

APPLICATION OF MODERN PEDAGOGICAL TECHNOLOGIES IN THE LECTURES OF THE SCIENCES OF SOIL SCIENCE AND AGROCHEMISTRY

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Abstract. *The article describes some modern methods, their description, and application issues that are suitable for conducting lectures on the courses of soil science and agrochemistry.*

Keywords: *educational technology, unconventional methods, method, lecture, question and answer, brainstorming, strategy.*

Today, the use and application of modern pedagogical technologies based on new approaches in the education system serve as the most important basis for training competitive personnel in the field of comprehensively competitive mature industries. In particular, solving the problems of increasing the productivity of the irrigated soils of our Republic and increasing the weight of the products grown through this mainly depends on the potential of soil scientists and agrochemists who are preparing for the fields, and their training as highly qualified personnel in the higher education system is closely related to the used educational technologies.

These cases testify to the relevance of studying and analyzing the educational and training processes carried out in higher education institutions in the example of soil science and agrochemistry from a comprehensive theoretical and practical point of view, in the education of a creative person, the wide use of modern pedagogical technologies is recommended in the course of the lesson for this activity. Usually, in soil science and agrochemistry, the technologies related to the cooperation and group work of students mainly give important results in seminar classes, and in lecture classes, the teacher makes the student interested, concentrates, accelerates the thinking process, and makes it easy to learn. It would be appropriate to use an organizer and technologies that allow mastering and, in turn, quickly repeat the acquired knowledge and can be tested by the teacher. Below, we will first focus on the technologies of lecture classes.

"Brainstorming" method is a method that collects free thoughts and opinions expressed by students on a problem and comes to a certain solution through them. Developed by Alex Osborne (USA) in 1930. There are written and oral forms of the "Brainstorming" method. Each of the learners verbally expresses their opinion to the question posed by the teacher in oral form. Learners express their answers clearly and concisely. In the written form, students write their answers to the given question on paper cards in a short and visible way. Answers are attached to the board (using magnets) or pinboard (using pins). In the written form of the "Brainstorming" method, there is an opportunity to group the answers by certain characters. This method, when used correctly and positively, teaches a person to think freely, creatively and non-standardly. When using the "Brainstorming" method, there is an opportunity to involve all learners, including the formation of a culture of communication and discussion among learners. Learners develop the ability to express their thoughts not only verbally, but also in writing, logical and

systematic thinking. The lack of evaluation of the expressed opinions leads to the formation of different ideas among students. This method serves to develop creative thinking in students. The "Brainstorming" method is implemented depending on the goal set by the teacher:

1. When the goal is to determine the basic knowledge of learners, this method is implemented in the introductory part of the lesson.

2. Repetition of the topic or connection of one topic with the next topic is carried out in the transition to a new topic.

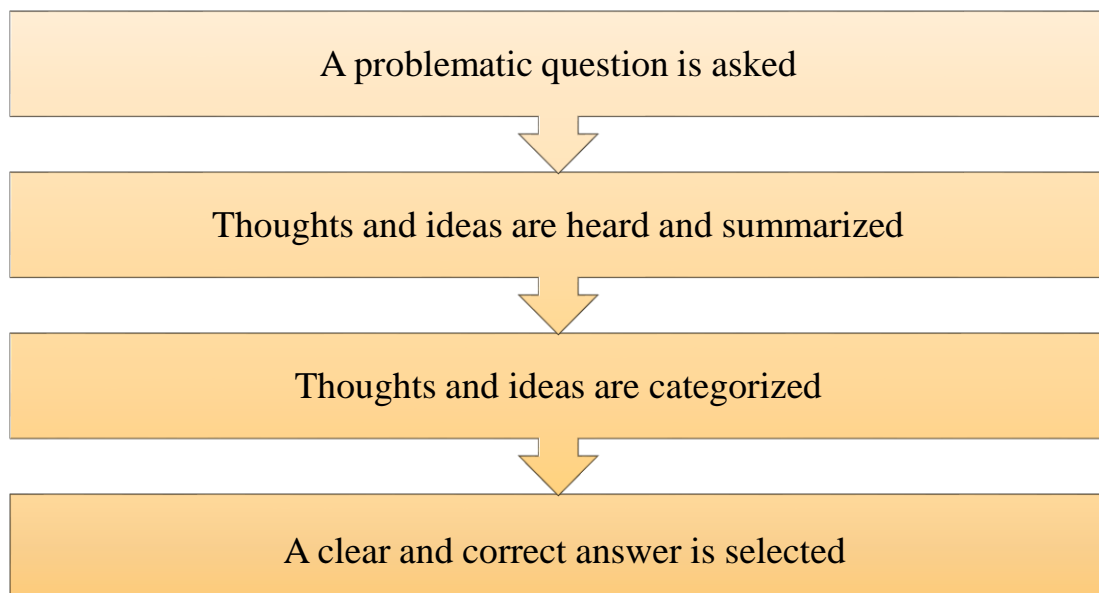
3. When the goal is to strengthen the topic, it is done after the topic, in the reinforcement part of the lesson.

