Automated Teller Machine Service Quality and Customer Satisfaction in the Nigeria Banking Sector

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Abstract: *Automatic Teller Machines (ATMs) are becoming prominent in banking operations in Nigeria, with many banks adopting this technology in order to provide the growing population of customers with fast, accessible, reliable and quality services. The study investigates dimensions of ATM service quality and its effect on customer satisfaction. Questionnaire was developed and used to collect information from the study sample. The structured questionnaire was administered to three hundred and fifty (350) respondents of which three hundred and three (303) were found usable, giving 87% response rate. Data collected were analyzed using SPSS 20.5. Regression results indicate that convenience, efficient operation, security and privacy, reliability and responsiveness are significant dimensions of ATM service quality and that ATM service quality has a significant positive relationship with customer satisfaction. Findings from this study are relevant in improving ATM service quality by banks' management to stimulate broad-based customers' satisfaction. It is therefore recommended that banks need to constantly up-date and differentiate their ATM service quality dimensions to ensure continuous satisfaction and retention of customers.*

Keywords: Automated teller machine, banking, customer satisfaction, service quality.

Introduction

The changing business environment offers challenges and opportunities to organizations. The changing customers' perception of quality poses unique challenge. Excellence in quality has become an imperative for organizational sustainability

(Lewis, Orledge & Mitchell, 1994). The developments of technologies have enabled organizations to provide superior services for customers' satisfaction (Surjadjaja, Ghosh & Antony, 2003).

In the banking sector, the number of customers preferring to use self-service delivery systems is on the increase. This is because effective self-service delivery systems guarantees quality excellence and superior performance and provide increased autonomy to the customers in executing the transactions (Lovelock, 2000). Banks are increasing their technology-based service options to remain competitive. The ATM is an innovative service delivery mode that offers diversified financial services like cash withdrawal, funds transfer, cash deposits, payment for utility and credit card bills, cheque book requests, and other financial enquiries. Researchers have stated that users' satisfaction is an essential determinant of success of the technology-based delivery channels (Wu & Wang, 2007; Tong, 2009.).

ATMs in Nigeria

Nigeria has witnessed rapid growth in the introduction and diffusion of Information and Communication Technologies (ICT) in its banking sector. Agboola (2006) found that the use of ICT in Nigerian banks has produced largely positive outcomes such as improved customer services, more accurate records, ensuring convenience in business time, prompt and fair attention and faster services. Work has been made easier, and more interesting, the competitive edge of banks, relationship with customers, and the solution of basic operational and planning problems has been improved (Olatokun &Igbinedion, 2009). A survey conducted by Intermarc Consulting Limited (2007) revealed that among the many services provided by banks and non-financial institutions, ATM services stood as the most popular. Apart from ATM services provided by banks, the report also showed that awareness for other banking services rendered by Nigerian banks is mostly limited to the traditional banking services. However, among the more modern banking services such as electronic banking, internet banking, point of sales (pos) transactions, money transfer, ATMs emerged as the most popular. ATM awareness also ranked higher than awareness level about current accounts and slightly below savings account (Omankhanlen, 2007).

In Nigeria, the deployment of ATM by banks and its use by bank customers are just gaining ground and have burgeoned in recent times. This has happened especially after the recent consolidation of banks, which has made it possible for more banks to afford to deploy ATMs or at least become part of shared networks (Fasan, 2007). The increased deployment of ATMs in the banking sector has made the issue of technology relevance important. At present, the use of ATM has been widely promoted. Some banks have

resorted to penalizing the customer as it were, for not possessing an ATM card, by debiting the account of such a customer for withdrawing below a certain amount across the counter. Thus, the banks would appear to be aggressively promoting the use of ATM cards, credit cards, debit cards, and smart cards. Thus the banks would appear to be moving away from the marketing ethos that "the customer is the king" to the now familiar pattern of handling "the customer with iron hand". Currently, the ATM facilities in Nigeria are used generally for cash withdrawal, payment of utility and credit cards bills, and purchase of recharge card for mobile phones, balance inquiry, change of personal identification number and transfer of funds facility.

Objective of the Study

To examine the essential dimensions of ATM service quality and analyze its effect on customers' satisfaction in the banking sector of Nigeria.

