

THE EFFECT OF USING INTERACTIVE METHODS IN TEACHING PHYSICS IN SECONDARY SCHOOL

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Abstract. *The principle of interactive education is that the learning process occurs in conditions of constant, active interaction. The effect of interaction between the teacher and students increases, students collaborate and teach the drug to a friend. The lesson becomes clear, specific goals, and all work is based on feedback. At the same time, motivation to study science increases, the student's personality, creative skills, thinking and speaking skills develop. This paper provides information on how using an innovative method of teaching dag in the classroom can engage non-object-savvy students and make dag very interesting.*

Key words: *interactive methods, modern pedagogical technologies, brainstorming, work in small groups, discussion, problem situation, guiding text, project, methods such as role-playing games, physics, formulas, physical units, speed.*

ЭФФЕКТ ИСПОЛЬЗОВАНИЯ ИНТЕРАКТИВНЫХ МЕТОДОВ ПРИ ОБУЧЕНИИ ФИЗИКЕ В СРЕДНЕЙ ШКОЛЕ

Аннотация. *Принцип интерактивного образования заключается в том, что процесс обучения происходит в условиях постоянного, активного взаимодействия. Эффект от взаимодействия преподавателя и учеников возрастает, ученики сотрудничают и обучают препарату друга. Урок становится четким, цели конкретными, и вся работа строится на обратной связи. При этом повышается мотивация к изучению науки, развиваются личность учащегося, творческие способности, навыки мышления и речи. В этой статье представлена информация о том, как использование инновационного метода преподавания дага в классе может привлечь учащихся, не умеющих предметно, и сделать даг очень интересным.*

Ключевые слова: *интерактивные методы, современные педагогические технологии, мозговой штурм, работа в малых группах, дискуссия, проблемная ситуация, руководящий текст, проект, такие методы, как ролевые игры, физика, формулы, физические единицы, скорость.*

The great task of civilization, is to teach a person to think.

T. Edison

Innovation is a Latin word meaning innovation, introduction, change. In the broadest sense, any other work in the education system is a pedagogical innovation. It is necessary to know and

master activating teaching and learning methods using advanced pedagogical technologies. Today, about 80 innovative technologies and methods are used in the educational system of continuing education in Uzbekistan.

In teaching physics, in improving students' knowledge, in clearly explaining topics, the teacher must show a creative approach, and it is advisable to effectively use interactive methods. Currently, interactive methods are widely used, which are an element of advanced pedagogical technologies. The use of interactive methods in physics classes increases students' efficiency and interest in science. Interactive comes from the English word "inter", which means "between", "between", that is, the activity between two teachers and students. The interactive method is the activation of knowledge acquisition by students, the development of personal qualities by increasing activity between students and the teacher in the educational process.

The interactive method in education means strengthening and activating the relationship between student and teacher. These techniques help enhance lesson effectiveness through collaboration. They encourage students to think independently. Interactive means increasing the effectiveness of the lesson based on mutual cooperation between teacher and students, teaching the ability to express an independent opinion, learning through feedback and discussion. Each student tries to find the answer to the goal independently, in pairs, in groups, thinks, writes, speaks, tries to clarify the question through evidence and arguments. This will remain in the memory of the participants for a long time. He can use a critical and analytical approach to learning new information. The teacher only guides, organizes and observes. There are several types of interactive methods, some of which are discussed below. Examples of implementation of the Charkspalak technology and its use in physics are given.

Charkhpalak technology.

Description of technology. This technology is used to teach students to remember covered topics, think logically, independently answer questions correctly and conduct self-assessment, and in a short time the teacher will evaluate the acquired knowledge of all students. grade.

The purpose of the technology is to teach students to think logically during the lesson, independently express their thoughts, evaluate themselves, work individually and in groups, respect the opinions of others, and choose the right one from many. opinions.

Use of Technology: In all types of learning activities, technology is used at the beginning of a lesson or at the end of a lesson, or at the end of any section of a subject, to assess students' level of mastery of a topic, repetition, reinforcement or intermediate level and are intended for final control. This technology can be organized in the training process or as part of it in an individual, small group and team.

Training procedure:

- students are distributed into groups (depending on conditions);
- students are introduced to the requirements and rules of training;
- handouts are distributed to group members;

within •the time set by the teacher, the assignments in the handouts are completed by group members individually;

- each group member writes the group number in the right corner of the handout on which he worked, and in the left corner draws any of his symbols;

- completed handouts are transferred to other groups around the clock;
- individually completed task sheets of other group members are studied individually by new group members and changes are made;
- materials studied and modified by teams are again exchanged between groups in the direction indicated above (this process continues depending on the number of groups);
- after the last exchange of materials, each group and each group member selects the materials they completed for the first time (based on the group number and the symbols they posted);
- compare and analyze corrections of other group members to the answers of each group member;
- the teacher reads the tasks given in the handout and, together with the team, determines the correct answers, or (depending on the circumstances) the tasks in the handout are highlighted on the screen and the correct answers are read out on the screen
- Each student identifies the differences between the answers marked as correct, scores the required points, and evaluates himself.
- the teacher reads the tasks given in the handout and, together with the team, determines the correct answers, or (depending on the circumstances) the tasks in the handout are highlighted on the screen and the correct answers are read out on the screen
- Each student identifies the differences between the answers marked as correct, scores the required points, and evaluates himself.
- After students have determined their grades or scores, the teacher collects the completed work and copies the grades (scores) into the group journal.

