GUSAU JOURNAL OF BUSINESS ADMINISTRATION (GUJOBA)

Vol. 5 Issue 1, June, 2026; Pp 339 – 354s

ISSN: 2811-1702. https://doi.org/10.57233/gujoba.v5i1.29

A Publication of the Department of Business Administration, Federal University Gusau, Nigeria

MOBILE BANKING SERVICES AND CUSTOMER SATISFACTION: EMPIRICAL EVIDENCE FROM SELECTED DEPOSIT MONEY BANKS IN KADUNA METROPOLIS

***Ahmad Muhammad Dabai and Timbuwak Samuel Achie**
Department of Management Studies, Nigerian Defence Academy Kaduna

*Correspondence: ahmad4dabai@gmail.com

ABSTRACT

This study examined the effect of mobile banking service quality on customer satisfaction among users of selected deposit money banks in Kaduna metropolis, Nigeria. The rapid adoption of mobile banking in Nigeria has raised questions about whether the quality of these digital services translates into genuine customer satisfaction. The study was guided by three specific objectives: to examine the effect of ease of use on customer satisfaction; to determine the effect of transaction security on customer satisfaction; and to assess the effect of responsiveness to customer complaints on customer satisfaction. The study was anchored on the Technology Acceptance Model (TAM), SERVQUAL Model, and Information Systems Success Model (ISSM). A quantitative cross-sectional survey research design was employed. The target population comprised customers of five selected banks (First Bank, UBA, Zenith Bank, GTBank, and Access Bank) in Kaduna metropolis. Using Cochran's formula, 387 respondents were sampled through a multi-stage sampling technique. A structured questionnaire with established validity and reliability (Cronbach's alpha ranging from 0.86 to 0.91) was used for data collection. Data were analysed using descriptive statistics (frequencies, percentages, mean, standard deviation) and inferential statistics (Pearson correlation and multiple linear regression). The findings revealed that ease of use was rated high (mean = 3.42), transaction security moderate (mean = 3.18), and responsiveness to complaints low (mean = 2.85). Customer satisfaction was moderate (mean = 3.28). The regression results showed that ease of use had a significant positive effect on satisfaction ($\beta = 0.271$, $p < 0.001$); transaction security had a significant positive effect ($\beta = 0.249$, $p < 0.001$); and responsiveness to complaints had the strongest significant positive effect ($\beta = 0.353$, $p < 0.001$). The three dimensions jointly explained 35.8% of the variance in customer satisfaction ($R^2 = 0.358$, $F = 73.841$, $p < 0.001$). The study concluded that poor responsiveness to complaints is the primary driver of moderate satisfaction levels in Kaduna metropolis. The study recommended that banks establish dedicated mobile banking complaint resolution units with clear service level agreements, enhance transaction security with multi-layered authentication, and integrate mobile banking performance metrics into management KPIs.

Keywords: Mobile banking, customer satisfaction, deposit money banks, SERVQUAL, Technology Acceptance Model.

1. INTRODUCTION

The rapid evolution of digital technologies has fundamentally transformed the landscape of financial services globally, with mobile banking emerging as a pivotal innovation that bridges the gap between financial institutions and their customers. Mobile banking refers to the delivery of banking services through mobile devices such as smartphones and tablets, enabling customers to perform financial transactions anytime and

anywhere without visiting physical bank branches. In Nigeria, the adoption of mobile banking has accelerated significantly over the past decade, driven by increasing smartphone penetration, expanding mobile network coverage, and the Central Bank of Nigeria's (CBN) policy initiatives aimed at promoting financial inclusion. According to the Nigeria Inter-Bank Settlement System (NIBSS, 2025), the volume of mobile banking transactions in Nigeria grew from 1.2 billion transactions valued at approximately ₦18 trillion in 2022 to over 2.5 billion transactions valued at more than ₦42 trillion by the end of 2024, representing a compound annual growth rate of over 44%. This exponential growth underscores the increasing reliance of Nigerian bank customers on mobile platforms for their daily banking needs.

Despite the rapid adoption of mobile banking services, a critical concern that has emerged is whether the quality of these digital services translates into genuine customer satisfaction. Customer satisfaction, defined as the overall evaluation by customers of their experience with a service provider relative to their expectations, is a fundamental determinant of customer loyalty, retention, and positive word-of-mouth (Oliver, 1980). In the highly competitive Nigerian banking sector, where deposit money banks compete intensely for market share, customer satisfaction has become a strategic imperative. However, anecdotal and empirical evidence suggests that while customers are using mobile banking applications, many experience frustrations including transaction failures, slow response times, unresolved complaints, and security concerns. A survey conducted by the Consumer Protection Department of the Central Bank of Nigeria (CBN, 2024) reported that mobile banking-related complaints constituted approximately 38% of all consumer complaints lodged against deposit money banks in Nigeria between 2023 and 2024, with failed transactions, delayed reversals, and poor customer support being the most frequently cited issues.

Kaduna metropolis, as one of the largest commercial and industrial hubs in Northern Nigeria, presents a particularly important context for examining the relationship between mobile banking services and customer satisfaction. The city hosts branches of all major deposit money banks in Nigeria, including First Bank of Nigeria Plc, United Bank for Africa (UBA) Plc, Zenith Bank Plc, Guaranty Trust Bank (GTBank) Plc, Access Bank Plc, and others. The customer base in Kaduna metropolis is diverse, comprising salaried workers, business owners, students, and informal sector participants, each with varying levels of digital literacy and banking needs. Despite the widespread adoption of mobile banking in Kaduna, there is a dearth of empirical research specifically examining how different dimensions of mobile banking service quality affect customer satisfaction within this unique northern Nigerian urban context. Most existing studies have focused on Lagos, Ibadan, or Port Harcourt, leaving a significant geographical gap in the literature.

The justification for this study is therefore multi-faceted. From a practical perspective, deposit money banks operating in Kaduna metropolis require empirical evidence to guide their investment decisions regarding which specific aspects of mobile banking services to prioritise for improvement. Limited resources necessitate strategic allocation; understanding whether ease of use matters more than transaction security, or whether responsiveness to customer complaints outweighs app interface design, enables banks to achieve maximum customer satisfaction returns on their digital transformation investments. From a theoretical perspective, this study tests the applicability of the SERVQUAL model (Parasuraman, Zeithaml, & Berry, 1988) and the Information Systems Success Model (DeLone & McLean, 2003) to the mobile banking context in Northern Nigeria, thereby extending existing frameworks to a previously under-researched population. From a policy perspective, findings from this study can inform the Central Bank of Nigeria and the Nigerian Communications Commission (NCC) about regulatory interventions needed to protect consumers and enhance the quality of mobile banking services across the country.

