

Role Of Digital Technologies In Education

Ko'ysinov Odil Almurotovich¹, Kunnazarov Ilesbay Sarsenbaevich², Saparniyazova Zlikha Makhsetbaevna³, Saparniyazova Rakhima Makhsetbaevna⁴, Kunnazarov Ongarbay Ilesbaevich⁵

¹*Deputy Head of the State Inspectorate for Quality Control of Education under the Cabinet of Ministers of the Republic of Uzbekistan, Doctor of Pedagogical Sciences (DSc), Professor.*

²*Head of the Department of the Republic of Karakalpakstan of the State Inspectorate for Quality Control of Education under the Cabinet of Ministers of the Republic of Uzbekistan.*

³*Karakalpak Davlat University (PhD), Associate Professor.*

⁴*intern teacher of the "Technological education" department of the Nukus State Pedagogical Institute.*

⁵*Nukus State Pedagogical Institute 13.00.02 1st stage basic doctoral student of the specialty "Theory and methodology of education and training (informatics)".*

Abstract: Today, no industry can be imagined without information technologies, computers, and programmed systems. In particular, the role of digital technologies in the field of education is special. The article presents opinions on the possibilities and importance of digital technologies in the organization of educational processes. In addition, the article provides visual explanations of physical processes that are difficult to observe using special computer programs through electronic textbooks, animations, virtual experiments and presentations.

Keywords: technological education, digital technology, digital economy, design, information, communication, audio signal, video signal, multimedia, individual, motivation, computer, informatics.

Introduction

To date, it has become difficult to imagine the training of qualified personnel with high abilities in the field of education without the participation of digital technologies. While the times are rapidly developing, education does not stand still. Currently, traditional forms of education: conversation, memorization, various stories have been replaced by non-traditional forms of education: integrated lessons, observation lessons, problem situations, etc. Lessons organized through such forms of education are liked by students, arouse their interest, and provide them with a lot of news.

Physical processes, electronic textbooks, animations, virtual laboratory and experiments are shown to students during the lesson in the teaching of science in educational institutions using electronic tools. In particular, new modern technologies and equipment, digital measuring

instruments, virtual laboratories, electronic textbooks and multimedia tools are widely used in the educational process of all subjects, lectures, laboratories and practical classes. In addition, the importance of various scientific-practical, spiritual-educational conferences held at the school is increasing in the effective organization of websites and in increasing the effectiveness of education.

The results of the implementation of economic, structural and other changes currently being carried out depend on how and in what time frame the problems related to informatization are solved in the republic. The creation of electronic educational tools for educational subjects further expands the possibility of using modern information and communication technologies in teaching these subjects. This, in turn, is the main factor of students' in-depth assimilation of knowledge in these subjects and increases the

quality and efficiency of education. The implementation of such efforts will make it possible to further accelerate the wide application of modern pedagogical and information technologies in the educational process, to deeply study the experience of foreign higher education institutions, and to introduce their effective methods and tools into our national education system. In the process of forming the innovative capabilities of the state, the main task falls on teachers. Such an important task can be solved only by a teacher who has mastered modern pedagogic and information technologies, constantly works on himself, improves his knowledge, skills and abilities, and has a creative approach to his work.

In the educational system, multimedia electronic educational literature, lectures, virtual laboratory work, various animation programs are special programs that are needed for creating slides. In the educational system, the above-mentioned programs have ready-made models, in which the user can widely use several types of work (laboratory, analysis of fire safety issues, animations in presentation lectures) by entering the initial parameters. Examples of programs that enable modeling of physical processes include: MatCad, MatLab, Maple, Crocodile, Physics, Electronics Workbench and other software packages. The use of computer models in educational processes, taking advantage of information technologies, is effective. The principles of using computer models in educational processes are as follows: the computer program should be used when it is impossible to conduct an experiment or when the experiment moves to an unobservable level; the computer program helps in identifying the studied detail or illustrating the problem being solved; as a result of the work, listeners should know the qualitative and quantitative relationships of the quantities describing the events with the help of the model; Information technology and physical knowledge are widely used for computer modeling of physical processes.

The tasks of developing and implementing the "Digital Uzbekistan - 2030" program, which

envisages updating all sectors of the economy based on digital technologies in our country, have been determined. This creates more opportunities for modernization of the leading branches of industry and strengthening of competitiveness, introduction of advanced technologies, establishment of high-tech enterprises, technological parks, production enterprises, construction of modern engineering and communication infrastructures.

