



Developing Critical Thinking in Children Through Games Based in Problem Situations

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Abstract: This article examines the development of children's critical thinking through games based on problem situations. The study analyzes the characteristics of children's thinking processes, the pedagogical significance of problem situations, and the role of play activities in the educational process. Special attention is given to the formation of independent thinking, problem analysis, and decision-making skills among preschool children. The article also reviews the scientific views of scholars in the field of pedagogy and child psychology and provides recommendations for the effective use of problem-based games in the learning process.

Keywords: Critical thinking, problem situation, play activity, preschool education, child psychology, pedagogical process, independent thinking, educational games.



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Introduction

In the contemporary modern education system, shaping children's independent thinking, their ability to analyze problems, and their capacity to make correct decisions in various situations is considered one of the most critical tasks. Developing critical thinking in children carries particular significance during the preschool and primary education stages [1]. This is precisely the period when a child's cognitive activity, perceptive abilities, and learning processes develop most actively. Critical thinking is an individual's capability to deeply analyze various types of information, compare them, draw conclusions, and express independent thoughts. Diverse methods and approaches are utilized to cultivate critical thinking in children, prominent among which are games based on problem situations.

In the fields of pedagogy and psychology, numerous scholars have conducted scientific research on the development of children's thinking processes. Specifically, Lev Vygotsky, Jean Piaget, Jerome Bruner, and Daniil Elkonin studied the developmental trajectory of children's intellect and scientifically substantiated the core importance of play-based activities [2], [3]. This article analyzes the pedagogical foundations and effective methods of developing critical thinking in children through games centered on problem situations.

Methodology

The research methodology of this study is grounded in a qualitative, descriptive analysis of pedagogical and psychological literature concerning early childhood cognitive development. It investigates the structural and functional characteristics of preschool children's thinking processes by cross-examining theoretical frameworks with active educational practices. The primary data source consists of foundational texts in child psychology and pedagogy, specifically evaluating the cognitive development theories of Jean Piaget, Lev Vygotsky, Jerome Bruner, and Daniil Elkonin to establish the core importance of play-based activities. Through an analytical review of these scientific views, a conceptual model for problem-based learning in preschools was synthesized [4]. This involved mapping specific cognitive behavioral sequences—such as identifying underlying causes, searching for alternative solutions, and justifying personal perspectives—against structured play interventions. Furthermore, the study utilizes an empirical-deductive approach to design and classify specific pedagogical games, including "Why?", "Find the Right Solution", and "What If...", categorizing them based on their cognitive objectives like logical reasoning, creative problem-solving, and imaginative expansion. These operational frameworks were further integrated with interactive instructional methods, including question-and-answer techniques, group discussions, and role-playing. By evaluating the intersection of these active exploration methods with natural child behaviors, the methodology establishes a qualitative framework to assess how structured problem situations cultivate independent reasoning, communication culture, and decision-making skills within the contemporary preschool educational process [5], [6].

Result and Discussion

The theoretical and conceptual analysis demonstrates that integrating games based on problem situations into preschool education significantly enhances children's independent thinking, problem analysis, and decision-making capabilities. By aligning active learning with a child's natural inclination toward play, these interventions establish an optimal environment for cognitive growth. The findings substantiate Daniil Elkonin's assertion that play serves as the leading developmental activity, showing that when children are confronted with simulated dilemmas, they naturally progress from passive data consumers to active knowledge explorers [7].

Theoretically, this study deepens the integration of Lev Vygotsky's social development theories and Jean Piaget's constructivist frameworks by demonstrating how structured problem-based games bridge the gap between social communication and individual cognitive complexity. Practically, games like "Why?", "Find the Right Solution", and "What If..." provide educators with concrete tools to stimulate logical reasoning and creative problem-solving. When children actively analyze

why flowers need water or brainstorm solutions for a broken toy, they practice a continuous four-stage cognitive loop: analyzing the situation, identifying underlying causes, searching for solutions, and justifying their perspectives. This systematic sequence refines their communication culture, collaborative peer interactions, and foundational analysis skills [8], [9].

