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Interactive Learning Apps and Math Achievement in Nigerian Primary Schools: An Analytical Study

Oladeinde Adebisi[1]

[1] Babcock University

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Correspondence: oadebisi@gmail.com

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Author notes

Oladeinde Adebisi is affiliated with Babcock University and focuses on Computer Science research in Africa.

Abstract

Interactive learning apps have emerged as a promising tool to enhance educational outcomes in primary schools globally, but their impact on math achievement in Nigerian primary schools remains underexplored. A mixed-methods approach was employed, including a quasi-experimental design with pre- and post-test assessments to measure changes in students' math scores. Qualitative data were collected through interviews with teachers and focus group discussions with students to explore app usage patterns and perceived benefits. Pre- and post-assessment results indicated an average improvement of 15% in math scores among students who used the interactive learning apps compared to those who did not, although this effect size varied significantly by grade level ($p < 0.05$). Interactive learning apps show promise for enhancing math achievement in Nigerian primary schools, though further research is needed to understand specific app functionalities and teacher usage. School administrators should prioritise integrating interactive learning apps into their curriculum, particularly focusing on high-impact educational features. Teachers require training to effectively utilise these tools and evaluate student progress accurately. Interactive Learning Apps, Math Achievement, Nigerian Primary Schools, Educational Technology Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumiell(yi, f\theta(\xi)) + \lambda lVert\theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *African Education, Mobile Learning, Quantitative Research, Educational Technology, Cognitive Development, Data Analysis, Cross-Cultural Studies*

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