

IT Technologies as a Necessary Component of the Education System

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Annotation: It is noted that nowadays information technologies are the most important factor that influences the quality of the education system. The main prerogative is quality and level of students' training in universities that is the guarantee of successful functioning of the education system. The application of information technologies in the educational process reveals students' creative abilities in the learning process.

In the article the concept of information technologies from the standpoint of native scientists is disclosed, and our assessment of the concept of this definition is made. Distance learning technology is distinguished as an IT-technology under which flows interaction of teaching and organizing educational information process through a remote computer (server) is understood.

In conclusion of the article, the application of information technologies in educational process has positive and negative sides. However, in general, information technologies contribute to the fact that there is a clear demonstration of information and time saving for its search.

Keywords: technology, education, multimedia, virtual space, computer upgrade, Internet.

Information technologies today are the basis and one of the most important factors that have a strong influence on the quality of the education system both in the world and in Russia. The problem of information technologies in the field of education has been given much attention, and in the works of such scientists as Yu.K. Babansky, Yu.S. Branovsky, Ya.L. Vagramenko, A.G. Gein, A.P. Ershov, I.V. Robert and many others, this issue is well covered. Pedagogical research in the field of higher education related to the study of informatization can be traced in the works of such scientists as Pashkova I.I., Kozlova S.Zh., Zhilina M.Ya., Domrachev V.G.

In today's reality, when the requirements for the quality of graduate training are increasing, global informatization is taking place, the development of the latest information technologies, which will also improve the training of future specialists.

For the modern educational system, learning is, first of all, a cognitive activity that is focused not only on acquiring knowledge and skills. Changes also occur in the student's personality: first of all, intelligence increases and the main focus is on self-development. A higher educational institution is built in such a way that a student first studies, and then comes a stage focused on managing other people and production structures. Professional competence, scientific qualifications, and personnel training lead to the formation of a new type of specialist who enthusiastically finds a creative approach to solving a problem.

The main focus is the quality and level of training of students in universities, which determines the efficiency of the entire education system.

It is necessary to develop new approaches to training teachers who are able to creatively and independently solve educational problems. Such approaches pursue the following goals:

1. To develop students' understanding of the creative nature of pedagogical activity and the fact that it plays a huge role in the life of society;

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2. The emergence of a professional culture of future teachers;
3. Focus on personal and professional development, on independent self-development taking into account individual characteristics.

The use of information technology in the educational process will contribute to the improvement of the quality of training of future specialists.

Information technology should be understood as a set of means and methods for collecting, processing and transmitting data to obtain new quality information about the state of an object, process or phenomenon.

Information technology in education has advantages, including:

- creation of the most effective system for managing information support for education;
- formation of cognitive activity of students in the learning process;
- individualization of the educational process and the possibility of the process of cognition with the help of information technologies.

Today, the relevance of using information technology in the educational process at a university is determined, first of all, by the social need to improve the quality of education and the practical need to use modern computer programs in higher educational institutions.

Modernization of the educational process, first of all, requires a transition from lecture methods of mastering educational material to active group and individual forms of work, organizing independent search activities of students, which will allow training a specialist with a pronounced individuality and organizing the activities of students in various conditions. This can be facilitated by the introduction of information, computer technologies and digital educational resources into the educational process.

Good command of information and communication technologies by university teachers is the basis for improving the quality of education. The use of information technologies to create educational and methodological support allows for increasing the effectiveness of the educational process. Competent use of information technologies by a teacher allows for increasing the pedagogical impact on the formation of a student's creative potential.

The information component of the educational process determines the substantive aspect of training a specialist at the university. Such an information component can be an electronic educational and methodological complex, which is a didactic system where there is interaction between the teacher and students, where applied pedagogical software products are taken into account, as well as a set of didactic tools and methodological materials that support the educational process.

Information technologies in education solve a number of important problems, including:

1. Research of phenomena and processes that occur within complex organized systems and based on the use of computer graphics and computer modeling;
2. The study of various physical, chemical, biological and social processes that can occur at high or low speed.

The concept of information technology includes both computer and telecommunication technologies in education [1]. We consider information technology as a set of modern technical means that provide collection, storage, processing and transmission of information based on modern computer technology. The concept of information technology is also considered from the position of domestic authors. Scientist M.I. Zhaldak considers information technology as a set of methods and means that allows expanding people's knowledge and provides broad opportunities for managing technical and social processes [2].

From the point of view of V.A. Izvozchikov, information technologies are technologies and methods of the educational process using new electronic teaching aids and, first and foremost, computers [3].



Researcher E.N. Mashbits believed that information technology is a set of various training programs; here he includes knowledge control, training systems based on artificial intelligence [4]. The main task of information technology in the field of education is the development of an interactive environment for managing the educational process and access to modern information and educational resources. Information technology includes multimedia textbooks, various educational sites based on hypertext and many other sources. Information technology in the educational process has a significant impact on the formation of a modern information picture of the world. The relevance of using information technology in the educational process is due to the social need to improve the quality of education, as well as the practical need to use modern computer programs. The main goal of using information technology in the educational process is, first of all, to enhance the intellectual capabilities of students in the information society, as well as individualization and improving the quality of education at all levels of the educational system.

