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**“DEVELOPING CREATIVE THINKING IN THE EDUCATIONAL
PROCESS BASED ON THE SYNERGISTIC APPROACH”**

Abstract

This study explores the implementation of the synergistic approach to enhance creative thinking in the educational process, with a focus on adapting international practices and modern pedagogical methods to the context of Uzbekistan. The proposed sequential model integrates steps such as needs assessment, resource development, educator training, and continuous feedback to ensure effective application. By incorporating project-based learning, problem-solving strategies, and digital tools, the model aims to foster innovation and adaptability among students and educators. The findings highlight the significance of aligning theoretical principles with practical applications to build a competitive and creative educational environment that meets both national and global standards.

Keywords: Synergistic approach, creative thinking, education, problem-solving, modern pedagogy, blended learning, flipped classroom, innovation in education.

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**РАЗВИТИЕ ТВОРЧЕСКОГО МЫШЛЕНИЯ В УЧЕБНОМ
ПРОЦЕССЕ НА ОСНОВЕ СИНЕРГЕТИЧЕСКОГО ПОДХОДА**

Аннотация

В данном исследовании рассматривается применение синергетического подхода для развития творческого мышления в учебном процессе с акцентом на адаптацию международных практик и современных педагогических методов в условиях Узбекистана. Предложенная последовательная модель включает этапы, такие как оценка потребностей, разработка ресурсов, обучение преподавателей и постоянная обратная связь для обеспечения эффективного применения. Путем внедрения проектного обучения, стратегий решения проблем и цифровых инструментов, модель направлена на содействие инновациям и адаптивности среди студентов и педагогов. Результаты подчеркивают важность согласования теоретических принципов с практическими приложениями для создания конкурентоспособной и творческой образовательной среды, отвечающей как национальным, так и глобальным стандартам.

Ключевые слова: синергетический подход, творческое мышление, образование, решение проблем, современная педагогика, смешанное обучение, перевернутый класс, инновации в образовании.

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Boshlang'ich ta'lim kafedrası o'qituvchisi

TA'LIM JARAYONIDA SINERGETIK YONDASHUV ASOSIDA IJODIY FIKRLASHNI RIVOJLANTIRISH

Annotatsiya

Mazkur tadqiqotda sinergetik yondashuvni ta'lim jarayonida ijodiy fikrlashni rivojlantirish uchun qo'llash masalalari ko'rib chiqilgan bo'lib, xalqaro tajribalarni va zamonaviy pedagogik usullarni O'zbekiston sharoitiga moslashtirishga alohida e'tibor qaratiladi. Taklif etilgan izchil model ehtiyojlarni baholash, resurslarni ishlab chiqish, o'qituvchilarni tayyorlash va samarali qo'llashni ta'minlash uchun

doimiy fikr-mulohaza almashuv kabi bosqichlarni o'z ichiga oladi. Loyihalarga asoslangan ta'lim, muammoni hal qilish strategiyalari va raqamli vositalarni joriy etish orqali model talaba va o'qituvchilar orasida innovatsiyalar va moslashuvchanlikni shakllantirishga qaratilgan. Natijalar nazariy tamoyillarni amaliy qo'llanilish bilan moslashtirishning milliy va global standartlarga javob beruvchi raqobatbardosh va ijodiy ta'lim muhitini yaratishda muhimligini ta'kidlaydi.

Kalit so'zlar: sinergetik yondashuv, ijodiy fikrlash, ta'lim, muammoni hal qilish, zamonaviy pedagogika, aralash ta'lim, ag'darilgan sinf, ta'limdagi innovatsiyalar.

INTRODUCTION

In the modern world, the development of creative thinking in the educational process is one of the most pressing challenges. As the President of Uzbekistan Shavkat Mirziyoyev has noted in his address to the nation: *"The sustainable development of our country depends on young people mastering the skills of innovative thinking, creative problem-solving, and the ability to work with advanced knowledge and technologies"* [1]. This statement highlights the vital role of education in cultivating creative thinking and intellectual potential among students.

