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**APPLICATION OF MODERN PEDAGOGICAL TECHNOLOGIES IN THE LECTURES OF THE SOIL SCIENCE COURSE****U.B. Mirzayev***Ph.D. Associate Professor Fergana State University, Uzbekistan***ABOUT ARTICLE****Key words:** Educational technology, non-traditional methods, method, lecture, question and answer, brainstorming, strategy.**Abstract:** The article describes some modern methods, their description and application issues that are suitable for conducting lectures on the soil science course.**Received:** 05.05.2023**Accepted:** 10.05.2023**Published:** 15.05.2023**INTRODUCTION**

The main goal of the reforms being carried out in our country is to create a healthy and well-educated generation in our country with high spiritual and moral qualities.

The future of Uzbekistan, its prospects, first of all, depends on the education of young people, their healthy upbringing, education in the spirit of national ideals, national ideology and loyalty to the motherland. one of the urgent tasks. Fundamentally reforming the education system in Uzbekistan, raising it to the level of modern requirements, raising a mature generation for the future has become a priority of state policy.

These cases testify to the relevance of studying and analyzing the educational and training processes carried out in higher educational institutions in the example of the science of soil science in all theoretical and practical terms, and the high demands placed on the individual, i.e. mature, intellectual, creative For this activity in the education of personality, the wide use of modern pedagogical technologies is recommended in the course of the lesson.

Usually, in soil science, the technologies related to students' cooperation and group work mainly give important results in seminar classes, and during lectures, the teacher makes it possible to interest the student, concentrate his attention, accelerate the thinking process, and make it easy to learn. it would be appropriate to use the organizer and technologies that can be tested by the teacher and repeat the acquired knowledge quickly. 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 come 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, it is possible to involve all learners, including the culture of communication and discussion among learners. Learners develop the ability to express their thoughts not only verbally, but also in writing, and the ability to think logically and systematically. 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:

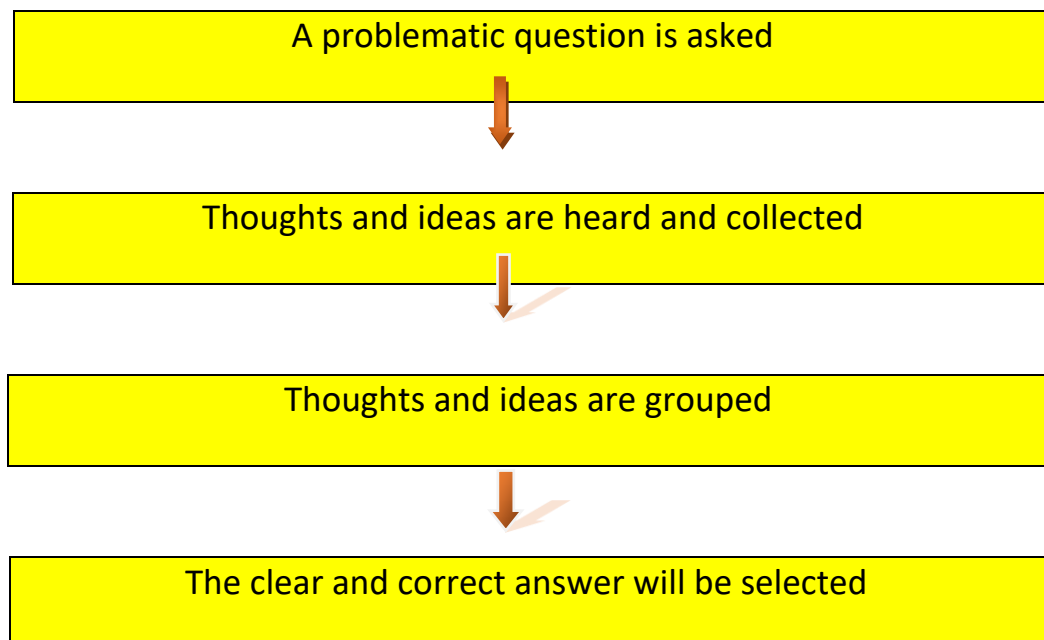
1. When the goal is to determine the basic knowledge of learners, this method is implemented in the introductory part of the lesson.
2. When repeating a topic or linking one topic to the next, it is done in the transition to a new topic section.
3. When the goal is to strengthen the learned topic, it is carried out in the reinforcement part of the lesson after the topic.

Basic rules for using the “Brainstorming” method:

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

Below is the structure of the “Brainstorming” method.

