

INNOVATIVE METHODS AND TOOLS IN HIGHER EDUCATION

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Abstract. *In today's age of information technology, the use of innovative and electronic applications is finding its place not only in the field of IT, but also in the education system. As a result, on the one hand, it will increase the computer literacy of students and professors, on the other hand, it will allow us to remotely organize the teaching and learning process while maintaining our health during the current COVID-19 pandemic.*

The purpose of the article is to increase the effectiveness of education through interactive methods and tools based on a number of changes in the higher education system, to provide some recommendations for the development of distance learning in the COVID-19 pandemic. In addition, the Uzbek Institute of Higher Education on advanced methods of teaching and learning, remote organization of the educational process, the use of information and communication technologies for the innovative development of higher education, educational platforms and their use. The experience of the universities is discussed.

Keywords: *innovative methods, modern teacher, pedagogical activity, communicativeness, pandemic, creativity.*

INTRODUCTION

The implementation of the tasks set by the Government of the Republic of Uzbekistan in the field of higher education largely depends on the personality of the teacher [8]. Teaching is an honorable but very difficult profession. In the transition to a market economy, the teacher is responsible for achieving the goals of education, organizing a variety of activities for students, raising them to be educated, polite, faithful, hardworking, enterprising, well-rounded people. The future of our people, the future of Uzbekistan depends in many respects on the teacher, his level, readiness, dedication, attitude to the work of teaching and educating the younger generation. It is not enough to have a pedagogical theory to be a good teacher. Because pedagogical theory describes the general rules, principles, generalized methodological ideas about teaching and educating children, emphasizes the need to take into account the age and individual characteristics of students [6]. University life and the practical pedagogical process are very diverse and complex. There are many situations that do not correspond to pedagogical theory. This requires a teacher with extensive knowledge, thorough practical training and high pedagogical skills and creativity. To be a true master of a profession, a person must have natural abilities, certain physical and mental qualities, thorough training, and some personal qualities. A person who chooses a pedagogical profession must first be healthy, be able to pronounce words correctly and well, be calm and nervous, and be able to behave in dealing with others. The teacher must also have

personal qualities such as liking students, willingness to work with them, politeness, observation, open-mindedness, organization, self-discipline and self-discipline [1].

With the development of technology, the presence of a single computer is enough to teach using technical means. In addition, the quality of information transmission, storage, depiction has increased significantly. To date, computer literacy has become an important feature of culture, and in the future it will become a necessity for everyone, no matter where they work. So, computer work, computer training will soon become a common practice.

METHODS

Inclusion of modern information technology tools: computer, scanner, video camera, LCD projector, interactive whiteboard, fax modem, telephone, e-mail, multimedia, Internet networks, mobile communication systems, database management systems, artificial intelligence systems possible [7].

In the educational process, computers are basically in four order:

- passive use - the computer is like a simple counter;
- reactive communication - as a computer examiner;
- active communication - the computer guides the student and takes the exam;
- interactive communication - the computer is used as an artificial intelligence, that is, to communicate with the student.

Widespread introduction of modern information and communication technologies in education:

- informatization of science;
- intellectualization of educational activities;
- deepening integration processes;
- Improving the infrastructure of the education system and its management mechanisms.

Effective organization of pedagogical educational processes on the basis of modern information technologies:

- bringing together educators, computer programmers, and relevant professionals into a team that creates distance learning courses and e-books;
- distribution of responsibilities among teachers;
- Improving the organization of the educational process and monitoring the effectiveness of pedagogical activities.

Introduction of modern information technologies in educational processes:

- the student acquires professional knowledge;
- in-depth study of science by modeling the events and processes being studied;
- expansion of the student's field of independent activity due to the diversity of educational activities;
- individualize and differentiate the learning process based on the introduction of interactive communication capabilities;
- master the strategy of the student to master the learning materials using the capabilities of artificial intelligence systems;
- formation of information culture in it as a member of the information society;
- The presentation of the studied processes and events through computer technology is important as it leads to increased interest and activity in the basics of science in students.

The concept of pedagogical software

Pedagogical software is a didactic tool designed to partially or completely automate the learning process using computer technology. They are one of the most promising forms of improving the efficiency of the educational process and are used as a teaching tool of modern technology. The structure of pedagogical software includes: software (set of programs), technical and methodological support, additional aids aimed at achieving specific didactic goals in the subject.

Pedagogical software can be divided into:

- Curricula - focus on the acquisition of new knowledge based on the level of knowledge and interests of students;
- Test programs - used to test or evaluate the acquired knowledge, skills and abilities;
- Trainers - serve to review and reinforce previously learned training material;
- Virtual Being Systems - programs that create a virtual learning environment with the participation of the teacher.

Use of practical and pedagogical software in pedagogical activity

There are a number of positive factors that confirm their superiority over traditional tools in order to implement the technology of creating pedagogical software tools. These factors were divided into didactic, psychological, economic, physiological groups.