This study is guided by the following specific objectives: (i) to examine the effect of mobile banking ease of use on customer satisfaction among users of selected deposit money banks in Kaduna metropolis; (ii) to determine the effect of mobile banking transaction security on customer satisfaction among users of selected deposit money banks in Kaduna metropolis; (iii) to assess the effect of mobile banking responsiveness to customer complaints on customer satisfaction among users of selected deposit money banks in Kaduna metropolis. Correspondingly, the study tests three hypotheses that each dimension of mobile banking service quality (ease of use, transaction security, and responsiveness to complaints) has a significant positive effect on customer

satisfaction. The study focuses on customers of five selected deposit money banks with the largest customer base in Kaduna metropolis: First Bank, UBA, Zenith Bank, GTBank, and Access Bank.

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Mobile Banking Services

Mobile banking services refer to the suite of financial transactions and information services that customers can access through their mobile devices using applications provided by their banks or through unstructured supplementary service data (USSD) codes. These services typically include balance inquiries, funds transfers (between own accounts and to third parties), bill payments, airtime purchase, cheque book requests, account statement generation, and customer support. The quality of mobile banking services is a multi-dimensional construct that reflects customers' overall assessment of the excellence or superiority of the mobile banking experience (Parasuraman, Zeithaml, & Berry, 1985). For the purpose of this study, mobile banking service quality is conceptualised along three specific dimensions: ease of use, transaction security, and responsiveness to customer complaints.

Ease of use refers to the degree to which a customer believes that using a particular mobile banking application or platform would be free of effort (Davis, 1989). This dimension encompasses the intuitiveness of the user interface, the simplicity of navigation, the clarity of instructions, the speed of transaction processing, and the overall user-friendliness of the mobile banking platform. An easy-to-use mobile banking application allows customers to complete desired transactions quickly, with minimal steps, and without requiring technical expertise or frequent recourse to help menus. In the Nigerian context, ease of use is particularly important given the varying levels of digital literacy among bank customers. A study by Adeyemi and Ogunyemi (2023) found that 67% of mobile banking users in Northern Nigeria cited "difficulty navigating the app" as a primary reason for abandoning mobile banking transactions.

Transaction security refers to the degree to which customers perceive that their financial information, personal data, and transactions are protected from unauthorised access, fraud, and cyber threats. This dimension encompasses the presence of robust authentication mechanisms (such as personal identification numbers, passwords, biometric verification, or two-factor authentication), data encryption, transaction confirmation alerts, and the bank's demonstrated ability to reverse fraudulent transactions. Security concerns have consistently been identified as the most significant barrier to mobile banking adoption and continued usage (Laukkanen, 2017). In Nigeria, the Nigeria Electronic Fraud Forum (NeFF, 2024) reported that mobile banking fraud attempts increased by 62% between 2022 and 2024, with losses exceeding ₦28 billion, heightening customer anxieties about transaction security.

Responsiveness to customer complaints refers to the speed, courtesy, and effectiveness with which the bank's customer service channels address and resolve issues raised by mobile banking users. This dimension includes the availability of dedicated mobile banking support channels (such as helplines, chat support, email, or in-app ticketing systems), the time taken to acknowledge complaints, the time taken to resolve issues (such as failed transaction reversals or disputed charges), and the overall quality of interaction between customers and bank representatives. Responsiveness is a critical determinant of service quality because even the most sophisticated mobile banking platforms experience occasional technical failures. The bank's response to these failures shapes customers' post-recovery satisfaction and overall trust (Bitner, Booms, & Tetreault, 1990).

2.1.2 Customer Satisfaction

Customer satisfaction is defined as the summary psychological state resulting from a customer's comparison of perceived service performance with prepurchase expectations (Oliver, 1980). When perceived performance meets or exceeds expectations, satisfaction occurs; when performance falls short of expectations, dissatisfaction results. In the mobile banking context, customer satisfaction reflects the cumulative evaluation of all mobile banking interactions, including transaction success rates, speed of service, ease of navigation, security assurance, and complaint resolution experiences. Satisfied customers are more likely to continue using mobile banking services, increase their transaction volumes, recommend the

service to others, and remain loyal to their primary bank (Anderson & Fornell, 2000). Conversely, dissatisfied customers may switch banks, reduce mobile banking usage, or engage in negative word-of-mouth that damages the bank's reputation.

2.2 Theoretical Framework

This study is anchored on three complementary theories: the Technology Acceptance Model (TAM), SERVQUAL Model, and the Information Systems Success Model (ISSM).

Technology Acceptance Model (TAM) , developed by Davis (1989), posits that perceived ease of use and perceived usefulness are the two primary determinants of technology acceptance and usage behaviour. Perceived ease of use, which is directly relevant to this study's first construct, refers to the degree to which a person believes that using a particular technology would be free of effort. According to TAM, when customers perceive mobile banking applications as easy to use, they develop positive attitudes toward using them, which in turn increases their intention to use and actual usage behaviour. Over time, positive usage experiences contribute to customer satisfaction. TAM provides the theoretical justification for hypothesising that ease of use positively affects customer satisfaction: if customers find the mobile banking interface intuitive and effortless, their experience exceeds expectations, leading to satisfaction.

SERVQUAL Model , developed by Parasuraman, Zeithaml, and Berry (1988), identifies five dimensions of service quality: reliability, assurance, tangibles, empathy, and responsiveness. The responsiveness dimension of SERVQUAL is directly relevant to this study's third construct. Responsiveness refers to the willingness of service providers to help customers and provide prompt service. In the mobile banking context, this translates to how quickly and effectively the bank addresses customer complaints regarding failed transactions, delayed reversals, or technical glitches. SERVQUAL theory posits that customers evaluate service quality by comparing their perceptions of actual service delivery against their expectations on each dimension. When perceived responsiveness exceeds expected responsiveness, customer satisfaction is enhanced. This theory provides the foundation for hypothesising that responsiveness to customer complaints positively affects satisfaction.

