

## Determinants of ATM Usage among Students of Tertiary Institutions in Nigerian

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**Abstract:** Automatic Teller Machine (ATM) has been observed to make the business of banking easier, faster and accessible. Although, ATM is gaining popularity in Nigeria, long queues are still witnessed in banking halls in Nigeria. This study, therefore analysed the level and determinants of ATM usage among students of a Nigerian University. Data were collected from a cross section of these students and analyzed. The results show that ATM is widely used among the students as 93% of them use ATM for their banking transactions but the frequency of usage varied widely. Empirical analysis shows that this frequency is encouraged by easy accessibility to ATM services while it is discouraged by high transaction costs and the possibility of the students falling victim of ATM fraud and wrong debiting of their accounts.

**Key words:** ATM, technology, banking, fraud, Nigeria

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### INTRODUCTION

Development in the area of information and communication technologies has been a major driver of economic growth and development over the years. For instance, it has been shown that ICT affects financial institutions positively by easing enquiry, saving time and improving service delivery (Idowu *et al.*, 2002). Globally, the banking business has undergone various changes and the Nigerian banking system has not been left out of these. The use of electronic banking (e-banking) is now very popular and an important part of this is the use of Automated Teller Machine (ATM). ATM has been known to make the business of banking easier, faster and accessible and its adoption is now encouraged by both the banks and the regulatory authorities (Ayo *et al.*, 2010).

ATMs have been noted to contribute highly to the banking process because it reduces cost of providing services to depositors, especially when banks share the ATM facilities (Mc Andrews, 2003; Laderman, 1990). This technology is now becoming important in Nigeria, especially after the bank consolidation exercise which makes it affordable by many Nigerian banks. Consequently, it has improved services given to customers, encourage better documentations of banking records and also makes banking services easier (Agboola, 2006).

Given the above popularity and importance of ATM, it is expected that queues at banks will reduce and banks'

customers will undergo less stress while carrying out their banking transactions. However as Olatokun and Igbinedion (2009)'s note, some customers still prefer to use the teller and there are still long queues at both the teller and the ATM. This, therefore raises the question why is everybody not using ATM when they are making withdrawal? And why do we still witness these long queues at ATM?

Therefore, it is necessary to carry out a study that attempts to examine the factors that determine the usage of ATM in Nigeria, especially among students of tertiary institutions who are assumed to be well informed. The broad objective of this study is to examine the determinants of ATM usage among the students of a Nigeria University. Specifically, this study aims to analyse the level of usage of ATM among the students and the determinants of ATM usage among these students.

This is necessary as ATM is gaining wide popularity in the country and it has been documented that majority of the users are students and youths; thereby making a study in university relevant (Ayo *et al.*, 2010). Besides, earlier studies in this area consider respondents of different characteristics and none is specifically on university students. For instance in the study by Olatokun and Igbinedion (2009), it is suggested that further studies are required on specific locations and groups so as to properly capture the determinants of ATM usage in Nigeria.

Furthermore, this study makes use of primary data which supplies first hand information from the student

users of ATM thereby allowing the researcher the flexibility of obtaining relevant information from the students. Also, the adopted framework makes this study relevant, as it adequately connects the field of banking with the field of information and communication technology. All these are necessary for designing appropriate policy towards enhancing ATM usage in Nigeria and this is what the present study is trying to do.

**Developments in the usage of ATM in Nigeria:** Several developments have been observed in the usage of ATM in Nigeria, thus these are discussed under the history, the share of ATM in e-banking in Nigeria and the volume and value of ATM transactions in the country.

**Historical development of ATM adoption in Nigeria:** Although, ATM was first introduced in Nigeria by the defunct Societe Generale Bank in 1989, it was not until the post consolidation era of the Nigerian banks that this technology gained wide adoption in Nigeria (Shekels, 2006; Abdulwahab, 2010). Currently, it has been documented that Nigeria has about 30 million ATM card holders who conduct over 100 million transactions on the machines every month and Nigeria’s 24 banks operate over 9000 ATM machines across the country (Ayo *et al.*, 2010).

