



Designing User Interfaces for Low-Literacy Populations in Ethiopia: A Replication Study

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Published: 23 June 2010 | **Received:** 22 March 2010 | **Accepted:** 05 June 2010

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DOI: [10.5281/zenodo.18910956](https://doi.org/10.5281/zenodo.18910956)

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Abstract

In recent years, there has been a growing interest in designing user interfaces that are accessible to low-literacy populations across Africa. The methodology involves conducting usability tests with participants who have low levels of literacy, focusing on the design and implementation of interactive interfaces for digital platforms. Participants are recruited based on predefined criteria related to their level of education and literacy skills. Quantitative measures such as task completion times and error rates are recorded alongside qualitative feedback. A key finding from this study is that participants who scored below a certain threshold in reading comprehension (e.g., those scoring below the 25th percentile) exhibited significantly higher error rates when interacting with digital interfaces compared to their counterparts. This suggests that current designs may need adjustments for better accessibility. The results of this replication study support the hypothesis that user interface design should be tailored to accommodate individuals with low literacy levels, emphasising the importance of considering these factors in future research and practice. Based on these findings, it is recommended that designers incorporate more intuitive visual cues and simplified language into digital interfaces for users with limited reading abilities. Additionally, further research should explore the long-term effectiveness of such design changes. Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \theta \} \operatorname{sumiell} (y_i, f\theta(\xi)) + \lambda l \operatorname{Vert} \theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: African, Anthropology, Design, Ergonomics, Interaction, Literacy, Usability

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