Basic rules for using the "Brainstorming" method:

1. Expressed opinions are not discussed and evaluated.
2. Any opinions expressed will be considered, even if they are not correct.
3. Every learner must attend.

Below is the structure of the "Brainstorming" method.

The structure of the "Brainstorming" method



The stages of the "Brainstorming" method are as follows:

1. Students are asked a question and they are asked to give their answers (opinion, idea and reasoning) to this question;

2. Learners express their opinions on the question;

3. Students' ideas are collected (on a tape recorder, videotape, colored paper or blackboard);

4. Ideas are grouped by certain signs;

5. A clear and correct answer to the above question is selected.

Advantages of the "Brainstorming" method:

Failure to evaluate the results leads to the formation of different ideas among students;

All learners participate;

Ideas are visualized;

There is an opportunity to check the basic knowledge of learners;

It makes students interested in the subject.

Disadvantages of the "Brainstorming" method:

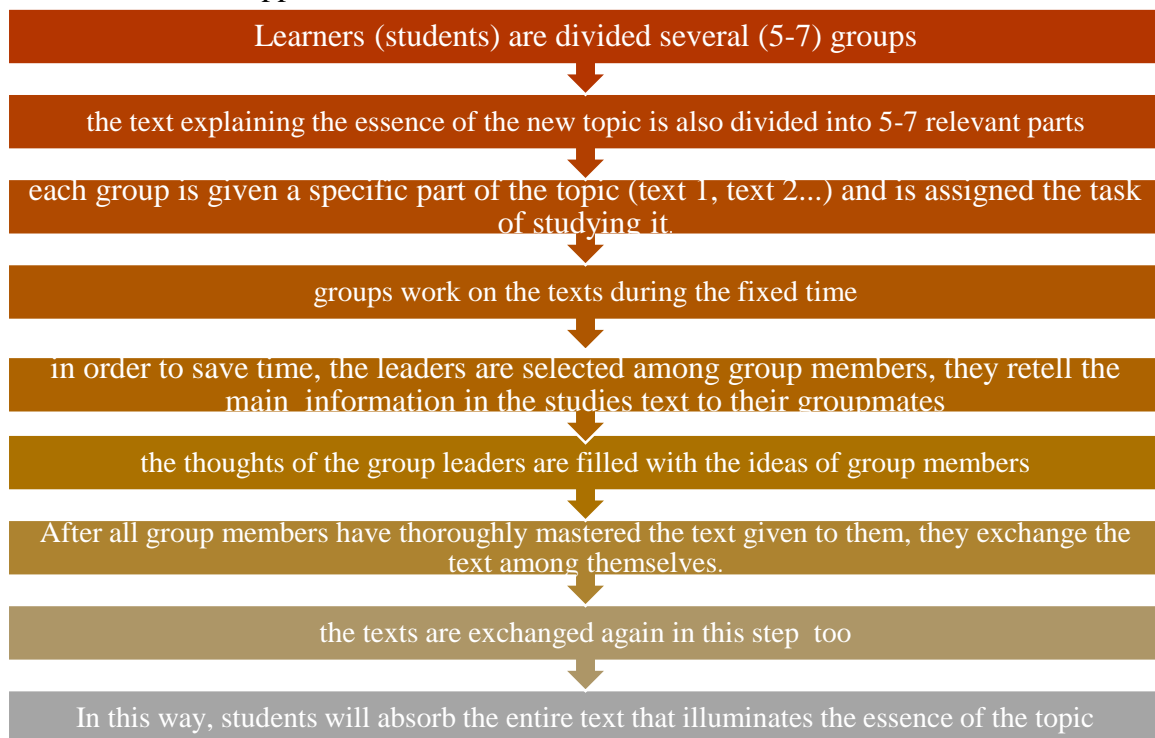
Failure of the teacher to ask the question correctly;

A high level of listening ability is required from the teacher.

