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Innovative Methods used in Biological Science Teaching

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ABSTRACT

The goal of biological education at the present stage is to prepare a biologically and environmentally competent person who must understand the significance of life as the highest value. A modern person, no matter what type of activity he prefers in the future, should be able to build his relations with nature on the basis of respect for man and the environment.

Introduction. At present, modern teaching methods are widely used in the development of students' learning activities. The use of modern teaching methods leads to high efficiency in the teaching process. Today, in a number of developed countries, the methods that form the basis of extensive experience in the use of modern pedagogical technologies that guarantee the effectiveness of the educational process are called interactive methods.

Interactive methods are methods that activate learners and encourage independent thinking, with learners at the center of the learning process. When using these methods, the educator encourages the learner to actively participate. The learner is involved throughout the process. The benefits of a student-centered approach include:

- more effective learning;
- high level of student motivation;
- taking into account previously acquired knowledge;
- adapting the intensity of reading to the needs of the learner;
- -support the initiative and responsibility of the student;
- practical study;
- creation of conditions for bilateral discussions.

An interactive method is a collaborative solution to an activity or problem through dialogue, discussion, and reflection. The advantage of this method is that the whole activity teaches the student to think independently and prepare them for independent living.

The choice of interactive teaching methods takes into account the purpose of education, the number and capacity of students, the educational and material conditions of the educational

institution, the duration of education, the pedagogical skills of the teacher and others.

The aim of the study. The methodology of teaching of biology determines the goals of education, the content of the subject “Biology” and the principles of its selection.

Material and methods. The methodology of teaching biology also notes that one of the most important goals of biological education is the formation of students of a scientific worldview based on the integrity and unity of nature, its systemic and level structure, diversity, unity of man and nature.

Research results and discuss. The subject "Biology" at the level of higher medical education is focused on the formation of knowledge about the structure and functioning of biological systems, about the sustainable development of nature and society in their interaction. Building a theory of teaching biology in the system of higher medical educationrequires a combination of empirical and theoretical knowledge.

There are many different types of interactive methods, and all of them, like any progressive method, require, first of all, a great preparation from the teacher before the lesson.

Interactive learning allows you to solve multiple problems at once. The main thing is to develop students' communication skills, help to establish emotional ties between students, ensure the fulfillment of educational tasks by teaching them to work in a team, to listen to the opinions of their peers. The main features of the interactive lesson in the organization of these lessons can be better understood by considering some of its differences from the traditional lesson (Table 1).

Table 1. Some differences between traditional and interactive lessons

№	Basic concepts	Traditional lesson	Interactive lesson
1	Level of application	It is used in the form of lessons that are convenient for them on all topics	On some topics, interactive lessons are used in the form of convenient forms of lessons. For other topics, the traditional lesson will be used
2	Course Objectives	Knowledge, skills, competencies on the subject formation, strengthening	Independent thinking on the topic of the lesson, drawing conclusions, explaining them, teaching to defend
3	Teacher responsibilities and working methods	Explain, reinforce, supervise, assign assignments to a new topic	Organizing, managing, supervising, and summarizing students' independent work and presentations
4	Requirements for lesson preparation	Preparation of lesson plans, abstracts and didactic aids	Preparation of interactive lesson plans, assignments for independent work, handouts, other necessary tools
6	Student tasks and work methods	Listening to and mastering the teacher, completing assignments	Independently think about the tasks given by the teacher, compare their opinions and conclusions with others and come to the final conclusion
7	Lesson modules and algorithms	The modules and algorithms of the lesson are used by each teacher according to the method he / she uses	Each lesson is conducted according to pre-prepared modules and algorithms, projects

8	The level of activity required of students	The teacher is active in all aspects, the students are active in focusing, understanding, thinking, and completing assignments.	Both the teacher and the students are very active.
9	Forms of training	Lectures, seminars, practical and laboratory classes, discussions, round tables, discussions, consultations	Lectures, group or pair work, presentations, discussions, debates, roundtables, practical work
10	Expected result	Students' acquisition of knowledge, skills and abilities on the topic	To form students' own opinions and conclusions on the topic, to teach them to learn independently

The differences in the table clearly show the advantages and disadvantages of these two types of training.

Over the last 20 years, new methods, a source of paperless information: a video computer system, have rapidly entered life, as well as education.

According to the sources of knowledge currently being studied, the methods are divided into 5 groups and include a number of methods:

1. Practice, experimental method:

- experimentation, practice;
- Participation in the process of training, labor, production.

2. Demonstration method:

- Student observation, internship.

3. The method of verbal expression:

- explanation, awareness;
- to tell a story;
- exchange of views;
- interview;
- way - instruction, instruction;
- report;
- discussion, debate

4. Work with the book:

- read, study, review quickly;
- Quote and work on it, write a statement;
- Writing an abstract, composing a synopsis.

5. Video method:

- computer exercises, tests;
- control;

- work on the Internet;
- preparation and screening of educational films;
- calculation of economic indicators on a computer on the basis of programs developed on the basis of information technology, study of the influence of factors on them;
- covers multimedia presentations, presentations and more.

Advantages of the methods:

- know certain concepts, have certain skills;
- high level of teacher control over the teaching process and learning environment;
- efficient use of time;
- Relying on accurate scientific knowledge.

Disadvantages of the methods:

- The most serious shortcomings of such a system of teaching are the passivity of students in the classroom and, consequently, the low efficiency of learning;
- Full teacher supervision does not create motivation for all students;
- the student is not able to communicate directly with the teacher;
- group learning may be low because not everyone has the same level of memory;
- There are no conditions for independent study and decision-making.

In the educational process of students, the use of modern educational technologies in all areas of biology is widely practiced.

Conclusion. Based on the foregoing, we believe that:

- reduction of hours in biology is unacceptable;
- biology should be integrated with special subjects or with other theoretical subjects such as normal anatomy, normal physiology, histology, biomedical physics, pathological anatomy, pathological physiology, etc.
- the teaching of the subject should be progressive, qualitatively, at a higher, modern level;
- the transfer of knowledge must necessarily be carried out with the active participation of students, this requires the creation of clear, unified textbooks, teaching aids, the development of programs, laboratory work and seminars.

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