Designing Accessible User Interfaces for Low-Literacy Populations in Ethiopian Contexts

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Abstract

Low-literacy populations in Ethiopia face significant barriers to accessing digital services through traditional user interfaces. This study aims to design and evaluate accessible user interfaces tailored for such groups. A mixed-methods approach combining surveys and usability testing was employed. Surveys collected data on user preferences and needs, while usability tests assessed interface clarity and functionality among participants. The usability tests revealed that a simplified visual design with high-contrast colour schemes significantly improved understanding for low-literacy users (85% of respondents indicated higher comprehension). The study concluded that the proposed method effectively enhances user interfaces for low-literacy populations, addressing critical accessibility issues. Future research should validate these findings in larger samples and explore additional design elements to further optimise interface clarity. 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: *Ethiopia, User Experience Design, Human-Computer Interaction, Universal Design, Empirical Research, Digital Inclusion, Accessible Interfaces*

ABSTRACT-ONLY PUBLICATION

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