The structure of the “Brainstorming” method



The steps of the “Brainstorming” method are as follows:

1. Learners are asked a question and asked to give their responses (opinions, ideas and reasoning) to that question;

2. Learners express their opinion on the question;
3. Learners' ideas are collected (on tape, video tape, colored paper or blackboard);
4. Ideas are grouped by certain symbols;
5. A clear and correct answer to the above question will be 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:

Inability to put the question correctly by the teacher;

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 "Main morphological features of the soil" 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:

Pupils are divided into several (5-7) groups
The text that illuminates the new topic is also related to chapters 5-7
Each group is given a specific part of the topic (text 1, text 2,...etc.) and is assigned the task of studying it.
Groups work on the text during the allotted time
In order to save time, leaders are chosen from among the group members, who will tell the main information about the studied text to the group members.

The opinion of the leaders is supplemented by the members of the group
After all the groups have thoroughly mastered the text given to them, the texts are exchanged among the groups
At this stage, texts are exchanged between groups
In this example, students will learn a whole text that illuminates the essence of the topic

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 aim 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 preliminary knowledge on a new subject.

Method implementation procedure:

- participants will be 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.

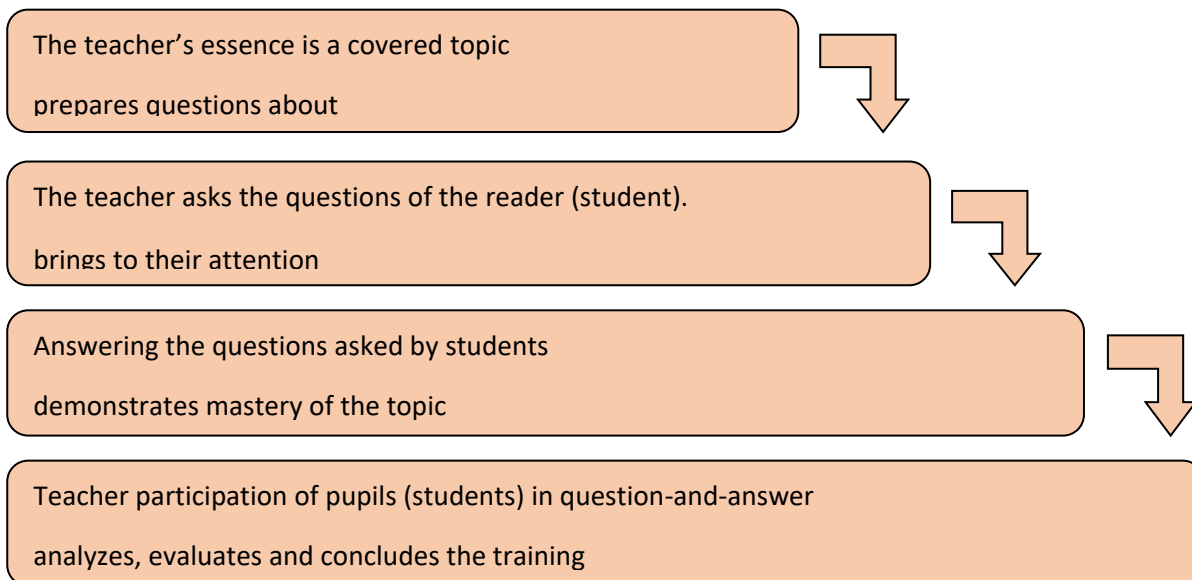
Example: “Analysis of the main concepts in the module”

Concepts	What do you think this concept means?	Additional Information
Morphological characteristics of the soil		
Morphological elements of the soil		
Soil section		
Soil genetic layers		

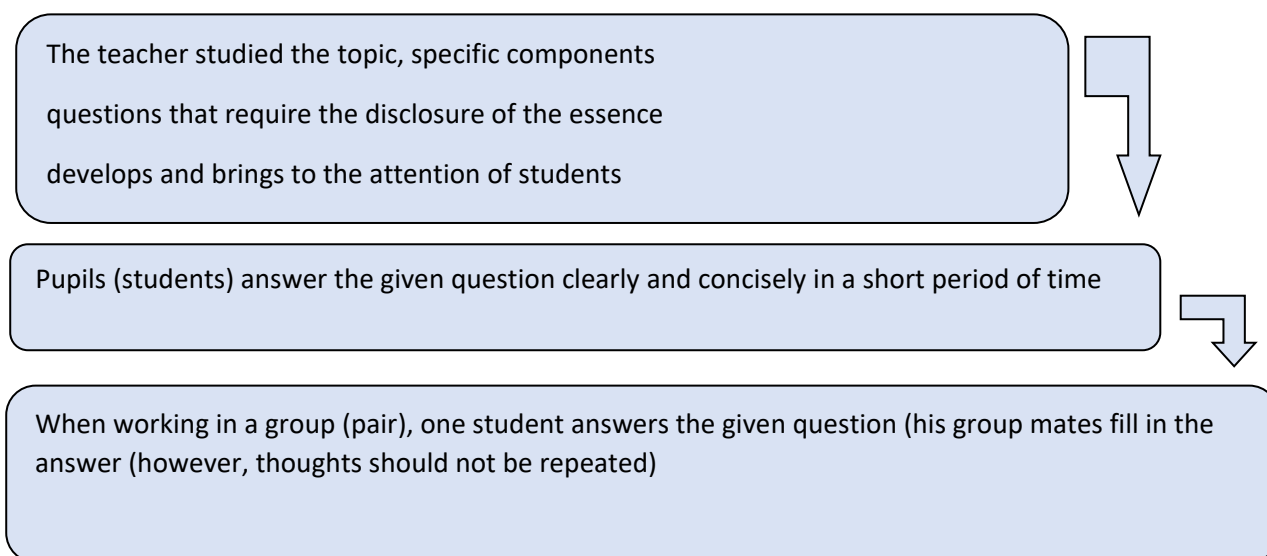
*Note: In the second column, the participants give their opinion

