

**IMPROVING THE EFFICIENCY OF USING ARTIFICIAL INTELLIGENCE
TECHNOLOGIES IN DIGITAL LEARNING ENVIRONMENTS**

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Abstract

This article examines the implementation of artificial intelligence technologies in the educational process and their importance for improving the quality of education. In an era of rapid development of modern information technology, it is essential that the younger generation possess knowledge and skills that meet the demands of the times. In this context, the effective use of artificial intelligence technologies in the education system, improving the educational process, and enhancing the effectiveness of education are discussed. The article also presents opinions on the integration of artificial intelligence in education and its practical potential.

Keywords

educational process, artificial intelligence, digital technologies, information technology, quality of education, innovative approach, digital education.

**ПОВЫШЕНИЕ ЭФФЕКТИВНОСТИ ИСПОЛЬЗОВАНИЯ ТЕХНОЛОГИЙ
ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ЦИФРОВОЙ ОБРАЗОВАТЕЛЬНОЙ
СРЕДЕ**

Аннотация

В данной статье рассматривается внедрение технологий искусственного интеллекта в образовательный процесс и их значение для повышения качества образования. В эпоху стремительного развития современных информационных технологий важно, чтобы молодое поколение обладало знаниями и навыками, отвечающими требованиям времени. В этом контексте обсуждаются вопросы эффективного использования технологий искусственного интеллекта в системе образования, совершенствования учебного процесса и повышения эффективности образования. В статье также представлены мнения об интеграции искусственного интеллекта в сферу образования и его практических возможностях.

Ключевые слова

образовательный процесс, искусственный интеллект, цифровые технологии, информационные технологии, качество образования, инновационный подход, цифровое образование.

**RAQAMLI TA'LIM MUHITIDA SUN'IY INTELLEKT TEXNOLOGIYALARIDAN
FOYDALANISH SAMARADORLIGINI OSHIRISH**

Annotatsiya

Ushbu maqolada ta'lim jarayonida sun'iy intellekt texnologiyalarini joriy etish hamda uning ta'lim sifatini oshirishdagi ahamiyati yoritilgan. Zamonaviy axborot texnologiyalari jadal



rivojlanayotgan davrda yosh avlodning zamon talablariga mos bilim va ko'nikmalarga ega bo'lishi muhim ahamiyat kasb etadi. Shu nuqtai nazardan, ta'lim tizimida sun'iy intellekt texnologiyalaridan samarali foydalanish, o'quv jarayonini takomillashtirish va ta'lim samaradorligini oshirish masalalari muhokama qilinadi. Shuningdek, maqolada sun'iy intellektning ta'lim sohasiga integratsiyasi va uning amaliy imkoniyatlari haqida fikr-mulohazalar bayon etilgan.

Kalit so'zlar

ta'lim jarayoni, sun'iy intellekt, raqamli texnologiyalar, axborot texnologiyalari, ta'lim sifati, innovatsion yondashuv, raqamli ta'lim.

Introduction

Today, significant attention is being paid to the development of the education sector in our country. Considerable efforts are being undertaken to reform and improve this system. The introduction of modern technologies and the adaptation of the education system to contemporary requirements clearly demonstrate these reforms. The development and implementation of artificial intelligence (AI) applications in secondary and higher education have the potential to positively transform both students' learning processes and teachers' instructional methods. AI applications can provide personalized learning experiences for students and offer innovative solutions to various challenges in the field of education [1].

The fundamental feature of artificial intelligence is its ability to evaluate possible actions and select the most effective one to achieve a specific goal. Currently, artificial intelligence consists of various algorithms and software systems designed to perform different tasks, and it is capable of carrying out many functions that can traditionally be performed by the human mind [2]. The integration of artificial intelligence and computer technologies into the education sector is becoming an essential requirement of the modernizing world. The digitalization of education undoubtedly plays a crucial role in the development and improvement of this field.

Literature Review and Methodology

Today, significant attention is being paid to the development of the education sector in our country. Fundamental reforms are being implemented in the field of education. Efforts are being made to improve the efficiency of the education system and to establish international cooperation with foreign countries in this field. In general, in today's educational process, interest in and attention to the use of interactive methods, innovative technologies, pedagogical approaches, and information technologies in the learning process are steadily increasing [3].

At present, many effective measures are being taken to improve the educational process and to organize it systematically in accordance with modern requirements. The modernization of these processes enables us to benefit from global knowledge resources and ensures that we keep pace with the rapidly developing modern world. One of the most well-known textbooks on artificial intelligence in the world is "Artificial Intelligence: A Modern Approach" by Stuart Jonathan Russell and Peter Norvig. The book was first published in 1995, and its fourth edition was published in 2020. According to the authors, artificial intelligence aims to understand intelligent entities and create new intelligent agents. As they note, "Although no one can predict the future in detail, it is clear that computers with human-level (or higher) intelligence will have a significant impact on our daily lives and the future development of civilization" [4]. In the modern era, various projects have been developed to improve the education sector by studying



foreign experiences, creatively adapting them, and implementing them in practice in accordance with contemporary requirements.

Results and Discussion

Based on these aspects, efforts have been launched in many areas to create a favorable and favorable ecosystem for the development of innovative business models, products and service delivery methods based on artificial intelligence technologies, and to implement them in the identified priority sectors and areas. The reason is that through artificial intelligence technologies, we can achieve high results through our modern vision. In today's rapidly growing era, the role of computers and other modern technologies is incomparable. Currently, great importance is being attached to the development of this modern technology and the field of artificial intelligence in every country and the introduction of these technologies into science and education. It cannot be denied that this is a direction that ensures the development of these areas. The rapid introduction of information technologies in the education system expands the areas of application of modern technologies. At the same time, it is possible to highlight the developing directions of modern information technologies in education. Through these processes, we achieve effective results and achievements.

