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# USE OF MODERN INNOVATIVE PEDAGOGICAL TECHNOLOGIES IN TEACHING BIOLOGICAL SCIENCES

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**ANNOTATION**

With the independence of the Republic of Uzbekistan, fundamental reforms were implemented in the economic and social spheres. The main essence of these reforms is the all-round development of the young generation, their spiritual wealth, high potential, knowledge, skills and qualifications.

As science is constantly developing, man is always searching and researching, trying to discover new things and improve the well-being of life. Therefore, today's students also try to acquire deep knowledge of the basics of science, acquire science news, think independently, and become an active participant in the educational process. It is necessary to apply pedagogical technologies to the educational process in order to increase the student's interests, satisfy their needs for learning, and activate their cognitive activity.

**Keywords**: Innovation, technology, methodology, Case study, SCORE, SWOT analysis, Sinkway, Team training.

One of the requirements of the "National Personnel Training Program" of the Republic of Uzbekistan is the use of pedagogical technologies in the educational process, the creation of a new modern method of teaching, increasing the student's interest in a certain activity, developing the culture of communication, students' cognitive activities. development of new methods of activation.

The use of interactive methods of education in the teaching process leads to the increase of student activity, the formation of creative approach skills to learning, helps to reveal one's own abilities and opportunities, forms the ability to work with a team, students are able to understand different situations in different ways. discusses from a point of view, forms decision-making skills, creates responsibility and interest in the results of one's activities, helps to form the ability to focus on problems, transfer one's knowledge to new conditions, new situations.

Today, a number of developed countries have accumulated a lot of experience in the field of education, and the methods that form the basis of this experience are called interactive methods. Below are the interactive methods used in the educational process.

TABLE 1

| | |
|---|---|
| Case study | Concept analysis |
| SCORE | Debates |
| SWOT analysis | 6-3-5 |
| Sinkveyn | Aquarium |
| FSMU | Roundtable methods as well |
| Summary (Resume) | Insert |
| Klaster | Assesment |
| Labyrinth | Fidbek |
| Black box | Pinbord |
| CHarxpalak | Work in pairs |

Interactive technologies mean education that provides active interaction between the learner and the teacher in the pedagogical process.
The main goals of interactive technologies:
☐ activation of mental processes of students;
☐ achieving internal dialogue in the student;
☐ ensuring that information is understandable;
☐ individualization of pedagogical cooperation;
☐ putting the student in the position of an educational subject;
☐ to achieve the establishment of two-way relations between demands.
In the educational process based on interactive technology, the main task of the teacher is to direct and support the process of information exchange. For this, the teacher does the following:
- identifies different attitudes and opinions about the studied fact and event;
- activates the personal experience of the participants, their previously formed knowledge and imagination;
- uses methods and forms that ensure their activity;
- connects theory and practice;
- creates pedagogical situations that encourage participants to exchange experiences;
- ensures that the participants understand each other;
- encourages creativity in participants.
Below, we will briefly familiarize ourselves with the methodology of their practical application.
Cooperative learning technology

The idea of cooperative education has been adopted in different countries, including R. Slavin, professor of J. Hopkins University in America (1990), R. Johnson, D. Johnson (1987), University of California professor J. Aronson (1978), in Israel It was developed by Tel Aviv University professor Sh. Sharan (1988).

Collaborative teaching, developed by American scientists, is mainly aimed at forming students' knowledge, skills and competences mentioned in the DTS and science curriculum. Collaborative teaching, recommended by Israeli and European scientists, in addition to the above, is used by more students. refers to the processing of educational material, the development of design activities, educational discussions and debates.

The idea of cooperative teaching appeared in didactics in the 1970s. Co-teaching technology is widely used in educational institutions of Great Britain, Canada, West Germany, Australia, the Netherlands, Japan, and Israel.

The main idea of co-teaching is not only to complete the tasks together, but also to learn to study together.

Collaborative teaching is to teach every student to daily intense mental work, to think creatively and independently, to educate conscious independence as a person, to create a sense of personal dignity in every student, to share his strength and abilities. It envisages the strengthening of confidence and the formation of a sense of responsibility in education.

Co-teaching technology involves regular and diligent mental work, high-quality performance of educational tasks, thorough assimilation of educational material, partnering with peers, realizing that the success of each student in learning leads to the success of the group. prepares the ground for the organization of mutual assistance.

