Review Article

Advantages of Using ICT In Education

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Abstract

Generations of 21st century students are growing up with digital technologies. They use digital devices such as mobile phones, tablets and laptops every day for mutual communication, entertainment, collecting various information, but also for learning. The flow of information goes much faster, and the teacher and the textbook were not the only sources of school material for a long time. In such an atmosphere, the creativity of the class and the attention of the students are left exclusively to the personal initiative, creativity and enthusiasm of the teacher. It is expected that the products of modern information technologies will improve direct teaching in this sense and adapt it to the requirements of the times.

Keywords: Information Communication Technologies; Modern Education; Computers; Multimedia Technologies; New Technologies

Introduction

Modern technology development requires lifelong learning and continuous learning for personal development. Today, it is obvious that the Internet is present in all spheres of human life. Internet access through computers, mobile phones, tablets and laptops, computers and even kitchen appliances. The formal education system has undergone many changes in the last fifty years. One of the most successful ways to improve the quality of traditional education is the modernization of education with information and communication technologies (ICT), multimedia content and the Internet.

By applying information communication and multimedia technologies, with the addition of the Internet, the educational content that needs to be processed can be adapted to different levels of students' knowledge, and for this reason, all students can learn them much more successfully. Teachers play an important role in this process, because they mostly depend on how much knowledge the students will get. Therefore, the issue of specific areas for the improvement of teachers' qualifications in the field of ICT becomes extremely important and topical. Learning with the help of ICT, multimedia technologies and the Internet should be seen as a modern learning system with great potential and perspective for the future.

Modern education requires changes in the traditional education system, and therefore it is very important to provide conditions for active student learning, as well as adequate teacher training. Research results can significantly help improve the quality of education by using information, communication technologies, multimedia and the Internet. The acquisition process is very important for the adjustment of the student's knowledge and does not require the student to adjust to this process. The use of ICT makes it possible to adapt the planned content to the real situation, i.e. different levels of student knowledge, which simplifies the acquisition of new material by students. This approach also requires the involvement of relevant competent institutions in order to improve the conditions for students' acquisition of new knowledge.

Learning with the use of ICT should be considered one of the modern approaches, which has its adequate role in the educational system.

New technologies in education

Education opens up to new technologies very slowly compared to some other activities. New technologies are not the first to be applied in education, but appear last, and one of the reasons for this is that the high price of computers and the speed of their obsolescence, as well as other reasons can be attributed to teachers working in schools.

Automatic data processing systems, multimedia systems, distance learning, virtual schools and other technologies are gradually being introduced that promote greater commitment, as well as the activities of the students themselves to better assess the knowledge and progress of the students, all in accordance with the previous knowledge and individual abilities of the students. The role of teachers in the implementation of innovations in teaching is huge and very important, and therefore the possibility of their practical application in the learning process. In the modern information society, the teacher is not only a source of knowledge, his role is not only in the organization and planning of work in the class, but also in searching for sources, ways, ways of obtaining knowledge, as well as how to apply knowledge.

New inventions, knowledge and technologies directly or indirectly affect the improvement of education, changes in the content of education and sources of knowledge. The focus is not only on memorizing large amounts of data, but also on creative relationships and self-learning. In the process of learning, in the transfer of knowledge, the Internet can often be used, gathering people and information around the world, it greatly affects education. Modern teachers should have basic computer literacy. Teachers who want to devote themselves a little more to the teaching of certain subjects can acquire interesting materials via the Internet and thus complete and modernize their work, find even better solutions. If they want to use some of the materials that the Internet offers in their work, teachers must be familiar with the subject content in order to successfully assess the validity of the requested data. This way of working enables learning, receiving feedback and additional information and maximally activates students in the learning process [1]. The Internet solves a lot for us, and the essential problem is how to get new books from a certain field. Online, we can access various texts found all over the world and download them in a very short time. For example we can get the latest research in any field of science or download books in html version. Recently, entire encyclopedia servers can be found on the Internet. Correspondence schools can also be organized via e-mail, in which students can attend regardless of where they are, it is enough to have a computer and access to the Internet [2].

In the learning process, the Internet, virtual reality, multimedia, hypertext should be used more and more, with the help of which students can gain new knowledge, interesting and rich content in accordance with their capabilities and interests. Students can always get additional feedback using new technologies, it is easier for teachers to maintain discipline and work in the classroom.

Modern educational technologies with the use of multimedia systems create prerequisites for the inclusion of all senses in the process of acquiring new knowledge, developing students creative abilities and ensuring greater student activity in teaching and learning. Teachers are no longer just lecturers and examiners, but increasingly organizers, consultants, thought leaders, agents who manage the teaching and learning process, who knows what they are doing, what they should use in their work and what results they should achieve [3].

