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ON THE PROBLEM OF USING ARTIFICIAL INTELLIGENCE IN EDUCATION

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Over the past decades, artificial intelligence (AI) has significantly changed all areas of human activity, offering a completely new wide range of innovative solutions and capabilities. These changes directly affect the educational process, becoming an integral part of it. The inevitable integration of AI into the university environment caused great discussion in the teaching community and the realization that it is necessary to regulate its use by both students and teachers. This article will look at the pros and cons of using new technologies, adapting teaching methods in the context of using AI, as well as the problem of students' insufficient independent completion of educational tasks using chatbots and similar tools.

Key words: *artificial intelligence (AI), education, technology, innovation.*

1. Introduction

Currently, education is the highest priority of UNESCO, associated with the implementation of the UN Education 2030 program, which aims to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” [1].

Considering the global nature of innovations in the field of education, it is necessary to understand the role of AI as an accessible information and educational resource for the implementation of the idea of personalized learning – adapting learning, its content and pace to the specific needs of each student. This is stated in scientific articles and UNESCO studies related to the use of artificial intelligence in the educational sphere over the past two years. For example:

1. “Artificial intelligence technologies in education: prospects and consequences” [2]:

This publication describes the use of artificial intelligence in education, its functions and prospects for implementation. The advantages and risks of using AI in the educational process are considered too. Conclusions that

can be made are: Artificial intelligence can significantly simplify routine tasks in education; Personalized learning experiences are made possible by AI; Ethical considerations need to be taken into account when using AI.

The source recommends the teachers to actively discuss the results with the AI and students, as well as create tasks that require creativity and critical thinking.

2. “Artificial Intelligence in Education: Changing the Pace of Learning” [3]:

This policy brief from the UNESCO Institute for Information Technologies in Education (UNESCO IITE) examines the role of AI in personalized learning. Artificial intelligence can tailor learning to the needs of each student. The latest technologies that play an important role for both teachers and students are described. The source states that AI facilitates personalized learning; Teachers can adapt their teaching methods to accommodate AI. It is recommended to support learners in using AI to achieve better results.

2. Problems of using AI in education: pros and cons of new technologies

It is obvious that at this stage of the relationship between artificial and natural intelligence, AI technologies are primarily a means of freeing people from routine work and performing labor-intensive operations associated with large volumes of data.

In education, there is a certain dualism of AI technology as a goal and a means at the same time. Thus, when training specialists in the field of artificial intelligence, on the one hand, these technologies are the goal of education, and on the other hand, they act as a modern ICT tool that can increase the effectiveness of learning and build an individual educational trajectory, reducing the labor intensity of the learning process itself.

The phenomenon of AI, as an incompletely studied technology, undoubtedly has the property of uncertainty, which is expressed in some positive and negative features of the use of AI technology in education. Like most researchers, the authors, being university teachers, faced certain problems and note the following pros and cons of AI in education.

The main advantages of AI technology in education:

- Automation of training. Artificial intelligence can significantly simplify routine tasks, for example, help a teacher check homework and analyze the results of students’ mastery of new educational material [4].

- Critical thinking development. Most students can use AI to analyze and synthesize information, developing critical thinking skills and informed decision making [5].

Table 1

Examples of artificial intelligence technologies

Technology description	Technology example
Natural Language Processing (NLP): Natural language processing technology uses machine learning algorithms to analyze and understand natural human language.	Python libraries such as NLTK (Natural Language Toolkit) or SpaCy, which provide tools for tokenization, lemmatization, syntax analysis and text semantics.
Speech recognition Speech recognition technology uses machine learning algorithms to convert audio signals into text.	Speech recognition systems such as Google Speech-to-Text or Microsoft Azure Speech Recognition, which allow users to translate speech into text in various languages.
Image recognition and processing technology uses computer vision algorithms to analyze and understand the content of images.	Machine learning frameworks such as TensorFlow or PyTorch, which provide tools for training neural networks to recognize objects, faces, handwritten text, and other elements in images.
Autonomous mediator technology involves the use of artificial intelligence to create autonomous systems that can interact with people or the environment.	Personal assistants such as Apple's Siri or Google Assistant, as well as autonomous robots or virtual assistants in apps and games.
Emotional AI technology uses algorithms to analyze emotions and sentiments in text, voice, or images.	Text sentiment analysis or facial emotion recognition systems, such as Microsoft Azure Face API or IBM Watson Tone Analyzer.
Data mining technology uses machine learning algorithms to analyze large volumes of data and predict future events or trends.	Algorithms for time series forecasting, regression analysis, or data classification, used in various fields such as finance, medicine, or marketing.
Machine creativity technology uses content generation algorithms, such as deep neural networks, to create new images, music, text, or other creative works.	Text generation algorithms such as GPT (Generative Pre-trained Transformer) or generative adversarial networks (GANs) used to generate images or music.

– Increasing the speed of learning. Artificial intelligence can significantly reduce the time spent on learning: both the student and the teacher, thanks to the phenomenal speed of AI, will have to spend much less effort and time preparing for lectures and seminars [6].

– Individualization of training. Algorithms can adapt to the needs of each student, providing a personalized learning experience and building an educational trajectory [7].

– Availability of training. AI can help students with disabilities by ensuring equal opportunities for all, including using AI technologies to promote gender equality [8].

The main disadvantages of AI technology in education, however, are as follows:

– Dependence on technical support. The need for constant access to high-speed Internet and a modern personal computer can be a problem for students from low-income families or from economically underdeveloped countries. Too much dependence on AI can reduce students' independent problem-solving skills [9].

– Suppression of cognitive functions. There is a risk of a decrease in independent thinking skills and loss of the ability for system analysis and critical thinking of a number of students [5].

– Imperfection of algorithms. Sometimes AI can make mistakes, which can affect the quality of solving a given learning task [2].

– Ethical issues. It is necessary to pay attention to the ethical aspects of using AI in education, for example, information protection, confidentiality and property rights, and the need to eliminate plagiarism in student coursework and dissertations [10].

– Loss of the human factor. The use of AI may lead to a decrease in interaction between students and teachers, which may affect the quality of learning and student motivation [5].

As a result, traditional educational and methodological complexes (EMC) are subject to radical revision and modernization, taking into account the introduction of AI technologies into the educational process (Table 1). Particular attention should be paid to the development of tasks that require creative thinking and an individual approach from students, which will make it difficult for them to automatically complete such tasks using AI. The article plans to examine how, with the help of AI, it is possible to improve the educational process by personalizing learning, automating the assessment of student performance, creating interactive educational materials, and increasing the accessibility of education through online platforms.

Conclusion

The use of artificial intelligence in the university educational process presents both potential for innovation and challenges. Effective implementation of new technologies requires a balance between automation and maintaining the human factor in the educational process.

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