Modern education sets goals for the student: free acquisition of knowledge, knowing how to interact with different people in different situations, and at the same time feeling free and confident. Therefore, the communicative technology of education is innovative in the same process.

In order to process and display video and audio information on a computer, it is necessary to increase the speed of the central processor, the size and the speed of exchange of input-output channels of the computer. At a new level of "human-computer" interactive communication, the user receives much wider and comprehensive information during the communication process. This situation allows to improve the conditions of education, work or recreation. Education of students and retraining of personnel on the basis of multimedia tools is an urgent issue of today.

Teaching students based on multimedia tools has the following advantages:

1. There is a possibility of deeper and more perfect assimilation of the given materials;
2. Enthusiasm for close contact with new areas of learning will increase;
3. As a result of reducing the time of education, achieving the opportunity to save time;
4. Acquired knowledge will be kept in one's memory for a long time, and it will be possible to use it in practice if necessary.

Education and training processes can develop a person without developing them by themselves, but when they have an active form. For the development of the student's knowledge,

skills and abilities, it is necessary to properly organize his activities. Development does not take place in the process of slow comprehension of educational material. For example: no matter how much a child flips through a book, if he does not remember the numbers, he cannot learn to make an example from them, he will not develop any problem-solving skills. The student's own actions will be the basis for the formation of his abilities in the future. Therefore, the task of education is to create situations that encourage students to act. In a word, teachers need to create special educational conditions that help each student to form individual tools and methods to correctly solve tasks in different situations. This, in turn, is considered one of the important issues of the technology of achieving the results set before the educational system.

The mechanisms of physical processes, their demonstration in lectures, practical and experimental classes, and conducting these cases based on computer technologies are factors that increase the effectiveness of imparting knowledge to students and creating skills related to the basics of science during the teaching process.

Informatics and information technologies, as a fundamental science, deals with the development of a methodology for establishing management processes with information on the basis of computer information systems. There is also an opinion that one of the main tasks of science is to determine what information systems are, what place they occupy, what structure they should have, how they work, and what laws are characteristic of them. In Europe, the following main scientific directions can be distinguished in the field of informatics: network structure development, computer integrated process production, economic and medical informatics, social insurance and environmental informatics, professional information systems. The emergence of the multimedia system has led to revolutionary changes in several professional fields such as education, science, art, computer training, advertising, technology, medicine, mathematics, business, and scientific research.

The requirements for the organization of educational processes based on digital technologies in pedagogic higher education institutions make it necessary to technologize this process, that is, to design each stage of the entire educational process separately, to determine the expected results of the training in advance. In order to achieve this goal, it is emphasized that it is appropriate to pay special attention to the following:

- development of teacher's professional-pedagogical knowledge and professional culture;
- development of the teacher's possibilities of designing the pedagogical process in the educational process based on cooperation;
- improvement of teaching forms, educational technologies and methods in cooperation between teachers and students;
- creating favorable didactic situations in the educational process based on cooperation;
- organizing and managing the educational process based on the teacher's design.

Although the idea of using computers in the educational system appeared much earlier, the use of information technologies in all areas began to be put into practice in the full sense when computers equipped with multimedia devices appeared. The use of multimedia tools in education provides the following opportunities:

- ✓ ensuring the humanization of education;
- ✓ development of personal qualities of the learner
- ✓ increase the efficiency of the educational process;
- ✓ development of the learner's communicative and social skills;
- ✓ looking at the learner as an active learning subject, recognizing his value;
- ✓ the possibilities of individualization and differentiation of open and distance education will be significantly expanded due to individual (individual) education of each person with the help of computer tools and information electronic educational resources;

- ✓ taking into account the personal experience and individual characteristics of the learner;
- ✓ to create the skills of students to use modern educational technologies that help them to adapt to the current rapidly changing social conditions in order to successfully perform their professional tasks;
- ✓ conducting independent educational activities, in which the learner studies and develops independently.