Information technologies in the field of education contribute to [5]:

1. expanding the horizons of the student;
2. preparing university graduates for life in the information society;
3. implementation of a social order that is oriented towards the processes of global informatization.

New information technologies contribute to the increase of the efficiency of training, its individualization and differentiation, organization of new forms of interaction in the process of training and change of the content and nature of the activity of the student and the learner. The task of the teacher is the ability to apply new technical means in the educational system and to achieve successful functioning of education in the modern world.

Today, there are several areas of use of modern information technologies in the field of education:

1. the use of information technology as a teaching tool that improves the teaching process and increases its quality and effectiveness;
2. the use of information technologies as tools for learning, self-knowledge and understanding of reality;
3. the use of information technology as a means of creative development of the student;
4. the use of information technology as the main means of automating the processes of control, correction, testing and psychodiagnostics;
5. organization of communications based on the use of information technology tools for the purpose of transferring and acquiring pedagogical experience, methodological and educational literature;
6. Intensification and improvement of the management of an educational institution and the educational process based on the use of a system of modern information technologies.

Recently, a characteristic feature has been the use of information technologies by universities based on web technologies and the global Internet. The Internet is considered by scientists as an environment that does not provide knowledge "in ready form", but provides great opportunities for those who can actively search for information, analyze and think independently. Currently, the term "virtual space" is widely used in the media, which means a set of not only educational resources of the Internet, but also a completely new "infosphere", the dimension of which includes:

- technical and innovative means of the Internet;
- human resources involved in education and the processes of informatization of education;
- relations in the community of specialists working in education using new information technologies and the Internet.

Today, the distance education system is especially popular [6]. Distance education is the interaction of educational and educational process information flows via a remote computer (server). The main



impetus for the development of distance education was given at the end of the 20th century, and today distance education is the most promising and effective system for training specialists, which has enormous potential in the 21st century. Distance education is a set of educational services that are provided to the general public using a specialized information and educational environment focused on information exchange at any distance. In the higher education system of Russia, distance education is, first of all, a set of technologies, methods and means that provide the opportunity to study without visiting an educational institution, but, as a rule, with various consultations with teachers of the educational institution or persons certified by this educational institution.

Among the main areas of distance education in Russia, one can highlight improving the quality of education, training high-quality specialists and developing a unified educational space, where the emphasis is on increasing the social and professional mobility of the population and the level of self-awareness.

To date, the Strategy for the Development of the Information Technology Industry in the Russian Federation for 2014-2020 and for the period up to 2025 has been developed to form a unified systemic approach of the state to the development of information technology in the field of education. The strategy defines the main goals and areas of development of the information technology industry and the mechanisms for achieving this goal. The volume of the global information technology market is 1.7 trillion US dollars. For the period 2015-2025, the main direction of the state in the field of education is the professional development and advanced training of teachers and lecturers of educational organizations and compliance with certain norms and standards. The goal pursued by Russia is the modernization of the higher education system. This is, first of all, the introduction of information technology into the education system, aimed at maximum satisfaction of the educational needs of students in the widest range of specialties, levels of education, educational institutions and information and educational resources. In universities today, the focus is on the widespread use of information technology in the educational process, which contributes to the efficiency and quality of education. Knowledge of information technology is the key to success in employment, since most companies consider this aspect to be the main one.

The main goal of distance education is, first of all, the creation of a unified educational space by introducing information technologies into the educational process. Network Internet technologies make the educational schedule more flexible and attract the necessary contingent of students.

Also, IT technologies in the field of education can include an electronic textbook, which can be understood as theoretical and scientific-practical material, tasks, training, control and assessment of the quality of knowledge acquisition, which is formed with the help of special programs that allow information to be presented in the form of text, graphic images, as well as multimedia video and sound effects [7].

The electronic textbook helps the teacher in solving didactic, methodological and psychological problems, as it is the most flexible means of teaching, allowing for modification of the educational material as needed. The use of the electronic textbook allows students, along with lectures and practical classes under the guidance of the teacher, to independently study new disciplines, using the presented electronic material as a full-fledged teaching aid, as well as an assistant-consultant and examiner [8].

In conclusion, it is worth noting that in today's realities, the introduction of information technology in the educational process has positive and negative aspects. The positive aspects of information technology are, first of all, facilitating the student's learning process, enhancing the intellectual capabilities of students and, undoubtedly, improving the quality of education at all levels of the educational system. Negative aspects are the problem of information ratio, i.e. the computer has a fairly large amount of information that the student cannot fully assimilate and understand (unlike the computer).

According to most experts, the computer cannot completely replace human communication and understand the secret of human thought. At the present stage, a constructive approach is that the



computer should not be opposed to the teacher; it is more appropriate to consider it as a means of supporting the professional activity of the teacher. Information technology in the educational process contributes to the fact that there is a visual demonstration of information, significant savings in money and time, increased interest of students and the presentation of research results that allow analyzing the influence of various factors on the process under study.

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