



THE ROLE OF ARTIFICIAL INTELLIGENCE IN EDUCATION

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Abstract:

One of the most pressing issues studied by modern researchers are the issues related to the topic of digitalization of the educational process. Much attention is paid to the possibilities of artificial intelligence in the educational process.

The article describes the history of the development of artificial intelligence, its role in education. The possibilities of artificial intelligence in education and the risks of its introduction into the educational process are also presented.

The article may be of interest to teachers, curators of the educational process, to understand the importance of using artificial intelligence systems in education, since AI is used to collect and analyze data on the effectiveness of the educational process, further forecasting of learning outcomes.

Keywords: History of the emergence of artificial intelligence, artificial intelligence in education, artificial intelligence programming language, personalization of education using AI.

Introduction

Artificial intelligence is a technology that studies ways to train a computer, robotic equipment, or analytical system to think intelligently, just like a human. [1]

Since the mid-50s, humanity has been amazed by the ability of computers that performed several tasks simultaneously. In the same period, the first technologies and research in the field of artificial intelligence begin to emerge. Research in this area was conducted on the basis of studying *интеллекта* human intelligence, after which the results were applied to the activities of computers. Information for *исследования* on artificial intelligence is taken from various sources and disciplines such as mathematics, computer science, psychology, linguistics, biology, mechanical engineering, etc. Based on this data, using machine learning technologies, computers try to simulate the operations of human mental actions. [1]

Let's delve into the history of creating artificial intelligence. Back in 1924, the famous writer and science fiction writer Karel Chapek staged a play called "Universal Robots" at the London theater, the performance discouraged the audience, and the words "robot" and "artificial intelligence" became firmly established in the everyday life of





mankind. In 1956, the founder of programming, Dr. John McCarthy, demonstrated a prototype program based on artificial intelligence at Carnegie Mellon University and won the Turing Award. Note that he is also credited with the authorship of the term "artificial intelligence".

Research in the field of artificial intelligence has not stopped, then the English mathematician, logician and cryptographer Alan Turing begins to study the creation of neural networks based on the analysis of an intelligent chess game, and A. Turing publishes his research in a scientific publication. In 1958, the first programming language for artificial intelligence appeared – Lisp. Over time, scientists are proving that computers are able to understand natural language at a good level. In the USSR, artificial intelligence was considered extremely important. At that time, A. I. Bergom and G. S. Pospelovым была создана программа developed the ALPEV LOMI program, which was characterized by автоматическая automatic доказывание proof of theorems, after which Soviet scientists immediately developed the Cortex algorithm, which modeled the work of the human brain in the process of image processing. Researcher Турчин V. F. Turchin в 1968 году для обработки данных created a special symbolic language REFAL for data processing in 1968. Interest in artificial intelligence is increasing every year, since the 2000s there has been an active introduction of AI in the space industry and the everyday sphere, and now AI is being proposed to be used in education. [1]

According to studies on the possibilities of using artificial intelligence in education conducted by Unesco experts, data analysis on the possibilities of using AI to improve learning outcomes is provided, as well as risks and consequences of using AI in education around the world are considered. [2]

The positive aspects of using AI in education primarily include AI technology for ensuring inclusive access to education. Regardless of the existing intellectual, social, physical, linguistic and other characteristics, a person is provided with training in educational institutions. By integrating AI into the educational environment and using AI, students with special needs and emergency situations can attend classes from home or from the hospital. In this way, learning can be personalized in a variety of ways, and AI technologies support inclusivity and universal access to education. It should be borne in mind that when working with artificial intelligence in education, the following difficulties may arise: preparing high-quality data systems, training future teachers based on artificial intelligence, and developing AI to understand learning technologies. [2]

Matthew Lynch, PhD, owner of Lynch Consulting Group, LLC Мэттью Линч, in his article "Artificial Intelligence in Education: seven possible applications", highlights 7





aspects of effective use of artificial intelligence in education: adaptive learning, personalized learning, automatic assessment, interval learning, teacher assessment by students, smart capsules, control of the exam process. [3]

Artificial intelligence can become the basis for online education, which is becoming widespread in all countries of the world, especially in the period from 2020-2021, after the appearance of the mutating covid-19 virus. Lynch identified 3 main reasons for the intensive implementation of AI in education: [3]

1. AI adapts the learning process for a more effective so that teachers and students can work more effectively. Many Russian online schools implement AI technologies on their learning platforms, which allows you to achieve a positive result in education. AI analyzes the student's work process, his progress, methods and techniques that the teacher uses and changes the learning trajectory, depending on the results of the teacher.

