PROSPECTS FOR THE APPLICATION OF ARTIFICIAL INTELLECTUAL TECHNOLOGIES IN EDUCATION

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Annotation. This article analyzes the use of artificial intelligence technology in the organization of educational processes, what opportunities it creates and how effective it is, and other important factors in it. There are also suggestions and recommendations for the creation of an Intelligent tutoring system (ITS).

Keywords: Artificial Intelligence (AI), technology, knowledge, model, system, Intelligent tutoring system (ITS), intelligence, information technology, integration, ICT, software, adaptive, expert system.

Аннотация. В данной статье анализируется использование технологии искусственного интеллекта в организации образовательных процессов, какие возможности она создает и насколько эффективна, и другие важные факторы в ней. Также есть предложения и рекомендации по созданию интеллектуальной обучающей системы (ИСО).

Ключевые слова: Искусственный интеллект (СИ), технология, знание, модель, система, интеллектуальные обучающие системы (ИСО), интеллект, информационные технологии, интеграция, ИКТ, программное обеспечение, адаптивная, экспертная система.

It is impossible to imagine the modern era without ICT, because ICT is rapidly and widely used in all spheres of world society. ICT is one of the first to enter all stages of education and is constantly updated with the latest hardware and software of information technology. At the same time, ICT and Artificial Intelligence (AI) technologies are rapidly evolving. Given that the use of AI technologies in education is a requirement of the times, the targeted use and application of AI technologies used in educational platforms, educational programs and applications, as well as in the educational process is a topical issue. This, of course, requires in-depth knowledge of algorithms and models of AI technologies, training and training of AI specialists, as there are not enough such specialists in the IT market today.

First of all, in order to increase the impact of the world's latest technologies on the use, application, development, development and other areas of the country, the state must have a legal framework for those areas or technologies. We must recognize that the legal framework for the use and development of AI technologies in our country, based on the decisions of the President, creates a wide range of opportunities, and this area is not neglected. President of the Republic of Uzbekistan Sh.M. In accordance with Mirziyoyev's Resolution No. PP-4996 of February 17, 2021 "On measures to create conditions for the accelerated introduction of artificial intelligence technologies", in accordance with the Strategy

"Digital Uzbekistan - 2030" and Accelerated introduction of artificial intelligence technologies and their widespread use in our country, ensuring access to digital data and their high quality, the creation of favorable conditions for the training of qualified personnel in this field [1]. In addition, President Sh.M. Mirziyoyev's Resolution PQ-5234 of August 26, 2021 "On measures to introduce a special regime for the use of artificial intelligence technologies" is of great importance [2]. The main objectives of the resolution are to create a favorable and optimal ecosystem for the development of innovative business models, products and services based on artificial intelligence technologies, their rapid introduction and implementation in identified priority sectors and industries. The above-mentioned resolutions of the President state that knowledge of AI technologies, models and algorithms, their creation, creation of software based on them, their implementation in life, focused field, practice and its targeted use is a requirement of the time and on this basis proves abrupt development aspects. For this purpose, in this article we will consider AI and its technologies in education.

Nowadays, in the rapidly changing information technology, artificial intelligence technology is being promoted as the product of the third industrial revolution of development as the future of all industries. According to the characteristics of artificial intelligence, some scientists now define artificial intelligence as an area that combines intelligence and computers. Its main purpose is to study how to create intelligent machines (intelligent computers) or intelligent systems. In short, artificial intelligence machines can be thought of as imitating human thinking and various actions [3]. At the same time, the needs of the industry can be met through the rapid development of information technology, digitization of all different industries, and the development of systems in all industries using artificial intelligence technology, rather than traditional computer technology in digitization. demands to make the right decision based on human thinking.

The essence and foundation of AI technology is human knowledge and experience. For the effective development of AI technologies, it is necessary to move from traditional digital computer programs to processing, thinking-oriented programming based on types of knowledge [4]. Obviously, there are many obstacles to change in this way of thinking. In addition, the artificial intelligence system is a complex field, the development of which takes a long time. The development process requires not only excellent software and hardware, but also long-term and continuous efforts of developers [5]

The first research on artificial intelligence (AI) models in education and its application was conducted in 1970, and the first scientific conference on AI was held in 1983 [6] because The continuous development of technologies in the field of IT, the study of active education by researchers has led to issues related to AI. Since then, the use of computer equipment in K-12… 20 systems [7] and in higher education has increased dramatically, and many educators are focusing on the use of SI technologies. The unexpected Covid-19 epidemic, which shook the world, dramatically increased the integration of distance learning for teachers on a daily

basis and further expanded the scope Intelligent tutoring system. However, whether SI is a technical means of communication between teacher and student using technology, or whether it is difficult to define clear explanations for identifying IoT [8]. Scientist Cumming noted in 1998 that this complexity stemmed from the differentiation of systems with or without a wide range of feedback systems that acted as instructors and technicians.

