

Electronic Payment Systems and Customer Satisfaction in the Nigerian Banking System

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Abstract

This study explores the impact of electronic payment systems on customer satisfaction in the Nigerian Banking System, specifically targeting undergraduate students. The research has two primary objectives: assessing satisfaction levels with ATM, Point of Sale (POS), and mobile applications payment systems, and identifying the factors that influence student satisfaction. Data collection involved a random sampling technique, with 384 undergraduate students selected from a population of 9,500 at Lead City University. A survey questionnaire was administered to gauge satisfaction levels with the electronic payment systems. Statistical analyses, including mean, simple percentage, and Chi-square tests, were conducted to examine variable relationships. The findings reveal that improvements or modifications to the ATM payment system directly impact customer satisfaction, supported by rejecting the null hypothesis with a χ^2 value of 108.9 and a p-value below 0.05. Similarly, enhancements to the POS payment system significantly affect customer satisfaction, with the null hypothesis rejected based on a χ^2 value of 103.5 and a p-value below 0.001. Additionally, the use of mobile applications for financial transactions has a significant influence on customer satisfaction, demonstrated by rejecting the null hypothesis with a χ^2 value of 93.2 and a p-value below 0.001. Most undergraduate students express high levels of satisfaction with the ATM, POS, and mobile applications payment systems. In conclusion, this study highlights the positive impact of electronic payment systems on undergraduate students' satisfaction in the Nigerian Banking System. To further enhance student satisfaction, it is recommended to focus on improving usability, technological advancements, and user interface..

Keywords: ATM, Point of Sale (POS), and Mobile Applications Payment Systems, Customer Satisfaction

Introduction

The banking sector has undergone a transformation because to the development of electronic payment systems, which provide clients quick and easy access to their money. In recent years, Nigeria has seen a substantial increase in the usage of electronic payment systems such Automated Teller Machines (ATMs), Point of Sale (POS) devices, and mobile applications. With the use of these technologies, clients may manage their financial activities with more accessibility and flexibility. It is critical to evaluate the effect of these electronic payment systems on consumer satisfaction as Nigeria's banking industry develops.

The stock of currency held outside the banking system, which could be a source of unproductive economic resources because they are not available for credit expansion, is integrated into it as the shift to electronic payment systems proceeds, increasing the deposit base of the monetary system. Nigeria's payment system has historically been based primarily on cash, which has both advantages and disadvantages. Advantages include instant conversion to other forms of value without the need for a financial institution's intermediary, while disadvantages include anonymity and untraceability in unethical transactions¹. The administration was bombarded with claims of corruption in the Federal Civil Service², which led to the introduction of electronic payment.

Modern information and communication technology (ICT) advancements have propelled the banking sector into a new technological era. The sector exhibits several characteristics typical to high-tech industries, most notably market, technological, and competitive instability. In the twenty-first century, broad adoption of electronic payment systems makes their impact unavoidable. The industry's adoption of information and communication technology (ICT) for the provision of banking goods and services is a notable development. Automated teller machine (ATM) transactions, point of sale (POS) systems, mobile banking systems, and online banking systems are some examples of these service delivery models.³. Business transactions in the financial and production sectors were challenging and stressful before there were electronic payment systems. Banks frequently employ ledgers, folio numbers, and postcard-style data sheets where clients' names, sample signatures, and photos are recorded. The performance of the banks in Nigeria was incredibly sluggish and ineffective due to manual procedures. All Nigerian banks' past performances have been impacted by technology.

Customers, on the other hand, stand to gain from rapid service delivery, less frequent physical bank visits, and less handling of cash, which will result in a larger level of turnover. However, it appears that the goals of these changes in the Nigerian banking sector have not been met. Bank clients continue to handle excessive amounts of cash, there are still lines in the banking rooms, and rarely anybody discusses the Nigerian electronic banking options that are accessible.

Nigerian banks are currently improving their services to better satisfy their customers. Customers have more options when picking their banks thanks to the new age IT (Information Technology), which is causing the banking sector to reengineer many of its fundamental systems and procedures. Mobile applications, POS hardware, and ATMs have become essential elements of Nigeria's electronic payment infrastructure. Customers have 24/7 access to their money through ATMs, enabling them to withdraw cash, check account balances, and carry out standard banking operations.

Customers can use debit or credit cards at a variety of retail outlets using POS devices to make payments that are deducted directly from their bank accounts. Contrarily, mobile applications have grown in popularity as a result of the increasing usage of smartphones and now give users the ease of managing their financial transactions while on the go. The Nigerian banking sector is currently efficiently utilizing new technical capabilities to produce value and improve customer relationship management⁴.