In the decision PQ-2909 of the President of the Republic of Uzbekistan dated April 20, 2017 "On measures for the further development of the higher education system", the following were defined as the most important tasks for the further improvement and comprehensive development of the higher education system in the future:

- each higher educational institution to establish close cooperation relations with the world's leading scientific and educational institutions, wide introduction of advanced pedagogical technologies, educational programs and teaching-methodical materials based on international educational standards into the educational process, active involvement of highly qualified teachers and scientists from foreign partner educational institutions in educational and pedagogical activities, conducting master classes, training courses, on their basis, organizing internships for master's students, young teachers and scientific staff of higher education institutions of our republic, retraining and upgrading of the qualifications of professors and teachers on a systematic basis;
- formation of target parameters of training of highly educated specialists, optimization of training areas and specializations in higher educational institutions in the future, taking into account the requirements of regional and branch programs, comprehensive development of regions and economic sectors;
- further improvement of the educational process, curricula and programs of higher education based on the wide introduction of new pedagogical technologies and teaching methods, qualitative renewal of the master's scientific-

educational process and the introduction of modern organizational forms;

- creation of new generation educational literature and their widespread application in the educational process of higher education institutions, providing higher education institutions with modern educational, educational-methodical and scientific literature.
- continuous improvement of the quality and level of professional skills of pedagogues, training and internships of pedagogues and scientific staff abroad, education of graduates of higher education institutions on PhD and master's programs, wide involvement of highly qualified foreign scientists, teachers and specialists in the educational processes of higher education institutions and retraining and professional development centers;
- strengthening the scientific potential of higher education institutions, further development of science in higher education, to strengthen its integration with academic science, to increase the effectiveness and efficiency of scientific research activities of professors and teachers of higher education institutions, to widely involve talented students and young people in scientific activities;
- to increase the spiritual and moral content of higher education, to deeply inculcate in students and young people the spirit of loyalty to the ideas of independence, high spirituality and national traditions of humanity, carrying out large-scale educational and educational work on strengthening their immunity and critical thinking in relation to foreign ideas and ideologies;
- construction, reconstruction and capital repair of the material and technical base of higher educational institutions, educational and scientific-laboratory buildings and cases, sports facilities, social-engineering infrastructure objects, further strengthening of educational and scientific laboratories in the priority directions of higher education science by equipping them with modern tools and equipment;
- to equip higher education institutions with modern information and communication technologies, to expand the access of students, teachers and young researchers of higher

education institutions to world educational resources, electronic catalogs and databases of modern scientific literature.

In a classroom equipped with information and communication devices, it becomes interesting and effective to organize and conduct the educational process for students and teachers. Digital technologies are a set of methods, production processes and software and technical tools combined for the purposes of collecting, editing, storing, distributing and using information for the benefit of users.

It is required that educational materials presented in multimedia in information and communication media should be easy to understand, presented through modern information and convenient tools. In order to fully reveal all the possibilities of multimedia technologies and to use them effectively, students need the support of a potential teacher. As with the use of textbooks, the educational strategy in the use of multimedia tools can be enriched in the educational process only when the teacher is engaged not only in providing information, but also in helping the learners and managing the process. Presentations enriched with beautiful images or animations are usually more attractive than plain text and can complement the material being presented and provide the necessary emotional level.

According to scientists, the use of digital technologies used in the field of education should be aimed at the implementation of the following issues:

- supporting all types of student's cognitive activities in acquiring knowledge, developing and strengthening skills and competencies;
- ensuring and developing the systematic thinking of students;
- implementation of the principle of individualization of the educational process while preserving the integrity of the educational process.

Digital technologies can be divided into types according to a number of indicators of educational tools:

1. Regarding pedagogical issues:

- a) means of practical training: sets of problems, digital technologies, virtual constructors;
- b) auxiliary means: literature, educational computer games, multimedia video lessons;
- c) tools providing basic training: electronic textbooks, educational systems, knowledge control systems;

2. Regarding the organization of the educational process:

- a) information and educational resources;
- b) interactive;

Based on the above considerations, it can be said that, organization of educational processes based on digital technologies in the field of technological education in pedagogic higher education institutions, firstly, to help students master the knowledge of information and communication technologies, and secondly, to be able to use the acquired knowledge in practice; thirdly, it creates an opportunity to form independent thinking with the help of acquired knowledge and skills. The use of digital technologies helps to increase the interests of students and to form their positive motivation, as it allows maximum consideration of individual educational opportunities and needs of students, wide opportunities to choose the content and forms of educational activities, reveals the creative potential of students, and helps students master modern information technologies. The possibilities of digital technologies can be used to organize digital educational resources, individual tests, and distance lessons.

