

Interactive Learning Methods in Teaching Biology

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ABSTRACT

The article analyzes the main factors of improving the national education system to international standards. The essence of the content of interactive learning in teaching biology is revealed. Particular attention is paid to the types and forms of education.

Who is he today - a modern teacher? Source of information, innovation carrier, consultant, moderator, observer, guide, adviser, one who teaches others or is constantly learning himself? What is a modern teacher like?

The dynamics of modern life makes high demands on specialists in various fields of activity, requires the active introduction of new technological solutions. Of course, these trends have not bypassed the sphere of education. The advent of information technology requires the preparation of the younger generation for the realities of the information society. However, high-quality training of specialists in the professional field is also very significant. An overly important task in the training and advanced training of specialists is information culture and information competence. At present, the concept of pedagogical technology has firmly entered the pedagogical lexicon. But there are big discrepancies in its understanding and use. Technology is a set of **techniques** used in any business, skill, art (explanatory dictionary). Pedagogical technology - a set of psychological and pedagogical attitudes that determine a special set and layout of forms, methods, methods, teaching methods, educational means; it is an organizational and methodological toolkit of the pedagogical process (B.T. Likhachev). Pedagogical technology is a **systematic method** of creating, applying and defining the entire process of teaching and learning, taking into account technical and human resources and their interaction, which aims to optimize the forms of education (UNESCO). Pedagogy in the modern world is going through a period of rethinking approaches, abandoning some established traditions and stereotypes. She came close to understanding that educational work in its general form differs from other types of socially useful labor only in specifics, it has its own product, its own

technologies and their market value [1-4]. And therefore, mastering technology becomes super important, a priority, both in mastering the teaching profession and in assessing the quality and cost of educational services. A thorough knowledge of pedagogical technologies, his high professionalism - this is what a modern teacher exposes to the labor market. And success in the work of a teacher will soon be determined to a greater extent by technology , and not by individual skill.

One of the factors contributing to the improvement of the quality of student learning is the development by the teacher of modern pedagogical technologies with subsequent introduction into the educational process. The organization of training based on a technological approach allows not only to satisfy the educational needs of each student in accordance with his individual abilities, but also to create conditions for self-realization, self-development of students, the formation of their competencies necessary for a full life in modern society.

You can get out of this situation by organizing training within the framework of holistic educational technologies.

Educational technology is currently centered around four general ideas:

Consolidation of didactic units.

The concept of enlargement of didactic units put forward by P.M. Erdniev, is now universally recognized . In part, its consequence was the introduction of lecture-seminar and, in general, all - block technologies. A typical technology in this area is the “method of projects”.

Planning for learning outcomes. We are talking about multi-disciplinary and multi-level planning of learning outcomes and the language of such planning. The process that leads to the achievement of planned results is called differentiated learning.

Psychologization of the educational process. Taking into account psychological phenomena in teaching, building the educational process itself on their basis. In particular, the need to use the leading activity and motivation of adolescents entails the expediency of group learning.

Computerization. The computer today is a means of enhancing the intellect of students, their development. Also, it is important to use computers as tools for managing the educational process and information machines, means of communication.

Many teachers are not fully aware of the benefits that can be derived from the use of advanced educational technologies, these people are quite conservative. Meanwhile, there are significant achievements in each of these areas [5].

Not every technology can be applied by every teacher , much depends on his work experience, pedagogical skills, methodological and material security of the pedagogical process, etc. It is important to pay attention to such properties of technology as its effectiveness and applicability. Often the teacher takes into account various requirements, methodological recommendations, instructions, etc., and does not always notice what his wards want, what are their interests, needs. In such cases, no technology will help the teacher achieve their goals. The activities of the teacher (his goals, needs and motives, actions, means and conditions for their application, etc.) must be correlated, correspond to the activities of the student (his goals, capabilities, needs, interests, motives, actions, etc.). Only on this basis, the teacher selects and applies the means of pedagogical influence. But the degree of improvement in the quality of education and the motivation of the educational process still requires generalization [6].

The manufacturability of the educational process is to make the educational process fully manageable.

Interactive is such training, which is based on the psychology of human relationships and interactions. In the activities of the teacher, the main place is occupied by a group of interacting

students who, discussing issues, argue and agree among themselves, stimulate and activate each other. When using interactive methods, the strongest effect on intellectual activity is the spirit of competition, competitiveness, which manifests itself when people collectively seek the truth. There is also such a psychological phenomenon as infection, and a thought expressed by a neighbor can involuntarily cause one's own analogous or close to the one expressed or, conversely, completely opposite [7].

