

# THE ROLE OF DIGITAL TECHNOLOGIES IN IMPROVING THE QUALITY OF EDUCATION

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## ABSTRACT

The article reveals such issues as the problem of digitization of the higher education system and its achievements. The author consistently studies the positive aspects of the introduction of digital technologies into the educational process in connection with the prospects for the development of online and distance education. Today, there are many shortcomings and problems in the education system. In order to find solutions to such problems and eliminate them, the following article was written. It talks about abandoning the superficial education system and reducing the human factor in controlling the quality of education, fully introducing modern technologies into the field and improving the quality of education based on foreign experience, effectively using existing opportunities, and at the same time developing and improving promising projects to improve the quality of education.

**Keywords:** Innovation, digital literacy, problem-based learning technology, information culture, digital skills.

## INTRODUCTION

Today, due to the expansion of the scope of the introduction of information and communication technologies into all spheres of society, a number of works are being carried out in the continuing education system to develop mechanisms for assessing students' skills in using digital technologies, to find the necessary information for decision-making, to work with digital devices, to critically and analytically study the media, to use modern digital communication tools, and to form a positive attitude towards newly developed innovative technologies. In particular, in order to increase the overall level of use of digital technologies for students, constant changes are being made to the main curricula of higher educational institutions, to develop and improve new generations of electronic educational resources, to improve methods and tools for imparting knowledge about information technologies, and to study and implement foreign experiences in improving the effectiveness of education in an electronic educational environment. Modern trends in the development of society, the development of computer technologies, globalization and informatization have had an impact on all areas, including education. Almost all future education and jobs require a certain level of rapidly changing digital skills and abilities. Digital competence is one of the new concepts describing skills related to digital technologies. In recent years, several terms have been used to describe digital skills and abilities, such as "ICT skills", "technological skills", "IT skills", "21st century skills", "information culture", "digital literacy and digital skills". These terms are often used interchangeably, such as "digital competence" and "digital literacy". Digital literacy (digital fluency) is the presence of knowledge, skills and competencies necessary for the safe and effective use of digital technologies and Internet resources. Simply put, this term refers to a person's ability to effectively perform tasks in a digital environment. While "digital" refers to information presented in electronic form through various devices (computers, tablets or phones), "literacy" includes the ability to read and interpret multimedia content, reproduce information and images through digital manipulation, and evaluate and apply new knowledge obtained from the digital environment [1].

At the present modern stage, urgent pedagogical tasks include the scientific provision of the goals, content, methods, means and organizational forms of education, training and development of the individual based on the use of achievements in science, technology, advanced technologies. State policy in the field of personnel training envisages the formation of a comprehensively developed individual - citizen through a system of continuous education. It participates in this education system and personnel training as a consumer, orderer, and producer of educational services. It is planned to implement important tasks such as improving the quality of education, implementing the latest achievements of science and technology, and preparing young people who are creative, professional, capable of independent thinking, enterprising and entrepreneurial, and who feel their responsibility. This, in turn, requires the use of modern educational technologies in the educational process. Supporting them requires, first of all, humanizing pedagogical relationships.

The rapid changes taking place in the socio-economic, political, and cultural spheres of our country require a fundamental reform of the education system, because through an excellent education system, it plays a decisive role in educating young people who determine the future intellectual potential of our republic and its prosperity and development, so that they can act creatively and independently. Therefore, the most important strategic direction in education is the innovative activity of educational institutions. This is an urgent issue today, which is the preparation of intellectual property in all educational institutions, especially through higher education, which trains creative, highly qualified specialist pedagogical personnel.

### **LITERATURE REVIEW**

The theoretical foundations, functional capabilities, and use of electronic learning resources in the organization of an electronic learning environment and the use of information technologies have been reflected in the research of a number of scientists, including in our country A. Abdukodirov, U. Begimkulov, N.A. Muslimov, N.I. Taylakov, F.M. Zakirova, M. Aripov, M.E. Mamarajabov, S. Tursunovlar, D. Mamatov, and in foreign countries E.S. Polat, A. Andreev, I. Zakharova, V.V. Kuznetsov, M.P. Lapchik, B. Andresen, M. Burns, and M. Henderson.

In the monograph “Theory and Practice of Distance Learning” by our scientists A. Abdukodirov and A. Paradaev, scientific research by foreign and domestic scientists was analyzed, and it was concluded that distance learning allows: individualization, differentiation of the educational process, self-control of students, saving time due to the computer performing complex calculations, development of a specific form of thinking, motivation, and strengthening of cognitive activity of students [2].