Lecture teaching, unlike other forms of education, in traditional education is mainly directed by the teacher, and this situation is not able to attract all the students, their teaching materials are unevenly taught. can lead to many such defects. Therefore, conducting the study of lecture data on the basis of their cooperation with the teacher, as well as on the basis of the organization of mutual cooperation, ensures the active participation of each student in the lesson process and thereby promotes their mastery at a high level. allows to provide. As such technologies, the use of the "Zig-zag" method in teaching the topic "Soil fertility" of the soil science course is highly effective.

Zig-zag method. The method serves to work with pupils (students) in small groups, to ensure their quick and thorough mastering of the subject. The advantage of the method is that when using it: 1) pupils (students) develop the ability to work as a team (group); 2) time spent on mastering the subject is saved.

The method is applied as follows:



In the order indicated above, students will learn a whole text that illuminates the essence of the topic.

In the course of the lecture, mastering the analysis of concepts along with basic phrases is also important. Mastering them will lead students to have a certain vision. Therefore, the use of developed methods in this regard is an additional opportunity.

"Analysis of concepts" method. The purpose of the method: this method is used to determine the level of mastery of basic concepts of the subject by students or participants, to independently check and evaluate their knowledge, as well as to diagnose the level of initial knowledge on a new subject.

Procedure for implementing the method:

participants are introduced to the training rules;

students are given handouts with names of words and concepts related to the topic or chapter (individually or in groups);

students provide written information about the meaning of these concepts, when and in what situations they are used;

after the end of the set time, the teacher will read out the correct and complete explanation of the given concepts or show it through a slide;

each participant compares his personal attitude with the given correct answers, identifies the differences and checks and evaluates his level of knowledge.

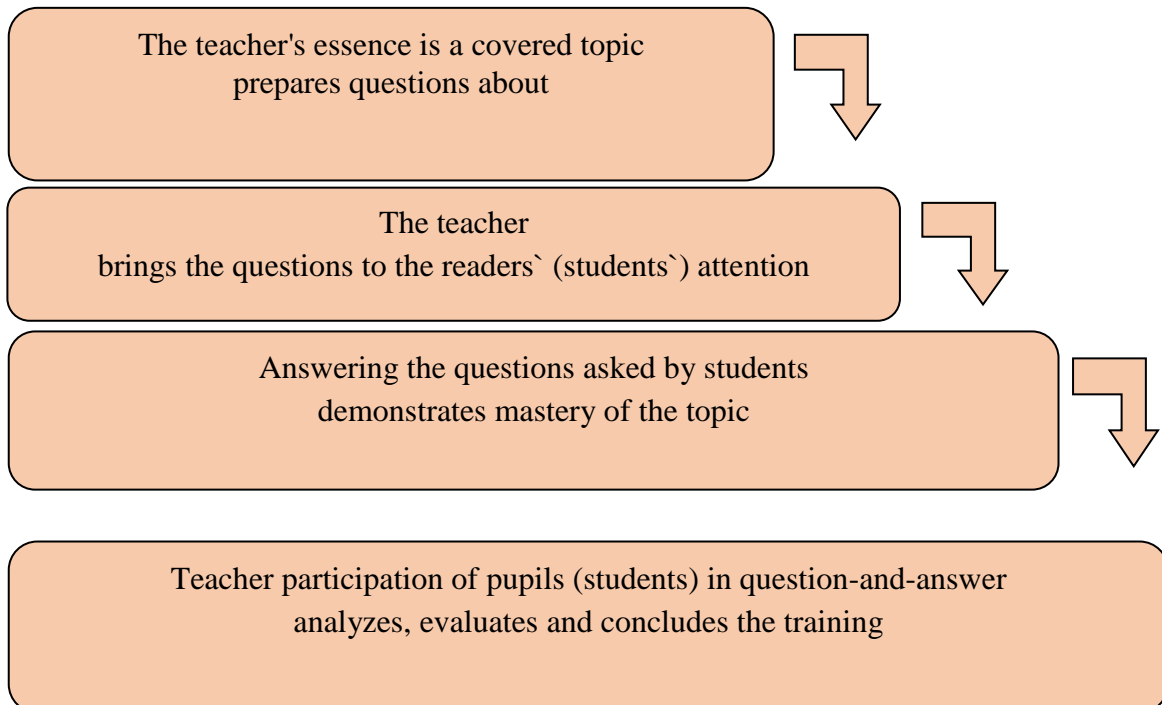
Example: "Analysis of key concepts in the module"