Most of the ATMs in Nigeria are connected to the interbank by inter switch network. Inter switch is a leading financial solution provider and presently has an online real time integration to 23 out of 25 banks in Nigeria. This infrastructure allows almost all of the country’s banks to share ATM and point of sale system, these enable customers to withdraw from machine not necessarily belonging to the bank where there account resides (Abdulwahab, 2010). However, the usage of ATM in Nigeria is just advancing beyond withdrawals, checking of account balance and purchase of airtime, despite the craving for its multifunctional services (pay bills or make utility/tax payments, calls, stock transaction, purchasing tickets, etc.) these modern services are not popular among users (Shekels, 2006).

**The relevance of ATM in the Nigerian e-banking market:** The Nigerian e-banking system comprises the ATM, the Web (internet), the Point of Sales terminal (POS) and the use of mobile phones based transactions. Table 1 shows that ATM is the dominant channels of e-payment in Nigeria. Specifically, it is shown that the share of ATM transaction in the total value of e-payment made rose from 93.16% in 2006 to over 97.9% in 2011. The other channels are far lower than ATM in their shares.

Table 1: Market volume share in the e-banking market (%) (2006-2011)

Transaction channels	2006	2007	2008	2009	2010	2011
ATM	93.16	88.7	91.0	95.2	95.1	97.9
Web	1.71	5.1	2.4	2.4	3.7	1.0
POS	4.83	2.4	1.8	0.8	1.1	2.1
Mobile	0.31	3.8	4.8	1.6	0.6	0.5

Table 2: Market value share in the e-banking market (%) (2006-2011)

Transaction channels	2006	2007	2008	2009	2010	2011
ATM	73.35	88.5	90.5	85.1	88.9	93.4
Web	3.51	7.1	5.7	13.0	9.3	3.5
POS	23.04	4.3	3.7	1.7	1.2	1.9
Mobile	0.11	0.1	0.2	0.2	0.6	1.2

Table 3: Volume and value of ATM transactions (2006-2011)

Years	Volume (m)	Values (₦, b)
2006	12.1	63.3
2007	15.7	131.6
2008	60.1	399.7
2009	109.6	548.6
2010	186.2	954.0
2011	347.6	1561.8

Computed from CBN (2006-2009, 2010a,b, 2011) annual report and financial statements

Moreover in terms of the value share of transactions in the total e-payment transaction, it is shown in Table 2 that its share rose from 73.35% in 2006 to 93.4% in 2011.

**Trend of ATM transactions in Nigeria:** The use of ATM is currently rising in Nigeria and this is illustrated in Table 3. According to Table 3, the volume of ATM transaction has been increasing in Nigeria. It rose from 12.1 million in 2006 to 347.6 million 2011. Equally, the value of transaction rose from ₦63.3 billion in 2006 to ₦1,561.8 billion in 2011. The CBN (2007, 2009) has shown that this increase is due to the increase in the number of ATMs deployed by the banks as well as the upgrade of the quick cash brand of ATMs to accept all cards issued by Nigerian banks. Another reason for the increase is the policy of some banks to limit the amount that customers could withdraw over the counter to a maximum of ₦60,000.

**Literature review:** Several studies have been carried out on the determinant of ATM usage in different parts of the world. The literature in this area is given under the following broad headings.

**ATM usage and socio-economic characteristics of users:** Many socio-economic characteristics of the users have been found to influence ATM use. For instance, it has been found that ATM users are mostly of young age and they often have some high school education (El-Haddank and Almahmeed, 1992; Marshall and Heslop, 1988; Swinyard and Ghee, 1987). Equally Lee and Lee (2000),

study the diffusion of e-banking and show that more educated, affluent and younger depositors who are likely to communicate with professional information providers tend to adopt the ATM technology more. Olatokun and Igbinedion (2009) document that in Nigeria, ATM users are more likely to be males, young and have at least secondary education. Equally, Folorunso *et al.* (2010) shows that young Nigerians are more likely to be ATM users.

**ATM usage and cultural influence:** Di Angeli *et al.* (2002) study cultural influence on ATM adoption in India and they show that the usage of ATM can be discouraged by the feelings of inadequacy, preference for human contact, lack of need and safety concerns. They explain their result by stating that once depositors are used to the old ways of doing things with the banks, they may be discouraged from using ATM. Olatokun and Igbinedion (2009) find that the relative advantage of ATM in terms of speed and efficiency now makes most Nigerian to place less importance to the culture of using the traditional teller method and adopt ATM.