In recent years, there has been a noticeable trend toward digital banking solutions in Nigeria, and the financial system there has seen a fast development. The Central Bank of Nigeria (CBN) reports that from 12.4 million in 2010 to over 2.7 billion in 2020⁷, there were more electronic transactions. This increase in electronic transactions demonstrates how much the nation is depending on electronic payment systems. The difficult business climate in the financial markets has increased pressure on banks and financial institutions to create and use various service delivery channels in an effort to draw in more clients, improve client perceptions, and foster client loyalty^{1,2,6}.

To enhance service delivery, reduce line-ups for cash payments, allow customers to withdraw money whenever they want, facilitate international payment and remittance, track individual cash transactions, request an online statement, or even transfer deposits to a third party account¹, electronic payment (E-Payment) systems were adopted. Despite the efforts of the telecommunications sectors to ensure that customers benefit from e-payment systems, the industry is met with complaints from customers regarding broken Automated Teller Machines (ATMs), network outages, online theft and fraud, the lack of financial services, the payment of hidden costs of electronic payment (E-Payment) systems like Short Message Services (SMS), for sending alerts, the requirement to obtain ATM cards, and non-acceptabilities³. The telecommunications industry has been deploying ATM cards and investing in payment cards for their clients since the early 2000s. However, due to a lack of interconnection, or a switching platform to interconnect the ATMs for card holders, usage has been limited. Therefore, this study on effect of e-payment systems on Nigeria is designed to address these highlighted issues

Aim and Objectives of the Study

The aim of this research is to appraise the influence of electronic payment (ATM, Point of Sale and mobile applications payment system) system on customer satisfaction (Customer Feedback and Reviews, Transaction Success Rate, Net Promoter Score (NPS)) in Nigeria banking system. Specifically, the general objectives of this study are to:-

- i. determine the influence of ATM payment system on the customer satisfaction in Nigeria banking system.
- ii. ascertain the effect of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system.
- iii. examine the effect of mobile applications payment system on the customer satisfaction in Nigeria banking system.

Research Questions

The following research questions were developed in order to guide the study:

- i. What is the influence of ATM payment system on the customer satisfaction in Nigeria banking system?
- ii. What is the influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system?
- iii. What is the influence of mobile applications payment system on the customer satisfaction in Nigeria banking system?

Hypotheses

The following hypotheses were formulated

H01: There is no significant influence of ATM payment system on the customer satisfaction in Nigeria banking system

H02: There is no significant influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system

H03: There is no significant influence of mobile applications payment system on the customer satisfaction in Nigeria banking system

Literature Review

Conceptual Review

Customer Satisfaction

Customer satisfaction depends on expectations and knowledge of the services being provided. The satisfaction theory makes use of a variety of psychological and physical factors. With the variety of services financial institutions now provide their clients, electronic services have benefited consumer satisfaction. Customers perceive operating in contemporary banking to be very simple and satisfying since most tasks are completed at the customer's convenience, which has put an end to the period of the banking hall queuing system¹. In relation to the fulfillment of a need, aim, or desire, satisfaction is described as the general customer attitude toward the service delivered or as an emotional response to disparities between what the customer expected and what is being offered². Customer satisfaction can also be described as a judgment made after learning more about the specific service being provided and if it matches the customer's expectations³. An individual's impression of happiness and disappointment as a result of evaluating how well a good or service appears to have performed in comparison to his or her expectations³.

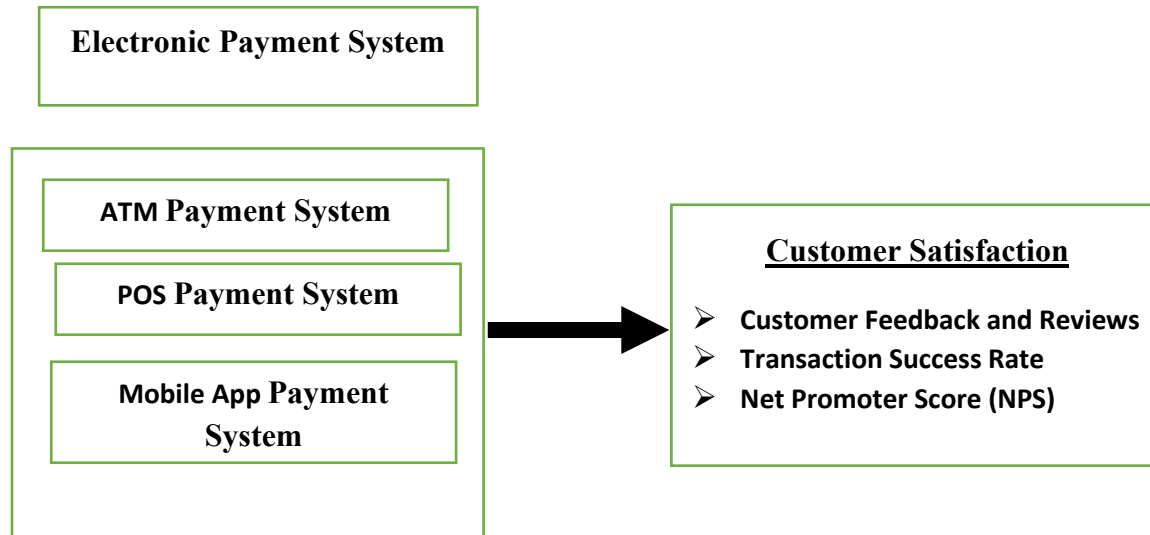
It comprises of many tactics intended to maintain, fulfill, or surpass consumers' expectations in a highly competitive market like the banking sector. Customers' satisfaction as a culmination of their perceptions, assessments, and emotional responses to a product or service consumption experience². In other words, it is the outcome of a cognitive and emotive appraisal in which the performance as really experienced is contrasted with some consumption standard. Customer dissatisfaction results from perceived performance falling short of expectations, whereas customer satisfaction results from perceived performance exceeding expectations, which would result in positive behaviors or outcomes⁴. A pleased consumer is more likely to be dependable, require less time, be less price sensitive, and pay less attention to advertising from rival businesses⁵. In the context of electronic payment systems used by banks, this section covers the value of customer feedback, transaction