Today, as in all areas of our country, innovations are being introduced in the education system. In particular, the technologization of the education system, increasing the efficiency of education, and the application of new pedagogical technologies entering our social life to educational processes remain one of our main tasks. Because the rapid adoption of new pedagogical and information technologies, their analysis, theoretical generalization, drawing conclusions and delivery to students is one of the most urgent problems. The prospects for the development of pedagogical technologies are ensured by critically analyzing their theoretical foundations and finding an effective approach to the educational process. That is, over a certain period of time, along with changing the theoretical foundations of pedagogical technologies, it will be possible to change their "problem area". Organizing the educational process on the basis of a technological approach requires a positive solution to a number of didactic tasks [5]. We can also see that the introduction of this method into the education system has yielded good results. It would not be wrong to say that teaching in a new innovative program is also becoming one of the main strategies of today.

1. Implementation of the capabilities of software tools for educational purposes as a teaching tool, a learning basis and a means of information processing. Integration of the capabilities of educational and demonstration devices and computer tools in the creation of educational and methodological complexes.

2. The use of such complexes helps the student to accumulate and store information about the process being studied, to reveal the laws and essence of the processes. This creates the opportunity for the student to develop his intellectual and creative potential and to obtain independent knowledge.

3. Achieving the integration of the capabilities of computers and audio-video information transmission devices in the creation of multimedia systems. Such systems, embodying a complex of software and hardware tools and devices, combine various forms of information (text, graphics, sound, image) and organize interactive communication with the user [6]. Of course, the results are also visible. Many scientists today are supporters of modernization through the improvement of artificial intelligence technologies.



The result of research on “artificial intelligence” is the desire to understand the work of the brain, to unravel the secrets of the human mind and to create machines with a certain level of human intelligence. The main possibility of modeling intellectual processes is that any function of the brain, any mental activity described in a language with strictly unambiguous semantics using a limited number of words, can in principle be transferred to an electronic digital computer [7]. In this process, technology and man are combined, and technology performs work, reducing human labor. We can see that this system is transferred not to man, but to artificial intelligence, which is a product of thought. We can see that our orientation of this system to the field of education has allowed us to improve this system and digitize this system. Currently, significant work is being done to integrate this area into the education system.

1. Person-centered learning: AI applications can be used to provide personalized learning experiences for students. By analyzing student data such as test scores, homework, and learning preferences, AI can provide customized feedback and learning materials to help students reach their full potential.

2. Enabling adaptive learning: AI applications can also be used to create adaptive learning systems that adjust the level of difficulty and learning pace based on the individual performance of students. This helps to maintain students’ engagement and motivation and ensures that they learn at a level that is appropriate for their skill level [8]. In this learning, the work implemented is organized in a planned and system-based manner.

3. Supporting students in their learning process: AI applications can support students through various methods such as tutoring and consulting services. For example, AI-based chatbots can offer 24/7 support to students who need help with their coursework or are struggling with mental health issues [9]. This is where the positive aspects of this system come in. It works by taking into account all sides. The benefits of AI cannot be denied today. This system needs to be developed and widely used in practice.

4. Improving administrative efficiency: AI can also be used to simplify administrative tasks such as grading and attendance tracking. This can save teachers time spent teaching and advising students [10]. The issue of time is a pressing issue today. It is precisely with the help of AI that this issue can be solved. It is difficult to deny the use of AI in teaching processes, or distance learning, in education today. Through these technologies, we can achieve systematic education, a high-quality, fast, and effective education system.

5. Implementing predictive analytics: AI applications can also help predict student outcomes and identify at-risk students who may need additional support. By analyzing data on student learning and learning, AI can identify student problems and take the necessary steps to help them succeed [11]. Of course, in addition to the work we have listed above in this system, we can also consider the need to sort data in this system. The unique role of artificial intelligence in this area is evidenced in our above thoughts. Including improving the education system will be one of our positive achievements. Along with receiving modern education, every young person will keep up with the rapidly growing times. We can say that introducing this area into wide practice will be one of the most effective achievements towards new achievements. In our country, in recent years, a lot of work has been done within the framework of the strategy of action and its continuation, the development strategy. We can see that fundamental changes have been made in the field of education. Like developed countries, there has been a continuous and effective improvement of the education system, the introduction of technologies into the educational process, significant reforms have been carried out in the field of quality education,



and the training of qualified personnel. Many effective works and reforms have been organized for the development of this area. One of these is the creation of a modern education system and the introduction of technologies into this area. Of course, it is worth noting that artificial intelligence also has its place in the modernization of the education system.

Conclusion

In conclusion, we need to widely introduce digital technologies into the education sector and transfer the education sector to digital technologies. It is undeniable that the role and influence of information technologies in the development of a well-rounded personality, his independent choice of profession and professional self-formation, and the development of professional skills are increasing. Today, great attention is paid to the education system in our country. These include the work being carried out to attract young people to the education system and organize their time meaningfully. Today, many spiritual and educational activities are being organized in the education sector. Roundtable discussions are also being held with young people. The reason is that the processes of educating today's youth have become one of the daily issues not only of the family, school, but also of the entire scale. Now we live in a society where science is developing. And our youth keep up with the times. Many young people are spending their time using various idle networks for meaningful entertainment. This, in turn, naturally has a negative impact on the education of today's youth. In this regard, we need to direct young people to educational processes. We need to develop this area and widely introduce artificial intelligence in education, adapting the education sector to the requirements of the times.

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