

# CUSTOMER SATISFACTION OF AUTOMATED TELLER MACHINE (ATM) BASED ON SERVICE QUALITY

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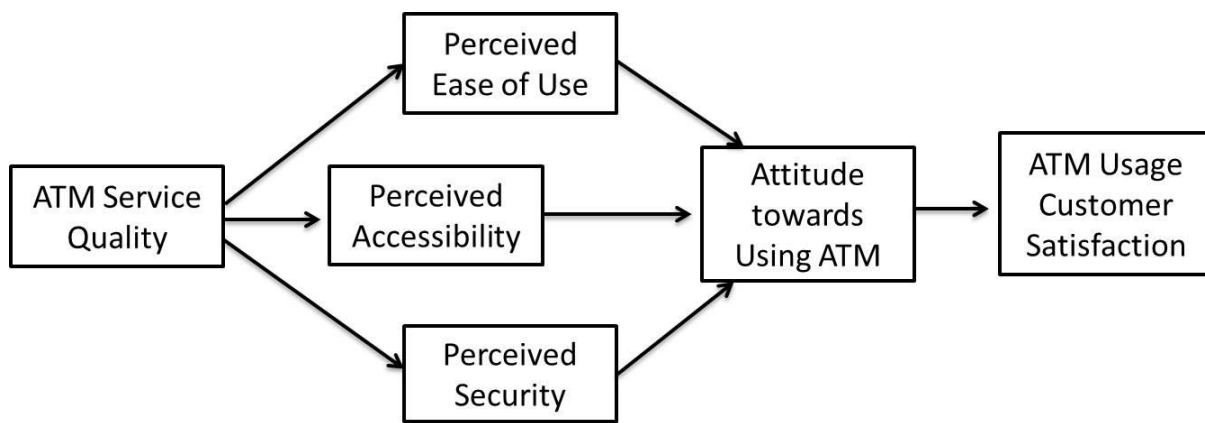
## **Abstract**

*Internet connectivity has made international business to be operated as much as local business. As businesses become globally interwoven, competitions among organizations become the business of the day. Service quality therefore becomes the focal point of every organization in order to attract as many customers as possible. Banking industries have evolved series of services in order to attract as many customers as they can so as to maximize their profit. Automated teller machine (ATM) among others was one of the services introduced by banks with the objective of providing customers quick access to their finances, as well to reduce cost of such access. This research investigated the perceived customer satisfaction towards introduction of automated teller machine (ATM) in Nigerian banks. The researcher distributed 150 questionnaires across different banks customers in Zamfara State, 136 questionnaires were returned filled out of which 106 contained valid responses. Descriptive statistics were used to analyze three research questions of the study. This covered perceived ease of use, perceived accessibility and perceived security in order to measure customer satisfaction in relation to ATM service quality. The result indicated that the customers with agreed responses on perceived ease of use and perceived accessibility has higher mean and standard deviation, while the perceived security responses has higher mean and standard deviation of disagreed responses.*

**Keywords:** ATM, Service Quality, Customer, Satisfaction, TAM and SERVEQUAL

## **Introduction:**

Failure in the user acceptance of any new technology has long been an impediment to success in the implementation of such new technology (Davis, 1993). The goal of most innovative ideas on information and communication technology in most of the organization is to improve job performance and employee readiness on the job. ICT plays a vital role in the business activities, more especially in the banking sector. Many innovative ideas in the banking sector such as internet banking, automated teller machine (ATM) among others has been in place in order to motivate customer's patronages to banks and reduce cost in the services. But the impacts of such innovative technologies are lost whenever the systems are rejected by the users. The user acceptance is therefore considered as a determining factor that measure the degree of success or failure of any new innovation or technology (Jun & Cai, 2001; Yen, Tsai, & Chen, 2010). This study uses technology acceptance model to address why customers accept or reject ATM and how the acceptance is influence by the ATM service quality. The customer satisfaction is determined by the ATM service quality rendered by the ATM stakeholders. This would be measured through the cognitive responses and affective responses from the customers (Bourgonjon, Valcke, Soetaert, & Schellens, 2010). The items used to measure the cognitive responses of the users were based on the items used in the previous researches. The research model is presented in figure 1 below.



**Figure 1: The Research Model**

The study will not only give attention towards acceptance of ATM to customers, but also to understand how the user acceptance will be improved by the quality of the ATM services.

