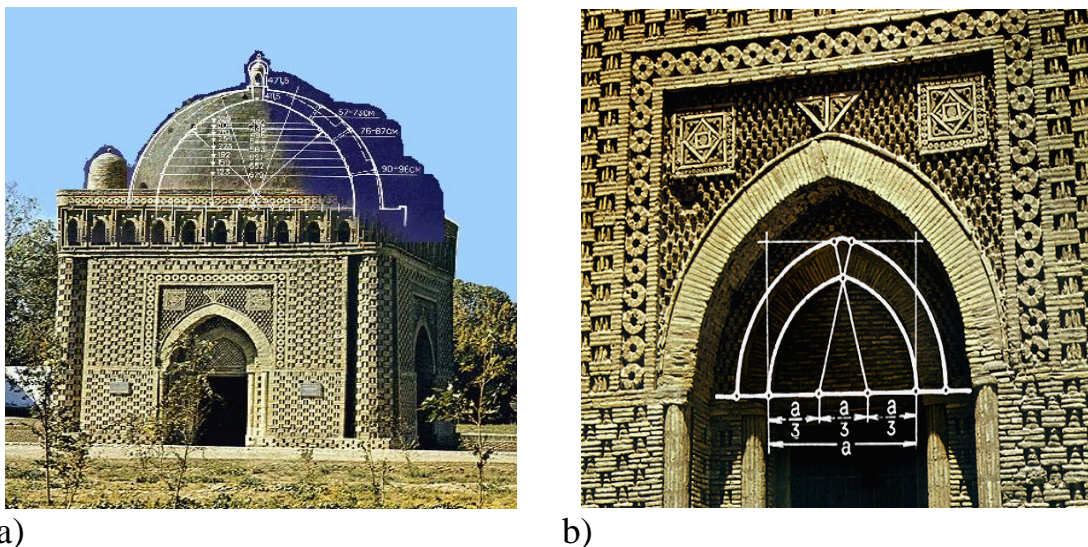
Второй раздел – купол, посвящен форме и порядку измерения куполов. Коши описывает четыре различных типа куполов, показывая способы расчета их поверхности, объема.

Третий раздел посвящен измерению поверхности мукарнаса. Орнамент на внутренней стороне мукарнасских сводов и арок представляет собой перекрывающийся орнаментальный узор, состоящий из системы тосак – чаш. Он сделан на основе очень сложного чертежного проекта. Коши приводит составные элементы мукарнаса, их описательные признаки и названия. Коши называет чашу мукарнаса – байтом, каждую из перекрывающихся строк-пластиной, а самый большой и главный модуль чаши – шкалой.



**Рисунок 1. Инженерные приемы, заложенные в архитектуре Средней Азии в Средние века: а) проект формирования сводов и арок; Б) проектирование формы куполов и куполов**

Предоставляет информацию о четырех различных типах мукарнас. Коши также показывает порядок изготовления повторяющихся элементов чаши мукарнаса. »Знай, - пишет ученый, - что мастера строители берут основание прямого четырехугольника, равное мукарнасской шкале (модулю), и определяют высоту на два доли длиннее его".



**Рисунок 2. Инженерные законы, соблюдаемые при проектном решении мавзолея Исмаила Самани (IX век): а) проект разреза куполы; б) метод, использованный при изготовлении форм арок и сводов**

Знания Коши об использовании масштабно – модульного блока при изготовлении мукарнаса особенно интересны и важны для истории архитектуры. В своей работе он излагает пропорции, действовавшие в памятниках архитектуры, анализирует законы и методы измерения, применявшиеся на практике в среднеазиатской архитектуре, для создания

традиционных геометрических фигур и приводит их к единому научному обоснованию (рис.2).

Как вы знаете, современные достижения в области архитектуры и строительных технологий диктуют, насколько необходимы модульная система, нормирование, стандартизация, типизация, унификация размеров товаров и комплектующих частей, в свете требований широкого внедрения принципов взаимозаменяемости и экономической эффективности. Ведутся научные исследования по их широкому применению и сегодня. Еще большее значение приобретает тот факт, что еще в XV веке самаркандские ученые и инженеры-архитекторы проводили практико-теоретическую работу над модульным масштабом, сейсмостойкости, долговечности памятников, писали наставления и научные книги [4].

#### **Заключение:**

Гиясиддин Коши сделал много инноваций в области математики. Отношение длины окружности к диаметру нашло 17-значное значение числа  $\pi$  у европейских ученых в этой области почти двести лет назад. Коши был первым в мире, кто применил десятичную дробь к научной работе. Точно так же великий ученый-математик и астроном написал книгу по теории архитектуры как зрелый архитектор и инженер своего времени. Оказывается, никто из других ученых до этого не писал о некоторых частях этой области, как он сам отмечает. Учитывая, что гиясиддин Коши был прославлен современниками как «Султан инженеров», естественно задаться вопросом, не принимал ли известный ученый непосредственного участия в строительстве медресе, ханака (храм-мечет с приютом для мусульманских монахов) и обсерватории в Самарканде, построенных при Улугбеке. Уточнить это остается одаренным историкам и востоковедам, чтобы не чисто литературно, а именно, и инженерно-технически толковать содержания многовековых рукописей-первоисточников.

Если вспомнить, что Гиясиддин Коши прибыл в Самарканд в 1414-1416 годах и поселился постоянно, где при его жизни были возведены всемирно известные памятники эпохи Улугбека, то нет никаких сомнений в том, что великий ученый, удостоенный почетного титула «Султан инженеров», в процессе беспрецедентного творчества выполнял исключительно ответственные и важные созидательные задачи [5].

Исследования таких ученых, как Ахмад аль-Фергани, Мирзо Улугбек, Гиясиддин Коши в области сверхточных метрологических, астрономических и архитектурных измерений, послужили усовершенствованию измерительных приборов и методов и в других областях. Богатое научное наследие, оставленное нашими великими соотечественниками по определению годового движения планет, периода вращения, не утратило своего научного значения и в наше время.



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# ИНФОРМАЦИОННЫЕ И КОММУНИКАТИВНЫЕ ТЕХНОЛОГИИ

УДК: 004

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## MASHINASOZLIKDA O`TQAZMA QO`YIMI TO`G`RISIDA TUSHUNCHA

*Annotatsiya. Detallarga ishlov berishning har bir texnologik uslubi o`zining iqtisodiy asoslangan maqbul aniqligiga ega. Lekin amaliyot ko`rsatadiki, o`lchamlar o`sishi bilan kichik qo`yimli detallarga ishlov berishda texnologik qiyinchiliklar ortadi va o`zgarmas ishlov berish sharoitida maqbul chetlanmalar miqdori bir qancha kattalashadi. Mashinasozlik va umuman, ishlab chiqarish tajribasini o`rganish, tahlil qilish o`lchamlar va iqtisodiy maqbul aniqlik o`rtasidagi bog`lanishni qo`yim birligi deb ataladigan shartli miqdor bilan ifodalash imkonini beradi.*

*Kalit so`zlar: val, teshik, o`tqazma, qo`yim, aniqlik kvaliteti.*

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## THE CONCEPT OF LANDING TOLERANCES IN MECHANICAL ENGINEERING

*Annotation. Each technological style of processing parts has its own economically justified optimal accuracy. But, as practice shows, with increasing dimensions, technological difficulties increase when processing small parts with stakes, and in conditions of constant processing, the value of optimal deviations increases slightly. The study and analysis of the experience of mechanical engineering and production in general allows us to express the relationship between size and economically acceptable accuracy in a conditional value called a unit rate.*

*Keywords: shaft, hole, grass, rate, accuracy.*



## **Kirish**

O`lchamlar aniqligini qo`yim belgilaydi - qo`yim kamayishi bilan aniqlik ortadi, va aksincha, qo`yim ortishi bilan aniqlik kamayadi.

## **Materiallar va usullar:**

Bunga modellashtirish, faktlarni aniqlash, eksperiment, tavsiflash va kuzatish kabi empirik usullar, shuningdek mantiqiy va tarixiy usullar, abstraktsiya, deduksiya, induksiya, sintez va tahlil kabi nazariy usullar, shuningdek evristik strategiyalar usullari kiradi. Tadqiqot materiallari: ilmiy faktlar, oldingi kuzatuvlar natijalari, so'rovlar, tajribalar va testlar; ilmiy yondashuvni idealizatsiya qilish va ratsionalizatsiya qilish vositalari.

## **Natijalar va munozaralar:**

O`tqazma qo`yimi TP birikmani tashkil etuvchi teshik va val qo`yimlari yig`indisiga teng [1]:

$$TP = T_D + T_d(1)$$

Tirqishli o`tqazma uchun o`tqazma qo`yimi – tirqish qo`yimiga yoki chegaraviy tirqishlar ayirmasiga teng:

$$TP = TS = S_{\max} - S_{\min}(2)$$

Jips o`tqazma uchun o`tqazma qo`yimi - jipslik qo`yimiga yoki chegaraviy jipsliklar ayirmasiga teng:

$$TP = T_N = N_{\max} - N_{\min}(3)$$

Lekin o`lchamning turi va miqdorini, detalning vazifasi va ish sharoitini hisobga olmay turib qo`yim miqdori belgilanadigan bo`lsa, u aniqlik mezoni bo`lib xizmat qilmaydi. Bu quyidagicha izohlanadi.

1. Detallarga ishlov berishning har bir texnologik uslubi o`zining iqtisodiy asoslangan maqbul aniqligiga ega. Lekin amaliyot ko`rsatadiki, o`lchamlar o`sishi bilan kichik qo`yimli detallarga ishlov berishda texnologik qiyinchiliklar ortadi va o`zgarmas ishlov berish sharoitida maqbul chetlanmalar miqdori bir qancha kattalashadi. Mashinasozlik va umuman, ishlab chiqarish tajribasini o`rganish, tahlil qilish o`lchamlar va iqtisodiy maqbul aniqlik o`rtasidagi bog`lanishni qo`yim birligi deb ataladigan shartli miqdor bilan ifodalash imkonini beradi.

2. Qo`yim birligi  $i(I)$  qo`yimning nominal o`lchamga bog`liqligini ifodalaydi va standart qo`yimlarni belgilash uchun baza bo`lib xizmat qiladi. Qo`yim va o`tqazmalar yagona tizimida qo`yim birligi oraligining o`rtacha diametri ( $D_m$ , mm) ga nisbatan quyidagi formulalar asosida hisoblanadi [2]:

500 mm gacha bo`lgan o`lchamlar uchun

$$i = 0,45 \sqrt[3]{D_m} + 0,001 D_m(4)$$

500 dan 10000 mm gacha bo`lgan o`lchamlar uchun

$$I = 0,004 D_m + 2,1(5)$$

Ifodalarda qo`shiluvchilarning birinchisi, ishlov berish xatoligi ta'sirini, ikkinchisi esa o`lcham va haroratga bog`liq xatoliklarni hisobga oladi.

3. Bir xil miqdordagi o`lchamlarga ham aniqlik nuqtai nazaridan turlicha talablar qo`yilishi mumkin. Bu holat tuzilishi, vazifasi va ish sharoiti bilan farq qiladigan mexanizmlar, shuningdek, tugun va detallarning turli-tumanligi bilan

izohlanadi. Shuning uchun qo`yim va o`lqazmalarning standart tizimi bir qator kвалitetlardan tarkib topgan [3].

Kвалitet deb barcha nominal o`lchamlar uchun bir xil aniqlik darajasidagi qo`yimlar to`plamiga aytiladi [4].

Kвалitetlar uchun qo`yim miqdorini qo`yim birligi (a) orqali, ayrim chetlanishlar bilan, quyidagi ifoda orqali belgilaydilar:

$$T = ai(I)(6)$$

4, Bir kвалitet chegarasida a - doimiy, shu sababli har bir kвалitetda nominal o`lchamlar bir xil aniqlik darajasiga ega bo`ladi. Biroq bir kвалitet doirasida turli o`lchamlar ortishi bilan qo`yim birligi ham ortadi [4].

#### **Xulosa:**

Yuqori aniqlikdagi kвалitetlardan quyi aniqlikdagi kвалitetlarga o`tilganda, qo`yimlar birligi ortishi evaziga o`lchamlarning qo`yimi ortadi, shu boisdan turli kвалitetlarda bir xil nominal o`lchamlarning aniqligi bir-biridan farq qiladi [5].

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## **TYPES OF MEASUREMENT ERRORS AND METHODS FOR THEIR ELIMINATION**

*Annotation. System-specific errors are errors that change according to a certain law when measuring a constant or exactly one magnitude again. Detected system-specific errors can be eliminated from measurement results by making appropriate corrections. Random errors are errors that change at random when measuring exactly one magnitude again. The fact that the measuring instrument does not always show the same is that the errors produced by temperature fluctuations during the measurement process are random. Random errors cannot be predetermined, but multiple measurement data can be accounted for by probabilistic mathematical performance.*

*Keywords: system-specific error, random error, rough error, correction, fixed error.*

### **Introduction**

Measurement errors are divided into system-specific errors, random errors, and coarse errors [1]. System-specific errors are errors that change according to a certain law when measuring a constant or an aruchynan magnitude again. Detected system-specific errors can be eliminated from measurement results by making appropriate corrections. An example of this is the error caused by incorrect markups on the scale, the errors related to the stones and other types of templates used to bring the tool to zero.