success rates, and the Net Promoter Score (NPS). Customer feedback, especially favorable ratings, has a big impact on how satisfied and devoted customers are to mobile banking services. It is advised to actively seek out and respond to consumer feedback to improve service quality. The NPS is a popular metric for gauging customer happiness and loyalty. Insights on customer satisfaction and loyalty levels are provided by categorizing clients based on their propensity to promote a service. Understanding client feedback and loyalty is essential in the banking industry, and the NPS assists banks in determining overall satisfaction and system efficacy. NPS measures customer happiness and the potential for consumer advocacy, both of which are essential for improving electronic payment systems and attaining success.

2.1.2 Electronic Payment System (E-Payment)

E-payment systems are the automated procedures for transferring money and communicating it across ICT networks between participants in commercial transactions¹². E-payment in Nigeria involves sending money from one end to the other via a computer, with no human participation other than entering payment information. It is the capability to electronically pay the salary of the personnel, vendors, and suppliers¹². E-payment systems have recently emerged as a handy means of exchanging money, particularly in emerging economies like Nigeria where carrying cash is customary. An effective e-payment system has been acknowledged to have significant significance on financial stability, monetary policy, and general economic activity¹³. In Nigeria, e-payment systems provided the key beginning point of her contemporary market economy. One of the newest methods for using mobile phones to make payments is mobile banking. Sending a payment request through text message (USSD) or a bank's mobile app is required for this. Since account information is already connected to the bank software¹³, using a credit card or cash is quicker and less stressful when using mobile banking. Automated Teller Machines (ATMs) are a type of electronic banking facility that let users carry out transactions independently of a teller or member service agent. As long as they are all connected to the same network, anybody with a credit card or debit card can use an ATM. In order for users to access their account information, an ATM connects with the network of other ATMs. Point of Sales (POS) Terminals are a type of terminal that let customers pay with payment cards provided to them by any bank in or outside of Nigeria, including Visa, MasterCard, Verve, and others, straight into other accounts¹⁴.

Conceptual Framework



The conceptual framework explores the connection between electronic payment systems (ATM, POS, and Mobile App payment systems) and customer satisfaction, using three indicators: customer feedback and reviews, transaction success rate, and Net Promoter Score (NPS). Electronic payment systems include ATMs, which enable various banking transactions; POS systems used for payments at retail locations, and Mobile App payment systems accessed through mobile applications for financial transactions. Customer satisfaction is measured through customer feedback and reviews, reflecting their overall satisfaction, ease of use, convenience, and security. The transaction success rate indicates the percentage of successful transactions completed using the electronic payment systems, while the Net Promoter Score (NPS) gauges customer loyalty and willingness to recommend the systems to others. The link between electronic payment systems and customer satisfaction is established through several factors. Convenience and accessibility play a crucial role, as systems offering round-the-clock availability, multiple transaction options, and user-friendly interfaces contribute to customer satisfaction.

Theoretical Review

Disconfirmation Theory

Richard L. Oliver first proposed the Disconfirmation Theory in 1980. This psychological theory describes how people make decisions regarding goods and services based on the mismatch between their expectations and actual experiences. According to the disconfirmation theory, the amount and direction of the disconfirmation experience that results from comparing service performance to expectations is correlated with satisfaction. In contrast to the Negative theory, this theory takes into account the direction of the mismatch between the user's expectations and their actual experience. The meta-analysis by Szymanski and Henard revealed that the disconfirmation paradigm is the most

accurate predictor of client satisfaction. A revised explanation of the disconfirmation hypothesis reads as follows: The guest's fulfillment answer is satisfaction²⁶. A product or service feature, or the product or service itself, is judged to have delivered (or is continuing to offer) a pleasurable degree of consumption-related fulfillment, including levels of under- or over-fulfillment. According to this idea, when clients utilize the numerous electronic payment systems that the banks have advertised to the banking public, they will contrast their actual usage with their expectations.

