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The Effect Of Digital Game-Assisted Mathematics Education On Students' Academic Achievement: A Meta-Analysis Study

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Abstract

The impacts of incorporating digital games into the mathematics teaching process on students' academic progress were evaluated in this study utilizing a meta-analysis method. This was accomplished by calculating the effect size and the average effect size of the moderator factors (education level, game genre, implementation duration, and sample size). The analysis was conducted using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). Twenty-six effect size values for 23 studies were obtained using the eligibility criteria. When effect sizes were estimated, Hedges's g coefficient was employed, and a confidence level of 95% was acceptable. The random-effects model produced an average effect size of 0.792 with a standard error of 0.077. As a result, the effects of game-based learning on academic achievement are significant and beneficial in the mathematics teaching process.

Keywords: game based learning, mathematics, academic achievement, meta-analysis