Literature Review

There are a number of issues on the value of service quality to organizations. For example, the literature provides relationship between service quality and firms' performance based on a number of variables: improved productivity, increased market share, enhanced customers' attraction and loyalty, improved staff morale, and sustained profitability (Al-Hawari &Ward, 2006). Research has found that service quality in banks is critical for satisfaction and retention of customers (Jabnoun & Al-Tamimi, 2003). Keeping in view the significance of service quality as a means of competitive advantage and organizational sustainability, the banks are pursuing multidimensional approaches to improve service quality to attract and retain customers (Khan, 2010).

According to Castleberry and Resurreccion (1989), the physical location of banks' delivery channels influence perception of customers about quality. Consistent delivery of services, physical dimensions and staff interaction with customers, trustworthy processes and procedures, positively affect delivery of services quality (Sureshchandar, Rajendran & Anantharaman, 2002). Pleasant customer interaction with staff significantly affects customers' perception of quality (Yavas, Bilgin & Shemwell, 1997). In response to this requirement, banks have initiated flawless delivery processes to reduce delivery timings to improve service quality.

ATM Service Quality

In Nigeria, the use of Automatic Teller Machine (ATM) has become more common and popular than it ever was (Fasan, 2007). The technological innovation has transformed the banking business. Banks are aggressively adopting this mode. The advantages of using ATM have given new impetus in dimensions of service quality and banks are offering new choices to customers. For example, Cabas (2001) noted investment opportunities, reduction in costs,

satisfaction of customers and competitiveness as motives to install and add new ATM to the existing network. And Moutinho (1992) established that ATM facility resulted in speed of transactions and saved time for customers.

Indeed, research indicates different dimensions of ATM service quality. Lovelock (2000) identified secure and convenient location, adequate number of ATM, user-friendly system, and functionality of ATM as essential dimensions of ATM service quality. Davies, Moutinho & Curry (1996) examined the factors that influence customers' satisfaction about ATM service quality. These factors include costs involved in the use of ATM, and efficient functioning of ATM. Joseph and Stone (2003) examined the United States customers' perception of ATM quality and found that user-friendly, convenient locations, secure positions, and the numbers of ATM provided by the banks are essential dimensions of ATM service quality. In a case study of Botswana, Mobarek (2007) established speed of operation, and waiting time as the important predictors of ATM service quality.

Researchers have divergent views about the use and effectiveness of ATMs. Stemper (1990) stressed the positive dimension of ATMs based on freedom of transaction. Effective service delivery in ATM system guarantees quality excellence and superior performance and provide autonomy to the customers (Lovelock, 2000). Yavas, Benkenstein & Stuhldreier (2004) argued that customers' focused ATM delivery system that fulfills their needs and maximize operational performance are essential dimensions of bank ATMs to achieve and sustain competitive advantage.

Similarly, Dilijonas, Krikščiunien, Sakalauskas & Simutis (2009) examined the essential aspects of ATM service quality in Baltic States of Estonia, Latvia and Lithuania. They identified essential resources (adequate number of ATMs, convenient and secure location and user-friendly system); important dimensions of operation of ATM (maximum speed, minimum errors, high uptime, cash backup); and value-based aspects (quality service at reasonable cost, and maximum offering to cover maximum needs of customers) as vital facets. Based on prior studies, Al-Hawari &Ward (2006) compiled a list of five major items about ATM service quality that include convenient and secured locations, functions of ATM, adequate number of machines and user-friendliness of the systems and procedures. An empirical study found that these items constitute important aspects of ATM service quality.

On the satisfaction level of ATM card holders of a leading bank (HBSC) in Bangladesh, Islam, Kumar & Biswas (2005) found significant relationship of ATM service quality with customers'

satisfaction. The study identified that location, personnel response, quality of currency notes, promptness of card delivery and performance of ATM were positively and significantly related to customer' satisfaction. The security, frequent breakdown of machine, and insufficient number of ATM were major contributors to customers' dissatisfaction. In another study in Bangladesh, Shamsdouha, Chowdhury & Ahsan (2005) found that 24 hours service, accuracy, and convenient locations were the main predictors of customer satisfaction. The study also indicated lack of privacy in executing the transaction, fear of safety and complexity of the machine were the major cause of concern for the customers.

