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METHODOLOGY OF USING INNOVATIVE TECHNOLOGIES IN BIOLOGICAL SCIENCE TEACHING

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ABSTRACT: This article describes information about the use of innovative technologies when teaching the subject biology in higher education institutions.

KEYWORDS: Innovation, subjective, mental attack, mental attack, blitz game technology, interview method, concept, information technology, education, reproductive, productive, teaching methods.

INTRODUCTION

It is known that the educational process is the mutual cooperation of teachers and students aimed at students' acquisition of knowledge, acquisition of skills and qualifications, development of their scientific worldview, creative research. In other words, it is to achieve mastery of educational content with the help of teaching methods. Today, the interest and attention to the use of interactive methods, innovative technologies, pedagogical and information technologies in the educational process is increasing day by day, one of the reasons for this is that until now, the traditional If in education students are taught to acquire only ready-made knowledge, modern technologies teach them to search for the acquired knowledge by themselves, to study and analyze independently, and even to draw their own conclusions. In this process, the teacher creates conditions for the development, training, learning and education of the individual, and at the same time performs the functions of management and direction.

DISCUSSION AND RESULTS

In the process of education, the student becomes the main object. Therefore, the place and role of modern teaching methods, interactive methods, and innovative technologies in the training of qualified professionals in higher educational institutions and faculties is huge. Pedagogical technology and knowledge, experience and interactive methods of pedagogical skills ensure that pupils-students have an educated, mature qualification. Innovative technologies are innovations and changes in the pedagogical process and activities of teachers and students.

Interactive methods are the so-called collective thinking, that is, methods of pedagogical influence, which are part of the educational content. The uniqueness of these methods is that they are implemented only through the joint activity of pedagogues and students.

Such a process of pedagogical cooperation has its own characteristics, which include:

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- forcing the student not to be indifferent during the lesson, to think independently, create and search;
- to ensure that pupils-students are constantly interested in knowledge during the educational process;
- to increase the student's interest in knowledge independently with a creative approach to each issue;
- organization of cooperative activities of pedagogue and pupil-student.

Teachers, researchers studying the issues and problems of pedagogical technologies. according to practitioners, pedagogical technology is defined as the use of ICT, computer, distance learning, or various techniques that are related to information technology and need to be used in the teaching process. The main basis of pedagogical technology is that it depends on the technologies chosen by the teacher and the student-student in cooperation to achieve a guaranteed result from the set goal, that is, every education used in the teaching process to achieve a guaranteed result according to the goal if the technology organizes cooperative activities between the teacher and the student, and both achieve a positive result. in the educational process, students think independently, work creatively, search, analyze, draw their own conclusions, evaluate themselves, the group, and the group, and the teacher provides opportunities and conditions for such activities can create, these are the basis of the teaching process. Each lesson, topic, educational subject has its own technology, that is, pedagogical technology in the educational process is an individual process, which is directed to one goal based on the needs of the student. , is a pedagogical process aimed at providing a pre-planned and guaranteed result.

It is up to the teacher and the student-student to choose the technology to achieve the goal, because the main goal of both parties is to achieve a specific result. In addition, it is necessary to design the teaching process in advance, in this process the teacher will focus on the specific aspect of the educational subject. existing material and moral conditions, ICT tools most importantly, it should take into account the possibilities and needs of students and their ability to organize cooperative activities. Only then can the desired and guaranteed result be achieved. In short, the student should be brought to the center of education.

It is necessary for the teacher to be able to see each lesson as a whole and to plan the future lesson process. It is of great importance for the teacher to draw up a technological map of the upcoming lesson, because the technological map of the lesson is drawn up based on the nature of the subject, the subject taught for each subject, the ability and needs of the student. . It is not easy to make such a technological map, because for this the teacher needs to be aware of pedagogy, psychology, special methods, pedagogical and information technologies, as well as to know a lot of methods and methods. The colorful and interesting nature of each lesson depends on the carefully designed technological map of the lesson.

At present, the main direction in the informatization of education is the creation of pedagogical program tools for various educational subjects. However, existing and developed pedagogical software tools based on computer technology cannot lead to significant changes in education from the point of view of teaching. One of the reasons for this is the introduction of computer

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technologies into the traditional educational process, and this technology is not directed to a specific goal in terms of its content and method. In this regard, it is extremely important to consider the problems and prospects of introducing information technologies into the economic education system.

Special attention is paid to increasing the effectiveness of continuous education by using innovative pedagogical technologies in the teaching of biology. Pedagogical technologies are educational tools that provide an opportunity to develop and improve the personal qualities of students with the help of teaching and the use of modern information technologies, it has a unique didactic and methodological basis.

In order to increase the quality and effectiveness of teaching biology, pedagogical technologies are integrated into three types of educational activities based on the possibilities of modern information technologies, i.e. taking into account the specific characteristics of lecture, practical and laboratory activities. it is recommended to use without.

Taking into account the number of teaching hours of the materials studied in biology, they are divided into subject blocks, each lecture subject block is allocated time in the range of 2-8 study hours, and the content of practical and laboratory exercises corresponding to this subject block and size is determined. In this way, the internal consistency and coherence of learning each subject is fully maintained, and students have the opportunity to develop their subject-related skills and abilities more fully and purposefully.

Innovative technologies remain a factor in the training of highly qualified, competitive teaching staff, formation of their professional skills, improvement of methodical skills, arming teachers and pedagogues with modern pedagogical technologies.