**ATM usage and customer training:** Rogers *et al.* (1996) highlights the importance of training and educating customers by their banks on the use of ATM. They show that despite that most banks assume that ATM is easy to use, many users require training. They further argue that many depositors do not use ATM because they do not understand how it works and they find it difficult to ask other depositors or learn while others are watching them. Also, many are unaware of the different options available on ATM but they will love to know them if given training. Abdulwahab (2010) shows that many customers are unaware of other services rendered by ATM in the North West zones of Nigeria.

**ATM usage and desire for safety:** Rogers *et al.* (1996) show that many depositors avoid the use of ATM because they do not believe that it is safe. Also, Folorunso *et al.* (2010) shows that the desire for security is one of the most significant determinants of ATM usage among Nigerians. Munirudden (2007) also find safety to be an important determinant of ATM use in Malaysia. Furthermore, Adepoju and Alhassan (2010) show that security problems pose threat to the usage of ATM in Nigeria. They argue that various forms of fraud are perpetuated, ranging from ATM card theft, skimming, PIN theft, card reader techniques, PIN pad technique, force withdrawal and others. They further show that

Nigerian banks are not doing enough to address this problem and this has served as discouragement to ATM usage in Nigeria.

**ATM usage and the physically-challenged customers:** Hone *et al.* (1998) shows the importance of recognising the physically challenged and the visually-challenged segment of banks customers. They show that these groups are more likely to adopt ATM when hands-free and eyes-free facilities are provided along with the machine. These facilities include speech-recognising technology, however great care needs to be exercised as these groups of customers are vulnerable and their safety is required.

**ATM usage, availability and network connectivity:** Folorunso *et al.* (2010) shows that poor internet connectivity is one of the major factors that discourage customers from using ATM in Nigeria. In the study by Olatokun and Igbinedion (2009), it is shown that the wide and increasing availability of ATM now makes Nigerians to increase their usage. Abdulwahab (2010) also shows that customers use ATM frequently due to the advantages of accessibility and convenience of the services rendered by the machine, however poor network problem is a major discouragement to the use of ATM. Moreover, Ebiringa (2010) shows that ATM deployment and availability is the major determinant of ATM usage/success in Nigeria.

## MATERIALS AND METHODS

There are two major theories that are applied to the study of determinants of ATM use (Ayo *et al.*, 2010). These theories are the Technology Acceptance Model (TAM) (Davis, 1989) and the Diffusion of Innovation Theory (DOI) (Rogers, 1995). The Technology Acceptance Model (TAM) was developed by Davis (1989) to explain computer usage behaviour. It is an information system theory that models how users come to accept and use a technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about if, how and when they will use it. TAM postulates that perceived ease of use and perceived usefulness predicts attitude towards the usage of a technology. Then, attitude toward use predicts the behavioural intention to use and intention then predicts the actual use of that technology (Davis, 1989; Folorunso *et al.*, 2010). The Diffusion of Innovation Theory (DOI) postulates that five attributes of

an innovation like ATM will influence its usage (Rogers, 1995). These include relative its advantage, compatibility, complexity, trialability and observability.

Both theories suggest important determinants of ATM usage. For instance, the technology acceptance model suggests that perceived ease of use and perceived usefulness are the major determinants of ATM usage. This is because a depositor is more likely to use ATM when she believes that it will enhance her job performance and as well as when she thinks that its usage is not stressful (Davis, 1989). Also, the diffusion of innovation theory shows that before a depositor will decide whether or not to use a technology like ATM, she will consider factors, such as its relative advantage over the traditional or existing ways of banking, the compatibility of ATM with local values and customs, the complexity which ATM usage requires, her capacity to give the technology a trial and how quickly she can enjoy the benefits of using ATM.

