MECHANISMS OF APPLYING STEAM TEACHING TECHNOLOGIES IN THE ARTISTIC AND AESTHETIC EDUCATION OF PRESCHOOL CHILDREN

O‘roqboyeva Sevinch To‘ychi kizi
Jizzakh State Pedagogical University
Master’s student,
Theory and Methodology of Education and Upbringing
(Preschool Education specialization)
E-mail: urakboyevasevinch10@gmail.com

Abstract

Artistic and aesthetic education plays a vital role in the holistic development of preschool children, fostering creativity, emotional sensitivity, and imaginative thinking. In recent years, the integration of STEAM (Science, Technology, Engineering, Arts, and Mathematics) teaching technologies has emerged as an innovative approach to enhancing educational effectiveness in early childhood education. This study aims to identify the mechanisms of applying STEAM teaching technologies in the artistic and aesthetic education of preschool-aged children and to determine their pedagogical effectiveness. The research analyzes the impact of STEAM-based activities on children’s creative thinking, artistic expression, problem-solving skills, and aesthetic perception. The findings reveal that integrating art with science, technology, engineering, and mathematics through interactive and project-based activities significantly enhances children’s aesthetic development and cognitive engagement. Furthermore, the study highlights the importance of teacher guidance, a supportive learning environment, and interdisciplinary integration in achieving positive educational outcomes.

Keywords: STEAM education, artistic and aesthetic education, preschool children, creativity, interdisciplinary learning

Introduction

Preschool age is a crucial stage in a child’s development, during which fundamental cognitive, emotional, and creative abilities are formed. Artistic and aesthetic education at this stage contributes significantly to the development of imagination, emotional responsiveness, aesthetic taste, and creative self-expression. In modern educational practice, innovative teaching technologies are increasingly emphasized to ensure the comprehensive development of preschool children.

One of the most effective contemporary approaches is STEAM education, which integrates science, technology, engineering, arts, and mathematics into a unified learning model. The inclusion of the “Arts” component distinguishes STEAM from traditional STEM education by emphasizing creativity and aesthetic thinking alongside technical and scientific skills. In preschool education, STEAM technologies provide opportunities for children to explore the world creatively through experimentation, artistic activities, and problem-solving tasks.

The application of STEAM teaching technologies in artistic and aesthetic education enables children to develop not only artistic skills but also critical thinking, collaboration, and curiosity. Therefore, identifying effective mechanisms for implementing STEAM approaches in preschool artistic and aesthetic education is a relevant and important task for contemporary pedagogy.

Objective

The main objective of this study is to identify the mechanisms of applying STEAM teaching technologies in the artistic and aesthetic education of preschool-aged children and to develop effective pedagogical approaches for their implementation. The research aims to analyze the relationship between STEAM-based learning activities and children’s creativity, aesthetic perception, and cognitive development. Additionally, the study seeks to determine the role of educators, interdisciplinary

integration, and interactive learning environments in enhancing artistic and aesthetic education through STEAM technologies. Based on the findings, practical recommendations for preschool educational institutions are proposed.

Methods

The study employed a combination of pedagogical and psychological research methods to examine the application of STEAM teaching technologies in the artistic and aesthetic education of preschool children. Observation methods were used to analyze children's participation in creative activities, their engagement in STEAM-based projects, and their emotional and aesthetic responses.

Interactive and play-based learning methods formed the core of the research process. Preschool children participated in integrated STEAM activities that combined art with simple scientific experiments, construction tasks, technological tools, and mathematical concepts. Group projects, creative workshops, and hands-on activities were organized to observe children's collaboration, creativity, and problem-solving abilities.In addition, interviews and discussions with educators were conducted to assess their perspectives on STEAM implementation and its impact on children's artistic development. Diagnostic tools and qualitative assessment methods were used to evaluate changes in children's creativity, aesthetic perception, and cognitive engagement. The collected data were analyzed using qualitative and descriptive analytical methods.

Results

The results of the study indicate that the integration of STEAM teaching technologies significantly enhances the artistic and aesthetic development of preschool children. Observations revealed that children involved in STEAM-based activities demonstrated higher levels of creativity, imagination, and aesthetic sensitivity compared to traditional teaching methods.

Children showed increased interest and engagement when artistic activities were combined with scientific exploration, construction, and problem-solving tasks. STEAM projects encouraged children to experiment with materials, express ideas creatively, and collaborate with peers. The results also showed that interdisciplinary activities helped children better understand artistic concepts through practical application.

Furthermore, educators' guidance and support played a crucial role in the effective implementation of STEAM technologies. A positive and stimulating learning environment, combined with interactive teaching strategies, contributed to the development of children's artistic expression and aesthetic awareness.

Discussion and Conclusion

The findings of the study confirm that STEAM teaching technologies are an effective tool for enhancing artistic and aesthetic education in preschool settings. The integration of art with science, technology, engineering, and mathematics supports the holistic development of children by fostering creativity, critical thinking, and emotional expression.

The results align with contemporary educational theories emphasizing interdisciplinary learning and active child participation. Teachers' professional competence, creative approach, and ability to integrate STEAM components play a decisive role in achieving positive outcomes. The study highlights the necessity of creating supportive learning environments that encourage experimentation, imagination, and collaboration.

In conclusion, the application of STEAM teaching technologies in the artistic and aesthetic education of preschool children contributes to the comprehensive development of their creative and cognitive abilities. The study provides a scientific foundation for developing innovative pedagogical strategies and practical recommendations for preschool education institutions, ultimately improving the quality of early childhood education.

References

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