

## THE USE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

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**Annotation.** Artificial intelligence transforms education by personalizing learning and empowering educators. Ethical considerations and responsible implementation are paramount to ensure equitable access and prevent biased outcomes. Prioritizing critical thinking and digital literacy alongside this approach prepares students for a future shaped by increasingly intelligent systems.

**Keywords:** technological revolution, artificial intelligence, individual learning, modern education.

**Introduction.** Artificial Intelligence (AI) is rapidly transforming various aspects of modern life, and education is no exception to this technological revolution. In an era of digital transformation, where information is increasingly accessible and skills are becoming obsolete at an unprecedented rate, traditional approaches to learning are proving less and less effective. AI offers unique tools to optimize the educational process, increase the efficiency of teachers, and create a learning environment tailored to the individual needs of each student.

The integration of AI into the education system not only contributes to improving the overall quality of education but also significantly expands access to high-quality education, making it more inclusive and democratic. Through the use of AI, educational institutions can create flexible and adaptive programs that take into account the unique characteristics and needs of each learner. This personalization is particularly important in a rapidly changing world where the ability to adapt to new conditions, quickly absorb new information, and creatively solve complex problems is critical. Therefore, the transition to personalized, data-driven education is becoming not just desirable but vital. In this context, AI is not just a technological tool but a strategic partner capable of radically changing the learning paradigm and preparing a new generation for the challenges of the future.

**Main part.** Personalized learning, one of the most promising directions in the development of modern education, is based on adapting learning materials and methods to the individual needs of each student. AI plays a central role in this process, providing powerful tools for analyzing large amounts of data and dynamically adapting educational content.

Using machine learning algorithms, AI can analyze student behavior during the learning process, identify their strengths and weaknesses, and predict their future successes and failures. This allows for the creation of individual learning plans that take into account not only the student's current level of knowledge but also their learning style, interests, and goals. Personalized learning allows students to learn material at a comfortable pace and at an appropriate level of difficulty, which significantly increases their motivation and, as a result, improves academic results.

Innovative platforms such as Khan Academy, Coursera, and edX actively use AI to track student progress and promptly adjust learning trajectories. For example, if a student is having difficulty understanding a particular topic, the system can automatically offer additional resources, interactive exercises, or alternative explanations tailored to the student's learning style and prior experience. For example, if a student prefers visual learning, they will be offered video lessons and infographics, and if they learn information better through practice, they will be offered additional exercises and tasks. This allows students to focus on acquiring the knowledge and skills they need at the moment, avoiding wasting time repeating already learned material or studying irrelevant information.

Moreover, AI can be used to create individual learning plans that take into account not only the current level of knowledge but also the personal interests and goals of the student. For example, if a student shows interest in programming, the system can offer them additional courses and

projects that will help them develop their skills in this area. This approach, based on a deep analysis of individual needs, promotes a deeper and more conscious understanding of the material, as well as the formation of a sustained interest in learning and self-development throughout life.

However, the benefits of AI extend not only to students but also to teachers. AI is able to significantly ease the work of teachers by automating routine tasks and providing them with valuable analytical data.

Traditionally, teachers spend a significant portion of their time grading homework, preparing for lessons, and compiling student performance reports. AI can automate these tasks, freeing up time for more creative and interactive work with students. Teacher support through AI includes automating assignment grading, creating personalized student performance reports, and providing recommendations for improving the learning process. Automating assignment grading, for example, allows teachers to free up time for more creative and interactive work with students, as well as for improving their own qualifications and developing new educational methods. Using AI to analyze student performance data allows teachers to identify students who need additional support and develop individual strategies to improve their results. This analysis can reveal patterns that may not be immediately apparent, allowing for targeted interventions and personalized feedback. AI can also be used to create adaptive tests that automatically adjust the difficulty of questions based on the student's answers, providing a more accurate assessment of knowledge and skills. This allows teachers to get a more objective picture of student performance and adapt their teaching methods to the individual needs of each student.

In addition, AI can assist teachers in finding and selecting high-quality educational content, offering them relevant articles, video lessons, and interactive materials. This allows teachers to constantly improve their knowledge and skills, as well as offer their students the most up-to-date and interesting information. Overall, AI acts as a reliable assistant to teachers, freeing them from routine tasks and providing them with valuable tools to improve the quality of education.

**Conclusion.** AI in education opens up unprecedented opportunities for improving the learning process and increasing the efficiency of teaching. However, it is important to be aware of and consider the potential challenges and risks associated with the implementation of AI in the educational system. It is necessary to pay attention to ethical issues and data privacy to ensure the safe and responsible use of AI in education. It is particularly important to consider that AI algorithms are developed by humans, and they may contain biases and stereotypes that can lead to discrimination against certain groups of students. Therefore, it is necessary to develop strict standards and procedures for evaluating and controlling the quality of AI algorithms used in education. It is also important to remember that AI is just a tool that should serve to support and expand human capabilities, not to replace them. Human interaction, emotional intelligence, and critical thinking remain key elements of successful learning. Teachers should act not only as knowledge transmitters but also as mentors and advisors, helping students develop their personal qualities and communication skills. It is also important to develop critical thinking and digital literacy skills so that students can effectively use AI in their academic and professional activities. Students must be able to assess the validity of information obtained from various sources, as well as understand how AI algorithms work and how they can affect their lives. Investments in research and development in the field of AI in education, as well as in the training of qualified specialists, are key to the successful and ethical implementation of this innovative technology and can become a powerful tool for building a more just, inclusive, and effective education for all. Ultimately, the goal is not simply to use AI in education, but to create an educational system that prepares people for life and work in a world where AI will play an increasingly important role. This includes preparing students to collaborate with AI systems, to adapt to rapidly changing job markets, and to address the complex ethical and societal implications of AI.

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