Usability evaluation of Nigerian banks mobile applications

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Abstract:

The usability assessment of mobile banking applications is very important given the escalating reliance on electronic and mobile banking services, but there is an absence of a tailored evaluation framework for Nigerian mobile banking applications that promotes user-centric solutions that address specific challenges confronted by users in this region. This is why this study was carried out to evaluate the usability of mobile banking applications in Nigeria by examining usability metrics through a survey research design employing a quantitative approach. The study's population includes individuals in Nigeria who regularly use commercial mobile banking applications. Purposive sampling was used to select the top ten mobile banking applications based on market prominence, user ratings, and overall popularity and convenience sampling was then used to recruit 20 participants that use each application, totalling 200 participants. Data collection was conducted using a structured questionnaire focusing on usability metrics such as error prevention & recovery, customization capabilities, design features, security and privacy, ease of navigation, information clarity, accuracy and reliability, and accessibility and inclusivity. Descriptive statistics, including frequencies and percentages, were used to analyze the data. Findings reveal significant variability in usability across different applications, with some excelling in areas like error prevention, customization, and security, while others need improvement in design consistency, accessibility, and overall user satisfaction. Key recommendations for developers and stakeholders include enhancing user interface design, improving security and privacy features, expanding customization options, focusing on accessibility and inclusivity, and providing robust support and error recovery mechanisms.

Keywords: Mobile App, Usability, User experience, Mobile Banking

1. Introduction

Mobile banking has significantly reshaped Nigeria's financial system, offering new ways for individuals to manage their financial activities (Shankar et al., 2020). The rapid proliferation of smartphones and digital technology has made mobile banking applications a primary tool for financial transactions, transforming how services are delivered and consumed across the country (Kabir, 2019). This shift is not only a response to technology but also a reflection of changing consumer behavior, with enhanced mobile applications making banking more

accessible to people in both urban and rural areas. Further boosting this transformation is the Nigerian government's Cashless Policy, which has played a pivotal role in the use of mobile banking applications by encouraging electronic payments and reducing cash transactions across the country (Mamudu & Gayovwi, 2019). This policy aims to improve the efficiency of financial transactions, reduce the costs associated with cash handling, and create a more transparent and accountable financial system. In line with this initiative, banks and technology companies have worked together to develop mobile banking applications that are easy to use, secure, and packed with other features. These collaborations have driven more people to use mobile banking, offering consumers with enhanced accessibility, convenience, and security (Jabbar, 2023).

Mobile banking applications offer numerous benefits, including secure identity support, the ability to conduct transactions without temporal or spatial constraints, and advanced customization options driven by demographic and location-based data (Tosuni, Krasniqi, & Dabić, 2019). Despite these advantages, significant challenges persist, particularly in areas such as personalization and security. Obi-Nwosu and Ubah (2023) identify personalization gaps, such as the need for customizable features including language preferences, transaction settings, and beneficiary lists. Moreover, Security concerns and the need for seamless, round-the-clock accessibility also present ongoing technical challenges that require collaboration between app developers and bank.

As technology continues to drive innovation within the financial sector, ensuring mobile banking applications usability is crucial. Usability, encompassing how effectively, efficiently, and satisfactorily users can complete tasks via mobile platforms is critical to the success of these applications (Pal Kapoor & Vij, 2020). A comprehensive evaluation on usability ensures that applications are easy to navigate, meet user needs, and increase adoption. In a competitive market with increasingly complex application features, optimizing usability is essential for maintaining and growing the user base. The usability assessment of Nigerian mobile banking applications is of paramount importance given the dynamic nature of the country's banking sector and the escalating reliance on electronic and mobile banking services. In light of substantial technological progress and the widespread adoption of mobile banking, existing literature such as: Ali, Dida, and Sam (2022); Setiyawati and Bangkalang (2022); Hamid et al. (2022) and others reveal a conspicuous gap in providing a thorough evaluation of the usability of Nigerian mobile banking applications. Notably, prevalent studies predominantly centre on other

geographical regions or specific application types, leaving a significant void in comprehending the distinctive challenges, user preferences, and demographic intricacies that influence the usability of mobile banking applications in the Nigerian context.