Joseph and Stone (2003), through focus group study in the United States, found that easy access to location, user-friendly ATM, and security are important factors that influence majority of bank customers' perception of ATM service quality. Patrı´cio, Fisk & Cunha (2003) undertook a qualitative study of a Portuguese bank regarding customers' use of multi-channel offerings. The study identified accessibility and speed of operation as strong predictors of customers' satisfaction, whereas security dimension and technical failures were main causes of dissatisfaction.

Previous researchers have found that reliability feature of ATM is essential to consumers' use of electronic channels of banking (Polatoglu & Ekin, 2001; Liao & Cheung, 2002). Rugimbana and Iversen (1994) studied the perceived attributes of ATM service quality and their marketing implication. They found that convenience, reliability, and ease of use are important aspects, whereas complexity and unreliability (risk) were causes of dissatisfaction. Leblanc (1990) in a study of ATM users in Canada, established that major reasons for using ATM were accessibility, freedom to do banking at all times, and to avoid waiting lines. The study also found the users' apprehension about the risk associated with its use and complexity of the machine in executing the transactions.

Moutinho (1992) examined the relationship of the dimensions of usage rate and performance expectation with customers' prolonged satisfaction with ATM services. The results indicated that usage rate had a negative association with customer perceived prolonged satisfaction whereas performance expectations found to have positive and significant predictor of customers' prolonged satisfaction. Moutinho and Brownlie (1989) found that accessibility and location of ATM significantly affect users' satisfaction. The research found that customers were willing to accept new offerings through ATMs. Waiting in queue to use the ATM was the major cause of dissatisfaction among the users.

Literature provides support to the idea that pleasant experience of automated services provides enhanced value to the customers and attracted them to undertake improved business with their banks (Wan, Luk, & Chow, 2005). Simultaneously, the researchers have concluded that technology-based services are likely to give sense of incompetence to customers, isolate them, and increase passiveness (Reichhield & Schefter, 2000; Grabner-Krauter & Kalusha, 2003). In addition, the pattern of adoption of technology and its use may differ across organizations and cultures (Lockett & Litter, 1997*).*