Some of the factors which can therefore be used to explain the aspects that are identified by these theories, include the socio-economic characteristics of ATM users, as these can explain the aspects of the theories like perceived ease of use and triability. This is because more educated and younger customers are more likely to find it easier to communicate with professional information providers than those who are not educated and the elderly (Lee and Lee, 2000). Also when depositors are trained on how to use ATM by the banks themselves, they begin to see ATM as easy to use, see it as not complex and they can begin to give it a trial (Rogers *et al.*, 1996). Furthermore, when depositors are of the opinion that the adoption of ATM will enhance their performance because it is better than the traditional teller method, they are more likely to use ATM (Olatokun and Igbinedion, 2009). However, if they still prefer the culture of having human contact, they may not use ATM (Di Angeli *et al.*, 2002). This addresses aspects of the theories like relative advantage, compatibility, observability and perceived usefulness.

These theories also suggest safety as a major determinant of ATM usage. This is because when depositors see ATM technology as unsafe, they begin to see it as being complex (Rogers *et al.*, 1996). Meanwhile, complexity is one of the major factors that are identified in the theories as affecting ATM usage. Equally, the aspects of the theories like perceived ease of use and triability can be measured by how close by ATMs are to the depositors and whether they can withdraw from any ATM regardless of the particular banks the depositors use

(Ebiringa, 2010). In the case of a country like Nigeria, this also suggests that one needs to examine the extent to which ATMs suffer from network failure as this also determines the ease of use and consequently ATM usage (Folorunso *et al.*, 2010).

The research design adopted in this study is cross sectional. This allows the student to obtain information from the respondents on their characteristics and the extent of usage of ATM at this point in time. The design allows for the description of the pattern of ATM usage at a particular time among a particular sample of the population so as to be able to associate the respondents' characteristics with their extent of usage. This design has been found to be relevant for studies on the determinants of ATM usage (Olatokun and Igbinedion, 2009; Ayo *et al.*, 2010).

The population of study used in this study comprises the students in the University of Ibadan. This comprises both undergraduate and postgraduate students across the fourteen faculties in the University. Information obtained from the university's students' affairs division shows that there are about 22,000 regular students in the University of Ibadan. This number, therefore represents the population from which sample will be drawn for this study. In order to determine the optimum sample size to be used in this study, the Cochran (1977)'s formula is used as it has been considered to be the most reliable and often used formula (Bartlett *et al.*, 2001).

Computations using the formular shows that 246 students will be sampled for this study. In order to ensure that the number to be sampled cuts across students from undergraduate and postgraduate programmes, as well as the different faculties, the cluster sampling technique is used. This implies that the students are categorised according to their faculties and programmes and random sampling technique is used to select students from each of these categories according to their relative proportions. This is similar to the technique used by Adepoju and Alhassan (2010) to select sample from 14 clusters of bank customers.

Responses from the survey are analysed through descriptive and inferential statistical techniques. Descriptive analysis, such as simple frequencies, percentages and charts are used to present responses on all the items on the questionnaire. Furthermore to test the determinants of ATM usage, each of the proposed determinants are crosstabulated with the items on ATM usage and the Chi-square technique is used to determine whether the associations are significant at the

5% level of significance. The Chi-square technique has been shown as relevant to show the association between two categorically measured variables. In this case, ATM usage and each of the determinants are crosstabulated and the significance of their respective association determined.

**RESULTS AND DISCUSSION**

This study presents the results of the responses to the survey. The first study presents the descriptive analysis of responses to all the items on the questionnaire while the second study presents the results of the determinants of ATM usage.

**Descriptive analysis of responses**

**Socio-economic characteristics of respondents:** Table 4 shows that out of the 246 students sampled, 125 (50.8%) are undergraduates and the remaining 121 (49.2%) are post-graduates. Also, 150 (61%) are males and 96 (39%) are females. In terms of age distribution, 23 (9.3%) of the students are below 21 years old, 89 (36.2%) are between 21 and 25 years old, 48 (19.5%) are in the range 26-30 years, 43 (17.5%) in the range 31-35 years while the remaining 43 (17.5%) are above 35 years old. The data on average monthly allowance shows that 17 (6.9%) of the students have a maximum of ₦2500, 36 (14.6%) have

