Enhancing Social Skills through Visual Programming: A Study on the Use of Scratch in Greek Primary Education

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Abstract

Although widely used for coding instruction, Scratch's role in social development is underexplored. This study explores the effectiveness of the Scratch visual programming environment in fostering three core social skills—empathy, collaboration, and acceptance of diversity—among primary school students in Greece. The research was conducted through a quasi-experimental design with 33 students aged 11–12, divided into an experimental group (n=18) and a control group (n=15). The experimental group engaged in the design and development of a complete educational game using Scratch, while the control group received instruction through traditional methods. The intervention was integrated into the regular curriculum and spanned approximately 24 instructional hours. Social skills were assessed before and after the intervention using standardized questionnaires. Descriptive statistics, independent samples t-tests, and Pearson correlation coefficients were employed to analyze the data and identify statistically significant differences between the groups. The results indicated a statistically significant improvement in empathy and acceptance of diversity within the experimental group. Conversely, collaboration appeared to develop more prominently in the control group, suggesting the influence of instructional structure and group dynamics. These findings underscore the broader educational potential of visual programming tools. Beyond fostering computational thinking, Scratch can serve as a medium for meaningful social-emotional learning, encouraging students to engage creatively and collaboratively in problem-solving processes. The study contributes to current educational discourse by highlighting how digital environments can be strategically employed to address both cognitive and interpersonal dimensions of learning, aligning with the evolving demands of 21st-century education.

Keywords: collaborative problem-solving; digital pedagogy; empathy; game-based learning; social-emotional learning