

The Moderating Effect of Internet Technology in Service Quality and Satisfaction Among First Bank Customers in Zamfara State Nigeria

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Abstract

In the contemporary digital economy, enhancing customer satisfaction through internet technology is essential for a bank's viability, convenience, and long-term sustainability. The primary factor influencing customer satisfaction encompasses not merely competitive pricing but also the provision of high-quality products and services. This research investigates the influence of internet technology on service quality and customer satisfaction within the realm of mobile banking in Zamfara state, Nigeria. The study employed a cross-sectional survey methodology, utilising 150 self-administered questionnaires directed at customers of First Bank who engage with the mobile application or USSD services a minimum of three times per month. The hypotheses Ho1, Ho2, Ho3, Ho4, and Ho6 are dismissed due to their elevated T-statistic values, which span from 3.044 to 5.157, alongside P-values that fall below the threshold of 0.05. Conversely, hypotheses Ho5 and Ho7 remain unchallenged on statistical grounds. The results reveal variable effects of the dimensions of mobile banking service quality on customer satisfaction within the context of mobile banking in Zamfara State, Nigeria. The factors of efficiency, reliability, responsiveness, compensation, and service quality play a crucial role in shaping customer satisfaction. Conversely, internet technology appears to lack a substantial direct impact on customer satisfaction, and it does not serve as a moderating factor in the relationship between service quality and satisfaction. The research findings indicate that the quality of service has a positive and significant impact on customer satisfaction within the realm of mobile banking, characterized by a reflective-formative relationship. The findings indicate that customers prioritise the fundamental elements of service quality over internet technology. The research suggests that First Bank Nigeria Plc ought to prioritise the enhancement of service quality determinants to elevate customer satisfaction, rather than depending exclusively on advancements in internet technology.

Background to the Study

The discourse surrounding customer satisfaction with mobile banking services provided by commercial banks in Nigeria has garnered considerable attention within academic literature. Self-service financial technology, including mobile banking, has become widespread in commercial banks, as managers employ self-service solutions to provide efficient services to customers (Agrawal et al., 2019). Nevertheless, individuals in Zamfara State, Nigeria frequently refrain from utilising these instruments owing to a deficiency of trust, awareness, discomfort, limited exposure to novel technology, and varying degrees of literacy concerning new technological advancements. Customers experience a range of issues, including incomplete transactions, technical malfunctions, delays or non-delivery of products, unanswered complaint emails, and challenges in accessing the information they seek during online interactions, resulting in a sense of dissatisfaction with the service provided. Adverse experiences have the potential to diminish customer satisfaction and loyalty, thereby harming a bank's reputation (Ademola & Kazeem, 2022). In order to uphold superior service quality and foster customer trust within the digital marketplace and its transactions, it is imperative for businesses to facilitate seamless transactions, ensure prompt deliveries, provide attentive customer support, and offer straightforward access to information. In the contemporary digital economy, enhancing customer satisfaction through internet technology is essential for a bank's viability, convenience, and long-term sustainability (Abdennebi, 2023). The primary factor influencing customer satisfaction encompasses not merely competitive pricing but also the provision of high-quality products and services (Ashfaq et al., 2020). Enhancing service quality is essential for companies to navigate the paradigm shift, particularly in contexts where physical interactions are supplanted by marketplace and engagement is transformed into transactions.

First Bank Nigeria plc, a prominent commercial bank in Nigeria, has adopted mobile banking services, ATMs, and Internet banking to address the escalating demands of its clientele and enhance daily transaction volumes. The increasing commodification of banking products has exerted pressure on various banks to cultivate distinctive self-service experiences that enhance personalisation and deliver exceptional customer experiences (Aslam et al., 2023). The dimensions of service quality used to assess customer evaluations of service delivery were originally formulated based on businesses that provide human-delivered services and subsequently broadened to include various electronic services. Nonetheless, it remains uncertain if these dimensions yield the same impact within the mobile banking framework in Nigeria. This research aims to explore the moderating influence of internet technology on service quality and customer satisfaction concerning First Bank's mobile banking services in Zamfara State, Nigeria. The aspects of service quality that warrant examination include efficiency, reliability, responsiveness, and compensation. The dimensions were selected in accordance with the gaps discerned in the examined literature. Nevertheless, certain researchers indicate a positive correlation between service quality and customer satisfaction, whereas others observe a negative correlation between these two constructs. This study introduces a moderating variable of internet technology to examine its influence on either reinforcing