Despite these insights, a noticeable knowledge gap persists regarding the exact empirical measurement of critical thinking milestones achieved specifically through play. Existing pedagogical literature frequently relies on qualitative observations of child behavior, leaving a quantitative gap regarding how long these cognitive gains are sustained as children transition into primary education. Additionally, there is a lack of deep research into how external variables—such as varying socioeconomic backgrounds, digital distractions, or different levels of preschool teacher training—affect the scalability and uniform execution of these problem-based methodologies.

To address these limitations, further research must move toward robust, mixed-methods empirical studies. Long-term longitudinal tracking is required to measure the academic and cognitive trajectories of children exposed to systematic problem-based gaming in preschool as they progress through primary school. Future studies should also focus on developing standardized, age-appropriate metrics to quantify independent thinking and peer conflict resolution during play [10]. Finally, deeper practical investigation is needed to design specialized professional development curriculums for educators, ensuring they can effectively facilitate group discussions, formulate ideal problem situations, and adapt role-playing games to accommodate diverse classroom dynamics and mixed-ability student cohorts.

The Concept of Critical Thinking and Its Importance

Critical thinking is a person's capability to analyze information deeply, evaluate it, draw conclusions based on evidence, and think independently. An individual with well-developed critical thinking skills examines problems from multiple perspectives and strives to discover the most optimal solution. Regarding children's intellect, psychologist Jean Piaget expressed the following view: "A child's thinking is formed in the process of activity and becomes more complex as they gain experience." Consequently, to build critical thinking in children, it is necessary to create an environment that prompts them to think actively [11].

Psychologist Lev Vygotsky also emphasized the vital role of education and the social environment in child development, stating: "A child's intellectual development emerges in the process of social activity and communication." This perspective underscores the importance of utilizing problem situations when working with children.

Games involving problem situations are play activities that stimulate children to reason, analyze, and discover solutions to problems. During these games, a child analyzes a specific situation, reviews alternative options, and tries to select the most correct resolution [12]. Emphasizing the importance of active learning within the educational process, educator and psychologist Jerome Bruner wrote: "A learner does not acquire knowledge *in a ready-made form, but rather in the process of active exploration.*" Problem-based games guarantee exactly this process. During the game, the child:

- Analyzes the situation,
- Identifies the underlying causes,
- Searches for the solution to the problem, and
- Strives to justify their own perspective.

This sequence directly aids in the development of critical thinking.

The Role of Play Activities in Developing Critical Thinking

The role of play in developing critical thinking stems from the fact that play is the most natural form of activity for children. Through play, a child not only relaxes but also acquires new knowledge.



Reflecting on the significance of play activities, psychologist Daniil Elkonin wrote: *"Play is the leading activity in the psychological development of children."* During the play process, a child communicates, exchanges ideas, resolves problems collaboratively, and learns to make independent decisions. These interconnected processes naturally advance critical thinking [13], [14].

To nurture critical thinking in children, the following games can be successfully implemented:

- **The "Why?" Game:** In this game, children are presented with various scenarios. For instance: *"Why do flowers need water?"* The children share their thoughts and explain the underlying reasons.
- **"Find the Right Solution":** Children are presented with a practical problem situation, such as: *"What should be done if a toy breaks?"* The children then propose a variety of creative solutions.
- **"What If...":** Children are given an imaginary situation, such as: *"What would happen if birds could not fly?"* This game expands children's imagination and logical reasoning.

Methods for Organizing Problem-Based Games

To structure problem-based games effectively, the following methods can be utilized:

- Question-and-answer methods,
- Creating problem situations,
- Group discussions, and
- Role-playing games.

These combined methods effectively prompt children to think actively, engage deeply with concepts, and build foundational analysis skills [15].

Conclusion

Games based on problem situations are one of the most effective tools for developing critical thinking in children. During these games, children acquire skills in independent thinking, analyzing problems, and making correct decisions. Additionally, play activities develop children's creativity, logical reasoning, and communication culture. For this reason, the widespread use of games with problem situations carries great importance within the preschool education process.

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