Designing User Interfaces for Low-Literacy Populations in South Africa: A Technological Approach

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Abstract

User interfaces designed for low-literacy populations often face challenges in usability and accessibility. The study employed a mixed-methods approach combining surveys, interviews, and ethnographic observations to gather data from low-literacy participants. A prototype was developed using the Nielsen usability model as a framework. Participants expressed significant preference for interfaces with clear visual cues and simplified text content (85% rated clarity higher than complexity). The methodological approach successfully identified key design elements that improve user interface usability for low-literacy populations, particularly in South Africa. Future research should expand the dataset to include more diverse populations and incorporate technological advancements such as AI-driven translation tools. 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: _African, ethnography, literacy, qualitative, user-centred design, accessibility, technology assessment_

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