Table 4: Socio-economic characteristics of respondents

Characteristics	Percentage	Frequency
<b>Nature of programme</b>		
Undergraduate	125	50.8
Postgraduate	121	49.2
Total	246	100.0
<b>Sex</b>		
Male	150	61.0
Female	96	39.0
Total	246	100.0
<b>Age</b>		
Lowest to 20	23	9.3
21-25	89	36.2
26-30	48	19.5
31-35	43	17.5
Above 35	43	17.5
Total	246	100.0
<b>Average monthly allowance (₦)</b>		
Lowest to 2500	17	6.9
2501-5000	36	14.6
5001-7500	23	9.3
7501-10000	49	19.9
Above 10000	121	49.2
Total	246	100.0
<b>Residence</b>		
On-campus	109	44.3
Off-campus	137	55.7
Total	246	100.0

Researchers computations; underlying data from field survey, 2011

allowance ranging between ₦2501-5000, 23 (9.3%) in the range ₦5001-7500, 49 (19.3%) are in the range of ₦7501 and ₦10000 while the remaining 121 (49.2%) have >₦10000 as their average monthly allowance. Further, 109 (44.3%) of the students are resident within the university while the remaining 137 (55.7%) are resident outside of the university.

**Information on ATM usage among the respondents:**

Table 5 shows that all the respondents have bank accounts, therefore qualified for this study. It is also shown that out of the entire sample size of 246, only 18 (7.3%) students do not use ATM for banking transactions. Out of these 18 nonusers, 6 claim they are not interested, 5 do not use ATM because of service

Table 5: Usage of ATM by the respondents

Usage questions	Frequency	Percentage
<b>Do you have a bank account?</b>		
Yes	246	100.0
No	-	-
Total	246	100.0
<b>Do you use ATM for your banking transaction?</b>		
Yes	228	92.7
No	18	7.3
Total	246	100.0
<b>If you do not use ATM why?</b>		
I am not interested	6	2.4
Service failure	5	2.0
It is not safe	2	0.8
Frequent withdrawal	5	2.0
Not applicable (use ATM)	228	92.7
Total	246	100.0
<b>How often do you use ATM?</b>		
Very frequently	76	30.9
Frequently	108	43.9
Rarely	29	11.8
No pattern	15	6.1
Do not use	18	7.3
Total	246	100.0
<b>What are your reasons for using ATM?</b>		
Easy access to cash	82	33.3
Convenience	86	35.0
Weekend banking	24	7.8
Time-saving	29	11.8
Others	7	2.8
Do not use	18	7.3
Total	246	100.0
<b>How do you find ATMs?</b>		
Convenient	129	52.4
Safe	9	3.7
Fast	86	35.0
Others	4	1.6
Do not use	18	7.3
Total	246	100.0
<b>How did you learn to use ATM?</b>		
Personal trial	164	66.7
Friends/families	42	17.1
Radio/TV	5	2.0
Newspapers/magazines	3	1.2
Internet	2	0.8
Organised training by banks	5	2.0
Others	7	2.8
Do not use	18	7.3
Total	246	100.0

Researcher's computations; underlying data from field survey, 2011

failure, 5 because ATM will make them withdraw their money too frequently and the remaining 2 non users claim that ATM is not safe. When the respondents were asked on how often they use ATM, it is shown that 76 (30.9%) of them use ATM very frequently, 108 (43.9%) frequently, 29 (11.8%) rarely, 15 (6.1%) do not have a definite pattern of usage and the remaining 18 (7.3%) are those that do not use ATM at all. The major reasons for using ATM include convenience (35%), easy access to cash (33.3%), time saving (11.8%), weekend banking (7.8%). It is also shown that 129 (52.4%) of the respondents find ATM as convenient, 86 (35%) find it fast and just 9 (3.7%) find ATM safe for banking transactions. The last panel of the Table 5 shows that personal trial is the major avenue by which respondents learnt to operate ATM as 164 (66.7%) of them employed this process. Another way is through the help of friends and families (17.1%) other sources of learning like radio and television (2%) trainings by banks (2%) and newspapers (1.2%) are less often used.

