

PEDAGOGICAL FOUNDATIONS OF USING HEURISTIC TEACHING TECHNOLOGIES IN PRESCHOOL EDUCATION

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ABSTRACT

This article examines the pedagogical foundations of using heuristic teaching technologies in preschool education. It highlights the importance of developing children's cognitive activity, independent thinking, and creative abilities through heuristic methods. The study analyzes the effectiveness of interactive and problem-based learning approaches in enhancing preschoolers' curiosity and learning motivation. Special attention is given to the role of the teacher in organizing a supportive learning environment that encourages exploration, discovery, and active participation. The findings demonstrate that heuristic technologies significantly improve children's intellectual development and readiness for further education.

Keywords: Preschool education, heuristic teaching, pedagogical foundations, cognitive development, creative thinking, interactive learning, problem-based learning, early childhood education

АННОТАЦИЯ

В данной статье рассматриваются педагогические основы применения эвристических образовательных технологий в дошкольном образовании. Подчеркивается важность развития познавательной активности, самостоятельного мышления и творческих способностей детей с помощью эвристических методов обучения. Анализируется эффективность интерактивных и проблемно-ориентированных подходов в повышении любознательности и учебной мотивации дошкольников. Особое внимание уделяется роли педагога в организации образовательной среды, способствующей исследованию, открытию и активному участию детей. Результаты исследования показывают, что эвристические технологии значительно повышают интеллектуальное развитие детей и их готовность к дальнейшему обучению.

Ключевые слова: дошкольное образование, эвристическое обучение, педагогические основы, познавательное развитие, творческое мышление, интерактивное обучение, проблемное обучение, раннее развитие детей.

Introduction. In today's era of globalization, the education system, particularly preschool education, is rapidly evolving and improving based on modern pedagogical technologies. Preschool age is considered a crucial stage in the formation of a child's personality, as well as in their intellectual, emotional, and social development. During this period, one of the main educational tasks is to develop children's interest in learning, independent thinking, creativity, and problem-solving skills. From this perspective, heuristic teaching technologies are recognized as one of the most effective approaches in preschool education. Heuristic teaching technologies are a pedagogical system aimed at developing the child not as a passive recipient of ready-made knowledge, but as an active individual who independently searches for knowledge, analyzes information, and draws new conclusions. This approach focuses on developing intellectual activities such as understanding problem situations, asking questions, forming hypotheses, comparing, and finding independent

solutions. As a result, the child not only acquires knowledge but also actively participates in its construction.

Preschool-aged children are naturally curious, initiative-driven, and highly inclined to learn. Therefore, organizing the educational process through heuristic approaches rather than traditional explanatory methods helps fully develop their natural abilities. In this process, the role of the teacher changes significantly: instead of being a knowledge transmitter, the teacher becomes a guide, motivator, and creator of a supportive creative learning environment. This allows the educational process to be organized in a child-centered manner. One of the key features of heuristic teaching technologies is the use of problem-based learning elements. By creating problem situations, children are encouraged to think, explore, and make independent decisions. For instance, through play activities, experiments, observations, and creative tasks, children acquire knowledge in situations close to real life. This significantly enhances their logical thinking, imagination, and creative abilities. In addition, modern pedagogical research shows that heuristic approaches positively influence not only cognitive development but also children's communicative and social skills. Group activities, collaborative work, expressing one's own ideas, and listening to others help develop communication culture in children. This contributes to their social adaptation and strengthens teamwork skills.

Furthermore, heuristic teaching technologies increase intrinsic motivation in children. In play-based and exploratory activities, children perceive learning not as an obligation but as an exciting discovery process. This fosters a positive attitude toward education and improves long-term learning effectiveness.

At the same time, the effective application of heuristic technologies in preschool education requires a high level of professional competence, creativity, and methodological preparation from teachers. Each problem situation must be designed according to the child's age characteristics, psychological state, and individual abilities. Otherwise, the learning process may not produce the desired results. The use of heuristic teaching technologies in preschool education serves as an important pedagogical foundation for developing children's intellectual potential, creative thinking, and independent decision-making skills. Therefore, studying this approach scientifically and widely implementing it in educational practice is considered one of the urgent tasks of modern pedagogy.

Literature Review. The issue of applying heuristic teaching technologies in preschool education is one of the most relevant and widely studied areas in modern pedagogy and psychology. Scientific research in this field confirms the effectiveness of heuristic approaches in developing children's cognitive abilities, creative thinking, and independent learning skills. The theoretical foundations of heuristic education can be traced back to the methods of the ancient Greek philosopher Socrates, who introduced the idea of acquiring knowledge through questioning and dialogue. In modern pedagogy, this approach has been further developed and enriched with problem-based learning and creative inquiry methods.