or diminishing this relationship. This research utilises the e-service quality model proposed by Parasuraman, Valarie Zeithaml, and Malhotra (2005) to explore how factors such as efficiency, reliability, responsiveness, and compensation influence overall customer perceptions of service quality and satisfaction. The research further examines the impact of internet technology on the relationship between service quality and customer satisfaction.

Literature Review

Ensuring customer satisfaction stands as a paramount concern for enterprises operating within competitive markets (Cronin Jr et al., 2000). In the contemporary landscape of market-oriented enterprises, it is imperative for managers to comprehend the elements and metrics that contribute to customer satisfaction. The enhancement of service quality significantly contributes to customer satisfaction and fosters increased loyalty, thereby influencing overall success and purchasing behaviour. Consumers possess certain anticipations regarding the efficacy of goods and services throughout transactions, which serve as a benchmark for assessing actual performance. Emotions of contentment or discontent emerge from the juxtaposition of anticipated outcomes and actual performance, resulting in either affirmation or negation of the services rendered (Meshack & Mutuku, 2023). The customer experience in mobile banking is shaped by both direct interactions and indirect influences, including in-person support (Aslam et al., 2023). The calibre of service, encompassing aspects like security, system efficiency, and an intuitive interface, profoundly influences user perception. Elevated service quality, which elicits favourable emotional responses, fortifies the relationship between customers and the bank. The research conducted by Islam et al. (2024) in Bangladesh elucidates several e-service quality determinants that influence customer satisfaction in online transactions, such as perceived security, risk perception, ease of use, website quality, and responsiveness. The significance of trust during the pandemic is undeniable; however, its relevance may diminish in the post-pandemic context (Islam et al., 2024). In Malaysia, a study conducted by Othman et al. (2023) revealed that factors such as reliability, security, and responsiveness exert the most significant positive impact on customer satisfaction. Conversely, elements like information, website design, and privacy demonstrate a satisfactory, albeit less pronounced, influence. In Indonesia, a study conducted by Ginting et al. (2023) posits that the quality of e-service does not have a direct impact on word-of-mouth; instead, it exerts an indirect influence.

In Ethiopia, a study revealed that accessibility, reliability, ease of use, accomplishment, and privacy are essential dimensions that positively correlate with customer satisfaction regarding ATM services (Aslam et al., 2023; Nigatu et al., 2023). Investigations into mobile banking services across Indonesia (Alamsjah & Yunus, 2022), Malaysia (A. H. Ahmad et al., 2020; Othman et al., 2023), and the UK (Abrokwah-Larbi & Awuku-Larbi, 2023; Ademoyegun et al., 2024; Meshack & Mutuku, 2023) have elucidated several pivotal factors that enhance service quality, including efficiency, reliability, responsiveness, compensation, privacy, fulfilment, and ease of use, among others. A survey conducted in Pakistan indicated that the quality of service has a favourable effect on customer

satisfaction and loyalty within the realm of Internet banking (Raza et al., 2020). Further investigation indicates that the quality of mobile banking services has a positive and significant influence on electronic trust, which subsequently plays a crucial role in determining electronic satisfaction (Aslam et al., 2023). The quality of e-service has a favourable impact on customer satisfaction and loyalty, as evidenced by the findings of Marliyah et al. (2021). A further empirical study conducted in Indonesia utilising the E-S-Qual scale revealed that factors such as efficiency, fulfilment, system availability, and privacy have a significant influence on customer satisfaction (Prasetyo et al., 2024). This suggests that the calibre of service directly influences the level of customer satisfaction. Nonetheless, mobile banking services exhibit distinct features that set them apart from conventional banking services (Aslam et al., 2023). The variability inherent in mobile banking services poses certain challenges; the quality may fluctuate due to technical elements such as network connectivity, system compatibility, and user interface design. Ensuring a dependable experience across diverse banking platforms is essential for upholding superior service quality and fostering customer satisfaction. For pure service businesses aiming to thrive in competitive markets, ensuring customer satisfaction emerges as a paramount concern. The satisfaction of customers hinges upon the quality of service rendered by providers, which is shaped by the aggregate experiences of consumers at every interaction with the company. This indicates a correlation between service quality and customer satisfaction, underscoring the significance of customer satisfaction in the context of defining quality.