Random errors are errors that change at random when measuring exactly one magnitude again. The fact that the measuring instrument does not always show the same is that the errors produced by temperature fluctuations during the measurement process are random. Random errors cannot be predetermined, but multiple measurement data can be accounted for by probabilistic mathematical performance.

Gross errors are random errors that exceed the expected error under certain measurement conditions. Examples of reasons that cause gross errors include incorrect counting from the instrument scale, incorrect installation of the measurement detail [2].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The

research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Measurement errors are divided into a number of types according to one feature or another. According to the method of representing measurement errors:

absolute (mutlock) error;

relative error.

According to measurement conditions:

static errors;

dynamic errors.

According to the cause of origin (condition:

measurement errors that are characteristic under normal conditions specified for the measuring instrument;

additional errors (errors that occur when deviated from normal conditions).

Normal conditions mean air temperature 20 °С ± 2 °С (20m °С ± 5 °С), air humidity 65% ± 15%, atmospheric pressure 750 ± 25 mm s.u. (101,325-3.3 kPa), the supply voltage is understood to be 2% variable from the sample.

### Results and discussion:

The absolute error ( $\Delta x$ ) of the measuring instrument is said to be the difference between the real value ( $x_u$ ) of the magnitude measured by the representation ( $x_i$ ) of the same absolute:

$$\Delta x = x_i - x_u \quad (1)$$

In this case, errors are expressed in units of magnitude with a hint of plus or minus. It is called absolute error ( $x_n$  and  $x_{nis}$ ). Relative error characterizing the degree of rigidity of orcal measurement is very laughable [2]:

$$\Delta x_{\text{нис}} = \frac{\Delta x}{x_u} \cdot 100\%, \quad \Delta x_{\text{нис}} = \frac{x_i - x_u}{x_u} \cdot 100\% \quad (2)$$

To anchor the true value of the magnitude, a correction is made to the indication of the measuring instrument. Its numerical value is equal to the absolute value obtained by the opposite sign:

$$d = x_u - x_i \text{ or } d = \Delta x.$$

where  $d$  is the correction.

The error of the instrument is expressed in percentages of the likala range. Such an error is called the quoted error and equals the ratio of the absolute error to the scale range ( $x_N$ ), i.e.

$$\delta = \pm \frac{\Delta x}{x_N} \cdot 100\%, \quad (3)$$

example. The indication of a potentiometer with an upper measurement limit of  $x_N = 3000$  is  $x_i = 2400$ , let absolute, relative, quoted errors be found when the actual value of the temperature being measured is  $x_u = 241.20$  S.

Absolute error  $\Delta x = x_i - x_u = 2400 - 241.2 = -1.20$  S, relative error

$$\Delta x_{\text{нuc}} = \pm \frac{\Delta x}{x_u} \cdot 100\% = \frac{-1,2}{241,2} \cdot 100 = 0,5\%, \quad \delta = \frac{\Delta x}{x_N} \cdot 100\% = \frac{1,2}{300} \cdot 100 = 0,4\%$$

The normalized (normalized) value of the measuring instrument is estimated as follows:

the scale is one-sided, i.e. the scale starting from zero is taken equal for the instrument-the limit (hew) above.

The scale is taken equal to the arithmetic sum of the upper and lower measurement limits for a two-sided measuring instrument.

$$[ |x_{yu}| + |x_k| ]$$

- the scale is taken to be equal to the subtraction of the upper and lower upper and lower measurement limit wearers for a non-zero measuring instrument:

$$(x_{yu} - x_k)$$

The quoted error of the tool expressed from the differences detected under normal conditions is called the main error. this error is the chief benchmark in the design of measuring instruments. One of the ways to increase measurement accuracy is to measure the measured value many times over. In this case, a number of values of the measured magnitude are characteristic.

$$x_1, x_2, x_3, \dots, x_n.$$

The average arithmetic mix of these values is measured, with the magnitude Value (x) being closest.

$$\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_N}{n} = \sum_{i=1}^k x_i / n \quad (4)$$

Therefore, the absolute and relative error are subject to change, so the ham absolute error is considered to consist of two organizers. For example: the maximum value of an absolute error is expressed as:

$$|\Delta x|_{\text{max}} = |a| + |bx|$$

The first organizer of the error (a) depends on the value of the magnitude being measured does not bulge, and it is called an additive error. the second organizer, on the other hand, depends on the value (displacement) of the measured magnitude and is called a multiplicative error. for example, the multiclicative error of stencils, micrometers and similar instruments depends on the diameter of the measured detail, which is equal to 0,001 D [3].

### Conclusion:

As a result of the measurement, a value is usually found that is different from the actual value of the magnitude being measured. Often the actual value of a physical magnitude is unknown, and instead of the value of that magnitude, its experimentally found values are used. This value is so close to the actual value of the magnitude that it can be used for the intended purpose. The value of the magnitude found by the measurement method is called the measurement result. The difference between the measurement result and the actual value of the magnitude being measured is called the measurement error. The measurement

error expressed in units of measured magnitude is called the absolute error of measurement:

$$X = X_n - X_{nh}$$

where: X-absolute error

$X_n$ -measurement result

$X_{nh}$  is the actual value of the magnitude being measured

The ratio of the measurement absolute error to the actual value of the measured magnitude is called the measurement relative error [4,5].

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## PROCESSING MEASUREMENT RESULTS

*Annotation. Many productions, whose technological process involves perfected control operations, use highly efficient mechanized and automated measurement and nazorat tools. The main factor in choosing a measuring instrument in production is the permissible Metrological error of the instrument ( $\Delta_{met}$ ).*

*Keywords: error, random, systematic, rough, measurements, dosing, production, metrological error of the device.*

### Introduction

During any measurement process, errors of different appearance occur. The measurement results cannot be considered reliable without evaluating their impact on the results of the measurement, without studying the causes of origin, without identifying ways to eliminate them [1].

### Materials and methods

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

When a random error is called a maboyme measuring only one magnitude over and over again, a random variable is understood to be a measurement error. These errors are caused by unexpected causes (changes in the frequency and voltage of the current, shrinking collisions of sensitive elements of the sensors, instrument vibration, variability of the measurement force and x.) is due to dressing. there are laws that relate to the extimoli of the occurrence of random errors. They refer to random values as taximization laws. Random errors, the occurrence of which is due to a large number of reasons (but none of these reasons do not have the right to know), are subject to this law [2].

### Results and discussion:

The random error value is then estimated by the mean quadratic error (t).

$$\sigma = \sqrt{\frac{(x_1 - \bar{x})^2 - (x_2 - \bar{x})^2 + \dots + -(x_i - \bar{x})^2}{n-1}} = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2} \quad (1)$$

where n is the number of observations (measurements);  
 1, x2, x3,...xi-observations (measurements) result;  
 - the arithmetic mean of the results of observations.

The smaller the average quadratic error the higher the measurement is taken.

For example: in the taksimulation of a random error by normal law, the confidence interval is from  $-3\sigma$  to  $+3\sigma$ , while the reliable exttimality is not taken into account when processing measurement results when one of the random errors is greater than  $3\sigma$  in its absolute identity and considering it a multiple error [3].

When assessing measurement accuracy, an extreme error is used. For this, the following formula is used:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \sqrt{\frac{1}{n(n-1)} \sum_{i=1}^n (xi - \bar{x})^2}$$

In most literature, the reliable interval is denoted by the letter Z, and the relationship between Z and the reliable extimo, llik P, is given in Table 1.

Table 1.

P	0,683	0,90	0,95	0,98	0,99	0,997
Z	1,0	1,645	1,96	2,33	2,58	3,00

When assessing measurement accuracy, an extreme error is used. For this,

the following formula is used:

$$\sigma_x = \frac{\sigma}{\sqrt{n}} = \sqrt{\frac{1}{n(n-1)} \sum_{i=1}^n (xi - \bar{x})^2} \quad (2)$$

Example. The temperature has been measured several times to increase measurement accuracy. The measurement results were as follows:

Table 2

№	Temperature, °S	№	Temperature, °S
1	31	6	31
2	32	7	32
3	34	8	33
4	33	9	35
5	31	10	34

Undo. 1. The arithmetic mean of the measurement results is:

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i = \frac{31+32+\dots+34}{10} = 32,6^{\circ}C. \quad (3)$$

Mean quadratic error:

$$\sigma = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}} = \sqrt{\frac{\sum_{i=1}^n 18.4}{10-1}} = 1.42^{\circ}C;$$

$$\sigma_{\bar{x}} = \sqrt{\frac{\sigma}{n}} = \frac{1.42}{\sqrt{10}} = 0.45 \quad (4)$$

we can assume that the true value of the temperature is reached i.e.  $32.6^{\circ}C$ . To estimate the reliability of this value, taking the reliability of the extimol to be  $R=0.997$  from the table we ask  $z=3.00$ .

We find the value  $Z \sigma$

$$Z \sigma_{\bar{x}} = 3 \cdot 0,45 = 1,35^{\circ}C$$

$$x_u = 32,6 \pm 1,35^{\circ}S$$

When measuring dimensions with universal measuring instruments, errors are taxed based on the law of normal taximation. Accordingly, Metrological characteristic is used when assessing measurement accuracy-i.e. measuring instruments-ng chakka error ( $\Delta \ell_{im}$ ) [4]:  $\Delta \ell_{im}=3\sigma$ .

The result measured once with Universal measuring instruments, such as the val diameter measurement, skates as follows:  $d = d_u \pm \Delta \ell_{im}$ .

With multiple repeated measurements, the ultimate arithmetic dimension is

$$d = \bar{d} \pm \frac{\Delta \ell_{im}}{\sqrt{N}}$$

first calculated, and then the measurement result is written as follows.

(5)

In the presence of regular and tusodifical errors, the cumulative error is

$$\Delta_{\ell_{im}} = \sum \Delta_{\ell_{im\mu\eta}} \pm \sqrt{\Delta_{\ell_{im1}}^2 + \Delta_{\ell_{im2}}^2 + \dots + \Delta_{\ell_{imn}}^2}$$

determined as follows:

In this  $\sum \ell_{im\mu\eta}$  - muntazam xatoliklarni algebraik yigindisi.

$\Delta_{\ell_{im1}}, \Delta_{\ell_{im2}}, \dots$  gross random errors.

The standards of instrument display are called the greatest error of the road. for measuring instruments given in the Kurin of errors in which the limits of the underlying errors to be avoided are given a class of precision derived from the following number series.. (1; 1,5; 2,0; 2,5; 3; 4; 5; 6;)·10<sup>n</sup>, n=1.0; -1; -2 ...

the accuracy class of the measuring instrument is equal to the greatest error calculated in percentages.  $\delta = K = \pm \frac{\Delta x_{\max}}{x_u} \cdot 100, \%$  (6)

where  $\delta$  is the quoted error;

K-tool precision class;

$\Delta x_{\max}$ -the largest absolute key of the instrument;

$x_n$  is a measure of the instrument.

For example. As a result of grading a logometer (a device that measures temperature), the scale of which consists of 0-1000s, the absolute basic error received the following values.

Scale sign:<sup>0</sup>S... 0 20 40 60 80 100

Absolute error: <sup>0</sup>S...0,4 1,6 1,00,4 0 -0,6

Here is the quoted error of the logometer

$$\delta = \frac{\Delta x_{\max}}{x_N} = \frac{1.6}{100} 100\% = 1.6\% \quad (7)$$

according to the above data, we take the accuracy class as equal to 2.0 (the rounding is carried out at the expense of magnification).

Many productions, whose technological process involves perfected control operations, use highly efficient mechanized and automated measuring and nazorat tools.

### Conclusion:

The main factor in choosing a measuring instrument in production is the permissible Metrological error of the instrument ( $\Delta_{\text{met}}$ ). In accurate measurement,  $\Delta_{\text{met}}=0.25$  (where T is the permissible of the detail), while in measurements where the accuracy is not so great,  $\Delta_{\text{met}}=0.2 T$  is obtained [5].

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## CONSTRUCTION MATERIALS INDUSTRY-BASIC CONCEPTS ABOUT TECHNICAL DIMENSIONS

*Annotation. In a detail drawing, the inner, outer or stepped size represents an abstract type of size, and when processing it on the defining surfaces, the size changes: it becomes larger, smaller or remains unchanged, depending on which it can be identified. When laying a scale, the detail should be considered in the correlation with other details, that is, the dimensions should be laid relative to the design bases. It is called a surface (or bullet) base, in which the position of other surfaces and arrows is determined in relation to it.*

*Keywords: project, size, external, internal, stepped, nominal size, actual size, boundary dimensions, average size.*

### Introduction

Size is the numerical quantity of linear size in selected units of measurement [1,2].

The internal (coverage) dimensions are hole diameter, groove width, excess width, etc. Internal dimensions are enlarged in processing by marking surfaces and internal elements (Figure 1, a).