AI technologies are widely used in all areas. In education, we also consider them. In the field of education by many scientists, the AI models are divided into several groups.

First group: in 2016, scientist Luckin and others divided the AI models in education into the following three categories[10]. Each model is aimed at discussing different aspects of knowledge:

1. Pedagogical model-orientation of teaching to knowledge and teaching experience;
2. Reader model-orientation to the knowledge of the reader;
3. Subject model-orientation to knowledge in the subjects studied.

In order to understand what is going on between the computer and the reader, the interaction of the reader such as his current activities, previous achievements, emotional state and whether or not he has responded to them can be expressed in the reader models. Subsequently, these interactions use algorithms that process this information to evaluate the aspects of the student and the teacher in the subject and pedagogical models. Re ishlangan data are then delivered to the reader by identifying the most appropriate content according to their needs and used to create new interactions. All three models will make decisions such as "intellektual" (adaptively automatic receipt of information on the links) retrieving and stopping re-updates when receiving additional information, news, actions and fixings.

Second group: although some software products and tools were combined into several categories, in 2019, scientists Beyer and Smith divided the AI models into three categories in education:

1. Orientation to students;
2. Orientation to teachers;
3. Redirecting to the system.

This requires a system that will include software that the reader will use in practice to learn more information according to their needs. This category is commonly referred to as "Intelligent tutoring system” (ITS)" or "adaptive", "personalized" or "differential learning platforms", which provide an opportunity for students to process their knowledge, reflect and facilitate interaction between students. Such tools can be used outside the classroom, at this time students will get acquainted with new concepts, and in the course of the lesson they will spend on the development and deepening of knowledge about these concepts. On the other hand, it supports the automation of tasks such as assessment and evictionilikni identification in the teacher-oriented model, the fact that mutual

information is interrelated with one another can easily present intellektual reports to the teachers.

In addition, the teachers offer different methods of teaching based on the characteristics of the students. For example, we recommend that teachers experiment with techniques of working in small groups and various interactive techniques or pre-planning of the working plans of the class (corresponding to each class) in order to eliminate the problems that arise in the relationship with the students.

In 2019, scientists Beyker and Smith believe that the AI models of education aimed at Intelligent tutoring system - the least studied subject. Training AI models for training systems management and control system can help us create programs and applications for the organization of tables and forecasting of inspections. In 2019, scientist Murphy proposed the integration of educational AI models based on the systematic design of applications, instead of classifying them according to how educational AI models reflect the capabilities of each model and system.

Education the AI models used in most of our research on AI models are divided into two categories, which are rules-based expert systems and machine-based learning systems in a narrow range. The first category includes programs that operate as adaptiv instructional software systems. There are two main elements of expert systems:

- Knowledge base and Output mechanism.

The knowledge base collects the coded data and the experience needed to solve problems and often adheres to statements or regulations. The output mechanism makes decisions based on incoming data sources and produces recommendations that follow the rules in an expert knowledge base.

Unlike rules - based expert systems, machine - based learning is what we can call a predictive model-building approach by processing a large amount of data using statistical algorithms. The system determines the rules between the outgoing variables and the input predicate variables. For example, machine learning algorithms can be used to analyze the relationship between Junior Secondary School graduates entering the school and early secondary school students entering the school on time, taking into account their age characteristics. Another example would be to say the essay automated evaluation system (AES). With the help of natural tilni processing technology, algorithms distinguish the characteristics of the text and compare them with the characteristics of essays written by a person. In the end, the algorithms study the relationship patterns between functions and records of different levels for evaluation similar to human performance in performing standard written tasks.