Researchers may use the Disconfirmation Theory as a framework to look at a number of important issues related to the impact of electronic payment systems in the Nigerian banking sector. First and foremost, it's crucial to comprehend what clients anticipate from electronic payment systems. When using such systems in the Nigerian Banking System, this entails assessing their predicted levels of security, comfort, speed, simplicity of use, dependability, and other pertinent criteria. Second, it's critical to assess how customers really perceive the functioning of electronic payment systems. This review includes determining how satisfied they are with a variety of factors, including the system's functionality, user interface, transactional flow, error-handling capabilities, and customer support, among others. Ultimately, the Disconfirmation Theory may be used to improve electronic payment systems continuously, resulting in higher client satisfaction in the Nigerian banking sector.

2.3 Empirical Studies

the link between economic development and electronic payment systems utilizing monthly data from 2012 to 2017⁹. The investigation made use of the Autoregressive Distributed Lagged Regression (ADLR) technique. The findings showed a strong correlation between the use of electronic payments and economic growth, as measured by real gross domestic product (GDP) growth.

The connection between banks' client retention rates and electronic payment systems. Based on their history in the sector, degree of competition, and ICT compliance, a few Nigerian banks were chosen and compared using this study methodology. Additionally, a questionnaire was created to capture the EPS grey area as well as customer retention and bank entrepreneurship growth. 200 people completed the survey, and SPSS was used to evaluate the results. The correlation between the electronic payment system and customers' retention was shown to be positive and significant.³⁵

Consumer satisfaction with electronic banking services. The research particularly examined the many aspects of the quality of the electronic banking services as well as the connection between client satisfaction and these aspects. The chosen study design was a descriptive survey. There were 93 responders in the sample. Questionnaires were the primary study tool employed. To evaluate the hypotheses, the data were examined using descriptive statistics, Pearson correlation, and regression analysis. The results showed that there is a substantial link between customer happiness and the different aspects of the quality of the electronic banking service, and that customer satisfaction is significantly impacted by the quality of the electronic banking service³⁴.

Evidence from the Lebanese Banking Sector on the effect of the quality of the E-Banking service on customer satisfaction. The research makes use of primary data that was collected using a survey tool

and used structural modeling, SPSS, and Amos for data analysis. According to the research, customer satisfaction is significantly impacted by dependability, efficiency, user friendliness, responsiveness, and communication, as well as security and privacy.³ Impact of e-banking services and client satisfaction at certain bank branches in the Nigerian state of Oyo and the city of Ibadan. The research used sampling techniques and a cross-sectional survey design as its methodology²⁵. The analytical method employed in the research was Pearson correlation. The results demonstrated widespread use of electronic banking products, including electronic transfers (97%), online banking (85%), and ATMs (98%). Internet network failure, bank fraud, and economic loss as a result of unsuccessful e-transactions are examples of constraints. Due to its cashless nature, accessibility of cash, time savings from bank visits, and frictionless transactions, e-banking has gained the favor of customers.

The impact of electronic banking on Nigerian customers' happiness¹⁵. A questionnaire was used to gather first-hand information. With the use of the SPSS program, hypotheses were created, tested, and assessed using the Chi-square test. The findings show a strong correlation between inadequate interconnectivity and consumers' use of electronic banking services. Additionally, there is a strong correlation between users using electronic banking services and service disruptions. The research also discovers a strong correlation between consumer happiness and electronic banking.

Methodology

The research design adopted for this study is descriptive survey research. The population of this study is comprised of all undergraduate students of Lead City University Ibadan with total population of about 9500 students. These students was chosen because they represent the youth of the digital age and utilize various banks and e-banking services. Taro Yamale's formula was adopted to determine the sample size for this study as follows:

The formula is $n = N / (1 + Ne^2)$

Where: n = Number of samples, N = Total population and e = Error tolerance (level).

Thus, N = 9500, e = 5% i.e. 0.05,

$n = N / (1 + N e^2) =$

$n = 9500 / (1 + 9500 * 0.05^2) = 383.83$

Thus, the sample size for this is 384 students

Simple random sampling was adopted for this study as it cut across all the students. Students from each faculty were chosen to represent sample for this study as distributed in the table below:

Table 1 Distribution of the Sampled Respondents

Faculty	Sample
Management and Social Science	64
Art and Education	64
Engineering	64
Basic and Applied Science	64

Basic and Clinical Science	64
Law	64
Total	384

For this study, primary data was used. As a result, the instrument for this study was a self-structured questionnaire with a set of precisely prepared and sequential statements to elicit data in order to answer the research objectives. To obtain the reliability of the instrument, 20 copies of the questionnaires were given to respondents who were not among the sample size for this study. The result of the analysis was 0.82 indicated that the instrument is reliable enough for measuring what it purports to measure in a consistent manner. Data to be collected from administered questionnaires was subjected to statistical manipulations. The descriptive statistics was used to analyze biographical data and arithmetic mean and standard deviation was used to make the decision about research questions. And also, T-test statistical tool was used to test the hypothesis raised at 0.05 significant level. Statistical Package for Social Science (SPSS) version 23 was used to ensure accuracy of the analysis of the data collected for study.

