Possibilities of Digital Technologies in Education

Fayziyeva Mahbuba Rakhimjonovna
Tashkent State Pedagogical University, professor, PhD

Abstract: This article provides information on the implementation of educational transformation and the role of digital technologies in the modern process of globalization. It also discloses the content of digital technologies, such as cloud technologies, mobile technologies, smart technologies, Internet of things technologies, VR / AR technologies, LMS systems, CMS, MOOCs, artificial intelligence, big databases and infographics.

Keywords: cloud technologies, mobile technologies, smart technologies, VR/AR technologies, LMS, CMS, MOOC systems, artificial intelligence, large database.

In the State Program of the Republic of Uzbekistan, through the widespread introduction of new information and communication and pedagogical technologies, electronic textbooks, multimedia tools into the educational process, the quality of teaching in educational institutions of our country, the educational and laboratory base of educational institutions will be radically improved. One of the main tasks is the need for further development of modern educational and laboratory equipment, computer technology, digital and wide-format telecommunication means of communication, and the Internet system.

Currently, in accordance with the Decree of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev dated April 29, 2019 No. PF-5712 "On approval of the Concept for the development of the public education system of the Republic of Uzbekistan until 2030", general education in the Republic of Uzbekistan Determination of priorities for systemic reform of secondary and out-of-school education, raising the spiritual, moral and intellectual development of the younger generation to a new level in terms of quality, innovative forms of education for the educational process, and measures such as the introduction of methods have been taken [1].Within the framework of these regulatory documents, it is necessary to organize the use of digital technologies in the educational process in the state educational institutions of the republic using new methods and means, to achieve distance learning and holding computerized conferences, to create digital educational platforms and promotions aimed at using in the educational process, prestigious projects on education reform, scientific research.

Nowadays, digital technologies have changed the content and scope of education and led to the adoption of strategies and policies for integrating digital technologies into the education system around the world. At the same time, understanding, adapting and designing an educational system related to the quality of teaching using digital technologies, in accordance with modern technological trends, has created problems. These challenges have accelerated the use of digital technologies in education. For instance, during the pandemic, many schools have demonstrated a lack of experience and weak digital capabilities, which has led to increasing gaps, inequalities and losses in the learning process. This has led to the need to draw on knowledge and experience to increase the digital capacity and readiness of schools, increase the level of digitalization and achieve a successful digital transformation.

The concept of digitization was first introduced by the American computer scientist Nicholas Negroponte in 1995 and was distinguished as a process of transition from processing atoms to processing bits [11]. In 2016, at the World Economic Forum in Davos, Canada, K. Schwab

announced a global transition to the fourth industrial revolution. Its main areas are the expansion of digital technologies (new computing technologies, distributed recording technologies, the Internet of things), the reflection of the physical world (artificial intelligence and robots, advanced technologies, additive manufacturing, multidimensional multidimensional printing (3D printing), human transformation (biotechnology, neurotechnologies, virtual and augmented existence), integration with the environment (collection and transmission of energy, geoengineering, space technologies) [10].

The formation of a digital educational environment is a strategic task, the solution of which is possible through the development and widespread introduction of e-education, which today stands out as a priority and occupies a special place in the global educational space.

In digital education, learning can be enhanced by stimulating students through an engaging, interactive learning environment using digital technologies. For example, digital technologies offer teachers and students new ways to communicate and collaborate. Integrating communicative digital tools into classroom practice allows for the expression and learning of basic academic knowledge through multimedia conversations and exchanges.

In addition, digital technologies can open communication between different cultures and countries, promote targeted intercultural communication and cooperation. In turn, these online connections create additional opportunities for developing digital literacy, 21st century skills and digital citizenship. The use of digital technologies to monitor the development and learning outcomes of the general education school and to optimize the order of work increases the efficiency of the system. Interconnected digital systems support the entire education system. Leveraging existing digital platforms to ensure a constant flow of data enables the development of robust learning analytics. Data-driven decision making is commonly used in organizations to measure student achievement, implement personalized learning and enhance student achievement, and make decisions about student opportunities, and can facilitate early intervention for students with behavioral or learning disabilities.

The future will be defined by artificial intelligence (AI), advanced technology and automation, requiring the next generation of citizens entering the workforce to be digitally savvy. However, this future is just beginning, therefore, in order to form and build a digital society, it is necessary to ensure the high-quality integration of digital technologies in schools. According to UNESCO[2], one of the main goals of education is to prepare future generations for this digital future; prepare them to work with rapidly developing digital technologies; continuously access a vast amount of new knowledge and information and develop critical thinking, perception, creativity and collaboration skills to excel in a digital context. UNESCO highlights the importance of public schools having a digital strategy that provides guidance on the adoption of digital systems, technologies, digital learning design and pedagogy, and provides evidence-based benchmarks and milestones for success.

