

## PEDAGOGICAL CONDITIONS OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN IMPROVING PROFESSIONAL AND METHODOLOGICAL TRAINING OF FUTURE TEACHERS

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### ABSTRACT

The article analyzes the activities of scientists-teachers on this issue and shows its scientific significance. The need for information and communication technologies in improving the professional and methodological training of future teachers, the use of ICT in the educational process in the structure of professional and methodological training has been scientifically substantiated.

**Key concepts:** Future teacher, training, informational, professional, technology, Internet, components, methodical, computer, teacher, student, remote, online.

### INTRODUCTION

The education system of the Republic of Uzbekistan is designed to widely introduce modern information and communication technologies in their professional activities of teachers. The state policy of informatization of education, enshrined in the Law of the Republic of Uzbekistan «On Education» [1]. and «The Concept for the Development of the Higher Education System of the Republic of Uzbekistan until 2030», became decisive in the reform of domestic education. [2].

Great responsibility in solving the above problem falls on the shoulders of teachers. The future generation of the republic largely depends on what the teacher will be like.

The problems associated with the increase in the volume of educational information in the disciplines that need to be mastered in the same time frame remain relevant. One of the ways to solve these problems can be the use of multimedia in the learning process, or the so-called multimedia learning. [6].

Many future teachers and lecturers are not sufficiently familiar with new computer technologies and have no idea how to use them in teaching, not fully realizing the importance of using information technologies. Lessons at school with the use of a computer in most cases are taught by computer science teachers, due to the specifics of their training, poorly representing the conditions that must be observed when using computer technology in teaching specific subjects. The problem of widespread use of computer technologies in the field of education in recent years has attracted increased interest in domestic pedagogical science.

### THE PURPOSE OF THIS WORK

Was to study the significance of the introduction and use of information and communication technologies in the education of future teachers.

To date, a number of studies have been carried out on the preparation of students of pedagogical universities for the use of modern information and communication technologies in their future professional activities in various areas.

Information and communication technologies (ICT) have enormous opportunities for their use in the educational process. With all their resources, ICTs are one of the essential means of realizing the goals and objectives of the learning process. Actively developing digital technologies have caused the emergence of a new way of accessing and receiving information, new types of communication - e-mail, chats, conferences. Computers have entered all spheres of modern life. ICT is changing the learning process, and this is already an inevitability, a reality.

Any teacher has at his disposal a whole range of opportunities for using various ICT tools in the learning process. These are data banks, information from the Internet, dictionaries and reference books, numerous electronic teaching aids, didactic material that automates knowledge control (tests, tests, questionnaires prepared using programming languages, MS Excel, MS Power Point, etc.), forums for communication, presentations, programs, etc. Thanks to this, the content of training is updated, an intensive exchange of information with distant partners is possible, and the intercultural learning process takes on a dynamic character. [9]

### REVIEW OF LITERATURE

The term «information» (from the Latin «information» - explanation, presentation) is defined in a large encyclopedic dictionary as follows: initially - this is information transmitted from one person to another orally, in writing or through any conditional signals or using any technical means. In the encyclopedias «Information, informatization ...» this concept is defined as follows: «information is information about persons, objects, facts, events, phenomena and processes, regardless of the form of their presentation» [10].

The term «Information technology» is defined based on the totality of the concepts discussed above: technology and information. There are various interpretations of this concept in the scientific literature. So I.G. Zakharova defines two concepts: «Information – technology» - a system of scientific and engineering knowledge, as well as methods and tools that is used to create, collect, transfer, store and process information in the subject area and information technology education - is a pedagogical technology that uses special methods, software and hardware for working with information [11].

In informatics, information technology is considered as “a process that uses a set of means and methods for collecting, processing and transmitting data (primary information) to obtain information of a new quality about the state of an object, process or phenomenon (information product). The purpose of information technology is the production of information for its analysis by a person and the adoption on its basis of a decision to perform any action” [12.]. In recent years, the term "information technology" is often used as a synonym for the term "computer technology", since all information technologies are currently connected in one way or another with the use of a computer [13].