In the above proposed TAM, the user overall attitude towards using the ATM is considered to be a major determinant of whether or not the customer uses the system. The attitude towards using is made here to be a function of three beliefs: perceived ease of use, perceived accessibility and perceived security. The ATM services quality has a direct effect on both perceived ease of use, perceives accessibility and perceived security.

### Theoretical Framework

The theoretical framework could be understood as the fundamental theories that offer logically and rational development and association of variable that are used in the research. It is an attempt to combine relatively important information's to depict and detail. The feature of any conceptual framework is vividly to provide detailed relationship of the dependent, independent, extraneous as well as control or moderators variables, which provide comprehensive links among the variables in the research (Elliott, Adams, & Bruckman, 2006).

After a through literature review, this research work has employ the use of technology acceptance model as the theoretical foundation to measure customer perception of using automated teller machine (ATM) through the service quality. The three research variables were adapted from TAM and SERVEQUAL models. These variables include "ease of use" (Doll & Torkzede, 1988; Fishbein & Ajzen, 1975) "accessibility"(Johnston, 1995; Joseph, McClure, & Joseph, 1999; Oppewal & Vriens, 2000) and "security"(Jawardhena & Foley, 2002; Johnston, 1995)

### The Research Variables

There are three independents variables that measures the ATM customers perception towards satisfaction, these includes ease of use, accessibility and security. Ease of using a system as used by both TAM and SERVEQUAL model, as adopted from Doll and Torkzede (1988), ease of use is an optimum convenience for customers to interact with a given system. Ease of use was also considered by Fishbein and Ajzen's (1975) in the TAM model as "the degree to which individual believes using a particular system would be free of physical and mental effort." The believe that introducing ATM machines in banking operations will ease ways to customer access to their finances as well it should be made easier to operate by all users. Accessibility is another measurement dimension as adapted from (Johnston, 1995; Joseph et al., 1999; Oppewal & Vriens, 2000) as approachability and ease of contact to services. It is believed that to make ATM more approachable and accessible they should be made available in public places such as airport, malls/shopping centers, Petrol/Gas stations etc. the banks should make ATMs available in both on-banks and off-banks premises so as to reduce congestions at ATM branches. Congestion is a major constrain that manifest fraud and emerge dissatisfaction (Jawardhena & Foley, 2002). Security as defined by the institute for security and open

methodologies (ISECOM) in the OSSTMM as a form of protection where a separation is created between assets and threat. The ATM fraud has been a global challenge that particularly received a global attention among researchers of the banking industries in the world. These frauds are perpetuated at different stages, ranging from card theft, skimming device, pin fraud etc. ATM fraud is never a peculiar obstacle to banks alone (Singh & Arora, 2011). It therefore requires a collective cooperation of both the banks as well as their customers. But the most common ATM fraud that is vulnerable to ATM users is pin fraud which could be through the shoulder surfing, fake pin pad overlay, and pin interception. The shoulder surfing is the act of direct observation or watching the ATM keypad to monitor the number that person taps onto the ATM keypad usually at the point of withdrawal. Fake PIN pad Overlay is a method of fraud that uses a fake pin pad that has a storage memory capable of storing the users card pins, it is usually placed on the original ATM keypad. Pin interception is an electronic pin capture device which transmits card information through an electronic data recorder to a host computer usually through a terminal (Jun & Cai, 2001). However the three service quality dimensional variables which comprise of perceived ease of use, perceived accessibility and perceived security stands as the independents variables while the attitude towards using the ATM stands as the dependent variable of the research. Based on these variables the research answered the following research questions.

#### **The Research Questions:**

1. What effort does it require to operate the ATM machines?
2. What distance does it take you to access ATM in your surrounding?
3. To what extent do you believe in the type of security given to the ATM centers you used?

#### **Methodology**

Subject and Procedure:

The investigation was subjected to customers of various banks in Zamfara state, 150 questionnaires were distributed across customers in major banks of Nigeria asking them to rate the service quality of the ATMs services they used. 106 questionnaires were validly returned and analyzed.

#### **Research Instrument**

Survey research design is a quantitative procedures in which researchers administer a survey to a portion (sample) or entire population of the respondents in order to describe opinion, attitudes, characteristics or behavior of the population (Kumar, 2011). Survey researchers collect data quantitatively through questionnaire. Questionnaire was the instrument used for the data collection in this study. The questionnaire was adapted from the previous literature conducted such as SERVEQUAL model literature and technology acceptance model (TAM) literature. The questionnaire thoroughly covers the three research questions. 12 items were used to answer the research questions; each research question was covered by three items in the questionnaire.