During such classes, much more activity and creativity is required from the teacher than when it takes place in the form of a retelling of truths read in books or long known. The forms of participation of the teacher in the discussion can be very diverse, but in no case should they impose their opinion. The best way to do this is through finely calculated management of the course of discussions, through the posing of problematic issues that require productive thinking, a creative search for truth [8].

Interactive learning methods include:

1) heuristic conversation, 2) discussion method, 3) "brainstorming", 4) "round table" method, 5) "business game" method, 6) competitions of practical works with their discussion, etc.

heuristic conversation. The method got its name from the teaching method "heuristics" dating back to Socrates (gr. - I find, I find, I open). This method, through skillfully formulated leading questions and examples, encouraged students to come to an independent correct answer. By its psychological nature, heuristic conversation, in the modern sense, is collective thinking or conversation as a search for an answer to a problem. In pedagogy, this method is considered to be the method of problem-based learning (problem-search conversation) [9]. Let us explain why we consider heuristic conversation not among the methods of problem-based learning, although it is based on a mental search for a solution to an educational problem. The fact is that in a conversation, a mental search turns into a collective search, where there is an exchange of opinions, assumptions, guesses, various options for intermediate solutions, when students seek the truth in interaction and in mutual assistance, activating each other's thinking. It should be borne in mind that this method assumes that students have a certain stock of knowledge, ideas, concepts. When preparing for a conversation, the teacher should: a) clearly define the goal; b) draw up a plan-outline; c) choose visual aids; d) formulate the main and auxiliary questions. It is important to correctly formulate and ask questions:

- they must be logically connected;
- they must correspond to the level of development of students;

They don't have to give an answer.

Remember: the question is asked to the whole class, to the whole group. After a short pause for reflection, the student is called. It is necessary to involve other students to correct, clarify, supplement the answer. A conversation is a complex method, as it requires a certain amount of effort, appropriate conditions, the skill of a teacher who listens carefully to the answers, approves the correct ones, comments on the wrong ones, clarifies and involves the whole group in the work process [10].

Discussion as a method of interactive learning has been successfully used in the system of educational institutions in the West, and in recent years it has also begun to be used in our education system. The method of discussion (educational discussion) is a "overflowing" heuristic conversation. The meaning of this method is to exchange views on a specific problem. This is an active method to learn how to stand up for your opinion and listen to others.

It is usually assumed that the answer to the opponent's statement in the discussion is born from thinking, therefore, disagreement gives rise to a discussion. However, the situation is just the opposite: a dispute, a discussion gives rise to a thought, activates thinking, and in an educational

discussion, it also ensures the conscious assimilation of educational material as a product of its mental elaboration [11-15].

The discussion method is used in group forms of classes: at discussion seminars, interviews to discuss the results of completing tasks in practical and laboratory classes, when students need to speak out. At the lecture, the discussion in the full sense cannot unfold, but the debatable question, which caused several different answers from the audience at once, without leading to the choice of the final, most correct one, creates an atmosphere of collective reflection and readiness to listen to the teacher answering this debatable question.

Discussion at a seminar (practical) lesson requires thoughtfulness and thorough preliminary preparation of trainees. We need not only good knowledge (without them, the discussion is pointless), but also the ability of students to express their thoughts, clearly formulate questions, give arguments, etc. Educational discussions enrich students' ideas on the topic, streamline and consolidate knowledge.

Brainstorming method. The name of the method was born in the management system, as well as in the field of scientific research. It is widely used in economic management activities, management. The method consists in finding the answer of specialists to a complex problem through intensive statements of all kinds of ideas that come to mind, conjectures, assumptions, random analogies. The golden rule of brainstorming is not to question or criticize anything said by the participants, but to ensure complete freedom of expression of any ideas. Such psychological freedom allows you to behave relaxedly, not to be afraid to embarrass yourself with an unsuccessful remark, to seem stupid, funny, etc. In such an environment, the most incredible, truly crazy ideas are born, many of which in the future, after careful analysis, can be weeded out. , but suddenly there is what is needed to solve this problem. This is what brainstorming is for [16-17].

The brainstorming method can be used in teaching psychology when the goal is to convince students of the difficulty of solving a problem. Such, for example, are some problems of pedagogy (contradictions between morality and freedom of morals of today's youth and the tasks of education); psychology (the laws of the development of the psyche and the practice of training and education); in pedagogical psychology (the problem of adolescent crisis in mental development).