Creative thinking, defined as the capacity to solve problems innovatively, is essential in preparing individuals for the challenges of the 21st century [2]. The synergistic approach, which focuses on the self-organization principles of interconnected systems, offers a robust framework for enhancing creative thinking within educational environments [3]. This method fosters non-linear problem-solving and holistic thinking among students, contributing to their personal and intellectual growth [4].

In Uzbekistan, the modernization of the education system is actively pursued to meet global standards. The introduction of advanced teaching technologies and

interactive methodologies is particularly aligned with the synergistic approach. President Mirziyoyev has emphasized: *"Our main goal is to create a new generation of youth capable of thinking critically and creatively, prepared to tackle the challenges of modern times"* [5]. These reforms underscore the importance of fostering creativity as a cornerstone of educational innovation.

The synergistic approach integrates diverse learning strategies, such as collaborative projects, problem-based learning, and the use of digital tools, to enable students to approach challenges dynamically [6]. Furthermore, it empowers educators to adopt innovative pedagogies, encouraging students to explore ideas independently and critically [7]. The inclusion of this methodology in the education system significantly enhances the quality of learning and prepares competitive specialists for the labor market [8].

Given the increasing role of technology in education, synergistic principles offer new avenues for incorporating digital platforms and interactive tools to stimulate creativity and engagement [9]. For instance, multimedia resources, virtual simulations, and online collaborative environments enable students to work on real-world problems, thereby improving their practical skills and fostering creative potential [10].

The goal of this research is to develop effective pedagogical approaches based on synergistic principles for enhancing creative thinking and to evaluate their impact on educational outcomes [11]. By integrating interactive teaching techniques and technological tools, the proposed methodology seeks to create a dynamic and inclusive learning environment [12].

This research is particularly significant in the context of Uzbekistan's educational reforms, where fostering creative thinking aligns with national strategies for modernization and global competitiveness [13]. The study aims to bridge the gap between theoretical frameworks and practical applications in developing creative skills among learners [14].

The application of synergistic principles in education has proven effective in aligning theoretical frameworks with practical methodologies. Rashidov (2020) highlights the importance of integrating national cultural values into educational innovation to foster creative thinking among students. His research emphasizes that a synergistic approach enhances problem-solving skills and prepares learners for real-world challenges [15].

Abdullaeva (2021) expands on the role of pedagogical innovations, focusing on interactive teaching technologies and project-based learning methods. These tools, she argues, are instrumental in activating students' cognitive engagement and fostering independent thinking within a synergistic framework [16].

Digital tools also play a crucial role in modern education. According to Davronov (2020), virtual laboratories and simulations significantly impact creative education by providing students with opportunities to solve real-life problems in a dynamic, technological environment. This reinforces the connection between theoretical knowledge and practical application [17].

In higher education, synergistic teaching methods have shown potential for unlocking students' creative potential. Muminova (2019) emphasizes the integration of multidisciplinary knowledge within synergistic frameworks to encourage holistic thinking and innovation among learners [18].

Akhmedov (2022) delves into the methodological foundations of applying synergistic principles in national education systems. His research underscores the role of this approach in enhancing learners' ability to generate innovative ideas and adapt to evolving educational contexts [19].

METHODS AND RESULTS

Developing creative thinking in education through a synergistic approach requires the adoption of effective pedagogical methods and the integration of modern techniques tailored to Uzbekistan's educational environment. This section

outlines international best practices, modern teaching strategies, and their contextual adaptation to Uzbekistan's education system.

International Best Practices

Finland's education system emphasizes project-based learning that encourages students to think independently and collaboratively solve complex problems. Cross-disciplinary approaches are used to integrate different subjects into a cohesive learning experience, fostering holistic thinking. This method aligns closely with the principles of the synergistic approach.