The questionnaire was design using the Likert scale measurement. This research will employed the use of 5-point likert scale which was recommended to be more appropriate and easier to understand by the respondent, (O'Nei, 2007). It is the commonest rating scale that allow respondents to rate quality from high to low or best to worst (Seaman, 2007).

#### **Results**

Descriptive statistics were used to analyze the result. The mean and standard deviation of the respondents was used to measure the degree of agreed and disagreed responses from the respondents.

**Q1. What effort does it require to operate the ATM machines?**

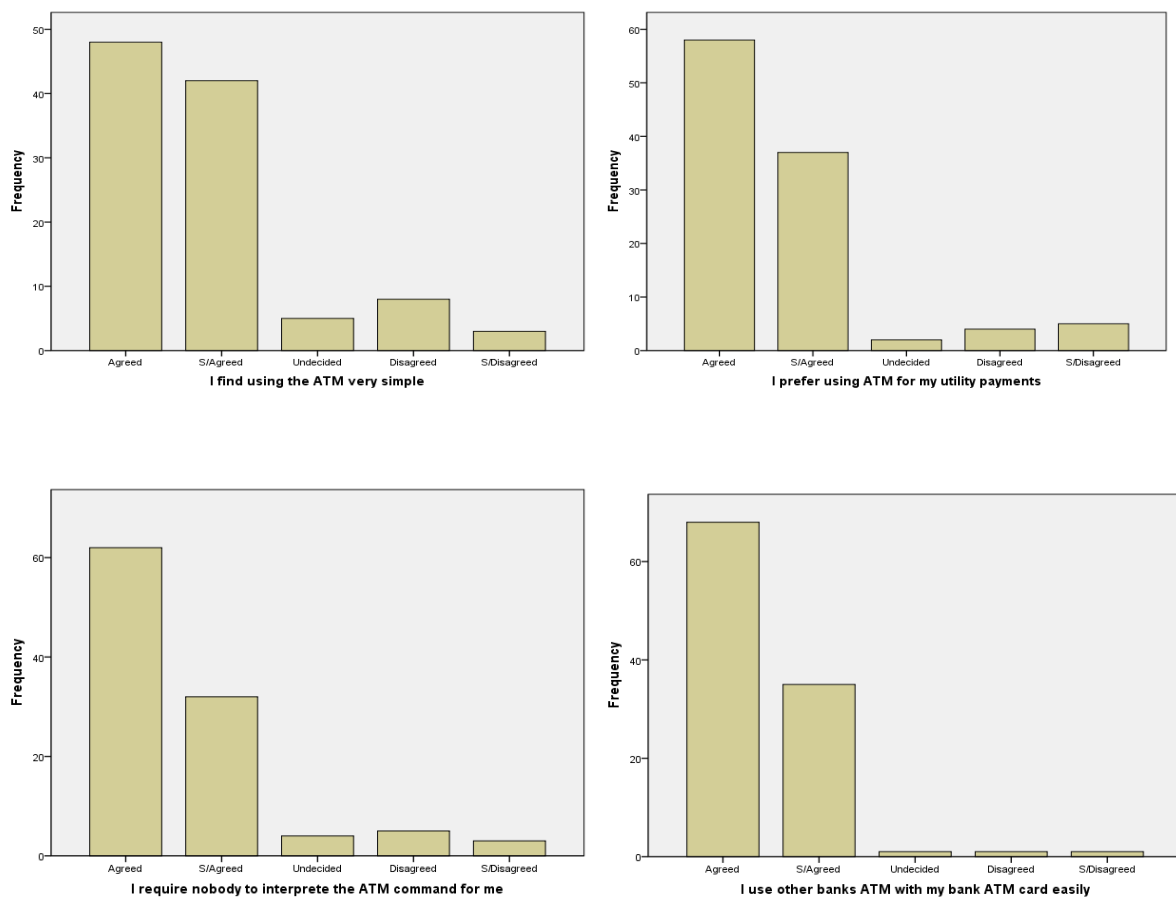
The first research question addresses the perceived ease of use. It consist of three sub-questions in the questionnaire that investigated the extent of student’s perception of ease of using the ATM.Ease of using a system is an optimum convenience for customers to interact with a given system (Doll & Torkzedeh, 1988). It is also defined by Fishbein and Ajzen’s (1975) as “the degree to which individual believes using a particular system would be free of physical and mental effort.” The believe that introducing ATM machines in banking operations will facilitate easeof using the bank towards customer access to their finances.

