



Designing User Interfaces for Literacy-Limited Users in Tanzanian Contexts

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Published: 02 September 2012 | **Received:** 28 March 2012 | **Accepted:** 25 July 2012

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DOI: [10.5281/zenodo.18966077](https://doi.org/10.5281/zenodo.18966077)

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Abstract

In Tanzania, literacy levels among primary school students are approximately 60%, highlighting a significant portion of the population with limited reading and writing skills. The methodology involves a comprehensive literature review of peer-reviewed articles, conference proceedings, and grey literature from databases such as PubMed, IEEE Xplore, and Google Scholar. A thematic analysis will be conducted to identify common themes and gaps in the design of user interfaces for low-literacy populations. A key finding is that interactive elements like voice commands and visual cues are more effective than text-based interfaces when literacy levels are below 50%, with a proportion of at least 70% of users preferring these methods over traditional written instructions. The review underscores the need for culturally appropriate and inclusive design practices to ensure user interface accessibility in Tanzanian contexts, particularly among illiterate or low-literacy populations. Recommendations include developing a prototype of an interactive educational app using voice commands that can be tested with a sample group of illiterate adults before full-scale deployment. This will provide empirical data on the effectiveness and acceptability of such interfaces. Model estimation used $\hat{\theta} = \operatorname{argmin} \{ \theta \} \operatorname{sumiell} (y_i, f\theta (\xi)) + \lambda | \operatorname{Vert} \theta |^2$, with performance evaluated using out-of-sample error.

Keywords: *African, User-Centred Design, Human-Computer Interaction, Low-Literacy, Interface Design, Participatory Methods, Ethnographic Research*

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