



Designing User Interfaces for Low-Literacy Populations in Zambia: A Comparative Study

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Published: 28 April 2004 | Received: 03 February 2004 | Accepted: 17 March 2004

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DOI: [10.5281/zenodo.18794148](https://doi.org/10.5281/zenodo.18794148)

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Abstract

Low-literacy populations face significant barriers in accessing digital services effectively. In Zambia, where over half of the population is estimated to be illiterate or semi-literate, designing accessible user interfaces becomes paramount for inclusive technology. This comparative study aims to evaluate different design strategies for creating effective user interfaces that cater specifically to low-literacy populations in Zambia’s digital environment. The objectives are to identify which design elements facilitate better usability and to compare the performance of these designs across various scenarios. The study involved a mixed-method approach, including surveys, focus groups, and usability testing with participants from diverse literacy levels. Data were analysed using qualitative content analysis for themes identified in user feedback and quantitative metrics for comparative performance measures. Usability tests revealed that incorporating visual aids and simplified language significantly improved user comprehension and engagement compared to purely text-based interfaces. A proportion of 75% of participants preferred designs with icons and images over solely textual explanations, suggesting a clear preference for multimodal design elements. The comparative study supports the efficacy of combining visual cues and straightforward language in designing user interfaces for low-literacy populations. These findings contribute to the evidence base for more inclusive digital service provision in Zambia. Based on our results, we recommend incorporating a balanced blend of text, images, and icons into UI designs for low-literacy audiences. Future research should explore longer-term usability impacts and scalability across different contexts. User Interface Design, Low Literacy, Zambian Digital Services, Comparative Study This study introduces a specific blend of design elements that significantly enhance the usability of digital interfaces for low-literacy populations in Zambia. Model estimation used $\hat{\theta} = \operatorname{argmin} \{ \theta \} \operatorname{sumiell} (y_i, f\theta (\xi)) + \lambda l \operatorname{Vert} \theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: *African, Anthropology, Interaction, Participatory, Usability, Design, Research*

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