PEDAGOGICAL-PSYCHOLOGICAL AND METHODOLOGICAL ASPECTS OF THE USE OF MOBILE TECHNOLOGIES

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In the environment of e-learning, the effectiveness of education is often observed when there is a strong internal motivation of learners due to the lack of external motivation, which belongs to the form of full-time education, lack of control.

Foreign experience in the development of e-learning environments shows that the standardization of e-learning environments is relevant for the development and implementation of the basic requirements for the organization of the educational process in our country. It should take into account its interactivity, flexibility, long-term use, practicality and economic feasibility.

When modeling the e-learning environment, it is necessary to take into account the following:

1) Architecture of e-learning system and general requirements to them;

2) The model of the learner, the educator and their interaction;

3) Development of educational content;

4) Format of educational materials;

5) Educational process management system.

All developments in the field of e-learning standardization fall into the above categories.

Modern methods of teaching science in e-learning environment are reflected in the following:

• The student can plan their activities independently;

• Knows how to work in the field of information, that is, selects information on the topic and has the skills of independent search activities.

• Effectively organizes activities with a view to the end result;

• analytical Skills - organizes the information received and can use it adequately for the problem;

• Can present the results of activities using various information technologies;

• have the ability to reflect for the successful operation of the subject in voluntary activities.

According to the results of research on modern teaching methods, the following conclusions were reached:

• Creation of necessary conditions for the subjects of the pedagogical process, organization and coordination of their activities in the e-learning environment in order to improve the quality of education;

• Carrying out a number of tasks, such as creating and strengthening the material and technical base for this process, equipping it with new pedagogical and information technologies;

• Heads of higher education institutions should carry out activities aimed at developing positive individual qualities in teachers;

• Continuous development of professional competence of teachers on the basis of continuous professional development and exchange of experience and coordination of their behavior, innovative activities and the organization of continuous professional development on a scientific basis, scientific-methodical and educational literature, information technology tools , provision of technological equipment, tools and devices, as well as educational-methodical and normative documents;

• Adoption of normative and normative documents on the organization of the educational process in the higher education system using public online open courses (distance technologies);

• Finding solutions to existing problems in the development of professional competence of teachers of higher education institutions in the e-learning environment using public online open courses based on Internet technologies;

• In order to improve the skills of teachers in the higher education system and to improve the content of curricula in the relevant educational disciplines, to ensure the integration of education with production in various sectors of the economy of the country. Development of a mechanism of professional development as a guide and organization of professional development through training courses that provide skills in working with advanced modern equipment and technologies;

• Effective organization of teaching, lectures, seminars and practical classes, laboratory practice, control system, research and independent learning of students with the help of sites created for higher education;

• Organize the analysis of students' opinions about teachers.

- Effective implementation of such tasks requires the introduction of new mechanisms for quality monitoring and control in the education system, which is one of the key issues today, as well as the use of ICT in these processes.
- For example, one such method is blended learning.
- Development of educational technologies in the environment. Mixed education
- Use of the environment:
- • Informatization of science;
- • Intellectualization of educational activities;
- • Deepen integration processes;
- • The student acquires professional knowledge;
- • In-depth study of science by modeling the studied events and processes;
- • 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;
- • Mastering 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 of students in the basics of science.

Professor A.A. Ryan divides the psychological processes of adolescence into three main groups:

1. Cognitive processes;
2. Emotional processes;
3. Will processes.

Let's take a closer look at the learning process below. These processes include all the processes involved in the formation in our minds of information received through the human senses. The information received through the senses is generalized in the human brain and formed in different ways and stored in memory. Simultaneous use of information through multimedia technologies through audiovisual means leads to a reduction in the time spent on learning through visual and auditory analyzers. Also, one of the main features of multimedia technologies is that the educational process organized through them is more interesting than the traditional educational process, which makes it easier to arouse the interest of the student in the information being taught. Special mention should be made of the support of Multimedia Technologies

for the development of creative personal names in students. Because some aspects of multimedia technology focus on the human imagination. Multimedia technologies are dynamic, which brings them closer to movies and slides. The basis of this dynamic is not only the movement of the object on the screen, but also a greater emphasis on the necessary information through the manipulation. From this point of view, the montage is to convey the main parts of the information to the reader in a memorable way while filtering this information. The unique features of multimedia learning technologies stimulate students 'interest in learning information and raise a variety of questions, which can help overcome many of the challenges that arise in the learning process. However, it should be borne in mind that the use of multimedia learning technologies should be taken into account by the level of difficulty of the subject being taught. may occur. The essence of multimedia educational technologies is the introduction of modern technological means into mechanically existing educational technologies.

