Developing Robust EdTech Solutions for Remote Learning in Rwanda's Rural Settings

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Abstract

Remote learning in rural areas of Rwanda has faced challenges due to limited infrastructure and connectivity, necessitating innovative solutions. A participatory design approach was employed with stakeholders including educators, students, and local communities. A mixed-methods study combining surveys and focus groups was conducted to gather data on user needs and preferences. Findings indicated a significant preference for interactive video content (72%) over static multimedia materials. The majority of respondents (65%) preferred solutions that allowed real-time interaction with teachers, highlighting the importance of connectivity in rural areas. The study identified key requirements and user preferences for effective remote learning platforms in Rwanda's rural context. Developers should prioritise interactive video content and ensure reliable internet connections to support real-time interactions among learners and educators. 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: *Rwandan, Participatory Design, ICT4D, E-Learning, Rural Computing, Distance Education, Technology Transfer*

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