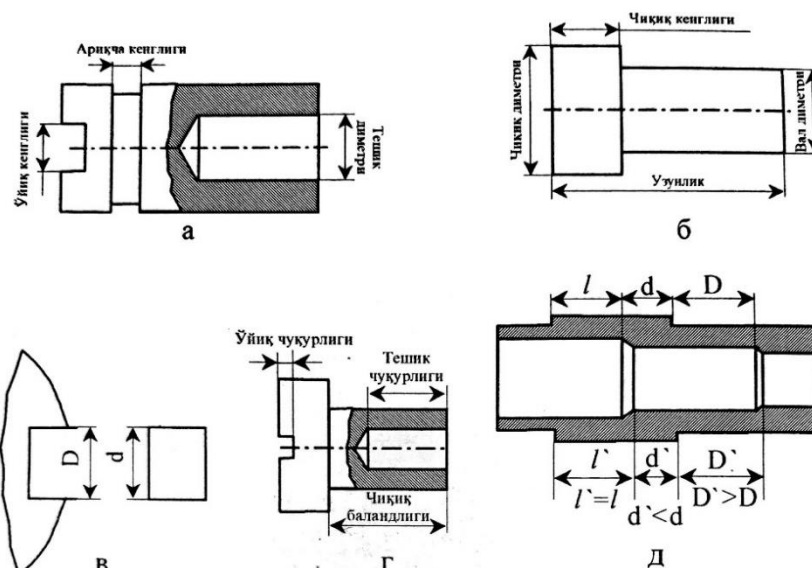


Figure 1. Types of dimensions: a-internal dimensions; b-external dimensions; V-hole (D) and val (d) dimensions; g and d-step dimensions

External (spanning) dimensions are val diameter, line width, and other gabarite dimensions. External dimensions determine external surfaces and external elements, when processed they become smaller (figure 1, b).

The inner element of the details is called the hole (D), the outer element is called "val" (d), and these Terms also apply to non-cylindrical elements (Figure 1, v).

Stepped (open) dimensions represent dimensions such as hole and groove depth, line height, which cannot be attributed to either internal dimensions or external dimensions. Step size ye, when processed on one of the surfaces that detect it, becomes larger and becomes smaller when processed on another surface (Figure 1, g and d).

In a detail drawing, the inner, outer or stepped size represents an abstract size type, and when processing it on the defining surfaces, the size changes: it becomes larger, smaller, or remains unchanged, depending on which it can be identified [3].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Let the initial dimensions be  $l, d, D$ , and the dimensions after processing be  $l', d', D'$  (Figure 1, D):  $D' > D$ , demak, D scale-inner scale;  $d' < D$ , D - outer scale;  $l'$  is a 1, l - step scale.

In addition to the above, the detail drawings contain angular and radius dimensions, as well as the dimensions that determine the position of the arrows, the detail rubber part, the parts of the surfaces in different roughness, thermal processing, finishing, coating parts, and others.

When laying a scale, the detail should be considered in the correlation with other details, that is, the dimensions should be laid relative to the design bases.

It is called a surface (or bullet) base, in which the position of other surfaces and arrows is determined in relation to it.

### **Results and discussion:**

The structural base, on the other hand, is the part of the surface or surface of the detail that attempts with other detail surfaces.

The surfaces on which the details of the knot attach or collide are called contiguous surfaces. The dimensions of contiguous surfaces are also called contiguous dimensions in turn. The remaining surfaces and corresponding dimensions are called non-contiguous (free) dimensions.

The gripping dimensions are executed some time more precisely with respect to the free dimensions, so in the detail drawing the number of gripping dimensions should be as low as possible, the number of non - gripping (free)



dimensions-more. In order for the gripping dimensions to be low in the drawing, a one-dimensional Bond must be created between the gripping surfaces when laying the die.

The Nominal size (l, d, D) is the size with which the marginal dimensions relative to it are determined and the deviations are calculated. Nominal dimensions serve as the main dimensions for details and their combinations. Nominal dimensions are determined based on the results of the calculation of the details according to the criteria for strength, biquidity, wear resistance and other operational competence, or based on their requirements for use. The connecting surfaces will have a common nominal size [3].

The nominal size of the junction is common to the junction-forming hole and val ( $D=d$ ). For example, the diameter of the shaft rotating on the sliding bearing and the diameter of the bearing hole are determined by one nominal size in the drawings. And in fact, the diameter of the shaft will be slightly smaller than the diameter of the bearing hole, otherwise the shaft would not be able to rotate.

Boundary dimensions are the two boundary allowable dimensions of an element, the actual size must be placed between them, or they may be equal to the middle. One can draw conclusions after comparing the smaller of the boundary dimensions - the lower boundary dimension ( $D_{min}$ ,  $d_{min}$ ), the larger - the upper boundary dimension ( $D_{max}$ ,  $d_{max}$ ). A detail whose size goes beyond the permissible limits (greater than the upper limit size or less than the lower limit size) is considered defective [4,5].

The mean ( $D_m$ ,  $d_m$ ) is half the sum of the boundary dimensions:

$$D_m = (D_{max} + D_{min}) / 2; d_m = (d_{max} + d_{min}) / 2$$

#### **Conclusion:**

Defects are also divided into ("positive" defect) and incurable ("negative" defect), which are corrected according to the actual size. A defect whose real size is greater than the upper bound size can be corrected by machining, while a defect whose real size is less than the lower bound size cannot be corrected by machining, it is an irreparable defect [1,2].

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## **METROLOGICAL DETAILS AND ACCURACY CLASSES OF MEASURING INSTRUMENTS**

*Annotation. The accuracy with which an item is being prepared directly depends on the indications of the measuring instruments. When choosing measuring instruments, it is necessary to consider their indicators, such as the value of the scale piece, the range of indications and measurements, the measurement limits the accuracy class of the measuring instrument is a generalized description, which is determined by the main and additional errors of the measuring instrument, as well as other characteristics that affect accuracy.*

*Key cots: measuring instrument, physical size, item, product, preparation accuracy, scale pointer, range of instructions, measurement error, accuracy class.*

### **Introduction**

A measuring instrument is a technical instrument (device) designed for measurements, producing displays (signals), carrying an overview of the value of the magnitude being measured, or with Metrological characteristics that represent a repeat of the size of a given size and embody the indicators in moderation to other sources [1].

The accuracy with which an item is being prepared directly depends on the indicators of the measuring instruments.

When choosing measuring instruments, it is necessary to take into account their indicators, such as the value of the scale piece, the range of indications and measurements, measurement limits.

A scale measuring instrument will be part of a counting device, which will show a set of values corresponding to the number taking numbers and next to the signals corresponding to the series of quantities of the measured magnitude [2].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

A scale pointer is a symbol that corresponds to a certain amount of the magnitude being measured, indicated on the scale. A pointer placed next to the

number taking numbers is called the number pointer of the scale. The pointer corresponding to the zero value of the measured magnitude is called the zero of the scale. The scale is one-sided (zero serves as the beginning and end of the scale), two-sided (scale pointers are located on both sides relative to zero), and zero-free.

The range of two adjacent pointers of a scale is called a scale piece. The length of the scale piece is the distance between the axes (centers) of the two adjacent pointers of the scale.

Scales in which a piece of scale is of constant length are called Equal-dimensional scales.

The value of a scale piece is the difference between the quantities of magnitudes corresponding to the two adjacent indicators of the scale.

#### **Results and discussion:**

The range of representations is the area of values bounded by the final and initial values of the scale, that is, the area between the largest and smallest values of the magnitude being measured. The range of measurements is the area of values of the magnitude being measured, where for this area the limit of allowable errors of the measuring instrument will be normalized. It will consist of the sum of the range of instructions and the range of shifts of the measuring instrument.

The measurement limit is the largest and smallest values of the measurement range.

When measuring in contact measurement style, the measurement strain is the strain directed along the line of the measurement Direction, formed between the sensitive element of the measuring machine and the detail. The measurement strain ensures the bearing grip of the measuring chain.

The difference in the measurement voltage has changed as a result of the deformation of the spring at the expense of a change in the position of the measuring instrument Turum, that is, the difference between the measurement voltages corresponding to the two limits of the range of the instrument indications.

The threshold of sensitivity of the measuring instrument is the smallest amount of the measured magnitude that the measuring instrument can change its display [3].

The tool display error is the difference between the actual amount of size measured by the tool display [4].

The measurement error is the difference between the measurement result and the actual value of the magnitude being measured.

The stability of the meter is an indicator that reflects the time invariance of Metrological descriptions of the meter. It is defined as the amount of greatest difference between repeated indications of a measuring instrument when measuring a single magnitude multiple times, under invariant external conditions, and a constructive description of the instrument is calculated, indicating the quality of its preparation.

#### **Conclusion:**

The accuracy class of the measuring instrument is a generalized description of the measuring instrument, which is determined by the main and additional errors of the measuring instrument, as well as other characteristics that affect accuracy. The accuracy class describes the properties of the meter, but does not indicate the accuracy of the measurements performed, since it is necessary to also consider the method error, adjustment error, etc. when determining the measurement errors [5].

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## **MASHINASOZLIKDA O'TQAZMA QO'YIMI TO'G'RISIDA TUSHUNCHA**

*Annotatsiya. Detallarga ishlov berishning har bir texnologik uslubi o'zining iqtisodiy asoslangan maqbul aniqligiga ega. Lekin amaliyot ko'rsatadiki, o'lchamlar o'sishi bilan kichik qo'yimli detallarga ishlov berishda texnologik qiyinchiliklar ortadi va o'zgarmas ishlov berish sharoitida maqbul chetlanmalar miqdori bir qancha kattalashadi. Mashinasozlik va umuman, ishlab chiqarish tajribasini o'rganish, tahlil qilish o'lchamlar va iqtisodiy maqbul aniqlik o'rtasidagi bog'lanishni qo'yim birligi deb ataladigan shartli miqdor bilan ifodalash imkonini beradi.*

*Kalit so'zlar: val, teshik, o'tqazma, qo'yim, aniqlik kvaliteti.*

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## **THE CONCEPT OF LANDING TOLERANCES IN MECHANICAL ENGINEERING**

*Annotation. Each technological style of processing parts has its own economically justified optimal accuracy. But, as practice shows, with increasing dimensions, technological difficulties increase when processing small parts with stakes, and in conditions of constant processing, the value of optimal deviations increases slightly. The study and analysis of the experience of mechanical engineering and production in general allows us to express the relationship between size and economically acceptable accuracy in a conditional value called a unit rate.*

*Keywords: shaft, hole, grass, rate, accuracy.*

### **Kirish**

O'lchamlar aniqligini qo'yim belgilaydi - qo'yim kamayishi bilan aniqlik ortadi, va aksincha, qo'yim ortishi bilan aniqlik kamayadi.

### **Materiallar va usullar:**

Bunga modellashtirish, faktlarni aniqlash, eksperiment, tavsiflash va kuzatish kabi empirik usullar, shuningdek mantiqiy va tarixiy usullar,

abstraktsiya, deduksiya, induksiya, sintez va tahlil kabi nazariy usullar, shuningdek evristik strategiyalar usullari kiradi. Tadqiqot materiallari: ilmiy faktlar, oldingi kuzatuvlar natijalari, so'rovlar, tajribalar va testlar; ilmiy yondashuvni idealizatsiya qilish va ratsionalizatsiya qilish vositalari.

#### **Natijalar va munozaralar:**

O`qtazma qo`yimi TP birikmani tashkil etuvchi teshik va val qo`yimlari yig`indisiga teng [1]:

$$TP = T_D + T_d(1)$$

Tirqishli o`qtazma uchun o`qtazma qo`yimi – tirqish qo`yimiga yoki chegaraviy tirqishlar ayirmasiga teng:

$$TP = TS = S_{\max} - S_{\min}(2)$$

Jips o`qtazma uchun o`qtazma qo`yimi - jipslik qo`yimiga yoki chegaraviy jipsliklar ayirmasiga teng:

$$TP = T_N = N_{\max} - N_{\min}(3)$$

Lekin o`lchamning turi va miqdorini, detalning vazifasi va ish sharoitini hisobga olmay turib qo`yim miqdori belgilanadigan bo`lsa, u aniqlik mezoni bo`lib xizmat qilmaydi. Bu quyidagicha izohlanadi.

1. Detallarga ishlov berishning har bir texnologik uslubi o`zining iqtisodiy asoslangan maqbul aniqligiga ega. Lekin amaliyot ko`rsatadiki, o`lchamlar o`sishi bilan kichik qo`yimli detallarga ishlov berishda texnologik qiyinchiliklar ortadi va o`zgarmas ishlov berish sharoitida maqbul chetlanmalar miqdori bir qancha kattalashadi. Mashinasozlik va umuman, ishlab chiqarish tajribasini o`rganish, tahlil qilish o`lchamlar va iqtisodiy maqbul aniqlik o`rtasidagi bog`lanishni qo`yim birligi deb ataladigan shartli miqdor bilan ifodalash imkonini beradi.

2. Qo`yim birligi  $i(I)$  qo`yimning nominal o`lchamga bog`liqligini ifodalaydi va standart qo`yimlarni belgilash uchun baza bo`lib xizmat qiladi. Qo`yim va o`qtazmalar yagona tizimida qo`yim birligi oraligining o`rtacha diametri ( $D_m$ , mm) ga nisbatan quyidagi formulalar asosida hisoblanadi [2]:

500 mm gacha bo`lgan o`lchamlar uchun

$$i = 0,45 \sqrt[3]{D_m} + 0,001 D_m(4)$$

500 dan 10000 mm gacha bo`lgan o`lchamlar uchun

$$I = 0,004 D_m + 2,1(5)$$

Ifodalarda qo`shiluvchilarning birinchisi, ishlov berish xatoligi ta'sirini, ikkinchisi esa o`lcham va haroratga bog`liq xatoliklarni hisobga oladi.

