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INNOVATIVE EDUCATIONAL TECHNOLOGIES IN TEACHING BIOLOGICAL SCIENCES

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ABSTRACT

The emergence of new information technologies associated with the development of computer tools and telecommunications networks has made it possible to create a qualitatively new information and educational environment as a basis for the development and improvement of the education system.

KEYWORDS

innovative technologies, technical means, development and improvement of the education system, development, biology.

The teaching of subjects in a modern school is undergoing drastic changes. In the classical triad of teacher goals, developmental and socializing goals come first. And the subject content itself, having conceded the objective function to the methods of action, receives a new role - a means of launching and maintaining the processes of self-development and self-knowledge of the student. The solution of this problem is possible thanks to the use of innovative learning technologies.

The purpose of the innovative approach to the educational process is to develop students' opportunities to master new experiences based on the purposeful formation of creative and critical thinking, experience and research tools.

The main goal of innovative educational technologies is to prepare a person for life in an ever-changing world. The essence of such training consists in the orientation of the educational process to the potential capabilities of a person and their implementation. Education should develop mechanisms of innovative activity, find creative ways to solve vital problems, contribute to the transformation of creativity into the norm and form of human existence.

The task of technology as a science is to identify a set of patterns in order to determine and use in practice the most effective, consistent educational actions that require less time.

"Children's nature requires clarity" this requirement can easily be met by information and communication technologies. A lesson with the use of ICT is a qualitatively new type of lesson. Given the specifics of teaching the subject of biology, age and psychological characteristics of students, there should be a lot of visibility in the lesson. As a rule, all tables and posters with illustrative material for lessons have long been physically and morally outdated, so the presence of computer programs that

can replace a whole cabinet of educational tables is a very great help for teachers in preparing and conducting modern interesting, non-standard lessons

Relevance of the use of information and communication technologies (ICT):

• a qualitatively new type of lesson (dynamics, informativeness);
• speed of obtaining the necessary information;
• a large range of visual aids;
• interest in the subject, qualitative testing of students' knowledge with the help of simulators;
• acceleration of the educational process due to closer interaction between the teacher and students, the desire of students to respond.

Currently, there are more and more new digital educational resources. Their use allows you to save time preparing for the lesson, choose the material that will fully allow understand the new material, diversify the verification and consolidation of the material. The main goal of innovative educational technologies is to prepare a person for life in a constantly changing and developing society, the formation of his abilities for self-development. The essence of such training consists in the orientation of the educational process to the potential capabilities of a person and their implementation. Education should develop mechanisms of innovative activity, find creative ways to solve vital problems, promote the transformation of creativity into the norm of a person's daily life, which is applicable in all spheres of his activity.

So, there are a number of educational (pedagogical) technologies, the use of which allows you to implement all of the above tasks.

In our understanding, pedagogical technology is a meaningful generalization that incorporates the meanings of all definitions of various authors (sources). That is, pedagogical technology is a well-thought-out model of joint pedagogical activity in the design, organization and conduct of the educational process with the unconditional provision of comfortable conditions for students and teachers.

The concept of pedagogical technology at the subject and local levels almost completely overlaps with the concept of teaching methods; the difference between them lies only in the placement of accents. In technologies, the procedural, quantitative and computational part of the components is more represented, in methods - the target, meaningful, qualitative and variative-indicative sides. Technology differs from methods in its reproducibility, stability of results, absence of many "ifs" (if a talented teacher, if capable children, good parents ...). The mixing of technologies and techniques leads to the fact that sometimes techniques are part of technologies, and sometimes, on the contrary, certain technologies are part of teaching methods.

To realize the cognitive and creative activity of a student in the educational process, modern educational technologies are used, which make it possible to improve the quality of education, use school time more effectively and reduce the share of reproductive activity of students by reducing the time allotted for homework. The main educational technologies that can be used as a basis for studying biology are:

1. The technology of problem-based learning is the creation of problematic situations in educational activities and the organization of active independent activity of students to resolve them, as a result of which there is a creative mastery of knowledge, skills, skills, mental abilities develop.

2. Information and communication technologies are a change and unlimited enrichment of the content of education, the use of integrated courses, Internet access, interactive teaching methods, remote interaction.
3. Technology of multi-level training - gives the teacher the opportunity to help the weak, pay attention to the strong. With this technology, the desire of strong students to move faster and deeper in education is realized. Strong students are confirmed in their abilities, weak students get the opportunity to experience academic success and self-actualize within their capabilities, the level of motivation for learning increases.
4. Technology of project-based teaching methods. Work on this methodology makes it possible to develop individual creative abilities of students, to approach professional and social self-determination more consciously.
5. The technology of research methods in teaching enables students to independently replenish their knowledge, delve deeply into the problem being studied and suggest ways to solve it, which is important when forming a worldview. This is important for determining the individual trajectory of development of each student.
6. The lecture-seminar system is used mainly in high school, because it helps students prepare for exams and study at universities. It makes it possible to concentrate the material into blocks and present it as a whole, and control is carried out according to the preliminary preparation of students. However, this technology should not be abused, as it can make the educational process ineffective: boring for students, which reduces motivation to learn. In addition, large amounts of information do not have time to comprehend, and therefore are poorly remembered by students. However, as a periodic application, this technology is acceptable in a modern school, especially in combination with seminars on problematic topics, when students can update and apply the acquired knowledge and skills.
7. Technology of using game methods in teaching. These can be role-playing, business and other types of educational games. This technology provides the expansion of horizons, the development of cognitive activity, the formation of certain skills and abilities necessary in practice, the development of educational skills and abilities.
8. Health-saving technologies. The use of these technologies makes it possible to distribute various types of tasks evenly during the lesson, alternate mental activity with physical training, determine the time of submission of complex educational material, allocate time for independent work, apply TSO normatively, which gives positive results in learning.
9. The system of innovative assessment "portfolio" is the formation of personalized accounting of student achievements as a tool for pedagogical support of social self-determination, determining the trajectory of individual personality development.
10. Distance learning technology is becoming more and more relevant in modern schools. This technology equalizes the chances of getting a full-fledged education for children with poor health or those students who cannot attend classes for various reasons. Elements of this technology can also be used for remote communication between teachers and students when doing homework (individual advisory remote methodology), when working on a project, as well as for full-fledged training in case of temporary disability of students.
11. The technology of modular learning provides individualization of learning: by the content of learning, by the rate of assimilation, by the level of independence, by methods and methods of teaching, by methods of control and self-control.

Thus, to date, a large number of learning technologies have been developed, which encourages the theoretical generalization, analysis and classification of these innovations, the choice of optimal ones. The task of the teacher is the personality-oriented development of students, their cognitive and general cultural skills, ensuring the formation of key competencies, among which the "ability to learn" is the leader. In order to more effectively introduce innovative technologies into the educational process of the school, the results of each experiment (trial) are discussed at meetings of methodological associations, round tables, school and district seminars. According to teachers, the advantages of innovative technologies are as follows.

• enable students to acquire solid and informed knowledge;
• develop independence in educational activities;
• increase the speaking time of the teaching material in the lesson;
• create a positive emotional mood, there is no fear of incorrect answers, a sense of confidence prevails;
• communication culture increases;
• motivation for further education is growing;
• the student's self-esteem increases;
• the psychological tension of the student and the teacher is removed.

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