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THE TECHNOLOGY OF USING INTERACTIVE AND PROBLEM-BASED RESEARCH METHODS IN TEACHING HUMAN ANATOMY AND PHYSIOLOGY

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ABSTRACT: This article provides information about the technology of using interactive and problem-based teaching methods in human anatomy and physiology lessons. Keywords: interactive, problem-based research methods Subject-object, role-playing games, conference, court lessons, brainstorming, cluster method .

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INTRODUCTION

The teaching of each subject has its own characteristics, and the question arises whether it is necessary to adapt advanced pedagogical technology to this subject or whether it is necessary to adapt science to advanced pedagogical technology. Currently, teachers are interactive with non-standard lessons. In order not to confuse the methods, the following table is provided. This process is being studied on the basis of general professional subjects taught in higher education institutions, in training courses, and also in various seminars and conferences.

Interactive is derived from the English word "interact" and "inter" means cooperation and "act" means to act. Interactivity means that the student works in cooperation with the student or communicates with the computer in the interaction mode.

Interactive teaching is, first of all, dialogic teaching, solving problems in cooperation by all participants in the dialogue process.

The main essence of interactive teaching is that during the teaching process, all students become active participants in the learning process, they understand the discussed problems, the development of events and phenomena, understand problematic situations, look for ways to solve them, and recommend the most optimal option.

Student's cooperation in the learning process based on studying the educational material, recommending different options for solving the problem allows each student to add his share for the success of the group, share ideas, information between them and prepares the ground for the exchange of experience. Since this cooperation takes place in a friendly, comfortable socio-psychological, mutual support environment, students not only acquire new knowledge, but also develop their own cognitive activities, raise it to a higher level, and allow to enter into cooperation.

Published: January 30, 2024 | Pages: 53-57

In the process of using interactive methods in the teaching process, it requires the organization and management of students' interaction, in which students collaboratively search for a solution to a problem that is common, as well as important for each student mutual understanding, cooperation, and harmony emerges between them.

In classes using interactive methods, it is not allowed for one student to dominate and to express his opinion.

When interactive methods are used, students acquire the skills of critical thinking, analysis of information sources and situations, solving complex problem situations, analyzing the opinions of their peers and drawing reasonable conclusions, participating in discussions, and communicating with other people.

Interactive teaching methods have the following features:

Communication, which is an important vital human need, is used at all stages of the teaching process.

In the process of teaching, students are given equal opportunities to show their strength, knowledge, and talent. A socio-psychologically favorable environment is created in the cooperation of students in small groups, and the ground is prepared for gradual and effective participation in communication.

In order to actively participate in communication, students understand that it is not enough just to hear, but to analyze what they have heard, to think, and to make their thoughts reasonable and understandable.

In cooperation with the students, they should perform the assigned tasks at the required level by working in small groups, analyze the obtained results, check their correctness, present them and achieve recognition by other groups.

It is possible to create the activation of all participants in the course of teaching through interactive methods. Under the guidance of the teacher, students exchange ideas and work together. They listen to each other's opinions, summarize and try to draw common conclusions.

We can give many examples of interactive methods used in the teaching process. During our work, we studied and analyzed data on some of the interactive methods that are widely used in the educational process, especially "Brainstorming", "Venn diagram", "Cluster", "Case study" we tried

"Brainstorming" method. This method is a widely used method for solving problems on a specific topic, and it provides participants with certain skills and abilities to think broadly and comprehensively about a problem, and to use their imaginations and ideas positively encourages to do. In the course of training organized using this method, it is possible to find some original solutions to arbitrary problems. The "Brainstorming" method creates conditions for identifying certain values and choosing alternative ideas within the selected topics.

When using the "Brainstorming" method during the lesson, the following rules must be followed:

1. To encourage students to think broadly within the framework of the problem, to get them to express logical thoughts.

Published: January 30, 2024 | Pages: 53-57

2. The opinions expressed by each student are encouraged. The most suitable ones are selected from the submitted ideas. Stimulation of ideas leads to the birth of new ideas.

Each student can build on his personal opinions and change them. Generalization of previously expressed opinions, or their modification, prepares the ground for the formation of scientifically based opinions. During training, it is not allowed to control the student's activities based on standard requirements, to evaluate the opinions expressed by them. When their opinions are evaluated, students focus on protecting their personal opinions, and as a result, new opinions are not put forward. Keeping in mind that the main goal of using the method is to encourage students to think broadly about the problem, it is appropriate to refrain from evaluating their work.

Now we want to talk about another interactive method, the "Cluster" method, which can be widely used in biology classes, and how to use it in biology classes.