3. Bir xil miqdordagi o`lchamlarga ham aniqlik nuqtai nazaridan turlicha talablar qo`yilishi mumkin. Bu holat tuzilishi, vazifasi va ish sharoiti bilan farq qiladigan mexanizmlar, shuningdek, tugun va detallarning turli-tumanligi bilan izohlanadi. Shuning uchun qo`yim va o`qtazmalarning standart tizimi bir qator kвалitetlardan tarkib topgan [3].

Kvalitet deb barcha nominal o`lchamlar uchun bir xil aniqlik darajasidagi qo`yimlar to`plamiga aytiladi [4].

Kvalitetlar uchun qo`yim miqdorini qo`yim birligi ( $a$ ) orqali, ayrim chetlanishlar bilan, quyidagi ifoda orqali belgilaydilar:



$$T = ai(I)(6)$$

4, Bir kvalitet chegarasida a - doimiy, shu sababli har bir kvalitetda nominal o`lchamlar bir xil aniqlik darajasiga ega bo`ladi. Biroq bir kvalitet doirasida turli o`lchamlar ortishi bilan qo`yim birligi ham ortadi [4].

#### **Xulosa:**

Yuqori aniqlikdagi kвалitetlardan quyi aniqlikdagi kвалitetlarga o`tilganda, qo`yimlar birligi ortishi evaziga o`lchamlarning qo`yimi ortadi, shu boisdan turli kвалitetlarda bir xil nominal o`lchamlarning aniqligi bir-biridan farq qiladi [5].

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## THE USE OF LASERS IN METROLOGY

*Annotation. Quantum amplifiers and generators (lasers) are widely used in communication techniques, in metrology, in the creation of new technological J arrays of material processing, in medical machines. They are being used as standards of Metrological repeatability and provide expression of the second in extremely high accuracy, serving to achieve the ethalonization of the unit of time. In this regard, quantum generators from the dice can be viewed as a new type of clock, that is, “molecular clocks”.*

*Keywords: quantum, optical wave, amplifier, laser, metrology, measurement, accuracy, quantum, optical wave, amplifier, laser, metrology, measurement, precision.*

### **Introduction**

After the creation of quantum amplifiers operating in Radio waves and optical ranges, namely masers and optical quantum amplifiers (lasers), it was possible to use electromagnetic radiations of atoms and molecules to represent the second [1,2].

Semiconductor quantum generators were subsequently created. Their main characteristics are their very compactness, the Highness of the useful work coefficient to the point of converging together. For comparison, we will show that the useful operating coefficient of gaseous and crystalline optical quantum generators, which are excited using light oil, does not exceed 1%.

Quantum amplifiers and generators are widely used in communication techniques, in the creation of new technological processes of material processing, in medical machines.

They are being used as standards of Metrological repeatability and provide expression of the second in extremely high accuracy, serving to achieve the ethalonization of the unit of time.

In this context, quantum generators can be viewed as new types of clocks, i.e. “molecular clocks”.

The discovery of lasers and masers has opened up new opportunities for metrology in areas other than the ethalonization of time and repeatability. Lasers are being used as a powerful source of coherent radiation in high-resolution interference measurements of length, using which linear scales are being moved to high-resolution measuring instruments.

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

**Results and discussion:**

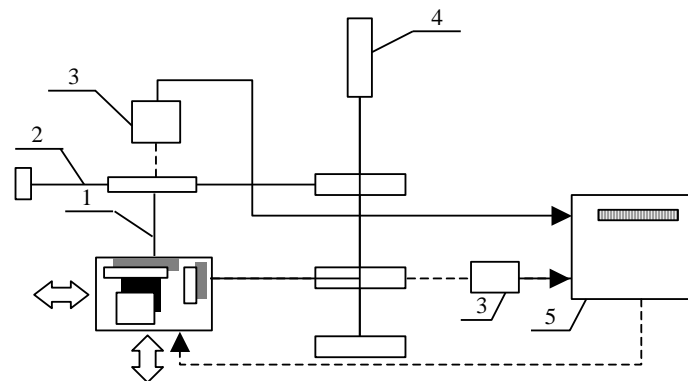
A laser is a rare source of radiation, in which such properties as high monochromaticity, slight loss of light and a large impressive amount of transmission are successfully embodied. Therefore, it is being used as one of the best tools for measuring length, speed and optical recommendations of different environments in the structure of an optical electronic device.

A Laser Interferometer allows you to notice and measure everything that affects the length of the optical measurement shoulder in a very large diapason. With it, it is possible to determine indicators such as linear measurements and derivatives from it - speed, acceleration, as well as the refractive index of the environment and the factors affecting it: pressure, temperature, amount of various impurities.

With the help of a Laser Interferometer, objects up to 1 m long can be automatically measured at an accuracy of 10-13 m.

The application of laser interferometers in metrology is therefore promising that high-length laser beams are not influenced by vibration, noise, external illumination and even by the fact that a certain amount of air is polluted.

An example of using a laser interferometer is shown in Figure 1.



**Figure 1. Length measurement using Laser Interferometer:  
1-measuring beam; 2-base beam; 3-Photo receiver; 4-laser; 5-electronic accounting device**

Excited nuclei, as is known, emit gamma rays from themselves, that is, photons of large energy. Conversely, when a photon is exposed, i.e. a photon is absorbed by a nucleus, the nucleus can excite if the Photon Energy is sufficient to transfer the nucleus from the lower energetic level to one of the higher energetic

levels. This phenomenon was confirmed in 1958 by the German scientist R. Discovered by Messbauer, it is named after him.

The Messbauer effect is based on Resonance absorption of gamma-Quanta by nuclei, with an isomeric nucleus rather than a simple nucleus being obtained as a gamma-Quanta irradiator [2].

The Messbauer effect is observed when energy is taken up by a full crystal.

The peculiarity of isomeric nuclei is that they can stand in a relatively long excited state (from a few years to  $10^{-8}$ s). This time will be approximately  $10^{-23}$ s in ordinary cores. Therefore, the mutual difference in the energy of gamma-Quanta emitted by isomeric nuclei to zwazi is many times smaller than the scattering in the energies emitted by ordinary nuclei and does not exceed  $10^{-12}$ .

Thus, the irradiated target emits gamma-Quanta, that is, the energy of the absorbed and emitted gamma-Quanta, in other words, the source of the radiation and the target repetitions are precisely matched (overlapped). In this sense, the source and Target are similar to clocks that show the same amount, with such systems forming a "core clock". The accuracy of such watches will not be less than  $10^{-12}$ s [4].

The enormous importance of the Messbauer effect for science and technology is its extreme sensitivity to changes in magnitude in the target. When Gamma-quantum energy is changed from a trillion to a fraction, in some cases a thousand more times less than this, the resonance absorption or scattering of radiation is completely lost. Thus, engineers and scientists have acquired an extremely sensitive tool that records nuclear-irradiator or nuclear-absorbing energy changes [5].

### **Conclusion:**

It is known that the conditions of resonance absorption or scattering of gamma-Quanta are influenced by: the relative speed of movement of the source and absorber; the difference in the movements of the source and absorber; the difference in pressure acting on the source and absorber; the difference in gravitational potentials at the points where the source and absorber are located; the difference in Depending on the change in absorption or scattering levels of Gamma-Quanta, it is possible to obtain information about the quantitative change in the physical magnitude that caused this change, that is, to measure this physical magnitude [6].

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## **SYSTEM OF INDICATORS OF EFFICIENCY OF THE STANDARDIZATION PROJECT IN THE MELIORATION OF ARABLE LAND**

*Annotation. Standardization in sectors of the economy ensures economic efficiency in the borcha stages of the product life cycle, that is, in the processes of design, production and operation. The economic effect obtained during the design process is from the widespread use of standard, unified and purchasable items in new structures; the economic effect obtained during the production process is due to a decrease in costs for the preparation of material and technological equipment, devices and special machines; in the process of Use (use), the economic effect occurs due to an increase in the reliability of the items and a decrease in repair costs.*

*Keywords: standardization, economic effect, design, production, technical identification.*

### **Introduction**

Regardless of the field of production, standardization ensures economic efficiency in the borcha stages of the product life cycle, that is, in the processes of design, production and operation [1,2,3].

1. The economic effect obtained in the design process is made up of: from the widespread use of standard, unified and purchasable items in new structures; from a reduction in the volume of project work on the design of basic production tools, technological devices and equipment; from a decrease in the volume of work on the development and reproduction of working drawings and other technical documents; from

2. The economic effect obtained during the production process arises due to a decrease in costs for the preparation of material and technological equipment, devices and special machines, the availability of the opportunity to buy components for the products being prepared at an affordable price from another specialized enterprise instead of preparing them at the enterprise, and a decrease in other additional costs.

In addition, unification and standardization reduce the total labor consumption on the preparation of the product and create conditions for the loosening of production areas and labor for other purposes.

3. In the process of Use (use), the economic effect is caused by an increase in the reliability of the items and a decrease in repair costs [4].



## Materials and methods

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

Also, the economic efficiency indicator of the standard depends on the scale and duration of its introduction.

In this case, the concepts of capital investment, cost, self-compensation of capital investments, economic efficiency of capital investments are used, as in the calculation of the economic effect of measures for the introduction of new techniques. Let's talk about these [5].

## Results and discussion:

1. Capital investments. In connection with the transition to new standards, the change in the annual volume of capital investments is found in the following expression:

ekonomicheskiiy effect, proektirovanie, proizvodstvo, technicheskaya exploitation  $\Delta$

$$K = K_2 - K_1 \quad (1)$$

Where  $K_1$  — the annual volume of capital investments before the introduction of new standards, sum;

$K_2$  — annual volume of capital investments after the introduction of new standards, sum.

2. Change of tanning. The change in the cost of annual volume of liquid means is found in the following expression:

$$\Delta S = S_1 - S_2 \quad (2)$$

Where  $S_1$  — the annual volume of the cost before the introduction of new standards, sum;  $S_2$  — annual volume of the cost per year after the introduction of new standards, sum. The term for the self-cover of capital investments  $T_{ok}$  is found in the following formula

$$T_{ok} = \frac{\Delta K}{\Delta C} = \frac{K_2 - K_1}{C_1 - C_2} \quad (3)$$

Accounting coefficient and normative coefficient of the economic efficiency of capital investments per hour:

$E_n = 0,15$ ; sufficient capital investment efficiency is considered secured when the  $E_r \geq E_n$ .

The annual economic efficiency of standardization will be equal to the turnover of the previous and subsequent quoted costs:

$$E_g = Z_1 - Z_2 \quad (4)$$

Then the annual economic efficiency will be equal to:

$$E_g = Z_1 - Z_2 = (S_1 + E_n * K_1) - (S_2 + E_n * K_2) \quad (5)$$

The annual volume of the costs given is found in the following expression:

$$Z = S + En \cdot K(6)$$

Where: S is the annual cost; Yen is the annual normative profit; K is the annual capital invested.

In practice, the following formula, expressed through relative indicators, is also used to determine annual economic efficiency:

$$Eg = [(S_1 + En \cdot K_1) - (S_2 + En \cdot k_2)] A_2(7)$$

Here

A<sub>2</sub>-annual product production volume in units of measurement of a particular type of product (service)

The relative capital investment indicator is found from the following formula:  $K = \frac{K_{of}}{A}(8)$

$$K = \frac{K_{of}}{S} \cdot S(9)$$

Standartlashtirish yangi texnika va texnologiyani joriy etishning tarkibiy qismi bo`lgan murakkab jarayon bo`lgani uchun erishiladigan iqtisodiy samaradorlikni hisoblashda ishtirokchi tashkilotlar va bosqichlar ulushi ham baholanadi.

Umumiy iqtisodiy samaradorlikda ishtirokchi tashkilotlar va bosqichlar ulushi quyidagi ifodadan topiladi:

here: K<sub>of</sub> – annual price of the main production funds, sum

A-annual volume of production

In multi-nomenclature production, the relative capital investment indicator is found from the following formula:

here: K<sub>of</sub> – annual price of the main production funds, sum

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In multi-nomenclature production, the relative capital investment indicator is found from the following formula:

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A-annual volume of production

In multi-nomenclature production, the relative capital investment indicator is found from the following formula:

$$K = \frac{K_{of}}{S} \cdot S(9)$$

### **Conclusion:**

Since standardization is a complex process that is a component of the introduction of new techniques and technology, the share of participating organizations and stages is also assessed in calculating the economic efficiency achieved.

In general economic efficiency, the proportion of participating organizations and stages is found in the following expression: Since standardization is a complex process that is a component of the introduction of new techniques and technology, the share of participating organizations and stages is also assessed in calculating the economic efficiency achieved.

