



Developing Educational Technology Solutions for Remote Learning in Rural Ethiopia,

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Abstract

Remote learning in rural areas of Ethiopia has been a significant challenge due to limited infrastructure and resources. A systematic search strategy was employed across multiple databases to capture relevant studies on EdTech applications for education in Ethiopia's rural areas. Studies published between and were included based on predefined inclusion criteria. The analysis identified a predominantly digital approach, with online platforms accounting for over 70% of the educational technology solutions reviewed, reflecting a shift towards more inclusive learning methods despite initial technological limitations. Despite challenges, there is evidence of evolving EdTech strategies in rural Ethiopia, focusing on community engagement and local resource use to enhance remote learning environments. Investment should be directed towards improving internet connectivity and training for educators in the use of digital platforms. Collaboration with local communities can also support sustainable solutions. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta; \xi))^2 + \lambda \|\theta\|_2^2 \}$, with performance evaluated using out-of-sample error.

Keywords: *African geography, Educational technology, Mobile learning, Rural education, Technological infrastructure, Wireless networks, Telecommunications systems*

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