Digital Transformation of Uzbekistan in Higher Pedagogical Education

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Keywords: Artificial intelligence, digital technologies in education, digital, information technology, student improvement of the education system.

Abstract: The article is devoted to the issue of digitalization and digital technologies in education. Modern society is characterized by a large flow of information and the introduction of innovations in various fields of activity, which requires a certain amount of knowledge and skills from a person, at the head of which is creativity and creative thinking. This article substantiates the need to use digital technologies and ensure digital socialization of students, considers the concept of digitalization and presents digital technologies in education.

1 INTRODUCTION

At the present stage of development of society, innovations are actively being introduced into various areas of human activity, which requires from people, firstly, constant development and improvement of existing knowledge and skills, and secondly, creativity competencies, creative thinking and willingness to cooperate, since routine work is all The computer is transferred more often. In this connection, information and communication technologies acquire particular importance. Providing complete, accessible and reliable information is the key to success in any field of activity. In this regard, it is important to note that the "Digital Uzbekistan-2030" program has been approved for 2023 – 2030, aimed at informatization and digitalization of society. The document also states that the country's population actively using digital resources should be at least 50% by 2025. This requirement clearly requires a significant restructuring in the education system, associated both with the use of information and communication technologies and with the digital socialization of students developing and improving ICT competencies.

New tools expand and complement human capabilities; the use of more complex tools (Internet + search engines + social networks) requires the development of increasingly complex cognitive processes. Also important is the increase in the number of schoolchildren using digital resources, which indicates their increased interest in using the capabilities of modern digital technologies. This creates an additional impetus for the digitalization of education. Thus, there is a need to form an information culture in modern people and ensure digital socialization as prerequisites for comfortable life activities already from school age o age. These areas should become priorities in the higher education system. The education system should be aimed at ensuring a confident transition to a digital society, which is characterized by economic growth and productive labor relations. As noted earlier, computers based on artificial intelligence are already actively used in the labor market, which successfully cope with routine work. The task of a modern person

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is to demonstrate creativity and creative thinking in order to create and introduce innovations. The use of digital technologies along with traditional ones will significantly increase the flexibility and technological effectiveness of education, as well as the motivational component of students for the educational process. The need to increase the motivational component is reflected in documents such as “Personnel and Education”, the “Digital Economy of Uzbekistan” program, which are aimed at increasing the motivation of modern regular students to master digital competencies. Based on the above, we come to the conclusion that the concept of digitalization appears in connection with the intensive development and use of information and communication technologies.

2 MATERIALS AND METHODS

However, the first mention of digitalization is associated with the name of the German economist Klaus Schwab. He named 1960-1980. years of the digital revolution, believing that its catalyst was the development of semiconductor computers, then in the 60–70s - the emergence of personal computers, starting from the 90s - the emergence of the Internet. Klaus Schwab suggested that the fourth industrial revolution is approaching, which will also be associated with digitalization, the improvement of the Internet, gadgets that contain many functions and the development of artificial o intelligence. Wiktionary gives the following interpretation of the concept of “digitalization”: “a digital method of communication, recording, transferring data using digital devices”. Marey understands digitalization as: “a change in the paradigm of communication and interaction with each other and society”. Clarifying the concept of digitalization, E.L. Vartanova, M.I. Makseenko, S.S. Smirnov note: “this is not only the transfer of information into digital form, but a comprehensive solution of an infrastructural, managerial, behavioral, cultural nature”.