In the textbook “Information Technologies in Education” by R. Hamdamov, U. Begimkulov and N. Taylokov, it is indicated that the use of modern information technologies in the continuous education system of our republic, the creation of electronic educational literature, their use in the education system, in particular in distance education, should be scientifically analyzed as a pedagogical problem, the creation of electronic textbooks for the higher education system and the creation of a mechanism for their use in distance education should be established.

### **RESEARCH METHODOLOGY**

In general, problem-based learning technology is considered important in developing and improving the qualities required of our graduates today, such as independence, creativity, initiative, and most importantly, entrepreneurship. The use of this technology in organizing training sessions gives good results. In this case, the teacher first creates a problem situation, develops problematic questions, issues and tasks. Students, based on their knowledge and experience, look for ways to solve the problem situation, find, generalize and draw reasonable conclusions. This, along with increasing their interest in knowledge, also develops their thinking skills.

The purpose of teaching the topic of the training session with the help of this technology is to use the skills of reasoning, reasoning, generalization, analysis, and making the learner more active during the teaching process through a structured lecture style. This technology is used to develop the skills of a wide range of creative activities, helping them to deeply understand and independently master knowledge. It teaches students to think independently, develops creativity and curiosity, helps to consolidate acquired knowledge, and strengthens professional preparation. The interesting aspects of problem-based learning content are new content, a new look at old knowledge, its connection with life, the student's practical activity, the present, history, and the future. The teacher selects information to solve the problem and the whole problem. Then, it is necessary to carefully consider the relationships between the problem situations and pay special attention to these relationships. The next stage of the teacher's preparation for this training is the selection of the necessary tools for the formation of problem situations.

The last stage consists of developing problem tasks and questions for students to work independently. When completing creative tasks, the student acquires the skills of identifying problem situations, analyzing them, and making decisions independently, and becomes familiar with methods for preparing visual aids and solving problems that require scientific research.

1. Problem solving	A problem text, video, or case study is uploaded to online platforms (Moodle, Google Classroom, Teams).
2. Group discussion	Group discussion via Zoom/Meet, team mapping on Padlet or Miro.
3. Independent research	Google Scholar, electronic libraries, digital simulations, AI-assisted platforms.
4. Develop a solution	Online presentations (Canva, Prezi), collaborative documents (Google Docs).
5. Presenting the result	YouTube, LMS, virtual presentation sessions.
6. Reflection and evaluation	LMS tests, discussion in online forums, peer assessment.

**Table 1. The following model illustrates the steps of the Problem Based Learning (PBL) method in a digital learning system step by step**

Developmental goal: the creative application of acquired knowledge, skills and competencies, independent work, and development of skills. Innovation (In-“first”, novus -“new”) means innovation, novelty. The role of the use of innovative technologies in higher education in the context of digitalization. The future of each society is determined by the level of development of its education system, which is its integral part and vital necessity. Today, the reform and improvement of the continuous education system of our country, which is moving along the path of independent development, raising it to a new qualitative level, introducing advanced pedagogical and information technologies into it, and increasing the efficiency of education have risen to the level of state policy. With the adoption of the Law “On Education” and the “National Program for Personnel Training”, the basis for training modern personnel through the continuous education system has been created. It is known that continuity and coherence in the education system, first of all, expands the spiritual and intellectual potential of society, and also ensures the sustainable development of production as a factor in improving the social and scientific progress of the state.

The development of pedagogical technologies and their introduction into the educational process, as well as the rapid exchange and improvement of information technologies, create an opportunity for each person to strengthen their professional training and skills. Today, digital technologies are changing the appearance and structure of existing industries and sectors in countries around the world. The use of digital technologies in all areas allows for the development of this industry, high efficiency, fast and high-quality implementation of processes, and high competitive advantages in the world community.

## RESULTS

In particular, as a result of the use of digital technologies in education, education has occupied almost all regions of the world and has become an integral part of people's lives. These technologies have completely covered the processes of forming, creating and acquiring knowledge. In our country, a lot of work is being done to develop digital technologies in the education system. In particular, the Address of the President of the Republic of Uzbekistan Sh.M.Mirziyoyev to the Oliy Majlis of January 24, 2020 touched upon such key issues as: complete digitalization of the education system, transition of the educational process in higher education to a credit-module system, formation of an electronic platform of scientific achievements, a base of domestic and foreign scientific developments, implementation of the “1 million programmers” project together with foreign partners, and introduction of information technologies that fully meet international standards at all stages of education [1].