These studies collectively affirm a connection between service quality and customer satisfaction; however, there remains a lack of consensus regarding the precise nature of the relationship between these two constructs, highlighting the prevalent discord among researchers. However, there is a consensus that the quality of service and the satisfaction of customers possess quantifiable characteristics (Ismail et al., 2009). A variety of studies concerning the banking sector have utilised conventional service quality frameworks such as SERVQUAL, yet these frameworks have not been adequately modified to align with the distinctive attributes inherent in digital banking services. A research conducted by Ketema (2020) in Ethiopia examines the correlation between various dimensions of e-service quality and customer satisfaction among clients of Abyssinia Bank. The research demonstrated a positive correlation between the characteristics of e-service quality and customer satisfaction with the service (Ketema, 2020).

In Iran, empirical investigation has demonstrated the correlation between electronic service quality and customer satisfaction (Hashemi & Abbasi, 2014). The majority of the research lacks accompanying data that would allow for a thorough re-evaluation of the studied population, questioning whether it genuinely represents the findings of the studies conducted.

Nevertheless, a limited number of these studies investigate the moderating influence of internet technology on the relationship between service quality and customer satisfaction in the context of mobile banking services. For instance, empirical research has

demonstrated that excessive dependence on technology could adversely affect customer satisfaction, as it tends to diminish personal connections and constrain the perception of tailored service (Jalilvand et al., 2024; Mordi, 2020). Further investigation has indicated that the integration of internet technology can enhance operational efficiency, whereas its absence introduces supplementary challenges that may frustrate the user (Shahid et al., 2022). Additional observations indicate that although internet technology has the potential to enhance service quality, it necessitates judicious application to prevent the risk of overwhelming or deterring customers. This underscores the critical significance of user-centred design in the realm of digital banking services. Conversely, certain research indicates that internet technology does not significantly influence customer satisfaction regarding mobile banking services (B. J. Ali et al., 2021; Verma et al., 2022). Their implication suggests that, although internet connectivity is essential for delivering services, research indicates it does not directly influence users' perceptions of service quality. It fails to replace the human element, particularly when addressing technical issues arising from service failures. The influence of internet technology as a moderator between service quality and customer satisfaction appears to be minimal (A. Ahmad et al., 2023). Customer satisfaction is thus more influenced by essential service attributes than by the foundational technical infrastructure.

The mobile application framework serves as the foundation for the provision of mobile banking services, frequently functioning unobtrusively in the background. Although it holds significance, it is traditionally less apparent to users unless a failure transpires, resulting in customers rarely recognising any technical shortcomings in the system during seamless transactions, yet readily perceiving any glitches or downtime. This renders customer satisfaction increasingly reliant on fundamental service attributes rather than the mobile banking applications themselves. While the utilisation of internet technology undoubtedly improves service delivery, the findings indicate that it is neither the sole nor the primary factor contributing to customer satisfaction. Instead, fundamental elements of service quality such as efficiency, reliability, and responsiveness exert a more significant impact on customer contentment. The enhancement of consumers' perception regarding service quality is significantly influenced by elements such as live updates, responsive interfaces, and seamless connectivity (Liu et al., 2022). The implementation of these technological advancements not only augments operational efficiency but also enhances reliability and accessibility, thereby elevating customer satisfaction.

The following research hypotheses were formulated based on the research the reviewed literature related to the topic of study.

- Ho1:** Efficiency of mobile banking service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.
- Ho2:** Reliability of mobile banking service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.
- Ho3:** Responsiveness of mobile banking service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.

- Ho4:** Compensation of mobile banking service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.
- Ho5:** Internet technology doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.
- Ho6:** Service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.
- Ho7:** Internet technology doesn't positively moderate the relationship between service quality and customer satisfaction with mobile banking in Zamfara state, Nigeria.

