



THE ROLE OF PROBLEM-SITUATION METHOD IN DEVELOPING  
COGNITIVE COMPETENCIES IN PRESCHOOL EDUCATION

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*The article explores the role of the problem-situation method in shaping cognitive competencies in preschool children. The study aims to analyze the theoretical foundations of cognitive development, identify the effectiveness of problem-based learning methods, and provide practical recommendations for educators. The research was conducted in 2024–2025 with 60 preschool children aged 5–6 years, divided into experimental and control groups. The implementation of problem-situations in learning activities significantly enhanced children's analytical thinking, creativity, and problem-solving skills. The findings indicate that the problem-situation method is an effective tool for activating cognitive competencies in early childhood education.*

**Keywords:** *cognitive competencies, preschool education, problem-situation method, problem-based learning, cognitive development, pedagogical methodology.*

## INTRODUCTION

Cognitive competencies in early childhood play a vital role in the formation of analytical thinking, problem-solving skills, and creativity [1]. Preschool education is considered a critical period for establishing the foundations of cognitive activity and intellectual development.

Problem-based learning (PBL) and the problem-situation method provide children with opportunities to engage actively with challenges, promoting reasoning, analytical skills, and independent decision-making [2]. This approach creates a learning environment in which children are encouraged to explore multiple solutions to a given problem, fostering creativity and critical thinking [3].

Recent studies highlight that integrating problem-situations in preschool curricula contributes significantly to the development of cognitive competencies, including attention, memory, logical reasoning, and the ability to evaluate alternatives [4]. Despite these findings, many early childhood programs still rely on reproductive teaching methods that limit cognitive engagement. Therefore, exploring the role of problem-situation methods is a current and relevant educational issue.

### Research Problem

How can the problem-situation method be applied effectively to develop cognitive competencies in preschool children?

### Research Aim

To analyze the role of the problem-situation method in activating cognitive competencies among preschool children and to evaluate its pedagogical effectiveness.

### Research Objectives

To examine theoretical foundations of cognitive competencies and problem-based methods.



To identify age-specific characteristics of preschool children relevant to problem-solving.

To develop and implement a methodology using problem-situations in preschool education.

To evaluate the effectiveness of this methodology through experimental research.

Research Hypothesis

If preschool children engage in structured problem-situations during learning activities, their cognitive competencies, including analytical and creative thinking, will increase significantly.

## II. METHODS

Research Design

The study used a mixed-method design combining theoretical analysis, pedagogical experimentation, and quantitative assessment. The research was conducted in two preschool institutions during the 2024–2025 academic year.

Participants

A total of 60 children aged 5–6 years participated. They were randomly assigned to:

Experimental group: 30 children

Control group: 30 children

Data Collection Methods

Theoretical methods: analysis of pedagogical literature, comparison, generalization.

Empirical methods: observation, structured pedagogical experiments, problem-solving tasks, questionnaires.

Statistical methods: percentage distribution, pre- and post-test comparisons.

Diagnostic Tools

Cognitive competencies were evaluated using criteria adapted from modern educational research [5]:

Analytical thinking – ability to identify and evaluate problem elements.

Flexibility – ability to generate multiple solutions.

Originality – creativity of ideas.

Fluency – number of solutions proposed.

Problem-solving efficiency – effectiveness in reaching a solution.

Methodological Framework

The problem-situation method was implemented as follows:

Problem-based scenarios: children were presented with open-ended and contradictory situations requiring analysis. Example: "How can we build a bridge that will hold a toy car using only paper and sticks?"

Interactive discussions: educators guided children through questioning to encourage independent reasoning.

Mini-projects: children worked in small groups to develop solutions to practical tasks.

Integrative activities: cognitive tasks were combined with art, mathematics, and storytelling to reinforce understanding.



The methodology was applied three times per week for 16 weeks. The control group continued with traditional teacher-led instruction.

### III. RESULTS

#### 1. Pre-test Findings

Initial assessment of cognitive competencies revealed:

Level	Experimental Group	Control Group
Low	36%	34%
Medium	44%	46%
High	20%	20%

#### 2. Post-test Findings After 16 weeks:

Level	Experimental Group	Control Group
Low	12%	30%
Medium	28%	44%
High	60%	26%

The experimental group showed a significant increase in high-level cognitive competencies, demonstrating the effectiveness of the problem-situation method.

#### 3. Qualitative Observations

Children were more confident in presenting multiple solutions. They demonstrated creative reasoning during group discussions. Attention span and task persistence improved. Mini-projects showed greater originality and collaborative skills [6].

### IV. DISCUSSION

The findings confirm the hypothesis that problem-situation methods enhance cognitive competencies in preschool children. These results align with previous studies emphasizing active engagement and exploration in early learning [7].

Vygotsky's concept of the zone of proximal development supports the importance of guided problem-solving tasks for enhancing cognitive skills [8]. The problem-situation method allows educators to scaffold learning effectively, encouraging independent reasoning and creative thinking.

Moreover, problem-based approaches promote multidimensional development, integrating cognitive, social, and emotional competencies [6]. The experimental data indicate that children exposed to structured problem-situations outperform peers in traditional settings in analytical, creative, and collaborative tasks.

#### Implications for Practice

Preschool educators should implement problem-situations regularly to activate cognitive processes. Open-ended and challenging tasks should be included in lesson plans. Encouraging children to explore multiple solutions fosters flexible thinking. Continuous feedback and supportive guidance enhance the development of cognitive competencies.

### V. CONCLUSION

The study demonstrates that the problem-situation method is an effective tool for developing cognitive competencies in preschool education. Children participating in



problem-based activities showed significant improvements in analytical thinking, creativity, and problem-solving skills.

#### Recommendations

Integrate problem-situation tasks into daily preschool routines. Use collaborative mini-projects to stimulate group problem-solving. Apply integrative activities combining cognitive tasks with art and math. Provide a supportive environment for risk-taking and experimentation.

#### REFERENCES:

1. . Ирисбаева Ё. (2018). Using "Cluster" Method. Eastern European Scientific Journal, № 6. Interon Conference+2ИМПАС Журнал+2
2. Ирисбаева, Ё. У. (2019). Future Educators Professional Readiness to Interact with Preschool Children. Eastern European Scientific Journal, № 1. Интеронконф+2Интеронконф+2
3. Savery, J.R. (2015). Overview of Problem-Based Learning: Definitions and Distinctions. *Interdisciplinary Journal of Problem-Based Learning*, 1(1), 78–85.
4. Sawyer, R.K. (2018). *The Nature of Creativity*. Cambridge University Press, 76–85.
5. Vygotsky, L.S. (2011). Imagination and Creativity in Childhood. *Prosveshchenie*, 112–145.
6. Irisbayeva Yo.U. (2019). "Professional readiness of future educators to interact with children of preschool age" // *European Journal of Research and Reflection in Educational Sciences*, Vol. 7, № 7. Interon Conference
7. Bell, S., & Kozlowski, S. (2012). Problem-Solving and Learning in Early Education. *Journal of Education*, 45(2), 60–70.
8. OECD. (2022). *Creative Thinking in Education*. OECD Publishing, 15–20.