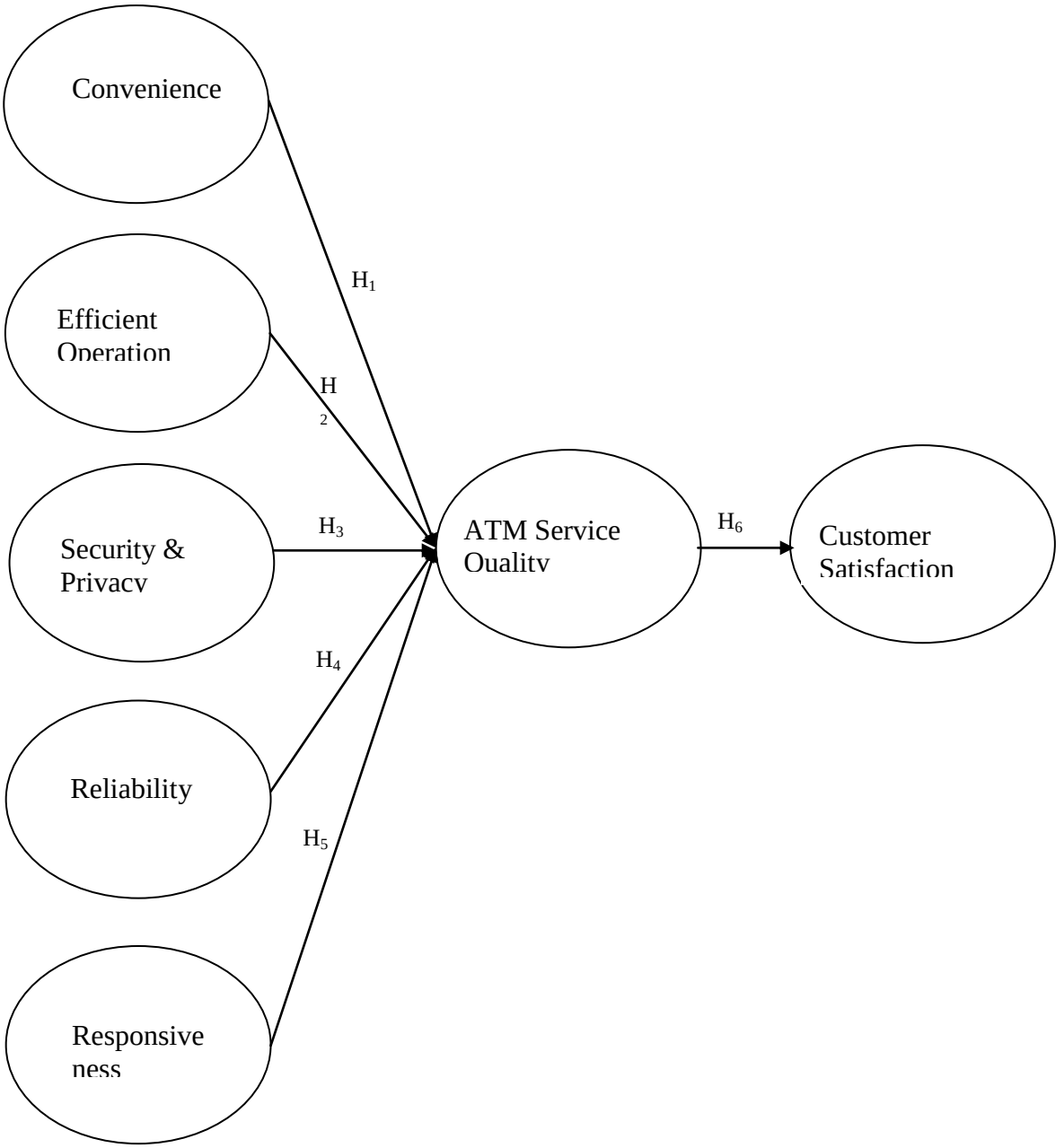
Howcroft (1991) noted that dissatisfaction among customers is associated with frequent interruptions and breakdown of ATMs. Intense competition and technology-based new services are shaping customers loyalty. These have resulted into switching of banks by customers based on competitive services (Lewis & Bingham, 1991). Athanassopoulos (2000) found that location of ATM, increasing number of ATMs, and diversified service offering are associated with switching of banks.

Marketers identified customers' satisfaction through behavioural, cognitive, and attitudinal response to the service provider. These dimensions manifest in repeated use of services, tolerance with regard to price, word of mouth promotion and display of cognitive and attitudinal behaviour (Bowen & Chen, 2001). Athanassopoulos (2000) found strong empirical evidence of innovation, convenience, price, and service quality as vital dimensions of customers' satisfaction. An understanding of customers' expectations enables organizations to offer customer-focused services and reduce attrition of customers. Literature offers significant evidence of the association between satisfaction of customers and superior financial performance, customer loyalty, and market share (Beerli, Martin & Quintana, 2004; Wood, 2008; Olu, 2010; Oghojafor, Ladipo, Ighomereho & Odunewu, 2014).

Researchers contend that service quality has a direct link with customer satisfaction (Parasuraman, Zeithaml & Berry, 1988; Olu, 2010). Strong evidence exists in the literature about customers' satisfaction from ATM services (Leblanc, 1990). Literature finds a large number of studies that highlight the satisfaction of customers with ATMs (Moutinho & Brownlie, 1989, Wan et al., 2005; Mobarek, 2007; Komal & Singh, 2009).

Research Model

Based on the direction of most of the studies, the research model of this study is shown below



Research Hypotheses

Based on the research model, the following hypotheses were tested:

Hypothesis 1: Convenience of ATMs has a significant positive relationship with ATM service quality.

Hypothesis 2: Efficient operation of ATMs has a significant positive relationship with ATM service quality.

Hypothesis 3: Security and privacy of using ATMs has a significant

positive relationship with ATM service quality.

Hypothesis 4: Reliability of ATMs has a significant positive relationship with ATM service quality.

Hypothesis 5: Responsiveness of using ATMs has a significant positive relationship with ATM service quality.

Hypothesis 6: ATM service quality has a significant positive relationship with customer satisfaction.