The works of Russian educational psychologists and pedagogues such as L.S. Vygotsky, A.N. Leontiev, and S.L. Rubinstein emphasize the importance of the activity approach in children's mental development. In particular, L.S. Vygotsky's theory of the "Zone of Proximal Development" serves as one of the scientific foundations of heuristic education. According to this theory, a child develops by performing tasks that they cannot complete independently but can accomplish with the help of adults or peers, which directly corresponds to heuristic learning principles. Similarly, Jean

Piaget's theory of cognitive development highlights that children construct knowledge actively through interaction with their environment. According to Piaget, children develop new knowledge by actively engaging with the surrounding world, which aligns closely with the principles of heuristic teaching.

Uzbek scholars have also paid significant attention to modernizing preschool education, introducing innovative technologies, and developing children's creative thinking skills. Their research emphasizes the importance of organizing independent activities, using play-based technologies, and creating problem situations in the learning process. In studies on heuristic teaching technologies (N.M. Zverev, I.Ya. Lerner, M.N. Skatkin), it is scientifically proven that problem-based learning and creative exploratory activities help learners independently discover knowledge. The approaches developed by these scholars are now adapted and applied in preschool education as well. Furthermore, Howard Gardner's theory of multiple intelligences supports the principle of individualized learning in heuristic education. According to this theory, each child possesses different types of intelligence, and the learning process should be organized according to their individual abilities and strengths.

The literature review shows that heuristic teaching technologies are an effective pedagogical tool for developing children's independent thinking, creativity, and cognitive activity. At the same time, the implementation of this approach in preschool education requires a high level of methodological competence, creativity, and innovative thinking from educators.

Methodology and Analysis. The effective application of heuristic teaching technologies in preschool education is considered an important pedagogical factor in increasing children's intellectual activity, developing independent decision-making skills, and enhancing creative thinking processes. At this stage, the content of the educational process is not limited to providing knowledge but is directed toward the child's personal exploration, experiential discovery, and active participation. In this study, pedagogical observation, experimental work, analysis of children's activities, and comparative evaluation methods were used to determine the effectiveness of heuristic teaching technologies. The learning activities were organized based on specially designed heuristic tasks. Each activity included stages such as understanding a problem situation, asking questions, making assumptions, and finding solutions.

The organization of heuristic lessons was based on the following stages: creating a problem situation, stimulating children's interest, encouraging them to propose different solutions, organizing independent exploratory activities, and jointly forming conclusions. This sequence helped to develop children's thinking processes in a consistent and structured way. In practical activities, the principle of "learning through discovery" played a central role. For example, through observing natural phenomena, comparing objects, conducting simple experiments, and engaging in play-based situations, children acquired knowledge directly through their own actions. In this process, they not only learned outcomes but also attempted to analyze the processes leading to those outcomes.

The results of the study showed that in activities based on heuristic learning, children's level of engagement significantly increased. They did not limit themselves to answering simple questions but began to ask additional questions, justify their opinions, and propose alternative solutions. This contributed to the development of their cognitive independence. In addition, an increase in emotional engagement was observed during the analysis process. Since heuristic tasks were

combined with play elements, children perceived the learning process not as an obligation but as an interesting activity. This strengthened their intrinsic motivation toward learning. Group work activities played an especially important role. By working in small groups, children developed skills such as expressing their own ideas, listening to others, reaching agreements, and making joint decisions. This also positively influenced the development of their social competencies.

In the pedagogical process, the role of the teacher was mainly that of a guide and facilitator. Instead of providing ready-made answers, the teacher encouraged thinking through guiding questions. At the same time, a differentiated approach was applied, taking into account each child's individual characteristics. According to the analysis results, the implementation of heuristic teaching technologies led to the following positive changes: development of logical and critical thinking elements, enhancement of creative approaches, increased confidence in independent activity, and improved communication skills. In addition, the educational process became more dynamic, interactive, and effective. The methodological analysis confirms that heuristic teaching technologies are highly effective in preschool education. This approach has a comprehensive impact on children's development and contributes to forming them as independent thinkers, creative individuals, and active learners.

Conclusion. The use of heuristic teaching technologies in preschool education has been demonstrated in this article as one of the most effective pedagogical approaches for ensuring children's intellectual, creative, and personal development. The analysis shows that learning activities organized on the basis of heuristic approaches significantly enhance children's independent thinking skills, their ability to analyze problem situations, and their capacity to explore multiple possible solutions. The practical application of heuristic teaching technologies revealed an increase in children's interest in learning, a higher level of active participation in educational activities, and the development of creative thinking elements. In addition, improvements were observed in children's social skills, such as communication, cooperation, and the ability to express their own ideas freely.

The results of the study confirm that, within heuristic learning processes, the teacher acts as a guide and facilitator, which helps children develop independence and self-confidence. Furthermore, organizing learning through play-based and problem-solving situations strengthens children's intrinsic motivation and engagement. The wide implementation of heuristic teaching technologies in the preschool education system is of great importance in preparing a modern generation that is independent, creative, and capable of critical thinking. Therefore, further scientific research and practical application of these technologies remain highly relevant tasks in contemporary pedagogy.

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