

The Use of Artificial Intelligence in The Organization of the Educational Process in A Digital Educational Environment

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Abstract:

The article explores the use of artificial intelligence in organizing the educational process in a digital educational environment. An analysis of AI tools and systems, their advantages and challenges, is conducted. The main stages of AI implementation are considered. Recommendations for further research in this area are proposed.

Keywords: Artificial Intelligence, Organization of The Educational Process, Digital Educational Environment, Educational Technologies, Learning Management.

Introduction:

The article is dedicated to the theoretical exploration of using artificial intelligence in organizing the educational process within a digital educational environment. Its aim is to uncover the potential of integrating artificial intelligence to enhance the quality of education, individualize approaches to each student, and facilitate more effective interaction between teachers and students.

The primary goal of the research is to conduct a constructive analysis of current trends in the use of artificial intelligence in organizing the educational process.

The features of the digital environment and artificial intelligence technologies in the educational environment:

The digital environment and artificial intelligence (AI) technologies are integral parts of modern

education. They provide unique opportunities for accessing information, advanced data analysis and processing tools, and enable the automation and optimization of learning management processes. The integration of AI into educational management offers a wide range of new possibilities for improving educational processes and discovering the potential of each student [1;2].

Despite significant breakthroughs in scientific research and the development of artificial intelligence technologies, there is currently no universally accepted definition of the concept of "artificial intelligence" [3]. This is due to the various technically complex and programmatically implemented characteristics and qualities of artificial objects to which artificial intelligence is provided to solve tasks. According to the cybernetic approach to management, it is

considered as the process of transforming information in order to achieve a certain result.

In the context of education, the pedagogical process is perceived as the management of the learning process, rather than just the transmission of knowledge. The teacher designs, directs, and corrects the educational-cognitive activities of students with the aim of achieving educational results. Managing the learning process involves a set of measures aimed at ensuring the effective functioning of the educational system. This is achieved through the analysis of the initial state of students and the results of their learning, the development of an individual educational trajectory, and adjustments to the curriculum. Quality management is possible only with complete information about the subjects and the nature of the learning process, both at the initial stage and throughout the entire educational process.

In the context of learning in a digital educational environment, learning management is a complex of measures, methods, and tools aimed at planning, organizing, coordinating, and controlling the educational process to achieve specific educational outcomes for individual students.

In the process of learning management, the following main measures are taken: planning and organizing learning, monitoring and evaluating learning outcomes, as well as adapting and improving programs and teaching methods through the analysis of students' performance. From the above, it can be concluded that the models being constructed should take into account not only the academic characteristics and preferences of students but also their level of knowledge, skills, and educational environment. Managed learning allows for active interaction between teachers and learners, providing monitoring and progress analysis, adaptation of content and teaching methods, as well as feedback [4;5].

However, to ensure quality learning management, it is necessary to have complete information about the subjects (students) and the nature of the learning process. This includes obtaining

information about students' prior experience, analyzing their academic achievements, assessing their motivation and interests, as well as considering the features of the educational environment and available resources. Continuous feedback between teachers and students is an integral part of successful managed learning.

The main problems that arise during the implementation of artificial intelligence technologies in the educational environment:

Managing learning in a digital environment requires constant updating and adaptation to rapidly changing technologies and students' needs. This includes a wide range of measures and approaches aimed at ensuring effective and high-quality education. It should be noted that the AI toolkit for use in organizing the learning process can be represented by both software used within academic disciplines and learning management systems. Such systems may, for example, allow for monitoring students' mastery of material, automated assessment, providing feedback, etc. The latter point in the above list involves the application of machine learning, an AI method, whereby classification and profiling occur, which is applied in various situations, such as forecasting students' outcomes (enrollment, potential dropout), and determining task themes.

Furthermore, it is necessary to highlight the main problems typically identified in the process of implementing AI technologies in the educational environment:

- the high cost of implementing artificial intelligence, which requires large investments in technology and infrastructure;
- the problem of privacy and data security;
- the problem of objectivity of AI related to the use of the systems on which it is trained;
- ethical problems that may conflict with ethical principles and values, such as fairness, transparency, etc. (use of face recognition technologies, surveillance systems in classrooms, etc.);
- the lack of necessary experience in the field of computer science, data analysis, and machine learning among specialists implementing AI;

- a decrease in contact between people, which hinders the development of critical thinking, communication skills, and problem-solving skills [6;7].

Within the approach described above, the implementation of AI technologies in the organization of the educational process can be considered as one of the elements of enhancing the competitiveness of a higher education institution in the educational environment, considering the phased implementation of technologies in accordance with benchmarking tools.

Thus, three main stages of implementing AI in the educational process can be identified, as often described in most contemporary academic works:

1. Implementation of tools to simplify specific aspects of the educational process, such as campus orientation, course selection, or ongoing performance monitoring. Some researchers empirically demonstrate that AI can provide students with quick feedback and rewards, thereby enhancing their motivation. Regarding the implementation of assessment systems using AI, it can be noted that these technologies allow for more effective and economical assessment methods. Automated grading of students' written work is carried out using natural language processing (NLP) and machine learning (ML) technology.

It is necessary to separately note that in the initial stages of AI implementation, student motivation can be increased using specific tools to enhance student engagement. Research by S. Barab, Q. Wang, and others shows that AI can be effectively used to increase motivation and engagement by introducing computer games and simulations. This approach is particularly active in engineering education when studying subjects related to mathematics, technology, and others.

Furthermore, AI can leverage virtual and augmented reality (VR, AR) technologies, which can also contribute to the effectiveness of the educational process, making it more interesting, interactive, and engaging. The implementation of such tools in the future can

increase prospective students' interest in the educational program, which is an integral mechanism for shaping perceptions of educational services even before enrolling in a higher education institution.

2. Implementation of AI tools based on big data analysis and their integration into the educational process at the level of selecting educational trajectories and enhancing the interaction between "teacher-student." Currently, there is a significant amount of research confirming the effectiveness of AI applications in improving the efficiency of the educational process, including the formation of individualized trajectories. Such AI-based systems allow for adaptation to the specific requirements of each student and the competencies of each teacher, providing feedback on each student and offering the necessary support. Additionally, it is essential to highlight the high significance of this stage in terms of teachers adopting new methods of interaction with students, which are necessary for them to acquire new digital competencies.
3. Comprehensive implementation of digital tools that create an internal digital network of the higher education institution, considering its specificity, integrated into all aspects of its activities, and creating student communities throughout the learning process [7-10].

Therefore, the implementation of artificial intelligence in the organization of the educational process is determined by the necessity to address fundamental issues related to individualized learning, improving the quality of education, developing innovative methodologies, and ensuring adaptation to the modern requirements of the digital environment.

Conclusions:

Thus, the key elements of implementing artificial intelligence to enhance the educational process and its infrastructure in higher education institutions have been explored. It has been established that artificial intelligence can improve the learning process in higher education institutions, make it more engaging for students, and increase its effectiveness. The main idea of its use in the context of teaching activities lies in the auxiliary

functions of artificial intelligence, which can provide opportunities to save time and create conditions for successful work with students. In the administrative activities of educational institutions, artificial intelligence will allow for the efficient resolution of managerial functions. It is necessary to note that further research on this issue can continue to focus on defining the necessary conditions for the implementation of artificial intelligence in the digital educational environment. It is essential to determine the specificity of using artificial intelligence tools and technologies to enhance the educational process and its infrastructure in higher education institutions, which requires further research.

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