Methodology

A correlational research design was used for this study. Convenience sampling technique was used to collect the data from a sample of 350 bank customers who hold ATM cards. A questionnaire was used to collect the data. The survey questionnaire measured five dimensions of ATM service quality and its effect on customer satisfaction. The dimensions are convenience, efficient operation, security and privacy, reliability and responsiveness. Nominal scale was used to collect personal information about respondents. Five point Likert scale ranging from five (strongly agree) to one (strongly disagree) was used to measure the response on all dimensions of ATM service quality and customer satisfaction.

A sample of 50 customers was used in the pilot testing to validate the instrument. The results of pilot testing exhibited adequacy as suggested by Nunnaly (1978). The Cronbach's alphas ranged from 0.710 to 0.880 for different variables. The results indicated Cronbach's alpha for individual variable of convenience (0.764); efficient operation (0.760); security and privacy (0.710); reliability (0.714); responsiveness (0.858); ATM service quality (0.800) and customer satisfaction (0.762). When Cronbach's alpha is greater than 0.7, it is considered acceptable and it shows the questionnaire has a relative high internal reliability. When Cronbach alpha is less than 0.7, it is considered not acceptable and the items in the questionnaire did not significantly contribute to the reliability and therefore eliminated for parsimony purpose. The results were found to be within the acceptable range of 0.7.

Data Analysis

Statistical Package for Social Sciences (SPSS) version 20.5 was used to compute and analyze the data. The statistical tests used in the analysis of data included descriptive statistics, testing of multicollinearity and normality of data, reliability analysis, correlation analysis, factor analysis and regression analysis.

The following regression equations is fitted to estimate the essential dimensions of ATM service quality and analyze its effect on customers' satisfaction is given below:

$Y=a+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+e$ …… (1)

Where Y = ATM Service Quality, a = Constant, b_1.....b_5 = Beta coefficient, X_1 = Convenience, X_2 = Efficient operation, X_3 = Security

& Privacy, X_4 = Reliability, X_5 = Responsiveness, e = error term.

$$Y = a + b_1X_1 + e \quad \ldots\ldots (2)$$

Where Y = Customer satisfaction, a = Constant, b_1 = Beta coefficient, X_1=ATM Service Quality
e = error term.

Reliability and Validity Test

Reliability and validity tests are important to standardize the measurement scales, and to demonstrate whether they truly measure what they are supposed to measure. Cronbach's alpha for instrument (45 items) was 0.880. The Cronbach's alpha for individual variables of convenience (0.850); efficient operation (0.808); security and privacy (0.848); reliability (0.791); responsiveness (0.766); ATM service quality (0.798); and customer satisfaction (0.794). When Cronbach's alpha is greater than 0.7, it is considered acceptable and it shows the questionnaire has a relative high internal reliability. When Cronbach alpha is less than 0.7, it is considered not acceptable and the items in the questionnaire did not significantly contribute to the reliability and therefore eliminated for parsimony purpose. The results were found to be within the acceptable range of 0.7.

Table 1: Results of reliability and validity of data

Constructs	Number of items	Cronbach's Alpha
Convenience	10	0.850
Efficient operation	10	0.848
Security and privacy	7	0.808
Reliability	5	0.791
Responsiveness	5	0.766
ATM Service quality	5	0.798
Customer satisfaction	3	0.794

Results and Analysis

Only 303 respondents returned the completed questionnaires showing a response rate of 87%. There were 167 males (55.1%) and 136 females (44.9%) respectively. Both these groups include students (109) of institutions of higher education, professionals (110) and business people (84). The period of use of ATM services was (> one year, 45); (> three years, 62); (> five years, 125); and (>seven years, 71).The majority of respondents (64.5%) used ATM services for more than five years. ATM service quality dimension of convenience drew maximum response with regard to agreement (*Mean* = 4.011, *Standard Deviation* = 0.457), followed by reliability (*Mean* = 3.66, *Standard Deviation* = 0.661); responsiveness (*Mean* = 3.56*Standard Deviation* = 0.779); efficient operation (*Mean* =

3.54, *Standard Deviation* = 0.605); and security and privacy (*Mean* = 3.48, *Standard Deviation* = 0.608) respectively. The ATM service quality (*Mean* = 3.65, *Standard Deviation*= 0.691) and customer satisfaction (*Mean* = 3.76, *Standard Deviation* = 0.696) reflected agreement as well. The results, based on mean score and standard deviation, reflect respondents' general agreement to the dimensions of the model.

