

**THE ROLE AND IMPORTANCE OF PLAY ACTIVITIES  
IN THE IMPLEMENTATION OF STEAM TECHNOLOGY  
FOR PRESCHOOL CHILDREN**

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**Abstract:** This thesis highlights the relevance, advantages, and methodological foundations of implementing STEAM technology for preschool-aged children through play activities. STEAM technology develops children's thinking, practical skills, creativity, and critical thinking abilities. Teaching through play makes the educational process interactive and engaging, while also improving the level of knowledge acquisition. The thesis analyzes types of play activities, their integration with STEAM components, the role of virtual technologies, and pedagogical approaches.

**Keywords:** STEAM, interactivity, STEAM platform, play activities, creativity, integration, workshop, virtual reality, innovation.

**Introduction.** In the Decree No. PQ-4312 dated May 8, 2019, by the President of the Republic of Uzbekistan titled "On the Approval of the Concept for the Development of the Preschool Education System of the Republic of Uzbekistan until 2030," it is emphasized that the improvement of the educational and upbringing process should be based on assessing the developmental level of children and their readiness for general primary education, as well as their social, personal, emotional, speech, physical, and creative development. To achieve the objectives set out in this decree, every preschool educator must have a good understanding of STEAM educational technology—currently recognized as the most effective technology in the field of preschool education—and be able to apply it in their practice.

**Relevance of the Problem.** The application of STEAM technology in preschool education plays a crucial role in developing children's thinking, creative reasoning, and problem-solving skills. Especially by integrating this technology with play activities, the effectiveness of education can be significantly enhanced. Play enables children to acquire new knowledge, gain practical experience, and develop observation and analytical skills. Introducing STEAM elements through play fosters scientific and technical interest, creativity, and critical thinking in children. Therefore, developing and implementing a play-based STEAM methodology in preschool institutions is a pressing issue. This

approach creates a foundation for the comprehensive development of children and prepares them for modern life.

**The Essence of STEAM Technology.** STEAM (Science, Technology, Engineering, Arts, and Mathematics) is an educational acronym and an instructional approach that provides integrative, practical, and experiential learning in scientific disciplines, technology, engineering, arts, and mathematics. By combining these fields, STEAM helps learners develop creativity and teamwork skills. The STEAM approach prepares children for practical, interactive, and solid knowledge acquisition processes. This method supports learners, students, and educators in enhancing creativity, discussion skills, technological literacy, applying scientific and mathematical knowledge in practice, and expressing themselves through arts. STEAM focuses on developing critical thinking, inquiry, problem-solving, construction, innovation, and collaboration skills. It prepares learners to address 21st-century challenges, engage with innovations and technologies, apply scientific and mathematical knowledge in practice, and develop artistic expression skills. **The Role of Play Activities.** Play activities are divided into two major groups based on their content, organization, and characteristics:

1. **Creative plays** – including role-playing, construction games, and dramatized plays.
2. **Rule-based games** – including didactic games, active games, musical games, and recreational games. During lessons, games from both groups are used. This type of activity helps increase children's interest in STEAM technology and ensures that their time spent in the educational institution is meaningful. Among preschool-aged children, play activity is the most frequently used form of engagement. Therefore, using play activities to foster interest in STEAM technology among young children is considered appropriate and effective.

**Virtual Reality (VR) and Mixed Technologies:** STEAM technology also incorporates virtual reality and mixed technologies, which allow learners to immerse themselves in educational materials and make the learning process more interactive. The STEAM approach in preschool institutions is based on the idea articulated by pedagogical scientist M. Montessori: "Help me do it myself." This concept facilitates children's independent learning and development. Numerous studies have confirmed that STEAM helps develop children's creativity and discussion skills.

**STEAM Workshop:** The STEAM Workshop program allows children to create and use their own games, fostering creativity and discussion abilities. By designing and using their games, children gain the opportunity to create educational materials and apply them practically. The STEAM Workshop available on the STEAM platform also provides access to recommended games, enabling learners to quickly grasp game rules and develop educational skills that emerge through gameplay.

**Learning Through Games:** The STEAM platform offers educational games and learning materials designed for children. These games support the development of creativity and discussion skills. Through gameplay, learners enhance their scientific and practical knowledge of STEAM technology and acquire skills in discussion and problem-solving.

**Conclusion.** The application of STEAM technology in preschool education is a vital factor in developing children's thinking, creativity, and problem-solving skills. Particularly, integrating this technology with play activities makes the educational process more effective and engaging. Through play, children not only acquire knowledge but also gain practical experience and learn independent thinking, observation, and analysis skills. Therefore, introducing STEAM elements based on play activities in preschool institutions, developing new methodological approaches for educators, and applying them in practice is an urgent need. This, in turn, contributes to the comprehensive development of children and prepares them for modern life in the future.

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