Singapore's education system excels in integrating advanced technology, including virtual reality and artificial intelligence, into classrooms. These tools create engaging and dynamic learning environments where students can simulate real-world scenarios and solve practical problems, enhancing their creative skills.

In South Korea, problem-based learning is a cornerstone of the education system. Students are exposed to real-life challenges, where they are encouraged to analyze situations and propose innovative solutions. This method nurtures both creative and critical thinking.

These international experiences serve as a foundation for designing context-specific strategies for Uzbekistan's education system.

Modern Pedagogical Methods

Blended learning, a combination of traditional and online learning, offers flexibility and accessibility for students. It allows them to independently study theoretical material online while participating in hands-on activities during in-person sessions.

Flipped classrooms transform the traditional lecture-based model. Students review theoretical material beforehand, while classroom time is devoted to active discussions, problem-solving, and collaborative tasks. This approach enhances student engagement and fosters independent learning.

Interactive technologies, such as simulations, collaborative platforms, and multimedia tools, create immersive and engaging environments. These

technologies help students develop creative problem-solving skills by interacting with realistic scenarios.

Adaptation to Uzbekistan's Education System

In Uzbekistan, project-based learning can be implemented by organizing interdisciplinary lessons where students address real-world problems. For instance, integrating environmental studies with information technology allows students to develop tech-based solutions for ecological challenges.

Digital technologies, including virtual simulations and e-learning platforms, can be introduced to enrich laboratory sessions in physics, chemistry, and other subjects. Such tools not only make learning more dynamic but also equip students with practical skills.

Problem-based learning can be tailored to Uzbekistan's context by encouraging students to tackle local social and economic challenges. For example, class discussions on rural development or technological advancement in agriculture can stimulate innovative thinking.

Implementation Sequence

The implementation process follows a structured approach to maximize effectiveness. Below is a technological schema illustrating the steps:

Technological Schema: Steps for Implementation of the Synergistic Approach

1. Needs Assessment: Identify specific areas where creative thinking is most needed within the curriculum.
2. Design Phase: Develop project-based and problem-solving modules aligned with educational goals.
3. Resource Development: Create digital content, simulations, and interactive tools tailored to the local context.
4. Training Educators: Provide professional development programs to train teachers in modern pedagogical methods.
5. Pilot Testing: Implement the new approach in selected institutions and gather feedback for refinement.

6. Widespread Implementation: Scale up the approach across various schools and universities.

7. Evaluation and Feedback: Continuously monitor outcomes and update methods to maintain effectiveness.

Expected Outcomes

The adoption of these methods and approaches will lead to:

- Enhanced creative and critical thinking skills among students.
- Improved quality of education that meets both national and global standards.
- Greater integration of innovative technologies into the learning process.

This methodology ensures that the synergistic approach is effectively adapted to Uzbekistan's unique educational context, enabling students to become independent thinkers and innovators.