To examine customer perception of ease of using the ATM system, four items were analyzed through mean and standard deviation using statistical software package SPSS. The figure below presents the analyzed result.

**Table 1: Mean and Standard Deviation of perceived ease of use**

Item No.	Survey	Mean	SD
1	I find using the ATM very simple	1.83	1.019
2	I prefer using ATM for my utility payments	1.69	1.029
2	I require nobody to interpreted the ATM command for me	1.63	0.969
4	I use other banks ATM with my bank ATM card easily	1.42	0.660

As indicated above, the mean and standard deviation of the responses that measure customer perception on ease of using ATM ranges between 1.42-1.83 and 0.660-1.029 respectively.



**Figure 2: Frequency of the respondents on perceived ease of use.**

**Q2. What distance does it take you to access ATM in your surrounding?**

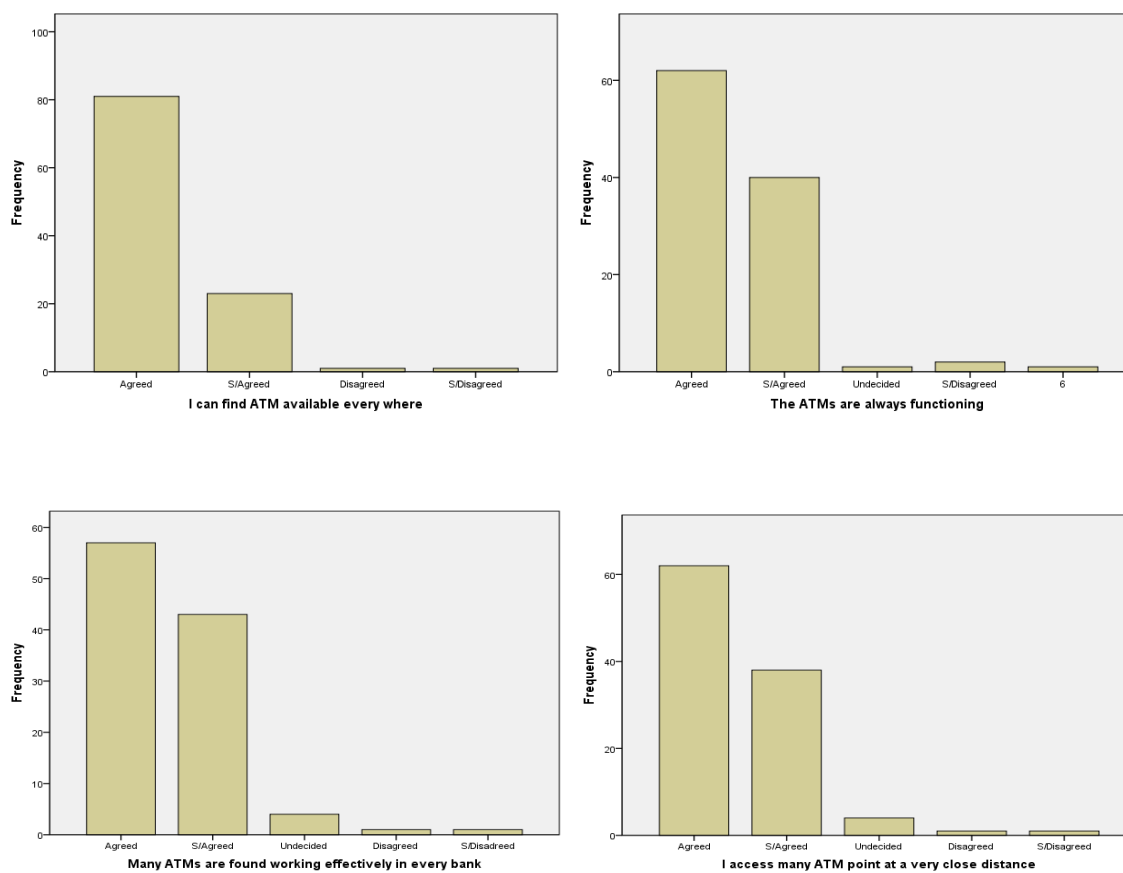
The second question of the survey consists of four sub- questions that investigated the extent of customer’s perception on accessibility of ATM. Accessibility as adapted from the work of Zeithaml (2002) as approachability and ease of contact to services. To provide ease of access to ATMs, it should be made available at public places such as airport, shopping centers, Petrol/Gas stations etc. making the ATMs available at both on-banks and off-banks premises is expected to reduced congestion at ATM centers, which mostly lead to security problems.