In practice, the following formula, expressed through relative indicators, is also used to determine annual economic efficiency:

$$E_g = [(E_1 + E_n * K_1) - (S_2 + E_n * K_2)] A_2 \quad (10)$$

Here

$A_2$ -annual product production volume in units of measurement of a particular type of product (service)

The economic effect of standardization, corresponding to a certain standard and the share of the organization, is found in the following expression:

$$E_{st} = D * E_{uis} \quad (11)$$

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## TECHNOLOGICAL PLANTINGS IN MECHANICAL ENGINEERING

*Annotation. The property of joints should ensure the exact position or movement of parts and welded joints, reliability of use, ease of repair. Therefore, the connections of structures may be different and different requirements may be imposed on them. While in some situations it is necessary to create a slotted joint that allows movement, in other situations it is necessary to form a slotted fixed joint. The gap and tension are estimated not by the accuracy of the dimensions of some of the resulting parts, but by the ratio of the sizes of the contacting surfaces. The prop gap erty of connecting two parts that differ in size before assembly is called fit.*

*Keywords: size, external, internal, stepped, gap (shelf), tension.*

### **Introduction**

Therefore, the compounds of structures can be different and have different requirements for them.

In certain situations, it is necessary to form a serrated joint that allows movement, while in other situations it is necessary to form a cipsed, Immobile joint.

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

### **Results and discussion:**

When the hole size (D) is greater than the val size (d), a subtraction occurs between the S (S) - hole and the val size:

$$S = D-d(1)$$

The largest, smallest, and mean slits can be calculated by the following expressions:

$$S_{\max}=D_{\max}-d_{\min}; S_{\min}=D_{\min}-d_{\max}; S_m=(S_{\max}+S_{\min})/2$$

$$\text{Or } S_{\max}=ES- ei; S_{\min} = EI-es; S_m = E_m-ei(2)$$

When the chipset n-val size is 3catta from the hole size, the subtraction between the val and the hole sizes is found as follows:

$$N-S = - (D-d) = d-D(3)$$

The largest, smallest, and average jeeps are calculated by the following expressions:

$$N_{\max} = d_{\max} - D_{\min}; N_{\min} = d_{\min} - D_{\max}$$

$$N_m = (N_{\max} + N_{\min}) / 2$$

$$N_{\max} = e_s - EI; N_{\min} = ei - ES; N_m = e_m - E_m(4)$$

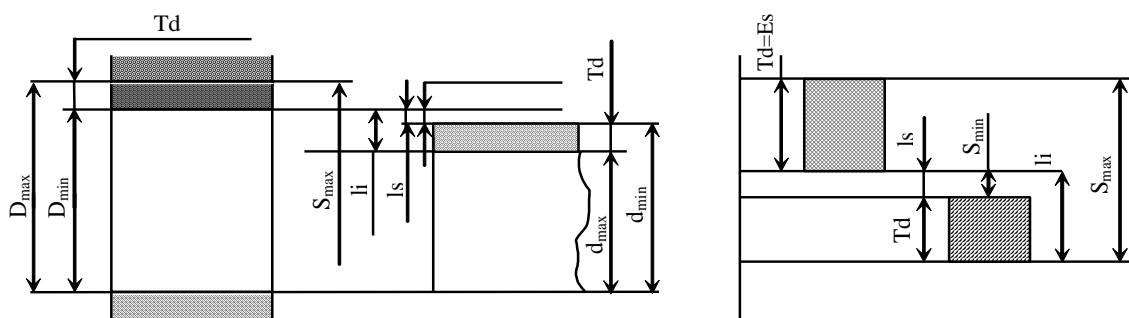
If we analyze the expressions presented above,

$$N_{\max} = -S_{\min}; N_{\min} = -S_{\max}(5)$$

it seems to be.

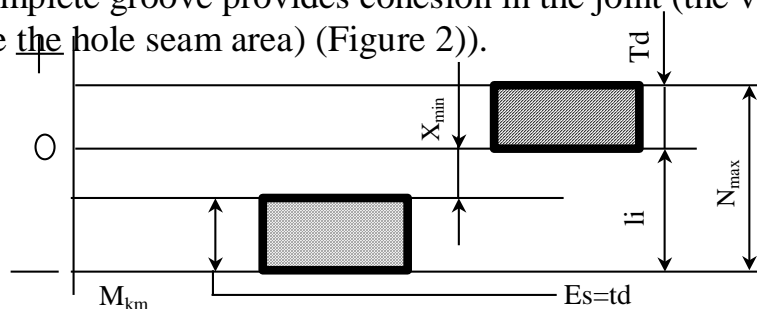
Slits and jeeps are estimated not by the accuracy of the dimensions of certain obtained details, but by the relationship in the dimensions of the adjacent surfaces. The coupling property of the two details, which differ in size before assembly, is called a groove. The details on which the grooves are attached characterize the freedom of relative movement or the ability to resist large displacement. Depending on the location of the orifice and valve insertion areas, the grooves are divided into the following three types:

The serrated groove ensures that the joint has a serrated edge (the serrated area of the orifice sits above the Valve's serrated area) (Figure 1).



**Figure 3. Sheep area of intermediate ditches**

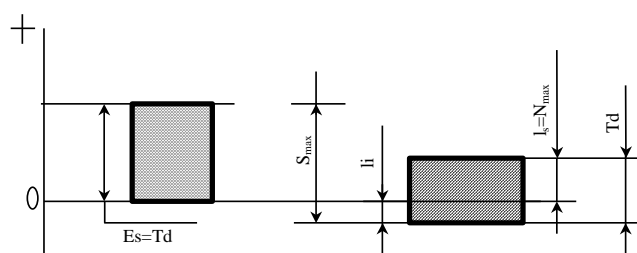
The complete groove provides cohesion in the joint (the valve seam area is located above the hole seam area) (Figure 2)).



**Figure 2. The sheep area of the slit-free ditches is.**

The intermediate groove provides the possibility of a groove or density formation in Suitable details determine the amount (permissible scattering) of possible variations of their true dimensions, that is, indicate the given accuracy of the preparation of the details, and are a positive-signal quantity. As the handle increases, the difference between the actual dimensions of the fit details increases.

The designer constructor must assign as large as possible to the details within the specified accuracy of processing, the joint (the sheath fields of the hole and shaft overlap each other) (Figure 3)).



**Figure 3. Sheep area of intermediate ditches**

### Conclusion:

Because this situation makes the productivity of work in processing and assembly gain a product quality indicator, while reducing the cost, serving positively in the selection of machines, control methods and tools for the details to be prepared [1].

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## INFORMATION ABOUT THE LICENSE CONCEPT

*Annotation: the license was approved by the resolution of 222-II-May 12, 2001, which requires the indication of activity on the territory of the Republic of Uzbekistan and was executed for a while by the executive authority of the Republic of Uzbekistan.*

*Key keys: license, activity, permission, responsible office, object, subject.*

### **Introduction**

A permit issued by the responsible office established by the Cabinet of Ministers of the Republic of Uzbekistan to deal with certain production and non-production activities is called a license. The types of activities for which the license is required are approved by the resolution of the Supreme Assembly of the Republic of Uzbekistan No. 222-II of May 12, 2001, and within the past period it has been amended in the appropriate order. The types of activities that currently require a license to be carried out are listed below [1].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

### **Results and discussion:**

Development, manufacture, repair and realization of weapons and its ammunition, protective equipment, military equipment, their spare parts, components and pribores, if not used in other industries, as well as special materials and special equipment for their manufacture.

Development, production, transportation, storage and realization of explosive and toxic substances, materials and products with their application, as well as means of detonation.

Completion (disposal, disposal, burial) and processing of emptied military equipment.

Production, repair and realization of a civil and service weapon and its ammunition.

Design, assembly, adjustment, repair and maintenance of fire-fighting automation tools, curfew, fire extinguisher and fire storage alarms.

Activity in the field of circulation of ionizing radiation sources.

Design, development, production, realization, repair and use of cryptographic means of protection of information.

Design, construction, use and repair of main gas pipelines, oil pipelines and oil products pipelines.

The introduction (withdrawal), storage, realization (delivery), distribution, transport, development and production of drugs, preparation, disposal, use of Drugs, Psychotropic Substances and precursors for scientific and educational purposes, for production needs, including in medicine and veterinary medicine, as well as the scientific cultivation of plants containing drugs.

Cultivation, importation (withdrawal), processing, storage, realization (issuance), retrieval and transportation for industrial purposes not related to the production and preparation of drugs and Psychotropic Substances.

Veterinary activities.

Pharmaceutical activities.

Design, build, use and repair bridges and tunnels.

Design, construction, use and repair of Defense objects.

Design, construction and use of high-risk facilities and potentially hazardous Productions.

Development of architectural-urban planning documentation.

Conducting an examination of construction projects.

To carry out repair, construction and installation work on the heights through the methods of industrial alpinism.

Transportation of passengers and goods by rail on local and international routes.

Transportation of passengers and cargo by road in the city, around the city, on intercity and international routes.

Design, build, use and service telecommunications networks.

Extraction, processing and realization of oil, gas and gas condensate.

Extraction of precious and rare metals, precious stones.

The realization of petroleum products (autobenzine, aviabenzine, extrabenzine, diesel fuel, aerocerosine, mazut, stove cattle, oil bitumen, as well as technical oils and lubricants), with the exception of those packed in containers at the plant.

Production of consumer and technical ethyl alcohol, alcohol product (except natural wine).

Banking.

Conducting transactions in foreign currency by banks.

Production of securities blanks.

Professional activities in the securities market.

Assessment activities.

Insurance activities of insurers and insurance brokers.

Audit activities.

Lombard activity.  
Organization of lotteries.  
Law practice.  
Establishment of a customs warehouse.  
Establishing a duty-free department store.  
Warehouse in customs mode-establishment of a " free warehouse".  
Geodetic and cartographic activities.  
Publishing activities.  
Activities in the field of provision of non-state educational services.  
Activities of religious educational institutions.  
Reproduction of audiovisual works, phonograms and programs created for exposure.  
Preparation of phonograms.  
Performing concert-performance activities.  
Exchange activities.  
Tourism activities.  
Wholesale alcohol products.  
Production of tobacco products.  
Activities of microcredit organizations.  
Development, production, transportation, storage, realization, use, disposal and disposal of pyrotechnic items (in addition to products of military purpose).  
Realtor activity.  
Activities of credit bureaus.  
Activities for the sale of uniformed clothing of approved samples of military personnel and employees of ministries, departments and organizations.  
Production of jewelry from precious metals and precious stones, as well as other items.  
Activities of private employment agencies on the employment of persons looking for work outside the Republic of Uzbekistan.  
Activities for the preservation of real estate objects of material cultural heritage.  
The activities of the operator of payment systems.  
Activities of payment organizations.  
Private notarial activity.  
Activities in the field of use of Atomic Energy.

**Conclusion:**

The license issued by the responsible office, established by the Cabinet of Ministers of the Republic of Uzbekistan, allows the production and service of products that are only certified in the appropriate order [2,3,4,5,6,7,8,9,10,11,12].

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## **DIFFERENT WAYS TO DETERMINE THE VALUE OF THE MEASURED QUANTITIES**

*Abstract: when the desired magnitude is found directly as a result of an experiment (for example, measuring the diameter of a shaft in micrometers), such a measurement is called a direct measurement. In the case of a median measurement, the value is determined by measuring other quantities that are functionally related to it (for example, determining the angle of a cone by two diameters and the distance between them). Instrumental measurement is usually reduced to direct measurement*

*Keywords: about; bowl, direct, indirect, absolute, relative, differential, complex, contact and contactless.*

### **Introduction**

Measurement methods are divided according to the application of physical principles and Means into: direct, indirect, involute, relative, defferential, complex, contact and non-contact [1,2].

If, the parameter size is determined directly based on the measurement, this is called the direct measurement method. When calculating using an instrument indicator and a specific physical link in determining magnitude, an indirect method will be used [4].

### **Materials and methods**

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

When foiled from an absalutic method, the size is correctly measured and determined (determining the size using stencils, micrometers, lenses). When using the relative method, however, the result obtained is determined by comparing it with a predetermined magnitude.(measurement using nutromer)

In the differential method, product indicators are measured separately. When measured in a complex way, the esa is determined by generalizing the product quality indicator or several other types of indicators.

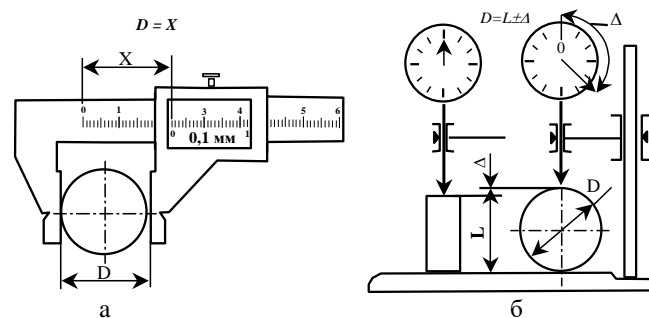
As mentioned above, the measurement method is a set of various physical principles and methods of using measuring instruments. The principle of



measurement, on the other hand, is the construction of physical phenomena on which measurements rely. Measurement styles can be distinguished by their different signs.

1. Depending on what amount of magnitude is measured in the meter device of the measuring instrument - divided into the indirect measurement (absolute measurement) method and the relative measurement (comparison by default) method.

The indirect measurement method directly determines the full amount of magnitude measured by the instrument's counting device (e.g., measurement by a shtangen pargar or micrometer), whereby the quantity indicated by the meter's counting device is equal to the magnitude value being measured, i.e.  $D = x$  (Figure 1, a).