Educational materials are increasingly enriched with multimedia content (including audio and video text) and presented in electronic form on electronic media such as video cassettes, SD-roms, etc. New technologies for the transmission of speech and images in real time are suitable. Online education is even better and more popular, and it makes learning more interesting.

It can be concluded that it is necessary to make maximum use of modern education in the educational process of means and technology. Educational technologies have developed strongly in recent years, and their introduction has especially contributed to this program and the polyprogram of classrooms, computers, cable TV, the Internet, various organizational forms of education: school without classes, group learning, problem-based learning.

The use of new technologies does not mean extinguishing the old ones, but the new computer technologies only complement the oral and written verbal technologies. Among the new educational

innovations today, the following are most often mentioned: multimedia, virtual reality, expert systems, educational computer software, distance learning and earlier didactic media such as: slides, films, graph paper, video cassettes [4].

From the artificial media available to the teacher: auditory, visual, audiovisual. Today, multimedia didactic media (CDs, content obtained through computers) are used more and more, which combine image, text, sound and film and the interaction of students and information sources. It is very important that as many senses as possible are involved in the learning process, because there are many effects.

The use of new modern technologies contributes to greater motivation and involvement of students, a better way of acquiring knowledge is achieved.[5] Among the innovations in educational technologies, we can single out:

- Learning is supported by computer systems and
- Distance learning.

Computer-assisted learning

Computer-assisted learning includes multimedia educational software, computer simulations, virtual reality, artificial intelligence. The use of information technologies foresees individual acquisition of knowledge, constant feedback and monitoring of student progress, which helps the teacher to more realistically evaluate students' knowledge and refer them to other didactic media in order to master new knowledge more successfully. Today, computer-supported research is used significantly at higher education institutions for theoretical literature research in various fields and for empirical research with the use of adequate statistical software. Theoretical literature research is almost unthinkable without the use of computer technology, because today almost all important books, works, studies and proceedings from professional and scientific meetings are translated into electronic editions and placed on the WEB portals of publishing houses, faculties and libraries. Distance learning using computers, telecommunications, and cable television is increasingly being applied in education. Distance education is an instructional way of working with students that does not require the presence of students and lecturers in the same room [6].

An increasingly common type of computer-supported teaching is blended learning, which implies classical teaching in which part of the teaching activities are carried out in a computer environment (use of online tests in classical teaching, collaboration among students by joint editing of wiki pages, learning part of the material through interaction with educational computer game).

Distance learning

Remote access allows us to connect to a device that is not in our immediate vicinity. For example, let's say you are at home on a tablet, you need to access a computer located at school. It contains a specific file that you need immediately. With remote access, you can easily establish a connection between two computers and take control of a computer located at school. You'll be able to run the app, edit and save files, and do whatever you want. This example shows the case where remote access is most often used. With the use of remote access, the work of teachers and people of other professions is made much easier.

The problem with distance learning is that students drop out easily. Some of the reasons are that there is no live "face to face" contact, both with the professor and with other students, and therefore there is a lack of motivation and support. Distance learning can be accomplished through video and teleconferencing. Teleconferencing refers to various forms of using computer networks between two or more separate users in real time [7].

Remote access software is a tool used to remotely access a specific computer device. Simply put, it allows users to remotely access a device from another device as if they were sitting in front of it. With the help of the Internet and a virtual connection, users can perform several tasks on a remote device, including managing applications and troubleshooting.

Many forms of distance learning give students options to participate when they want or on an individual basis. As we know, different people have different ways of learning and acquiring knowledge, some of them are more suited to morning classes, and some of them accept information better at night, some people absorb certain information faster, some slower, some easier, some harder, so the use of technology in learning solves such problems in a very

efficient way by adjusting the programs individually. Technology in education means maximally ensured optimal time for acquiring and accepting new knowledge at a time and in a way that suits each student individually [8].

ICT tools in the education system

The main ICT tool of the information environment of any educational system is a personal computer, the capabilities of which are determined by the software installed on it. The main categories of software are system programs, application programs, and software development tools. System programs are primarily operating systems that ensure the interaction of all other programs with equipment and the interaction of personal computer users with programs. Utilities are also included in this category. Application programs include software, which represents a set of information technology tools - technologies for working with texts, graphics, tables, etc. [9].

Universal office applications and ICT tools are widely used in modern educational systems: text editors, spreadsheets, programs for preparing presentations, database management systems, organizers, graphic packages, etc. With the advent of computer networks and other similar ICT tools, education acquires a new quality, connected above all with the possibility of receiving information quickly from anywhere in the world. Instant access to the world's information resources (electronic libraries, databases, file stores, etc.) is possible through the global computer network Internet. The most popular resource on the Internet, the World Wide Web, has published about two billion multimedia documents.

