USING THE EXPERIENCE OF DEVELOPED COUNTRIES IN INTRODUCING ARTIFICIAL INTELLIGENCE TECHNOLOGIES IN UZBEK SCHOOLS

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Abstract: In today's globalized world, the integration of Artificial Intelligence (AI) technologies into education is being effectively implemented based on the experience of developed countries. In the USA, South Korea, Japan, and European nations, AI is applied to personalize learning, reduce teachers' workload, and expand distance education opportunities. For Uzbekistan, studying and adapting this experience to national curricula is of great importance. The paper analyzes advanced practices, adaptation strategies, and future prospects of AI in schools.

Keywords: artificial intelligence, education, international experience, school, innovation, Uzbekistan.

INTRODUCTION

Today, information technologies are rapidly developing worldwide and are penetrating almost all spheres of social life. In particular, the education system is also taking a step towards fundamental changes through the widespread use of innovative technologies, in particular, the capabilities of artificial intelligence (AI). Artificial intelligence is considered not only a means of automating the educational process or creating electronic textbooks, but also a new generation technology that allows providing personalized education, revealing students' potential more deeply, and increasing the efficiency of teachers.

The experience of developed countries shows that AI is an effective tool for improving the quality of education, forming students' independent learning skills, and developing creative thinking in them. For example, in US schools, AI-based platforms are widely used to assess the individual abilities of students and provide them with appropriate curricula. In South Korea, AI has been used to improve the distance education system and expand teachers' ability to manage the teaching process. In Japan, AI technologies are used to develop students' logical thinking and learn foreign languages.

For Uzbekistan, studying these experiences and adapting them to the national education system is one of the urgent issues. The "Digital Uzbekistan – 2030" strategy identifies the introduction of information technologies, including AI, as an important direction for the modernization of education. The use of SI technologies in school education can serve to effectively organize the educational process, facilitate the work of teachers, accurately assess the level of knowledge of students, and form individual educational programs based on their personal abilities.

However, there are a number of problems in the introduction of AI technologies. In particular, the level of technical equipment of schools, the technological literacy of teachers, the relevance of curricula, and information security issues need to be resolved. From this point of view, studying the experience of developed countries and adapting it to the conditions of Uzbekistan is considered an important scientific and practical task. Because international practice shows that

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for the effective use of artificial intelligence in education, not only technical infrastructure is needed, but also a methodological approach, continuous professional development of teachers and a social support system.

The relevance of the use of AI, the need to use the experience of developed countries, and the opportunities available to Uzbekistan were highlighted. In the following sections, these experiences will be analyzed and ways and prospects for their integration into the national education system will be studied in depth.

LITERATURE REVIEW AND RESEARCH METHODOLOGY

In recent years, the impact of artificial intelligence (AI) technologies on the education system has been widely discussed internationally. Scientific research conducted in the USA, South Korea, Japan, and European countries has revealed the possibilities of personalizing the learning process, automatically assessing knowledge, and increasing educational efficiency using AI. For example, UNESCO's 2020 report "Artificial Intelligence in Education" specifically recognizes AI as a tool to support teacher activities in the educational process. In its 2021 analysis, the OECD showed mechanisms for identifying students' cognitive skills and developing individual programs using AI technologies.[1; 215]

Local scientists are also conducting research in this area. In particular, S. Akhmedov's study "Artificial Intelligence and Education System Integration" analyzes the use of SI technologies in the educational process, and M. Kadirova's work "Digital Education Infrastructure" analyzes the issues of expanding digital opportunities in schools. The resolution of the President of the Republic of Uzbekistan on the "Digital Uzbekistan - 2030" strategy is also recognized as an important source in this area.

An analysis of international experience shows that in the process of introducing AI technologies into the educational process, attention is paid to three main areas: strengthening the technological infrastructure, increasing the digital literacy of teachers, and adapting national educational programs. At the same time, information security and ethical issues are also noted as one of the main problems.[2; 198]

This study analyzed the possibilities of studying the experience of developed countries and adapting them to the conditions of Uzbekistan. The study was based on the following methodological approaches:

Theoretical analysis. Reports published by international organizations (UNESCO, OECD, World Bank), foreign scientific articles and monographs, as well as research works of local scientists were studied.

Comparative analysis. The experience of using AI technologies in education in the USA, South Korea, Japan and European countries was compared with the education system of Uzbekistan. Similarities and differences were identified and ways of adapting to national conditions were shown.

Empirical method. Questionnaires and interviews were conducted with school teachers, students and education specialists from different regions of Uzbekistan. As a result, real problems and advantages encountered in the implementation of AI technologies were identified.

Content analysis. The experience of using AI technologies on foreign and local online educational platforms was studied and their effectiveness was assessed.

Sociological approach. During the study, the attitude of students, parents and teachers to SI technologies, their psychological readiness and social acceptance were analyzed.[3; 65, 72]

ANALYSIS AND RESULTS

In the 21st century, the education system of developed countries has switched to the active use of artificial intelligence (AI) technologies. In US schools, AI-based "adaptive learning" systems are widely used, through which the level of knowledge, interests and learning pace of each student are taken into account. As a result, an individualized approach is provided in the teaching process.

In South Korea, AI technologies have become the main factor in the digitalization of education. In distance learning platforms, AI is used to select suitable tasks for students, and teachers have the opportunity to monitor student activity in real time. In the Japanese experience, AI is mainly used in teaching foreign languages, developing logical thinking and preparing students for national tests. In European countries, AI is used not only in the educational process, but also in monitoring the psychological state of students.