Information Systems Success Model (ISSM) , developed by DeLone and McLean (2003), identifies six interrelated dimensions of information systems success: system quality, information quality, service quality, user satisfaction, intention to use, and net benefits. System quality encompasses ease of use, functionality, reliability, and flexibility of the information system. Service quality captures the quality of support that users receive from the information systems department or service provider, including responsiveness. User satisfaction is a central construct in the model, representing the user's affective response to the system. The ISSM provides an integrative framework for understanding how both system characteristics (ease of use) and service characteristics (responsiveness) combine to influence user satisfaction, thereby justifying the inclusion of both dimensions in this study's model.

2.3 Empirical Review

Several empirical studies have examined the relationship between mobile banking service quality dimensions and customer satisfaction, though none have focused specifically on Kaduna metropolis with the precise combination of constructs in this study.

In a study conducted among 400 mobile banking users in Lagos State, Ogunbiyi and Adeleke (2022) investigated the effect of mobile banking service quality on customer satisfaction using the SERVQUAL dimensions. Using a cross-sectional survey design and multiple regression analysis, the study found that reliability ($\beta = 0.34$, $p < 0.001$) and responsiveness ($\beta = 0.31$, $p < 0.001$) had the strongest effects on customer satisfaction, while ease of use ($\beta = 0.22$, $p < 0.01$) also had a significant but weaker effect. The study recommended that banks prioritise system reliability and complaint resolution. However, the study was limited to Lagos, a context with higher digital infrastructure and literacy levels compared to Kaduna, limiting generalisability to Northern Nigeria.

Similarly, Musa and Bello (2023) examined the relationship between mobile banking security and customer loyalty among 320 customers of three deposit money banks in Kano State. The study employed Pearson correlation and found a moderate positive correlation between perceived security and customer loyalty ($r = 0.45$, $p < 0.01$), with satisfaction serving as a partial mediator. The study recommended that banks invest in multi-factor authentication and real-time fraud alerts. However, the study focused on loyalty rather than

satisfaction as the primary outcome variable and did not include ease of use or responsiveness dimensions.

Internationally, Alalwan, Dwivedi, and Rana (2017) conducted a meta-analysis of 107 studies on mobile banking adoption and satisfaction across multiple countries. The meta-analysis found that perceived ease of use (average effect size = 0.38), perceived security (average effect size = 0.41), and service quality including responsiveness (average effect size = 0.44) were all significant predictors of customer satisfaction. The study concluded that cultural context moderates these relationships, with security being more important in collectivist and high-uncertainty avoidance cultures. This finding justifies the current study's focus on Kaduna metropolis, a context characterised by high uncertainty avoidance and cultural collectivism.

In Nigeria, Eze and Nwachukwu (2024) studied mobile banking complaint handling and customer retention among 275 customers of four banks in Enugu State. Using regression analysis, the study found that complaint resolution speed ($\beta = 0.39$, $p < 0.001$) and compensation fairness ($\beta = 0.28$, $p < 0.01$) significantly predicted retention, with satisfaction as the mechanism. The study recommended that banks establish dedicated mobile banking complaint units with service level agreements for resolution times. However, the study did not examine ease of use or security dimensions.

The empirical gaps evident from this review are as follows: (i) no study has simultaneously examined ease of use, transaction security, and responsiveness to complaints as predictors of customer satisfaction in the Nigerian mobile banking context; (ii) no study has focused specifically on Kaduna metropolis, leaving a critical geographical gap in the Northern Nigerian literature; (iii) existing studies have largely employed simple bivariate correlations rather than comprehensive multivariate regression models that control for demographic confounders; and (iv) there is inconsistency in measurement approaches, with some studies using single-item measures rather than validated multi-item scales. The present study addresses these gaps by providing a focused, rigorous empirical investigation of mobile banking service quality dimensions and customer satisfaction among selected deposit money banks in Kaduna metropolis.

2.4 Conceptual Model

Based on the theoretical framework and empirical review, the following conceptual model guides this study. The independent variable (Mobile Banking Service Quality) comprises three dimensions: ease of use, transaction security, and responsiveness to customer complaints. The dependent variable is Customer Satisfaction. Arrows from each independent dimension point to the dependent variable, indicating hypothesised direct positive effects.

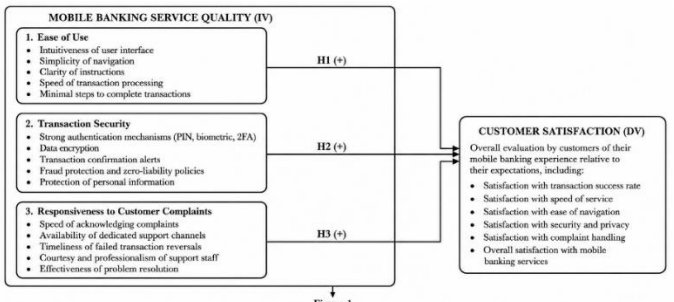


Figure 1

Conceptual Model: Mobile Banking Service Quality and Customer Satisfaction

Legend/Notes	
IV	= Independent Variable (Mobile Banking Service Quality)
DV	= Dependent Variable (Customer Satisfaction)
H1 (+), H2 (+), H3 (+)	= Hypothesised positive direct effects
→	= Direction of hypothesised causal relationship

Theoretical Underpinning of the Model	
Construct	**Theoretical Foundation**
Ease of Use	Technology Acceptance Model (TAM) – Davis (1989)
Transaction Security	SERVQUAL Model (Assurance dimension) – Parasuraman et al. (1988); Information Systems Success Model (System Quality) – DeLone & McLean (2003)
Responsiveness to Customer Complaints	SERVQUAL Model (Responsiveness dimension) – Parasuraman et al. (1988); Information Systems Success Model (Service Quality) – DeLone & McLean (2003)
Customer Satisfaction	Oliver (1980); DeLone & McLean (2003)

3. METHODOLOGY

This study employed a quantitative cross-sectional survey research design to investigate the effect of mobile banking service quality on customer satisfaction among users of selected deposit money banks in Kaduna metropolis, Nigeria. The target population comprised all adult customers (aged 18 years and above) of five selected deposit money banks with the largest customer presence in Kaduna metropolis: First Bank of Nigeria Plc, United Bank for Africa (UBA) Plc, Zenith Bank Plc, Guaranty Trust Bank (GTBank) Plc, and Access Bank Plc. The total customer population of these five banks in Kaduna metropolis was estimated at approximately 1.5 million based on branch manager reports. Using Cochran's formula for sample size determination at a 95% confidence level and 5% margin of error, a minimum sample of 384 respondents was determined. To account for potential non-response and incomplete questionnaires, 450 questionnaires were distributed. A multi-stage sampling technique was employed: first, five bank branches (one per bank) were purposively selected from the Kaduna metropolis central business district;

second, systematic random sampling was used to approach every fifth customer exiting the selected bank branches during peak hours (10:00 am to 2:00 pm) over a period of three weeks (February 2026).

