

## Enhancing user interface and user experience design of digital banking platforms: a usability-focused approach for senior citizens in Sri Lanka

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Digital banking services are rapidly expanding in Sri Lanka, offering customers convenient and efficient access to financial services, yet many senior citizens still face difficulties when using mobile and internet banking platforms due to age-related changes in vision, cognition and motor skills, as well as low levels of digital literacy and confidence. This study aims to enhance the user interface and user experience design of digital banking platforms for senior citizens in Sri Lanka through a usability-focused, human-centred approach. The research follows a mixed-methods sequential explanatory design to identify key challenges and barriers older adults encounter when using existing digital banking applications. Initially, quantitative data are collected via a structured questionnaire ( $N = 60-80$ ) to capture demographic characteristics and perceived difficulties. This is followed by qualitative semi-structured interviews and baseline usability testing of existing banking apps (HNB Digital Banking and BOC Flex) with 10–15 participants. Measures include task success rates, error counts, time on-task, and System Usability Scale (SUS) ratings. Findings inform the development of a high-fidelity Figma prototype incorporating age-friendly features like larger touch targets, high-contrast text, and simplified navigation. The prototype is validated through a second round of iterative usability testing to measure improvements in effectiveness, accuracy, and user confidence. Results from this evaluation show higher task completion rates and reduced errors compared to existing systems. The study develops practical, evidence-based design guidelines to show how inclusive design can be applied in real systems to make digital financial services more accessible and to increase the independence of older users in Sri Lanka.

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