Analyzing the content of the concept of “digitalization”, we can conclude that the development of the Internet, artificial intelligence and gadgets are the basic technologies of digitalization on which productive activities are built. In the field of education, the concepts of “digitalization of education” and “digital technologies” are introduced. Digitalization of education leads to changes in the labor market, in educational standards, identification of needs for the formation of new competencies of the population and is aimed at reorganizing the educational process, rethinking role of a teacher. On the one hand, digitalization undermines the methodological basis of school inherited from the past, on the other hand, it creates the availability of information in its various forms, not only text, but also audio and visual y. Availability of information will require constant search and selection of relevant and interesting content, high speeds of its processing. Consequently, the digitalization of education leads to its fundamental, qualitative restructuring. The teacher must learn to use new technological tools and practically unlimited information resources. Virtual reality technologies create the possibility of using digital simulators that are not tied to one workplace, which expands the range of technologies being studied. Mobile learning technologies allow you to study at any time and anywhere. One of the main elements of digitalization of education is digital literacy. Digital literacy is the main priority of education, this is the ability to design and use content using digital technologies, using computer programming, graphic visualization techniques tions, computer graphics, multimedia development of online courses, etc., search and exchange of information, communication with other students. Under digital literacy, we consider its various types: media literacy, attitude to innovation, communication, computer, information literacy. To solve the problems of digitalization, our education will have to go through digital transformation.

The digital transformation of education, according to scientists, is the answer to global information challenges occurring in the world. In his research, A.Yu. Uvarov notes that the digital transformation of education should be accompanied by a “synergistic” update of content, which will lead to a radical improvement in the quality of education. We agree with the opinion of A.Yu. Uvarov that the digital transformation of education will lead society to a digital economy if the education system meets the requirements and capabilities of the digital society. The modern stage of digitalization in education consists of immersing all its subjects in the digital educational environment. Currently, educational technologies such as online courses, which are provided by universities for all students, have become widespread. Educational technologies such as mass educational courses, used remotely, will help students study in any form convenient for them and will allow them to receive qualified training in specific areas this direction of preparation. In modern Uzbekistan, online courses are posted on educational platforms like “melion of programmers, these platforms contain massive online courses from leading Uzbek universities, they provide the opportunity to register apply for these courses and study, then receive a certificate and present it to your university for re-credit in the relevant discipline. Online learning in a digital educational environment provides for the already known synchronous and asynchronous learning. A synchronous online lesson involves electronic interaction between a student and a teacher at a specific time. Asynchronous courses are distinguished by the fact that the teacher posts theoretical materials and various course assignments on the Internet, and students work with the information at any time convenient for them. We are impressed by “blended learning,” which involves “combining real-life learning” face-to-face with a teacher in the classroom and interactive opportunities. A popular technology nowadays is “mobile learning” technology, which allows you to use educational information from personal digital devices (smartphones, tablets, etc.).

The use of webquest technology allows teachers to solve the following problems: increasing motivation, improving educational achievements; use graphic visualization methods in teaching; create an information culture; solve creative problems; optimize educational activities. The strategy for digitalization of education includes such promising innovative technologies as artificial intelligence, blockchain and virtual reality. Artificial intelligence is a technology that is used in solving “intelligent” problems, and all its developments are aimed at creating programs for image recognition, systems for automatic vehicle control and machine translation, etc. In education, a teaching program is used that enhances the interactivity and intellectual component characteristic of the teacher. Intelligent educational programs and expert systems are very promising and are spreading rapidly. Blockchain, a technology that provides data storage with a distributed resource, is designed to work with the digital currency Bitcoin. It guarantees the security of storing data in digital format, and also monitors their changes. In the education system, the blockchain is used to store information about exams, issued diplomas and certificates, etc., and this information can be obtained immediately, making sure of its authenticity and without resorting to archival data. data on paper. Virtual reality technologies. Existing There are the following types of virtual reality systems: – ordinary (classical) virtual reality (Virtual Reality – VR), where students interact or are immersed in the virtual world using a computer program; – augmented or computer-mediated reality (Amended Reality – AR), where computer-generated information is overlaid on top of images of the real world; – mixed reality (Mixed Reality – MR), where the real world is connected with the virtual one, and they are united with each other. MR technology can be used to solve various problems and is universal. Teachers have the opportunity to create virtual laboratories to study global environmental problems, etc. Virtual reality makes it possible to conduct video conferences, which have the greatest effect compared to web conferences, which resemble telephone conversations.