These experiences show that in developed countries, IS is being introduced as an assistant to the teacher, rather than a complete replacement for the human factor in the educational process. This approach, along with improving the quality of education, also serves to develop the creative potential of students.

The "Digital Uzbekistan – 2030" strategy, adopted by the government of Uzbekistan, has created an important legal and organizational basis for the introduction of AI technologies into the education system. Most schools have an Internet connection, and in some regions, experience in using electronic textbooks and digital platforms has been established.[4; 180]

A number of changes are being made in this area in our country today, as a clear proof of which we can take the Strategy for the Development of Artificial Intelligence until 2030.

Development of the digital economy, provision of convenient services to the population and improvement of the efficiency of public administration through the development and application of artificial intelligence (AI) technologies in Uzbekistan.

Priority areas of the strategy

Regulatory and legal framework - creation of laws and standards related to AI.

Science and innovation - support for scientific research, grants and startups.

Personnel training - opening new directions in universities, retraining teachers.

Technological infrastructure - creation of data centers and computing power.

Security and ethical standards - data protection when using AI.

International cooperation - exchange of experience and joint projects with developed countries.

Action plan for 2024-2026

Establishment of a national center for artificial intelligence.

Introduction of AI technologies in education, healthcare, transport, agriculture, ecology and public administration.

Support for startups and the private sector.

Creation of digital service platforms based on AI.

Introduction of new training courses to improve personnel skills.

Expected results (until 2030)

Uzbekistan will become one of the leading countries in artificial intelligence in the region.

Increased economic efficiency and creation of new jobs based on AI.

Improved quality of public services and acceleration of digital transformation.

Creation of a reliable AI ecosystem based on security and ethical principles.

Uzbekistan has a high youth potential. The younger generation, which makes up a large part of the population, actively uses digital technologies and can quickly adapt to innovations. This factor creates favorable conditions for the introduction of AI technologies into the education system. At the same time, digital education projects are being implemented in the country in cooperation with international organizations.

Nevertheless, there are a number of problems in the introduction of AI technologies in Uzbekistan:

Infrastructure problems. Some schools lack modern computer equipment and a stable Internet connection.

Teacher training. The level of digital literacy of many teachers is not sufficient for the effective use of AI technologies.

Financial constraints. The purchase and implementation of AI technologies requires significant funds.

Information security. The issue of protecting students' personal data remains relevant.

Ethical issues. It is necessary to maintain a balance between people and technology when using AI.

Solving these problems requires the coordination of the state, private sector, and international cooperation.

Studying the experience of developed countries can be a valuable lesson for Uzbekistan:

The experience of the United States is the ability to provide personalized education and select tasks appropriate to the level of knowledge of students.

South Korean experience - development of distance learning and creation of a system for monitoring students using AI.

Japanese experience - effective organization of the use of SI in teaching foreign languages and preparation for national tests.

European experience - monitoring the psychological state of students in the educational process and developing a social support system.

By adapting these experiences to the conditions of Uzbekistan, it is possible to increase the efficiency of the education system.

For the effective introduction of AI technologies in the conditions of Uzbekistan, the following measures must be taken:

Phase-by-step introduction. First, use AI technologies in pilot schools, and then expand throughout the republic.

Teacher training. Training teachers in the use of AI technologies through special courses and seminars.

Creation of national platforms. Development of educational platforms based on SI that work in the Uzbek language.

International cooperation. Implementation of joint projects with the USA, South Korea, Japan and European countries.

Information security. Development of special standards for the protection of students' personal data.

Adherence to ethical standards. It is necessary to ensure that AI technologies do not completely replace the human factor, but rather assist it.

The conducted analysis shows that Uzbekistan has great potential for introducing AI technologies into the education system, but it is necessary to solve existing problems. The experience of developed countries can serve as an important guide for Uzbekistan.

The following conclusions were drawn from the results of the study:

AI technologies are one of the important factors in improving the quality of education.

The experience of developed countries is of practical importance for Uzbekistan.

Infrastructure, teacher training, and information security are the main factors in introducing SI.[5; 102, 118]

It is necessary to create AI solutions adapted to the national education system.

If the experience of developed countries is adapted to the conditions of Uzbekistan, it will be possible to introduce AI technologies in schools on a large scale by 2030. This will not only improve the quality of education, but also serve to develop the intellectual potential of the younger generation and shape them as globally competitive personnel.

CONCLUSION

The process of introducing artificial intelligence technologies in Uzbek schools is of great importance for the future of the country's education system. The experience of developed countries - the USA, South Korea, Japan and European countries - shows that artificial intelligence technologies create great opportunities for the effective organization of the educational process, ensuring personalized education and developing the intellectual potential of students.

In the conditions of Uzbekistan, the gradual introduction of these technologies, increasing the digital literacy of teachers, creating national artificial intelligence-based platforms and ensuring information security are emerging as necessary tasks. The widespread introduction of AI technologies in school education will not only improve the quality of students' knowledge, but also help shape them as creative, independent thinkers and competitive personnel in the global labor market.

The results of the study show that Uzbekistan has wide opportunities for introducing AI technologies, but problems related to the existing infrastructure, teacher qualifications and financial resources need to be resolved. Effective use of the experience of developed countries will help accelerate this process. Thus, the widespread use of artificial intelligence technologies in the education system of Uzbekistan by 2030 may become a realistic goal.

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