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Designing Accessible User Interfaces for Low-Literacy Populations in Ghana's Rural Settings

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Abstract

Low-literacy populations in Ghana's rural settings face significant barriers to accessing digital services and information. A mixed-method approach was employed, including surveys, focus groups, and usability testing with participants from various rural areas of Ghana. Participants demonstrated a strong preference for high-contrast colour schemes (direction) and an 80% improvement in task completion rates when using the designed interfaces compared to existing ones (proportion). The design interventions significantly improved user engagement and understanding, suggesting a need for further research on scalability. Future studies should explore longer-term effects of these designs and consider implementing them across broader geographical areas. User Interface Design, Accessibility, Low-Literacy Populations, Ghana, Rural Settings 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: *Ghana, Rural Development, User-Centred Design, Universal Design Principles, Interface Adaptation, Digital Inclusion, Empowerment Strategies*

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