Other common ICT tools are available on the Internet, including e-mail, mailing lists, newsgroups, chat. For real-time communication, special programs have been developed that allow, after establishing a connection, the transmission of text entered from the keyboard, as well as sound, images and any files. These programs allow remote users to work with a program running on a local computer.

With the advent of new data compression algorithms, the quality of sound available for transmission over a computer network has improved significantly and has begun to approach the sound quality of conventional telephone networks. As a result, a relatively new ICT tool, Internet telephony, began to develop very actively. With the help of special equipment and software, you can conduct audio and video conferences over the Internet.

In order to ensure efficient information search in telecommunication networks, there are tools for automatic search, the purpose of which is to collect data on information resources of the global computer network and provide users with fast search services. With the help of a browser, you can search documents on the World Wide Web, multimedia files and software, access information about organizations and people.

With the help of online ICT tools, wide access to educational, methodological and scientific information becomes possible for organizing work, consulting assistance, modeling research activities and conducting virtual trainings (seminars, lectures) in real time [10].

There are several main classes of information and telecommunication technologies that are important from the point of view of open and distance education systems. Some of these technologies are video recording and television. Video tapes and related ICT tools allow a huge number of students to listen to the best lecturers. Video tapes with lectures can be used in special video lessons and at home. It is important to note that in American and European training courses, the main material is presented in printed publications and on video tapes [11].

Television, as one of the most widespread ICTs, plays a very important role in people's lives: almost every family has at least one television. Educational television programs are widely used around the world and are an excellent example of distance learning. Thanks to television, it becomes possible to broadcast lectures to a wide audience in order to increase the overall development of this audience without further control of knowledge acquisition, as well as the possibility of subsequent knowledge verification with the help of special tests and exams.

Powerful technologies that enable the storage and transmission of most of the studied material are electronic educational publications distributed on computer networks and recorded on CD-ROM. Individual work with them gives a deep assimilation and understanding of the material. These technologies enable, with appropriate refinement, the adaptation of existing courses for individual use, provide opportunities for independent learning and introspection of acquired knowledge. Unlike a traditional book, educational e-editions allow you to present materials in dynamic graphic form [12].

We live in a dynamic and rapidly changing world - the world of high technology or Hi-Tech. It is already difficult to imagine everyday life without mobile phones and computers, which are constantly being improved.

Use of digital technologies in education

The basic role of standards in the process of implementing electronic learning is reflected in the aspiration to develop standardized data models and a standardized structure of educational content to enable their use regardless of the tools that created them and the environment in which they are used [13].

Different ideas and experiences in the process of modernization of teaching are currently one of the most current topics in the field of education and the subject of many researches.

Research has shown that teachers often use digital technologies and the opportunities they provide, both for the process of organizing lessons and for assigning homework to students. It has also been shown that teachers are very satisfied with their use, as well as with the resources and support provided by their school in this process.

Also, more than 60% of teachers are satisfied with the support and training they received in order to increase the use of digital technologies in teaching. However, these numbers are still lower in the schools of students with lower financial status, where the introduction of digital technologies in the teaching process is still slower.

This is another one of the many researches that gives an insight into the process of the increasing use of digital technologies in education, as well as the positive experiences and effects it has both in the process of improving teaching and in the process of teacher training. The application of digital technologies must gradually be included to an increasing extent in all schools, because their use will be a requirement that every individual faces and the basis for successful work and further training.

Conclusion

The use of modern means of information and communication technologies in education significantly facilitates the work of teachers in the process of teaching schoolchildren in all its stages. ICT tools help to improve the organization of teaching, increase the individualization of learning, and also increase the productivity of students' self-education. Thanks to the means of ICT, the motivation for learning increases, the possibility of attracting students to creative, research activities is activated.

The analysis of the current state of teacher training and development in the field of using ICT tools in professional activities allowed to identify the characteristics of the stages of preparation:

- At the university stage, the formation of the readiness of students of pedagogical universities of all specialties to work in schools under the conditions of computerization of education;
- At postgraduate studies, subject teachers are trained and qualified in the field of computerization of education, taking into account the existing pedagogical experience and the needs of the educational institution in improving the teaching staff.

The analysis showed that the currently existing possibilities of information and communication technologies in the educational process of schools and pedagogical universities are not sufficiently realized:

- The continuity of university and postgraduate education has not been fully achieved;
- Interdisciplinary links between disciplines in the field of informatization of education, informatics and ICT, pedagogy, methodology, specialist disciplines, psychology, as well as professional disciplines are not sufficiently taken into account.

No unique approaches have been developed to the implementation of the training of subject teachers at different stages, taking into account the impact of the process of informatization of education on pedagogical activity, providing systematic training that would be adequate to the continuous technical-technological development of information technologies and means of communication based on local and global computer networks and the development of theoretical basics of computerization of education.

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