“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:



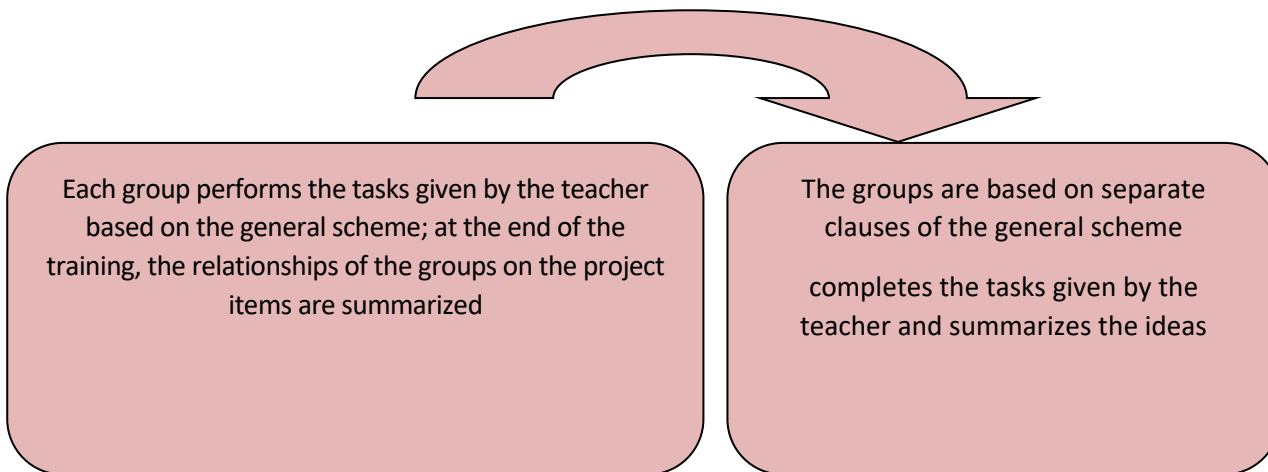
“Blitz survey” method. “Blitz-survey” (English “blitz” - quick, instant) method is considered a method that requires short, clear and concise answers to the given questions. In educational institutions, questions according to this method are mainly asked by the teacher. The answers to the given questions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

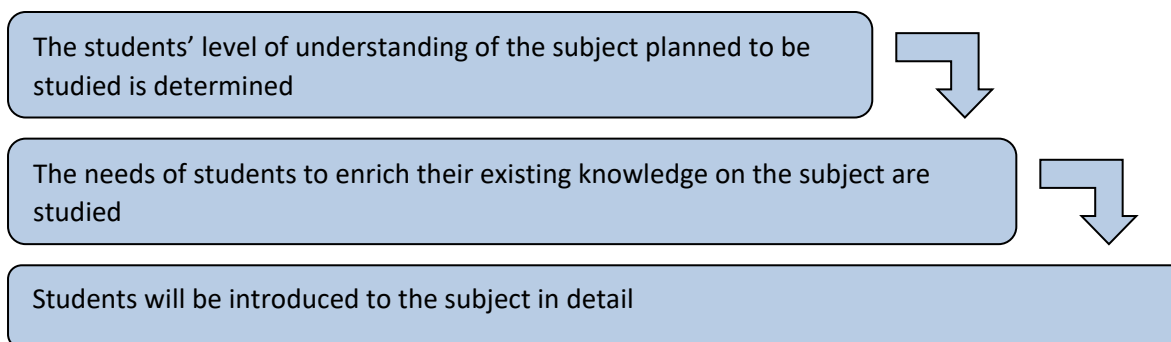
Group activity can be organized as follows:



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

I know	I want to know	I found out

The use of the method is carried out on the basis of three stages, i.e:



The details of the steps 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.

