



Digital Technologies in The Education System

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OPEN ACCESS

SUBMITTED 29 January 2025

ACCEPTED 28 February 2025

PUBLISHED 31 March 2025

VOLUME Vol.05 Issue03 2025

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Abstract: This article analyzes the theoretical foundations of developing the education system based on digital technologies. The integration of modern information and communication technologies into the educational process, innovative pedagogical approaches, and the formation of a digital educational environment are studied. The effectiveness of digital educational platforms, their compatibility with the traditional education system, and their role in improving the quality of education are also analyzed.

Keywords: Digital technologies, education system, innovative approaches, information and communication technologies, digital educational environment, pedagogical innovations, improving the quality of education.

Introduction: Currently, digital technologies are widely used in all spheres of society, including the education system. Digitalization of the educational process, the introduction of innovative pedagogical technologies and their effective use serve to improve the quality of education. Therefore, the study of the theoretical foundations of the development of the education system based on digital technologies is one of the urgent issues.

Analysis of the literature on the topic. The importance of digital technologies in the education system has been studied by scientists, including N.S. Kramarenko, A.Yu. Kvashin, S.D. Karakozova, A.Yu. Uvarova, O.B. Akimova[1]. Due to limited resources and insufficient digital literacy of educational staff, digital transformation has had a late and uneven impact on educational organizations, and educational reforms implemented in recent decades have been very difficult.

International experience shows that the availability of digital technologies for participants in the educational process is a necessary, but not sufficient condition for increasing the effectiveness of educational work [2]. The use of digital technologies is associated with cloud

computing, the spread of public high-speed Internet, the widespread introduction of smart digital devices, the use of artificial intelligence methods, and the widespread introduction of virtual technologies. According to A.Yu. Uvarova's research, "personalized learning, or the personalized organization of the learning process, is the dream of many generations of professors and teachers" [3]. Here, the learner is not an object that is presented with educational material and "learns knowledge". He acts as a deeply motivated subject of educational work, developing and implementing his cognitive motives in the process of mastering the world around him. Today, the development of digital technologies has led to a transition in developed countries from mass production of standardized products to the flexible production of mass-produced individual products. At the same time, work has begun in the field of education to a result-oriented and person-oriented organization of the learning process. Every student receives a solid scientific and humanitarian education and develops modern competencies. In this regard, it is important to accelerate work on the effective use of digital technologies in the education system and conduct research on this.

In this regard, as the President of our country Shavkat Mirziyoyev emphasized, "To achieve development, it is necessary and necessary to master digital knowledge and modern information technologies. This will allow us to take the shortest path to progress. Because today, information technologies are deeply penetrating all sectors in the world. Of course, we know very well that forming a digital economy requires the necessary infrastructure, a lot of money and labor resources. However, no matter how difficult it is, if we do not start this work today, when will we start?! Tomorrow will be too late" [4]. The COVID-2019 pandemic, like all sectors, has affected the education system, including kindergartens, schools, and higher education institutions, which have all gone on vacation ahead of schedule. According to UNESCO, 1.7 billion students around the world have been deprived of traditional education due to the suspension of classes. The closure of universities in more than a hundred countries has forced 90% of the world's students to stay at home. As of March 3, UNESCO reported that 290.5 million students in 13 countries had been cut off from their studies due to the temporary closure of educational institutions and urged them to immediately switch to distance learning. According to data, today only 60% of countries that have closed educational institutions due to the pandemic have switched to fully digital education. Some international experts emphasize that it is impossible to completely

switch to online education, that this process should be viewed as a way out of the problematic situation, otherwise the quality of education will decline, while others recognize that a new era has begun for modern education. Intellectuals from some countries are putting forward the issue of ensuring the coverage of distance learning.

METHODOLOGY

Digital technologies create a number of opportunities in the educational process:

- The use of electronic learning platforms in higher and secondary educational institutions.