Concepts	What do you think this concept means?	Additional information
Soil fertility		
Elements of soil fertility		
Relative soil fertility		
Factors limiting productivity		

* Note: The second column contains comments from participants

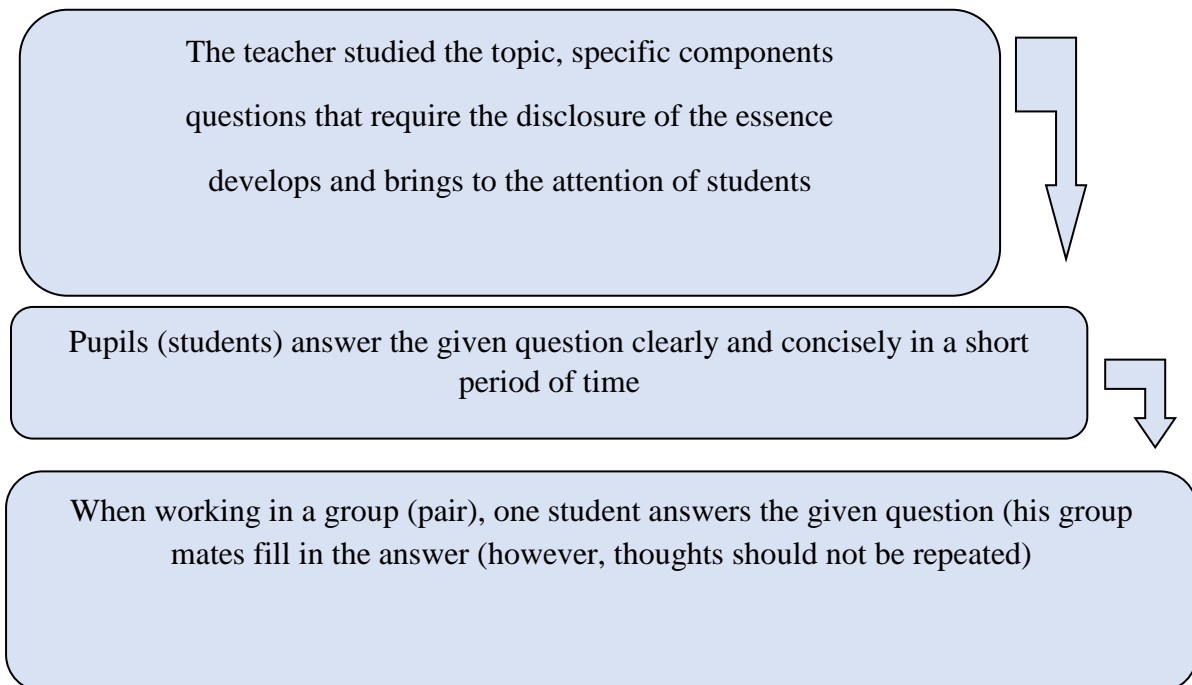
"Question - answer" method. The method helps to determine the level of mastery of the subject by students. The effectiveness of its application depends on the fact that the questions and answers are expressed in a clear, concise and understandable way, and are relevant to the topic.

The application of the method in the educational process is carried out in the following order:



"Blitz survey" method. "Blitz-survey" (English "blitz" - quick, instant) method is a method that requires short, clear and concise answers to the given questions. In educational institutions, questions according to this method are mainly asked by the teacher.

