



Investigating the Impact of STEM Activities on the Creative Thinking Skills of Preschool Children

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Abstract

The purpose of this study was to design STEM activities for preschool children aged 5–6 and to assess their impact on the children’s creative thinking skills. The research was conducted during the 2024–2025 academic year in two preschool classrooms affiliated with the Ministry of National Education in the Pendik district of Istanbul. A quasi-experimental pretest-posttest control-group design was employed. The sample comprised 40 children in total: 20 in the experimental group (9 boys, 11 girls) and 20 in the control group (11 boys, 9 girls). Ten STEM activities were developed and reviewed by four academics—each holding a doctoral degree and specializing in Child Development or Preschool Education. These activities were implemented once weekly over ten weeks in addition to the regular preschool curriculum for the experimental group. The control group followed only the standard preschool program prepared and delivered by their own teachers. Data were collected via a Demographic Information Form and the Integrated Creativity Test for Preschoolers – Preschool Creative Thinking Skills Scale (K-ICT), originally developed by Lee and Lee (2002) in Korea and adapted into Turkish by Yuvacı (2018). Statistical analyses included the Shapiro–Wilk test, Mann–Whitney U test, and Welch’s t-test. Results demonstrated that the experimental group’s mean pretest-posttest scores on creative thinking differed significantly from those of the control group ($p < 0.05$).

Keywords: Creativity; Innovation; Play Based Learning; Preschool; STEM Education