

**POSSIBILITIES OF DEVELOPING AN INDIVIDUAL EDUCATION SYSTEM WITH THE HELP OF ARTIFICIAL INTELLIGENCE****Shakarboeva Nasiba Ulugbek qizi**

UzSWLU English Language Faculty 1 2nd year student

Scientific supervisor: **Djalilov M.M.**

UzSWLU, English Language Faculty 1 Senior teacher of the

English Language Integrated Course 1 Department

**Annotation**

Today the artificial intelligence (AI) technologies are widely used in education and significantly expand the possibilities of personalizing the educational process. This article analyzes the issues of forming an individual education system based on artificial intelligence, organizing an educational process adapted to the level of knowledge and needs of students. It also highlights the advantages of adaptive systems, their impact on teachers' activities, as well as information security and ethical issues.

**Key words**

artificial intelligence, individual education, personalized education, adaptive systems, digital education, educational efficiency.

**Abstract**

Artificial Intelligence (AI) technologies are increasingly used in education, significantly expanding opportunities for personalized learning. This article analyzes the role of AI in developing individualized education systems, adapting learning processes to students' abilities and needs, and improving educational effectiveness. In addition, the advantages of adaptive learning systems, their impact on teachers' work, and issues related to data security and ethics are discussed.

**Artificial intelligence and the essence of the individual education system**

In recent years, our country has been implementing comprehensive reforms in all areas. In particular, recognizing the great importance and potential of artificial intelligence (AI) technologies, special attention is being paid to their development. Artificial intelligence has completely changed our way of life with innovative technologies. For example, today, artificial intelligence is intensively taking its place in the field of education. Artificial intelligence plays a major role in creating information systems that have the ability to study, analyze, transform and visualize data. In the modern education system, it is becoming increasingly clear that each student has a different level of knowledge, interests and learning speed. The traditional education model often offers the same approach to all students, which makes it difficult for some students to master knowledge, and for others, causes boredom. In this regard, the development of an individualized education system is one of the important tasks of modern education. Gautam Biswas (2020) studies show that individualized education based on artificial intelligence: increases the level of knowledge acquisition of students, develops independent thinking skills, and reduces stress and difficulties in the learning process<sup>1</sup>. Artificial intelligence is emerging as an effective technological solution in the implementation of individualized education. AI



systems analyze students' academic results, identify their strengths and weaknesses, and offer customized educational materials on this basis. This process serves to increase the efficiency of students' learning.

#### *Advantages of adaptive learning systems*

Adaptive learning systems based on artificial intelligence allow for real-time monitoring of student activity. Such systems identify student errors and automatically provide additional explanations or exercises. As a result, the student learns at a comfortable pace and learns more deeply about complex topics. Research shows that a personalized learning model increases student motivation and develops their independent learning skills. Aniella Michaela Vieriu (2025) states in her study that students' use of artificial intelligence technologies improves their learning experience. According to the author, AI tools can help students understand complex learning materials more deeply by quickly providing learning resources tailored to their individual needs, increase learning efficiency, and improve their academic performance. For example, in mathematics, an adaptive learning platform can identify students who are struggling with solving equations and provide them with additional video lessons, simplified examples, and step-by-step explanations. At the same time, students who have mastered the topic quickly are given more complex problems or additional creative tasks. This approach not only increases the level of knowledge, but also strengthens the self-confidence of students. At the same time, adaptive systems also help reduce inequality in education, as each student is provided with an approach that is appropriate to his capabilities.

#### *The role of artificial intelligence in the pedagogical activity of a teacher*

Artificial intelligence has created many conveniences in the process of education not only for students, but also for teachers. For example, in order to create an intensive educational program and organize the lesson according to it more interesting and meaningful, the teacher can study topics of interest to students and find information about them, automate assessment processes using SI, analyze student results and provide the teacher with ready-made statistical data. For example, in online testing systems, AI-based platforms automatically check students' answers, identify which topics they make the most mistakes in, and provide the teacher with an overall analysis of the class in the form of graphs and tables. This allows the teacher to focus subsequent lessons on precisely the problematic topics. Over the past five years, research by scientists such as Rose Luckin, Ryan Baker, Neil Heffernan, and Sidney D'Mello(1, 2025) shows that artificial intelligence, by automating assessment, analysis, and data processing in the educational process, preserves the teacher's main pedagogical, educational, and creative role. Rose Luckin's (2020) scientific point of view is that artificial intelligence will not completely replace the teacher, but will serve as a pedagogical assistant. He sees AI as a tool for identifying individual needs, providing descriptive statistical analysis, automating assessments, and making informed decisions 1. This approach enhances the creative and educational roles of teachers. According to scientific research, Baker and Inventado (2014) emphasize that AI-based systems can effectively support teachers in the process of making pedagogical decisions and significantly reduce their workload. This saves teachers time and allows them to focus more on direct communication with students and educational activities.

#### *Information security and ethical issues*

The issue of working with students' personal data is important when using AI. Individual educational systems collect and analyze large amounts of data, which raises information security issues. If the data is not adequately protected, their confidentiality may be violated. For example,



online learning platforms store students' personal profiles, test scores, and study histories. If this data is not protected by strong encryption and permission levels, it is likely to be exposed through cyberattacks. It is also important to ensure fairness and transparency in the decision-making process of AI systems. Nianliang Ding (2025) argues that for AI to work effectively in education, it is important to first protect students' personal data, ensure fair operation of algorithms, ensure transparency of systems, and ensure overall ethical governance.

It is through these factors that students' rights are protected and the quality of education is maintained. For example, if an AI-based automatic assessment system makes decisions based only on predetermined criteria when checking a student's written work, and these criteria are open to both the teacher and the student, transparency and reliability are ensured in the assessment process. In this way, students' rights are protected and the quality of education is maintained. Therefore, educational institutions should adhere to ethical standards and conduct constant monitoring when introducing artificial intelligence.

## Conclusion

In conclusion, the development of an individual education system using artificial intelligence is of great importance in increasing educational efficiency. AI technologies provide personalized education taking into account the individual needs of students, facilitate the work of teachers, and make the educational process more effective. At the same time, serious attention should be paid to information security and ethical issues. With the right and responsible approach, artificial intelligence can become an integral part of the future education system.

## References

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