- Speaking about the possibilities of ICT for the educational process, many researchers give the following aspects [3,4,5]:
- unlimited possibilities for collecting, storing, transferring, transforming, analyzing and using information of various nature;
- increasing the accessibility of education, with the expansion of forms of education;
- development of student-centered learning, additional and advanced education;
- significant expansion and improvement of the organizational support of the educational process (virtual schools, laboratories, universities, etc.);
- increasing the activity of subjects in the organization of the educational process;
- creation of a unified information and educational learning environment and not only one region, but the country and the world community as a whole;
- independence of the educational process from the place and time of training;
- significant improvement of the methodological and software of the educational process;
- ensuring the possibility of choosing an individual learning path;
- development of independent search activity of the student;
- increasing the motivational side of learning, etc.

The problems of using information technologies in the educational process and the need to train teachers are reflected in the works of Yu. K. Babansky, V. P. Bepalko, V. S. Gershunsky, S. A. Zhdanov, S. D. Karakozov, V. G. Kinelev, O. A. Kozlova, G. A. Kruchinina, A. A. Kuznetsova, M. P. Lapchika, E. I. Mashbitsa, V. M. Monakhova, E. S. Polat, I. V. Robert, N F. Talyzina, A. Yu. Uvarova and others [13].

## MATERIALS AND METHODS

The problem of the formation of the information culture of the individual is still insufficiently developed. The introduction of the development of information culture among people of the middle and older generations who received general and vocational education before the spread of personal computers and the emergence of the Internet begins. Today, it is important to create an "educational environment" that can ensure the formation of both individual components of information culture and information culture as a whole. Informatization now covers all the major components of the educational environment.

It is impossible to prepare a competent specialist in any field without the use of modern information educational technologies. At the same time, it is important to equip the future specialist with knowledge of the modern information environment and training software, to ensure the formation of his readiness to use the whole variety of information technologies in professional activities.

Under the means of information and communication technologies is currently understood as a whole range of technical, software, systems and devices operating on the basis of computer technology, modern means and systems of information exchange, providing the accumulation, storage, processing, transmission and operational management of information [6].

Information technology in education can be of several types. Everyone is necessary for full-fledged learning, as well as for this process to be comfortable and enjoyable for all parties.

First of all, information technology helped teachers a lot. This is a great way to get all the necessary information, as well as competently compose relevant and modern lessons.

Teaching systems are constantly changing, and there are a huge number of discoveries, but with the help of the Internet it is easy to always be in the know and make your lessons as useful as possible for modern people. It is also impossible not to note the form of teaching itself.

Information technology in education allows you to find not only texts, but also videos, slides, and much more on this topic. Now the training is interesting and enjoyable, because it is not only in the form of stories, but also with the help of computers and TVs, as well as projectors, information is presented in the most convenient format for children. Many even began to go to school and other educational institutions with pleasure, although in the past it was a great difficulty.

First of all, technology made it possible to receive information in any quantity, and not be limited to the words of a teacher and a textbook. The ability to use the network has become indispensable. Also, future teachers got the opportunity to show their creative abilities through a variety of presentations and more.

Separately, it is worth talking about the fact that new information technologies in education have allowed the emergence of completely new projects:

Self-learning. Now almost any area can be mastered independently thanks to a huge amount of open information. Moreover, for this you do not need to go to archives and libraries, you just need to have a personal computer with Internet access.

Distance learning. Higher education is certainly very important, but there are people who live too far from institutions, or they do not have enough time. Performing assignments, projects and taking sessions remotely is a great opportunity to replace the classical form of education.

Communication with the teacher. This applies to tutors who can now teach via Skype, as well as the opportunity to learn languages with them or to get a new profession that is not too difficult.

There are three main components of information technology:

- a complex of technical means - computing, telecommunication and organizational equipment;
- software systems - general (system) and functional (application) software;
- systems of organizational and methodological support. [8].

At the same time, information technologies are divided into two types:

- analog, they are based on the presentation of information in the form of some continuous physical quantity, for example, voltage or electric current;
- digital, they are based on a discrete way of representing information in the form of numbers (usually in the binary system), the values of which reflect the content of the information.

