



## WAYS OF CREATING AND SOLVING PROBLEM SITUATIONS IN PRIMARY EDUCATION

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### Abstract

This article discusses problem situations that arise in the educational process, the relationship between students' theoretical knowledge and new educational tasks, opportunities for creating problem situations, organizing interdisciplinary connections, and developing a system of problem-based questions. The study emphasizes the role of problem situations in enhancing students' cognitive activity and independent thinking.

Keywords: problem-based learning, teacher, lesson process, student, education and upbringing, knowledge, skills, competencies, method.

A problem situation differs from a problem itself in that it actively involves the learner (the cognitive subject) in the process. In problem-based learning, students encounter certain "mental" obstacles that must be overcome to complete a task. According to the conditions of a particular situation, there arises a need to find a new method or approach for solving the task.

T.V. Kudryavtsev identified several types of situations based on contradictions arising between knowledge and lack of knowledge, which form the basis of problem situations:

1. Situations where a discrepancy becomes evident between students' existing system of knowledge and the requirements imposed by a new educational task. Such discrepancies may arise:
  - between previously acquired knowledge and new facts encountered during problem solving;
  - between knowledge of similar nature but different levels of complexity;
  - between scientific knowledge and everyday knowledge.
2. Situations that require students to choose the only appropriate system of knowledge from various existing knowledge systems in order to solve a problem correctly.
3. Situations that emerge when students face new practical conditions requiring the application of theoretical knowledge, revealing contradictions between what they know and their ability to apply that knowledge in practice.
4. Situations arising from contradictions between an existing theoretical method of solving a problem and the impossibility of implementing the chosen method in practice, as well as between the achieved results and the lack of theoretical justification.
5. Situations that develop due to the absence of a direct correspondence between the external appearance of a device and its structural design, thereby contributing to the formation of spatial imagination.
6. Situations arising when schematic "static" representations require the use of "dynamic" spatial images during interpretation, particularly in understanding spatial relationships and connections.

According to M.I. Makhmutov, the classification of problem situations is presented in the most systematic way.

#### Types of Problem Situations According to M.I. Makhmutov

Type 1. Problem situations often arise when students are required to use previously acquired knowledge in new practical circumstances.

Makhmutov emphasizes that such situations should be organized not only to help students apply their knowledge but also to ensure that they encounter unknown facts while attempting to use their existing knowledge, skills, and competencies. Awareness of these facts stimulates students' interest in learning and encourages them to seek new knowledge.

Type 2. A problem situation arises when there is a contradiction between solving a problem theoretically through existing methods and the impossibility of implementing the chosen method.

Type 3. A problem situation occurs when there is a contradiction between the practical result achieved in solving an educational task and the student's inability to provide a theoretical explanation due to insufficient knowledge.

Type 4. A problem situation emerges when students do not know how to solve the problem, cannot answer a problematic question, and realize that their existing knowledge is insufficient to explain a new fact.

Makhmutov rightly notes that this is the most common type of problem situation.

#### Methods of Creating Problem Situations

Research in didactics and psychology has identified the most important ways and methods of creating problem situations. Based on the analysis of advanced pedagogical experience, M.I. Makhmutov proposed the following methods:

1. Confronting students with phenomena, facts, and apparent contradictions that require theoretical explanation.
2. Using educational and real-life situations that arise while completing practical tasks at school, home, or in production settings.
3. Assigning educational problem tasks that require explanation of phenomena or the search for practical applications.
4. Encouraging students to analyze facts and events that reveal contradictions between everyday perceptions and scientific concepts.
5. Formulating hypotheses, drawing conclusions, and verifying them through experiments.
6. Encouraging students to compare and contrast facts, actions, and phenomena.
7. Motivating students to generalize newly acquired facts and compare them with previously known information.
8. Introducing students to facts and phenomena that historically led to the emergence of scientific problems.
9. Organizing interdisciplinary connections by integrating facts and information from other subjects.

#### Developing a System of Problem Questions

When designing a system of problem-based questions, it is important to encourage students to think critically and anticipate possible answers. The lesson scenario should reflect

one possible course of the lesson, while its effectiveness depends on the teacher's understanding of students' initial level of thinking ability.

At the beginning of the lesson, the teacher activates students' prior knowledge using prepared questions or tasks. Based on this knowledge, the teacher introduces and formulates the problem to be solved during the lesson.

To ensure students accept the problem, it is recommended to organize an initial attempt to solve it. The teacher discusses the expected solution with students and identifies difficulties encountered. As a result, students realize that the problem cannot be solved easily, which creates an internal psychological motivation to continue searching for a solution.

The teacher then organizes the search for solution methods by presenting the first sub-problem, asking problem questions, discussing answers, and encouraging students to seek intermediate conclusions. This process continues until the entire problem is solved and final conclusions are formulated.

One of the most important stages of a problem-based lesson is organizing the search for answers to problem questions. After asking a question, the teacher should not immediately evaluate answers as correct or incorrect. Instead, students should be encouraged to provide comprehensive explanations. If a student cannot sufficiently justify an answer, others who support that answer may be invited to contribute. When different answers are proposed, students should be encouraged to compare and critically evaluate them.

Such thinking involves understanding different viewpoints, identifying their strengths and weaknesses, considering criticism, and relating various perspectives in the search for the correct answer.

#### Conclusion

Thus, organizing the search for answers to problem questions involves a sequence of interconnected steps:

- Formulating a problem question;
- Organizing students' attempts to find and justify answers;
- Conducting a critical analysis of proposed answers and identifying their strengths and weaknesses;

Proceeding to the next problem question.

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