

## POSSIBILITIES OF PROBLEM EDUCATION IN DEVELOPING COGNITIVE ACTIVITY OF STUDENTS

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**Abstract.** *This article discusses the significance of problem-based education in the modern education system. It emphasizes the importance of teaching students to think critically, solve problems, and actively engage in the learning process. The article highlights the role of problem-based education in fostering creative thinking and independent learning, ultimately contributing to the development of cognitive abilities in students.*

**Keywords:** *cognitive knowledge, education system, integration, modern knowledge, innovative technologies, problem-based education, problem situation, creative thinking*

Commenting on the development of future specialists in the educational process, the American psychologist Dj. Bruner writes: "We do not teach science to bring small living libraries to the world, but to train the student himself to think mathematically, to solve problems as a historian. We teach to learn by example, to teach to participate in learning. Cognitive knowledge is a process, not a product"[1]. In recent years, increasing the quality and efficiency of the education system in our country, forming modern knowledge and skills in preschoolers, pupils and students, Systematic work is being carried out to ensure close cooperation and integration between educational systems and the field of science, the integrity and continuity of education.

At the same time, the current state of the national education system is to modernize it based on the requirements of the times, to educate young people to be highly educated, physically and spiritually healthy people, to strengthen the authority of the leaders and pedagogues of educational institutions. increase, requires the implementation of consistent measures to create the necessary conditions for their effective operation [2].

Today, pedagogues are required to use modern, developing technologies in the development of students' cognitive activity, training of highly qualified personnel. In the traditional teaching system, students learn under pedagogical influences, in which the activity of students does not have an active creative character. It is confirmed day by day that new pedagogical, innovative, interactive technologies, including problem-based education, are more effective than traditional education in teaching various subjects. For this reason, it is appropriate to use problem-based educational technology in practice, which is considered the main link of educational technology that develops cognitive activity of students.

Problem - (from Greek προβλημα. is a word, in a broad sense is a complex theoretical or practical question that requires study, solution;) in science - in the form of opposing positions in the explanation of any phenomena, objects, processes a counterfactual situation that works and requires sufficient theory to achieve it;

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 posed by the teacher or by the students.

The main task of problem-based educational technologies is to help students effectively master the system of cognitive activity and methods of mental activity, to be able to creatively apply the knowledge they have received in new situations that arise in their professional activities, to create skills for solving educational problems. Consists in inculcating the skills of independent knowledge acquisition.

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 developing students' cognitive activity, increasing their creative thinking and creative abilities.

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. The main idea of problem-based education is not to give knowledge to student's ready-made, but to ensure that it is mastered by them on the basis of educational research on problems related to the subject of the lesson [3].

J. Dewey defined the following directions as the basis of problem-based education:

- social;
- constructive;
- artistic expression;
- scientific research.

There are several types of problem-based learning. M.N. Skatkin emphasizes in his work that there are the following types of problem-based education [4]:

1. problem statement of knowledge (problematic lecture)
2. description of problematic assignments (difficult practical exercise)
3. conducting small scientific research (challenging experience)

The type of problem-based education has 3 different forms from a scientific and methodological point of view [5].

1. Creating a problematic situation.
2. Setting the problem.
3. Finding a solution to the problem.

The methods of creating a problem situation can be defined as follows: the teacher offers to explain to the students a conflicting situation related to the subject of the lesson and find a way to solve it; expressing different points of view on the same issue; proposing issues that have insufficient or redundant information to resolve, or that are poorly worded.

Levels of problem solving: the teacher poses a problem and solves it himself; the teacher poses a problem and finds its solution together with students; students themselves set a problem and find its solution.

Methods used in solving a problem situation: studying and analyzing the problem from different points of view;

- comparison, generalization;
- identification and application of evidence;

- drawing conclusions depending on the situation;
- students themselves ask specific questions, etc.

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 creates a problem situation under the guidance of a teacher, and this problem implies the organization of an educational process that allows students to creatively master theoretical knowledge, practical skills and abilities, and develop mental activity as a result of active, independent activity of students.

Tasks given in the process of problem-based teaching: students are given tasks on research, heuristics, analysis of problem situations, including: on creating non-standard problems; 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". Through this, students' learning activity is developed.

The algorithm of finding a solution in problem situations is carried out in the following order: posing a problem, collecting data, processing, defining a solution model, collecting additional data and reflecting them in the selected solution model, new information It consists of identifying the conflict between the data and the solution model, finding a solution to the conflict, and creating a new solution model.

We can take the following as conditions that ensure the effectiveness of problem-based education: ensuring sufficient interest in the content of the problem. It is necessary to take into account the level of intellectual potential of students, knowledge competencies, to ensure the ability to perform the tasks that appear at each stage of problem solving, that is, to solve the existing problem. It is also necessary that the relationship between the pedagogue and the students should take place in the spirit of benevolence, that is, all the ideas and hypotheses expressed by the students should not remain without attention and encouragement, because it is the encouragement that is a motivating factor in the development of students' cognitive activity.

If a person is regularly taught to acquire ready-made knowledge and skills, it is possible to extinguish his natural creative ability. He "forgets" independent thinking. The thinking process is perfectly manifested and developed when solving problematic issues.

In conclusion, it can be said that problem-based education is the main source of power that moves and develops educational activities, because its purpose is to form knowledge, hypotheses, develop them and solve them. In problem-based learning, the thinking process is introduced only for the purpose of solving a problem situation, it forms the thinking necessary for solving non-standard problems. Problem-based educational technology not only develops the cognitive activity of students, but also develops their ability to think creatively and independently, and increases cognitive activity.

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