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IMPROVING THE EDUCATIONAL AND UPBRINGING PROCESS THROUGH THE USE OF ARTIFICIAL INTELLIGENCE TECHNOLOGIES

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Abstract: This article analyzes the role of artificial intelligence (AI) technologies in the education and upbringing system, their theoretical and practical aspects of application, advantages, and existing challenges. It also highlights the impact of AI-based educational tools on teachers' and learners' activities, as well as mechanisms for integrating AI into the educational process.

Key words: artificial intelligence, digital education, innovative technology, adaptive learning, automated assessment, learner-centered education, digital competence, pedagogical innovation

In the 21st century, artificial intelligence (AI) is bringing revolutionary changes to the field of education. Artificial intelligence technologies not only improve teaching and learning processes, but also help create new opportunities for students and teachers. This article examines the role and impact of artificial intelligence in education. Artificial intelligence is one of the fastest-developing fields among modern technologies. Its application in education plays an important role in modernizing the learning process, increasing its effectiveness, and ensuring an individualized approach.

Today, great importance is being attached in every country to the development of modern technologies and artificial intelligence, and in particular to the introduction of these technologies into science and education. It cannot be denied that these areas serve as driving forces for overall development. The rapid implementation of information technologies in the education system expands the scope of application of modern technologies. At the same time, it is possible to highlight the developing directions of modern information technologies in education. Through these processes, we can achieve effective results and significant progress.

Today, as in all sectors of our country, distinctive innovations are also taking shape in the education system. In particular, the technologization of education, increasing the effectiveness of teaching, and applying new pedagogical technologies that are entering our social life into the educational process remain among our main tasks. This is because the rapid adoption of new pedagogical and information technologies, their analysis, theoretical generalization, drawing conclusions, and delivering them to students are among the most pressing issues. The prospects for the development of pedagogical technologies are ensured through critical analysis of their theoretical foundations and the establishment of effective approaches to the educational process. That is, within a certain period, by changing the theoretical foundations of pedagogical technologies, it becomes possible to change their "problem field" as well. Organizing the educational process on the basis of a technological approach requires the positive solution of a number of didactic tasks. We can also observe that the introduction of this approach into the education system has yielded good results. Conducting lessons using newly innovated programs is also becoming one of today's main strategies, and it would not be an exaggeration to say so.

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Artificial intelligence can be applied in the educational process in the following key areas:

Adaptive learning systems – platforms that automatically adjust tasks according to learners' individual achievement levels (e.g., Coursera, Khan Academy, Duolingo).

Automated assessment systems – evaluation of written assignments, tests, or essays using AI algorithms, enabling rapid processing of results.

Virtual teachers and chatbots – AI agents that provide round-the-clock support and answer learners' questions.

Learning analytics – monitoring learners' activities, identifying strengths and weaknesses, and developing individualized learning pathways.

All these areas not only automate the learning process but also function as supportive tools for teachers rather than completely eliminating the human factor. In the near future, AI-based "smart learning environments," "virtual teachers," and "digital mentors" are expected to be widely implemented. Such systems will help learners acquire not only knowledge but also essential life skills. In addition, analytical platforms for teachers, automated reporting systems, and online assessment mechanisms will be further improved. Artificial intelligence facilitates teachers' professional activities by automatically analyzing students' learning outcomes, reducing human error in assessment, saving time, and allowing greater focus on educational content. From the learners' perspective, AI technologies provide positive outcomes such as personalized learning pathways, interactive learning environments, and the development of skills including critical thinking, problem-solving, and creativity.

Moreover, AI tools can elevate the upbringing (moral and character education) process to a new level. For example, AI-based virtual scenarios, role-playing games, and problem-based situations can introduce interactivity into moral education and value formation. There are several challenges in implementing AI technologies in education, including insufficient technical infrastructure, low levels of teachers' digital literacy, and ethical and privacy concerns related to AI usage. To overcome these challenges, it is necessary to introduce professional development programs focused on digital competence and AI literacy for teachers, equip educational institutions with adequate technical resources, and develop ethical codes and strengthen legal frameworks for the use of AI. In recent years, international AI-based educational platforms such as Google Classroom AI Assistant, ChatGPT for Education, Squirrel AI Learning, and Duolingo Max have demonstrated significant improvements in learners' academic performance. In Uzbekistan, the use of AI elements in digital projects such as "MySchool," "EduAI," and "Bilim" is also expanding. This represents an important step toward integrating the national education system into the global digital educational space.

Artificial intelligence technologies are increasingly recognized as a powerful innovative driver in the education and upbringing process. They enhance the quality of education, strengthen learner-centered approaches, and help reveal learners' individual abilities. However, for effective implementation, it is essential to develop teachers' digital culture, establish ethical and regulatory standards, and strengthen technical infrastructure. Therefore, the proper and pedagogically grounded application of AI technologies will reinforce the foundation of future

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education and make a significant contribution to the innovative development strategy of education and upbringing in Uzbekistan.

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