Results and Discussion of Findings

This Chapter is concerned with the presentation and analysis of data gathered from Primary source. The presentation was based on responses gathered from the questionnaires distributed to respondents of this study. That data was analyzed in the table s drawn below for easy interpretation and the relevant test carried out on them.

Presentation of Demographic Data

Table 2: Distribution of Demographic Data

Variables	Frequency	Percentage
What is your Gender?		
Male	190	49.5%
Female	180	46.9%
Prefer not to say	14	3.6%
What age group do you belong?		
Less than 16 years	100	26.0%
17-20 years	150	39.1%
21 years and above	134	34.9%

Religion		
Christianity	130	33.9%
Islam	240	62.5%
Others	14	3.6%

Based on the provided Table 4.1, data was collected from a random sample of 384 respondents to investigate the variables of "Gender," "Age Group," and "Religion." For the "Gender" variable, it was found that 49.5% of the respondents identified as male, while 46.9% identified as female. A small proportion, 3.6%, chose not to disclose their gender. Examining the "Age Group" variable, it was observed that 26.0% of the respondents were less than 16 years old. The age range of 17-20 years accounted for 39.1% of the sample, while those aged 21 years and above represented 34.9%. Considering the respondents' religious affiliation, the majority, 62.5%, identified as Muslims. Christianity accounted for 33.9% of the sample, and a small proportion, 3.6%, identified with other religions.

Analysis of Research Questions

Research Question One: What is the influence of ATM payment system on the customer satisfaction in in Nigeria banking system?

Table 3 ATM payment system and the customer satisfaction in Nigeria banking system

ATM System:	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Mean	Remarks
a. The availability of ATM machines in my area is satisfactory.	45%	40%	10%	5%	4.25	Very Satisfied
b. My experience when using ATMs for financial transactions is positive.	50%	40%	7%	3%	4.32	Very Satisfied
c. The speed and efficiency of ATM transactions are satisfactory.	48%	42%	6%	4%	4.28	Very Satisfied
d. The ATM system is convenient for cash withdrawals.	52%	38%	6%	4%	4.32	Very Satisfied
e. I am satisfied with the security measures implemented in ATM transactions.	43%	23%	32%	2%	2.94	Satisfied

Table 3 presents the insights gleaned from the provided information, focusing on mean scores, offer a comprehensive overview of customer satisfaction with the ATM payment system in Nigeria's banking landscape. Each aspect presents a distinct perspective: Firstly, the availability of ATM machines receives a notable mean score of 4.25, indicating a significant level of satisfaction among users. This suggests that customers generally find the accessibility of ATMs in their local areas to be convenient and reliable. Secondly, the experiences customers have while conducting financial transactions through ATMs showcase a remarkably high mean score of 4.32. This underscores the overwhelmingly positive sentiment among users, suggesting that their interactions with the ATM system are consistently positive and satisfactory. The speed and efficiency of ATM transactions are also highly regarded, as reflected by the mean score of 4.28. This score reaffirms that users appreciate the promptness and smoothness of their transaction experiences, which contribute to their overall satisfaction. Furthermore, the convenience of the ATM system for cash withdrawals stands out with a mean score of 4.32. This indicates that users find the system highly convenient and reliable for accessing their funds, contributing to their overall contentment. However, the aspect of security measures in ATM transactions, indicated by a mean score of 2.94, demonstrates a relatively moderate level of satisfaction. While there is an appreciable level of contentment, the score suggests there is room for improvement in addressing security concerns to further enhance customer satisfaction.

Research Question Two: What is the influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system?

Table 4 Point of Sale (POS) System and the customer satisfaction in Nigeria banking system

Point of Sale (POS) System:	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Mean	Remarks
a. My overall experience when making payments using Point of Sale (POS) terminals is satisfactory.	42%	50%	6%	2%	4.28	Very Satisfied
b. I am satisfied with the ease of use and functionality of the POS system.	47%	43%	7%	3%	4.32	Very Satisfied
c. The POS system is convenient for making purchases.	48%	42%	7%	3%	4.30	Very Satisfied
d. The speed of transactions when using the POS system is satisfactory.	45%	45%	7%	3%	4.28	Very Satisfied

