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INTERACTIVE METHODS USED IN TEACHING NATURAL SCIENCES

Kukonboyeva Shakhlo Rafikjonovna
Associate Professor of the Department of
Physics and Astronomy, Kokand State University,
PhD in Pedagogical Sciences

Abstract: The article highlights the essence, significance, and role of interactive methods used in teaching natural sciences in enhancing educational efficiency. The use of interactive methods increases students' classroom engagement, serving to effectively assimilate knowledge and improve the quality of education. The analysis covers how interactive methods foster students' independent thinking, communication skills, ability to analyze problem situations, and the formation of practical skills.

Keywords: interactive methods, natural sciences, pedagogical technologies, educational efficiency, independent thinking.

In the modern education system, increasing students' engagement in the learning process, developing their independent thinking, and ensuring lesson efficiency are among the most critical tasks. For this reason, great emphasis is placed on introducing modern pedagogical technologies and interactive methods into the educational process. Particularly in teaching natural sciences, the use of interactive methods serves as an effective tool in connecting students' theoretical knowledge with practice.

Interactive methods transform students into active participants in the lesson process. Through such methods, students acquire the skills to think freely, analyze problem situations, work in teams, and justify their opinions. Interactive methods increase students' interest in lessons and develop their creative and logical thinking. Utilizing these methods in the modern educational process serves not only to impart knowledge but also to form students' life skills based on a competency-based approach.

"**Working in Small Groups**" Method. In this method, the classroom is divided into several small groups. A problem is presented to them in the form of a task, a confusing puzzle, or a question. It is well known that in society, problem-solving is achieved not through an individual alone, but through collective effort within an organization. In this regard, group work lays the foundation for individuals to find their place in a future workforce team. When working in groups, low-achieving students receive the necessary support not only from the teacher but also from the high-achieving peers within their group. The small group work method can occupy either a specific part or the entirety of a lesson within the traditional classroom system. Implementing group-based learning at the beginning of the 5th or 6th grade may not yield high efficiency. This is because overcoming a psychological barrier is required when transitioning from individual work to group work. To develop this skill, students need to be psychologically prepared through a specialized "Group Work Guidelines" notice.

This notice should include guidelines such as:

- listen to your classmate in the group carefully and try to understand their point of view;ask for clarification if you do not understand;

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- learn to express your thoughts briefly and clearly;if you disagree with your classmate's opinion, provide justification for your reasoning;
- if they do not agree with your opinion, find out the reason;
- if your opinion is proven wrong, acknowledge your mistake;
- remember that resolving the problem depends on every member of the group.

When forming groups, it is essential to rely on the principle of voluntariness. It is not recommended to place students who do not get along or communicate well with each other in the same group. Groups can be: a) of varying or uniform knowledge levels; b) permanent or temporary. In this context, a student can leave their group and switch to another at any time. In the 6th grade, maintaining a permanent group composition is not advisable.

The advantage of group-based teaching within the traditional classroom system is that responsibilities such as monitoring, evaluating, and instructing, which are normally performed by the teacher, are transferred to the students. This allows the teacher to focus more on organizing the lesson.

The weaknesses of this method include the significant amount of time required to prepare didactic materials and the challenge of maintaining a continuous working atmosphere both within and between the groups.

Here are several tips for working in small groups:

give clear instructions to the group;

ensure that the participants possess sufficient knowledge and skills to complete the tasks;

explain how the outcomes of the group work will be presented. A group leader should be elected;

if a member of the group wishes to speak, they must first be selected by the group;

be prepared for the noise that naturally arises during the teamwork process;

communicate, observe, and continuously evaluate all processes within the group.

Peer Teaching (Mutual Teaching) Method. One of the best ways to learn is to try to teach something to others. In this process, a person mobilizes all of their knowledge and capabilities, approaching the task creatively.

Implementation Procedure:

1. The classroom students are divided into groups of approximately 6 people each.
2. Each group is assigned to study a specific concept, phenomenon, or law within the topic, or to perform a practical task. A duration of 5–10 minutes is allocated for this study phase.
3. Subsequently, half of the members from each group are taken to form new groups.
4. The first part of the students in the new group explains the knowledge they have acquired to the second part of the group within 2–3 minutes. In this process, one student must explain it individually to another student. The teacher walks around, observes this activity, and notes down any identified shortcomings using a chosen method.
5. Once the allotted time expires, the teaching and learning students switch their roles.
6. At the end of the lesson, the teacher provides clarifications regarding the mistakes made by the teaching students.

Peer Questioning (Mutual Questioning) Method. In this method, two students read a specific text related to the topic, stop after each section or paragraph, and ask each other relevant questions regarding the read material. After the implementation procedure of this method is demonstrated to the classroom, the students are divided into pairs. The teacher monitors their work in the designated

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order and provides appropriate assistance. The peer questioning method can also be conducted between small groups.

Discussion Lessons. The implementation sequence of such lessons consists of four stages.

a) *Affirmation (Confirmation).* This involves indicating that the stated opinion or demonstrated experiment has been understood, and providing a critical thought or gesture to confirm it. For example: “I have witnessed a similar phenomenon.”

b) *Questioning.* It is well known that students discuss their own questions with much greater interest than those of the teacher. Therefore, strive to engage them in asking discussion-oriented questions. To achieve this, the following types of questions can be posed: “What aspects of the phenomenon observed in this experiment remain unclear? What unresolved questions are left?”

c) *Visual Cues and Gestures (Signaling).* Since a teacher's direct intervention in a debate can often limit students' free thinking, it is advisable to guide the discussion without speaking, using specific signs and gestures instead. These cues can be agreed upon beforehand through hand movements or facial expressions. For instance, the teacher may say: “Everyone look down and close your eyes. Whoever did not understand the topic, raise your head and look at me.” In this process, strict confidentiality is maintained, and the students' names are never called out. Based on the number of students who did not understand, a decision is made on whether a re-explanation is necessary or if the issue should be addressed later during consultation classes.

d) *Maintaining Silence (Pausing).* After posing a question, allow students a certain amount of time for creative thinking. Maintaining silence for a few seconds provides a significant opportunity for this.

The use of interactive methods in teaching natural sciences is of great importance in enhancing the efficiency of the educational process. Such methods boost students' classroom engagement and develop their skills in independent thinking, communication, problem analysis, and teamwork. Lessons organized on the basis of an interactive approach help students understand the topic more deeply and apply their knowledge in practice.

Utilizing interactive methods creates opportunities to organize lessons in an interesting and meaningful way. This increases students' interest in natural sciences and develops their creative and logical thinking. Interactive methods are an essential component of modern pedagogical approaches in teaching natural sciences, serving as an effective tool for improving the quality of education and developing students' knowledge and competencies.

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