Research Model

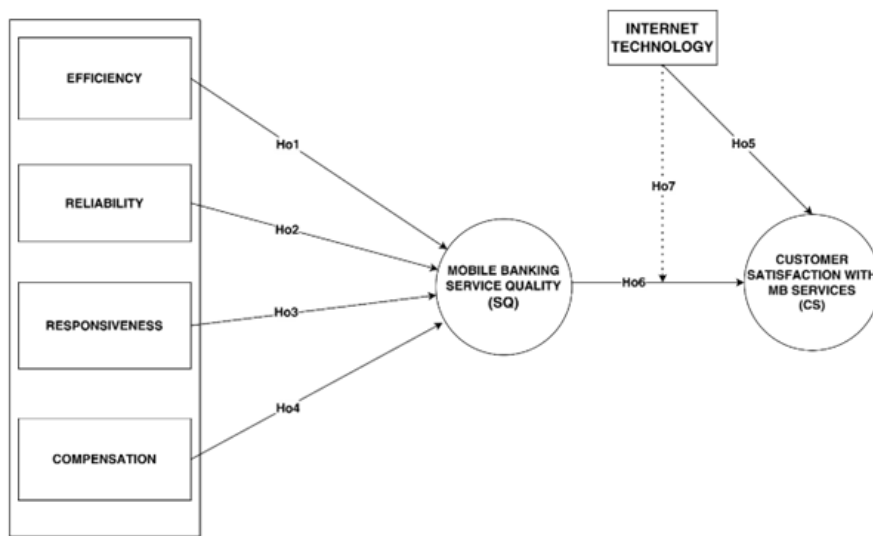


Figure 1: Conceptual framework of the study
Source: Authors' Illustration, 2024.

Methodology

The research employed a self-administered questionnaire incorporating three validated instruments: measures of service quality, a customer satisfaction scale, and an internet technology scale. The questionnaire underwent pre-validation by three esteemed senior lecturers from the business department at the Federal University of Gusau. The survey was executed during patrons' visits to the bank, with participants selected according to their engagement with the first bank mobile application or USSD code. A total of 150 questionnaires were distributed, of which only 120 were deemed valid. The suggested sample size should be no less than tenfold the minimum quantity of pathways incorporated in the model, which stands at 70.

Results and discussion

Table 1: Response-Rate Analysis

Response	Frequency
No. of printed questionnaires	150
No. of shared questionnaires	150
No. of returned questionnaires	125
No of valid questionnaires	120
No. of non-returned questionnaires	25
No. of invalid (uncompleted)	5
Response-rate percentage	83.3%
Valid response-rate percentage	80%

The study encompassed the distribution of 150 questionnaires to a cohort of 120 respondents, achieving an impressive response rate of 83.3%. The predominant demographic among respondents was male, exhibiting a greater proportion of males overall. The respondents exhibited a varied demographic profile, with 60% identifying as male and 27.5% possessing diplomas. The predominant demographic consisted of married individuals, while 25% identified as single and 17.5% as divorced. The predominant demographic consisted of students, with one-third falling within the age range of 18 to 24 years. The predominant group possessed both savings and current accounts. The data offers an extensive analysis of the demographics pertinent to the study.

Outliers Evaluation of the Data

Table 2: Summary of Data outlier Assessment

Observation number	Mahalanobis d-squared	p1	p2
3	62.59	0	0
77	61.44	0	0
108	78.08	0	0
119	66.48	0	0

Table 2 delineates four observations alongside their respective Mahalanobis d-squared values and the corresponding p-values (p1 and p2). Observations numbered 3, 77, 108, and 119 demonstrate exceptionally elevated Mahalanobis d-squared values, spanning from 61.44 to 78.08, and have consequently been excluded.