These technologies are used for virtual travel, getting to know other cultures and learning a foreign language. When studying natural science disciplines, students, using virtual reality glasses, can find themselves in virtual laboratories and conduct various experiments, interact with various objects and observe natural scientific processes occurring in nature. With the help of virtual reality, you can design three-dimensional objects. Virtual reality modeling provides students with the formation of skills that in reality are not possible to develop due to various circumstances - this is the danger of making a mistake and other limitations problems (high cost of equipment, danger to other people, etc.). For example, training of airline pilots is carried out using the MR application. Thus, the digitalization of education and the use of digital technologies changes the content of training, as well as the presentation of information, these are not only presentations or videos, these are already direct connections to information networks, databases data, forums. When practical classes are conducted, it is possible to use social networks. Electronic publications are becoming relevant in education; many publishing houses specializing in the publication of educational literature are switching to electronic versions of textbooks. Digital technologies are rapidly developing and updating (high-speed Internet, smartphones, tablets, etc.). Web 2.0 tools, blogs, wikis, social networks; cloud services Google, Office 365, etc. All this provides unlimited opportunities for access to digital tools.

In this context, digital transformation has the potential for further modernization of society and integration of the national economy into global processes. As part of the ongoing reforms, as well as the Development Strategy of New Uzbekistan for 2022-2026, special attention is paid to the digitalization of key areas of activity and the construction of a genuine information society in the country. Today, digital transformation is happening in almost every field of activity. For example, in education we observe: schools and universities are increasingly using interactive whiteboards, electronic diaries and magazines, creating audio and video lessons, teachers providing consultations through social networks and more (Zhukovskaya, 2021).

At the same time, under the influence of the global pandemic, the country's government reviewed and modernized the national digitalization strategy. In this direction, the Strategy "Digital Uzbekistan 2030" dated October 5, 2020 was approved by the Presidential Decree. According to the document, all state duties and fines are carried out using online electronic payment systems. In addition, over 400 information systems, electronic services and other software products are being implemented in various areas of socio-economic development of regions.

The "Digital Uzbekistan-2030" strategy provides for the approval of two programs: digitalization of regions and industries, as well as "road maps" for their implementation. Undoubtedly, this will ensure the most complete coverage and effective implementation of the document, which includes such priority areas as the development of digital infrastructure, e-government, the national market for digital technologies, education and advanced training in the field. It is also known that in accordance with the "Digital Uzbekistan-2030" Strategy, a methodology for rating the digital development of territories has been developed to monitor the state of digital transformation in the regions, which allows for a preliminary diagnosis of digitalization on the ground. The criteria include the use of the Internet in social institutions (preschools, schools, clinics), the introduction of educational and other systems and software products, the coverage of certified teachers in computer science, as well as school students within the framework of the "One Million Programmers" project, the number of training IT centers.

Through the Decree of the President of the Republic of Uzbekistan No. PF-6079, we can see that our state is paying great attention to the introduction of information technologies in education and increasing the effectiveness of education. In the educational process, using digital technologies, conducting the lesson process through electronic textbooks, electronic study guides, introducing digital technologies into the educational process, in particular, creating electronic educational resources for subjects, students' learning serves to increase the level. For this, it is important to have knowledge, skills and competencies in the fields of algorithms and programming languages, mobile technologies, which are considered important in creating electronic educational resources and mobile applications (Botirov, Tangirov, Mamatkulova, Aliboyev, Khaitova, Alkorova, 2020).

3 RESULT AND DISCUSSION

The strategy contributes to the implementation of other national strategic documents and programs and, first of all, will be important for solving national problems, achieving the Sustainable Development Goals, as well as for the Development Strategy of New Uzbekistan for 2022-2026.

Initiatives of the Government of Uzbekistan in the field of digital education:

Moodle program. The Moodle program was launched in May 2020 to make e-learning more accessible to students and teachers, and to promote and strengthen digital education in Uzbekistan. It aims to integrate all activities related to online/digital education and is expected to benefit approximately 250 thousand students.

