Designing Accessible User Interfaces for Illiterate Populations in Sub-Saharan Africa

Faten Ali[1], **Zainab Khaled**[2,3], **Ahmed Hamed**[2], **Aisha Ibrahim**[1,2]

[1] Department of Cybersecurity, Omar Al-Mukhtar University, Al Bayda

[2] Benghazi University

[3] Department of Cybersecurity, University of Tripoli

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Correspondence: fali@hotmail.com

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Author notes

Faten Ali is affiliated with Department of Cybersecurity, Omar Al-Mukhtar University, Al Bayda and focuses on Computer Science research in Africa.

Zainab Khaled is affiliated with Benghazi University and focuses on Computer Science research in Africa.

Ahmed Hamed is affiliated with Benghazi University and focuses on Computer Science research in Africa.

Aisha Ibrahim is affiliated with Benghazi University and focuses on Computer Science research in Africa.

Abstract

In Sub-Saharan Africa, illiterate populations face significant barriers to accessing digital technologies due to the lack of basic literacy skills and inadequate user interfaces. A mixed-methods approach was employed, comprising qualitative interviews with users, usability testing sessions, and statistical analysis of user feedback data. A Likert scale survey was used to assess user preferences and satisfaction levels. User interfaces featuring simple visual elements and clear text instructions were found to be particularly effective in improving understanding among illiterate populations. The proportion of respondents who preferred these designs over complex alternatives was 85%. This study demonstrates that by incorporating user-centred design principles, it is possible to create accessible digital solutions for illiterate populations in Libya and beyond. Future research should conduct more extensive usability testing and gather input from a broader range of users to further refine the design criteria. User interface design, accessibility, low-literacy populations, Sub-Saharan Africa, user-centred design 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: *Sub-Saharan, AfricanDesign, AugmentedReality, UserExperience, LiteracyAssessment, HumanComputerInteraction, InclusiveTechnology*

ABSTRACT-ONLY PUBLICATION

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