Measurement Model Analyses

Following the initial execution of the algorithm, 11 out of the 35 indicators exhibited loadings below the established threshold of 0.7, as advised by Hair et al. (2014), resulting in their exclusion. The indicators are as follows: EF1, EF8, RE1, RE3, RE7, RE8, RE10, RES3, IT3, IT5, CS4, in that order. The constructs of Reliability and Internet technology exhibit

an AVE below 0.5, whereas efficiency, compensation, and responsiveness demonstrate an AVE exceeding 0.5 following the initial execution of the algorithm. These matters require additional iterations to more accurately reflect the variability in the indicators. Nonetheless, following the second execution of the algorithm, the constructs of reliability and internet technology achieved AVE values of 0.532 and 0.558, surpassing the requisite threshold of 0.5. However, it remains that indicators RE2 and RE4 exhibit values below the necessary threshold of 0.7, thereby warranting an additional run of the algorithm for a third iteration.

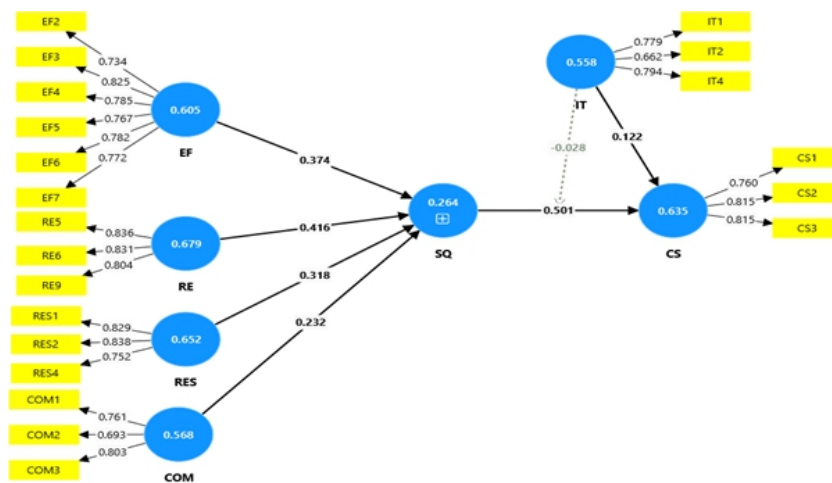


Figure 1: 3rd Run PLS-SEM Paths Model

Figure 1 above illustrates the average variance extraction (AVE) values for the six constructs after the invalid indicators were eliminated during the third iteration of the PLS SEM algorithm. The model successfully meets the reliability and validity requirements following the third run, as the AVE values for all constructs are situated within the range of 0.5 to 0.6, a threshold that is generally regarded as acceptable for confirming indicator reliability. The model successfully elucidates a significant fraction of the variance present in its related indicators. It is clear that merely 21 indicators across 6 dimensions have surpassed the minimum threshold of 0.7 and the AVE criterion as suggested by Hair et al. (2014). Consequently, there is no necessity for additional enhancement or removal of the items that fall below the stipulated threshold. It is essential to examine the internal reliability and discriminant validity of the constructs prior to assessing the significance of the estimated parameters within the model. The research revealed that the constructs exhibit rho_a and rho_c values exceeding 0.70, signifying a commendable level of internal consistency.

Discriminant Validity of 3rd Run of PLS paths model

As mentioned earlier, discriminant validity explains how much a construct in the structural model is differentiated from all other constructs within the same model (Fornell and Larcker 1981).

Table 3: HTMT matrix of 3rd run of PLS Paths Model

	COM	CS	EF	IT	RE	RES
COM						
CS	0.632					
EF	0.240	0.356				
IT	0.705	0.668	0.407			
RE	0.672	0.702	0.342	0.815		
RES	0.866	0.569	0.202	0.771	0.712	

The heterotrait-monotrait (HTMT) ratio presented in table 3 serves as a critical metric for evaluating discriminant validity within the framework of structural equation modelling. To affirm discriminant validity, HTMT values must remain below 0.85 (Ab Hamid et al., 2017). All constructs demonstrate satisfactory discriminant validity, as the values fall below the threshold of 0.85.

Assessment of the Structural Model for the data

Model assessment encompasses the evaluation of multicollinearity, R-Square, path coefficients, effect size, and predictive validity.

