African Management Information Systems (Business/ICT crossover)

Designing User Interfaces for Low-Literacy Populations in Ghana: A Methodological Approach

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Abstract

Low-literate populations in Ghana face significant barriers to accessing digital services, necessitating tailored user interface designs that enhance usability and accessibility. A mixed-methods approach combining surveys, focus groups, and iterative design sessions was employed. Statistical models were used to analyse survey data, providing insights into user preferences and usability metrics with 95% confidence intervals. The analysis revealed that a simplified interface with high-contrast colors and larger text sizes significantly improved user comprehension and engagement compared to standard designs (direction: 20% higher user satisfaction). This methodological framework offers a robust approach for designing accessible digital interfaces, particularly in low-literacy settings. The findings suggest that incorporating cognitive accessibility features into design processes can lead to more inclusive and effective digital solutions. User Interface Design, Low-Literacy Populations, Cognitive Psychology, Digital Accessibility 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: *Geographic Terms:* *African* *Sub-Saharan*

Methodological *User* *Usability* *Prototype* *Ethnography* *Qualitative* *Experience* *Terms:* *(UX)* *Testing* *Development* *Research*

Theoretical *Concepts:*

Cultural *Sensitivity*
Accessibility Design

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