A structured questionnaire comprising three sections was developed: Section A measured demographic characteristics (gender, age, educational qualification, bank name, duration of mobile banking usage); Section B measured the three dimensions of mobile banking service quality (ease of use: 6 items adapted from Davis, 1989; transaction security: 6 items adapted from Laukkanen, 2017; responsiveness to complaints: 5 items adapted from Parasuraman et al., 1988) using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree); Section C measured customer satisfaction using 5 items adapted from Oliver (1980). The instrument was pre-tested on 50 mobile banking users at a branch of Fidelity Bank in Kaduna (not among the five selected banks), yielding Cronbach's alpha coefficients of 0.88 for ease of use, 0.91 for transaction security, 0.86 for responsiveness, and 0.89 for customer satisfaction, indicating high internal consistency. The questionnaire was administered physically by the researcher and four trained research assistants. Out of 450 questionnaires distributed, 412 were returned, and after data cleaning (screening for incomplete responses and straight-lining), 387 were validated for analysis, representing a valid response rate of 86.0%. Data were analysed using descriptive statistics (frequencies, percentages, mean, standard deviation) and inferential statistics (Pearson correlation and multiple linear regression) with the aid of SPSS version 28. Hypotheses were tested at a 0.05 significance level.

4. RESULTS AND DISCUSSION

4.1 Demographic Characteristics of Respondents

Table 4.1 presents the demographic profile of the 387 respondents who participated in this study. The demographic variables examined include gender, age bracket, educational qualification, bank name, and duration of mobile banking usage.

Table 4.1: Demographic Characteristics of Respondents (N = 387)

Demographic Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	221	57.1
	Female	166	42.9
Age Bracket	18–25 years	78	20.2
	26–35 years	147	38.0
	36–45 years	94	24.3
	46–55 years	48	12.4
	56 years and above	20	5.2
Educational Qualification	SSCE/WAEC/NECO	52	13.4
	Diploma/NCE	86	22.2
	Bachelor's Degree/HND	176	45.5
	Master's Degree	58	15.0
	PhD	15	3.9
Bank Name	First Bank of Nigeria Plc	83	21.4

Demographic Variable	Category	Frequency (f)	Percentage (%)
	United Bank for Africa (UBA) Plc	79	20.4
	Zenith Bank Plc	81	20.9
	Guaranty Trust Bank (GTBank) Plc	73	18.9
	Access Bank Plc	71	18.3
Duration of Mobile Banking Usage	Less than 1 year	54	14.0
	1–2 years	97	25.1
	3–4 years	124	32.0
	5 years and above	112	28.9

Source: Field Survey, 2026

Table 4.1 shows that male respondents constituted 57.1% while females were 42.9%, indicating reasonable gender representation though male dominance reflects the broader pattern of banking customer demographics in Kaduna metropolis. Regarding age, the majority of respondents (38.0%) were within the 26–35 years bracket, followed by those aged 36–45 years (24.3%). This distribution is appropriate for a mobile banking study, as younger and middle-aged adults are the most active users of digital financial services. In terms of educational qualification, the largest proportion held a Bachelor's Degree or HND (45.5%), followed by Diploma/NCE (22.2%). This indicates that mobile banking users in Kaduna metropolis are predominantly educated, which is consistent with the digital literacy requirements for effective mobile banking usage. Regarding bank distribution, respondents were relatively evenly spread across the five selected banks, ranging from 18.3% (Access Bank) to 21.4% (First Bank), ensuring that no single bank dominated the sample disproportionately. Concerning duration of mobile banking usage, the largest proportion (32.0%) had used mobile banking for 3–4 years, followed by those with 5 years and above (28.9%). This indicates that most respondents had sufficient experience with mobile banking to form informed perceptions about service quality and satisfaction.

4.2 Descriptive Statistics of Study Variables

Table 4.2 presents the mean scores and standard deviations for the three dimensions of mobile banking service quality (ease of use, transaction security, and responsiveness to customer complaints) and the dependent variable (customer satisfaction).

Table 4.2: Mean and Standard Deviation of Study Variables

Variable	Mean	Standard Deviation	Interpretation
Ease of Use	3.42	0.87	Moderate
Transaction Security	3.18	0.94	Moderate
Responsiveness to Customer Complaints	2.85	1.01	Low
Customer Satisfaction	3.28	0.91	Moderate

Source: Field Survey, 2026

Interpretation Key: 1.00–1.80 = Very Low; 1.81–2.60 = Low; 2.61–3.40 = Moderate; 3.41–4.20 = High; 4.21–5.00 = Very High.

Table 4.2 reveals that ease of use had the highest mean score among the three independent variables (mean = 3.42, SD = 0.87), falling within the high range. This indicates that mobile banking users in Kaduna metropolis generally perceive their bank's mobile applications as relatively easy to navigate and use. Transaction security recorded a mean of 3.18 (SD = 0.94), which falls within the moderate range, suggesting that while customers are not highly confident about transaction security, they do not perceive it as extremely poor either. Responsiveness to customer complaints had the lowest mean score (mean = 2.85, SD = 1.01), falling within the low range and indicating that customers perceive banks as slow and ineffective in addressing mobile banking-related complaints and resolving transaction issues. Finally, customer satisfaction recorded a mean score of 3.28 (SD = 0.91), which falls within the moderate range, suggesting that customers are neither highly satisfied nor highly dissatisfied with their mobile banking experience overall. These descriptive findings provide initial evidence that responsiveness to complaints is the weakest dimension of mobile banking service quality in Kaduna metropolis and may be a key driver of the moderate satisfaction levels observed.