**Accessibility to ATM:** Table 6 shows that out of the 228 students that use ATM, 149 (65.4%) claim that they are able to access ATM at any location, 163 (71.5%) said that ATM enables them to perform 24 h banking transactions, 85 (37.3%) said that the ATM they often use are located in secluded areas and 101 (44.3%) prefer the use of ATMs that are located inside the bank to those outside the bank.

**Problems encountered in the usage of ATM:** Figure 1 shows that the major problems encountered by the

Table 6: Accessibility to ATM by the respondents

Items	Yes	No	Total
Can you access ATM at any location?	149 (65.4)	79 (34.6)	228 (100)
Does ATM enable you to perform transaction for 24 h?	163 (71.5)	65 (28.5)	228 (100)
Is the ATM you often used located in secluded area?	85 (37.3)	143 (62.7)	228 (100)
Do you use ATM inside the bank more than those outside?	101 (44.3)	127 (55.7)	228 (100)

Percentages within items in brackets; Researchers computations; underlying data from field survey, 2011

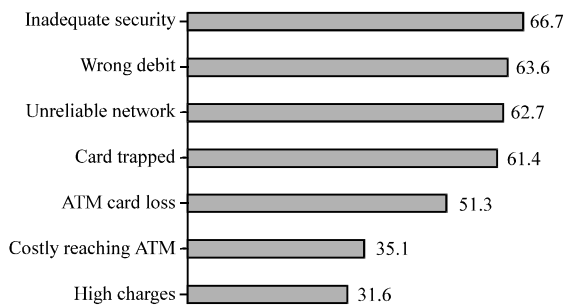


Fig. 1: Problems encountered in the usage of ATM by the respondents; Reasearcher’s drawn; underlying data from field survey, 2011

depositors when using ATMs are inadequate security (66.7%), ATM debiting account without issuing cash (63.6%), trapping of card (61.4%) and loss of ATM card (51.3%). Other problems include high time and money cost incurred before getting to the nearest ATM (35.1%), high transaction charges by ATM (31.6%) and falling victim to ATM fraud (14.9%).

**Empirical analysis of the determinants of ATM usage:**

This study employs the Chi-square method to test the determinants of the extent of ATM usage among the respondents. It is important to note that ATM usage can be measured in two ways, the 1st is whether a respondent uses ATM or not and the 2nd is to consider the extent or frequency of usage. The last approach is adopted in this study because almost all the respondents make use of ATM and also because it will take someone who has used ATM before to answer some questions on ATM like safety and comparison with teller. Therefore, following from the literature review on the potential determinants, this study is classified into 3 sub-studies. The 1st tests socio-economic characteristics as determinants of ATM usage, the 2nd tests accessibility and the 3rd tests how the problems encountered when using ATM and some of its features determines the extent of its usage.

**Socio-economic characteristics of respondents and ATM usage:**

Table 7 presents the bivariate crosstabulations of ATM usage and each of the socio-economic characteristics of the respondents. It also shows, the Chi-square tests which is used to determine the significance of the associations between ATM usage and each of the characteristics. The last column of the Table 7 shows that all the socio-economic characteristics, except residence can significantly determine ATM usage since the Chi-square tests are significant. For instance, it is shown that post graduate students are more likely to use ATM more frequently than undergraduate specifically while 35.7 and 53% of postgraduate students use ATM very frequently and frequently, respectively a lower percentage of undergraduate 31 and 41%, respectively use ATM very frequently and frequently. Also, males have tendency to use ATM more than their female counterparts. In terms of age, usage tends to rise with age but later fall among the oldest category of respondents. Average monthly allowance of the respondents is also found to be a relevant determinant of ATM usage.