When conducting lectures, especially for young specialists, drawing up a technological map of teaching and training and conducting training on this basis leads to high results. For this purpose, it is appropriate to make maps as follows.

Teaching technology of lecture training

Time - 80 minutes	Number of students: 25
Form of training	Visual lecture, two-way analysis
The plan of the lecture	<ol style="list-style-type: none"> 1. Morphological structure of soil. 2. Soil section and genetic layers. 4. Transition from layer to layer in the section 5. Color of soils.

	<p>6. Soil structure.</p> <p>7. Soil compound.</p> <p>8. New wounds.</p> <p>9. Soil additions.</p> <p>10. The importance of studying soil morphology.</p>
<p>Purpose of training: To study the internal structural structure formed in the process of the formation of complex soil morphology or external appearance and to create an idea about it in students</p>	
<p><i>Pedagogical tasks:</i></p> <ol style="list-style-type: none"> 1. Understanding soil morphology 2. To study the cross-sectional structure of the soil 3. Depending on the morphological characteristics of the soil, it is possible to determine the boundaries of soil types and types of the process of soil creation. 4. Morphological features of the soil include soil cross-section, genetic layer, soil thickness, color, structure, mechanical composition, joints, new wounds and joints. 	<p><i>Results of educational activities:</i></p> <p>Talaba:</p> <ol style="list-style-type: none"> 1. They learn the different aspects of the morphological elements and signs of the soil. 2. Automorphic and hydromorphic soils give an idea of the cross-sectional structure. 3. They form an idea about the cross-sectional structure of the soil. 4. They learn the importance of studying soil morphology in soil diagnostics and acquire the skills to apply their knowledge in practice.
Teaching methods and technologies	In this regard, modern “Brainstorming”, “Zig-zag”, “Blitz-survey’ pedagogical technologies are used..
Teaching tools	Text of lectures, visual materials, video projector, handouts.
Form of education	Team, group and individual forms.
Teaching conditions	Special auditorium equipped with projector, computer technology.

Technological map of the lecture session

Stages time	Activity content	
	Teacher	A student
1- stage, introduction to training (10 minutes).	<ol style="list-style-type: none"> 1.1. The subject, its purpose, and the results expected from the training will be informed. 1.2. Using the “Brainstorming” strategy, tests students' knowledge of the new lesson topic (Appendix 1). 	<ol style="list-style-type: none"> 1.1. He listens and records. 1.2. Answers offensive questions asked by the teacher.

<p>Stage 2 (main 55 minutes).</p>	<p>2.1. He divides the students into groups, gives each of them a separate part of the lecture (Appendix 2), reveals the plan and text of the lecture in the form of individual slides through a video projector.</p> <p>2.1. Each group listens to the answers of the leader and the filler, determines their aspects that need to be filled.</p> <p>2.2. He also listens to the opinions of group leaders and substitutes on the texts of the exchanged lectures. If the aspects that are considered to be initially filled are filled by subsequent groups, it turns it off from the place it has set.</p>	<p>2.1. He works in cooperation with the group on a given topic, expresses his thoughts and comments, complements the leader's thoughts.</p> <p>2.2. He listens to the analysis of other group students, writes down their shortcomings and refers them to the group.</p> <p>2.3. Participates in the interpretation and explanation of the new text, fills in the spaces left by the original group members.</p>
<p>Stage 3. Final (15 min).</p>	<p>3.1. Announces the completion of the lecture part of the lesson and distributes B.B.B. asks the groups to fill in the table (Appendix 3).</p> <p>3.2. Receives the completed table from the groups and completes the lecture according to the answers of the students by groups and the organizer's schedule.</p> <p>Determines the most active group and student, motivates and evaluates them.</p>	<p>3.1. The organizer fills in the table.</p> <p>3.2. He listens to the supplementary lecture on the topic by the teacher and writes them down.</p>

Appendix 1

Questions for the “Brainstorming” strategy:

1. What do you understand by soil morphology?
2. According to what do you think soil morphology is formed?
3. Why is it necessary to study soil morphology?
4. Why the morphological appearance of soil types is not the same?

Appendix 2

1. Morphological structure of soil.
2. Soil section and genetic layers.
3. Morphological features of the soil
4. The importance of studying soil morphology.

Appendix 3

B.B.B. schedule

The most basic concepts	I know	I want to know	I found out
Morphological structure of the soil			
Soil cross section and genetic layers			
Transition from layer to layer in the section			
The color of the soil			
Soil structure			
Soil compound			
New wounds			
Soil additives			
The importance of studying soil morphology			

According to the above, in the teaching of soil science, the use of methods that can be used 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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