Didactic requirements for pedagogical software include: scientific, clear, concise and systematic description (providing the ability to build the content of educational activities, taking into account the basic principles of pedagogy, psychology, computer science, the fundamental foundations of modern science), continuity and integrity (is a logical consequence and complement of previously learned knowledge), consistency, problem-solving, demonstration, activation (independence of learning and activity), robustness of learning outcomes, communication interactivity, an integral unity of teaching, training, development and practice.

Methodological requirements include: taking into account the specifics of a particular subject, taking into account the specifics of a particular subject, the interdependence of modern methods of information, interdependence, diversity, implementation.

Perception of psychological requirements (verbal-logical, sensory-perceptive), thinking (conceptual-theoretical, visual-practical), attention (persistence, transfer), motivation (active forms in work, high level of demonstration, continuous stimulation of students' high level of motivation through timely feedback), taking into account memory, imagination, age and individual psychological characteristics (taking into account the acquired knowledge, skills and abilities, the content of the subject and o The level of complexity of the study issues depends on the age and individual characteristics of students, protection from exposure to excessive emotional, nervous, mental loads in the study of the material).

Technical requirements include modern universal personal computers, external devices, test sources.

Network requirements include "client-server" architecture, Internet navigators, network operating systems, telecommunications, management tools (individual and team work of the training process, external feedback).

Aesthetic requirements include: order and expressiveness (elements, location, size, color), functional function of the decoration and compliance with ergonomic requirements.

Special requirements include: interactivity, purposefulness, independence and flexibility, audio, visualization, access control, intellectual development, differentiation, creativity, openness, feedback, functionality, reliability.

Ergonomic requirements include: friendliness, user-friendliness, screen layout.

Methodological requirements include taking into account the specifics of the subject, its laws, research methods, the possibility of introducing modern methods of information processing for teaching on the basis of pedagogical software.

Use of Internet resources in education

There are many benefits to using Web sites in the learning process. Therefore, the creation and updating of such sites is important in the activities of higher education institutions. Therefore, the creation of sites dedicated to educational institutions is one of the primary tasks of each educational institution. The use of such sites should take into account the factors associated with the Internet system during its study. Such factors include:

- Wide range of Internet services around the world;
- ease of use of website services;
- ease of distribution of web technologies;
- real-time information requirements;
- the desire of institutions and individuals to post information about themselves on the Internet;
- Collection of voluntary data on a global scale in a network database [9].

Importance of sites created for educational institution

The breadth and simplicity of the capabilities of Internet technologies is leading to an ever-increasing number of Internet users. The vast majority of these users are, of course, students, research staff. Therefore, the use of Internet technologies in the educational process, in particular, websites dedicated to educational institutions, can help to significantly improve the quality and effectiveness of education.

In today's world, where new information technology tools are improving and evolving, students (generally working in any field) can find the necessary information independently of the Internet, fully and completely solve the problems of their existing specialization. It is becoming one of the most important conditions for solving problems [4].

In determining the availability and effectiveness of Internet sites in the educational process, it is important to first determine the types of Internet services and their nature. It is this information that helps to differentiate the organizational forms and methods of working on the Internet. Based on the classification, it is possible to obtain the method of operation of the Internet. In this case, Internet server services should be divided into two types: information and communication services.

The information service includes WWW (data set) and GTR (software package).

Communication services can be divided into two types: direct (PC, chat) and indirect communication (e-mail, forum, teleconference).

All "educational sites" on the Internet can be divided into several types:

- instructional Internet resources;
- consulting Internet resources;
- informative Internet sources;
- appraisal internet resources;
- Presentation Internet resources;

Let's look at each of them below.

Examples of online teaching resources include distance learning, virtual schools, laboratories, and web classes.

Examples of consulting internet resources include various teleconferences, virtual pedagogical councils, virtual methodologies, associations problem councils, virtual cafes, and so on.

Informative Internet resources include e-textbooks, reference books, e-libraries, dictionaries, catalogs, and virtual museums.

Examples of evaluative Internet resources are television testing, distance competitions, various quizzes, Olympiads.

Presentation Internet resources include separate pages with detailed information about the educational directions of educational institutions [2].

With the help of educational sites, teachers are able to provide students with distance learning. Websites designed for educational institutions are especially useful for students who find it difficult to attend educational institutions. In addition, students will gain a culture, skills, and competencies in working with information technology.

Teaching with the help of sites created for educational institutions includes the basic forms of traditional organization of the educational process. These include lectures, seminars and workshops, laboratory practices, control systems, student research and independent work. All these forms of organization of the learning process in practice allow students to easily combine independent learning activities with different sources of information, to communicate quickly and systematically with the teacher conducting the course, and students to work in groups [3].