The software of the system of intellectual education using artificial intelligence technologies, taking into account the results of successful applications in the education systems of developed countries in the field of IT, in the creation of the Intelligent tutoring system. I think it is necessary to include:

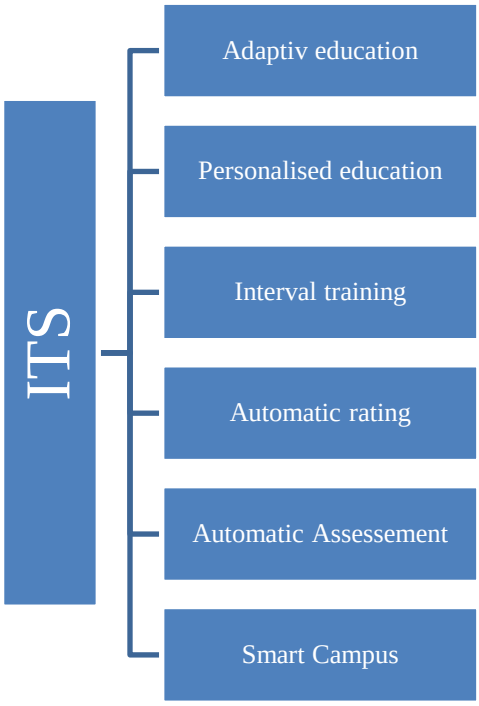

Figure 1. A set of functions of an Intelligent tutoring system (ITS).

The following are examples and examples of each function (curriculum):

1. Adaptive education - provides the widest range of opportunities for the use of artificial intelligence in the educational process. It helps to monitor the individual development of each student. For example: "I have studied the topic, it is time to write a test paper, the knowledge is very useful, the system informs the student and the teacher about the difficulties in understanding such materials."

2. Personalized education is a comprehensive educational program that depends on the needs, individual interests, strengths and weaknesses of each student, depending on the methodology and speed of learning. Artificial intelligence adapts the learning process to the teaching method, depending on the individual speed of each student, and suggests increasing the complexity of the tasks assigned. This approach allows everyone to choose a convenient mode. In this case, knowledge can be learned quickly and slowly.

3. Automated Assessment - An automated assessment system based on artificial intelligence that is simulated as a function of a program that compares teachers ’behaviors when checking homework. It can assess students ’knowledge, analyze responses, report individually, and create a curriculum that takes into account individual characteristics.

4. Intermittent teaching - This method of teaching allows you to effectively master the material on the topic using AI technology. For example, Polish engineers have created a program that tracks the student precisely and when he is learning. With the help of artificial intelligence, you can gain sustainable knowledge through a number of approaches by determining when a program can advise students to forget new information and repeat it.

5. Student Assessment - Educational institutions monitor students' attitudes toward teachers and conduct surveys. Although paper surveys have now been

replaced by digital, the feedback process has changed very little. However, it is time to reconsider it, as student comments are an important source of information. Artificial intelligence offers interesting opportunities to optimize this process:

• Chat Bots can gather information using a chat interface that mimics a real conversation. This process does not require much effort from the students.

• Conversations can be adapted to the character of the students and changed depending on their responses.

• Chat Bots can sometimes filter out rude comments and personal insults found in feedback forms.

6. Intelligent Campus - Explore campus and respond to any student inquiries related to life. For example, finding a lecture audience, registering for a selected course, taking assignments, finding space in a parking lot, or contacting a professor. As a practical example, Intelligent Compusers are already available at the University of Western Australia (UWA). It runs on a supercomputer system (Watson) created by IBM.

In summary, more emphasis should be placed on artificial intelligence-based research based on artificial intelligence technology-based vocational education compared to traditional higher education. Due to the fact that specialized vocational education is based on artificial intelligence technologies, the forms and methods of education are automatically selected and taught according to the intellectual abilities of students. Especially in today's developed countries, where artificial intelligence is becoming an important component of modern vocational education, the need to invest in research using artificial intelligence technologies is high. Therefore, these factors create opportunities for effective development of the introduction of artificial intelligence in modern special vocational education. several types of artificial intelligence models should be used in the creation of intellectual learning systems. The software of an intelligent learning system should cover all types of student learning and combine the above optimal models and functions in an integrated environment. We will also be able to prevent corruption in areas where artificial intelligence technology is used. Because we see corruption (bribery) not only in education, but in all other areas, and it is advisable to use AI technology (as a method) to eliminate it. Because artificial intelligence technologies do not require humans and human factors to control a device or application. For example, in order to avoid familiarity and corruption in education, artificial intelligence provides transparency in the identification and publication of real results of the student in the intermediate, final and similar exams, where the result is not human or device or application control, only artificial intelligence responds. We can cite many examples. it is expedient to increase the number of specialists in artificial intelligence and to use the system of intellectual training in the educational stages. I think the above features should be integrated into the ITS software.

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