e. I am satisfied with the accuracy of transactions processed through the POS system.	46%	44%	7%	3%	4.30	Very Satisfied
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Table 4 brings to light a series of mean scores obtained from a survey that delved into gauging customer satisfaction with the Point of Sale (POS) system. These mean scores offer insight into different aspects of the system: Starting with the overall payment experience, the mean score of 4.28 highlights a significant level of contentment among users. This score aligns with the responses of those who were "Very Satisfied" and those who expressed satisfaction, collectively making up the majority. Dissatisfaction remains minimal, as indicated by the low percentage of respondents who reported discontent. Moving on to the ease of use and functionality aspect, the mean score of 4.32 reflects a high degree of satisfaction. Almost half of the respondents conveyed being "Very Satisfied," while an additional portion expressed their satisfaction. Dissatisfaction levels were limited, indicating a positive perception of the system's user-friendliness and operational efficiency. Furthermore, the system's convenience for making purchases receives a mean score of 4.30, underlining users' contentment. The substantial proportion of respondents who are "Very Satisfied" and those who expressed satisfaction reinforces the idea that the POS system effectively caters to their purchasing needs. Considering the transaction speed, the mean score of 4.28 signifies a commendable level of satisfaction. Almost half of the respondents were "Very Satisfied," while an equivalent percentage were satisfied. Dissatisfaction remains at a low level, reflecting users' appreciation for the swift and efficient nature of POS transactions. Lastly, the aspect of transaction accuracy garners a mean score of 4.30, indicating a robust level of satisfaction. Almost half of the respondents are "Very Satisfied," and a significant percentage expressed satisfaction. Dissatisfaction levels were again modest, emphasizing users' trust in the system's ability to process transactions accurately. This encompassing view covers the overall payment experience, ease of use, convenience, transaction speed, and transaction accuracy, solidifying the positive reception of the system among users.

Research Question Three: What is the influence of mobile applications payment system on the customer satisfaction in Nigeria banking system?

Table 5 Mobile Applications Payment System and the customer satisfaction in Nigeria banking system

Mobile Applications Payment System:	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Mean	Remarks
a. My overall experience when using mobile applications for financial transactions is positive.	58%	36%	4%	2%	4.54	Very Satisfied
b. I am satisfied with the user interface and	51%	42%	5%	2%	4.48	Very Satisfied

navigation of mobile payment apps.							
c. Mobile payment apps are convenient for making payments.	56%	39%	4%	1%	4.52	Very Satisfied	
d. I am satisfied with the security measures implemented in mobile payment transactions.	46%	49%	3%	2%	4.46	Very Satisfied	
e. I am satisfied with the availability and reliability of mobile payment services.	32%	23%	43%	2%	2.70	Satisfied	

In Table 5 a compilation of mean scores emerges from a survey aimed at gauging customer satisfaction with the Mobile Applications Payment System. The distinct dimensions and their respective mean scores are as follows: The overall payment experience garnered a mean score of 4.54, signifying a robust level of contentment among users during mobile app transactions, The user interface and navigation aspect received a mean score of 4.48, showcasing a high degree of satisfaction with the system's ease of use, For convenience in payments, the mean score reached 4.52, underscoring users' satisfaction with the system's suitability for their payment needs, Satisfaction with the security measures implemented in mobile payment transactions resulted in a mean score of 4.46, indicating users' trust in the system's security protocols, However, the availability and reliability aspect had a mean score of 2.70, suggesting a moderate level of satisfaction. This particular area calls for improvement to elevate customer satisfaction.

In summary, these mean scores collectively illuminate the Mobile Applications Payment System's strengths in aspects such as the overall payment experience, user interface, convenience, and security. Nonetheless, the availability and reliability dimension points to an area that requires attention to further enhance overall customer satisfaction.

4.3 Testing of Hypotheses

Hypothesis One: H01: There is no significant influence of ATM payment system on the customer satisfaction in Nigeria banking system?

Table 6 Influence of ATM payment system on customer satisfaction in Nigeria Banking System

Variable	No	df	Chi-Square (χ^2)	P-value
Customer Satisfaction	382			
		3	109.8	< 0.001
ATM payment System	382			

Table 6 shows the results of the Chi-Square Tests indicate that the relationship between the ATM payment system and customer satisfaction in the Nigerian Banking System is statistically significant. With a chi-square value (χ^2) of 109.8 and a p-value of less than 0.001, the association between the variables is deemed highly significant. The magnitude of the chi-square value (109.8) signifies the strength of the connection between the ATM payment system and customer satisfaction. A higher value indicates a more pronounced relationship between the two factors. By rejecting the null hypothesis due to the p-value being less than the significance level of 0.05, it can be concluded that there is indeed a significant relationship between the ATM payment system and customer satisfaction in the Nigerian Banking System.

Hypothesis Two: H02: There is no significant influence of Point of Sale (POS) payment system on the customer satisfaction in Nigeria banking system?

