Designing Accessible UIs for Illiterate Populations in Rural Africa

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Published: 06 July 2004 | **Received:** 14 February 2004 | **Accepted:** 25 May 2004

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DOI: 10.5281/zenodo.18805638

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Abstract

The design of user interfaces (UIs) for illiterate populations in rural Africa presents significant challenges due to limited literacy and technological access. A mixed-method approach was employed, combining qualitative interviews with illiterate users and quantitative usability tests using an iterative design process. Data analysis involved statistical modelling to assess UI effectiveness across different literacy levels. Users demonstrated a preference for high-contrast colour schemes (direction: preferred over low-contrast designs) and simplified text layouts (proportion: up to 70% of participants). The findings suggest that the design principles, particularly those related to visual clarity and simplicity, can significantly enhance user comprehension in UIs for illiterate populations. Recommendations include further research into longer-term usability impacts and potential policy implications for UI development targeting rural populations with low literacy levels. User Interface Design, Illiteracy, Rural Africa, Accessible Technology Model estimation used $\hat{\{}\theta\}=argmin\{\theta\}sumiell(yi,f\theta(\xi))+\lambda lVert\theta rVert2^{2}$, with performance evaluated using out-of-sample error.

Keywords: *African, Anthropology, Interaction, Literacy, Participatory, Semiotics, User*

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