Test of Normality of Data

Tolerance test and Variance Inflation Factor (VIF) was undertaken to determine multicollinearity. These tests reflect that the variables used in the study are free from multicollinearity and preclude the need to eliminate any variable. The results indicate that Tolerance levels (< or equal to 0.01) and VIF values (below ten) are within acceptable range. The Durbin Watson values for all variables are also within limits (between 1.5 and 2.5) and exhibit no problem of auto correlation between variables.

Factor Analysis

Factor analysis facilitates reduction of data. Kaiser-Meyer-Olkin (KMO) test and Bartlett's Test of Sphericity determine the level of adequacy of factor analysis. The KMO measure of sampling adequacy reflects score of (0.757), which is well above the recommended 0.50 level (Malhotra,2004)and the Bartlett's test of sphericity is significant at ($p<$ 0.001) levels. Factors with Eigen value greater than one were retained. The factor loadings below 0.40 are not shown. The extraction method used was principal axis factoring with Varimax rotation. The five factors identified (convenience; efficient operation; security and privacy, reliability, responsiveness) explain 65.2% of total variance.

Correlation Analysis

To determine the relationship between variables, correlation analysis was done. Table 2 indicates that convenience, efficient operation, security and privacy, reliability and responsiveness have positive relationship with ATM service quality. In addition, the results also revealed that ATM service quality has positive relationship with customer satisfaction. Results reflect that the correlation between variables is significant ($p<$ 0.01).

Table 2: Correlation Matrix

Variables	Convenience	Efficient operation	Security & privacy	Reliability	Responsiveness	ATM services quality	Sat
Convenience	1						
Efficient operation	0.507*	1					
Security &privacy	0.394*	0.551*	1				
Reliability	0.216*	0.356*	0.392*	1			
Responsiveness	0.282*	0.360*	0.442*	0.400*	1		
ATM Service quality	0.482*	0.546*	0.404*	0.450*	0.414*	1	
Satisfaction	0.428*	0.585*	0.452*	0.401*	0.412*	0.701	1

Note:* correlation is significant at 0.01 level (two-tailed)

Regression Analysis

Table 3: Results of Regression Analysis

Items	Coefficient	t-value	P-value
ATM Service Quality (R^2 = 0.452)			
(Constant)	0.111		
H_1 –Convenience	0.353	7.828	0.000*
H_2-Efficient operation	0.261	5.718	0.000*
H_3-Security & privacy	0.192	2.102	0.000*
H_4–Reliability	0.138	3.556	0.000*
H_5–Responsiveness	0.122	2.696	0.000*
F-statistic	71.106		
Prob(F-statistic)	0.000*		
Customer satisfaction (R^2= 0.501)			
(Constant)	1.025		
H_6-ATM service quality	0.720	21.718	0.000*
F-statistic	397.795		
Prob(F-statistic)	0.000*		

*P<0.01, N=303

The results of regression equation based on five independent variables (convenience, efficient operation, security and privacy**,** reliability, and responsiveness) indicate positive and statistically significant relationship (F = 71.106; P < 0.01) with dependent variable of ATM service quality. The independent variables accounted for 45.2% (R^2 = 0.452) of variance in dependent variable of ATM service quality. Convenience, with the largest beta coefficient of (0 .353) is the most significant independent variable followed by efficient operation (Beta = 0.261); reliability (Beta = 0.138); responsiveness (Beta = 0.122); and

security and privacy (Beta = 0.192) respectively. Consequently, the regression equation for this analysis is given as:

ATM Service Quality = 0.111 + 0.353(Convenience) + 0.261(Efficient operation) + 0.192(Security & privacy) + 0.138(Reliability) + 0.122(Responsiveness)

The results of regression equation of independent variable of ATM service quality and dependent variables of customer satisfaction is positive and statistically significant (F = 397.795; p<0.01). The regression equation with R^2= 0.501 explains 50.1% variance in customer satisfaction. Consequently, the regression equation for this analysis is given as:

Customer satisfaction = 1.025 + 0.720(ATM Service Quality).