The round table method was borrowed from the field of politics and science. In training, the round table method is used to increase the efficiency of mastering theoretical problems by considering them in different scientific aspects, with the participation of specialists in various fields. So, for example, for students of the Faculty of Medicine and Education, studying the section of psychology "Personality and activities of a medical worker", a psychology teacher conducted a lesson on the topic "Psychology of the behavior of a medical worker" using the round table method. The lecture was also attended by a teacher of the clinical department. He, along with the teacher of psychology, asked students questions, clarified their statements, gave explanations, and gave examples. And the psychology teacher, being the leader, joined the conversation after the next statement or question of the medical teacher. This was necessary because medical issues, especially the specific behavior of the sick person and the doctor treating him, required psychological assessment, interpretation or explanation. This side of people's behavior was the subject of the entire lesson, since medical students in psychology were interested not only in purely medical and special issues, but also in the psychology of the doctor and the patient, the patient's relatives, their relationship with medical personnel, etc. The discussion of these psychological issues was active due not only to the involvement of a representative of medical science in the lesson, but also the opportunity for students to apply their knowledge in the field of medicine as material for psychological analysis [18-20].

Thus, the topic was considered from two sides - medical psychological, which ensured its deep

assimilation. The roundtable method is also applicable in other forms. So, it is possible to hold a “round table” of medical students with a group of student teachers within the framework of a student educational and methodological conference. The main thing is to choose a general topic included in the programs, both in psychology and other related subjects. There is experience in conducting such classes with the invitation of students and teachers of another university in the same specialty - psychology. As you can see, the round table method can take a variety of forms, if at the same time one important condition and its strict observance is remembered - this is the awareness of the need for a comprehensive consideration of a theoretical problem from different positions and points of view on its practical implementation.

The business game method originally appeared not in the education system, but in the practical sphere of management. Now business games are used in a variety of areas of practice: in research work, in the process of design development, in the collective development of decisions in real production situations, as well as in military affairs.

The essence of the business game method as a teaching method lies in the educational modeling of the situations of the activity that students are to be taught in order to teach future specialists to perform the relevant professional functions on models, and not on real objects. For example, when teaching psychology at a medical school, you can play out situations: “lesson”, “work with lagging behind”, “analysis of mistakes”, etc. Such a business game is planned in advance (writing a script, assigning roles, choosing situations, etc.).) and is carried out in a practical lesson [21-23].

"Business game", putting the student in a situation of real actions in the role of a specific actor (teacher, head of department, dean, etc.), makes him think concretely and objectively, with a clearly realized goal to achieve a really tangible result. This circumstance sharpens the attention of the student, makes thinking more purposeful, and therefore contributes to better assimilation.

Training is one of the relatively new methods of interactive learning. Various situations that arise in training groups, being educational and, in this sense, conditional, playing, for the trainee act as very real situations in which one must act with full responsibility for the result of the action. The sense of responsibility here is special: not only to oneself, but also to the partners in the group, since the success of everyone's actions is the key to the success of the entire group.

In this aspect, the training resembles the method of a business game, where the responsible dependence of the game participants on each other is also strong. The difference between the teaching methods is that one of them serves to teach the practical application of the theory (according to the principle of "work based on the theory"), and the other - to the practical teaching of the theory itself ("theory from living practice").

Conducting a lesson by the method of group training requires a lot of preparatory work from the teacher. Preparation includes:

- work on the plan - the scenario of the training;
- work with students in their mood for active participation in solving the problem submitted for training;
- self-training of the teacher;
- the distribution of roles between the participants, although not everyone can get the roles, but the majority will be in the role of outside observers and critics, and in this capacity, take the most active part in the training [24-25].

An important feature of group training as a teaching method is the interaction of students, which turns an ordinary training group into a visual model of various socio-psychological phenomena, into a research ground for their study or a practical laboratory for their correction. Socio-psychological training is not training in the usual sense of the word, not the development of any

specific skills, but active socio-psychological training in order to form the competence, activity and orientation of the individual in communicating with people and increase the level of development of the group as a socio-psychological object .

In conclusion, it should be noted that in the practice of teaching psychology, active methods, most likely, will not act in a “pure form”, not independently, but their elements will be included in different shares in different forms of classes: either in the lecture methodology, or in the seminar methodology. or practical exercises. It is possible that several different methods from among those discussed will interact in the same lesson.

Thus, the use of methods depends on the teacher himself and the scientific significance of the content of the topic being studied. Active learning methods in the teaching of psychology create an environment in which the relationship between the teacher and students not only makes learning activities active in a cognitive sense, but also turns them into an educational process.

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