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Application Of Modern Informational Technologies in The Field of Education: Opportunities and Prospects

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Abstract

Informational technology plays an important role in the education system. It is known that providing access to knowledge is the role of the school, which should democratize the existing cultural heritage. In this regard, the school, thanks to informational technology, can expand the capabilities of more critical citizens who are thoughtful and ready to solve the social problems of life. Thus, informational technology brings great benefits in the aspect of education and training system. In this context, this article aims to answer: What is the importance of informational technology in education? The purpose of the study is to reflect on the importance of informational technology in the education system. Having as a bibliographic methodology based on different authors who deal with the topic being studied. The results showed that too much information supply can cause unsystematized knowledge, and the school is responsible for systematizing this knowledge. It was also concluded, that in the informational age, it is necessary to use informational technology in constructing knowledge to meet the current needs of students, in the context of technological progress.

Keywords: informational technologies, infocommunications, education, training, educational digital environment.

Introduction

Modern science is developing at an unimaginable speed, spreading its

achievements to all spheres of human activity. General informatization is reflected in the field of education in the form of the introduction, adaptation and dissemination of numerous information technologies at all levels of education, from preschool to university, as well as additional education. Thus, among the global trends in the labor market that determine the education system today are: freelancing, working outside the office or production premises; changing means of communication between employees; changing processes, tools and methods for managing work processes; interaction between man and robot, man and artificial intelligence; increased speed of decision making and data processing technologies; multitasking [12, P. 14].

Currently, it can be observed that educational organizations are still in a state of overcoming the traditional problems of the industrial paradigm of education [2]. Training is mainly associated with individual work, an individual assessment system, the issuance of ready-made tasks and initial data, the absence of multitasking and a focus on the correct, only possible solution to the problem. Competency-based training, including competencies of the future, cannot be built on educational technologies of the past, which were most effective and appropriate for training specialists in the industrial era of the 20th century. The transition to a new educational model is possible only if the educational system is fully integrated into the digital environment [7, p. 127].

Research results and discussion

Global changes affecting the modern educational system include the following: changes in methods and methods of delivering information and educational content; changing the nature and methods of access to educational content; changing the nature of interaction between subjects of the educational process; educational content. Over the past decades, educational technologies have undergone significant changes, moving from passive to active, from simply using computers for printing to replacing teachers with robots, the introduction of modern information technologies and the digitalization of information content in general.

Informational technology in a general sense is interpreted as the process of accumulating, processing, presenting and using information using electronic means [9]. In the field of education, informational technologies are studied in the context of the term “informational and communicational technologies” (abbreviated as ICT), since the teacher transmits information through communication (most often through computer means) with the student or pupil. We believe that the concept of “informational technology” in the context of the progressive development of technology is much broader than the concept of “computer technology”, since the computer is not only means of using informational technology: modern students use a variety of gadgets (phones, tablets, etc.) and are included in social networks, which can also be adapted to suit learning purposes.

The basic goal of using informational technologies in the educational sphere is to improve the quality of education and create effective motivation for students in the educational process. Using informational technology, a teacher can clearly present educational information, create conditions for students to independently search and obtain information, and monitor knowledge using computer testing - the potential of such technologies is enormous and depends on the teacher himself [5]. The use of information technologies contributes to the development of variability, individualization of the learning process, motivates the student’s processes of perceiving information and acquiring new knowledge, and develops his intellectual and creative abilities. In addition, information technologies have become an integral attribute of the life of a modern person, and therefore their use by students does not require long adaptation or habituation.

The use of modern digital and informational technologies in education will improve the role of the teacher and student in the learning process. The student becomes a more active participant in the educational process, manages it to a certain extent, sets goals for himself (for example, searching for information), learns to operate with a large amount of diverse information, transform it, and gets the opportunity to model processes. The position of the

teacher becomes not so much passive as helping, accompanying, supervising [11]. Taken together, the use of information technologies in the field of education makes the learning process more effective.

Today, information technologies have been widely used in the following areas of pedagogical activity [7]:

1. Development and execution of pedagogical and methodological documentation.

2. Using Internet resources for professional communication, prompt response to changes in regulatory requirements, and providing feedback.

3. The use of ready-made intelligent learning technologies in the educational process and the creation of our own multimedia didactic materials [13].

The presented list can be supplemented with augmented and virtual reality technologies, Internet platforms for the implementation of distance learning, which have recently acquired particular relevance [9, p. 116]. In general, modern realities in the form of the spread of coronavirus infection have shown the importance of proficiency in information technology for both teachers and students themselves. It makes no sense to compare the effectiveness of full-time and distance learning, since each of them has its own specifics and advantages, but absolutely the most modern form of learning is their combination in the educational process.

The infrastructure of the modern educational digital environment consists of the following components: web applications and the Internet; hardware and software; mobile applications; Big Data; Learning Management System; modern ICT tools; information visualization technologies, etc. Let's consider the possibilities of information educational technologies in the design and implementation of the educational process:

Blended learning. Depending on the degree of implementation of ICT tools in the educational process, 6 models are distinguished: face-to-face driver, rotation, flex, online lab, self-blend, online driver (as practice shows, all models are used in the education system);

Project-based learning: involves the complete immersion of the student in the educational process when completing a project using ICT tools and information platforms (Defined Learning (formerly Defined STEM));

Mental maps (mindmapping): a technology for visualizing a large amount of information in the form of diagrams, pictures, keywords. The following free applications are usually used to create mental maps: XMind, Freemind, BubblUs, WiseMapping;

"End-to-end" immersive technologies (augmented AR and virtual VR technologies): designed to facilitate the perception and visualization of abstract concepts, increase students' motivation when studying complex disciplines, develop initial skills when performing logical tasks or physical actions, facilitate learning in an inclusive educational environment (Google Expeditions Kit; Near Sighted VR Augmented Aid; CanonMreal);

Digital tools (Miro; Kahoot; Mentimeter; Zoom; Google Meet, etc.): aimed at organizing distance interactive learning [14, P. 92].

Thus, the introduction of information technologies into the educational process contributes to the formation of a fundamentally new form of lifelong education, the fundamental basis of which is the self-analysis of the student's self-educational activities, supported by modern ICT tools. That is, information technologies make the educational process continuous - the student studies not only in an educational organization, he searches for information, analyzes it, gets to know the world, and even builds contact with the teacher and beyond.

Conclusion

At the present stage of development of society in general and education in particular, information technology is not an auxiliary tool for coordinating the educational process, but an integral part of the learning process, which has enormous potential. Let us repeat, the potential of information technologies in education can be revealed when the participants in the educational process develop the appropriate competencies (ICT competencies), the teacher's aspirations to make the learning process effective, innovative and, accordingly, apply a creative, non-trivial approach to its organization.

Let us note that informatization and digitalization of the education system is a continuous process and an inevitable trend in the development of modern education, and therefore the teacher must follow the path of acceptance and mastery of information technology, and not opposition or rejection. At the present stage of development of education, information technology is one of the basic (and not auxiliary) methods and forms of learning that have great educational and educational potential.

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