Table 7 Influence of Point of Sale (POS) payment system on customer satisfaction in Nigeria Banking System

Variable	No	df	Chi-Square (χ^2)	P-value
Customer Satisfaction	382			
		3	103.5	< 0.001
Point of Sale (POS) payment	382			

Table 7 shows the results of the Chi-Square Tests provide strong evidence that there is a significant relationship between the Point of Sale (POS) payment system and customer satisfaction in the Nigerian Banking System. The chi-square value (χ^2) of 103.5, along with a p-value of less than

0.001, indicates that the association between these variables is highly significant. The magnitude of the chi-square value (103.5) indicates the strength of the relationship between the Point of Sale payment system and customer satisfaction. A higher value suggests a more substantial connection between these factors. By rejecting the null hypothesis based on the p-value being less than the significance level of 0.001, we can confidently conclude that there is indeed a significant relationship between the Point of Sale payment system and customer satisfaction in the Nigerian Banking System.

Hypothesis three: H03: There is no significant influence of mobile applications payment system on the customer satisfaction in Nigeria banking system

Table 8 Influence of Mobile Applications Payment System on customer satisfaction in Nigeria Banking System

Variable	No	Df	Chi-Square (χ^2)	P-value
Customer Satisfaction	382	3	93.2	< 0.001
Mobile Applications Payment System	382			

The table 8 shows the results of the Chi-Square Tests indicate that there is a significant relationship between the Mobile Applications Payment System and customer satisfaction in the Nigeria Banking System. The chi-square value (χ^2) of 93.2 and the p-value of less than 0.001 indicate a highly significant association between these variables. The chi-square value of 103.5 signifies the strength of the relationship between the Mobile Applications Payment System and customer satisfaction. A higher chi-square value indicates a stronger association between the two factors.

By rejecting the null hypothesis based on the p-value being less than the significance level of 0.001, it can be concluded that there is indeed a significant relationship between the Mobile Applications Payment System and customer satisfaction in the Nigeria Banking System.

4.4 Discussion of Findings

The results of this study's first objective, which looks at how customer satisfaction in the Nigerian banking system is affected by ATM payment services as an electronic payment system, provide evidence that there is a strong correlation between these two variables. These findings are in line with earlier research done in relevant fields. Customer satisfaction in the banking sector and the influence of ATM services². Their research showed a link between customer satisfaction and the quality of ATM services. They noted that as consumers enjoy the convenience and accessibility given by ATMs, efficient and dependable ATM services greatly contribute to customer satisfaction. Similar to this, a study was conducted to examine the variables affecting customer satisfaction in the

banking industry, with an emphasis on self-service technologies²¹. According to the survey, one of the major factors influencing consumer satisfaction was the quality of ATM services. Customers preferred ATMs with speedy transactions, precise balance information, and an intuitive user interface. These results lend credence to the idea that changes and upgrades to the ATM payment system might directly affect consumer satisfaction levels. In addition, a cross-sectional study²⁴ examined the connection between consumer satisfaction with ATM services and the Nigerian Banking System. The findings showed a strong positive association between client happiness and the quality of ATM services. The research stressed how crucial it is to provide dependable and straightforward ATM services in order to raise client happiness and loyalty.

In addition, a research was done on the connection between customer loyalty and ATM service quality in the context of Nigerian banking. The results showed a significant positive association between customer loyalty and ATM service quality. Customers were more inclined to show loyalty to their banks when they thought the service quality at the ATMs was greater. The research stressed the need of offering dependable and effective ATM services to establish long-term client relationships and consumer trust. The findings that modifications or improvements to the ATM payment system may directly affect customer satisfaction levels in the Nigerian banking system are supported by empirical data from several linked research taken together. It emphasizes how important it is for banks to make technology investments and keep enhancing their ATM services as a form of electronic payment in order to satisfy consumer expectations and raise general satisfaction. The results of this study's second objective, which looked at how the Point of Sale (POS) payment system affected customer satisfaction in the Nigerian banking system, strongly suggest that there is a significant connection between these two variables. These findings are in line with a number of important research in the area that provide empirical proof of the beneficial effects of POS payment systems on client satisfaction. One of the ways that POS payment systems in the retail sector have an impact on customer satisfaction is 7. According to the research, clients who used POS systems for their purchases expressed greater levels of pleasure than those who used more conventional payment methods. The research focused on the ease of use, quickness, and effectiveness of POS systems as determinants of customer satisfaction. The researchers looked at the connection between POS payment systems and customer satisfaction in another study that targeted the hotel industry²⁴. The findings showed a considerable positive association, demonstrating how much customer happiness was increased by the use of POS systems. The survey identified enhanced service, transaction speed, and simplicity of use as the three main factors that influence consumer happiness. Similar research is being done in the e-commerce sector to examine how POS payment systems affect consumer happiness. Their research showed that consumers who used POS systems for online purchases had greater levels of satisfaction³⁰. The research emphasized the importance of POS systems' simplicity, security, and dependability in affecting consumer satisfaction. Research is being done in the banking industry to look at the connection between POS payment systems and client happiness. The findings showed that clients who conducted their banking transactions using POS systems showed greater levels of satisfaction than those who only utilized conventional banking

procedures. The survey emphasized that POS systems' ease, transaction speed, and accuracy are key factors in consumer satisfaction.

