EDUCATIONAL TECHNOLOGY OF PROBLEM TEACHING

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Abstract: *This article presents the history, content and essence of problem-based teaching technology. The opinions of scientists about the forms and important aspects of problem-based education organization are cited.*
Key words: *problem education, situation, youth, student, teacher, student, discussion.*

The principles of socio-economic development of our republic in the present period require further increase of our spiritual potential and economic power, and their reconstruction in a way that meets the requirements of scientific and technical development of the 21st century, in order to take a worthy place among the developed countries of the world. For this, it is necessary to change the outlook of our youth, to raise their knowledge and spirituality to the level of world standards.

Today, society has set a task for the school: to develop their special ability, their independent knowledge, according to the purpose.

Problem-based learning technology takes a leading place in solving these tasks.

Problem-based education is a logical thinking operation (analysis, generalization) and rules of application of previously known methods of education and training, which are structured taking into account the laws of research activity of students (problem situation, interest in learning, need). is a new system. That is why problem-based education ensures the development of the student's ability to think, the formation of his general development and belief. Not excluding all achievements of didactics, but making use of them, problem-based education remains education that develops scientific knowledge and concepts, formation of worldview, comprehensive development of a person and his intellectual activity.

Problem-based teaching is based on the theoretical rules of the American philosopher, psychologist and pedagogue Dj. Dion and began to spread in the 20s and 30s of the 20th century.

Problem teaching in didactics emerged as a new trend in the 70s and 80s of the 20th century.

A.M. Matoshkin, T.V. Kudryashv, M.I. Makhmutov, I.Ya. The Lerners studied the principles of problem-based learning in depth.

American psychologist, philosopher and pedagogue Dj. The ideas of Dewey (1859-1952) lie. In 1894, he founded an experimental school in the city of Chicago, where the basis of teaching was not a curriculum, but games and labor activities. Problem-based education is considered the main link of developmental educational technology.

Problem-based education - creating a problem situation by putting a problem in front of students to solve during the educational process and finding its solution during the training. The problem can be set by the teacher or by the students.

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Problem-based educational technologies are based on the activation and acceleration of student activity.

The basis of problem-based learning technology is the fact that human thinking begins with solving a problem situation and has the ability to identify, research and solve its problems. Problem-based education is of great importance in improving students' creative thinking and creative abilities.

Ways to create a problematic situation:

The teacher should explain the conflicting situation related to the subject of the lesson to the students and offer to find a way to solve it;

- Expressing different points of view on the same issue;

- Suggesting issues for which there is insufficient or excessive information to be solved, or where the question is posed incorrectly.

Levels of problem solving:

- The teacher sets a problem and solves it himself;

- The teacher sets a problem and finds its solution together with the students;

- Pupils themselves set a problem and find its solution.

Methods used to solve the problem situation:

- Studying and analyzing the problem from different points of view;

- Comparison, generalization;

- Identification and application of evidence;

- Making conclusions depending on the situation;

- Pupils themselves ask specific questions, etc.

Stages of problem-based education: 1. Creating a problem situation. 2. Formation of assumptions for problem solving. 3. Checking the correctness of the solution (by systematizing the information related to the obtained solution).

Troubleshooting Steps:

1. Proof - this is done on the basis of finding connections with previously recognized causes.

2. Verification - this is done by justifying the correctness of the problem being solved as a result of the selected reason.

3. Explanation - the solution to the problem is based on the identification of reasons that confirm its correctness.

Problem-based education was used by the American psychologist, philosopher and pedagogue D. Dewey in the experimental school he established in 1894 in Chicago. In the 60s of the 20th century, research was conducted in this direction. By the 70-80s, it was widely introduced into practice. In-depth study of problem-based teaching began in the 60s of the 20th century, based on the idea that "Thinking begins with a problem situation."

The idea and principles of problem-based teaching from the point of view of the psychology of thinking were developed by S. L. Rubinstein, M. I. Makhmutov, V. Okon, I. Ya. Lerner.

The type of problem-based education has 3 different forms from a scientific and methodological point of view.

1. Creating a problematic situation.

2. Setting the problem.

3. Finding a solution to the problem.

A problem situation can be formed in all educational activities. It depends on the teacher how much to form it during the lesson. The importance of the problematic situation is that it focuses students' attention on one place (problem) and teaches students to search and think.