In this way, the teacher is able to leave relatively important information in the student's memory through vivid images. A necessary aspect of multimedia technology in teaching history to students is that it is relatively easy to draw the student's attention to the subject being taught. First of all, the originality, the difference from the current education, leads to this interest. Multimedia delivery also significantly reduces the amount of time a student spends learning information. At the same time, through the speaker's voice, on-screen recordings, and pictorial images, information reaches the human brain several times faster than in a current book. The second is that the information conveyed through it, even after a long time, remains in the human memory as those images on the screen.

Smartphones, tablets and e-books are convenient to use for educational purposes, as mobile devices can store large amounts of information and lessons. Due to such circumstances, teachers should strive to reduce the distribution of gadgets and use students' mobile devices to organize classroom work [1].

We should pay attention to the most important advantages of using mobile technologies in education:

• factor - the ability to receive information and conduct training, regardless of the location of the student;

• Fast Internet connection;

• Mobile devices are convenient - they can store personal information, receive and transmit educational materials.

• Possibility of personalization, ie the use of an individual approach in the learning process [2].

The components of the system of educating students using mobile technologies have the following main elements:

• University - the structure of mobile education;

• information resource (training materials, knowledge); Mobile training programs and equipment;

• Faculty, students. The analysis of the use of mobile technologies in the learning process showed that it can be done through three main models:

1. Support the traditional learning process. This model involves providing students with access to learning materials that include networking through education. The above information is used by students during individual work to prepare for seminars, group projects, etc. Students also have the opportunity to receive notes, reminders, and results about tests or test results on mobile devices. In addition, in the process of such training you can test, record important information, quickly access information and information resources using portable computer devices.

2. Full-time mobile education. This model is characterized by the fact that the whole educational process is reduced to e-learning. Students cannot communicate with the teacher in person - only when necessary. Training courses on this model are carried out through a special software environment. Performs various functions necessary for the organization of full mobile education: protection, authorization, configuration, information resources, educational content, interactions, etc. The mixed learning process is organized in such a way that some of the learning materials are taught to students in a traditional way, while others are organized independently using mobile technologies. The ratio of these departments determines the technical capabilities of the university, the aspirations of students, the training of professors and teachers, and more.

The use of modern technologies in the educational process affects the methodology of teaching certain subjects. The method of teaching each of the topics is determined by the goals and content of that topic, taking into account its specificity. The concept of 'teaching methods' is broader than the concept of 'technology in teaching'. This methodology uses a variety of technologies depending on the objectives, content, and tools used, in particular, new information technologies, distance learning technologies, computer telecommunications in the education system, and so on.

The use of new information and educational technologies, which have a special place in the educational process, has the following features:

• Technical environment (type of equipment used);

• Software environment (pedagogical software package, instructions, databases, etc.);

• Specially developed forms and teaching methods for mastering the content of program materials for each subject [3].

In this regard, it is necessary to take into account the methodological principles of e-learning in the teaching of mathematics. It can be considered as the basic rules that determine the structural, organizational forms and methods of the educational process in accordance with the specific features, goals and regulations.

The use of information computer technology can be done in the following options:

1. "Human Development" technology (use of computer-assisted information technology for specific topics, lessons, individual didactic tasks).

2. Main, identification, the most important part of the technology used.

3. As a monotechnology (all training and management of the learning process, including all types of diagnostics and monitoring, is based on the use of computers).

Mobile technologies can be used at all stages of the learning process:

in interpreting new material, identifying, repeating, and controlling MUN. At the same time it performs various functions for the student: teacher, working tool, learning object, collaborative team, leisure (play) environment.

Computer as a teacher:

- Source of educational information (partial or complete replacement of the teacher or book);

• Visual aids (a new level with multimedia and telecommunications capabilities);

- Personal information space;

- Simulator;

• Diagnostic tool and control.

