World Academy of Science, Engineering and Technology
International Journal of Educational and Pedagogical Sciences
Vol:17, No:10, 2023

The Impact of Kids Science Labs Intervention Program on Independent Thinking and Academic Achievement in Young Children

Authors : Aliya Kamilyevna Salahova

Abstract : This study examines the effectiveness of the Kids Science Labs intervention program, based on STEM, in fostering independent thinking among preschool and elementary school children and its influence on their academic achievement. Through a comprehensive methodology involving interviews, surveys, observations, case studies, and statistical tests, data were collected from various sources to accurately analyze the program's effects. The findings indicate a significant positive impact on children's independent thinking abilities, leading to improved academic performance in mathematics and science, enhanced learning motivation, and a propensity to critically evaluate problem-solving approaches. This research contributes to the theoretical understanding of how STEM activities can foster independent thinking and academic success in young children, providing valuable insights for the development of educational programs. Introduction: The goal of this study is to investigate the influence of the Kids Science Labs intervention program, grounded in STEM, on the development of independent thinking skills among preschool and elementary school children. By addressing this objective, we aim to explore the program's potential to enhance academic performance in mathematics and science. The study's findings have theoretical significance as they shed light on the ways in which STEM activities can foster independent thinking in young children, thus enabling educators to design effective learning programs that promote academic success. Methodology: This study employs a robust methodology that includes interviews, surveys, observations, case studies, and statistical tests. These methods were carefully selected to collect comprehensive data from multiple sources, such as documents and records, ensuring a thorough analysis of the program's effects. The use of diverse data collection and analysis procedures facilitated an in-depth exploration of the research questions and yielded reliable results. Results: The results indicate that children participating in the Kids Science Labs program experienced a sustained positive impact on their independent thinking abilities. Moreover, these children demonstrated improved academic performance in mathematics and science, displaying higher learning motivation and the capacity to critically evaluate problem-solving methods and seek optimal solutions. Theoretical Importance: This study contributes significantly to the existing theoretical knowledge by elucidating how STEM activities can foster independent thinking and enhance academic success in preschool and elementary school children. The findings have practical implications for educators, empowering them to develop learning programs that stimulate independent thinking, leading to improved academic performance in young children. Discussion: The findings of this research affirm that the Kids Science Labs intervention program is highly effective in fostering independent thinking among preschool and elementary school children. The program's positive impact extends to improved academic performance in mathematics and science, highlighting its potential to enhance learning outcomes. Educators can leverage these findings to develop educational programs that promote independent thinking and elevate academic achievement in young children. Conclusion: In conclusion, the Kids Science Labs intervention program has been found to be highly effective in fostering independent thinking among preschool and elementary school children. Furthermore, participation in the program correlates with improved academic performance in mathematics and science. The study's outcomes underscore the importance of developing educational initiatives that stimulate independent thinking in young children, thereby enhancing their academic success.

Keywords : STEM in preschool, STEM in elementary school, kids science labs, independent thinking, STEM activities in early childhood education
Conference Title : ICESPE 2023 : International Conference on Elementary School and Practical Education
Conference Location : Los Angeles, United States
Conference Dates : October 30-31, 2023

Open Science Index, Educational and Pedagogical Sciences Vol:17, No:10, 2023 publications.waset.org/abstracts/166440.pdf