**Figure 1. Measurement styles: a-absolute, B-relative**

### **Results and discussion:**

The default unit comparison (relative measurement) method determines the amount of deviation of the measured size from the specified default or sample detail size using the measuring instrument's counting device; in which the instrument scale is pre-zero in the template or sample detail size (Figure 1, B). The difference is determined by the size  $D$  measured by the instrument counting device, and by the middle of a certain exact size  $L$ . In this the dimension is found in terms of the expression in the sheep:

$$D = L \pm \Delta(1)$$

2. According to the method of obtaining results, measurement methods are divided into direct and mediated measurement methods.

Such a measurement is called a direct measurement if the sought amount of magnitude is found directly by experiment (for example, measuring the diameter of the shaft in micrometers).

In mediated measurement, the amount of magnitude is determined by the results of measurements of other magnitudes that are in a functional connection with it (e.g., determining the cone angle by two diameters and the distance between them). Tool measurement usually gives larger errors than direct measurement. Situational measurement techniques between the object being measured and the measuring instrument are divided into contact and contactless measurement techniques-in contact measurement style, the tip (or sensitive core)

of the instrument goes back to the surface of the detail being measured (e.g. measurement in micrometer, optimeter [4]).

In a non-contact measurement style, measuring instruments (e.g. projective measuring instruments) do not have a direct spread between the surface of the object and have no place in the problem of the effect of measurement strain on measurement results.

4. By the method of determining the suitability of an item, it is possible to distinguish between the methods of measuring by element and complex (in the complex).

#### **Conclusion:**

An item-by-item measurement is said to measure each parameter of an item separately independently.

Complex measurement is said to be the joint examination of the quality indicators of an item, that is, the measurement of all its parameters [2].

The normal condition for the use of a measuring instrument is that the factors affecting the measurement will have a nominal value. For example: normal kharorat  $t^{\circ} 20^{\circ}S$ , and work kharorat  $t^{\circ} 20 \pm 1^{\circ}$ . For example: if a change of  $\Delta X = 0.01$  mm when measuring a 100 mm quantity results in a change of the instrument's arrow  $\Delta l = 10$  mm, the instrument's absolute sensitivity is

$$S = \Delta l / \Delta x = 10 / 0,01 = 1000 \text{ is [3].}$$

Length size meshes: bar and end length meshes are used in industrial production to make the length size dressing. Bar length sizes will be in the form of a sample, line, roulette, scale element available. The length of the flat-bottomed surface meyorl will be made of steel and solid alloys and will be formed from a complex of plasticine and brusocks with a length of up to 100 mm in the form of a parallelepiped. With these plates, it is possible to dressing blocks of a wide size range, the dimensions of which differ by 0.001 mm [1].

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## DIGITAL MEASURING INSTRUMENTS

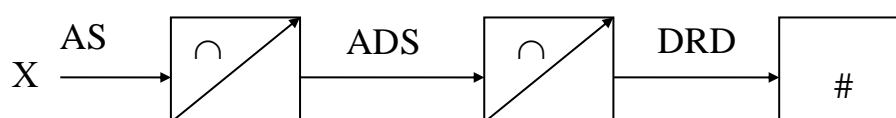
*Annotation. Being a digital measuring instrument, the result of a continuously measured magnitude in relation to a measurement is told to instruments that can be discretely modified and indexed in a digital recording device or a device that records numbers. Digital measuring instruments have the following advantages over analogs: high accuracy; wide working range; speed; convenient recommendation of measurement results; the possibility of connecting to automated networks; the possibility of automating the measurement process*

*Keywords: digital, measurement, continuous, discrete, recording.*

### Introduction

As a digital measuring instrument, the result of a continuously measured magnitude in terms of measurement is told to instruments that can be discretely modified and indexed in a digital recording device or in a number recording device. Digital measuring instruments are now very common [1].

A functional drawing of a digital measuring instrument is shown in Figure 1 [3].



**Figure 1. Functional drawing of digital measuring instrument: AS - analog switch; ADS – analog-digital switch; DRD - digital recording device.**

### Materials and methods

This includes empirical methods such as modeling, fact, experiment, description and observation, as well as theoretical methods such as logical and historical methods, abstraction, deduction, induction, synthesis and analysis. The research materials are: scientific facts, the results of previous observations, surveys, experiments and tests; means of idealization and rationalization of the scientific approach.

The analog signal " X " is converted to a convenient form for further modification at the input analog switch KAO, and then discretized and encoded using an analog-to-digital switch (ARO). Finally, the digital recording device rqq displays the information encoded by the measured magnitude in a digital recording style, operator-friendly form. Due to the convenience and accuracy of

the recommended information, digital measuring instruments have gained a wide place from research and development laboratories.

Digital measuring instruments have the following advantages over analog measuring instruments:

- high precision;
- \* wide working range;
- \* agility;
- \* convenient recommendation of measurement results;
- possible connection to automated networks;
- availability of the ability to automate the measurement process, etc.

But just as there is a fault in each spill, digital measuring instruments also have certain disadvantages [4]:

- \* complexity;
- \* height of tanning;
- \* relatively lower reliability.

But, as a result of the rapid development of integrated circuits, the above disadvantages are increasingly limited.

#### Results and discussion:

Be considered the basis of a digital measuring instrument]adi. In it, the information is discretized, then quantized and encoded. Discretization is the acquisition of records at a specific (very short) discrete time interval. Usually, an attempt is made to make the discretization step permanent. Quantization, on the other hand, is the replacement of continuous values of magnitude  $X(t)$  by a set of discrete  $x_n$  values. Continuous values of magnitude are replaced by values of quantization levels based on specific orders. Coding, on the other hand, consists of recommending the numerical values expressed in a particular sequence [5].

Discretization and quantization are the main sources of error for a digital measuring instrument. In addition, the number of quantization levels also introduces self-consistent errors.

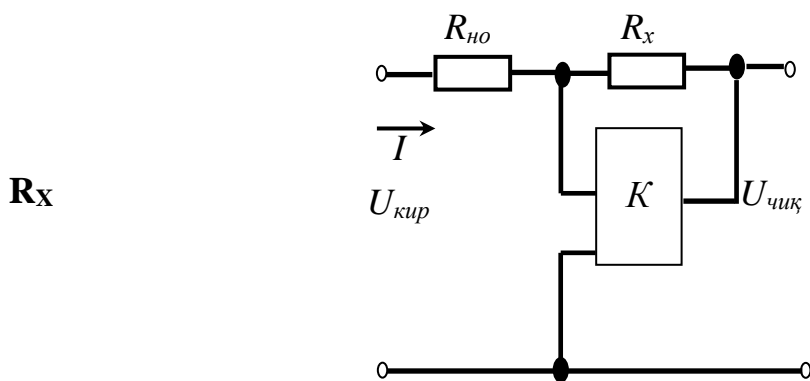


Figure 2. Combined digital instrument scheme

The rapid development of liquid crystal indicators is laying the groundwork for the compactness of digital measuring instruments, a decrease in energy consumption. The element base of modern electronics allows you to create digital measuring instruments with a wide range of capabilities.

The bulk of combined digital instruments consists of a fixed current amplifier with an integrative property. The input of combined digital instruments is connected by switches that convert alternating current to constant current, change resistance, inductance and capacitance to voltage [6].

The digital instrument circuit measuring the resistor resistance is in Figure 2, where the  $R_x$  amplifier connects to the negative reverse bond chain of K. Since the amplifier has a very large voltage amplification factor, a voltage is generated at the output of the amplifier when the resistor is connected to the RX amplifier. Because the current passing through the input of the amplifier is small, the main current goes through the resistor resistor.

Therefore, the output voltage of the amplifier will be:

$$U_{chiq} = IR_x$$

#### **Conclusion:**

Combined-duty digital instruments are designed to measure constant and variable voltage from 5 mV to 500 V, constant and alternating current from 5G to A to 500 mA, resistance from 50 Om to 5000 kOm. The above recorded parameters can be measured in the frequency range of 45-20000 Hz. It is supplied from a 220 v variable voltage network or an autonomous source of 17,5 V [3].

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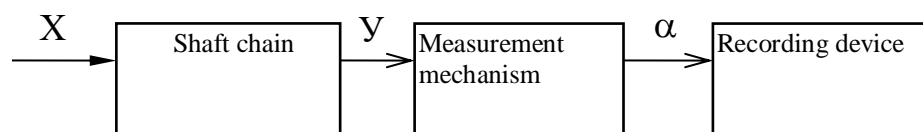
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## GENERAL INFORMATION ABOUT ELECTROMECHANICAL ANALOG DEVICES

*Abstract: direct indication electrical measuring devices (in particular electromechanical devices) can be considered as consisting of two main parts: a measuring circuit and a measuring mechanism. The measuring circuit converts the measured electrical quantity (voltage, power, frequency, etc.) into a value proportional to it and affecting the measurement mechanism. The measuring mechanism converts the electrical energy supplied to it into the mechanical energy of the moving part and the associated movement of the pointer. Electromechanical measuring mechanisms will consist of magnetolectric, electromagnetic, electrodynamic, induction and electrostatic mechanisms.*

*Keywords: measuring device, metrological properties, electromechanical, measuring circuit, measuring mechanism, dynamic mode, rest time.*

It is said that a measuring instrument is a technical instrument that is applied to the measurement and has Metrological properties that are normalized [1,2]. Analog measuring instruments or indirect pointing instruments are considered to be instruments that have a wide place in electrical measurements and measurement techniques in general. In this type of instrument, the display record will be in relation to the size being measured continuously (functionally) [3]. The structure scheme of this type of instrument is shown in Figure 1.



**Figure 1. Structure scheme of an analog measuring**

Indirect-pointing electrical measuring instruments, (specifically electromechanical instruments), can be viewed as consisting of two main parts, a measuring chain and a measuring mechanism.

The measurement loop converts the measured electrical magnitude (voltage, power, frequency, and hokazoni) to the magnitude proportional to it and affecting the measurement mechanism.

The measuring mechanism gives the electrical energy supplied to it by converting it into the mechanical energy of the excitable qicm and The Associated indicator movement. Electromechanical measurement mechanisms will consist of



magnetolectric, electromagnetic, electrodynamic, induction and electrostatic mechanisms [4,5].

Regardless of which system the measuring instruments consist of a matching mechanism, the haracitation of the excitable part of the instrument depends on the change in the energy of the electromagnetic field.

Formed under the influence of the measured magnitude, the moment that rotates the instrument indicator to the incremental side is called the rotating moment, which in general is expressed as:

$$M=dW_{ye}/d\alpha, (1)$$

where  $W_e$  is the angle at which the electromagnetic field energy is deflected, the moment - the angle at which the instrument is excited.

The above expression (8.1) can be written in a different way:

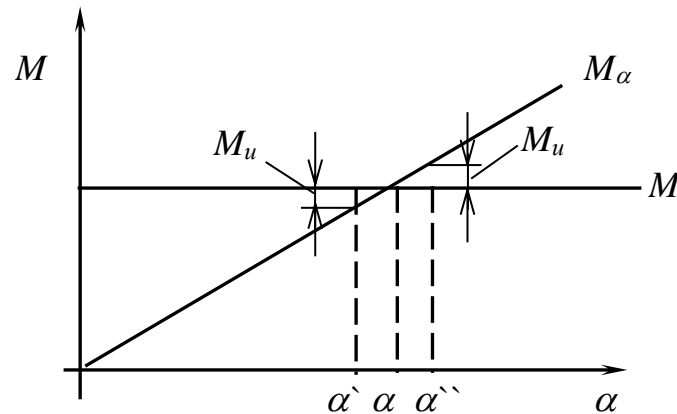
$$M=F(X_I\alpha),$$

that is, the rotating moment can be viewed as a function of the measured magnitude and the angle of inclination of the instrument drive. In addition to the torque converting it to the excitable part of the measuring instrument, the moment acting on the reflection (reverse) should also be affected. The reflection would have deviated from the scale of the instrument's arrow if there was no acting moment. The moment of reflection is in the opposite direction to the moment of rotation, and the angle of inclination of the excitable part should increase with an increase in magnitude. The excitable part is deflected by the rotating moment until the axial moment  $m$  equates to the rotating moment  $M$  ( $M=M_\alpha$ ) In many electrical measuring instruments, the torque acting on the reflection is generated by the torsion of the spring and suspension. In such a device, the moment of reflection is exactly proportional to the angle of inclination of the excitable part, i.e.,  $M$  is called the moment of reflection, where  $W$  is the torque or the constant magnitude that depends on the material of the spring and its dimensions, which is the moment corresponding to one angle of Origin ( $1^\circ$  or 1 radians).

The stationary deflection state of the excitable part of the instrument is found from the equality of the rotating and counter-acting moments  $M=M$  of the moment and it is expressed in general as:

$$\alpha=\frac{I}{W}\cdot F(X,\alpha)(2)$$

this can also be observed from the graph shown in Figure 2.



2 picture.  $M=M_{\alpha}$  count

When the instrument is operating in Dynamic mode, in other words when the instrument pointer (in drag) is excited from the position, moments other than the rotating and counter-acting moments mentioned above are also generated. These moments arise from the moment of inertia of the excitable part, the resistance of the external environment, and from the grinding current, etc., which is formed with metal elements [6].

