



Developing EdTech Solutions for Remote Learning in Kenyan Rural Environments Through Iterative Design Prototyping Techniques

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Abstract

Remote learning in rural Kenyan environments poses significant challenges due to infrastructure limitations such as unreliable internet connectivity. An iterative design process was employed, including user feedback sessions and technological assessments. A mixed-methods approach combining surveys with qualitative interviews provided comprehensive insights into learner engagement and satisfaction. The direction of learner engagement showed a 25% improvement in understanding concepts through the use of interactive multimedia content compared to traditional methods. Iterative design prototyping techniques proved effective in creating EdTech solutions that enhance remote learning experiences for rural Kenyan students. Future research should explore longer-term impact and scalability of these technologies across different educational contexts. Model estimation used $\hat{\theta} = \operatorname{argmin} \{ \theta \} \operatorname{sum}_{i \in I} \ell(y_i, f_{\theta}(\xi)) + \lambda \operatorname{Vert} \theta \operatorname{Vert}^2$, with performance evaluated using out-of-sample error.

Keywords: *Kenyan, Iterative Design, Technological Assessment, User-Centred Design, Rural Computing, Educational Technology, Prototype Development*

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