Below are two examples of using Charxpalak technology in physics lessons.

This method physics in their classes from use goal - lesson which as no matter where, don't miss it, at the lesson He is a teacher o ' student in cooperation Job organize this achieve In a physics lesson, the teacher must attract students to current tasks, intensify their movement and, as a result, ensure their assimilation. In this case, the teacher acts only as a leader (manager, observer, conclusion). Thanks to this method, students develop independent thinking skills, laying the foundation for the development of free thinking, independent decision-making, the ability to control emotions, critical and positive thinking. Another advantage of this method is the possibility of student self-assessment. Currently, self-assessment is one of the features of the use of interactive methods. Using this method in physics lessons gives good results. It is good if this method is carried out mainly at the end of a chapter or section.

Everyone teaches everyone

“Everybody teach everybody” is a teaching style that allows students to become teachers and share knowledge with their peers. The purpose of this method is to provide students with the maximum amount of information necessary in the learning process, and at the same time, arouse the student's interest in receiving and providing information. Also, a student who has received a volume of information transfers it to as many friends as possible over a certain period of time.

Application:

- arouse students' interest in receiving and providing information;

- listen carefully and remember information;
- listen to the partner's information and look for another partner.

Advantage:

- express your opinion in lon;
- develop the level of listening and memorization;
- generates interest in science or topic.

"Project" method

The "Project" method is the collection of data, research and implementation of students' work individually or in groups over a certain period of time.

Structure of the "Project" method:

1. Data collection
2. To make a plan.
3. making decisions
4. Do it.
5. Check.
6. Conclusion.

For example, the topic "Definite and chaotic movement of molecules."

1. Collect information about molecules.
2. Creates a plan that is relevant to the topic.
3. Based on the plan, systematizes information and makes a decision on preparing a report.
4. Explains and illuminates the topic. Formulas are used. Scientifically proven.
5. Explores and explains a topic using formulas and laboratory work. For example: water is poured into a glass, and then paint drips. The process was observed.
6. The above thoughts and experiences draw and formulate their conclusions.

Cluster method.

Cluster is an English word (cluster) meaning "head", "one tile", "butt". A cluster is an uneven form of free and open thinking on a given topic.

Step 1: The main concept of the new topic is written in the form of a circular (elliptical) drawing. For example, if the new topic is "Temperature," you are asked to draw and write the following in your notebooks.

Pyramid Game - In this game, divide students into two groups and complete the task of writing the name of your physical quantity and physical phenomenon in the order they appear on the pyramid shaped chart. Whichever team wins will be a surprise. This game takes 1-2 minutes and can be used in general lessons.

1. Work
2. Road
3. Time
4. Mass.
5. Speed

Think, search, find. In this game, students are given signs of physical quantities and use them to write formulas. Both groups find fault with each other. It is advisable to play this game for 1-2 minutes during the lesson.

Cubic method

Using the cube method when reinforcing a lesson gives good results.

Step 1: Once the topic is introduced to the students, they develop some idea about it. The formed concept (size, tool, unit of measurement) is proposed to be written as follows.

1. Describe
2. Compare
3. Imitate
4. Analyze
5. Use it
6. Useful and harmful aspects.

For example: after completing the topic “Force”, if you use the cubic method, students will write approximately like this.

1. Strength
2. Big, small
3. Beat, strong, weak
4. The reason that gives the body speed
5. The dynamometer determines the strength of the arms. Determines the traction force of the tractor.
6. I can't walk without friction.

Without gravity, we cannot live on the surface of the Earth.

- Strong wind, strong flood, strong explosion due to volcano, many disasters occur as a result of earthquakes and strong earthquakes.

Summary

If every subject teacher works more on himself and conducts lessons using interactive methods, students' interest in the subjects will increase. At the same time, students learn to think freely, make independent judgments and prove tasks in practice. When using the interactive method, the thought process is enhanced. They agree with the people around them and with their classmates, and learn to respect the opinions of other people. The use of didactic games in lessons helps students develop harmony, cohesion and a friendly atmosphere in the classroom. In short, the effectiveness of education will rise to a new level only if a new approach is applied to the educational process, creativity and innovation are applied.

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