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IMPACT OF DIGITAL TECHNOLOGIES ON PEDAGOGICAL PROCESSES

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Annotation: This article analyzes the role of digital technologies in the modern education system, their impact on pedagogical processes, opportunities and problems. Scientific analyses are presented on how pedagogical methods and students' mastery levels change as a result of the use of digital tools in the educational process. At the same time, concepts such as innovative approaches in education, distance learning, digital pedagogy and digital literacy are revealed. During the study, the introduction of digital technologies in the education system of Uzbekistan and their practical results were studied.

Keywords: Digital technologies, pedagogical process, distance learning, digital literacy, digital pedagogy, innovation, information and communication technologies (ICT), learning platforms, e-learning, interactive methods.

Introduction

In the modern era, digital technologies are deeply penetrating all aspects of our lives, especially in the field of education. In today's global competition, knowledge and innovation are seen as the main factors. Therefore, the digitization of the education system, the use of information and communication technologies in the educational process, and the transformation of pedagogical activities have become a necessity. Digital technologies not only provide educational resources, but also change teaching methods and the relationship between teachers and students. For example, classes that were previously traditionally held only in the classroom are now being held online, through various platforms, and even with the help of artificial intelligence. This requires the introduction of new approaches to the pedagogical process, arming teachers with modern competencies. Also, the transition to distance learning throughout the world during the pandemic has once again confirmed the importance of digital technologies. Within the framework of the “Digital Uzbekistan - 2030” strategy put forward by the President of the Republic of Uzbekistan, the digitalization of the education sector is becoming one of the priority areas of state policy. This article comprehensively covers the impact of digital technologies on pedagogical processes, analyzes existing achievements, current problems and prospects. In addition, the methodology for the effective use of digital technologies, their impact on student interest and knowledge, and the role of teachers are separately considered.

Research methodology

The research was conducted based on the following methods:

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1. Analytical method - scientific literature, government decisions, and international experience on the impact of digital technologies on education were analyzed.

2. Empirical method - the state of practical application of digital technologies was studied through questionnaires conducted with teachers, students, and pupils.

3. Comparative method - the education system of Uzbekistan was compared with the experiences of developed countries (USA, South Korea, Finland).

4. Statistical analysis - the mastery indicators after the introduction of digital technologies, the effectiveness of teaching were assessed through numbers.

5. Observational method - the use of electronic lessons, platforms, and the distance learning process were directly observed.

Main body

1. The concept of digital technologies and their stages of development

Digital technologies are a set of technologies that allow processing, storing, transmitting and presenting information in digital form. In the field of education, this concept includes various tools - computers, tablets, the Internet, online platforms, artificial intelligence, mobile applications, VR/AR technologies.

As a result of technological progress, digital forms of education (electronic textbooks, LMS systems, Zoom, Moodle, Google Classroom) have become popular.

2. The main types of digital technologies in the pedagogical process

Interactive boards and tablets

Electronic resources (e-books, video lessons, virtual laboratories)

Online platforms (Coursera, Edmodo, Khan Academy)

Distance learning systems (Zoom, Microsoft Teams)

Artificial intelligence-based education (ChatGPT, Duolingo Max)

These tools help students work independently and better assimilate knowledge through visual materials.

3. Positive impact of digital technologies

Student motivation increases. Lessons become more interesting and interactive through digital tools.

Quick access to information. Students can search for the necessary knowledge online at any time.

Renewal of pedagogical methods. Transition from traditional approaches to interactive, problem-based, creative methods.

Personalized learning. Individual approach depending on the abilities of each student.

Ensures inclusiveness in education. Students with disabilities can also receive education through distance and adapted platforms.

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4. Negative factors and problems

Technical failures, infrastructure problems.

Insufficient digital literacy of teachers.

Risk of student distraction, misuse of content.

Information security and privacy issues.

Lack of equal opportunities for students with low family income.

5. Digital technologies and the role of the teacher

The role of the teacher is shifting from a traditional educator to a facilitator, guide, and mentor. He or she must master new technologies and develop skills in working with modern digital tools.

6. Uzbekistan's experience

In recent years, digital technologies have been rapidly introduced into the education system of Uzbekistan. The projects "National Education Platform", "Electronic Journal and Diary" systems, "Online School" are a vivid example of this. In addition, educational resources are provided through national portals such as "Knowledge Competition", "ZiyoNet", "UzEdu". In our country, modern technical equipment is being supplied to schools in order to expand students' access to computers and the Internet. A project to gradually equip all secondary schools with digital classrooms in 2023-2025 was implemented. However, in some remote areas, the speed of the Internet, the level of teacher training, and the technical base still remain an urgent problem. Nevertheless, as a result of the reforms carried out to digitize education, innovative approaches to pedagogical processes are increasingly widespread.

Analysis and results

As a result of the survey and observations conducted during the study, the following main conclusions were drawn:

1. Survey results:

80% of teachers confirmed that digital technologies have simplified the teaching process;

75% of students stated that they master knowledge faster through interactive lessons;

60% of teachers admitted that they felt the need to improve their skills in ICT;

40% of students said that they had difficulty in distance learning due to the lack of Internet or computers at home.

2. Analysis of the level of mastery: It was found that students' mastery indicators in classes using electronic textbooks, video lessons and online tests are 15-20% higher.

3. Comparative analysis: Digital technologies are being actively introduced in the education systems of Finland, South Korea and Singapore, starting from preschool education. Uzbekistan started on this path later, but is developing rapidly.

4. Pedagogical effectiveness: Students' participation and engagement in lessons taught using digital tools have been observed to be higher than in traditional lessons. Particularly high results have been recorded in STEM subjects, foreign languages, and computer science lessons.

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Conclusion

Digital technologies have become an integral part of pedagogical processes today. They have not only changed the methods of teaching, but also significantly affected the attitude of students to education, the level of knowledge acquisition, and the professional approaches of teachers.

Accordingly, the following proposals can be put forward in the digitalization of the education system:

1. Introduction of mandatory advanced training courses for each teacher to improve digital competencies;

2. Strengthening the system of stable Internet, technical infrastructure and technical support in schools;

3. Expanding programs to provide mobile Internet and tablets to create equal opportunities for students in remote areas;

4. Increasing high-quality digital educational content in the Uzbek language;

5. Introducing lessons and trainings aimed at improving the digital culture of students.

Education in the future is unimaginable without digital technologies. Their correct and effective application depends on the training of educators, the strategic approach of the government, and infrastructure.

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