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Designing Technological Innovations for Remote Education in Rural Angola: A Multidisciplinary Approach

Carlos Macias[1], **João Caetano**[2,3], **Félix Chissano**[4,5], **Mário Fonseca**[6]

[1] Department of Artificial Intelligence, Agostinho Neto University, Luanda

[2] Department of Artificial Intelligence, Technical University of Angola (UTANGA)

[3] Department of Data Science, Agostinho Neto University, Luanda

[4] Jean Piaget University of Angola

[5] Department of Software Engineering, Technical University of Angola (UTANGA)

[6] Agostinho Neto University, Luanda

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Correspondence: cmacias@outlook.com

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Author notes

Carlos Macias is affiliated with Department of Artificial Intelligence, Agostinho Neto University, Luanda and focuses on Computer Science research in Africa.

João Caetano is affiliated with Department of Artificial Intelligence, Technical University of Angola (UTANGA) and focuses on Computer Science research in Africa.

Félix Chissano is affiliated with Jean Piaget University of Angola and focuses on Computer Science research in Africa.

Mário Fonseca is affiliated with Agostinho Neto University, Luanda and focuses on Computer Science research in Africa.

Abstract

Remote education in rural Angola faces significant challenges due to limited infrastructure and connectivity. Current educational technology solutions often fail to meet the needs of this underserved population. The research employs a mixed-methods approach combining qualitative interviews with quantitative surveys. A Delphi method is used to validate the choice of educational technologies (e.g., mobile apps, video conferencing). A thematic analysis revealed that community feedback favored low-bandwidth compatible solutions with interactive features for improved engagement and accessibility. The findings suggest that a combination of open-source software and local content creation can significantly enhance educational access in rural areas. Future research should focus on scalability and cost-effectiveness. Developers are encouraged to prioritise user-friendly design and ensure compatibility with existing infrastructure, while policymakers should consider funding mechanisms for sustainable implementation. Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2},$ with performance evaluated using out-of-sample error.

Keywords: *Sub-Saharan, Geographic Information Systems, Mobile Learning, E-Learning, Participatory Design, Digital Divide, Indigenous Knowledge Systems*

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