**Accessibility and usage of ATM:** According to Table 8, the association between accessibility and ATM usage is

Table 7: Socio-economic characteristics and ATM usage

Characteristics	How often do you use ATM?				Total	$\chi^2$ (p-value)
	Very frequently	Frequently	Rarely	No pattern		
<b>Nature of programme</b>						
Undergraduate	35 (31.0)	47 (41.6)	25 (22.1)	6 (5.3)	113 (100)	18.079 (0.000)
Postgraduate	41 (35.7)	61 (53.0)	4 (3.5)	9 (7.8)	115 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Sex</b>						
Male	55 (40.1)	66 (48.2)	8 (5.8)	8 (5.8)	137 (100)	17.885 (0.000)
Female	21 (23.1)	42 (46.2)	21 (23.1)	7 (7.7)	91 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Age</b>						
Lowest to 20	5 (25.0)	8 (40.0)	5 (25.0)	2 (10.0)	20 (100)	37.003 (0.000)
21-25	25 (30.1)	32 (38.6)	20 (24.1)	6 (7.2)	83 (100)	
26-30	18 (37.5)	28 (58.3)	2 (4.2)	0 (0.0)	48 (100)	
31-35	9 (25.0)	25 (69.4)	0 (0.0)	2 (5.6)	369 (100)	
Above 35	19 (46.3)	15 (36.6)	2 (4.9)	5 (12.2)	41 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Monthly allowance (₹)</b>						
Lowest to 2500	7 (50.0)	7 (50.0)	0 (0.0)	0 (0.0)	14 (100)	45.536 (0.000)
2501-5000	2 (6.5)	23 (74.2)	6 (19.4)	0 (0.0)	31 (100)	
5001-7500	7 (30.4)	9 (39.1)	3 (13.0)	4 (17.4)	23 (100)	
7501-10000	5 (11.6)	30 (33.3)	6 (14.0)	2 (4.7)	43 (100)	
Above 10000	55 (47.0)	39 (33.3)	14 (12.0)	9 (7.7)	117 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Residence</b>						
On-campus	29 (28.2)	52 (50.5)	16 (15.5)	69 (5.8)	103 (100)	3.229 (0.358)
Off-campus	47 (37.6)	56 (44.8)	13 (10.4)	9 (7.2)	125 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	

Table 8: Accessibility factors and ATM usage

Accessibility factors	How often do you use ATM?				Total	$\chi^2$ (p-value)
	Very frequently	Frequently	Rarely	No pattern		
<b>Can you access ATM at any location</b>						
Yes	51 (34.2)	74 (49.7)	11 (7.4)	13 (8.70)	149 (100)	13.221 (0.004)
No	25 (31.6)	34 (43.0)	18 (22.8)	2 (2.58)	79 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.60)	228 (100)	
<b>Have you ever lost your ATM card</b>						
Yes	38 (32.5)	62 (53.0)	13 (11.1)	4 (3.40)	117 (100)	5.793 (0.122)
No	38 (34.2)	46 (41.4)	16 (14.4)	11 (9.90)	111 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.60)	228 (100)	
<b>Are ATM transaction charges affordable</b>						
Yes	52 (33.3)	80 (51.3)	12 (7.7)	12 (7.70)	156 (100)	12.343 (0.006)
No	24 (33.3)	28 (38.9)	17 (23.6)	3 (4.20)	72 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.60)	228 (100)	
<b>Is it costly to get to the nearest ATM</b>						
Yes	21 (26.3)	43 (53.8)	14 (17.5)	2 (2.50)	80 (100)	8.246 (0.041)
No	55 (37.2)	65 (43.9)	15 (10.1)	13 (8.80)	148 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.60)	228 (100)	

Percentages within accessibility factors in brackets; Researcher's computations; underlying data from field survey, 2011

significant. It is shown that those who can access ATM at any location are likely to use ATM more frequently than those who cannot. Furthermore, it is observed from Table 8 that those who consider the ATM transaction charges, as unaffordable as well as those who find it costly getting to the nearest ATM are likely to use ATM less frequently than their counterparts who are not of these opinions. These associations are equally significant judging by the Chi-square values and the associated p-values.

**Challenges and usage of ATM:** Table 9 shows that the major challenges encountered in using ATM which affect its usage are when the ATM debits respondents' account without issuing physical cash and when respondents fall victim of ATM fraud. The associations between these two challenges and ATM usage are significant implying they are important determinants of usage. In other words, Table 9 shows that those who have encountered these challenges are likely to use ATM less frequently than those that have not encountered them.

