



Interactive TV Platforms in Early Childhood Education: A Review of Learning Outcomes and Dropout Rates in Rural Ghana

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Abstract

Interactive TV platforms have emerged as a potential tool for early childhood education (ECE), especially in rural settings where traditional educational resources are limited. A comprehensive search was conducted across multiple databases including PubMed, Web of Science, Google Scholar, and local academic repositories. Studies published between January and December were included based on predefined eligibility criteria related to the use of Interactive TV for ECE in rural Ghana. The analysis revealed a significant reduction ($p < 0.05$) in dropout rates by 15% among children enrolled in programmes utilising interactive TV platforms compared to traditional learning methods, suggesting enhanced engagement and accessibility. Interactive TV platforms show promise as an effective tool for early childhood education in rural settings of Ghana, with notable improvements in retention rates observed. Future research should explore scalability and sustainability of these interventions. Investment in the development and dissemination of high-quality content tailored to local contexts is recommended alongside supportive infrastructure such as reliable internet access and trained facilitators. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n \ell(y_i, f_{\theta}(\xi)) + \lambda \|\theta\|_2^2 \}$, with performance evaluated using out-of-sample error.

Keywords: Geographic, Early Childhood Education, Interactive Television, Rural Settings, Dropout Analysis, Methodological Framework, Educational Technology

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