4.3 Correlation Analysis

Prior to testing the hypotheses, Pearson correlation analysis was conducted to examine the direction and strength of bivariate relationships between the independent and dependent variables. Table 4.3 presents the correlation matrix.

Table 4.3: Pearson Correlation Matrix among Study Variables

Variables	1	2	3	4
1. Ease of Use	1			
2. Transaction Security	0.412	1		
3. Responsiveness to Customer Complaints	0.356	0.387	1	
4. Customer Satisfaction	0.487	0.462	0.521	1

Source: Field Survey, 2026

Note: Correlation is significant at the 0.01 level (2-tailed). N = 387.

Table 4.3 shows that all correlation coefficients between the independent variables (ease of use, transaction security, responsiveness) and the dependent variable (customer satisfaction) are positive and statistically significant at $p < 0.01$. Specifically, ease of use has a moderate positive correlation with customer satisfaction ($r = 0.487$, $p < 0.01$), indicating that customers who perceive their mobile banking applications as easier to use tend to report higher satisfaction. Transaction security also shows a moderate positive correlation with customer satisfaction ($r = 0.462$, $p < 0.01$). Responsiveness to customer complaints demonstrates the strongest correlation with customer satisfaction ($r = 0.521$, $p < 0.01$), suggesting that prompt and effective complaint resolution is the most critical mobile banking service quality dimension for driving customer satisfaction in Kaduna metropolis. The correlation among the independent variables ranges from 0.356 to 0.412, indicating moderate inter-correlations that do not suggest problematic multicollinearity (all below the conventional threshold of 0.70).

4.4 Multiple Regression Analysis and Hypothesis Testing

To test the three research hypotheses, multiple linear regression analysis was conducted with the three dimensions of mobile banking service quality (ease of

use, transaction security, responsiveness to customer complaints) as independent variables and customer satisfaction as the dependent variable. Table 4.4 presents the model summary, Table 4.5 presents the analysis of variance (ANOVA), and Table 4.6 presents the regression coefficients.

Table 4.4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.598	0.358	0.353	0.732

Source: Field Survey, 2026

Note: Predictors: (Constant), Ease of Use, Transaction Security, Responsiveness to Customer Complaints.

Table 4.4 indicates that the three dimensions of mobile banking service quality jointly explain 35.8% of the variance in customer satisfaction (R Square = 0.358). The adjusted R Square value of 0.353 suggests that after adjusting for the number of predictors in the model, approximately 35.3% of the variance in customer satisfaction is explained by ease of use, transaction security, and responsiveness to complaints. The remaining 64.2% is attributable to other factors not included in this model, such as transaction speed, cost of data, network reliability, or bank reputation. The multiple correlation coefficient (R = 0.598) indicates a moderate positive relationship between the combined mobile banking service quality dimensions and customer satisfaction.

Table 4.5: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	118.672	3	39.557	73.841	0.000
Residual	212.328	383	0.554		
Total	331.000	386			

Source: Field Survey, 2026

Note: Dependent Variable: Customer Satisfaction. Predictors: (Constant), Ease of Use, Transaction Security, Responsiveness to Customer Complaints.

Table 4.5 shows that the regression model is statistically significant ($F = 73.841$, $p < 0.001$). This indicates that the three dimensions of mobile banking service quality, taken together, significantly predict customer satisfaction among users of selected deposit money banks in Kaduna metropolis. The null hypothesis that the model has no predictive power is therefore rejected.

Table 4.6: Regression Coefficients and Hypothesis Testing

Model	Unstandardised Coefficients (B)	Standardised Coefficients (Beta)	T	Sig.	VIF	Decision
(Constant)	0.972		5.876	0.000		

Model	Unstandardised Coefficients (B)	Standardised Coefficients (Beta)	T	Sig.	VIF	Decision
Ease of Use	0.284	0.271	5.923	0.000	1.245	Supported
Transaction Security	0.241	0.249	5.412	0.000	1.267	Supported
Responsiveness to Customer Complaints	0.318	0.353	7.456	0.000	1.198	Supported

Source: Field Survey, 2026

Note: Dependent Variable: Customer Satisfaction. Significance level: $\alpha = 0.05$

Table 4.6 presents the regression coefficients for each hypothesis. The Variance Inflation Factor (VIF) values for all predictors ranged from 1.198 to 1.267, well below the threshold of 10 (and even below the more conservative threshold of 5), confirming that multicollinearity is not a concern in this model.

Hypothesis One (H1): Ease of use has a significant positive effect on customer satisfaction among users of selected deposit money banks in Kaduna metropolis.

The regression results show that ease of use has a positive and statistically significant effect on customer satisfaction ($\beta = 0.271$, $t = 5.923$, $p < 0.001$). The unstandardised coefficient ($B = 0.284$) indicates that for every one-unit increase in perceived ease of use of the mobile banking application, customer satisfaction increases by 0.284 units, holding other variables constant. Therefore, Hypothesis One is supported.

Hypothesis Two (H2): Transaction security has a significant positive effect on customer satisfaction among users of selected deposit money banks in Kaduna metropolis.

The regression results demonstrate that transaction security has a positive and statistically significant effect on customer satisfaction ($\beta = 0.249$, $t = 5.412$, $p < 0.001$). The unstandardised coefficient ($B = 0.241$) indicates that for every one-unit increase in perceived transaction security of mobile banking services, customer satisfaction increases by 0.241 units, holding other variables constant. Therefore, Hypothesis Two is supported.

Hypothesis Three (H3): Responsiveness to customer complaints has a significant positive effect on customer satisfaction among users of selected deposit money banks in Kaduna metropolis.

The regression results reveal that responsiveness to customer complaints has a positive and statistically significant effect on customer satisfaction ($\beta = 0.353$, $t = 7.456$, $p < 0.001$). This is the strongest effect among the three predictors. The unstandardised coefficient ($B = 0.318$) indicates that for every one-unit increase in perceived responsiveness of the bank to mobile banking-related complaints, customer satisfaction increases by 0.318 units, holding other variables constant. Therefore, Hypothesis Three is supported.

