

THE ROLE OF ARTIFICIAL INTELLIGENCE IN FOSTERING CREATIVE IDEAS AND INNOVATION IN PRIMARY EDUCATION

*G.M. Haydarova, Lecturer at the Department of Theory and Practice of Primary
Education, Chirchik State Pedagogical University*

*Candidate of Education and Sports Sciences Zsolt Nemet, Department of
Sport Theory and Methodology, University of Pécs*

Kaljanova Lazzat Igilikovna

Primary Education Teacher at School No. 17, Chirchik City

Abstract:

This article examines the role of artificial intelligence (AI) in monitoring creative ideas in the primary education system, fostering independent thinking and innovation in students. It emphasizes that the use of AI contributes to the personalization of the educational process, the automatic acquisition of didactic materials, and the application of interactive teaching methods. The paper also analyzes the impact of AI-oriented developments on the activities of teachers in the context of modern pedagogical technologies.

Introduction

Artificial intelligence is triggering revolutionary changes in the modern education system, shaping new approaches across various fields, including primary education. AI technologies, especially in education, are creating vast opportunities for developing creativity and enhancing students' innovative thinking. This article analyzes the role of AI in generating creative ideas in primary education and its influence on the educational process.

Artificial Intelligence and Creativity: Key Concepts

Artificial intelligence refers to a set of technologies that enable machines to think, learn, make decisions, and solve problems like the human brain. AI systems—such as neural networks, machine learning, natural language processing (NLP), and computer vision—facilitate data analysis, assimilation, and the generation of new ideas and approaches. These systems model and automate intellectual processes typically performed by humans. For example:

- **Neural networks** are mathematical models that mimic the structure of the human brain, enabling machine learning.
- **Machine learning** allows systems to learn from large datasets, adapt to new conditions, and make predictions.
- **Natural language processing (NLP)** enables computers to understand, translate, generate, and analyze human language.
- **Computer vision** technologies process images and videos, recognize objects, and perform a wide range of visual tasks.

AI applications span numerous sectors—healthcare, finance, transportation, education—leading to revolutionary transformations.

Creativity, on the other hand, is the ability to generate new and original ideas, solutions, and products. Fostering creativity in education means not only acquiring knowledge but also encouraging students to create, think innovatively, and solve problems creatively.

The Role of AI in Generating Creative Ideas in Primary Education

1. Individualized Approach to Students

AI plays a key role in identifying and meeting students' individual learning needs through adaptive learning systems. Using machine learning algorithms, educational content can be tailored to each student's level, interests, and needs. This approach creates a favorable environment for developing students' creative abilities, allowing them to learn at their own pace and in alignment with their interests.

2. Supporting Creative and Design Processes

AI helps improve the process of generating and designing new ideas in education. Through computer vision and NLP technologies, students can analyze visual and textual materials, create new shapes and designs, and enhance their imagination. This fosters creative thinking and enhances students' capacity to develop innovative ideas.

3. Virtual and Augmented Reality Technologies

With the help of Virtual Reality (VR) and Augmented Reality (AR), students can create and explore new worlds in virtual environments. AI enhances these technologies, enabling students to implement creative ideas virtually. For example, with AR, students can recreate historical monuments or interactively explore subjects like geometry or art.

AI-Enabled Collaboration in Idea Generation

AI's machine learning and NLP capabilities play a crucial role in improving collaboration among students. When working together on projects, AI systems help students exchange ideas and develop creative solutions more effectively. This type of interaction supports the generation of new, innovative ideas.

Advantages of AI in Fostering Creativity in Primary Education

1. **Interactive and Personalized Learning:** Tailored learning processes increase the opportunities for generating creative ideas.

2. **Experimentation with Innovative Technologies:** Students can test themselves in virtual environments using AR/VR technologies and develop creative projects.

3. **Collaborative Learning and Idea Sharing:** Interaction among students fosters the development of creative solutions.

4. **Motivation and Engagement:** AI technologies can boost students' confidence and interest in developing their creative potential.

Conclusion

The role of artificial intelligence in fostering creative ideas in primary education is of great significance. It offers students personalized learning, access to innovative technologies, and opportunities for collaborative work. With AI, education goes beyond knowledge acquisition—it enables creative thinking and innovation. AI opens new possibilities in education and enhances the efficiency of developing creative ideas.