Also, “Digital Technologies Training Centers” are being established in the regions of our republic. One of these centers was commissioned by the Ministry of Information Technologies and Communications Development in the city of Kattakurgan, Samarkand region, on November 7, 2019. During the first year, this digital technology center will serve more than 1,800 young people from Kattakurgan to improve their knowledge and skills in robotics, cybersports, e-commerce, innovative entrepreneurship, software, and digital technologies [2]. Now, going to prestigious higher education institutions in foreign countries to get an education, building schools in remote rural areas, attracting pedagogical staff, and publishing large volumes of textbooks are no longer a problem. Because as a solution to the above issues, digital technologies allow everyone to use knowledge and skills related to education and other fields around the world anywhere, at any time, and in any way. If we rely on the experience of developed countries, including the USA, the “Digital Future” program has been developed, according to which it is intended to completely change the process of obtaining and teaching knowledge. US researchers have worked on creating a computerized educational program that will be as effective as a private tutor. As a result of their research, the researchers have implemented the “Digital Teacher” program. According to the preliminary results of the program, it has been shown that the time it takes to become a specialist in information technology can be reduced from several years to several months [3].

Digital technologies (personal computers, tablets, projectors, multimedia tools, electronic literature, etc.) serve to improve and develop the quality of education. To do this, electronic textbooks should be oriented to make the process of obtaining knowledge interesting, easy, memorable and harmless to health. Electronic textbooks can simultaneously incorporate elements such as text, audio explanations, video, and 3D animation. Such textbooks are especially convenient for those studying in fields such as physics, chemistry, and medicine. When digital technologies become an element of education, students enter the learning process with great interest. Since digital textbooks are visual, multi-format, and interactive, experts believe that students remember 80% of the information [4].

In addition, the use of digital technologies in the educational process allows you to:

- activates students' learning;
- personalizes learning;
- teaches students to independently acquire knowledge;
- develops students' level of information literacy;
- they are formed by evaluating information on the Internet, checking its reliability, etc.;
- creates the opportunity for students to choose subjects and study from home in remote areas and villages where there is a shortage of specialist teachers;
- provides distance learning in prestigious higher education institutions, which allows you to listen to lectures by qualified professors online;
- reduces annual costs for education (the United States alone spends 7 billion US dollars annually on printing paper textbooks);

- digital technologies allow to collect the latest, valuable knowledge about the world and create an environment where it is convenient for everyone to use it;
- as a result of using digital technologies and Internet communication services, students develop skills such as expanding their horizons, being aware of the socio-economic situations taking place in the world, understanding and evaluating them;
- updating information in digital textbooks does not require large expenses, a long period of time and reprinting;
- one of the most advantageous aspects of modern digital textbooks is that it does not allow students to move on to the next topic without mastering it;
- digital technologies ensure that the verification and assessment of the level of knowledge of students is direct and transparent;
- the use of digital textbooks allows simultaneously mastering subjects, forming digital literacy together with information literacy;
- distance learning creates the convenience of combining work and other activities with studying;

digital technologies and textbook production are a big order for manufacturers of electronics products (in this regard, it is possible to develop entrepreneurship, create new jobs in digital programming and textbook production), for the state this increases the quality and efficiency of the education system, and for consumers, that is, learners, education becomes easier to master and more interesting.

## DISCUSSION

In our opinion, in order to solve the problems of qualified personnel in our country, the lack of modern literature, insufficient provision of material and technical base, the transition from traditional teaching methods to interactive methods in educational processes, raising the quality of education to a level that meets world educational standards, and to use digital technologies in the education system and improve the quality of education, it is advisable to implement the following measures:

- formation of legal (adopting laws and resolutions) and material (establishing various funds, foundations, attracting investments) foundations for the complete digitization of the education system and the transition to digital education;
- formation of the infrastructure of digital education (introduction of ICT and other digital technologies to all stages of education, provision of the country with full Internet connectivity);
- development of national digital textbooks, adaptation of these textbooks not only to the DTS in Uzbekistan, but also to the requirements of any country and any curriculum (as a result, it will be possible to use national digital textbooks not only within our country, but also to export them to foreign countries);
- formation of a system of standard schools throughout the country, equipping these schools with interactive whiteboards, tablets, modern laboratory equipment, projectors, electronic textbooks and other technologies;
- creation of an electronic library in order to create conveniences such as constant receipt and processing of digital textbooks;
- organization of training courses for teachers to develop skills and qualifications in the application and use of digital technologies and textbooks in teaching processes, conclusion of agreements with reputable higher educational institutions in order to exchange experience with foreign countries;
- introduction of distance learning and organization of exams using digital technologies to ensure the integration of education and production;
- full digitalization of entrance exams to higher education institutions (this will save time and money, ensure transparency, prevent corruption, and allow you to get results immediately);
- transition to a credit-module system in higher education, opening specializations that train digital technology specialists;