To examine customer perception of access to ATMs within the customer convenience, four questions were asked which were analyzed through the mean and standard deviation. The table below presents the analyzed result.

**Table 2: Mean and Standard Deviation of Accessibility**

Item No.	Survey	Mean	SD
1	I can find ATM available every where	1.28	0.613
2	The ATMs are always functioning	1.52	0.831
2	Many ATMs are found working effectively in every bank	1.55	0.706
4	I access many ATM point at a very close distance	1.50	0.707

As indicated above, the mean and standard deviation of the responses that measure customer perception of access to ATM ranges between 1.28-1.55 and 0.613-1.831 respectively.



**Figure 3: Frequency of the respondents on perceived accessibility**

**Q3. To what extent do you believe in the type of security given to you by the ATM centers you used?**

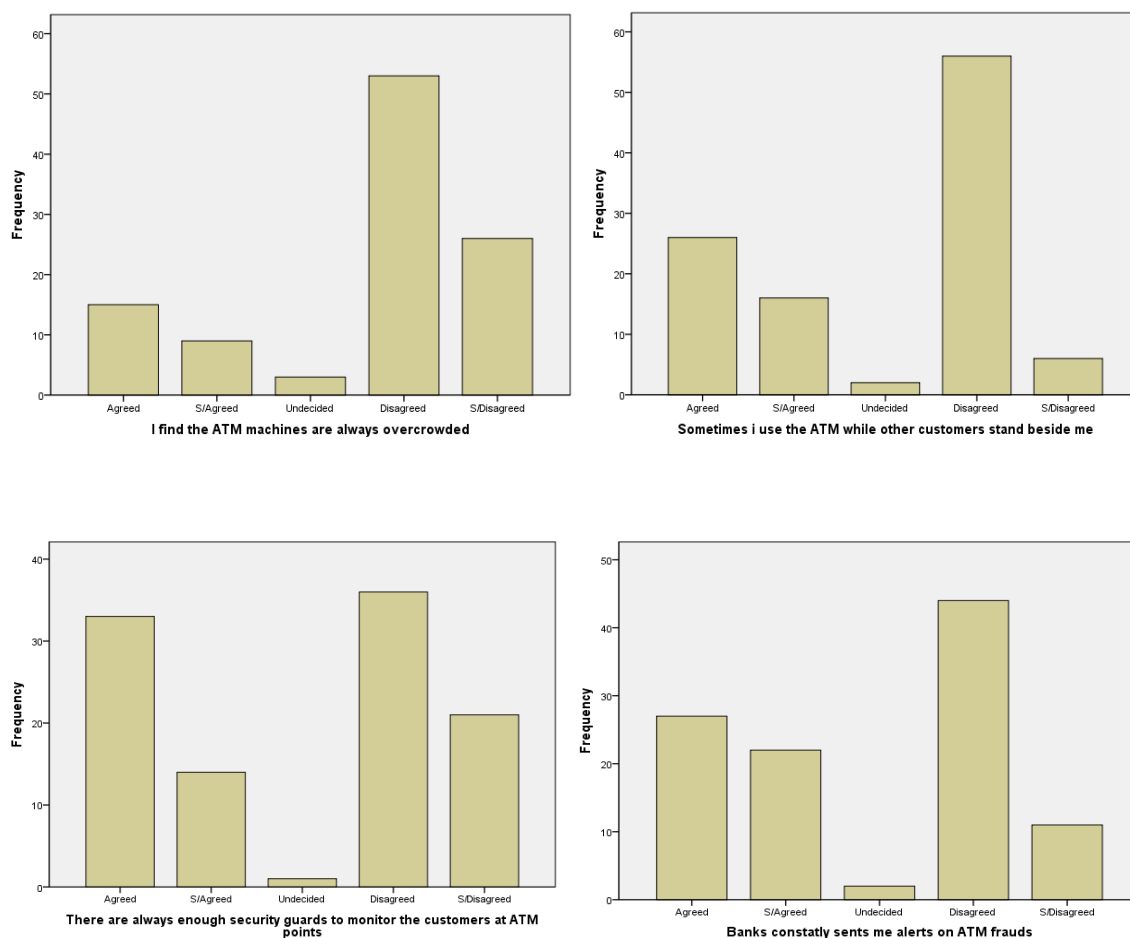
The third question of the survey consists of four sub- questions that investigated the extent of customer’s perception of ATM security. Security was considered as a form of protection where a separation is created between assets and threat.