Digital technologies to create modern, smart, efficient and simplified workplaces; can implement a well-structured educational transformation aimed at adapting students and youth to the digital world, preparing them for life and work, improving the learning and teaching experience, managing holistic change, facilitating a tough process [3], [4], [5]. Digital technologies link student engagement, motivation and positive learning outcomes. This requires the inclusion of digital technologies in the curriculum to facilitate classroom organization and content delivery. Inclusion, equity and social responsibility can also be enhanced by creating a learning environment that inspires learners and prepares them for life in a digitally driven society. The included empirical work shows the importance of digital technologies, mainly due to the perception and experience of teachers in working with these digital technologies[6].

Digital technologies, consisting of immersive simulations of virtual and augmented reality, create a digital or fully virtual world for students. Various applications are created by the computer to provide access to various virtual scenarios in the classroom or to render projections of objects in 2D and 3D.

As technology advances and the digital world becomes more visible, VR applications are becoming more sophisticated and there are opportunities to realistically predict and implement contextual AR content.

As S. G. Grigoriev noted, in connection with the transition of society to a new stage in the development of big data processing technologies, blockchain, the Internet of things, digital and intelligent information technologies, informatization is moving to the next stage of development, the era of digitalization. [7]. Modern digital technologies allow each student to individualize the learning path, methods and pace of mastering educational material [8].

D. Sviridenko, in his article argues that digitalization is the next stage of informatization and computerization, which is mainly associated with the use of computer technology, computers and information technology. [9]. This allows us to talk about attempts to organically integrate the concepts of computerization and informatization of education into a more complex and broad concept of digitalization of education.

It should be noted that with a clear breadth of research, the process of digital transformation of the educational system and the main features of the stage of digitalization of education are still being studied and will be refined in the course of its evolution. The digitalization of education plays a special role in improving the quality and opportunities of education. The introduction of digital technologies in the educational process allows you to get the best from the traditional education system and support the educational process and use electronic means.

The theoretical study of scientific and pedagogical literature made it possible to determine the following main features of the current stage of digitalization of education, which should be comprehensively implemented in the organization of education in their interdependence:

➢ the presence of a single information space or a digital educational system that solves the tasks set by a person and acts independently (that is, without his participation);

➢ educational management and active adaptation of educational content based on the dynamics and progress of educational modules, subjects and the curriculum as a whole, analytical and predictive functions, or the use of big data on the implementation of the student's digital twin (for example, building an individual educational trajectory, choosing the optimal educational content, etc. .);

➢ the use of promising innovative technologies, such as artificial intelligence technologies, blockchain, virtual and augmented reality technologies, mobile technologies, cloud technologies, etc.;

➢ ensure active communication of all participants in the educational process, which contributes to the formation of digital competencies using modern digital technologies;

➢ direct connection to digital electronic resources, information systems, databases;

➢ the implementation of personalized and effective education, that is, the achievement of educational results determined by the public order, the State Educational Standard and formed on the basis of the student's personal requests.

List of bibliography

1. Ўзбекистон Республикаси Президентининг 2019 йил 29 апрелдаги ПФ-5712-сон. "Ўзбекистон республикаси халқ таълими тизимини 2030-йилгача ривожлантириш концепциясини тасдиқлаш тўғрисида" тўғрисидаги Фармони. https://lex.uz/docs/4312785

2. UNESCO (2021). *Futures of education: Learning to become*. *A global initiative to reimagine how knowledge and learning can shape the future of humanity and the planet.* https://en.unesco.org/futuresofeducation/

3. Microsoft (2014). *Education Transformation Framework Overview*. http://download.microsoft.com/

4. ISTE (2016). *ISTE standards: Essential conditions*. International Society for Technology in Education. https://www.iste.org/standards/iste-essential-conditions

5. Haynes, C. A., & Shelton, K. (2018). Beyond the classroom: A framework for growing school capacity in a digital age. *Journal of Research on Technology in Education*, *50*(4),271–281.

6. L.Moyer, M.Klopfer & J.V.Ernst. (2018). Bridging the arts and computer science: Engaging at-risk students through the integration of music. *Technology and EngineeringTeacher*, *77*(6), 8–12.

7. С.Г.Григорьев,В.В.Гриншкун, О.В.Львова, Л.А.Шунина // Вестник Моск. гор. пед. ун-та.Серия: Информатика и информатизация образования. – 2016. – № 1 (35). – С. 8-19.

8. Двенадцать решений для нового образования: доклад центра стратегических разработок и высшей школы экономики [Электронный ресурс].: https://www.hse.ru/data/2018/04/06/1164671180/Doklad_obrazovanie_Web.pdf.

9. Д.Свириденко. Принять вызов цифровой экономики // Эксперт Сибирь. – Москва, 2017. – № 48–49 (504). – С. 40–41.

10. В.А.Шершнева. Адаптивная система обучения в электронной среде / В.А. Шершнева, Ю.В. Вайнштейн, Т.О. Кочеткова // Программные системы: теория и приложения. – 2018. – № 9:4. – С. 159–177.

11. Negroponte, N. Being Digital. – New York: Knopf Paperback edition, 1996. – 272 p.