

USE OF INTERACTIVE FORMS AND METHODS IN LEARNING

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ABSTRACT	KEYWORDS
<p>The peculiarities of the interactive forms and methods in teaching medical University and institute biophysics are touched upon in the article as the most modern and innovative. Some examples of the forms are shown in the article for practical usage in teaching.</p> <p>В статье рассматриваются особенности преподавания предмет биофизики в медицинских университетах и институтах при помощи интерактивных форм и методов обучения, как наиболее актуальные на современном этапе преподавания. Рассматриваются некоторые формы и приводятся приемы обучения для практического внедрения их в учебный процесс.</p>	<p>teaching; interaction; innovations</p> <p>Биофизика; обучение; интеракция; инновационные технологии biofizika;</p>

The broadest concept, including everything that surrounds us and ourselves, is matter. It is impossible to give an ordinary logical definition of matter, in which a broader concept is indicated, and then a sign of the subject of the definition is noted, since there is no wider concept than matter. Therefore, instead of a definition, it is often simply said that matter is an objective reality given to us in sensations. Matter does not exist without movement. Motion is understood as all processes occurring in the Universe. Conditionally different and diverse forms of movement can be represented by four types: physical, chemical, biological and social.

This allows you to classify different sciences depending on what kind of movement they study. Physics studies the physical form of motion of matter. Various forms of the motion of matter are interdependent and interrelated, which leads to the emergence of new sciences lying at the junction of the former ones - biophysics, chemical physics, astrophysics and others, as well as the use of the achievements of one science for the development of another. But, unfortunately, often our teaching methods are very inert, do not meet modern requirements. Modern methods of teaching biophysics in medical schools offer us a wide range of teaching concepts, methods and technologies - both traditional and innovative.

Relevance: In a more modern society, the active method of teaching biophysics prevails. But still, a more advanced method is interactive. It contributes to the development of communication skills as much as possible, which is the goal in itself of teaching biophysics. The article offers information about this method.

The purpose of this article is to draw the attention of teachers to more advanced and relevant methods of teaching biophysics, to acquaint them with the forms and methods of this method in order to optimally achieve the communicative goal of teaching.

The use of interactive forms and methods in teaching on the subject of biophysics. Interactive ("Inter" is mutual, "act" is to act) means interaction, conversation, dialogue with someone. Interactive initiates a more multifaceted interaction of students, both with the teacher and with each other, in contrast to active methods. The main function of the teacher in interactive classes is to direct the activities of students to achieve the goals of the lesson. The teacher, of course, develops a lesson plan (usually, these are interactive exercises and assignments during which students study the material). Therefore, the main components of interactive lessons are interactive exercises and tasks performed by students. The cardinal distinguishing feature of interactive exercises and assignments is that, performing them, students work on the basis of already studied material as much as possible aimed at learning new things. Interactive methods make it possible to move away from a monologic learning system to a dialogue, when students not only can freely exchange judgments, their own opinions and assessments of facts, but also have the right to argue with the teacher, defending their point of view, position. Interactive works when the teacher does not express ready-made truths, but organizes the search and discussion by students. . **"A bad teacher is to present the truth, a good teacher is to teach to find it" (Disterverg).** The interactive methodology involves the mutual learning of students, which creates a friendly atmosphere of tolerance, security, mutual support, and understanding. This makes it possible to develop cognitive activity itself with the help of high forms of cooperation and cooperation in the process of obtaining new knowledge. The essence of interactive learning is that the learning process involves all students to the maximum in the learning process, so that each participant has the opportunity to understand and reflect on their knowledge and thoughts. Hence, a huge role is assigned to the individualization of knowledge of each individual in the joint activity of students in the educational process. Interchange of knowledge, thoughts, methods of activity - that's what interaction offers. In the classroom, there is also the development of dialogue communication, which leads to mutual understanding, interaction, to the joint solution of common, but individually valuable tasks for each participant. Interactive excludes the dominance of both one speaker and one opinion over another. As a result, students learn critical thinking, analysis of circumstances and solving complex problems, weighing alternative opinions, making thoughtful decisions, discussing, communicating with other partners. To do this, individual, pair and group work is organized in the lessons, research projects, role-playing games are used, work is underway with various information sources, and creative work is used. Along with the traditional (work in small groups, in pairs-threes, role-playing or business game) forms of work, interactive methods use such techniques as work in rotational (replaceable) threes, a carousel, an unfinished sentence, an aquarium and others.