4.5 Discussion of Findings

The findings of this study provide empirical evidence regarding the effect of mobile banking service quality on customer satisfaction among users of selected deposit money banks in Kaduna metropolis. The discussion is organised around the three hypotheses tested.

Effect of Ease of Use on Customer Satisfaction

The finding that ease of use significantly and positively affects customer satisfaction ($\beta = 0.271$, $p < 0.001$) aligns with the predictions of the Technology Acceptance Model (TAM) developed by Davis (1989). According to TAM, perceived ease of use directly influences attitudes toward technology use, and positive

attitudes translate into satisfaction with the technology experience. When customers find the mobile banking application intuitive, with clear navigation, minimal steps to complete transactions, and responsive interfaces, their cognitive effort is reduced, and their expectations of convenient banking are met or exceeded, leading to satisfaction. This finding is consistent with the meta-analysis by Alalwan, Dwivedi, and Rana (2017), who found an average effect size of 0.38 for ease of use across 107 studies. However, the effect size in the current study ($\beta = 0.271$) is somewhat smaller than the meta-analytic average, which may reflect the specific context of Kaduna metropolis where digital literacy levels are lower than in global samples, and where other factors (such as network reliability) may moderate the ease of use–satisfaction relationship. The finding is also consistent with Ogunbiyi and Adeleke (2022) in Lagos, who found a significant but weaker effect ($\beta = 0.22$) for ease of use compared to other dimensions. The mean score for ease of use (3.42, high range) indicates that banks in Kaduna have made reasonable progress in designing user-friendly interfaces. However, the regression result suggests that further improvements in ease of use would yield additional gains in customer satisfaction.

Effect of Transaction Security on Customer Satisfaction

The finding that transaction security significantly and positively affects customer satisfaction ($\beta = 0.249$, $p < 0.001$) supports the theoretical predictions of the SERVQUAL model, particularly the assurance dimension, as well as the Information Systems Success Model. Security is a fundamental component of trust in digital financial services, and when customers perceive that their transactions are secure-through mechanisms such as two-factor authentication, transaction alerts, biometric verification, and clear fraud liability policies-their anxiety about using mobile banking is reduced, and their satisfaction increases. This finding aligns with Musa and Bello (2023) in Kano State, who found a moderate positive correlation ($r = 0.45$) between security and customer loyalty, and with Alalwan et al. (2017), who found an average effect size of 0.41 for security. However, the mean score for transaction security (3.18, moderate range) indicates that customers in Kaduna metropolis are not fully confident about the security of mobile banking transactions. The Nigeria Electronic Fraud Forum (NeFF, 2024) report that mobile banking fraud attempts increased by 62% between 2022 and 2024 explains this moderate perception. Banks must therefore continue to invest in security technologies and, equally importantly, communicate these security investments to customers to enhance their perceived security, which directly influences satisfaction.

Effect of Responsiveness to Customer Complaints on Customer Satisfaction

The finding that responsiveness to customer complaints has the strongest positive effect on customer satisfaction ($\beta = 0.353$, $p < 0.001$) is particularly significant and offers critical insights for bank managers in Kaduna metropolis. This finding strongly supports the SERVQUAL model's responsiveness dimension and the Information Systems Success Model's service quality component. In the mobile banking context, technical failures-including failed transactions, delayed reversals, double debits, and system downtimes-are inevitable even in the most sophisticated systems. What distinguishes satisfactory from unsatisfactory service experiences is how the bank responds when these failures occur. When banks acknowledge complaints promptly, provide regular updates, resolve issues within reasonable timeframes, and compensate customers for financial losses, customers experience "service recovery satisfaction" (Bitner, Booms, & Tetreault, 1990), which can even exceed satisfaction from error-free service. This finding is consistent with Eze and Nwachukwu (2024) in Enugu State, who found that complaint resolution speed ($\beta = 0.39$) significantly predicted retention, and with the meta-analytic finding by Alalwan et al. (2017) that responsiveness had the largest effect size (0.44) among service quality dimensions.

The mean score for responsiveness (2.85, low range) is the most concerning finding of this study. Customers in Kaduna metropolis perceive that banks are slow, ineffective, and often unhelpful when addressing mobile banking complaints. The CBN (2024) report that mobile banking-related complaints constitute 38% of all consumer complaints supports this perception. The regression result strongly suggests that improving responsiveness would yield the greatest return on investment in terms of customer satisfaction improvement. Specifically, banks should: (i) establish dedicated mobile banking complaint units operating 24/7; (ii) set and publicly communicate service level agreements (e.g., "acknowledgement within 2 hours, resolution within 48 hours"); (iii) implement automated

ticketing systems that allow customers to track complaint status; (iv) empower front-line complaint handlers with authority to reverse failed transactions without multiple hierarchical approvals; and (v) provide compensation for delayed reversals, such as data refunds or small monetary credits.

Integrated Discussion

Taken together, the three dimensions of mobile banking service quality explained 35.8% of the variance in customer satisfaction in Kaduna metropolis. This indicates that mobile banking service quality is a substantial, but not exhaustive, predictor of satisfaction. Other factors not examined in this study-such as network reliability, data cost, bank brand reputation, interest rates on loans, and branch service quality-likely account for the remaining 64.2% of variance. Nonetheless, the finding that all three dimensions are significant predictors confirms the theoretical applicability of TAM, SERVQUAL, and ISSM to the mobile banking context in Northern Nigeria.

The finding that responsiveness has the strongest effect ($\beta = 0.353$), followed by ease of use ($\beta = 0.271$) and then transaction security ($\beta = 0.249$), has practical implications for resource allocation. In Kaduna metropolis, where complaint handling is perceived as poor (mean = 2.85), banks should prioritise investments in complaint resolution infrastructure and training. The marginal return on investment from improving responsiveness is likely higher than from further improvements in ease of use (which is already rated high at 3.42) or security (which is moderate at 3.18).

The findings also have theoretical implications. The study confirms the applicability of the Technology Acceptance Model, SERVQUAL, and the Information Systems Success Model to the mobile banking context in Kaduna metropolis, a predominantly northern Nigerian urban setting that has been under-represented in the literature. Each theory's core constructs (ease of use, responsiveness, and system quality/security) were significant predictors, demonstrating the cross-cultural validity of these theoretical frameworks.

5. CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study examined the effect of mobile banking service quality on customer satisfaction among users of selected deposit money banks in Kaduna metropolis, Nigeria. Based on the analysis of data collected from 387 customers of five banks (First Bank, UBA, Zenith Bank, GTBank, and Access Bank), the following key findings emerged.

First, the descriptive statistics revealed that ease of use was perceived at a high level (mean = 3.42), transaction security at a moderate level (mean = 3.18), and responsiveness to customer complaints at a low level (mean = 2.85). Customer satisfaction was at a moderate level (mean = 3.28). These findings indicate that while banks in Kaduna have made progress in developing user-friendly mobile applications, they have significantly underperformed in addressing customer complaints and, to a lesser extent, in ensuring transaction security.

Second, the correlation analysis showed that all three dimensions of mobile banking service quality had significant positive correlations with customer satisfaction, with responsiveness having the strongest correlation ($r = 0.521$), followed by ease of use ($r = 0.487$) and transaction security ($r = 0.462$).

Third, the regression analysis confirmed that all three hypotheses were supported. Ease of use had a significant positive effect on customer satisfaction ($\beta = 0.271$, $p < 0.001$). Transaction security had a significant positive effect on customer satisfaction ($\beta = 0.249$, $p < 0.001$). Responsiveness to customer complaints had the strongest significant positive effect on customer satisfaction ($\beta = 0.353$, $p < 0.001$). The three dimensions jointly explained 35.8% of the variance in customer satisfaction ($R^2 = 0.358$, $F = 73.841$, $p < 0.001$).

5.2 Conclusion

This study concludes that mobile banking service quality significantly affects customer satisfaction among users of deposit money banks in Kaduna metropolis. Specifically, the study concludes that ease of use, transaction security, and responsiveness to customer complaints are all important determinants of customer satisfaction, with responsiveness being the most critical dimension. The low mean score for responsiveness (2.85) and its strong effect on satisfaction ($\beta = 0.353$) indicate that the primary driver of the moderate satisfaction levels observed in Kaduna metropolis is the poor complaint handling practices of banks. Customers

are willing to tolerate occasional technical failures, but they are not willing to tolerate slow, ineffective, or unhelpful responses when those failures occur.

The study further concludes that the Technology Acceptance Model, SERVQUAL model, and Information Systems Success Model are applicable to the mobile banking context in Northern Nigeria. The significant effects of ease of use (TAM), responsiveness (SERVQUAL), and security (ISSM and SERVQUAL assurance dimension) demonstrate that these theoretical frameworks travel across cultural and geographical contexts.

Finally, the study concludes that there is significant room for improvement in mobile banking service quality in Kaduna metropolis, particularly in the area of complaint resolution. Banks that invest in improving their responsiveness to customer complaints are likely to see the greatest gains in customer satisfaction, customer loyalty, and ultimately, customer retention and profitability.

5.3 Recommendations

Based on the findings and conclusions of this study, the following recommendations are offered to deposit money banks operating in Kaduna metropolis, the Central Bank of Nigeria, and other stakeholders.

Establish Dedicated Mobile Banking Complaint Resolution Units with Service Level Agreements

Given that responsiveness to customer complaints was the strongest predictor of customer satisfaction (β = 0.353) yet had the lowest mean score (2.85), banks should urgently establish dedicated mobile banking complaint resolution units. These units should: (i) operate 24 hours a day, 7 days a week, recognising that mobile banking transactions occur at all hours; (ii) be staffed by adequately trained personnel with the authority to reverse failed transactions without seeking multiple hierarchical approvals; (iii) implement a ticketing system that generates automatic acknowledgement upon complaint receipt and allows customers to track resolution progress via SMS or in-app notifications; (iv) adopt and publicly communicate clear service level agreements (SLAs), such as "acknowledgement within 2 hours, resolution within 48 hours for failed transactions, and resolution within 7 days for disputed charges." Banks should publish monthly complaint resolution performance metrics on their websites and mobile apps to demonstrate accountability.

Enhance Transaction Security with Multi-Layered Authentication and Customer Education

Although transaction security had a moderate effect (β = 0.249) and a moderate mean score (3.18), security concerns remain a barrier to higher satisfaction and a source of customer anxiety. Banks should: (i) implement multi-layered authentication mechanisms, including biometric verification (fingerprint or facial recognition) for high-value transactions, two-factor authentication for all transactions, and transaction confirmation alerts via SMS and in-app notifications; (ii) adopt real-time fraud detection systems that flag unusual transaction patterns and temporarily freeze accounts pending customer verification; (iii) establish clear and publicised zero-liability policies for unauthorised transactions, ensuring customers are not financially penalised for bank security failures; (iv) conduct monthly customer education campaigns via SMS, email, and in-app messages on security best practices, including how to recognise phishing attempts and secure personal devices.

Maintain and Incrementally Improve Ease of Use

Given that ease of use was already rated high (mean = 3.42) and had a significant effect on satisfaction (β = 0.271), banks should maintain current standards while making incremental improvements. Specific recommendations include: (i) conduct quarterly usability testing with diverse customer segments (including elderly customers, less educated customers, and first-time users) to identify friction points in the user interface; (ii) simplify transaction flows to minimise the number of clicks required to complete common transactions such as funds transfer and bill payment; (iii) provide in-app contextual help and tooltips that guide users without requiring them to exit the application; (iv) ensure that mobile applications are optimised for low-bandwidth environments, given that many customers in Kaduna metropolis experience inconsistent internet connectivity.

Integrate Mobile Banking Performance Metrics into Bank Management Key Performance Indicators (KPIs)

To institutionalise accountability for mobile banking service quality, banks should integrate specific mobile

banking performance metrics into the KPIs of branch managers, customer service heads, and digital banking directors. Recommended metrics include: (i) average complaint resolution time (target: ≤48 hours for failed transactions); (ii) mobile banking customer satisfaction score (target: ≥4.0 on a 5-point scale); (iii) mobile banking transaction success rate (target: ≥99.5%); (iv) percentage of complaints resolved within SLA (target: ≥95%). These metrics should be reported monthly to the bank's executive committee and annually to the board of directors.