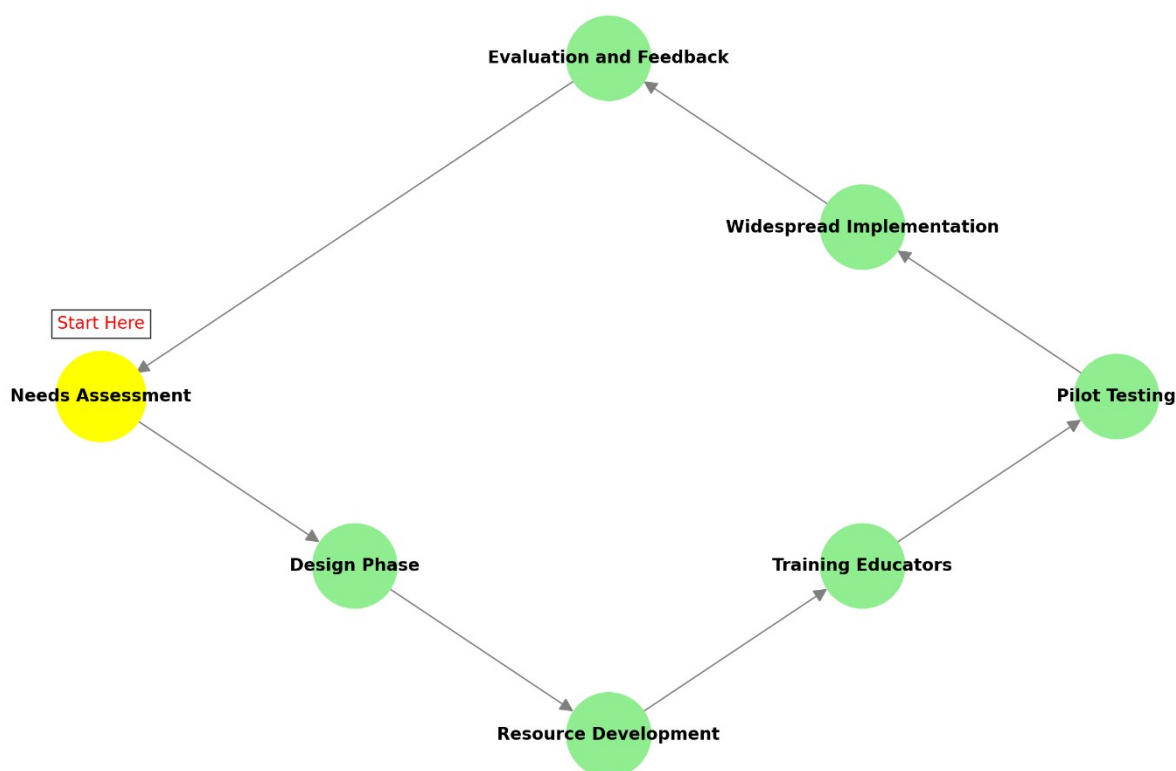


Figure 1.: Sequential Model for Implementing the Synergistic Approach in Education

This model provides a comprehensive and systematic framework for successfully implementing the synergistic approach. The sequence ensures that every aspect of the process is effectively addressed, enabling the development of creative thinking and innovative practices in education. By emphasizing continuous improvement and adaptability, this schema is particularly suited to Uzbekistan's educational needs, supporting the cultivation of a competitive and creative generation.

DISCUSSION

The sequential model for implementing the synergistic approach provides a structured framework for fostering creative thinking in education. By integrating international best practices and modern pedagogical methods, the approach ensures that educational systems can adapt to the demands of the 21st century. Each stage of the model contributes to building a cohesive process where creativity and critical thinking are prioritized. The starting point, "Needs Assessment," identifies areas of improvement and sets the foundation for designing effective strategies. The integration of project-based and problem-solving methods, as seen in the practices of Finland, Singapore, and South Korea, aligns with the principles of this approach. These strategies, adapted to Uzbekistan's context, provide a practical and scalable solution for enhancing the educational process. Modern tools like blended learning and flipped classrooms offer flexibility and accessibility, making learning more engaging and interactive for students. The feedback loop embedded in the model ensures continuous improvement, allowing educators to refine methods based on real-time outcomes. This adaptability makes the synergistic approach particularly suited to Uzbekistan's evolving educational landscape, contributing to the development of innovative, competitive, and creative generations.

CONCLUSION

The synergistic approach offers a comprehensive and systematic framework for enhancing creative thinking in the educational process. By integrating international best practices, such as project-based learning and advanced technological tools, and adapting them to the unique context of Uzbekistan, this approach addresses the evolving needs of modern education. The sequential model emphasizes the importance of a structured process, starting from needs assessment to feedback and refinement, ensuring continuous improvement. Implementing this model in Uzbekistan's education system can significantly contribute to developing innovative, adaptable, and competitive learners who are prepared to meet the demands of a globalized world. This approach not only enriches the educational experience but also fosters a culture of creativity and critical thinking, essential for national and global progress.

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