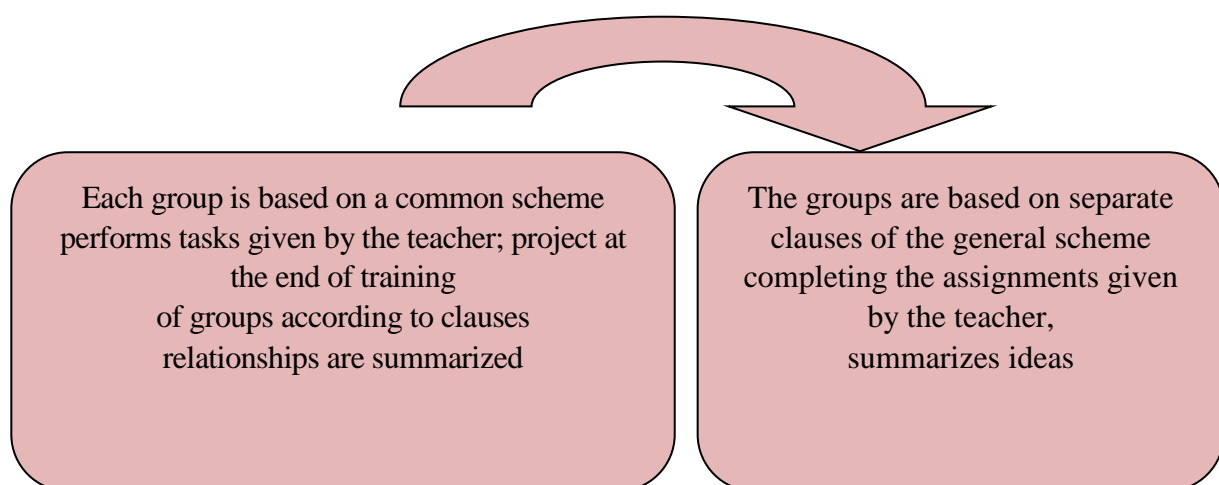
The answers to the given questions can be returned collectively, in groups, in pairs or individually. The form of the answer is determined according to the type of training, the complexity of the subject being studied, and the coverage of the pupils (students).



In the application of the method, the basic concepts of the topic, the essence of the main ideas can be explained by students (students) verbally, in writing or in the form of images (tables, diagrams).

"I know. I want to know. I learned" (BxBxB) method. The method allows students to assess their level of knowledge on specific topics. When using it, students can work in a group or team. When working in a group, at the end of the training, the work done by the groups is analyzed.

Group activities can be organized as follows:

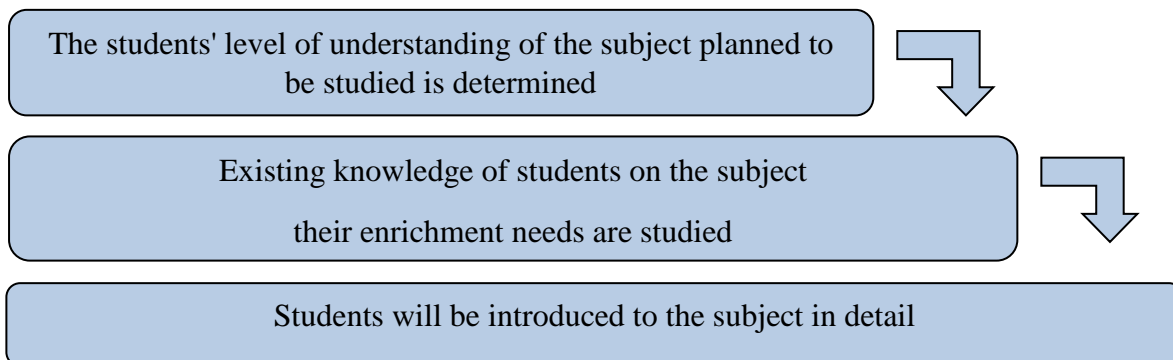


Educational activities are organized on the basis of the following scheme, which is reflected directly on the blackboard or worksheet:

B.B.B. schedule

The most basic concepts	I know	I want to know	I learned
Soil fertility			
Types of soil fertility			
Natural soil fertility			
Artificial soil fertility			
Effective soil fertility			
Potential soil fertility			
Relative soil fertility			
Elements of soil fertility			
Factors limiting soil fertility			

The use of the method is carried out on the basis of three stages, namely:



The details of the steps taken are as follows:

- 1) students are assigned to small groups;
- 2) the level of students' (students') understanding of a new topic is studied;
- 3) the concepts noted by the students are recorded in paragraph 1 of the project;
- 4) there are students (students) on a new topic their needs to enrich their knowledge are studied;
- 5) statement as the needs of students the concepts made will be recorded in paragraph 2 of the project;
- 6) the teacher informs students of general information about the new topic;
- 7) new concepts acquired by students are determined;
- 8) the stated new concepts are recorded in paragraph 3 of the project;
- 9) at the end of the training, a single project will be created

Using two or three of the above-described educational methods in coordination during the lecture brings positive results. This situation is formed by the pedagogical skill of the teacher. Also, the use of the described methods in practical training classes on the subject leads to students' perfect mastery of the subject.

According to the above, in the teaching of soil science and agrochemistry, the use of methods that can be used mainly in lectures gives a high result. In addition to these, the use of some graphic organizers also has a more positive effect on increasing the efficiency of the above technologies.

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