Problem-based education involves the creation of a problem situation under the guidance of a teacher, and this problem implies the organization of an educational process that allows for the creative assimilation of theoretical knowledge, practical skills and abilities, and the development of mental activity as a result of the active, independent activity of students. .

In the process of problem-based teaching, students are given research, heuristic, problem situation analysis tasks.

In this:

• on drafting non-standard issues;

• with an unformed question;

• with redundant information;

• independent generalization based on his practical observations;

• to describe the essence of some object without using instructions;

• determining the limits and levels of application of the obtained results;

• to determine the mechanism of manifestation of the phenomenon;

• It is possible to give tasks such as finding "in a moment".

The algorithm for arriving at a solution in problem situations is carried out in the following order: Setting the problem, collecting data, processing, determining the solution model, collecting additional data and reflecting them in the selected solution model, new data and the solution model is to identify the conflict, find a solution to the conflict, and create a new solution model.

Today, problem-based teaching refers to problem situations created by the pedagogue during classes and active independent activity of students aimed at solving them. As a result, students acquire professional knowledge, skills and competencies and develop thinking skills.

Problem-based learning is the most effective method of teaching. The teacher creates a problem situation, directs the student to solve it, organizes the search for a solution. Management of problematic teaching requires pedagogical skills, because the emergence of a problematic situation is an individual situation and requires a differentiated and individualized approach.

The theory of problem-based education explains the psychological-pedagogical ways and methods of organizing education that develops the student's intellectual power.

Thus, when it is called problem education, a problem situation is created under the initiative of the teacher (pedagogue), and this problem is education that allows the creative acquisition of knowledge, skills and abilities and the development of mental activity as a result of the active independent activity of students. organization of the process is envisaged. Also, the essence of problem-based teaching is the teacher's (pedagogue's) management of students' cognitive activities to acquire new knowledge by creating a problem situation in their studies

and solving educational tasks, problems and questions. This creates a scientific-research method of acquiring knowledge.

The success of problem-based learning depends on the following factors:

1. Problematization of educational material;

2. Activation of cognitive activity of students;

3. Harmonizing the educational process with play and work;

4. Having the ability to effectively use problematic methods by the teacher (pedagogue);

5. Compile a chain of problematic questions about solving a problem situation and explain to students in a logical sequence.

Problem-based education is the main method of forming students' scientific worldview and is understood as a specific personal subjective guide that controls human knowledge and practical activity.

Formation of worldview is, first of all, formation of intellectual activity of a person. There are two important conditions for the effective formation of a scientific outlook:

-activity of active intellectual thinking of students on mastering the system of concepts.

- influencing a person's feelings and emotions, turning his knowledge into a belief.

The problematic situation arises in specific teaching conditions, which are organized according to the purpose of certain pedagogical tools. It is also necessary to develop special methods of creating such situations based on the characteristics of the studied subjects. Thus, a problematic situation in teaching is not just a state of mental strain associated with an "unexpected obstacle in the path of thought".

The problem situation is different from any thinking difficulties, in which the student realizes the internal, hidden connections between the object (concept, fact) that required effort and the task and problem that is important to him at the same time.

The essence of the problem situation is that it is a conflict between the information that the student is familiar with and new facts and events (for which there is a lack of previous knowledge to understand and explain them). This conflict is the driving force for creative acquisition of knowledge.

Symptoms of a problematic situation include:

existence of a fact unknown to the student;

instructions given to the student to complete the tasks, personal interest of the teacher in solving the cognitive problem that has arisen.

Being able to get out of a problematic situation is always connected with the understanding of the problem, that is, what is unknown, its verbal expression and solution.

If we analyze the problem situation mentally, it is primarily the independent mental activity of students. It leads the student to understand the reasons for the intellectual effort, to enter it, to express the problem in words, that is, to define active thinking. Consistency is evident here: first a problem situation arises, then a learning problem is formed.

In the practice of teaching, there is another option - the option where the problem seems to correspond to the occurrence of a problematic situation. The expression of the problem in the form of questions in the content of conflicts of facts, judgments, theoretical rules usually reflects the existence of a problematic situation, which is the answer to the question "why".

The problem consists of three components: known (on the basis of the given task), unknown (finding them leads to the formation of new knowledge) and previous knowledge (experience of students). They are necessary to carry out research aimed at finding the unknown. First of all, the task of an educational problem unknown to the student is determined, and the methods of its execution and the result are also unknown, so that the students, based on their previously acquired knowledge and skills, find the expected result or the way to solve it. will look for.