The absence of a tailored evaluation framework for Nigerian mobile banking applications hinders the creation of user-centric solutions capable of effectively addressing the specific challenges confronted by users in this region. Moreover, the challenges identified in the literature, including issues related to personalization, scalability, reliability, and security, emphasize the critical need for an in-depth usability evaluation to pinpoint and rectify existing deficiencies. Given the growing complexity of mobile banking applications and the critical role they play in Nigeria's financial system, it is essential to continuously evaluate their usability. This study, therefore, sets out to conduct a detailed usability evaluation of Nigeria's mobile banking applications, it aims to consider the diverse needs and preferences of users within the country, offering a holistic perspective. Through this investigation, the study seeks to provide valuable insights that can guide developers, researchers, and policymakers in enhancing the usability and overall user satisfaction of mobile banking applications. The ultimate goal is to facilitate the seamless integration of electronic banking into Nigeria's financial landscape, contributing to the country's technological advancement and financial inclusivity

2. Literature Review
The Nigerian banking sector according to Njoku (2019), has undergone significant evolution since its inception in 1952, marked by numerous institutional and regulatory advancements aimed at addressing persistent challenges such as fraud, corruption, and a weak capital foundation. With the emergence of electronic banking, including mobile banking, Nigerian banks have made substantial technological investments to enhance service delivery (Chen, Kumara & Sivakumar, 2021). However, despite these advancements, the sector faces obstacles like scalability, reliability, and security (Giovanis, et al. 2019), which are crucial considerations for ensuring the effectiveness and acceptance of mobile banking applications. Mobile banking, a subset of electronic banking, has transformed the way financial transactions are conducted, offering convenience, customization, and accessibility to users (Tosuni, Krasniqi & Dabić, 2019; Khan and Khusro, 2022).. However, challenges such as personalization, scalability, and security persist, impacting user satisfaction and adoption rates (Obi-Nwosu and Ubah, 2023). The usability evaluation of mobile banking applications is essential to address these challenges effectively, ensuring that applications

meet users' needs and preferences while adhering to usability standards and regulations (Sarrab et al., 2021).

Usability evaluation, as defined by Ammar (2019), assesses how effectively users achieve their goals when using an application. This structured process identifies usability issues and areas for improvement, focusing on interface design and user interaction (Sarrab et al., 2021). By systematically evaluating usability, developers can enhance user-device interactions and overall app performance, leading to greater user acceptance and continuous improvement (Sarrab et al., 2021). Methods for assessing usability include heuristic evaluation, cognitive walkthroughs, interviews, and usability testing, all employed throughout the software development lifecycle (Ali et al., 2022). These methods help identify defects and ensure that applications meet usability standards, thereby facilitating cost-effective improvements. Heuristic evaluation is a widely recognized method for identifying usability issues by having expert users navigate an application. This technique leverages the insights of experienced users to detect potential problems in a cost-effective manner (Guo et al., 2024). The primary goal is to identify areas for improvement and foster iterative enhancements to ensure a user-friendly experience. Experts evaluate the severity of usability issues and recommend tailored solutions (Paramitha et al., 2018). Jakob Nielsen's ten usability principles guide this evaluation process, focusing on critical aspects such as system visibility, user control, consistency, error prevention, and minimalist design (Ali et al., 2022). The heuristic evaluation method is efficient, straightforward, and applicable throughout the software development lifecycle, making it a valuable tool in human-computer interaction (Kumar et al., 2020).

Usability testing is fundamental in assessing mobile applications throughout their development stages. Its primary aim is to understand user perceptions and measure factors like convenience and efficiency to enhance overall user satisfaction (Ramayasa & Candrawibawa, 2021; Wirasasmiata & Uska, 2019). By integrating usability testing into the development process, developers ensure applications meet functional requirements while enhancing design and quality (Byun et al., 2020). Usability testing techniques, including performance measurement and user satisfaction surveys, help identify nuanced usability issues and improve the user interface (Ammar, 2019). Furthermore, it contributes to cost reduction by detecting problems early in the development cycle (Hussain & Omar, 2020). Ultimately, usability testing ensures that applications not only meet functional standards but also provide a positive user experience, fostering success in a competitive market.

The literatures on usability evaluation of mobile banking applications provides crucial insights into user experience and interface design, yet there is a scarcity of research specifically addressing Nigerian mobile banking applications. For example, Setiyawati and Bangkalang (2022) analyzed four mobile banking apps in Indonesia using the User Experience Questionnaire (UEQ) and System Usability Scale (SUS), the study highlighted the significance of user experience (UX) and usability in driving user satisfaction. However, their findings do not translate to the unique challenges faced in countries like Nigeria. Also, Ali, Dida, and Sam (2022) conducted a heuristic evaluation of G-MoMo applications, identifying 63 usability issues related to authentication security, but their study focused solely on one type of mobile money application, overlooking Nigeria's diverse banking landscape. Mkpojiogu and Hashim (2017) explored how user demographics affect satisfaction with mobile banking apps, revealing complexities tied to age, gender, and experience, yet comprehensive evaluations of usability issues in the Nigerian context remain limited. Furthermore, Hamid et al. (2022) investigated usability in mobile banking in an emerging economy, emphasizing privacy and trust, while Adamu (2017) identified demographic-related usability issues in Nigerian apps, leaving out critical aspects such as system visibility, user control, consistency, error prevention, and minimalist design. These studies emphasize the critical role of user experience, usability, and demographic factors in shaping the success and acceptance of such applications, providing valuable insights for developers, researchers, and policymakers aiming to enhance usability and overall user satisfaction of mobile applications.