Furthermore, a research in the food service sector looked at how POS payment systems affected consumer satisfaction. The results showed a link between the deployment of POS systems and increased customer satisfaction. The research highlighted elements that positively impacted consumer satisfaction, such as the simplicity of payment, shorter wait times, and increased order accuracy. In light of these connected research, the present results provide strong evidence that there is a causal link between consumer satisfaction in the Nigerian banking system and the Point of Sale payment system. The findings highlight the significance of taking into account elements like practicality, effectiveness, security, speed, and accuracy while upgrading and changing POS payment systems to raise customer satisfaction levels in the banking industry.

The findings of this study's third goal provide compelling evidence in favor of the link between customer satisfaction in the Nigerian banking system and the mobile applications payment system. These results are consistent with other research that emphasizes the influence of mobile apps on client satisfaction in the banking industry. a research on how Nigerian banks' customer satisfaction is impacted by mobile banking applications⁸. The results showed a relationship between the use of mobile applications and customer satisfaction that was favorable. In order to increase consumer happiness, the research underlined the significance of a user-friendly design, simple navigation, and practical functionality. Li and Liu (2018) looked at mobile payment applications in another study and looked into the connection between app quality and user happiness. The findings showed that effective navigation, well-designed user interfaces, and strong security controls all had a favorable impact on consumer satisfaction. To guarantee high levels of consumer happiness, the research stressed the necessity for ongoing improvements in app dependability and performance. In addition, a research was done to determine how mobile banking apps affected consumer satisfaction in the Nigerian banking industry¹⁹. According to the research, clients who frequently used mobile banking applications reported greater levels of satisfaction than those who only used conventional banking procedures. The survey emphasized the advantages of mobile applications for convenience, accessibility, and time savings as variables that affect consumer happiness.

Similar research has been done on the connection between mobile banking applications and client satisfaction in the Indian banking sector⁹. The findings showed that consumer satisfaction was favorably impacted by mobile applications that provided easy navigation, speedy transaction processing, and safe authentication procedures. The research stressed the significance of ongoing mobile app upgrades and improvements to satisfy users and match their expectations. Additionally, a research on the effects of mobile payment applications on client satisfaction in the Sri Lankan banking industry¹⁰ was conducted. According to the research, clients who utilized mobile payment applications expressed greater levels of satisfaction as a result of the ease, quickness, and security they offered. In order to increase customer happiness, the research underlined the necessity for user-friendly interfaces, trustworthy transaction processing, and efficient customer assistance.

Conclusion

This research shows a significant relationship between consumer satisfaction in Nigeria's banking industry and electronic payment systems (ATM, Point of Sale, and mobile applications). Customer satisfaction ratings are directly impacted by improvements to these systems. According to earlier research that emphasized the importance of effective, dependable, and user-friendly ATM services, the study specifically emphasizes the critical role of the ATM system in affecting satisfaction. In a similar way, it has been shown that the Point of Sale system and mobile app payments have a big impact on consumer satisfaction via elements like overall experience, usability, convenience, and accuracy. For increasing satisfaction, it became clear that mobile applications' user interfaces, security, and dependability needed to be improved. The report emphasizes how crucial electronic payment systems are for determining consumer happiness and calls on banks and politicians to continuously improve these systems to live up to expectations, enhance client experiences, and encourage loyalty in a cutthroat financial environment.

5.3 Recommendations

Based on the findings of this study regarding the influence of electronic payment systems on customer satisfaction in the Nigerian Banking System, the following recommendations are suggested:

1. Enhance the usability of ATM services: Banks should prioritize improving the user experience of their ATM services. This can be achieved by ensuring clear instructions, intuitive interfaces, and easy navigation.
2. Invest in advanced ATM technologies: Banks should consider investing in advanced ATM technologies to provide customers with innovative and convenient features. For example, implementing contactless payment options, biometric authentication, and personalized transaction preferences can enhance the overall customer experience and increase satisfaction levels.
3. Optimize Point of Sale systems: To further enhance customer satisfaction, banks should focus on optimizing their Point of Sale (POS) systems. This can involve improving transaction speed, accuracy, and security.
4. Continuously update and improve mobile payment applications: Given the increasing popularity of mobile banking, banks should regularly update and enhance their mobile payment applications. This includes improving the user interface, simplifying navigation, and ensuring robust security measures.
5. Provide comprehensive customer support: Banks should prioritize providing efficient and accessible customer support services. This can include a dedicated helpline, online chat support, and informative self-service options.
6. Conduct regular customer feedback surveys: Banks should regularly collect feedback from customers regarding their experiences with electronic payment systems. Feedback surveys can provide valuable insights into areas for improvement and identify emerging customer needs and preferences. Acting upon customer feedback demonstrates a commitment to customer satisfaction and helps banks stay responsive to changing customer expectations.

Endnotes

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