In the next address of the President of our country, Sh.M. Mirziyoyev to the Oliy Majlis, the issue of developing a National Concept of the Digital Economy, which envisages the renewal of all sectors of the economy based on digital technologies, and implementing the "Digital Uzbekistan - 2030" program on this basis was raised. The address, of course, although it concerns the economy, also imposes great tasks on us - teachers working in the field of education. Because the economic life of the country, reforms and advanced technologies for the introduction of digital technologies into all sectors, naturally, also directly relate to the education sector. After all, the basis of the digital economy is formed by personnel and education [5]. So, the future of digital Uzbekistan is now in the hands of our children and young people. Of course, if they have high-quality and modern knowledge that can manage and develop the digital economy, our future will be great, and the security of digital Uzbekistan will be ensured. In our country, comprehensive measures are being taken to actively develop the digital economy, widely introduce modern information and communication technologies in all sectors and areas, primarily in public administration, education, healthcare and agriculture. In particular, more than 220 priority projects have been launched to improve the e-government system, further develop the local market for software products and information technologies, create IT parks in all regions of the republic, as well as provide the sector with qualified personnel. In addition, the "Digital Tashkent" complex program is being implemented, which provides for the launch of a geoportal integrated with more than 40 information systems, the creation of an information system for managing public transport and municipal infrastructure, the digitization of the social sphere and the subsequent introduction of this experience in other regions [6]. The National Concept of the Digital Economy put forward by our President is for the Uzbek people, for multinational Uzbekistan. Therefore, everyone should contribute to its creation and implementation, as everyone is

interested in it. The emphasis on the implementation of digital education in the development of the digital economy program is observed in the experience of many developed countries where this program is being implemented. It is necessary to take into account, of course, that the integration of education in secondary schools with digital technologies will yield results in the future. As experts emphasize, accelerating the implementation of digital technologies in teaching not only computer science but also all subjects in the curriculum of secondary schools will increase the pace of implementation of long-term plans. However, just as enlightenment and development are opposed to each other, and there are obstacles and contradictions in the introduction of any innovation, there are also mutually exclusive situations in the introduction of digital technologies into education. In particular, this is clearly evident in the introduction of digital education [7]:

1. The inability of educational institutions, especially schools, to meet the financial needs of implementing digital technologies, starting from the lower levels of education.
2. Subject teachers consider traditionalism to be more convenient and easier than introducing digital technologies into the educational process.
3. Insufficient electronic literature in general education subjects.
4. The negative impact of computers and various gadgets on human health and psychology, students' media culture, the concept of "telegeneration", etc.

RESULTS

Expanding distance learning opportunities. Through online platforms, students can learn from anywhere.

Today, special attention is paid to the phenomenon of online courses. The expected consequences of their distribution and the prospects for their use are being discussed. One of the main issues of informatization of education is the formation of information and communication competence of students. How and to what extent the education system solves this problem can serve as a good indicator of the effectiveness of work on the digital transformation of education as a whole.

Development of individual training and personalized curricula. Through digital means, a curriculum is formed in accordance with the level of knowledge of each student.

- Making educational resources available to the general public through digitization.

It is necessary to adapt the education system to the digital generation through the mass and effective use

of innovative educational technologies and didactic models based on information and communication technologies. At the same time, it is necessary to actively use a research-based approach in the educational process, which will allow developing students' skills in scientific research and forming their creative abilities and creative thinking based on IT-competence. Information and communication technologies are not the solution to all problems in the education system, but rather a means to make lectures and seminars informative and interactive for the digital generation. It should also be noted that teachers retain a key role in the interactive learning process, focused on the needs of students. The Decree of the President of the Republic of Uzbekistan No. PF-6079 dated October 5, 2020 "On approval of the Digital Uzbekistan - 2030 Strategy and measures for its effective implementation" [8], and the Decree of the President of the Republic of Uzbekistan No. PF-5847 dated October 8, 2019 "On approval of the Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030" [2], which sets out tasks such as "the introduction of digital technologies and modern methods into the educational process, individualization based on digital technologies, the development of distance education services, the widespread implementation of webinar, online, "blended learning", and "flipped classroom" technologies" [9], require the implementation of a number of tasks within this direction.