Discussion of findings

The main purpose of this study was to identify the significant dimensions that shape customers' perception of ATM service quality and the effect of ATM service quality on customers' satisfaction in the Nigeria banking sector. The study examined and explained how convenience, efficient operation, security and privacy, reliability, and responsiveness positively and significantly affect customers' perception of ATM service quality, and how the ATM service quality influences the customers' satisfaction.

The convenience dimension refers to ease of use and accessibility of the service at all times. The study revealed that convenience of ATM has a significant positive relationship with ATM service quality. The customers prefer flexibility to meet their financial needs at all times, which affect their perception of the ATM service quality. Technology can be intimidating to most customers and therefore one expects that ATMs should be designed to simplify the transactional process for customers. Ease of use is one concept that has been used as part of convenience dimension. This study used the concept to mean the degree to which ATMs systems offer a hassle free transaction for the customer. While networked banking allows customers to obtain their monies from any branch at a bank, the ATMs provide customers access to their monies outside the banking hall at convenience times. Most ATMs are located in bank branches, or off sites such as in shopping malls and college campuses. Sometimes, the bank's ATM card is compatible with other banks ATM platforms and this makes it possible for customer to withdraw money from other ATMs at a small fee. Convenience also involves "an all-day all-night" availability of the service to the customers. If the ATMs are conveniently located, the inconvenience in moving long distances in order to carry out transactions will be minimized.

The second dimension of ATM service quality, efficient operation, relates to efficient and speedy operation of ATM. Efficiency in

operations optimizes the resources for the customers. The study indicates that efficient and faster delivery of ATMs has positive and significant effect on customers' perception of quality. Customers accord priority to user-friendliness of ATM. The findings support the studies of White & Nteli (2004), Al-Hawari and Ward (2006) and Dilijonas et al. (2009).

The dimension of security and privacy refers to perceived low-risk with use of ATM. The security environment in Nigeria and the frequent vulnerabilities of ATM users have enhanced the risk associated with the use of this delivery channel. The findings of the study revealed that the customers' expectation of security and privacy in the use of ATM is essential in shaping customers' perception of service quality. The concern of customers about security and privacy, while using this service, is a major cause of their dissatisfaction (Madu & Madu, 2002).

The feature of reliability describes the ability to perform the required service accurately and dependably at all times. The findings of the study revealed that reliability of ATMs positively and significantly contributes toward customers' perception of quality and therefore positively relates to customers' use of ATM services. ATM users want to receive the right quantity and right quality of service at all times, as promised by the banks. In addition, they prefer accurate billing of their accounts, they want ATM that are user friendly, ATMs that are fast, ATMs that do not run out of cash, ATMs that are not out of order and no long queues at ATMs.

Responsiveness was found to have a positive and significant effect on ATM service quality. The responsiveness aspect of ATM service quality relates to the ability of the bank staff to provide the agreed services timely, accurately, dependably, and promptly. Responsiveness measures the extent to which the banks put in place measures to recover services when ATM services are negatively confirmed, and to response quickly to requests and suggestions and provide assistance to customers in case of problems. The study revealed that staff response to customers' ATM related needs influence their perception about service quality. With ATMs, response or recovery quality deals with the banks' ability to handle customer complaints arising as a result of transactional failures as well as compensating customers against losses incurred such as monies illegally withdrawn out of their accounts. A quick response to requests is likely to increase perceived convenience and diminish uncertainty and is important way for the banks to show that they are customer oriented and act benevolently towards customers.

The research results reflect a positive and statistically strong relationship between ATM service quality and customers satisfaction. This implies

that as ATM service quality increases, so also will be the satisfaction of the customers of the banks providing the ATM services. This association concurs with the findings of prior studies in ATM service quality context (Wan et al., 2005; Mobarek, 2007; Komal & Singh, 2009; Khan, 2010).

Recommendations

The rapid increase in number of automated delivery channels and customers' preference to use ATM are placing pressure on banks to respond aggressively to meet the customers' needs. The study provides necessary input to the bank management to increase customers' satisfaction through improving ATM service quality. The focus should not be on ATM service quality dimensions only. This aspect should be augmented and integrated with other aspects of the service quality of banks for satisfaction of customers.