Thus, a task that students know and how to solve it independently cannot be an educational problem, and secondly, even if they do not know the methods of solving a task and the means of searching for it, it cannot be an educational problem. In the process of solving an educational problem, students mentally an important stage of its activity is to come up with a way to solve it or to put a hypothesis and justify the hypothesis.

The search period of self-knowledge activity can be expressed in special schemes: problem situation - educational problem - search for solving the educational problem - solution of the problem.

An important aspect of organizing and conducting problem-based training sessions is that the teacher must have a good understanding of both its educational and educational functions. The teacher should never give the students a ready-made truth (solution), but should motivate them to acquire knowledge, help them process information, events, time and events in the consciousness of the necessary in training and life activities.

Problem situations can be used at all stages of the educational process: the description of a new topic, reinforcement and control of knowledge.

In the process of problem-based learning, the role of independence of the student is much more effective compared to reproductive learning methods. The purpose of problem-based teaching is to search for answers to educational issues, problems and questions in the process of working with students, to acquire new knowledge with ways to solve them, to create and solve problematic situations in students' educational activities. is that teachers (pedagogues) can arouse interest in them.

The problematic situation is the dialectical conflict between the facts and data, information and knowledge given to listeners (learners) and new facts, events, situations, and the lack of their previous knowledge to understand them. These misunderstandings (misunderstandings) serve as a driving force for the acquisition of creative knowledge.

The nature of the problem situation in the educational process is as follows:

- the presence of unknown news for students;

- solving problems by themselves;

- try to learn the misunderstandings caused by their personal interests and needs;

- such as trying to find out what is unknown, understand its meaning, and solve it.

Types of creating problematic situations.

Several types of problematic situations in the educational process are distinguished:

1. Students do not know how to solve the task, they cannot answer the problematic question.

2. Students are faced with the need to use previously acquired knowledge in a new situation.

3. There is a conflict between the way the task can be solved theoretically and the difficulty of applying the chosen method in practice.

4. In the performance of the task, there is a conflict between the practical achievement of the result and the students' lack of knowledge to justify it theoretically.

In the literature, the following common methods of creating a problematic situation are noted:

- setting problematic tasks to explain the nature of events, studied concepts;

- setting a problematic task to find methods of practical application of acquired knowledge;

- encourage students to explain conflicts and inconsistencies between events and facts;

- to encourage the analysis of facts and events that cause a conflict between scientific concepts and life ideas;

- encourage students to compare facts, events, actions, and conclusions;

- to acquaint students with the facts of a seemingly incomprehensible nature that caused a scientific problem to be posed in the history of science.

The above methods of creating a problematic situation do not limit its other options. Every teacher can search and find various possibilities of organizing it in the process of creative work with educational materials in his practical activity.

Students' thoughts become more and more complex, and the problematic situation creates a certain emotional presence in them. He is satisfied with the process of self-realized knowledge and discoveries. Stories of surprise, depression or joy serve as signs of correct organization of a problematic situation. It is known that high motivation is an important factor in the effective acquisition of knowledge, the search for truth and its achievement.

In didactics, there are studies on the characterization of problem classes depending on the type of problem situations. Here, G. V. Artyomova offers several options for organizing problem classes based on her research.

These are: 1. A version lesson.

2. Comparative-generalization lesson.

3. Moral and moral problematic lesson.

In order to apply problem-based teaching technology to the teaching process, the teacher should solve the following issues:

- It is possible to pass the subjects of the curriculum in the form of a problem lesson;

- Identifying questions and tasks that cause a problematic situation regarding the issues in the text of the subject, following the principles of scientificity, systematicity, logical sequence, and consistency of didactics;

- It is necessary for students to determine the means and methods that ensure the activation and management of cognitive activity, and to determine the ways of their proper and effective use.

Problem-based education - a problematic situation is created under the guidance of a teacher, and this problem is the organization of an educational process that allows students to

creatively acquire knowledge, skills and abilities as a result of their active independent activities, and develop mental activity. The success of the project depends on the following factors:

- Problematization of educational material;

- Activation of cognitive activity of students;

- Harmonizing the educational process with play and work;

- Having the ability to use problematic methods properly and effectively by the teacher;

- Creating a chain of problematic questions about solving a problem situation and explaining it to students in a logical sequence.

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