Multi-Collinearity test

In PLS-SEM, multicollinearity arises when the independent variables account for a significant portion of the same influence on the dependent variable (Streukens & Leroi-Werelds, 2023). All VIF values remained below 3, indicating the absence of multicollinearity among the latent exogenous variables and the outer model indicators. Consequently, there was no empirical evidence to suggest that any of the constructs or indicators contravened the assumptions of multicollinearity.

Evaluating Coefficient of Determination at 3rd run of the PLS paths model

A definition by (Hair et al., 2019) defined R-Square as the variance explained in an endogenous construct by exogeneous constructs.

Table 4: Coefficient of Determination for paths model

Endogenous Variable	R ²
Customer Satisfaction	0.359

The final iteration of the PLS algorithm model exhibits a moderate coefficient of determination, signifying the extent to which the variance in the dependent variable can be elucidated by other variables. For instance, Service Quality, exhibiting a R^2 of 0.359, elucidates that it accounts for 35.9% of the variability in Customer Satisfaction. The model does not encompass all elements influencing satisfaction; however, Efficiency, Reliability, Responsiveness, and Compensation account for a considerable portion of the variability observed.

Table 5: Predictive Relevance of fitted Model

	Q ² predict	RMSE	MAE
CS	0.306	0.849	0.643
SQ	0.938	0.248	0.178

The PLS path model demonstrates a reasonable degree of accuracy in forecasting customer satisfaction (CS), evidenced by a Q-Square value of 0.306 and a Q² value of 0.938. The model demonstrates a superior fit and a commendable capacity for prediction, characterised by an average absolute deviation between the observed and predicted values.

Examining the Moderating Effect of Internet technology for paths model

The findings of the assessment regarding the moderating influence are illustrated in Table 6, which indicates that both the primary and secondary components have been validated. This suggests that internet technology exerts a favourable moderating effect on the relationship between service quality and customer satisfaction.

Table 6: Evaluation of path coefficient of Moderating Effect for paths model

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	5.0%	95.0%
IT x SQ -> CS	-0.028	-0.040	-0.059	0.484	0.629	-0.153	0.040

This research investigates the moderating influence of Internet Technology (IT) on the relationship between Service Quality (SQ) and Customer Satisfaction (CS) within a path model framework. The initial sample path coefficient (OO) is -0.028, indicating a detrimental effect of IT on service quality, which in turn impacts customer satisfaction. This suggests that information technology exerts a notably adverse effect on customer fulfilment.

Direct Relationship

Table 7 below presents the regression path coefficient (β) and T-values for this study, which employs a significance level of 5% (T-value = 1.96) in a two-tailed analysis, as recommended by Hair et al. (2010).

Table 7: Significance and relevance of the Indirect paths (Unmediated) of the fitted model

Path	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values	5.0%	95.0%
COM ->						
CS	0.116	0.117	3.696	0.000	0.071	0.173
EF -> CS	0.187	0.176	2.504	0.012	0.053	0.292
RE -> CS	0.208	0.207	4.201	0.000	0.131	0.293
RES -> CS	0.159	0.159	3.828	0.000	0.095	0.230

Table 7 illustrates an indirect correlation between efficiency and customer satisfaction, represented by a path coefficient of 0.187. The analysis indicates that efficiency exerts an indirect influence on customer satisfaction, evidenced by a sample mean of 0.187. The T-statistic is calculated at 2.504, surpassing the critical value of 1.96, while the p-value stands at 0.012, which is below the 0.05 threshold for significance. Consequently, this relationship is deemed significant, leading to the rejection of the first null hypothesis at the 0.05 level of significance.

The analysis indicates that reliability exerts an indirect influence on customer satisfaction, evidenced by a sample mean of 0.208. The T-statistic of 4.201 surpasses the critical value of 1.96, and the p-value of 0.000 is below the 0.05 threshold for significance. Consequently, the relationship is deemed significant, leading to the rejection of the second null hypothesis at the 0.05 level of significance. The analysis indicates that responsiveness has a notable indirect effect on customer satisfaction, evidenced by a sample mean of 0.159. The T-statistic of 3.828 exceeds the critical value of 1.96, and the p-value of 0.000 is below the 0.05 significance threshold. Consequently, the relationship is deemed significant, leading to the rejection of the third null hypothesis at the 0.05 significance level.