The implementation of such measures will raise our country's education system to a new level and improve the learning process, increase mastery, the level of education, and the effectiveness of personnel training. The use of modern technologies, which today differ from the traditional form of education, will create an opportunity to streamline the educational process and achieve high efficiency. Therefore, in the current era of rapid scientific and technological progress, traditional teaching technologies are being replaced by advanced technologies focused on the student. The goal is to prepare a fully qualified and globally qualified workforce that can meet the requirements of world standards. The improvement of the quality of education is due to the use of modern pedagogical technologies in the educational process in various directions and for various purposes.

The main goal of pedagogical technology is to gradually identify ways to achieve the final result, and ultimately achieve it. This technology is a pedagogical project, the organization of the educational process, and, of course, the creation of favorable conditions for the learner and the teacher to work together. One of its foundations is the technology that is oriented towards the individual. This technology allows the student to reveal their abilities and experience, and its design takes into account their individual and age characteristics, level of preparation, and fosters such qualities in the student as independence, initiative, a sense of responsibility, and critical thinking. This creates conditions for their self-development, independent study, self-expression, experimentation in their practical activities, freedom to express new ideas and thoughts, solve existing problems, and develop the learner's creative and critical thinking. It should be emphasized that today there are so many technologies that our teachers encounter various difficulties and confusion when using them. In fact, all existing technologies are based on the problem of solving problematic situations and situations [3]. For example, the problem of conveying and instilling the same topic to a student is itself a problem. That is why we consider it appropriate to use problem-based learning technology in training sessions as the most appropriate technology today. Project planning and modularization can be implemented within this technology.

## CONCLUSION AND RECOMMENDATIONS

Today's world requires the learner to be active, make independent decisions, and quickly adapt to changing life conditions.

To do this, the learner must:

- independently acquire and apply the necessary knowledge in practice;
- propose approaches to solving problems, identify and solve new problems;
- think freely and independently;
- have the ability to create innovative ideas;
- must have skills and abilities such as independent work on the development of their intellectual abilities.

In preparing students with these qualities, not only the content of the curriculum, but also problem-based learning technologies play an important role. Because in this process, both the teacher and the student constantly test their intellectual, physical, and spiritual capabilities to solve educational and practical problems and develop the necessary qualities. Today, transforming student goals into tasks is considered an important stage in the design of training according to pedagogical technology. Because only when goals are successfully translated into tasks can we know for sure that they have been achieved. Student goals should cover important concepts of the learning material, and tasks should be structured accordingly. Tasks should be expressed in the above verbs, which indicate specific actions of students. In this regard, special attention should be paid to the use of verbs that correspond to the levels of thinking of the subject. Because they ensure the assimilation of the material at a high intellectual level. Each task should check the assimilation of only one concept or rule, and should be presented in a concise, understandable manner. Otherwise, this will create additional difficulties for the student and weaken his motivation to study. Assignments can be in the

form of oral questions and answers, written and test. It is also effective to create assignments in different forms for the same purpose. This is because it allows for an objective assessment of students' knowledge of a particular assignment. Oral questions and answers are a direct communication between the teacher and the students, and the answers given to these questions are evaluated.

Today, there are many shortcomings and problems in the education system. In order to find solutions to such problems and eliminate them, we put forward the following proposals: moving away from the superficial education system and reducing the human factor in controlling the quality of education, and fully introducing the use of modern technologies into the sector;

- improving the quality of education through foreign experience, effective use of existing opportunities;
- developing and implementing advanced standards of supervision in higher education;
- ensuring the involvement of leading foreign specialists in the processes of educational supervision in Uzbekistan;
- develop and distribute simplified applications to explain to university professors and teachers the tasks of the state inspection for monitoring the quality of education;
- develop and improve promising projects to improve the quality of education.

Thus, training organized on the basis of modern educational requirements in the conditions of digitalization improves the quality of this process, develops the knowledge, skills and competencies of students, their creative abilities, and increases their interest in the profession.

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