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ARTIFICIAL INTELLIGENCE IN EDUCATION

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Abstract. *Artificial intelligence (AI) has become an integral part of the modern educational system, offering innovative solutions for improving the quality of learning and personalizing the learning process.*

In this article, we will examine various AI technologies used in education and provide examples of their successful implementation. Modern educational systems utilize a variety of AI technologies, each of which contributes to improving the learning process.

Artificial intelligence (AI) is a technology that enables computers to perform tasks that require human intelligence by mimicking functions such as learning, reasoning, and decision making. Simply put, it is the ability of machines to «think" and «learn" by analyzing large amounts of data and finding patterns in it. Examples of its work include speech recognition, text and image generation, and chess playing.

Artificial intelligence (AI) is a field of computer science that focuses on creating machines and systems capable of performing tasks that require human intelligence. AI imitates human cognitive functions, such as learning, pattern recognition, decision making, and problem solving. Examples of its applications include natural language processing, computer vision, and expert systems.

The need for integrating artificial intelligence into the learning process, as well as the technologies already in use, is identified and analyzed. The potential for using artificial intelligence in personalized learning is presented. Having analyzed the potential applications of artificial intelligence, we conclude that there is a need to utilize and improve neural network and artificial intelligence technologies in education.

Keywords: *innovations in education, artificial intelligence, learning, cross-cutting technologies, vocational education, personalize.*

Introduction

Consideration of the importance of using artificial intelligence in education is driven by the need to develop programs and tools for personalizing the educational process to improve the quality and effectiveness of learning.

Recently, one can often hear about the penetration of artificial intelligence into all spheres of human activity, including education. In this study, we will attempt to understand what this represents and how it will impact the development of society and education. In general, neural networks are a mathematical model, a massive computational code capable of producing a prediction by solving a given intellectual

problem based on evaluating the criteria of a given question. By analyzing a vast amount of information and databases, artificial intelligence generates the most realistic and accurate answer. The advantage of neural networks lies in their learnability, they can learn independently, without the direct involvement of an IT specialist [7, 8, 14].

Artificial intelligence, or machine learning, is currently being actively used in education, ranging from administering and marking exams to automatically selecting material for students in areas where they are experiencing learning difficulties, encouraging students to more consciously engage with the topic, improve their knowledge and abilities, analyzing student performance and productivity, and adjusting their learning plan under the constant and loyal control of an "unfeeling" machine [3, 5].

By integrating artificial intelligence technologies into the educational environment, it is possible to create personalized study plans for each discipline during specialist training, and subsequently implement monitoring of student performance. This application of artificial intelligence in education is becoming possible thanks to the development by educators and psychologists of methods for assessing students' abilities, motivation, willpower, and other characteristics, which are then used to develop individualized learning programs.

The creation of educational apps and specialized content for students also contributes to the personalization of the learning process. This feature is actively used by many students and teachers [1, 4].

For example, in teaching foreign languages in different formats using a single app. The technology allows student speech recognition, analyzing sentence structure, vocabulary, and grammar, and providing additional assignments of similar content for repeated review of the material.

These apps are very popular because they are becoming a routine activity on gadgets for many people. In addition to learning foreign languages, the technology is applicable to all subjects and is already beginning to gain success with both students and teachers.

Personalized learning is a method of developing and implementing an educational plan, in which the student is the subject of the educational process, taking into account their individual characteristics. To increase the effectiveness of the educational process through personalization, both teachers and students must utilize the capabilities of artificial intelligence.

Artificial intelligence is capable of collecting and analyzing large amounts of disparate data, and then derive a comprehensive picture of the situation. Furthermore, artificial intelligence can predict its development from a starting point and suggest options for adjusting it based on the needs.

In the digital age, in addition to mastering professional competencies (hard skills), developing soft skills is essential. Ever-increasing amounts of information and knowledge have a profound impact on the human brain.

It’s impossible to absorb all this information, but artificial intelligence can assist in various tasks, helping develop students’ critical thinking and creativity. Today, end-to-end technologies can be excellent tools for collecting and filtering information, helping students learn more effectively and teachers improve the quality of their learning.

Neural networks are rapidly gaining interest among educational institutions and platforms. By analyzing students' activities, artificial intelligence can automatically identify weaknesses in their performance in certain subjects, which in turn indicates to teachers the need for additional intervention and, ultimately, assistance in addressing student performance. The concept of introducing artificial intelligence into the educational process is aimed at personalizing the system, adapting it to the abilities of students, as well as monitoring the social component, convenience, and practicality of use [2, 6].

Artificial intelligence can also analyze students' interests and suggest programs and courses accordingly. A personalized approach helps engage students in the learning process and monitor their independent completion of assignments during distance learning or independent learning [10, 13].

The use of AI in education can create student dependence on technology and reduce their ability to independently solve educational problems.

If students become accustomed to receiving instant answers from AI to any question, they may lose motivation for independent research and learning. Without developing independent study and information retrieval skills, students may be unable to solve problems in the real world where there is no access to technological support.

It is important to note that the use of end-to-end technologies, particularly artificial intelligence and neural networks, can significantly improve learning effectiveness, foster students' digital and information culture, and personalize the learning process [11].

Artificial intelligence is already capable of many things, but its primary function is collecting and analyzing data, generating results, and making predictions. The latest developments in AI are based on adaptive learning, as this type of learning is based on interactive models that take into account the individual characteristics and needs of each learner. [4]

Currently, saying obviously, many educational institutions are developing and also implementing AI systems in education. Various online courses, educational videos, text materials, and interactive modules are used in the classes. These systems automatically assess students' knowledge, identify weaknesses, and provide feedback with further instructions on how to improve their skills.

Thus, platforms utilize AI in different ways depending on the various goals and objectives set in the educational environment, but the use of such applications and platforms helps make the learning process interactive, engaging, and, most importantly, effective.

Conclusion.

In conclusion, we would like to emphasize that the use of AI in education opens up new opportunities for creating more effective and personalized learning processes. However, to achieve maximum impact, it is important to consider both the benefits and potential risks and drawbacks.

AI in education offers numerous advantages that can significantly improve the quality of learning and help students achieve better results. One of the main advantages of AI is the ability to personalize the learning process. Thanks to adaptive educational systems, educational materials and teaching methods can be tailored to the individual

needs of each student. This is achieved by analyzing data on students' performance, preferences, and learning styles.

Artificial intelligence facilitates the optimization of learning approaches based on the needs and characteristics of each student. AI technologies such as chat-bots and virtual assistants provide students with 24/7 support. Unlike traditional methods, where teacher assistance is limited to class or consultation hours, AI systems can answer students' questions at any time. This is especially useful when preparing for exams or homework, when time is of the essence.

On the one hand, this helps find answers and solve problems faster. On the other hand, there's a risk that students will stop learning to think independently when they receive a ready-made solution.

However, the key to success is conscious application. It's important to clearly understand why we're implementing a particular technology and what results we want to achieve.

Thus, one can conclude that artificial intelligence, like all technological innovations, has its advantages and disadvantages. However, it is expected that the integration of AI into the educational process will become more widespread as technology advances. These technologies are evolving in response to societal demands and are aimed at enhancing the effectiveness of the teacher-student learning process. It is difficult for a single teacher to meet the needs of a large class of modern students. In today's reality, the introduction of AI-based applications into education is no longer a fantasy. This approach solves the problem of low quality of education, the problem of inaccessibility of education, and also minimizes, as far as possible, the shortcomings of the existing education system.

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