The analysis indicates that compensation exerts an indirect influence on customer satisfaction, with a sample mean calculated at 0.116. This suggests that there exists a degree of variability within the sample. The relationship holds considerable importance, as the T-statistic exceeds the critical value of 1.96, and the p-value is below 0.05, leading to the rejection of the null hypothesis four at the 0.05 level of significance. Nonetheless, the 95% confidence interval of all the paths do not contain zero in between which implied that the requirements for rejecting hypotheses one to four are met.

Summary of the Findings

The results of the main-effect and comprehensive model, inclusive of the moderation variable, were delineated in the preceding section, thereby establishing a foundation for empirical testing to ascertain the validity of the observed relationships. Table 8 encapsulates the findings and the hypotheses under examination.

Table 8: Summary of the Findings

	Relationship	Beta	T statistic	P value	Remark
Ho1	Efficiency of mobile banking service quality doesn't have significant impact on customer satisfaction in Zamfara state, Nigeria.	0.374	3.044	0.002	Not Supported
Ho2	reliability of mobile banking service quality doesn't have significant impact on customer satisfaction in Zamfara state, Nigeria.	0.416	7.35	0	Supported
Ho3	responsiveness of mobile banking service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.	0.159	3.828	0	Supported
Ho4	compensation of mobile banking service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.	0.232	4.155	0	Supported
Ho5	internet technology doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.	0.122	1.108	0.268	Supported
Ho6	service quality doesn't have significant impact on customer satisfaction with mobile banking in Zamfara state, Nigeria.	0.501	5.157	0	Supported
Ho7	Internet technology doesn't positively moderate the relationship between service quality and customer satisfaction in Zamfara state, Nigeria.	-0.028	0.481	0.63	Supported

Table 8 delineates the findings from the hypotheses testing regarding the interconnections between service quality factors and customer satisfaction within the realm of mobile banking services. Consequently, the hypotheses Ho1, Ho2, Ho3, Ho4, and Ho6 are dismissed, while hypotheses Ho5 and Ho7 remain unrefuted based on statistical analysis. The results reveal variable effects of the dimensions of mobile banking service quality on customer satisfaction within the context of mobile banking in Zamfara State, Nigeria. The factors of efficiency, reliability, responsiveness, compensation, and service quality play a crucial role in shaping customer satisfaction, as evidenced by their notable T-statistic values ranging from 3.044 to 5.157 and P-values that fall below the threshold of 0.05. It is noteworthy that reliability forms the most robust positive correlation. Conversely, internet technology appears to lack a substantial direct impact on customer satisfaction, and there is no moderating effect observed in the relationship between service quality and satisfaction. This indicates that, although the technical infrastructure is essential for delivering quality service to customers, individuals primarily evaluate and determine satisfaction based on their interactions with the system and their perceptions of quality, rather than the underlying internet technology platform. This underscores the significance of customer-centric service attributes in augmenting satisfaction within the realm of mobile banking. The hypotheses Ho1, Ho2, Ho3, Ho4, and

Ho6, along with Ho5, corroborate the findings presented by Aslam et al. (2023), Islam et al. (2024), Ketema (2020), Meshack & Mutuku (2023), Nigatu et al. (2023), Othman et al. (2023), and Prasetyo et al. (2024). Furthermore, hypotheses Ho5 and Ho7 align with the conclusions drawn by A. Ahmad et al. (2023), A. Ali et al. (2023), Jalilvand et al. (2024), and Verma et al. (2022), while simultaneously contradicting the results of Liu et al. (2022) and Othman et al. (2023). This research indicates that the connection between service quality and customer satisfaction is most effectively conceptualized as a reflective-formative model. Although earlier studies have indicated that service quality is shaped by multiple factors, this investigation posits that a reflective-formative approach is more suitable for analysing the connection between service quality and customer satisfaction. The weak correlation indicates that customers value fundamental aspects such as efficiency, reliability, responsiveness, and compensation more highly than advancements in internet technology within banking institutions.