3. Research Methodology

A survey research design was adopted, utilizing quantitative methods to assess specific usability metrics through structured surveys. The study focused on individuals who regularly use commercial mobile banking applications in Nigeria. Purposive sampling was used to select the top ten mobile banking applications based on market prominence, user ratings, and overall popularity as published by Oluka and Aimuengheuwa (2024), which are GT World (GT Bank), Access Bank Mobile App, First Mobile App (First Bank of Nigeria), Alat (Wema Bank), FCMB Mobile App, Zenith Bank App, UBA Mobile App, Sterling OneBank App (Sterling Bank), Stanbic IBTC, and Fidelity Bank App. Convenience sampling was used to recruit 200 participants; 20 for each application. Data were gathered using a structured questionnaire that examined usability metrics, including error prevention & recovery, customization capabilities, design features, security and privacy, ease of

navigation, information clarity, accuracy and reliability, and accessibility and inclusivity. A total of 196 responses were analyzed using descriptive statistics, including frequencies and percentages, illustrating user responses for each application. Ethical considerations, including informed consent, privacy, confidentiality, and participant well-being, were upheld throughout the study.

Results and Discussion

Table 1 and 2 present a description of the characteristics of the respondents involved in the study.

Table 1: Demographic characteristics

VARIABLES	FREQUENCY	PERCENTAGE (%)
Gender		
Male	128	65.3
Female	68	34.7
TOTAL	196	100
Age		
Under 18	4	2.0
18-24	83	42.3
25-34	51	26.0
35-44	28	14.3
45-54	14	7.1
55 and above	16	8.2
TOTAL	196	100
Level of Education		
Bachelor's degree	106	54.1
Diploma	15	7.7
Doctoral degree	16	8.2
Master's degree	37	18.9
Primary school	1	.5
Secondary school	21	10.7
TOTAL	196	100
Employment Status		
Employed	61	31.1
Retired	2	1.0
Self-employed	42	21.4
Student	78	39.8
Unemployed	13	6.0
TOTAL	196	100

Table 2: Frequency of Mobile Banking App Usage

VARIABLES	FREQUENCY	PERCENTAGE (%)
Frequency of Mobile Banking App Usage		
Daily	40	20.4
Monthly	12	6.1
Rarely	15	7.7
Several times a month	45	23.0
Several times a week	62	31.6
Weekly	22	11.2
TOTAL	196	100
Duration of using the Mobile Banking App		
1-2 years	38	19.4
2-3 years	30	15.3
6 months-1 year	33	16.8
Less than 6 months	22	11.2
3 years and above	73	37.2
TOTAL	196	100
Device used for Assessing Mobile Banking App		
Smart phone	175	89.3
Tablet	21	10.7
TOTAL	196	100

The demographic data reveals key trends among mobile banking app users in Nigeria. A significant gender disparity exists, with 65.3% male and 34.7% female users, while the largest age group (42.3%) falls between 18-24 years, indicating that younger adults dominate mobile banking usage. Users are predominantly well-educated, with 54.1% holding a Bachelor's degree and a considerable portion having advanced degrees. Most users engage with their apps several times a week (31.6%) or daily (20.4%), reflecting the growing integration of mobile banking into everyday life. The majority (37.2%) have used their apps for three or more years, highlighting familiarity, while smartphones are the dominant access device (89.3%). These insights emphasize the need for banks to focus on user-centric designs and strategies to improve engagement and accessibility.

Table 3: Performance Ratings (%) of the Top 10 Selected Mobile Banking Application

Metrics	GT World	Access Bank Mobile App	First Mobile App	Alat	FCMB Mobile App	Zenith Bank App	UBA Mobile App	Sterling OneBank App	Stanbic IBTC	Fidelity Bank App
Error Prevention & Recovery	85%	90%	75%	70%	88%	80%	75%	78%	92%	65%
Customization Capabilities	80%	85%	70%	65%	90%	75%	72%	82%	88%	68%
Design Features	78%	82%	75%	68%	85%	77%	84%	88%	80%	66%
Security and Privacy	83%	87%	78%	68%	88%	80%	75%	84%	90%	70%
Ease of Navigation	80%	88%	75%	70%	86%	78%	82%	85%	87%	67%
Information Clarity	82%	85%	78%	70%	89%	81%	80%	83%	86%	69%
Accuracy and Reliability	80%	86%	77%	72%	88%	79%	84%	87%	85%	68%
Accessibility and Inclusivity	75%	80%	70%	65%	85%	78%	80%	90%	83%	62%