The moment that occurs when the excitable part of the instrument moves and seeks to calm its movement is called the calming moment.

$$M_T = R(d\alpha/dt) \quad (3)$$

This moment is proportional to the calming coefficient  $R$  and to the angular velocity of the excitable Part  $d\alpha/dt$ . The calming moment to some extent determines one of the important operational parameters of the instrument - the time of calming [3].

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## FEATURES OF THE COURSE OF ISCHEMIC STROKE AND COGNITIVE IMPAIRMENT IN PATIENTS WITH DIABETES 2 TYPES

*Resume. Qualitative characteristics of cognitive disorganization in DM, clinical description of diabetes, and dependence of cognitive task State on the neurophysiological and neurochemical basis of high brain activity disorder in DM have been investigated. However, to this day, many questions related to the diagnosis, pathogenesis, phenomenology of cognitive disorders in DM remain unanswered. In recent years, attention to the problem of cognitive impairment in DM has intensified after the Association of DM with Alzheimer's disease (AD) has been found.*

*Keywords. Blood pressure, adenosindiphosphate, atherothrombotic ischemic stroke, cognitive impairment.*

**Relevance.** Diabetes mellitus (QD) is a complex dysmetabolic disease that damages many organs and systems in the body. QD is considered one of the most common causes of lower limb gangrene, blindness, terminal nephropathy, leading to the development of neuropathy and cardiovascular disease. A less well-known complication of QD is diabetic encephalopathy, which leads to cognitive decline, as well as Bmocab. Cognitive dysfunction not only disrupts the social activity of patients and leads to a deterioration in their lifestyle, but also reduces uniform control of the course of the disease, and increases the risk of developing serious complications leading to severe disability and death. Diabetes Mellitus Type 2 is one of the common diseases among the elderly. In recent years, it has been discovered that the incidence of QD has been increasing rapidly. Every 10-15 years, the number of patients in the countries of the world increases by about two times.

**The purpose of the work.** In patients with diabetes mellitus 2 Type, the characteristics of ischemic stroke are considered to be due to clichéd.

**Research materials and methods.** This research work was carried out at the Department of neurology of the Andijan State Medical Institute. The adti Clinic Department of Neurology provides emergency care to patients in the neurology section, including those with acute cerebral circulatory disorders.

Continuity of the stationary and outpatient phases can lead patients to dynamic monitoring in the outpatient phase in the neurology cabinet and somatoneurology Department, located on the territory of the adti clinic, in which secondary prevention of vascular conditions is controlled. Part of the laboratory tests (determination of the activity of the Willebrand phoni factor) were carried out in the laboratory of the adti clinic.

**Research results and their discussion.** Almost all patients who join the study complain of memory, decreased attention and exhaustion. Overall, cognitive status assessment on the MMSE scale in core group patients (type 2 vaqd II) was significantly lower than the control group ( $r < 0.01$ ). In a group of QD type 2 patients, the acute period of cognitive impairment II was found to be 90.1%, among them an average cognitive impairment of 84.9%, with an expressed kb of 15.1% in the patient. In a group of non-QD type 2 patients, cognitive activity disorder (45 people - 86.5%) during acute II: moderate cognitive impairment was found in 42 (93.3%), full expression in 3 (6.7%) patients. When comparing the results of the group under investigation, we found a statistically significant difference in patients during acute II ( $r = 0.14$ ). Hence, while QD type 2 patients had an average MMSE scale score of  $25.8 \pm 2.4$ , in QD type 2 patients this indicator showed a score of  $26.3 \pm 1.8$ . Like the main group of patients, patients of the comparative group also observed short and long-time memory, verbal recall, account impairment in the neuropsychological test. In the early days of the onset of the disease, it was found that all II patients had a statistical analysis indication of a significant difference in relation to the control group, as well as a decrease in the amount of blood plates ( $R = 0.36$ ,  $R = 0.28$  corresponding in groups). Increased tr functional activity in II was observed in increased blood plate aggregation under the action of ADF.

Based on the Wilcoxon criterion, testing its hypothesis of two sample differences in Dynamics II showed that a significant decrease in ADF-at in the primary group was observed only at the end of the acute period (day 21), in which a significant decrease was found in the second week of observation, like patients without QD type 2. It is possible that this condition is due to the large resistance of platelets to therapeutic effects in QD type 2 patients. In QD type 2 patients, the overexpressed change in ADF-inducer aggregation allows the indications of chronic hyperglycemia and platelet hemostasis to predict an aggressive effect on its consequences.

Another important description of platelet functional status is the molecular marker of R-thromboglobulin (rtg) product – TR activation. In QD type 2 patients, rtg levels were initially  $56.9 \pm 3.2$  ng/ml, in addition its levels remained unchanged during the first week of the disease, decreasing by 14% on the 21st to  $49.2 \pm 3.7$  ng/mL. Further observations on the indicators did not reveal a sharp decrease in concentration in the period indicated above, 6-  $42.6 \pm 2.1$  ng/ml per month. In the group of QD type 2 patients, rtg concentration has changed analogically, but by the 21st the rate of decline was  $38.4 \pm 3.6$  ng/ml, meaning that the decline has

decreased by almost 25%. At the conclusion of the observation (in the 6th month), this indicator was  $39.4 \pm 4.1$  ng/ml, approaching rtg levels in the control group. Analysis of Rtg decline Dynamics shows that QD type 2 patients experienced prolonged high levels of RTG, with a decrease in the result of treatment conducted showing a decrease in indicators by only the 3rd month, unlike patients without QD type 2 observed on the 14th day of observation.

**Conclusion.** In patients with ischemic stroke in patients with diabetes mellitus type 2, the level of glaucemia indicates increased thrombogenic activity in the group of deceased with glucose levels of  $13.2 \pm 0.9$  mmol/l, living patients  $8.7 \pm 1.2$  mmol/l. was significantly higher than the group ( $r < 0.05$ ). In QD type 2 patients, a correlation was confirmed between the first days of II and the concentration of blood plasma in the course of the disease. A significant difference was obtained between the severity of ii manifestations on Day 1 of the disease and the different levels of glycemia  $> 10.0$  mmol/l,  $< 10.0$  mmol/l i  $< 7.0$  mmol/L.

In QD type 2 patients, a correlation was confirmed between the first days of II and the concentration of blood plasma in the course of the disease. A significant difference was obtained between the severity of ii manifestations on Day 1 of the disease and the different levels of glycemia  $> 10.0$  mmol/l,  $< 10.0$  mmol/l i  $< 7.0$  mmol/L.

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## **PROGRESSION OF ISCHEMIC STROKE AND CHANGES IN COGNITIVE IMPAIRMENT IN PATIENTS WITH TYPE 2 DIABETES**

*Resume.* DM is a chronic dysmetabolic disorder, with hyperglycemia that is primarily due to impaired insulin secretion or its interaction with the body's cells. Chronic course, as well as disruption of all types of metabolism (carbohydrate, fat, protein, mineral and water-saline), early disability and high mortality, determine the low quality of life of patients and lead to the development of complications by many tissues and organs of the body.

*Keywords.* glycirovan hemoglobin, index atherogennosti, computed tomography, cognitive activity, cardioembolic ischemic stroke.

**Relevance.** The most severe risk factors for SbmI in DM type 2 include arterial hypertension, dyslipidemia, smoking, stenosing DM atherosclerosis of the sleep artery, hypodynamia, Anamnesis of an aggravated family in vascular brain pathology. Important features of DM type 2, such as high cardiovascular risk condition, are disorders in hemostasis tziMI with pathogenetic interconnection of DM type 2, predominance of arterial hypertension, dyslipidemia, prothrombotic factors. Thus, for QD type 2, the combined effects of several factors are characteristic and have an extremely unpleasant effect. In this case, a violation of glucose metabolism, which leads to damage to the small vessels nucleus typical for Type 2 DM, is an important component of a violation of brain hemodynamics in the potential of the effects of arterial hypertension and intra- and extracranial vascular atherosclerosis.

**The purpose of the work.** In patients with diabetes mellitus 2 Type, the characteristics of ischemic stroke are considered to be due to clichéd.

**Research materials and methods.** This research work was carried out at the Department of neurology of the Andijan State Medical Institute. The adti Clinic Department of Neurology provides emergency care to patients in the neurology section, including those with acute cerebral circulatory disorders. Continuity of the stationary and outpatient phases can lead patients to dynamic monitoring in the outpatient phase in the neurology cabinet and somatoneurology Department, located on the territory of the adti clinic, in which secondary prevention of vascular conditions is controlled. Part of the laboratory tests (determination of the activity of the Willebrand phoni factor) were carried out in the laboratory of the adti clinic.

**Research results and their discussion.** At the beginning of the study, we conducted a Results Analysis II (n=340), which depends on the presence or absence of a carbohydrate metabolism disorder (UAB). During its time in the hospital, 16.8% of patients died during acute ischemic stroke. A large proportion of deceased patients are Type II and DM type 2 patients (19.5%). In the group of patients, 18.4% of patients who were first diagnosed with carbohydrate metabolism disorders died.

An assessment of pathogenetic type II suggests that atherothrombotic (AT) II is often observed in UAB patients. Hence, 56.4% of DM type 2 and II patients were diagnosed with ischemic stroke type at, 26.5% with cardioembolic (ke) type, and 14.3% with lacunar (L) in the patient. In 2.8% of DM type 2 patients, undiagnosed pathogenesis II was observed.

During the acute course of the disease, UAB suffered an unspecified etiology in 46.3% of the first identified (56 patients) patients with Type II at, 28.7% with ke of ischemic stroke, and 18.4% with lacunar (L), 9 (6.6%) patients. UAB unobserved group 34.1% of patients were diagnosed with Type II, 31.9% with type at II, 22.1% with lacunar (L) type of ischemic stroke, and 11.9% with unspecified etiology II.

Taking into account the large rate of development of atherothrombotic type II in QD type 2 patients, we later conducted research and promising observations in exactly this category of patients.

We conducted a laboratory analysis of data, objective and subjective clinical signs, which includes comparing indicators of microreology (fragmented erythrocyte content) and macroreology (platelet and endothelial hemostasis marker), as well as a group of patients II and DM type 2 and DM type 2, without DM type II.

During the study, an analysis of subjective and objective clinical data from two investigated groups (basic and comparative) showed that all patients were diagnosed with focal neurological signs.

In the process of standard therapy carried out (MES in question for the management of OCD patients), a significant regression of neurological signs is observed in patients of QD type 2 (Group II) during the "acute" period (21 days).

In the analysis of the rate of recovery of neurological activity, a significant difference was found between groups in the acute period of stroke, and then the dynamics of recovery were equalized, no significant difference was observed 3 and 6 months later. When evaluating the rate at which any neurological activity is impaired regression, it can be noted that motor activity has recovered at the rate, and this is mainly noticeable in the comparison group. The positive dynamics in the sensory disorder relationship differed in patients of both groups, with a feeling of complete recovery observed in patients of Group II. Speech disorder regression was observed away from all, with signs of aphasia surviving until the end of the observation. The amount of patients found to have significant or complete recovery of neurological activity is listed in percentages.

**Conclusion.** In the acute course of the disease, 46.3% of the first identified (56 patients) of carbohydrate metabolism disorders had an Atherotrombotic type of ischemic stroke, 28.7% had a cardioembolic type, 18.4% had an unspecified etiology in a lacunar 6.6% patient.

In patients with ischemic stroke in patients with diabetes mellitus type 2, the level of glucaemia indicates increased thrombogenic activity in the group of deceased with glucose levels of  $13.2 \pm 0.9$  mmol/l, living patients  $8.7 \pm 1.2$  mmol/l. was significantly higher than the group ( $R < 0.05$ ). In QD type 2 patients, a correlation was confirmed between the first days of II and the concentration of blood plasma in the course of the disease. A significant difference was obtained between the severity of ii manifestations on Day 1 of the disease and the different levels of glycemia  $> 10.0$  mmol/l,  $< 10.0$  mmol/l i  $< 7.0$  mmol/L.

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## **РОЛЬ КОМПЛЕКСНЫХ СОЕДИНЕНИЙ И ПРИМЕНЕНИЕ В МЕДИЦИНЕ**

*Аннотация. В данной статье рассматривается строение, состав и роль комплексных соединений в жизни человека. Структурные особенности комплексных соединений являются ключом к изучению процессов взаимодействия металлов с лигандами и поиску новых лекарственных средств. «Металлы жизни» образуют комплексные соединения с белками, ферментами и витаминами, что позволяет полученным веществам выполнять важные функции в организме человека и животных.*

*Ключевые слова: Лекарство, препарат, комплекс, металл, лиганд, координационные соединения, гемоглобин, металлофермент, ион, ЭДТА, комплексон III, трилон Б, дентант, комплексометрия, металлопротеин, катализ.*

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## **ROLE OF COMPLEX COMPOUNDS AND APPLICATION IN MEDICINE**

*Abstract. This article discusses the structure, composition and role of complex compounds in human life. The structural features of complex compounds are the key to studying the processes of interaction of metals with ligands and the search for new drugs. "Metals of life" form complex compounds with proteins, enzymes and vitamins, which allows the resulting substances to perform important functions in the body of humans and animals.*

*Key words: Medicine, drug, complex, metal, ligand, coordination compounds, hemoglobin, metalloenzyme, ion, EDTA, complexone III, Trilon B, dentant, complexometry, metalloprotein, catalysis.*

Актуальной проблемой современной химии и медицины является создание лекарственных препаратов, обладающих улучшенными фармакологическими свойствами. Одним из важнейших способов решения этой проблемы является синтез лекарственных препаратов, на основе координационных (комплексных) химических соединений. «Металлы

жизни» образуют комплексные соединения с протеинами, ферментами и витаминами, что позволяет образовавшимся веществам выполнять важные функции в живых организмах. Следует вспомнить о широчайшем распространении комплексных соединений в окружающем нас мире. Комплексные соединения – это обширный класс неорганических и элементоорганических соединений. Они широко встречаются в природе. Многие из них выполняют важные функции в биологических системах, например хлорофилл, витамин В<sub>12</sub>, гемоглобин, металлоферменты и т.д. Комплексные соединения применяются как лекарственные средства. Комплексные соединения – это соединения, получаемые сочетанием более простых веществ. Впервые строение и свойства комплексных соединений описал швейцарский химик Альфред Вернер. В 1893 году он предложил координационную теорию строения комплексных соединений.