The use of sites created for educational institutions in the educational process allows teachers:

- Sharing experiences and methods from one subject to another with the help of the Internet;
- individualization of the learning process through the simultaneous implementation of different teaching methods for different categories of students;
- Bringing students' knowledge of the subject to the level of skills and competencies as a result of the use of control tasks on the sites created for educational institutions as an exercise;
- Create opportunities for students to work individually and demonstrate their skills by reducing manual labor;
- Provides opportunities for students to effectively organize the process of independent learning.

The use of educational sites in teaching:

- choose the study mode of your choice;
- choose appropriate reading and narration methods based on their training and psychophysical characteristics;
- return to previously studied materials, suspend the reading process and apply to it at any time;
- monitor the dynamics of various processes and the interaction of mechanisms;
- management of the studied objects and consideration of their corresponding results;
- Communication on the computer leads to the absence of psychological barriers (lack of laughter, lack of courage, lack of embarrassment, etc.);
- Have the ability to use a computer patiently until they are well prepared.

The following are some of the educational benefits of websites designed for educational institutions:

- Improving subject learning;
- Increased network literacy (news in communication with computers and the Internet);
- Improved attitude to learning;
- Improving the skills of independent learning and research;
- Improving the effectiveness of practical skills.

Websites created for educational institutions on the Internet

Today, progress is evolving and changing rapidly. Almost every minute there are changes, updates and surprises in different parts of the planet. Every day is spent under a strong flow of information. The flow of information haunts us at home, at work and on vacation. Humans cannot function normally without the influence of information. Understanding and studying life takes place through the collection and assimilation of information. A person's level of knowledge is also determined by the amount of information that a person learns over a period of time.

Therefore, opening the way to modern knowledge, the effective use of new information technologies in improving education - has become a requirement of today. However, significant changes are taking place in the education system. The education system is using the sites created for educational institutions.

Another advantage of sites created for educational institutions is that the student can study at a convenient time and even without leaving work.

Another advantage of the sites created for educational institutions is that the duration of the study is determined by the student, that is, the student can start studying at any time, mastering the materials under the supervision of the teacher. Assimilation is determined by the performance of tasks, tests. The sooner a student masters the program, the sooner he or she will graduate and receive a certificate. If he fails to master the program, he will be given the opportunity to work independently and continue his studies.

The materials provided on the sites created for educational institutions are mainly:

- Textbook;
- Audio and video textbooks;
- Online lessons (website);
- Electronic libraries;
- Tests;
- Multimedia - electronic textbooks [5].

RESULTS AND DISCUSSIONS

Cataloging of sites created for educational institutions of higher and secondary special educational institutions of the Republic, promotion of e-textbooks prepared in educational institutions of the republic among all educational institutions is an important and difficult task. The leadership of our country pays great attention to finding a positive solution to this issue and the introduction of e-learning resources and websites of educational institutions in the educational process.

As a result, the information-educational portal <http://www.ziyonet.uz/> established by the decree of the President of the Republic of Uzbekistan, was launched, and it is important to note that this portal contains educational resources for all educational institutions.

It is important that traditional and electronic learning materials complement each other as part of a single learning environment. The use of new information technologies serves to solve some pedagogical problems.

The creation of a single information portal is aimed at the following positive results:

- A single information environment for pedagogical institutions of the republic will be created;
- creates a single library environment (creation of an electronic library, the formation of a fund of electronic textbooks and non-traditional media, the creation of a single database, etc.);
- A single telecommunications network environment will be created in the field of pedagogical education;
- creates a new information and educational environment, creates a socio-psychological basis for the use of information and communication technologies in education;
- Improves the quality of pedagogical education through the formation of pedagogical staff with a new information culture;
- creates a system of scientific and methodological support of new educational technologies;
- Provide public access to educational information, information resources, systematize the mechanism of transmission of documents, accounting, open access to information on the state of pedagogical education in the country;
- Distance education system will be developed.

The introduction of a single information space in pedagogical educational institutions will create good conditions for the development of the quality of pedagogical education and information provision.

CONCLUSION

Based on the above, it can be concluded that professors and teachers working in educational institutions, especially computer science teachers and students who have a great interest among the students of the educational institution, together are important in creating and updating the content of the educational institution's website. participants. With this in mind, the above provided scientifically based feedback on improving the effectiveness of the learning process based on innovative teaching methods and interactive ideas in higher education.

An analysis of this research shows that the use of information and communication technologies in higher education has its pros and cons. Advantages: save time and money; development of distance learning technologies; improving the preparation of e-books and courses for teachers; reduce the risk of illness; creating equal opportunities for students to learn.

Disadvantages: individual performance difficulties; the complexity of knowledge assessment; decline in research activities; technological inequality between students; lack of direct contact with students.

Experience shows that the development of modern science and technology allows teachers to be creative, to teach their science on the basis of innovative approaches, to use interactive methods and tools, to think freely about important problems of science, to share scientific achievements with students. and, finally, to teach students to think creatively, to do research. Therefore, a teacher must first acquire information technology skills.

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