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# APPLICATION OF INNOVATIVE PEDAGOGICAL TECHNOLOGIES IN EDUCATION

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**Annotation**
The article scientifically and methodologically considers the development of innovative pedagogical tools of teaching and the use of computer training programs, in particular, the use of multimedia tools and elements of distance learning.

**Keywords:** information technology, innovative technologies, multimedia technologies, e-learning tools, distance learning.

Future specialists need to have the skills to constantly improve their knowledge, both in the field of modern information technologies and in their professional field. The super-rapid development of these areas requires continuous self-learning. The tasks of updating the content of the university are actualized and, at the same time, the intensification of the educational process in the preparation of a modern specialist involves the use of computer training programs, in particular, the use of multimedia tools and elements of distance learning. Their role in the training of a specialist increases significantly based on the types of his professional activities and generalized professional tasks.

Considering the technology of multimedia, one can speak not only about expanding the scope of the computer in the educational process, but also about the wide possibilities of using text, graphics, video and animation in dialogue mode.

The main features of innovative pedagogical technologies are:

- ✓ Formation of a multicomponent information environment;
- ✓ Ensuring reliable and durable storage of large volumes of information;
- ✓ Ease of processing and use of information;
- ✓ Interactivity, i.e. The possibility of arbitrary or controlled information management in the dialogue mode.

Innovative pedagogical technologies are used in order to ensure a complete and deep perception by students of the information conveyed to them and to effectively manage their educational and cognitive activities by including various sensory components of the student in the process of perceiving educational information, transforming educational visualization from static to dynamic. In this regard, it is necessary to pay attention to the advantages of using innovative pedagogical technologies in comparison with traditional technologies and methods:

- The ability to use color graphics, animation, soundtrack, hypertext;
- The possibility of constant updating;
- The ability to place interactive web elements;
- The possibility of non-linearity of the passage of the material due to the many hyperlinks;
- Hyperlinking to additional literature in electronic libraries or educational sites.

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Having analyzed the approaches discussed above, we can highlight the main features of the concept of innovative pedagogical technologies:

- Educational information is stored and processed electronically;
- Presentation of educational information acts as an integrated content of text, numerical, sound, graphic, in the form of a three-dimensional model, video, animation;
- Clarity is presented in the demonstration of the dynamics of the studied processes;
- Web technology is used for working with data, which establishes links between individual terms, fragments of text, articles, pictures of one or different documents;
- Educational materials are interactive;
- The learning effect is also based on the multisensory nature of man.

When considering the impact of innovative pedagogical technologies on students, it can be noted that interaction, firstly, has the character of using pedagogical tools as a tool for gaining knowledge in the studied disciplines (as a means of self-education).

Secondly, the interaction has the character of designing and developing one's own (author's) pedagogical tools, using the capabilities of various applied software and programming environments.

The emergence of powerful computer systems and interactive computer programs has become the basis for the intensive development of the content and principles of creating electronic textbooks, training programs, their use on the basis of mobile devices, tablets for self-education of students, as well as their use in mixed and distance learning.

In the blended learning model, lecture-oriented handouts are used, developed on the basis of an electronic synopsis [1].

An important place is occupied by copyright multimedia software. Various authors have experimentally proved the effectiveness of the use of multimedia software for the development of algorithmic thinking of students, for the use of robotic virtual environments in teaching programming to future programmers.

The use of distance learning technologies involves the use of educational electronic publications, computer training systems, audio-video educational materials along with traditional teaching aids.

When developing electronic teaching aids, the following requirements were determined for electronic teaching aids placed in the Moodle distance learning system according to a modular training system [2]:

- ✓ Developed hypertext structure in the conceptual part of the course (definitions, theorems), as well as in the logical structure of presentation (sequence, interconnection of parts);
- ✓ User-friendly navigation system that allows you to easily navigate the course, send emails to the teacher, go to the discussion section;
- ✓ Using the multimedia capabilities of modern computers and the internet;
- ✓ Availability of a knowledge control subsystem built into the textbook;
- ✓ Breakdown of the course into small modules;
- ✓ Availability of a glossary (stand-alone reference materials) and links to the glossary;
- ✓ Availability of links to literary sources, electronic libraries and sources of information on the internet;

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✓ Availability and openness of training courses.

Despite the large number of advantages, the use of innovative tools in the educational process has a number of disadvantages, which are pointed out by the authors [3]:

- There is no general methodology for the use of innovative tools. Each university has its own developments in the creation and use of multimedia, but there is no single approach for everyone. It is necessary to systematize this work in order to determine how best to organize the educational process using innovative pedagogical tools;
- The laboriousness of creating pedagogical teaching aids is obvious. Not every teacher can create an electronic teaching tool with a beautiful and understandable design, correct psychological perception of the educational material. These tools are time consuming to create;
- The use of ready-made designs and templates is not always competent. Some students, as well as teachers, especially in adulthood, do not have the skills to work with electronic teaching aids;
- Colorful teaching aids scatter the attention of students due to the abundance of material. Some learners do not have the ability to concentrate their attention on the main thing;
- For engineering sciences, a complex representation of "feedback" from the user. Accordingly, the distance form cannot become the only teaching method due to its limitations for studying these disciplines.
- The university does not always have the necessary hardware and software resources. Distance learning makes ever higher demands on the quality of information and communication technologies used;
- With insufficient transmission speed on the internet, technical failures occur.

Innovative pedagogical technologies have transformed educational visualization from static to dynamic, that is, it became possible to track the processes under study in time. The use of e-learning tools provides new unique opportunities for the development of skills and abilities, improving the quality of education.

In conclusion, we note that in the scientific and methodological terms, the issue of developing innovative pedagogical teaching aids is developing in the world. But the creation of these funds is time consuming and can be carried out by sufficiently trained specialists.

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