In order to use cooperative teaching methods in the educational process, the teacher should:

Determine which subjects can be studied using cooperative teaching methods and schedule these lessons;

Preparation of educational tasks recommended for students on this topic and instructions for their implementation;

Designing the type of lesson, lesson structure and progress using collaborative teaching methods;

He should prepare test tasks to control students' knowledge of past and new topics.

When using these methods, it should be taken into account that the activity of group members, the creation of cooperation, the adherence to the principles of communication culture in the communication between them, as well as the students' correct completion of educational tasks in cooperation with their partners .

Thus, group members perform two tasks at the same time:

1) academic assignment - to achieve the intended goal of educational assignments through knowledge and creative research;
2) socio-psychological task - to have a high communication culture during the lesson, to maintain calm manners.

In order for the teacher to use cooperative teaching methods in the educational process, the knowledge, skills, and abilities related to the specific features of this technology, the effective organization of students' independent work, educational debates and discussions, and the students have textbooks, scientific- the skills of independent and creative work on popular literature, concise and clear expression of one's opinion, substantiation and proof of opinions, logical thinking, active participation in educational debates and discussions should be developed and conscious discipline should be established.

There are several methods of cooperative learning technology:

In team teaching (R. Slavin), students are divided into two teams of equal number. Both teams perform the same task. The members of the team perform educational tasks in cooperation, paying attention to the acquisition of the knowledge, skills and abilities provided by the subject by each student.

R. Slavin, one of the authors of cooperative learning technology, said that it is not enough to instruct students to complete tasks cooperatively. It is necessary to create real cooperation among students, to rejoice at the success of each student, to sincerely help each other, and to create a comfortable social and psychological environment. In this technology, when determining the quality of knowledge acquisition of students, they are not compared with each other, but with the daily result of each student with the previously achieved result. Only then, realizing that the result achieved during the lesson will benefit the team, students feel responsible and strive to learn more, master knowledge, skills and abilities.

**Cooperative teaching in small groups** (R. Slavin 1986). In this approach, small groups consist of 4 students. The teacher first explains the topic, then students' independent work is organized. The educational assignments given to students are divided into 4 parts, and each student performs a certain part of the assignment. At the end of the task, each student reflects on the part he has completed, teaches his friends, and then the group members make a general conclusion about the task. The teacher listens to the information of each small group and evaluates the knowledge with the help of test tasks. Educational activity of students in small groups can be organized in the form of a game (tournament, competition) or individually.

Zigzag or saw method of cooperative teaching (E. Aronson 1978).

In pedagogical practice, this method is called the "saw" method. In this method, small groups consist of 6-8 students. The topic studied during the lesson is divided into logically completed parts (blocks or modules). Educational assignments are prepared

for each part, which must be completed by students. Each group of students performs one of these tasks and becomes an "expert" in this part. Then the groups will be reorganized. Each part (block or module) must have an "expert" in these groups, and these "experts" share the knowledge they have acquired with their comrades in turn, just like the teeth of a "saw". In these groups, the educational material is redeveloped in a logical sequence.

It should be noted that students are divided into groups twice in this lesson

The first group is the "specialists" training group.

Since the educational material on this topic consists of four logically completed parts, 32 students participating in the class are divided into four equal groups of 8 students with the help of cards of 4 different colors before the start of the class. They complete their own training tasks and become "experts" in this area.

The second group is the meeting group of "experts". The numbers from 1 to 8 are written on the back of each of the colored cards, and the sum of the numbers on all the colored cards should be equal to the number of students in the auditorium.

The meeting of "experts" consists of 8 groups based on the numbers on the back of the cards, and these groups include 4 students who have cards of the same number and 4 different colors. It should be noted that in these groups each part (block or module) must have an "expert".

At this meeting, the "experts" will explain their knowledge to their comrades in turn, just like the teeth of a "saw". In these groups, 4 parts of the educational material are redeveloped in a logical sequence. After that, the tasks created on the basis of the educational material will be integrated, and a question-and-answer session and discussion will be held between the groups.

Students' knowledge is monitored and evaluated individually with the help of test questions. The scores of the group members are added up, and the group with the highest score is the winner.

In short, the effectiveness of the teaching process depends on the teacher's ability to organize the cognitive activities of students in accordance with the tasks and goals of teaching.

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