Table 9: ATM challenges and usage

Challenges	How often do you use ATM?				Total	$\chi^2$ (p-value)
	Very frequently	Frequently	Rarely	No pattern		
<b>Is ATM network reliable?</b>						
Yes	25 (29.4)	46 (54.1)	10 (11.8)	4 (4.7)	85 (100)	2.748 (0.432)
No	51 (35.7)	62 (43.4)	19 (13.3)	11 (7.7)	143 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Did your ATM card ever get trapped during transaction?</b>						
Yes	40 (28.6)	68 (48.6)	24 (17.1)	8 (5.7)	140 (100)	8.571 (0.36)
No	36 (40.9)	40 (45.5)	5 (5.7)	7 (8.0)	88 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Did ATM ever debit your account wrongly?</b>						
Yes	52 (35.9)	69 (47.6)	22 (15.2)	29 (1.4)	145 (100)	19.021 (0.000)
No	24 (28.9)	39 (47.0)	7 (8.4)	13 (15.7)	83 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Have you ever been a victim of ATM fraud?</b>						
Yes	11 (32.4)	9 (26.5)	12 (35.3)	2 (1.9)	34 (100)	19.735 (0.000)
No	65 (33.5)	99 (51.0)	17 (8.8)	13 (6.7)	194 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	
<b>Do you think the level of security at ATM is enough?</b>						
Yes	23 (30.3)	34 (44.7)	15 (19.7)	4 (5.3)	76 (100)	5.203 (0.158)
No	53 (34.3)	74 (48.7)	14 (9.2)	11 (7.2)	152 (100)	
Total	76 (33.3)	108 (47.4)	29 (12.7)	15 (6.6)	228 (100)	

Percentages within challenges in brackets; Researcher’s computations; underlying data from field survey, 2011

### CONCLUSION

The objectives of this study are to determine the level of usage of ATM among the students of a tertiary institution in Nigeria and the determinants of their usage. The result shows that ATM is widely used among the students as 92.7% use ATM for banking transactions. It is further observed that the frequency of usage is high among the students. This is likely to be explained by the fact that they find ATM to be convenient and fast. This finding supports the literature that the usage of ATM is usually high among the young and educated populations (El-Haddank and Almahmeed, 1992; Marshall and Heslop, 1988; Swinyard and Ghee, 1987).

On the determinants of ATM usage, it is found that postgraduate students use ATM more than undergraduates and that males use more than females. These findings are in line with Olatokun and Igbinedion (2009) who show that ATM users are more likely to be young, educated and males. According to Lee and Lee (2000), this group are likely to find it easier to explore and communicate with professional information providers.

Moreover, accessibility and affordability factors are found to be significant in determining ATM usage among the respondents. It is found that the usage of ATM is higher among those who find it easily accessible, those who find it less costly to reach nearest ATM and when a respondent perceives transaction charges as affordable. These support the findings of Ebiringa (2010) and Abdulwahab (2010). Out of the major problems with ATM, issues of fraud and debiting of account without physical

cash affect ATM usage among the students. It is shown that when these problems occur, students are likely to use ATM less often. Similar results have been found by Munirudden (2007) in Malaysia and Folorunso *et al.* (2010) in Nigeria. In fact, Adepoju and Alhassan (2010) shows that various frauds are perpetuated on ATM in Nigeria and these reduce the frequency of usage.

In order to increase the usage and effectiveness of ATM among the Nigerian students, it will be important consider some factors. There is the need to increase the security measures at ATM location, as well as making it difficult to withdraw from personal accounts in an illegal manner. One of the most important concerns to students is the transaction charges by ATM, especially when they carry out inter-bank transactions. This concern is understandable as many students have small and fixed allowance. It is, therefore important to re-visit the issue of transaction charges and make it more students-friendly.

Improving the network connectivity is also very essential. Many students complained that they have to travel some distance in order to access machines with network. This is closely related to the suggestion that more machines need to be made available in order to increase accessibility. Another important suggestion is that banks should endeavour to establish special desks to promptly handle all ATM transactions problem. It is also important to address the problem of power supply in the country as this has also been found to affect the smooth operations at ATMs. The respondents also raised the issue that some banks’ ATM machines are not compatible with all banks’ ATM cards, it is therefore important to



also address this issue. Last but not the least, it is important to make sure that cash is available at the ATMs always as some machines may not have cash to dispense at times.

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