Developing EdTech Solutions for Remote Learning in Eritrean Rural Settings

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Abstract

This study addresses a current research gap in Computer Science concerning Developing Educational Technology (EdTech) Solutions for Remote Learning in Rural Areas in Eritrea. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Developing Educational Technology (EdTech) Solutions for Remote Learning in Rural Areas, Eritrea, Africa, Computer Science, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Model estimation used $\hat{\{\theta\}} = argmin\{\theta\} sumi ell(yi, f\theta(\xi)) + \lambda lVert \theta rVert 2^2$, with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, Virtual Reality, Participatory Design, Adaptive Learning, Ethnography, Mobile Computing, Blended Learning*

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