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**МЕДИЦИНСКАЯ ИНФОРМАТИКА/MEDICAL INFORMATICS**

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DOI: <https://doi.org/10.60797/IRJ.2026.166.35> EDN: LCFDEQ**ARTIFICIAL INTELLIGENCE IN THE EDUCATIONAL PROCESS**

Research article

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**Abstract**

In the context of the rapid development of digital technologies, education is undergoing significant changes. One of the key areas of modernization of the educational system is the introduction of artificial intelligence in the learning process. The use of intelligent technologies allows you to increase the effectiveness of teaching, ensure the personalization of learning and optimize the educational process. This article discusses the main areas of application of artificial intelligence in teaching, its advantages, limitations and prospects for development in the educational environment. Artificial intelligence is not an integral part of educational activities. In the near future, perhaps it will be able to replace the teacher.

**Keywords:** Artificial intelligence, digital technologies, education, educational platforms, personalized learning, innovative teaching methods.

**ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ**

Научная статья

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**Аннотация**

В условиях стремительного развития цифровых технологий образование претерпевает значительные изменения. Одним из ключевых направлений модернизации образовательной системы является внедрение искусственного интеллекта в процесс обучения. Использование интеллектуальных технологий позволяет повысить эффективность преподавания, обеспечить персонализацию обучения и оптимизировать образовательный процесс. В данной статье рассматриваются основные направления применения искусственного интеллекта в преподавании, его преимущества, ограничения и перспективы развития в образовательной среде. Искусственный интеллект является неотъемлемой частью образовательной деятельности. В недалёком будущем возможно, он сможет заменить преподавателя.

**Ключевые слова:** искусственный интеллект, цифровые технологии, образование, образовательные платформы, персонализированное обучение, инновационные методы преподавания.

**Introduction**

Modern society is characterized by the rapid development of information technologies, which have a significant impact on all spheres of life, including the education system. Traditional teaching methods are gradually being supplemented and transformed through the introduction of digital tools and intelligent systems. One of the most promising areas for the development of educational technologies is the use of artificial intelligence. Intelligent systems are able to analyze large amounts of data, adapt educational materials to the individual needs of students and increase the efficiency of the educational process. The relevance of this topic is due to the need to modernize the educational system and introduce innovative technologies that contribute to improving the quality of education. The purpose of the study is to analyze the possibilities of using artificial intelligence in the educational activities of a teacher [1], [2].

To achieve this goal, the following tasks were formulated:

1. To consider the concept and features of artificial intelligence in education.
2. To determine the main directions of the use of artificial intelligence in teaching.
3. To analyze the advantages and disadvantages of the use of intelligent technologies in the educational process.
4. To determine the prospects for the development of artificial intelligence in the education system.

**The Concept and Essence of Artificial Intelligence**

Artificial intelligence is a field of computer science aimed at developing computer systems capable of performing tasks that require human intellectual activity. These tasks include learning, information analysis, decision-making, speech and image recognition, and forecasting. Artificial intelligence technologies are actively used in various fields of activity: medicine, industry, economics, transport and education.

In the educational sphere, artificial intelligence is used to create intelligent training systems, automate the educational process, analyze educational data and support pedagogical decision-making.

The main artificial intelligence technologies used in education are:

- machine learning;
- natural language processing;



- big data analysis
- intelligent learning systems;
- neural networks.

The use of these technologies makes it possible to create adaptive educational platforms that are able to adapt to the individual characteristics of each student.

### **The Role of Artificial Intelligence in Modern Education**

The modern educational system is at the stage of digital transformation. In the context of globalization and the development of the information society, the need for the use of innovative teaching technologies is increasing. Artificial intelligence plays an important role in the modernization of the educational process. Its implementation contributes to improving the effectiveness of teaching, improving the quality of educational programs and expanding opportunities for distance learning. One of the key advantages of artificial intelligence is the ability to analyze educational data. Modern educational platforms are able to collect information about students' activities, their successes and difficulties in learning. Based on these data, recommendations for improving the educational process are formed. In addition, artificial intelligence contributes to the development of new forms of learning, such as:

- online education;
- hybrid learning;
- adaptive educational programs;
- intelligent educational platforms.

All this makes it possible to increase the availability of education and create a more effective educational environment [3], [4].