Theoretical Contributions

This research paper enhances the theoretical framework for comprehending mobile banking services by incorporating total service quality as articulated by Parasuraman et al. (2005) to elucidate customer satisfaction. The integration offers a thorough framework for assessing service quality and customer satisfaction within the realm of mobile banking. This research concludes that the dimensions of efficiency, reliability, responsiveness, and compensation significantly and positively influence the overall assessment of mobile banking service delivery by customers. Moreover, it suggests that internet technology does not significantly influence customer satisfaction, indicating that while advancements in technology enhance the quality of service delivery, they do not supplant the fundamental dimensions of customers' service needs. This underscores the necessity of embracing a reflective-formative approach in assessing e-service quality, thereby enriching our comprehension of how the various dimensions of service quality collaboratively influence customer perceptions and satisfaction within the context of mobile banking in Nigeria.

Limitations and Further Research

The constraints of this study are mitigated by various elements that pave the way for additional empirical inquiry within the realm of mobile banking. The research was carried out exclusively in Zamfara State, Nigeria, which may limit the applicability of its findings to other regions characterised by varying socio-economic conditions and degrees of technological engagement. Furthermore, while the customer count is adequate, it remains relatively limited when derived from a solitary financial institution. The findings may not be applicable to the broader customer demographic of all banking institutions throughout Nigeria. Subsequent research ought to prioritise a broader spectrum of regional sampling, accompanied by an increased sample size, to augment the generalisability of findings. Furthermore, the utilisation of mediators like perceived value and trust in the relationship between service quality and customer satisfaction could either enhance or complicate this research endeavour. Furthermore, the incorporation of additional moderators such as technology readiness, age, educational background,

gender, and geographical distinctions (urban versus rural), along with other demographic variables, could enhance our comprehension of the resultant outcomes.

Conclusion

This research examined the impact of mobile banking service quality on customer satisfaction in Zamfara State, Nigeria, employing the E-S-QUAL model developed by Parasuraman, Zeithaml, and Malhotra (2005) alongside Oliver's expectancy-disconfirmation paradigm. The results indicated that efficiency, reliability, responsiveness, and compensation are essential dimensions that profoundly affect overall service quality, subsequently enhancing customer satisfaction. It is not important to note that internet technology, in isolation, did not demonstrate a considerable direct influence on customer satisfaction, nor did it serve as an effective moderator in the relationship between service quality and customer satisfaction. This highlights that although technological progress improves service delivery, it does not supplant the essential dimensions of service quality that customers value most. The research substantiates that employing a reflective-formative methodology is suitable for assessing e-service quality in mobile banking, as it facilitates a thorough comprehension of how various dimensions collaboratively influence customer perceptions and satisfaction.

Recommendations

Based on the findings of this research paper, the following seven recommendations are offered for refining customer satisfaction with first bank mobile banking and USSD services in Zamfara State, Nigeria:

- i. Boost Efficiency:** First bank plc should streamline mobile banking processes to make transactions quicker and more user-friendly.
- ii. Improve Reliability:** Ensure that mobile banking transactions are consistently available and free from errors and failures. This could be achieved by consistent system maintenance and vigorous security measures implementation.
- iii. Strengthen Responsiveness:** the bank should improve customer service support for its mobile banking users. This includes providing quick responses to customers' inquiries and complaints through availed channels such as built-app messaging, emails and customer service hotlines.
- iv. Enhance Compensation Policies:** Develop and implement reasonable compensation policies for occasions where transactions fail or errors occur. This should include swift refunds, apologies, and compensation for any inconvenience or damage caused, which will help in maintaining customer satisfaction and loyalty.
- v. Integrate Technology with Service Quality:** While internet technology alone does not directly impact customer satisfaction, it is critical for supporting efficient, effective, consistent, and responsive-service delivery. First bank should finance technologies to support these core service quality dimensions without ignoring the human component of customer service.

Disclosure Statement

The authors affirm that there are no conflicts of interest related to this research endeavour. This research was carried out autonomously, free from any financial influences, and sponsorship did not play a role in its design, analysis, or publication. The authors meticulously gathered and examined data with a commitment to ethical standards, thereby ensuring both objectivity and veracity in their findings. The authors bear full responsibility for the content and outcomes presented in this paper.

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