Use of artificial intelligence and big data analytics in education.

When talking about the world experience in the use of ICT in social structures, it is important to dwell on the activities of the World Telecommunication/ICT Indicators Symposium (WTIS) [10], which has been analyzing indicators of the use of telecommunications (ICT) worldwide since 2005. The symposium was held for the sixteenth time in 2018 at the initiative of the World Telecommunication Bureau and the International Telecommunication Union in Geneva, Switzerland. The main goal of the symposium is to determine the rating of the use of ICT, which serves to provide all types of telecommunications worldwide. The results of the study were studied across geographical regions, according to which, by the end of 2019, 51.5 percent of the world's population, or 3.9 million people, used the Internet [11]. The conclusions of the symposium included recommendations on the implementation of ICT in the socio-economic sphere in Uzbekistan. The figures are presented. The figures show that the possibilities of using ICT in our country are growing, but this growth is much lower than in other developing countries [12]. There are a number of factors that affect the fact that

these indicators are not up to the required level. Among them, the speed, price and other important characteristics of the Internet in our republic are not up to the required level. This is due to the fact that financial capabilities, the quality and quantity of existing material and technical equipment cannot meet the needs of the population and the requirements of the time. Researchers recognize that no other sector can be as important for the development of the state as the education sector. The Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030 provides for the implementation of a number of measures to introduce digital technologies and modern methods into the educational process [13]. In particular, the issues of individualizing educational processes based on digital technologies, developing distance learning services, and widely implementing webinar, online, blended learning, and flipped classroom technologies [14] are discussed.

- Interactive and multimedia resources – Elements such as video, audio, animation, and simulation make the educational process interesting.
- Testing and assessing knowledge – Students' knowledge is objectively assessed through automated systems.
- Broad access to educational resources – The ability to use electronic books, articles, and scientific sources is expanded.

Theoretical foundations of digital technologies

There are several theoretical foundations for the formation of digital education:

1. Constructivism theory - according to this theory, the student participates in the process of independently constructing knowledge. Digital education allows for individualization of this process and interactive learning.
2. Cognitive model of knowledge - digital technologies play an important role in visualizing educational materials and making them easier to learn.
3. Pedagogical design theory - it is necessary to use innovative technologies to improve the educational process and interest students.
4. Theories of self-learning and independent learning - digital technologies allow students to independently improve their knowledge.

Advantages of digital technologies

Digital technologies bring the following advantages to the education system:

- Modern and convenient teaching methods - With the help of new technologies, the learning process

becomes more interesting and effective.

- Popularity and wide coverage - the opportunity to learn via the Internet is open to everyone.
- Self-development opportunities – Through online courses and interactive materials, students can learn independently [15]. It should be noted that the use of digital technologies helps to improve educational outcomes, and having computers, software, and digital educational resources is not enough. It is necessary to carry out a full cycle of work on the dissemination of relevant innovations, including updating the content of educational work, mastering new methods and forms, and switching to real assessment methods and tools that demonstrate their effectiveness [16]. To do this, each educational organization needs a clear strategy and development plan, the implementation of which will lead to the creation of the necessary conditions. Today, not all higher education institutions in our country have such conditions, but all the forces and capabilities of the state are aimed at solving these issues and problems. In the current situation and in the process of the upcoming digital transformation of education, the development and successful implementation of these plans is becoming a priority [17]. The attitude of students and the work of educational institutions are also changing. Students and teachers are increasingly using available digital learning materials and tools to facilitate their work and increase their efficiency.

CONCLUSION

The development of the education system based on digital technologies allows for improving the quality of education, implementing innovative approaches, and effectively organizing the learning process. The digitalization of modern education takes the pedagogical process to a new level and expands students' learning opportunities. Therefore, the integration of digital technologies into the educational process is one of the most important directions in the development of the modern education system.

Digital technologies are of great importance in the education system and play a significant role in facilitating and increasing the efficiency of the learning process. They help improve the quality of education, expand learning opportunities, and introduce new teaching methods. Therefore, it is necessary to pay great attention to the development of digital technologies in the field of education.

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