The research examines the extent of Nigeria security towards ATM usage by asking the ATM users four different questions. The questions were analyzed through mean and standard deviation as well as frequency and percentage of the responses. The table 3 below presented the analysis.

**Table 3: Mean and Standard Deviation of Perceive security**

Item No.	Survey	Mean	SD
1	I find the ATM machines are always overcrowded	3.62	1.327
2	Sometimes i use the ATM while other customers stand beside me	3.00	1.380
3	There are always enough security guards to monitor the customers at ATM points	2.98	1.599
4	Banks constantly sent me alerts on ATM frauds	2.91	1.438

As indicated above, the mean and standard deviation of the responses that measure of customer perception of access to ATM ranges between 1.28-1.55 and 0.613-1.831 respectively.



**Figure 4: Frequency of the respondent on perceived security**

**Discussion:**

The TAM motivational variables: perceived ease of use, perceived accessibility, perceived security and attitude towards using fully mediate the effect of service quality towards customer satisfaction. The service quality of the system appears to indirectly influence attitude behavior of the users towards using the ATMs through the motivational variables. Perceived ease of use has high agreed responses. The perception of customer acceptance of ATM as a result of their satisfaction with the service quality was measured using four positive statements. Agreeing with statements about the ATM resulted a mean ranging between 1.42 to 1.82 and standard deviation between 0.660 to 1.969. In the frequency and percentage chart, majority of the customers accepted the ATM ease of use with a high percentage of agreed and strongly agreed responses.

The perception of customer acceptance of ATM as a result of its service quality through the accessibility was measured using four positive statements about the ATM accessibility quality. Agreeing with statements about the ATM access resulted a mean ranging between 1.28 to 1.55 and standard deviation between 0.613 and 0.831. The percentage and frequency chart as displayed in Figure 3 indicate that, majority of the respondents agreed with the statements about ATM accessibility. A high percentage of the respondents have agreed and strongly agreed to have ease of access to ATMs in their environment.

The perception of customer acceptance of ATM as a result of its services quality was assumed by this research to be influenced by the type of security rendered by the banks. As a result the research provided four research questions that attracted the attitude perception of the customers about security in using ATMs. The result indicated that there is no adequate security to the satisfaction of many ATM users. The mean and standard deviation of the security perceptions of the users results 2.91 to 3.62 and 1.438 to 1.599 respectively. The percentage and frequency distribution of the majority of the respondents indicated high rate of disagreed and strongly disagreed responses with the positive statement about the security provided by the various banks.

**Recommendation:**

The responses obtained from the surveyed respondents were all customers from different banks in Zamfara State. Based on the result obtained from the analyzed data the following recommendations are hereby stated.

1. The banks should deploy the use of such ATMs that are friendly oriented, meaning those that are made easier to use.
2. The banks should also consider placing ATMs in the public places as an important strategy to customer satisfaction, which will stimulate ease of access to both ATMs and finances.
3. The banks should not only assign security measure at ATMs centers but also monitor the security operations at the ATMs centers.
4. They should also create more awareness on how to ensure self-security to customers, such as to stop responding to unnecessary email and text message except otherwise, sharing pin with others and so on

**Conclusion:**

Most of the researches conducted on customer satisfaction based on service quality had indicated positive co-existence of such technologies. This research also indicated that, high number of respondents was satisfied with type of ATMs they used both in terms of their mode of operation and access. The construct perceived ease of use and perceive accessibility had high positive perception of the respondents. While the security construct has negative perception of the respondents. This generally indicated that most of the customers used the ATM as a result of its provision of quick access to money and ease of operation but not mainly on its optimum security. Therefore, it is imperative for banks stakeholders not to restrict their service quality only on the ease of use and access but also to improve their service quality on security.



**Author's Biography:**

I was born in the northern Nigeria, 01/12/1978, specifically in Rikofe, the then Yauri local Government Area but now Ngaski Local Government Area of Kebbi State. I completed my secondary school in 1996 at Government Technical College Bunza, I proceeded to Usmanu Danfodiyo University Sokoto for my first Degree in Computer Science from 2000 to 2004. I later further my education to study Master of Multimedia (E-Learning Technologies) at Multimedia University Malaysia in 2012. I am currently working with the Federal College of Education (Technical) Gusau, Zamfara State as lecturer in computer science department.

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