Bridging the Usability Gap: Designing Culturally-Inclusive Human-Computer Interaction for Fintech Adoption in Sub-Saharan Africa

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1. Introduction and Background

The growth of fintech in Sub-Saharan Africa offers opportunities for financial inclusion, yet adoption remains uneven due to interfaces that fail to reflect African cultural, linguistic, and behavioral contexts. This research, aligned with African-oriented HCI and responsible innovation central to Dr. Adamu's work, seeks to explore culturally grounded design principles to enhance fintech usability and trust.

2. Research Problem

Fintech users report challenges, including unfamiliar interaction flows, low trust, literacy barriers, and mismatched mental models. These issues highlight a usability gap stemming from applying non-African HCI assumptions to African digital ecosystems.

3. Aim and Objectives

Aim: To design and evaluate culturally-inclusive HCI frameworks that improve fintech usability, trust, and adoption in Sub-Saharan Africa.

Objectives: Identify cultural factors affecting fintech interaction; evaluate existing apps; develop an HCI framework; create prototypes; and validate through empirical testing.

4. Research Questions

- How do cultural and contextual factors shape fintech usability?
- How do users perceive existing fintech interactions and trust cues?
- What culturally-informed HCI models can improve usability and trust?
- How do adapted designs influence adoption likelihood and task success?

5. Methodology

This study adopts a mixed-methods, human-centered design approach.

5.1 Literature Review: A PRISMA-based review covering African HCI, digital inclusion, fintech adoption, and cross-cultural UX.

5.2 Contextual Inquiry: Interviews, focus groups, and contextual observations across diverse African user groups. Qualitative thematic analysis (NVivo) will identify friction points, mental models, and trust cues.

5.3 Usability Evaluation: Heuristic evaluations, cognitive walkthroughs, task-based tests, and think-aloud protocols. Metrics include task success, error rate, time-on-task, trust scores, and cognitive load.

5.4 Framework Development: Synthesized findings will form a culturally-inclusive HCI framework, refined via expert validation.
5.5 Prototype Development: High-fidelity interfaces created through iterative design cycles.
5.6 Evaluation: A/B testing comparing standard vs culturally-adapted flows using SUS, trust, satisfaction, and adoption likelihood. Mixed-method analysis ensures robustness.
5.7 Ethics and Rigor: Informed consent, data protection, cultural sensitivity, triangulation, member-checking, and reflexive journaling.

6. Timeline (36 Months)
Months 1–6: Literature review; research design; ethics approval.
Months 7–14: Contextual inquiry; interviews; focus groups.
Months 15–20: Usability evaluations and analysis.
Months 21–26: Framework development and validation.
Months 27–32: Prototype development and pilot testing.
Months 33–36: Evaluation, analysis, and thesis writing.

7. Expected Contributions
The research will produce an African-centric HCI framework, new cultural UX insights, validated prototypes, and practical guidelines for inclusive fintech design across Sub-Saharan Africa.