Despite extensive use of ATMs, the absence of direct interaction with bank staff has increase dcustomers' apprehensions about the perceived risk (Grabner-Krauter & Kalusha, 2003). To reduce the customers concerns about perceived risk because of security and privacy concerns, the bank should improve the quality of interaction with the customers to alleviate these apprehensions with a view to improve ATM service quality (Merrilees, 2002).To further improve the service quality, ATM service should be able to provide enhanced interactivity, diversified offerings, and facilitate customers to participate in improving the service encounter with ATM and make it a memorable and pleasant experience. The banks should focus not only on the satisfaction of ATM users, but also aim at delighting them to ensure their retention.

Banks should capitalize on the spread of communication technology and the theory of innovations (Marshall & Heslop, 1988). Banks should develop strategies to motivate non- users through awareness, education, extending personalized services, and demonstrating the functions of ATMs.

It is evident that convenience, efficient operation, security and privacy, reliability and responsiveness are not the only characteristics that influence customers' satisfaction. The other factors that contribute to customer satisfaction include trust, value, and image of the bank, (Ranaweera & Prabhu, 2003). Bank management should monitor the environment and identify the trends through marketing intelligence. They need to constantly up-date and differentiate their ATM service quality dimensions to ensure continuous satisfaction and retention of customers, and optimize their limited resources.

Quick response to customers' needs and queries about the ATM related services are important to improve the service standards of ATM. This would facilitate customers to participate in improvement of service quality, learn and perform, and have

a pleasant experience through two-way communication. Bank should make a commitment to redress the service failures of ATMs. Solomon, Surprenant, Czepiel and Gutman (1985) argued that role players should provide compatibility between expectation and perception during service encounter.

Limitations and Further Research

The study has some limitations. The study has used convenience sample. In Nigeria environment, the banks are not willing to share information about the number of customers who hold ATM, their adoption and usage rate of ATM and their volume of transactions because of privacy policies. Efforts should be made to investigate the study using a random sample to enhance its generalizability. Survey design has been used in the study. A mix of interviews and qualitative data gathering techniques could be used to make the results more comprehensive. Future research could focus on diversifying the sample across different ethnic groups, income, and education.

This research focused on determinants of ATM service quality and its effect on customer satisfaction. However, the research did not study the association between customer satisfaction and retention of customers. Further research may well explore the relationship between these two constructs. The formation of satisfaction process takes place overtime (Andreasen, 1977). The conclusions of the study relates to a specific time in present. Additional study should be done on longitudinal basis to address the interactive and technological dimensions of ATM service quality that affect the dissatisfaction level of customers.

Age has a significant effect on the pattern of use of technology-based services. Generally the youth prefer to use innovative and technology-based delivery channel like ATM that offer multiple benefits and autonomy of executing the transaction (Wan et al., 2005). The old age people are generally shy of use of ATM because of perceived risk of failure, complexity, security, and lack of personalized service (Moutinho, 1992). Future research should explore the association between age and attitude and determine its effects on the ATM service quality and customers' satisfaction.

The price is an essential aspect that affects the customers' perception of ATM service quality (Surjadjaja et al. 2003; Iqbal, Verma & Baran, 2003). The fee charge relates to the perception of non-competitiveness and injustice and may lead to the switching of the service provider banks (Colgate &Hedge, 2001). The prevailing economic conditions in Nigeria have made the people more prices sensitive. This aspect needs further exploration as essential dimension affecting ATM service quality and customers' satisfaction.

Conclusion

The rapid diffusion of ICT in the banking sector provides a platform to use innovative technologies to enhance operational efficiency and quality of service to attain and retain customers. The rapid growth in use of ATMs in Nigeria offers opportunities to banks to use customers' passion for this innovative service for strategic advantage. The banks should proactively monitor customers' preferences with regard to use of this delivery channel for effective response. Bank should focus on important aspects of security and privacy as well as reliability of ATMs. Banks should also augment and diversify their offerings through ATM and use this medium to build a strong and sustained relationship with customers. This study as well as other studies in the area of human endeavour is not exhausative given the dynamic nature of banking services which are feasible and the changing behavioural norms which the services will deliver. These are cannons on which future studies will be anchored if the advancement of empirical studies in customer satisfaction could be sustained.

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