Комплексные соединения – устойчивые соединения высшего порядка, которые в водном растворе либо вообще не распадаются на составные части, либо распадаются в самой незначительной степени. Комплексное соединение состоит из центрального атома (иона) – комплексообразователя, связанного с ионами или нейтральными молекулами – лигандами.

Применение комплексных соединений в медицине и фармации связано в основном с их использованием в методах качественного и количественного анализа – в комплексонометрии. Широкое применение методы комплексонометрии получили после открытия органических веществ, относящихся к классу аминокислот, которые оказались прекрасными комплексообразователями. Эти соединения были названы комплексонами, а методы объёмного анализа, основанные на их применении, – комплексонометрией. К наиболее известным комплексонам относятся: - нитрилотриуксусная кислота (комплексон I), этилендиаминтетрауксусная кислота (комплексон II), двунариевая соль этилендиаминтетрауксусной кислоты (ЭДТА, комплексом III, трилон Б).

В настоящее время разработаны комплексонометрические методы определения более 80 химических элементов. Широкое распространение получила комплексонометрия в медико-биологических исследованиях. Этот метод необходим для определения в живых организмах кальция, магния и многих микроэлементов. Комплексонометрия применяется в анализе лекарственного сырья, питьевых, минеральных и сточных вод. В биологии и медицине комплексоны используются не только в аналитических целях, но и в качестве стабилизаторов при хранении крови, так как комплексоны связывают ионы металлов, катализирующих реакции окисления. Комплексоны применяются также для выведения из организма ионов токсичных металлов (Pb<sup>2+</sup>, Cd<sup>2+</sup>, Hg<sup>2+</sup> и др.), радиоактивных изотопов и продуктов их распада.

Также широко распространено применение монодентантных лигандов. В гемоглобине таким лигандом является молекула воды, а



оксигемоглобине - молекула  $O_2$ . Прочность последнего комплекса достаточна для связывания кислорода в капиллярах альвеол и переноса от легких к тканям, но вместе с тем не слишком велика, что обеспечивает своевременное высвобождение молекул кислорода при падении его парциального давления над кровью в процессе газообмена.

Помимо гемоглобина способностью связывать молекулярный кислород обладают и некоторые другие металлопротеины. Одним из них является миоглобин, содержащийся в мышцах и придающий им характерный красно-серый цвет. По своей структуре миоглобин напоминает гемоглобин, но состоит из единственной полипептидной цепи, связанной с одной простейшей группой. Основной ролью миоглобина является накопление и поддержание запаса кислорода, необходимого для выполнения мышечной работы.

В состав металлоферментов могут входить атомы как одного, так и нескольких различных металлов. Так, фермент ксантиноксидаза, катализирующий окисления пуриновых оснований и образование мочевой кислоты, содержит два атома молибдена и восемь атомов железа. Комплексы меди(2), марганца(2), кобальта(2) и молибдена(4) способствует протеканию ОВР, и участвуют в синтезе РНК и других важнейших биохимических превращениях.

Ферменты присутствуют во всех живых клетках и способствуют превращению одних веществ в другие. Ферменты выступают в роли катализаторов практически во всех биохимических реакциях, протекающих в живых организмах. К 2013 году было описано более 5000 разных ферментов. Они играют важнейшую роль во всех процессах жизнедеятельности, направляя и регулируя обмен веществ организма.

Еще одним важнейшим классом бионеорганических комплексов металлов являются транспортные комплексы, в которых один или несколько атомов металла связаны с атомами азота, кислорода или серы белковых молекул, выступающие в роли полидентантных лигандов. Одним из основных переносчиков ионов металлов в человеческом организме является низкомолекулярный белок металлотионеин ( $M_r=6500$ ), содержащий большое число цистеиновых фрагментов. Один моль металлотионина способен перенести 7-12 моль таких жизненно необходимых элементов, как Zn, Cu и Se. При отравлениях тяжелыми металлами (Cd, Hg, Pb, Ag, As) данный белок выполняет защитную функцию, связывая их в прочные и относительно малотоксичные комплексы.

Другой железосодержащий белок, трансферрин выполняет преимущественно транспортные функции. Несмотря на сравнительно низкое содержание железа (2 моль ионов  $Fe^{3+}$  на одну молекулу белка, трансферриновые комплексы обеспечивают высокую скорость тканевого обмена данного элемента и являются важными переносчиками железа.

Изучение бионеорганических комплексов дает важную информацию об особенностях их метаболизма и позволяет разрабатывать эффективные способы коррекции заболеваний, связанных с недостатком (или, наоборот, с избытком) тех или иных элементов в человеческом организме. В многочисленных экспериментах было показано, что непосредственное введение в организм катионов физиологически важных микроэлементов ( $\text{Fe}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Mn}^{2+}$ ,  $\text{Cr}^{3+}$ ) в форме их неорганических солей (например, хлоридов или сульфатов) обычно не приводит к желаемому результату, поскольку при попадании в желудочно-кишечный тракт или другие жидкие среды организма эти ионы немедленно превращаются либо в нерастворимые соединения (фосфаты, карбонаты, оксалаты) либо в прочные комплексы с разнообразными защитными белками. Кроме того, свободные катионы переходных элементов вызывают денатурацию ферментов и других белковых соединений, что приводит к разнообразным нарушениям метаболических процессов, функций внутренних органов, поражению слизистых оболочек.

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## **ВОЗДЕЙСТВИЕ ПЕСТИЦИДОВ НА РОСТ И СТАНОВЛЕНИЕ СЕЛЕЗЕНКИ ПОТОМСТВА: ПОСЛЕДСТВИЯ ДЛЯ ЗДОРОВЬЯ**

*Аннотация. Пестициды, как часть современных средств борьбы с вредителями в сельском хозяйстве, становятся все более неотъемлемой частью аграрной практики. Однако, несмотря на их эффективность в защите урожая, вопросы о потенциальных последствиях для окружающей среды и здоровья человека остаются в центре внимания. Особенно важно рассмотреть влияние пестицидов на рост и становление селезенки потомства при воздействии на организм матери.*

*Ключевые слова: пестициды, селезенка, биомаркеры развития иммунной системы, гистология, иммуногистохимия, экологическая безопасность.*

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## **IMPACT OF PESTICIDES ON THE GROWTH AND FORMATION OF THE SPLEN OF THE OFFERING: HEALTH CONSEQUENCES**

*Abstract. Pesticides, as part of modern means of pest control in agriculture, are becoming an increasingly integral part of agricultural practice. However, despite their effectiveness in crop protection, questions about the potential environmental and human health impacts remain a focus. It is especially important to consider the effect of pesticides on the growth and development of the spleen of the offspring when exposed to the mother's body.*

*Key words: Pesticides, spleen, biomarkers of immune system development, histology, immunohistochemistry, environmental safety.*

Селезенка, как орган иммунной системы, играет ключевую роль в защите организма от инфекций и других вредных факторов. Развитие селезенки в ранней стадии жизни может оказаться особенно важным для обеспечения здоровья потомства. Исследования показывают, что

пестициды могут оказывать воздействие на этот важный орган в результате экспозиции беременных животных.

Многие пестициды имеют свойство накапливаться в тканях организма, включая плоды и органы развивающегося эмбриона. Это может привести к длительному воздействию на органы и системы организма плода [1]. В случае с селезенкой, негативные воздействия могут проявляться через несколько механизмов:

**Ухудшение Пролиферации Клеток:** Пестициды могут воздействовать на процессы клеточного деления в селезенке, что может привести к снижению количества клеток и, следовательно, ухудшению функциональности органа.

**Нарушение Формирования Тканей:** Некоторые исследования указывают на то, что пестициды могут вызывать нарушения в процессах формирования тканей селезенки, что сказывается на ее структуре и функции.

**Воздействие на Иммунный Ответ:** Иммунный отклик, формирующийся в селезенке, может быть нарушен под воздействием пестицидов, что повышает уязвимость организма к инфекциям и другим болезням.

**Влияние на Развитие Потомства:** Последствия воздействия пестицидов на селезенку матери могут оказать существенное влияние на здоровье потомства. Снижение иммунной защиты, нарушение развития селезенки у плода могут быть связаны с увеличенным риском различных заболеваний в раннем детстве и в последующие периоды жизни [2].

**Актуальность Исследования:** Исследование влияния пестицидов на здоровье развивающегося организма является крайне актуальным в свете растущей зависимости общества от сельского хозяйства и широкого применения химических средств защиты растений. Активные компоненты пестицидов обнаруживаются в тканях плода и могут воздействовать на формирующиеся органы, такие как селезенка [3].

**Цель Исследования:** Целью данного исследования является глубокий анализ воздействия пестицидов на развитие селезенки у плода в период беременности и оценка последствий этого воздействия для здоровья будущего потомства. Мы стремимся разъяснить молекулярные и клеточные механизмы, определяющие изменения в структуре и функциональности селезенки под воздействием пестицидов, а также выявить связи между этими изменениями и возможными долгосрочными эффектами на иммунную систему новорожденных.

**Методология Исследования:** Влияние Пестицидов на Развитие Селезенки в Период Беременности [4].

**Литературный Обзор:** Анализ существующих исследований по воздействию пестицидов на развитие органов плода, включая селезенку.

Оценка данных о молекулярных механизмах, которые могут быть нарушены при экспозиции пестицидам.

Эксперименты на Животных: Проведение экспериментов на лабораторных животных (например, крысы или мыши), подвергнутых воздействию пестицидов в период беременности.

Исследование структуры и функции селезенки у потомства при помощи гистологических и молекулярно-биологических методов.

Анализ Тканей Человека: Использование биомедицинских баз данных и образцов тканей, взятых у пациентов с известной экспозицией пестицидам в период беременности.

Методы молекулярной биологии для выявления изменений в геномном выражении и белковой активности в тканях селезенки.

Клинические Исследования: Ретроспективный анализ данных о здоровье детей, родившихся у женщин, подвергнутых воздействию пестицидов в период беременности.

Оценка заболеваемости и степени тяжести иммунных нарушений у детей с учетом экспозиции пестицидам.

Моделирование Воздействия *in vitro*: Применение клеточных линий для изучения прямого воздействия пестицидов на клетки селезенки.

Эксперименты по культивированию тканей селезенки *in vitro* для более детального изучения молекулярных механизмов.

Статистический Анализ: Использование статистических методов для выявления статистически значимых различий в структуре и функции селезенки между группами, подвергшимися и не подвергшимися воздействию пестицидов.

Этические Соображения: Соблюдение этических норм и регуляций в проведении исследования, особенно при работе с животными и анализе данных о человеческих пациентах.

Интерпретация Результатов: Анализ полученных данных с целью определения влияния пестицидов на структуру и функцию селезенки, а также оценка возможных клинических и иммунологических последствий для потомства.

Результаты Иммуногистохимического Анализа: Изменение Экспрессии Клеток: Иммуногистохимический анализ выявил существенное снижение числа клеток CD3 (Т-лимфоциты) в селезенке потомства, рожденного у матерей, подвергшихся воздействию пестицидов. Это свидетельствует о потенциальном нарушении тимического отбора и развития Т-лимфоцитов.

Изменение Клеточных Популяций: Обнаружены аномалии в распределении клеток CD20 (В-лимфоциты) в селезенке у потомства из экспериментальной группы. Это может указывать на нарушения в формировании клеток иммунной системы, ответственных за антитела.

**Интенсивность Экспрессии Иммунологических Маркеров:** Иммуногистохимический анализ также выявил уменьшение интенсивности окрашивания для белков, связанных с макрофагами и дендритными клетками в селезенке потомства из группы с воздействием пестицидов. Это может указывать на снижение активности фагоцитарных клеток и антиген-презентирующих клеток.

**Гистологический Анализ: Изменение Структуры Тканей:** Гистологический анализ тканей селезенки показал наличие дистрофических изменений в архитектуре органа у потомства, происшедшего под воздействием пестицидов. Это включает в себя утолщение капсулы и дисперсию лимфатических узоров [5].

В целом, наше исследование подчеркивает важность осторожного отношения к применению химических веществ в сельском хозяйстве, особенно при беременности. Это не только вопрос безопасности для матери, но и защиты здоровья.

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