



INTERACTIVE METHODS IN TEACHING BIOPHYSICS IN MEDICAL EDUCATIONAL INSTITUTIONS

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ABSTRACT

The article examines the features of teaching the subject of biophysics in medical universities and institutes using interactive forms and methods of teaching as the most relevant at the current stage of teaching. Some forms are considered and teaching methods are provided for their practical implementation in the educational process.

Introduction.

The broadest concept, encompassing everything that surrounds us, is matter. Matter cannot exist without motion. Conventionally, the various and diverse forms of motion can be divided into four categories: physical, chemical, biological, and social. This allows us to classify different sciences based on the type of motion they study. Physics studies the physical form of motion of matter. The various forms of motion of matter are interdependent and interconnected, leading to the emergence of new sciences at the intersection of these disciplines—biophysics, chemical physics, astrophysics, and others—as well as the use of the achievements of one science to develop another. Modern biophysics teaching methods in medical universities and institutes offer a wide range of teaching concepts, methods, and technologies—both traditional and innovative.

Methods.

In modern society, active teaching methods for biophysics predominate. However, a more

advanced method is interactive. Interactive forms and methods are used in teaching biophysics. Interactivity ("inter" means mutual, "act" means to act) means interacting, conversing, and conducting a dialogue with someone. Interactivity initiates more multifaceted student interaction, both with the teacher and with each other, unlike active methods. The primary function of the teacher in interactive classes is to direct students' activities toward achieving the lesson objectives. The teacher, of course, develops the lesson plan (usually interactive exercises and assignments during which students learn the material). Consequently, the main components of interactive lessons are the interactive exercises and assignments completed by students. The fundamental distinguishing feature of interactive exercises and assignments is that, when completing them, students work on previously studied material, which are maximally focused on learning new things. Interactive methods allow students to move away from monologue-based learning and toward dialogue, where they can not only freely exchange judgments, opinions, and assessments of facts, but also have

the right to argue with the teacher, defending their point of view and position. Interactive methods encourage mutual learning between students, creating a friendly atmosphere of tolerance, security, mutual support, and understanding. This enables the development of cognitive activity through high levels of cooperation and collaboration in the process of acquiring new knowledge.

Results.

In modern society, methodologists and teachers have developed many forms of group work for teaching biophysics. The most common of these are “outer circle”, “small circle”, “fishbowl”, “brainstorming” and “debate” (the names may vary, but the essence is important). These forms are effective only if the lesson discusses a general problem about which students have initial ideas based on previous lessons and everyday life.

“Dialogue” - the goal is for groups to find a consensus solution. The result of the work is reflected in a diagram or final text, which is then recorded in notebooks. The methodology involves critiquing the other group's position and exploring their strengths. Experts record their shared views, and at the end of the work, they provide a summary response to the task, which is recorded by everyone.

“Debate” - an example (excerpt) of a lesson using this form of work: debate. Objective: To develop skills in collaborative communication, critical thinking, and group interaction, as well as tolerance for opposition.

“Brainstorming” is a group method for generating ideas. When brainstorming, one must assume that there are no absurd ideas. On the contrary, the goal is to generate as many such ideas as possible. Neither the ideas nor the authors are judged.

“Discussion” – educational group discussions are held on a selected problem in small groups (12 to 14 students). An educational discussion differs from other discussions in that the problem being discussed is new only to the group participating in the discussion; that is, an already known solution to the problem must be found in the educational process. The search process should lead to knowledge that is objectively known, but new from the students' perspective.

Conclusion.

Thus, a large number of methods and forms of interactive learning have been developed to date. However, every progressive teacher can develop their own approaches to working with students. Most of the interactive methods listed above relate to corporate learning technologies, where students collaborate to complete assignments, master the material, and develop communication skills during discussions and arguments. A significant advantage of this type of learning activity is that all students in the class are involved in the shared work. The challenge lies in organizing student activity and engaging them in this type of work on a regular basis. The interactive creativity of both teacher and student is limitless, and this is the main advantage of interactive learning.

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