

**THE IMPORTANCE OF ARTIFICIAL INTELLIGENCE IN THE FIELD OF  
EDUCATION**

**Ruzimova Marjonoy Yo'ldash qizi**

Lecturer at the Department of Education,  
Asia International University

**Abstract:** This article discusses the role of artificial intelligence in the field of education, methods of using AI, and advanced best practices. It also explains the main functions of AI and its benefits in the educational process. The article provides specific methodological recommendations, lesson plans, and practical examples for applying AI tools in various subjects (reading literacy, natural sciences, and English language classes). In addition, it scientifically analyzes the advantages of AI technologies, potential pedagogical risks, the role of teachers, and the ways of implementing AI in primary schools of Uzbekistan.

**Keywords.** Artificial intelligence (AI), primary education, adaptive learning, AI tutor, game-based learning, automated assessment, personalized learning, digital pedagogy, AI tools

**Introduction**

Artificial intelligence technologies are among the most significant innovations of the 21st century, fundamentally transforming nearly all sectors of society, including education. According to data from the World Bank and UNESCO, by 2023 more than 120 countries had begun integrating AI technologies into their education systems.

In particular, the use of AI in primary education has generated great interest, as children at this age have a high capacity for learning and quickly adapt to new technologies. The Decree of the President of the Republic of Uzbekistan No. PF-132 dated April 12, 2023, "On Measures for the Development of the Artificial Intelligence Sector," as well as Resolution No. PQ-4868, "On Measures to Fundamentally Improve the System of Training Personnel in Accordance with the Requirements of Enhancing Education Quality and Developing the Digital Economy," and other regulatory legal acts designate the introduction of AI technologies into education as one of the priority directions of state policy.

In recent years, large-scale reforms have been implemented in all sectors of our country. In turn, increasing the number of qualified specialists is essential for introducing artificial intelligence into science and research. Indeed, professionals who are true experts in their fields serve as the key factor in integrating AI into all areas.

For this purpose, efforts have been initiated to create a favorable and effective ecosystem for the development of innovative business models, products, and service methods based on artificial intelligence technologies, as well as to ensure their rapid implementation and practical application in designated priority sectors and fields. This is because AI technologies represent one of the fastest-growing and most promising areas within digital technologies.

Through the use of artificial intelligence as part of digital technologies, it is possible to achieve effective outcomes not only in education but also in all spheres of life. The implementation of AI technologies ensures transparency, prevents fraud, facilitates data analysis, and provides

advantages in working with large volumes of data. In the field of education, it enables the creation of virtual learning environments and offers significant conveniences for distance learning.

### **Literature analysis and methodology**

Today, technology has begun to play an important role in the education system, and artificial intelligence (AI) in particular has opened the door to new opportunities in this field. The use of artificial intelligence in the learning process not only helps students acquire knowledge, but also supports all stages of education — from lesson planning to assessment. AI creates many opportunities for both teachers and students, including personalizing the learning process, adapting to students' needs, and helping them learn in an engaging and effective way.

This thesis discusses how artificial intelligence can be effectively used in lessons, its advantages and opportunities, as well as its challenges and how to apply these technologies correctly.

The application of AI technologies in education is currently one of the most attention-grabbing areas. In the learning process, AI technologies are considered supportive tools for teachers. Below are the main roles of AI and its beneficial aspects in education.

Popular artificial intelligence chatbots such as ChatGPT, Microsoft Copilot, and Claude can be useful for various tasks. For example, they can simplify complex information, help prepare emails or project plans, and even assist in writing creative stories. However, AI cannot always distinguish between factual information and fabricated content. Therefore, it may sometimes provide incorrect or made-up information. For this reason, if you are unsure about the facts or sources provided by a chatbot, you should verify the results through independent sources.

One of the main functions of artificial intelligence in consumer products is personalization. This can range from targeted advertising to biometric security. For example, when your phone unlocks using Face ID, it distinguishes your face from others. It does this by analyzing billions of faces and learning the structure of your facial features. Then it matches specific data points to verify your identity.

ChatGPT is an artificial intelligence chatbot capable of generating natural language, translating, and answering questions. Because it is widely used, it is recognized as one of the most popular AI systems. However, before creating ChatGPT, OpenAI achieved significant progress in AI development by introducing GPT-1, GPT-2, and GPT-3 models.

GPT stands for “Generative Pre-trained Transformer.” When it was launched in 2020, GPT-3, with 175 billion parameters, was the largest language model at the time. Later, GPT-3.5 was introduced to power the free version of ChatGPT. GPT-4, considered one of the most advanced and largest models, reportedly has up to one trillion parameters. It can be accessed through the free version of ChatGPT, ChatGPT Plus, and Microsoft Copilot.