What are forms of interactive learning? In modern society, methodologists and teachers have developed many forms of group work for teaching biophysics. The most widespread of these are the "outer circle", "small circle", "aquarium", "brainstorming" and "debate" (names may vary, the essence is important). These forms are only effective if the lesson discusses a general problem that students have initial ideas about based on previous lessons and everyday life. In addition, the topics discussed should not be closed or too narrow.

Spatial arrangement in the auditorium.

- questions in a circle;
- small circle (chairs in a circle, students are more prepared);
- outer circle (chairs in a circle, students less prepared);
- debate;
- work in groups; «Круг идей» – форма работы, целью которой является resolution of controversial issues. A list of ideas is being drawn up. All students are involved in the discussion of the issue. Groups must perform the same task, consisting of several questions (positions), which are given in turn. In the answers, each of the groups voices only one aspect of the problem, and the teacher continues to ask questions in a circle until the ideas run out. Thus, the possibility of answers to all questions by one group is excluded. *"Dialogue"* - the point is for the groups to find an agreed solution. The result of the work is reflected in the form of a diagram or final text, which is then written down in notebooks. The technique includes criticizing the position of the other group and looking for its strong positions. Experts fix their general views, and at the end of the work they give a generalized answer to the task, which everyone writes down. Brainstorming is a group method for generating ideas. When conducting brainstorming, you need to proceed from the fact that there are no absurd ideas. On the contrary, it is necessary to get as many such ideas as possible. At the same time, neither ideas nor authors can be evaluated.

"Brownian motion" - students, like molecules, randomly move around the office to collect information on a given topic.

"Take a position" - a statement is declared. Students approach the poster with the words "YES" or "NO". Preferably, they should be able to explain their position.

"Discussion" - educational group discussions are held on the chosen problem in small groups (from 12 to 14 people) students. The educational discussion differs from other discussions in that the problem under discussion is new only for the group of people participating in the discussion, that is, the already known solution to the problem is to be found in the educational process. The search process should lead to knowledge that is objectively known, but new from the point of view of students.

Debate An example (fragment) of a lesson using such a form of work as a debate

Target: develop the skills of partnership communication, critical thinking and the ability to interact in a group, tolerance for opposition

Lesson stages

1. Warm up. It is assumed that this is not the first lesson of the cycle on the topic "Hemodynamics", i.e. students are already familiar with it. The teacher asks students the question "What is Hemodynamics?" students share their opinions.
2. Division of students into working groups. Groups are created based on the student's opinion, which he expressed earlier:
3. Familiarization of students with the technology of debate (it is especially important to clearly explain the rules if this form of work is used for the first time). The teacher should explain the goals and objectives that each group faces. A timekeeper is selected (a person who will follow the rules). Timekeeper indicates when there are 3 minutes, 2 minutes, 1 minute, 30 seconds left. A panel of judges is appointed.

4. The time for each statement is regulated (for example, 5 minutes) and the process of discussion begins, the choice of tactics for conducting debates (if the group is prepared, then mini-debates can begin in 10-15 minutes; then the time for each speaker to speak should be reduced to 2-3 minutes) . In general, the preparation of debates can be carried out within two weeks.

Form of work in groups

"Replaceable triplets" - the composition of groups (triples) changes during the lesson.

"Decision tree" - the class is divided into several groups with the same number of students. Each group discusses the issue, and notes are made on the board (sheet of paper or board). Then the groups change places and write their thoughts on the board of the neighbors.

"Common project" - groups receive various tasks that cover the issue from different angles. After the work is completed, reports are prepared and notes are made on the board. From these notes, a general draft is compiled, which is reviewed and supplemented by a group of experts.

"Synthesis of thoughts" - a copy of the previous method with the difference that the students make all the notes on the sheets, which are then passed on to the next group. Points that the group does not agree with are underlined on the sheet. Experts process the sheets and make a general report, which is then discussed by a full audience of students.

"Search for information" – the method is used to revive dry and uninteresting material. In this case, there is a team search for information that complements the existing one (lecturer's lecture or homework). Subsequently, students answer questions. Answers to questions should be found in textbooks or handouts. Limited time is given to analyze information and search for answers to questions. **Заклучение:** Thus, at present, a large number of methods and forms of interactive learning have been developed. But every progressive teacher can come up with his own methods of working with students. Most of the listed interactive methods relate to corporate learning technologies, when students come together to complete tasks, master the material and develop communication skills during the discussion and argumentation of their positions. A huge plus of this type of educational activity is that all students of the class are involved in the common work. The difficulty lies in the ability to organize the activity of students, to involve them in this type of work as a permanent one. The methods mentioned in the article can serve as a basis for creating all new forms. The interactive creativity of the teacher and student is limitless, and this is the main advantage of interactive learning.

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