Moreover, AI provides personalized learning experiences tailored to students' individual needs and interests, enhancing the effectiveness of the learning process. The integration of innovative technologies such as robotics,

VR, and AR helps students learn new tools and create creative projects. Collaborative platforms allow students to share ideas and work together on creative solutions.

AI's automated analysis and assessment capabilities also support teachers by identifying students' strengths and weaknesses, allowing for optimized and personalized teaching methods. This approach not only improves students' academic performance but also inspires them to think creatively, solve problems innovatively, and develop new ideas. AI also supports teachers in making the learning process more efficient and interactive.

References

1. Mirzaeva, G. Sh., & Tashkhodjaeva, M. R. (2020). *Artificial Intelligence and Education*. Ministry of Education of the Republic of Uzbekistan.
2. Kholmurodov, A. (2021). *The Impact of Artificial Intelligence on Pedagogical Processes*. Uzbekistan Pedagogical University Press.
3. Rahmonov, B. S. (2022). *Creative Thinking and Artificial Intelligence in Primary Education*. Journal of Education and Technologies.
4. Shukurov, M. (2023). *Enhancing the Educational Process through Creative Ideas and AI*. Journal of Innovative Educational Technologies.
5. Karimova, D. A. (2020). *Integration of Artificial Intelligence in Primary Education*. Pedagogical Research.
6. Ismailov, Z. (2021). *The Role of Artificial Intelligence in Developing Creative Thinking*. Pedagogical Scientific Journal.
7. Abdurahmonov, S. A., & Yuldashev, T. (2022). *Creative Approaches in AI and Education*. Uzbekistan Scientific-Pedagogical Journal.
8. Turaev, O. (2021). *New Methodologies in AI and the Education System*. Journal of New Pedagogical Technologies.
9. Haydarova, Gulruh. (2025). *Scientific Research "Explanatory Dictionary of the Uzbek Language"*.
[https://www.researchgate.net/publication/392667622_NAUCNOE_ISSLEDOV
ANIE_SLOVAR_OBASNITELNYJ_UZBEKSKOGO_AZYKA/references](https://www.researchgate.net/publication/392667622_NAUCNOE_ISSLEDOV_ANIE_SLOVAR_OBASNITELNYJ_UZBEKSKOGO_AZYKA/references)

10. Axmadaliyeva, Mahliyo. (2025). THE POETRY OF THE POET AND THE CURRENT LITERARY PROCESS. Mental Enlightenment Scientific-Methodological Journal. 5. 18-25. 10.37547/mesmj-V5-I4-03.

11. Ibodullayeva, Sevara. (2025). surxon maqola S.M Ibodullayeva. https://www.researchgate.net/publication/392667101_O'ZBEK_TILINING_IZO_HLI_LUG'ATIDAGI_RUS_TILI_ORQALI_KIRGAN_SOZLARNING_MIQD_ORI_VA_ULARNING_LUGATDAGI_BOSHQA_SOZLARGA_NISBATI

12. Dildora, Ibragimova. (2024). JAHON ADABIYOTIDA TARIXIY NASR JANRINING PAYDO BO'LISHI VA TAKOMILI. https://www.researchgate.net/publication/392093814_JAHON_ADABIYOTIDA_TARIXIY_NASR_JANRINING_PAYDO_BO'LISHI_VA_TAKOMILI

13. Сулейманова, Севара. (2025). ИННОВАЦИОННОЙ ПРОЦЕСС СОВРЕМЕННОГО УЧИТЕЛЯ. European Journal of Interdisciplinary Studies. 1. 15-20. https://www.researchgate.net/publication/392599330_INNOVACIONNOJ_PROCESS_SOVREMENNOGO_UCITELA

14. Abdullayeva, Uljalg'As. (2025). STEAM TEXNOLOGIYALARINING BUGUNGI KUNDAGI AHAMIYATI VA AFZALLIKLARI. Экономика и социум. 14.2025. https://www.researchgate.net/publication/392718323_STEAM_TEXNOLOGIYALARINING_BUGUNGI_KUNDAGI_AHAMİYATI_VA_AFZALLIKLARI

15. Inomjonovna, I. D. FACT AND INTERPRETATION IN THE REPRESENTATION OF HISTORICAL FIGURES.