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FOREIGN EXPERIENCES IN DEVELOPING LOGICAL THINKING OF PRIMARY SCHOOL STUDENTS

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Annotation

This article highlights the role and significance of international experiences in the process of developing logical thinking skills among primary school students. It analyzes interactive methods, didactic games, problem-based learning approaches, and STEAM technologies applied in the primary education systems of developed countries such as Finland, Japan, Singapore, and South Korea. The study also discusses the possibilities of adapting these foreign experiences to the Uzbek primary education context, their advantages in improving educational outcomes, and their contribution to fostering students' logical thinking skills.

Keywords

logical thinking, primary education, foreign experience, Finnish education, Japanese schools, Singapore methodology, logical games, problem-solving, STEAM technologies, interactive methods.

Currently, in the development strategy of "New Uzbekistan," modernizing the education system and enhancing the intellectual potential of young people are identified as key priorities. President Shavkat Mirziyoyev has emphasized in his speeches that "science, education, and upbringing are the foundation of our future," setting improving the quality of education, introducing modern pedagogical methods, and developing the thinking skills of the younger generation as top priorities. In particular, the "Concept for the Development of the Public Education System until 2030" highlights the implementation of interactive methods, problem-based learning, the development of logical thinking, and the adaptation of foreign experiences in primary education. Within the framework of these reforms, studying the experiences of developed countries such as Finland, Japan, Singapore, and South Korea and adapting them to the local education process is of urgent importance for developing logical thinking skills among primary school students.

Globally, the development of logical thinking in primary school students is a key focus in educational systems. For example, the Finnish education model emphasizes students' independent thinking, problem-solving skills, and organizing the learning process without overloading them. This approach helps develop early-age skills such as understanding logical relationships, analyzing, and justifying one's opinions.

In the Japanese education system, students regularly encounter problem-based situations in their daily lessons, and tasks requiring mathematical reasoning and logical analysis are consistently assigned as a core tool for developing logical thinking. Japanese primary schools also employ collaborative discussions, the "big picture" approach, and technology-integrated teaching methods. Developing logical thinking plays a vital role in shaping students' cognitive skills, including text analysis, sequencing events, identifying cause-and-effect relationships, and logically substantiating opinions. Additionally, by solving problem-based situations, narrating events coherently, and discussing alternative solutions, students enhance independent thinking and analytical skills. In this context, logical thinking development not only fosters language

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skills but also promotes understanding of abstract concepts, systematic thinking, and creative approaches, making it an effective method for nurturing independent and logical reasoning.

Singaporean primary education emphasizes the "CPA model" — Concrete–Pictorial–Abstract — to develop logical thinking. Students first work with real objects, then move to pictorial representations, and finally to abstract concepts, thereby gradually enhancing their reasoning skills. Problem-based tasks encourage students to explore multiple solutions, analyze results, and justify their decisions logically. Group activities further develop skills in exchanging ideas, discussing different approaches, and collaboratively finding solutions. Thus, the Singaporean experience effectively fosters logical thinking, analytical reasoning, and systematic problem-solving skills in young learners.

South Korea's education system focuses on the parallel development of creative and logical thinking through STEAM (Science, Technology, Engineering, Art, Mathematics) integration. Lessons in Korean schools are conducted through project-based activities, experiments, construction tasks, and group analysis. Such foreign experiences are also highly relevant for Uzbek primary education. National programs and presidential decrees on modernizing Uzbekistan's education system emphasize the formation of logical, creative, and independent thinking skills among students. The "Concept for the Development of the Public Education System until 2030" also sets specific directions for applying foreign-method-based pedagogical approaches in local schools. Therefore, studying advanced international experiences, adapting them to the local educational environment, and integrating them with modern pedagogical approaches is one of the key factors for effectively developing logical thinking skills in primary school students.

One of the most effective methods for developing logical thinking in primary school students is didactic games. In countries such as Finland and Singapore, mathematical and logical games help students better understand abstract concepts while simultaneously developing independent thinking, problem-solving, and decision-making skills. In Japan, problem-based situations and project-based learning are widely used, allowing students to solve real-life problems collaboratively while developing logical thinking, teamwork, and communication skills. In South Korea, STEAM integration combines knowledge of mathematics, science, and technology with logical and creative thinking. Students analyze problems, conduct experiments, and evaluate results through real and virtual experiences. Digital technologies and interactive programs enable students to visualize tasks, work with diagrams and charts, and better grasp abstract concepts. The application of these methods in Uzbekistan aligns with presidential decrees and public education development concepts, making the study and adaptation of foreign experiences crucial for strengthening logical thinking skills in primary school students.

The analysis of international practices shows that several effective approaches can be applied to develop logical thinking in primary education. In Finland and Singapore, didactic games, step-by-step explanations, and problem-based tasks foster independent and analytical thinking. In Japan, project-based learning and group work help students analyze problems, seek solutions, and make decisions. South Korea integrates STEAM to combine knowledge of science, mathematics, and technology with logical and creative thinking. Adapting these practices in Uzbek primary schools may include problem-based tasks, project work, group discussions, interactive and visual materials, and step-by-step approaches that facilitate understanding of abstract concepts. These approaches promote independent thinking, analytical and logical reasoning, creativity, and effective problem-solving skills. Consequently, methodological approaches based on foreign experiences, when adapted to the local context, can significantly enhance the development of logical thinking in students.

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Several directions exist for implementing advanced foreign methods in Uzbek primary schools. First, integrating didactic games and problem-based tasks into lessons develops independent thinking, analysis, and decision-making skills. Project-based learning enables students to analyze real-life situations and develop teamwork and creative thinking while finding solutions. STEAM approaches combine knowledge of science, mathematics, and technology to simultaneously develop logical and creative thinking. Lessons can incorporate experiments, construction tasks, project-based assignments, and interactive programs. Additionally, textbooks and methodological guides featuring tasks, diagrams, charts, logical games, and problem-solving activities based on foreign experiences enhance the learning process. These approaches align with presidential decrees and public education development concepts, allowing primary school students to develop logical thinking at a high level.

Conclusion: The study confirms that international experience plays a significant role in developing logical thinking in primary school students. Didactic games, problem-based learning, project-based approaches, and STEAM technologies applied in Finland, Japan, Singapore, and South Korea foster independent thinking, analytical skills, and understanding of logical relationships. Adapting these methods to the Uzbek primary education context increases the effectiveness of developing students' creative and logical thinking. The goals outlined in presidential decrees — improving education quality, introducing innovative pedagogical approaches, and implementing foreign experiences — directly support this direction. Therefore, studying and adapting advanced international methods is essential for developing logical thinking in primary school students, enabling them to think independently, grasp abstract concepts, and solve problems effectively.

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