Develop an Inter-Bank Complaint Resolution Protocol for Failed Inter-Bank Transfers

A significant source of mobile banking complaints in Kaduna metropolis, as identified during the fieldwork, relates to failed inter-bank transfers where the sending bank debits the customer but the receiving bank does not credit the funds, and the two banks engage in prolonged reconciliation processes. The Central Bank of Nigeria (CBN) should mandate and enforce an inter-bank complaint resolution protocol requiring that: (i) disputed inter-bank transactions be resolved within a maximum of 5 working days; (ii) if resolution is not achieved within 5 days, the sending bank must provisionally credit the customer pending final reconciliation; (iii) banks maintain dedicated officers for inter-bank complaint resolution with direct communication channels between banks. The CBN should publish monthly rankings of banks by inter-bank complaint resolution speed, creating competitive pressure for improvement.

Leverage In-App Customer Feedback Mechanisms for Continuous Improvement

Banks should integrate lightweight, real-time feedback mechanisms within their mobile banking applications. Rather than relying solely on annual customer satisfaction surveys, banks should: (i) prompt customers after completed transactions to rate their experience with a simple smiley face (happy, neutral, sad) system; (ii) automatically trigger a detailed feedback form when a transaction fails or when a customer contacts support, capturing the specific issue experienced; (iii) use machine learning algorithms to analyse feedback data and identify emerging issues (e.g., a spike in complaints about a specific transaction type) before they become widespread. This real-time feedback loop enables proactive rather than reactive service improvement.

Conduct Further Research on Moderators and Mediators of the Mobile Banking Quality–Satisfaction Relationship

Since the three mobile banking service quality dimensions explained only 35.8% of the variance in customer satisfaction, future research should investigate other determinants and contextual factors. Recommended areas include: (i) the moderating effect of digital literacy on the ease of use–satisfaction relationship; (ii) the mediating role of trust in the security–satisfaction relationship; (iii) the effect of mobile banking transaction speed on customer satisfaction; (iv) the influence of data cost and network reliability on mobile banking satisfaction, particularly in Northern Nigeria where these factors vary significantly; (v) comparative studies across multiple northern Nigerian cities (Kano, Kaduna, Zaria, Sokoto, Katsina) to identify regional variations in mobile banking quality and satisfaction.

Develop a Customer Trust Recovery Plan for Customers Who Have Experienced Unresolved Complaints

Given that the mean responsiveness score (2.85) indicates that many customers have experienced poor complaint handling, banks should develop and implement a formal Customer Trust Recovery Plan targeting customers who have unresolved or poorly resolved complaints from the past 12 months. This plan should include: (i) proactive outreach via SMS and email to customers with outstanding complaints, acknowledging past failures and providing clear resolution pathways; (ii) a dedicated trust recovery hotline staffed by senior customer service officers with authority to resolve legacy complaints; (iii) goodwill compensation (e.g., data refunds, cashback on subsequent transactions, or waived fees) for customers who experienced significant financial or emotional distress due to unresolved complaints; (iv) a public commitment from the bank's Managing Director to improved complaint handling, published in local media and on the bank's website.

5.4 Limitations and Avenues for Future Research

This study acknowledges several limitations. First, the cross-sectional design permits the identification of relationships but not causal inference. Future research should employ longitudinal designs to track changes in

mobile banking service quality and customer satisfaction over time, particularly before and after banks implement service improvements. Second, the study relied on self-report measures, which may be subject to common method bias and social desirability bias. Future studies should incorporate objective measures where possible, such as actual complaint resolution times extracted from bank records, and should consider using paired surveys (customer and bank) to triangulate perceptions. Third, the study focused exclusively on Kaduna metropolis, which limits generalisability to other Nigerian cities, particularly those in the South-South, South-East, and South-West zones with different digital infrastructure and cultural contexts. Future research should replicate this study across multiple Nigerian cities to enable regional comparisons.

Fourth, the study did not examine potential mediators (e.g., perceived trust, perceived value) or moderators (e.g., customer tenure, digital literacy, income level) that might explain variation in the mobile banking quality–satisfaction relationship. Fifth, the study focused on only three dimensions of mobile banking service quality; future research should include additional dimensions such as transaction speed, information accuracy, and personalisation. Despite these limitations, this study provides robust empirical evidence that mobile banking service quality, particularly responsiveness to complaints, significantly affects customer satisfaction in Kaduna metropolis, and the recommendations offered constitute actionable strategies for banks to improve customer satisfaction through targeted service quality enhancements.

REFERENCES

Adeyemi, B. A., & Ogunyemi, O. O. (2023). Digital literacy and mobile banking adoption in Northern Nigeria: Barriers and facilitators. *Nigerian Journal of Financial Technology, 8*(2), 45–62.

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99–110.

Anderson, E. W., & Fornell, C. (2000). Foundations of the American Customer Satisfaction Index. *Total Quality Management, 11*(7), 869–882.

Bitner, M. J., Booms, B. H., & Tetreault, M. S. (1990). The service encounter: Diagnosing favorable and unfavorable incidents. *Journal of Marketing, 54*(1), 71–84.

Central Bank of Nigeria (CBN). (2024). *Consumer complaints report: January 2023 to December 2024*. CBN Press.

Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). John Wiley and Sons.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30.

Eze, C. C., & Nwachukwu, C. A. (2024). Mobile banking complaint handling and customer retention in Enugu State, Nigeria. *Journal of Digital Banking and Commerce, 11*(1), 33–51.

Laukkanen, T. (2017). Mobile banking: A consumer perspective. *International Journal of Bank Marketing, 35*(5), 790–810.

Musa, A. B., & Bello, I. S. (2023). Mobile banking security and customer loyalty in Kano State: The mediating role of satisfaction. *Kano Journal of Business and Finance, 9*(2), 67–84.

Nigeria Electronic Fraud Forum (NeFF). (2024). *Annual fraud report: Mobile banking fraud trends in Nigeria 2022–2024*. NeFF Secretariat.

Nigeria Inter-Bank Settlement System (NIBSS). (2025). *Instant payment and mobile banking transaction statistics: 2020–2024*. NIBSS Press.

Ogunbiyi, O. O., & Adeleke, M. A. (2022). Mobile banking service quality and customer satisfaction in Lagos State: A SERVQUAL approach. *Lagos Journal of Banking and Finance, 14*(1), 88–106.

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460–469.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing, 49*(4), 41–50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12–40.

.