



# Designing Accessible User Interfaces for Illiterate Populations in East Africa: An Empirical Study

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## Abstract

In East Africa, illiterate populations face significant barriers to accessing information and services through digital devices. We conducted a mixed-methods approach including surveys, focus groups, and usability tests with participants using touchscreen devices designed for illiterate users. The usability test results indicated that the majority of participants (85%) preferred simple graphical interfaces over text-based instructions, highlighting the need for visual cues in user designs. Our findings underscore the importance of incorporating visual and interactive elements into digital interfaces to enhance accessibility for illiterate populations. Designers should prioritise the use of icons, images, and animations to facilitate understanding among users who lack reading skills. User Interface Design, Low-Literacy Populations, Egypt, Accessibility Model estimation used  $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta \operatorname{rVert} 2^2$ , with performance evaluated using out-of-sample error.

**Keywords:** *Sub-Saharan, African, Cognitive, Socio-Cultural, Literacy*

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