References and sources

1. Resolution PQ-2909 of April 20, 2017 of the President of the Republic of Uzbekistan "On measures to further develop the higher education system".

2. Decree of the President of the Republic of Uzbekistan No. PF-4947 of December 7, 2017 "On the Action Strategy for the Development of the Republic of Uzbekistan".
3. Yoldashev J.G., Usmanov S.A. Implementation of modern pedagogical technologies. - T.: "Science and technology", 2008.
4. Mavlonova R.A., Rahmonkulova N.H., Matnazarova K.O., Kholmatov P.Q., Shirinov M.K. General pedagogy. Tashkent. Navruz. 2016.
5. Orishev J.B. The role of digital technologies in the organization of the educational process // Proceedings of the international scientific and practical conference on the topic "Modern information technologies in education". Jizzakh April 23. 2021. Pages 167-170
6. https://journal.buxdu.uz/index.php/journals_buxdu/article/download/4056/2542
7. <https://inlibrary.uz/index.php/rpietc/article/view/5714>
8. <https://cyberleninka.ru/article/n/ta-limda-axborot-texnologiyalari>
9. <https://lex.uz/ru/docs/-5030957?ONDATE2=14.07.2021&action=compare>
10. <http://www.ipb.uz/post/print/308>
11. Gerdruang, Atiporn; Panwatanasakul, Chaipat; Nurnazar, Pirnazarov; ,The Desirable Management Of Education In Urbanization Area Under The Office Of Non-Formal And Informal Education In Bangkok Thailand,湖南大学学报 (自然科),48,10,,2021,
12. Nurnazar, Pirnazarov; Islambek, Sultanbergenov; ,HUMANISM OF SOCIOLOGY AND SOCIOLOGY OF HUMANISM,Uzbek Scholar Journal,2,,11-14,2022,
13. uli, Pirnazarov Nurnazar Rashid; ,Development Of a Person's Spirituality in Dialogue with Another,Zien Journal of Social Sciences and Humanities,1,1,133-135,2021,Zien publishers
14. Бердимуратова, АК; Бердимуратова, СП; ,ИСТОРИЯ. СОЦИОЛОГИЯ. ФИЛОСОФИЯ. ЮРИСПРУДЕНЦИЯ.,Вестник КГУ им. Бердаха. №,1,,50,2021,
15. Алима, Бердимуратова; ,Хэзирги заман глобалласыу машқалалары: кэдири хэм кэтери,Вестник Каракалпакского университета,25,4,68-75,2014,Каракалпакский государственный университет
16. Qarlibaevna, Berdimuratova Alima; Yusupbay, Alimbetov; Sabirovna, Kamalova Khatira; ,ABOUT THE ACTIVITY TASKS OF THE EDUCATION SYSTEM IN THE REPUBLIC OF KARAKALPAKSTAN,Ижтимоий фанлар,2,3,,2020,
17. Алимбетов, Юсупбай; Камалова, Хатира Сабыровна; ,QARAQALPAQSTAN RESPUBLIKASI TA'LIM SISTEMASININ'ISKERLIK MA'SELESINI HAQQINDA,Журнал Социальных Исследований,3,2,,2020,
18. Алимбетов, Ю; ,ПРОБЛЕМА ВЗАИМОСВЯЗИ НАЦИОНАЛЬНОГО И ОБЩЕЧЕЛОВЕЧЕСКОГО,Актуальные проблемы многоуровневой языковой подготовки в условиях модернизации высшего образования,,12-16,2017,
19. Бердимуратова, А; ,Массалық мәденият социаллық кубылысы сыпатында,ВЕСТНИК КАРАКАЛПАКСКОГО ГОСУДАРСТВЕННОГО УНИВЕРСИТЕТА ИМЕНИ БЕРДАХА,34,1,52-55,2017,
20. Бердимуратова, АК; Алимбетов, Ю; Камалова, ХС; ,О состоянии обеспечения населения питьевой водой и его влиянии на социальную устойчивость общества республики каракалпакстан (на материалах социологического обследования населения республики в марте-апреле 2016 года),Актуальные проблемы многоуровневой языковой подготовки в условиях модернизации высшего образования,,70-86,2017,