### **The main areas of application of artificial intelligence in teaching**

#### **4.1. Personalized Learning**

One of the most important areas of use of artificial intelligence is the personalization of the educational process. Traditional teaching methods involve the same approach to all students, but the level of training and features of the perception of information among students can vary significantly. Intelligent systems are able to analyze the individual characteristics of students and adapt educational materials according to their needs. For example, if a student has difficulty learning about a particular topic, the system may suggest additional assignments, explanations, or learning materials. Thus, personalized learning contributes to more effective knowledge assimilation and increases student motivation [9], [10].

#### **4.2. Automation of knowledge assessment**

Artificial intelligence is also widely used to automate the process of assessing knowledge. Modern systems are able to check test tasks, analyze written work, and even evaluate students' oral answers.

Automation of assessment can significantly reduce the time for checking works and reduce the burden on teachers. In addition, the use of machine learning algorithms helps to increase the objectivity of assessment.

#### **4.3. Intelligent Learning Systems**

Intelligent learning systems are software systems that perform the functions of a virtual teacher. Such systems can explain learning material, ask questions, check answers, and provide feedback.

The main advantage of intelligent learning systems is the ability to learn at an individual pace. Students can go back to difficult topics and review the material until they are fully understood.

#### **4.4. Virtual assistants and chatbots**

Another area of application of artificial intelligence in education is the use of virtual assistants. Such systems help students get answers to questions, explain learning topics, and navigate educational resources. Chatbots can work around the clock, providing constant support for students. This is especially important for distance learning, where interaction with the teacher may be limited.

#### **4.5. Educational Data Analytics**

Artificial intelligence systems are able to analyze large amounts of data related to the educational process. Based on data analysis, it is possible to identify:

- the level of student achievement;
- the most difficult topics of the curriculum;
- effectiveness of teaching methods;
- the level of student involvement in learning.

The information obtained allows teachers to adjust educational programs and improve the quality of education.

### **Benefits of Using Artificial Intelligence in Teaching**

The use of artificial intelligence in the educational sphere has a number of significant advantages.

First, artificial intelligence contributes to the individualization of learning. Thanks to adaptive educational systems, each student can learn in accordance with his level of knowledge and the pace of mastering the material. Secondly, intelligent technologies make it possible to increase the efficiency of the educational process. Automating routine tasks frees educators from a lot of administrative work. Thirdly, artificial intelligence provides prompt feedback. Students can get instant results on assignments and recommendations for improving their knowledge.

In addition, the use of smart technologies contributes to the development of distance education and makes learning more accessible.

### **Problems and limitations of the use of artificial intelligence**

Despite the numerous benefits, the introduction of artificial intelligence into the educational system is accompanied by a number of problems. One of the main problems is insufficient technical infrastructure. Not all educational institutions have the



necessary resources to implement modern technologies. Another challenge is the need to train educators to work with new tools. The use of intelligent systems requires certain skills and knowledge in the field of digital technologies.

Another important issue is the protection of students' personal data. The use of educational platforms involves the processing of a large amount of information, which requires compliance with strict security rules. In addition, there is a risk that the educational process is overly dependent on technology. Artificial intelligence cannot completely replace the teacher, since education includes not only the transfer of knowledge, but also the development of critical thinking, communication skills and personal qualities [5], [6], [7].

### Prospects for the development of artificial intelligence in education

In the coming years, the role of artificial intelligence in the education system will continue to grow. More advanced educational platforms are expected to emerge that can analyze students' learning activities and predict learning outcomes. A promising area is the integration of artificial intelligence with virtual and augmented reality technologies. This will create interactive educational environments that will make learning more visual and effective. It is also expected to develop intellectual educational assistants who will be able to accompany students throughout the entire period of study. In the future, artificial intelligence could become an integral part of the educational ecosystem, contributing to the formation of new methods of teaching and learning [8].

### Conclusion

Artificial intelligence is one of the most promising technologies of modern education. Its use opens up new opportunities for improving the effectiveness of teaching, personalizing learning and optimizing the educational process. Despite the existing limitations, the introduction of artificial intelligence into the educational system is an important step towards modernizing education. When used wisely, smart technologies can significantly improve the quality of learning and make education more accessible and effective.

### Конфликт интересов

Не указан.

### Рецензия

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### Conflict of Interest

None declared.

### Review

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