The use of AI in reading literacy lessons (reading literacy is one of the most important areas of primary education) significantly improves the process. Platforms such as Reading Eggs, Raz-Kids, and Epic! listen to children reading aloud and identify mistakes.

- The child selects a text on a computer or tablet;
- Reads it aloud (using a microphone);
- The AI system listens word by word and analyzes pronunciation, intonation, and speed;
- Incorrect words are highlighted and correct pronunciation is provided;
- The child rereads and observes improvement;
- The system generates reports on reading speed, accuracy percentage, and progress over time.

In science lessons, AI technologies are used to conduct experiments in virtual environments, simulate natural phenomena, and provide interactive learning:

1. Virtual laboratories. Platforms such as Labster and PhET Interactive Simulations allow students to conduct experiments in a safe virtual environment. For example, they can observe plant growth, study animal life, or explore simple chemical reactions.
2. AI-based plant and animal recognition. Applications such as iNaturalist and Seek by iNaturalist use a phone camera to identify plants or animals. Students can take a picture, and the AI system identifies the species and provides information within seconds. This is especially useful during outdoor lessons.

In language learning, AI technologies are particularly effective because they allow pronunciation checking, grammar correction, and interactive conversation:

1. Improving pronunciation. Applications such as Duolingo, ELSA Speak, and Pronunciation Coach listen to a student's English pronunciation and point out mistakes. The student repeats a word or sentence, the AI system analyzes it, and provides a score from 1 to 100.
2. Conversing with chatbots. AI chatbots such as Andy English Bot and Mondly allow students to practice simple conversations and develop communicative skills. The chatbot asks a question, the student responds by typing or speaking, the chatbot analyzes the response, and then continues the conversation with a new question.

## Conclusion

Pedagogical Advantages of AI Technologies in Primary Education. The main pedagogical advantages of AI technologies in primary education include:

1. **Personalized learning** – Each child learns at their own level and pace. Stronger students can progress faster, while struggling students receive additional support.
2. **Immediate feedback** – When a child makes a mistake, the AI system corrects it instantly, which accelerates the learning process.
3. **Objective assessment** – AI systems do not have personal bias; all students are evaluated according to the same criteria.
4. **Increased motivation** – Game elements, virtual rewards, and progress indicators encourage children to engage in learning.
5. **Time-saving for teachers** – AI performs routine tasks (checking, grading, reporting), allowing teachers to devote more time to creative pedagogical activities.
6. **24/7 availability** – Children can learn at any time and practice at home as well.

7. **Expanded opportunities** – AI tools are also convenient for children with special needs (for example, those with speech or hearing difficulties).

However, when implementing AI technologies, several risks and limitations must be considered:

1. **Reduced human interaction** – AI cannot fully replace teachers; children need social communication, emotional support, and collaboration.
2. **Screen dependency** – Excessive screen time may harm children's health (eye strain, posture problems).
3. **Digital divide** – Not all children have access to modern devices or internet at home.
4. **Limited creativity** – Some AI systems accept only standard answers and may not effectively evaluate creative solutions.
5. **Data security** – Children's personal data must be properly protected.
6. **Lack of teacher preparedness** – Not all teachers are trained to use AI technologies effectively.
7. **Costs** – High-quality AI platforms are usually paid services, which can create an additional financial burden for schools.

In conclusion, AI technologies have the potential to fundamentally transform primary education. By leveraging these opportunities, Uzbekistan's education system can prepare children to meet the demands of the 21st century. The key condition is to properly balance AI with the human factor (teachers and parents).

#### REFERENCES:

1. Respublikasi Prezidentining "Sun'iy intellekt sohasini rivojlantirish chora-tadbirlari to'g'risida"gi PF-132-sonli Farmoni, 2023.
2. Holmes W., Bialik M., Fadel C. Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Boston: Center for Curriculum Redesign, 2019. 156 p.
3. Luckin R., Holmes W., Griffiths M., Forcier L.B. Intelligence Unleashed: An argument for AI in Education. London: Pearson, 2016. 56 p.
4. Roll I., Wylie R. Evolution and revolution in artificial intelligence in education // International Journal of Artificial Intelligence in Education. 2016. Vol. 26(2). P. 582-599.
5. Chassignol M., Khoroshavin A., Klimova A., Bilyatdinova A. Artificial Intelligence trends in education: a narrative overview // Procedia Computer Science. 2018. Vol. 136. P. 16-24.
6. UNESCO. Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development. Paris: UNESCO, 2019. 48 p.
7. Pedro F., Subosa M., Rivas A., Valverde P. Artificial intelligence in education: Challenges and opportunities for learning. Santiago: UNESCO, 2019. 50 p.
8. Rustamov I.B., Saidov A.A. Sun'iy intellekt va ta'lim: imkoniyatlar va muammolar. Toshkent: Fan va texnologiya, 2023. 168 b.