"Cluster" method. The cluster method is a specific form of pedagogical, didactic strategy, which helps students to create conditions for free, open thinking about arbitrary problems (topics) and to freely express their personal opinions. This method requires the identification of a structure that allows thinking about the connections between different ideas. "Cluster" method is considered a form of thinking that is not directed to a specific object. Its use is carried out in connection with the principle of human brain activity. This method serves to ensure that the activity of thinking is in harmony until a specific topic is mastered by students in depth and thoroughly. Designed according to the idea of style and style.

The "Cluster" method is a well-thought-out strategy that can be used in individual or group training sessions with students. The method is manifested in the form of a set of ideas expressed by students in group-based classes. This creates an opportunity to generalize the ideas put forward and find connections between them.

Clustering is a pedagogical strategy that helps students think freely and openly about a topic. This method develops multivariate thinking, the skills of making connections between the studied concepts (events, events). Clustering can be used to stimulate thinking at the stages of invitation, realization, and reflection. It is basically a strategy for awakening new thoughts, reaching existing knowledge, and inviting new thinking on a specific topic.

It is advisable to use clustering on a topic before studying this topic thoroughly.

Clustering sequence: A "key" word or phrase is written in the center of a large sheet of paper or on a classroom blackboard or writing surface;

Words and phrases that come to mind and are considered relevant to this topic are written;

Identifying possible connections between ideas when ideas appear and writing them down;

All the thoughts that come to mind are written down until the thoughts run out or the time runs out;

The quoted words and thoughts are divided into categories depending on their content and proximity.

When creating a cluster, the work of all the students in the group serves as a core of ideas for this group.

Published: January 30, 2024 | Pages: 53-57

Brainstorming is a pedagogic strategy that helps students learn about a topic in depth by teaching them to freely and openly link a topic-related concept or specific idea in a coherent sequence. This method can serve to accelerate and expand the thinking activity of students before studying a topic in depth. It also encourages students to reinforce the topic, generalize well, and express their ideas on this topic in the form of a drawing. When creating a cluster, the student thinks freely about the topic, writes down any concept that comes to his mind, does not pay attention to spelling, mistakes, scientific errors. He should use the time given to him to write quickly and a lot of information and expand the network. After the task is completed, the teacher will check the cluster and make a conclusion, and correct the mistakes.

The group of active methods used in the teaching of biology includes problem-research methods of teaching, logical methods, methods of independent work, methods of encouraging and justifying student activity, control and self-control methods.

Active methods require active cognitive activities based on the activation of knowledge and skills of analyzing individual objects, phenomena and laws in the process of creating problem situations, working in cooperation in small groups of students, solving problems, finding answers to complex questions.

For this reason, it is important to use problem-based research and logical methods in the teaching of biology together with oral presentation, demonstration and practical methods, which are reproductive methods of teaching. For this, the teacher should understand the specific features of these methods, the methodical methods included in them, and acquire the skills to use them effectively.

Problem-based research methods serve to actively master the educational material by applying previously acquired knowledge and skills to problem situations created during the lesson in a consistent and goal-oriented manner. This group of methods prepares the ground for students' intellectual development, development of creative and independent thinking skills, analysis of problematic situations and finding the most optimal way out of them, and getting the goal right.

When using the interview method of the nature of problem-based research, which belongs to the group of problem-based research methods, problem situations are first created, a chain of problematic questions prepared in advance is described, students are encouraged to think logically together with the teacher, create and prove educational hypotheses, during the interview process it is possible to find answers to problematic questions.

In the problem story method, the teacher creates problem situations in the process of learning a new topic, in cooperation with students, it is possible to find answers to problematic questions in the process of the story, to create and prove educational hypotheses, and based on the answers of students, problems are solved.

When using the problematic-practical method, problematic tasks are created, experiments are conducted on this basis, educational hypotheses are formed for solving problematic situations, and educational and research experiments are conducted, and problems are solved by describing the results and generalizations of the study will be resolved.

Published: January 30, 2024 | Pages: 53-57

In the following years, classes using problem-based methods were given a new name ("Storm of thought" by B.R. Kadirov), ("Brain attack", "Clash of ideas", "Battle of ideas" by V.M. Karimova, F.A. Akramova), ("Brain attack" J.G`. Yoldo Shev) naming became a painting.

A lesson using the problem-based method ("Brainstorming") is organized based on the following stages:

I - stage. Forming equal number of small groups of students who are psychologically close to each other.

II - stage. Distribute educational assignments consisting of problematic questions to small groups and introduce them to the didactic purpose of the assignment.

III - stage. Directing students' cognitive activity to solving educational problems.

IV - stage. Listening to students' information on solving problem situations.

V - stage. Educational debate and discussion between small groups.

VI - stage. Making a general conclusion.

In "Brainstorming", students apply their previously acquired knowledge in new situations, expand and deepen their knowledge, and acquire methods of mental activity.

In short, interactive and problem-based research methods prepare the ground for students' independent thinking and creative research, and are also important in improving knowledge efficiency.

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