The performance ratings of the selected Nigerian mobile banking applications, as presented in table 3 provide insightful metrics on various aspects of usability and user experience forming the objectives of the study. The key metrics such as error prevention and recovery, customization, design, security, navigation, information clarity, reliability, and accessibility were evaluated across the top ten banking apps, offering a comparative analysis of their performance. In the area of error prevention and recovery, Stanbic IBTC (92%) and Access Bank (90%) stand out, reflecting strong mechanisms for preventing and addressing errors during user interaction. Both apps are noted for providing clear error messages, with Stanbic IBTC performing particularly well in this regard. GT World (GT Bank) and FCMB Mobile App also show good results. However, Fidelity Bank (65%) lags behind, indicating room for improvement in error handling and recovery support. This finding aligns with Ali, Dida, and Sam (2022), who also emphasized the importance of effective error recovery features in improving user experience.

Similarly, customization capabilities which is essential for user satisfaction, show that FCMB Mobile App excels, with a standout performance of 90%, Stanbic IBTC, Access Bank Mobile App, Sterling one Band and GT World also performs well in customizing security settings and notifications. In contrast, Fidelity Bank (68%) and Alat (65%) show lower customization capabilities, potentially lacking sufficient personalization options. The ability to tailor the app experience to individual preferences is a key strength for many mobile applications as posited by Komulainen & Saraniemi (2019). Design features, encompassing visual appeal and functional layout, reveal Sterling One Bank App (88%) as the best

performer, while Fidelity Bank (66%) demonstrates the lowest score, indicating potential issues with interface aesthetics and functionality. These findings align with Su (2024) who also emphasized the importance of colour, icon and text in interface design in elaborating design elements.

In terms of security and privacy, a critical factor in user trust, Stanbic IBTC (90%) again leads, followed closely by FCMB Mobile App (88%) and Access Bank (87%). In contrast, Fidelity Bank (70%) and Alat (68%) show relatively lower scores, highlighting the need to enhance their security protocols to meet user expectations. The finding is in consonance with that of Obi-Nwosu and Ubah (2023) on the need to strengthen the security and privacy of these applications. Regarding ease of navigation, Access Bank Mobile App (88%) and Stanbic IBTC (87%) show superior performance, indicating intuitive interfaces that facilitate seamless user interactions, while Fidelity Bank (67%) and Alat (70%) need to improve their navigational features. As for information clarity which is crucial for effective communication of banking functions, the result reveals FCMB Mobile App (89%) as the top performer, with Fidelity Bank (69%) again underperforming in this aspect, this can translate into a situation where users understanding of the application's features is potentially affected. This finding corroborates with findings from the study of Ali, Dida, and Sam (2022) that understand ability make a mobile application more reliable and increase overall user satisfaction.

The accuracy and reliability ratings reflect the stability and dependability of the mobile banking apps. UBA Mobile App (84%), Sterling One Bank App (87%), and FCMB (88%) demonstrate strong

performances in these ratings, while Fidelity Bank (68%) and Alat (72%) fall behind, suggesting potential inconsistencies in their performance. These findings emphasize the need for consistent app functionality, as highlighted by Mkpojiogu and Hashim (2017). Additionally, the evaluation of accessibility and inclusivity which is critical for broad user engagement across diverse demographics, shows Sterling OneBank App (90%) as the most inclusive, while Fidelity Bank (62%) ranks the lowest indicating shortcomings in providing inclusive features for all users. These results align with Ballantyne, et al. (2018) which revealed a high rate of violations at design and content levels of some popular apps when gauged for accessibility.

The results of this study depicts a varied performance landscape among Nigerian mobile banking applications, with some, such as Stanbic IBTC, Access Bank, and FCMB, consistently performing well across multiple usability metrics. On the other hand, Fidelity Bank and Alat exhibit notable deficiencies in several areas, pointing to a need for targeted improvements. Banks need to take UI/UX design more important as it directly impacts user satisfaction, experience and engagement. A well designed app enhances usability, making it less stressful for users to navigate and interact with the mobile app. This can create a positive experience for the user, increase user retention encourage them to continue using the app. This has implication for designers to ensure consistency in their designs, gather user input during initial design stages and simplify user interface to enhance navigation.

4. Conclusion

This study has revealed notable differences in usability, customization, design, security, and accessibility in the mobile applications of Nigerian banks. The demographic data show a predominantly young, well-educated, and male user base, emphasizing the need for user-centric designs. Banks need to carry out evaluation studies of their mobile applications occasionally in order to identify areas that needs to be improved upon. Addressing these areas will enable banks to enhance their mobile banking solutions, exceed user expectations, and foster greater engagement in the digital banking landscape.

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