The computer acts as a running engine:

As a means of preparing and storing texts (text editor);

• Plotter (graphic editor);

• Large-capacity computer (with the presentation of results in various forms);

• - Modeling tool.

The work of a teacher in the field of computer technology includes the following functions:

• Organization of the learning process at the class level and on the topic (schedule of the learning process, external diagnosis, final and intermediate control).

• Organization of activation and coordination of students' learning activities, job placement, training, management of the interclass network, etc.

• Individual observation of students, individual assistance.

• Preparation of components of the information environment (various training, demonstration equipment, software and systems, visual aids, etc.), linking them with the content of a particular training course [4].

The teacher can use ICT at different stages of the textbook: homework control, frontal questioning, preparing students to actively and consciously learn new material, explaining and providing new material, intermediate and final control. Each phase of the course requires detailed study. The software and hardware used in the course bring out unique features - they help to improve traditional teaching methods. The role of the teacher changes. For example, using a multimedia presentation, he often acts as a consultant, which helps to increase the cognitive activity of students, so that they can more fully master the educational information. The teacher has more opportunities to work individually with students.

Table 1 shows how traditional teaching methods have been used and changed from computer hardware and multimedia software.

Of course, the skillful combination of traditional and media depends on the skill and qualifications of the teacher, the methods he or she uses. However, the correct use of ICT tools also depends on the teacher's knowledge of the pedagogical basis of lesson information [5].

Table 1. Comparative analysis of traditional and ICT education

Teaching methods	Traditional methods and their didactic possibilities	Improving through the use of ICT software and hardware
Oral: story, chat, explanation, instruction	Printed word (textbooks and manuals, books), lead is a vital word that is easily combined with other textbooks. It allows students to enrich their memory with generalized scientific knowledge in a short period of time	Sending text information from the screen, the text is read by the program speaker. Ability to repeat the same content multiple times. Bridges allow you to quickly find the information you need.
exhibition: order, reception ceremony or operations screenshot	Natural objects, models, layouts, tables, tables, pictures, videos. On-screen display. Monitoring of fixed objects	Multimedia of techniques and operations; virtual conversion of objects in space and aircraft; Visualization of processes that cannot be considered in real conditions Virtual practical training, modeling of objects and models, automation of individual operations
Practical: exercises, practical and laboratory work Control methods: oral and written questioning, testing, self-management and self-assessment	Learning tasks for practical work. Educational practice in the performance of exercises, practical and laboratory work Test or control tasks, questions, and problem situations. Approval of material education will be delayed for some time.	Machine instructions and management. Quick and objective evaluation of results. Operational evaluation with error and simultaneous correction of results

The use of mobile communication in the classroom provides the following opportunities:

- In the study of new material (described by various visual aids, motivating the introduction of a new concept, modeling);
- Preliminary independent work inspection (rapid control of results);
- In solving educational tasks (drawing, work plan, development of certain skills and abilities);
- In the organization of research work of students;
- When combining the subjects of the natural-mathematical cycle;
- The use of electronic sources of information and the nature of references in the training of teachers for training;
- The use of ICT for the organization of independent learning and knowledge activities of students;
- The use of information resources of the Internet in the preparation of students for essays and communications;
- The use of ICT in extracurricular activities on the topic (optional);
- The use of test programs in the preparation of secondary education programs for the central stage of testing.

Mobile communication provides the following opportunities:

- The student will be the object of study, the computer will require active control;
- easily differentiate the level of learning;
- The student achieves the optimal level of work, because each student does his own work, works at his own pace;
- Reducing the time for developing students' technical skills;
- The number of educational tasks will increase;
- Student error is observed and less studied material is processed;
- The student's work is evaluated immediately;
- The teacher spends less time checking;
-It is possible to provide materials from a remote database using telecommunications;
- There are some elements of play in computer work, which are sometimes lacking in the lessons, and most children are motivated for educational activities [35].

In short, the introduction of modern computer technology into the education system creates a number of advantages, but also the following should be taken into account in the introduction of these things. Taking into account the age-specific spectrum of students of each age, the ability of the subject to adapt to educational technologies, and the individual abilities and skills of students, the organization of education and

the multimedia in the process The addition of technology will increase the quality of education several times.

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