2. AI increases engagement through gamification. Most educational platforms for elementary schools are built on the principle of online games or with the accompaniment of a certain character (for example, the online platform for learning foreign languages Lingualeo).

3. AI allows you to automate your business as much as possible. Nowadays, many educational portals, platforms, and resources do without human involvement. Bots can answer frequently asked questions, conduct lessons, and conduct trainings.

It is worth noting that by 2021, the Government of the Russian Federation intended to make artificial intelligence an object for study and inclusion in the school curriculum, and presumably by 2024, the study of AI in most schools will be organized.

Researchers V. A. Chulyukov and V. M. Dubov in their scientific article "Artificial Intelligence and the future of education" note that artificial intelligence has limited educational opportunities. The developers were able to teach the computer to independently perform quite complex tasks. An algorithm was created that was based on self-study. The authors draw attention to the fact that artificial intelligence will definitely not replace professionals, but it can improve the educational process and develop the skills of teachers.

In accordance with the needs of students, modern educational interactive platforms are adapted, which helps the program to identify gaps and difficulties in the teacher and offer him the necessary materials to improve the skill. Through the use of artificial intelligence in schools, colleges and universities, there is a deep involvement in the educational process, as well as artificial intelligence processes the materials of a





course, subject or discipline and automatically creates a curriculum itself, which is a big plus for schools and teachers. [4]

Artificial intelligence is already capable of many things, but its main task is to collect and analyze data, get results, and make predictions. The latest developments in AI are used on the basis of adaptive learning, so that this type of learning is based on interactive models that take into account the individual characteristics and needs of each trainee. [4]

Currently, many educational institutions are developing and applying AI systems in training. Various online courses, instructional videos, text materials, and interactive modules are used. Such systems automatically assess students' level of knowledge, identify weaknesses, and provide feedback with further instructions to improve their skills.

Third Space Learning - is an artificial intelligence school, where about 500 teachers conduct interactive lessons on this platform, . It is noteworthy that automated technologies can evaluate the quality of lessons taught. For example, it turns out that when a teacher speaks quickly and unemotionally, students lose interest in the material being studied. Such methodological recommendations from artificial intelligence will be reflected on the teacher's smartphone screens and may soon become commonplace. [5]

Carnegie Learning is a software product that uses AI technologies together with cognitive research. The goal of the system is to make education personalized. The program is aimed at students and first-year students in higher education institutions. Thinker Math is - an AI-based application that covers high school students' understanding of content and applications. The app is a product of understanding what it means to learn mathematics and how learning can be done in a way that supports modern school structures and learning systems.

Netex Learning is an indispensable assistant for teachers, with the use of interactive audio and video content, and lessons become more interesting. For novice teachers who have no experience in creating technical products, this Netex Learning program will help you organize your work and write original curricula for working on different devices and digital applications.

Supercharge learning through personalization is an AI platform, that uses learning technologies, neurophysiology, and processed data analysis to build an individual learning trajectory. [6]

So, platforms use AI differently depending on the different goals and objectives set in the educational environment, but the use of such applications and platforms helps to make the learning process interactive, interesting, and most importantly effective.





The use of artificial intelligence in education provides benefits and prospects for the development of:

1. AI allows students to independently choose the form of training based on their needs, abilities, and costs of the educational process.
2. AI is more effective for quick and high-quality verification of acquired knowledge, which simplifies the assessment process.
3. The student has the opportunity to engage in self-education with the help of AI, and not by transferring knowledge from person to person.
4. Proctoring AI makes it possible to implement a system for tracking students' cheating on tests, tests, and exams.

We should not forget about the risks of introducing artificial intelligence in the field of education. Already at this stage, several threats to the introduction of AI in the field of human activity are known. First, it will concern the employment of the population. The use of AI technologies in education requires fewer people, and therefore the number of jobs will decrease. However, some specialists (Stephen Hawking, Elon Musk) suggested that machines with artificial intelligence can later become intelligent and act against humanity if their programming is broken or used incorrectly. [7]

Thus, we can conclude that artificial intelligence, like all innovations in technology, has its advantages and disadvantages, but it is assumed that the introduction of AI in the learning process may become more active as technologies develop. These technologies are being improved in accordance with the needs of society and are aimed at improving the effectiveness of the teacher-student learning process. It is problematic for any teacher to meet the needs of a class with a large number of modern students. In today's reality, the introduction of AI-based applications into the education process is no longer a fantasy. This approach solves the problems of poor quality of education, the problem of unavailability of education, and also, if possible, minimizes the shortcomings of the existing education system.

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