We will give a description of some trainings (technologies) that can be used in the process of teaching biology, and we will give a methodical description of the procedure for conducting some of them:

The "NETWORKS" method is aimed at teaching the student to think logically, to expand the scope of common ideas, to use literature independently.

The "3x4" method is aimed at students' free thinking, the ability to give different ideas in a wide range, to be able to analyze, draw conclusions, and give explanations during the educational process individually and in small groups.

The "BLITZ-GAME" method is aimed at teaching the correct organization of the sequence of actions, logical thinking, and how to choose what is needed from many, diverse ideas and information based on the subject being studied.

"INTERVIEW" technique is aimed at teaching students to ask questions, to be able to listen, to answer correctly, to formulate questions correctly.

The "HIERARCHY" technique is aimed at teaching them logical, critical, creative thinking by using methods of transition from simple to complex, from complex to simple.

"BUMERANG" technique - to help students to work with various literature and texts in the course of the lesson, outside of the lesson, to remember the learned material, to be able to speak, to express their opinion freely, and to teach all students during one lesson aimed at evaluating.

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"STUDENT" training - working with students individually is aimed at eliminating the barrier between the teacher and the student, teaching ways to work together,

"TEACHER'S PERSONALITY" training is aimed at independent thinking on the topic "Requirements for the Teacher's Personality" that reveals the innovative activity of the teacher, expressing thoughts by writing a creative essay.

The "COMMUNICATION" technique is aimed at attracting the attention of the teacher and the audience, working together in the course of the lesson, and teaching how to organize it.

The "MANAGEMENT" technique is aimed at introducing and teaching the teacher the methods of audience management and the methods of managing students in the work process.

Brainstorming

"Brainstorming" is a very popular method that is widely used in solving problems. This method is to collect a large number of ideas, to free students from the inertia of the same thinking, to overcome the ideas that initially appeared in the process of solving creative tasks. It encourages participants to use their imaginations and creativity and helps them find multiple solutions to any given problem (What should I do in this situation? How should we overcome this obstacle?). Brainstorming helps you choose values and identify alternatives. The rules and methods of brainstorming are as follows:

1. No evaluations are allowed during the thinking process.

If we evaluate the idea in the process of thinking, the participants will focus on protecting their thoughts and ideas and will not dwell on their new and better ones. Evaluation should be an exception to the rule.

2. Everyone should be encouraged to think in terms of a wide variety of unexpected ideas. Indeed, unless unexpected ideas emerge in brainstorming, it becomes clear that some participants will revise their personal opinions.

3. The amount of ideas is encouraged. Quantity almost always turns into quality. When a large number of ideas are generated in rapid succession, evaluation is usually excluded.

4. Everyone can build on the ideas of others and change them. Adding or modifying a previously proposed idea often leads to a better idea than the one that caused it. Using the effective "Brainstorming" method requires the following:

- participants are seated comfortably;
- blackboards or sheets are prepared for writing down ideas;
- the problem is identified;
- work rules are defined;
- ideas are not valued at all;
- complete freedom of thought is given;
- the pursuit of quantity;
- read, modify, etc.;
- asking about ideas and recording them as they are told;
- when the sheets of paper are full, hang them on the walls;
- encouraging new ideas by adding them;

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- to continue the work and not interfere with the ideas of others.

The essence of the "Brainstorming" method also has its own characteristics. The goal is to find a solution to a certain problem in a short time. This psychotechnical game stimulates creative and unconventional thinking during training. One or more groups are formed and a problem is presented to them. Students put forward different ideas to solve the problem. The more options there are, the easier the selection process will be. Each proposed idea is scrutinized and expanded, and the most appropriate idea is accepted as the solution to the problem. The time for solving the problem is determined in advance and strictly adhered to. The game "Brainstorming" allows you to quickly find a way out of difficult situations, to expand the limits of your ability to see a problem, to lose uniformity of thinking and to think in a wide range. Before that, the relationship in the team changes, from the mood of struggle to the mood of creative cooperation, and the group becomes more cohesive.

"Networks" (Cluster) method

The meaning of this method is branching of thought. "Cluster" technology is a pedagogical strategy that helps students to study a topic in depth. Teaches students to freely and clearly link a concept or specific idea related to a topic in a coherent sequence. This method serves to accelerate and expand the student's thinking activity before studying a topic in depth. It also encourages students to consolidate, generalize and express their ideas on this topic in the form of a drawing.

Boomerang technology

This technology is aimed at learning the educational material in a deep and integrated state, creatively understanding it, and freely mastering it during one session. It is suitable for studying topics of different content and character (problematic, controversial, diverse) and includes oral and written forms of work. During each session, students perform different tasks teacher or student respectively. Being in the role of an economist or an entrepreneur gives him the opportunity to collect the necessary points. "Boomerang" technology creates an opportunity to form critical thinking and logic, and develops the skills of expressing ideas and thoughts in written and oral forms. This method makes it possible to implement a number of tasks of an educational nature, that is, the ability to work with a team in future economists behavior, kindness such as respect for the opinion of others, formation of leadership qualities, creative approach to work, interest in the effectiveness of one's work, impartial self-evaluation.

CONCLUSION

The use of innovative technologies in the teaching of biology helps students to work independently, think creatively, and increase educational efficiency.

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