Compared to analog, the digital representation of information provides much greater protection against interference, including during transmission over communication channels.

The pedagogical goals of information technology in the classroom are: the development of the personality of the student, which includes: the development of communication skills; development of creative, constructive and exploratory thinking, development of the ability to make extraordinary decisions in complex role-playing situations; improving research skills [14]

## RESULTS

As a result of the study, we identified and defined the goals of introducing ICT into the educational process, developed groups for the use of appropriate tools in the formations of future teachers. This:

**Learning management system** - The three most popular LMS systems (Blackboard, Moodle and Sakai) provide a concentration of learning materials and courses, as well as cover course management, registration, course planning, discussion forums, blog sites, assessments. Key features of the LMS include password-controlled access to selected courses. The course developer may provide materials or, conversely, freely available open educational resources. Materials can be presented in various formats - from plain text to interactive multimedia [14].

**Social media** - provide an opportunity for people to communicate using ICT. In other words, social media is a means of social interaction. In various countries, there is a trend of increasing importance of social media in the educational sector.

**Cloud technologies** - in the modern world, educational institutions can no longer function effectively without ICT. Increasingly, educational services are provided to students and teachers via the Internet. The acquisition and maintenance of various computer equipment and software constantly requires significant financial investments and the involvement of qualified specialists, therefore, educational institutions are increasingly using cloud technology services, receiving them for free or for a small fee. Often such services are more accessible and reliable than hosting or maintaining them in the educational institution itself.

Cloud technologies have:

- remote data processing centers. Cloud services are provided over the Internet from high-tech data centers remote from the end user and the organization to which he belongs;
- pooled resources. Resources such as storage devices, processors, RAM and network bandwidth are distributed among all users and allocated dynamically if necessary;
- "elasticity" - "unlimited" scalability. Access to the system is maintained even with an unexpected "peak" of requests, so that the user gets the impression that resources can be increased indefinitely. If an educational institution suddenly needs to increase the computing load, it will not have to buy additional equipment, which may not be used later.

**Mobile learning** - learning using mobile phones, smartphones, tablets. The peculiarity of education is that you can combine work and study, study in several courses and even in several schools or universities at the same time. At the same time, portable devices are full-fledged learning tools, since m-learning is based on the flexibility of the educational process. Modern approaches to learning have led to the fact that the phone has become an assistant in flexible and continuing education. [15].

**Smart book** is an application for Android mobile devices that allows you to read books in a foreign language. Using the utility, users can quickly translate unfamiliar words and listen to their sound in the original. It is possible to add unfamiliar terms to the dictionary [15].

**Massive open online courses (MOOC** - massive open online courses) are online training courses with free access to them, which have two key features: open access and mass character. Open access implies that the course is free and open to access, and mass character means that a large number of participants from all over the world participate in the course. MOOC is a form of distance learning localized on the Internet. And these are open courses, that is, you do not need to pay money for participation in them. These are mass courses, where as many people as they want can enroll. And finally, these are organized courses - with a well-thought-out program, intermediate tasks, tests and final certification. Usually they are limited in time, i.e. they use a system of deadlines [15].

### CONCLUSIONS

Thus, the main points that are currently being focused on in the development of multimedia courses and telecommunication tools are increasing the level of visualization, providing interactivity, the availability of virtual workshops, computer labs, as well as relevant guidelines for their use.

In conclusion, it is possible to suggest the use of information technology in various ways:

- 1) for the purpose of visual demonstration, training and testing;
- 2) as computer design environments;
- 3) for ready-made computer laboratory complexes during experiments, measurements of physical quantities, for laboratory work;
- 4) as independent design studies using a computer;
- 5) for telecommunications in the learning process.

The distinctive positive aspects of computer technologies that students get acquainted with are universality, visibility, accessibility and variability.

The use of information communication technologies in the process of professional training of future specialists contributes to the development of creative abilities, professional skills and abilities of students, stimulates mental activity and activates cognitive interest in the material being studied, allows students to take an active position in comprehending professionally significant educational information, form professional competencies, master new ones. information technology, accumulate practical experience.

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