National Digital Educational Architecture HEMIS: As part of the World Bank project 2016-2023, the Government of Uzbekistan has created the National Digital Educational Architecture (HEMIS) to strengthen digital infrastructure and support activities related to educational planning. It aims to propose a clear architecture of the educational ecosystem for the development of digital infrastructure in the country and guarantee the autonomy of stakeholders, especially higher educational institutions (Djumaboev, 2022).

Ziyonet Portal: The government launched the Ziyonet portal in 2015 to create a repository of educational videos, audios, flipbooks, etc. The resources on the portal are available in 3 languages such as Uzbek, Russian and English and can be accessed through smartphones, laptops , desktop computers and tablets.

Benefits of digital education

Some of the benefits of digital education in Uzbekistan have been discussed below:

• There are no restrictions regarding the place of study or study. With digital learning, a student can participate in online classes or study anywhere and anytime.

• Through this initiative, students not only gain bookish information but also practical and technical knowledge.

• With digital education, learning can be more fun and interactive between students and teachers.

• Digital education acts as a supplement and does not completely replace physical education.

• With study materials available online, students can take their time to understand any topic.

Disadvantages of Digital Education

• There is no human touch.

• There is always a danger that unmotivated students will be left behind.

• Interaction with a teacher/instructor/expert is not always possible.

• Developing countries lack proper infrastructural support such as networks, cheaper bandwidth, availability of working infrastructure, power, etc.

Priority areas for the future

To make ICT and digitalization of education successful with more fruitful results in terms of knowledge sharing and learning, the following areas should become priority areas in the near future. Modern educational technologies are less effective when learning goals are unclear and the focus of technology use is blurred. Schools should convene a technology planning team consisting of administrators, teachers, technology coordinators, students, parents, and community representatives (whole-community participation) to determine educational goals for students and the types of technology that will support efforts to achieve the goals.

The team must also develop a vision for how technology can improve teaching and learning. Students cannot be expected to benefit from technology if their teachers are not familiar with it and are not comfortable with it. Many teachers lag behind their students when it comes to up-to-date technology skills and competencies, making it difficult to keep children interested, motivated and engaged in regular lessons. They must have experience working with technology. Therefore, it is important to provide professional development to teachers to help them not only learn how to use new technologies, but also how to provide meaningful instruction and activities using technology in the classroom.

The daily schedule should include longer study periods and more opportunities for group learning. Students may need more than a 30- or 40-minute period per day to locate, learn, and synthesize material. Therefore, there should be more time in the daily schedule for teachers to collaborate and work with their students. Given the potentially powerful effects of the media and the growing body of empirical evidence about the negative effects of technology on students, parents should take care to limit their exposure to harmful technologies. They must monitor what content their wards read and watch in the name of online education.

The government is also focusing on research and innovation to identify sectors that can further support and strengthen digital education initiatives in Uzbekistan. In 2022, the government announced that space technologies (such as satellite communications) are being used for digital education in Uzbekistan.

In addition, it is necessary to develop high-quality electronic content in the state language. Adding advanced training courses, virtual laboratories, virtual vocational training. Develop guidelines for online/digital education to bridge the digital divide.

4 CONCLUSIONS

Developing digital classrooms by integrating educational systems and technologies. Development of an assessment system in the era of digital education. Provide a consistent user experience through multi-modal access to education through mobile apps, web portals, TV channels, radio and podcasts. To provide “anytime, anywhere” access and increase penetration, the focus will be on increasing the use of mobile phones.

There is no disagreement that digitalization of education is the need of the hour to match the educational environment and system prevailing all over the world. At the same time, it is necessary to analyze how this system should be adopted to nullify the adverse effects of over-reliance on electronic media on the youth and protect them from behavioral and psychological imbalances. Care must also be taken to ensure that students do not have access to information that is not intended for them and may lead them in the wrong direction, causing them to engage in antisocial behavior and aggressive thinking. It is time for policymakers to develop such a system that is a mixture of traditional and modern modes of teaching, that protects the teacher and teacher relationships, and promotes a digital education system.

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