



## Factors Influencing Users' Satisfaction with E-Payment System in Nigerian Universities

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### ABSTRACT

This study examined factors influencing users' satisfaction with e-payment system in Nigerian universities. A descriptive survey design was employed and a conceptual model was constructed using extended TAM theoretical model with the inclusions of perceived speed, ease of payment, perceived compatibility, perceived convenience, perceived trust and safe to use. An incidental random sampling technique was used to select two hundred respondents from each university making a total of one thousand. The items for each construct were adapted from the previous validated constructs in literatures with little modification to suit the objectives of the study. Ten hypotheses were formulated for the study and data collected were analyzed using stepwise regression analysis at 0.05 level of significant. The results of the study showed that all the ten independent variables significantly influence users' satisfaction with e-payment system while ease of payment made the most significant influence on users' satisfaction with e-payment system. Therefore, the providers of the service should organized awareness campaigns to the potential users properly and emphasize the ease of use of e-payment services to them. Also, when designing e-payment applications the designer should make sure that the end product is robust, fast, easily accessible 24/7 and affordable to the users. Service providers must ensure that their system is reliable, free of technical errors, and highly responsive to users' enquires or any problems that might arise. And finally, service providers should increase services' security and reliability, reduce transaction errors, and protect consumers' privacy.

**Keywords:** e-payment, perceived convenience, perceived credibility, perceived security, perceived usefulness, subjective Norms

### INTRODUCTION

The revolution of ICT is now given room for the 'e' in everything including e-banking, e-transaction, e-registration, e-shopping, e-payment, e-learning, e-library, etc. This study only focuses on e-payment. E-payment is considered a part of e-commerce transaction that includes electronic payment for buying and selling goods or services offered on the Internet. In other words, it is a payment system in which monetary value is transferred electronically or digitally between two entities as compensation or consideration for the receipt of goods or services. An entity in this regard refers to a bank, business, government or even an individual customer (Tan, 2004). E-payment could be viewed from its functions as m-payment, e-banking, e-money, online banking, internet banking, e-finance, e-broking, etc. European Central Bank (2001) viewed e-payment as an electronic preservation of economic substance on an intelligent device generally employed to make payments of undertakings apart from the person who issues it without involving bank accounts in the transaction, though acting as a prepaid bearer instrument elsewhere. E-payment is viewed as the use of credit cards, automated teller machines, debit cards, stored value cards, mobile wallets and others of similar nature to make payments (Oginni, 2013). Similarly, Snellman, Vesala and Humphrey (2001) defines e-payments as any payment service that makes use of information and communications technologies including



Integrated Circuit (IC) cards, cryptography and telecommunications. However, in this study, e-payment refers to delivery outlet that allow for electronic exchange of monetary substances without face-to-face contact of the transacting parties. It includes all electronic transactions as well as e-cheque payment. E-payment provides means of transacting business and settling financial commitment electronically without necessarily touching cash in a cashless society. Today, virtually all banks have introduced electronic funds transfers (EFT), debit and credit cards, internet banking, mobile banking and deployed Automated Teller Machines (ATM). The Nigerian payments system has further evolved with the introduction of the Payments System Vision 2020, launched in 2007 to facilitate a wider range of electronic payment methods such as POS terminals, facilitated by a wider range of service providers.

Several electronic payment systems such as payment cards (smart card) and paper-based instrument that were introduced by the CBN gave rise to significant growth in the use of electronic payment systems. The CBN strategic plan on e-payment system is to ensure that a larger proportion of currency in circulation is captured within the banking system, thereby enhancing the efficacy of monetary policy operations and economic stabilization measures. E-payment initiatives such as the establishment of switching companies that facilitate interconnectivity, introduction of payment instruments such as Automated Teller Machine (ATM), web transaction, e-money products such as credit and debit cards and Point of Sale (POS) have drastically helped reduce the volume of cash transactions and the flow of cash in the Nigeria economy. Electronic payment systems that have been introduced in Nigeria are Automated Teller Machine (ATM), web transaction, electronic money products (such as credit and debit cards), and POS. These e-payment systems provide a better audit trail than transactions which involve physical cash and thus reduce the amount of currency in circulation (Adeoti and Oshotimehin, 2012). E-payment users have the opportunity of sending or instructing payment orders through electronic terminals either through selves or by authorizing other people, to realize money payment and capital transition. E-payment subsumes online payment, telephone payment, mobile payment and self-service terminal payment. E-payment users refer to users who use e-payment channels and tools to complete payment behaviour. In a broader sense, Anderson (1998) categorizes electronic payment systems into four (i.e. Online Credit Card Payment System, Online Electronic Cash System, Electronic Cheque System, and Smart Cards based Electronic Payment System).

Each category has merits and demerits both for the customers and merchants. There are number of criteria peculiar to these payment systems such as security, acceptability, convenience, cost, anonymity, control, and traceability. Tan (2004) on his own categorized e-payment transactions into three segments: retail e-payment, corporate e-payment and wholesale e-payment. He explained that the retail e-payment segment includes three types of transactions: consumer-to-business (C<sub>2</sub>B), business-to-consumer, and peer-to-peer (P<sub>2</sub>P) (or consumer-to-consumer C<sub>2</sub>C). The B<sub>2</sub>B transaction covers the payment of wages or salaries from employers to employees or ETFs such as refunds of monetary value from business to consumer. With various perceived benefit of e-payment such as



convenience, speed, efficiency and reduced cost, Nigeria economic climate is enthusiastic to embrace e-payment system (Adeyelure, Pretorius and Kalema, 2014). But amidst the growth in e-transactions, there are still some fundamental problems, most importantly; lack of trust, cybercrime, internet frauds and perceived lack of security with online payment still hamper the growth of Ecommerce in Nigeria (Adesina and Ayo, 2010). Nigeria today is not certain of its Internet transactions because of lack of trust on the part of customers to put their hard earned currency on a business system that is not trustworthy (Akintola, Akinyele and Agbonifo, 2011).

### Types of E-Payment System in Nigeria

Various types of e-payment system exist in Nigeria and have formed the e-banking product. The most prominent are discussed below (Oladejo and Oluwaseun, 2015):

- (i) **Automated Teller Machine (ATM):** Automated Teller Machine (ATM) is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller. On most modern ATMs, the customer is identified by inserting a plastic ATM card with a magnetic stripe or a plastic smartcard with a chip that contains a unique card number and some security information, such as an expiration date. Security is provided by the customer entering a personal identification number (PIN). Automatic teller machine (ATM) is the most widely used e-Payment instrument in Nigeria. Some bank customers have at least two ATM cards depending on the number of accounts operated by them and they represent the active users of the ATM cards.
- (ii) **Internet/Web payment:** The internet is an innovative form of information technology, yet most commercial web sites function as well-defined information systems. The internet banking, compared to traditional banking system, heavily involves no-human interactions between customers and online bank information systems. This means that the satisfactory delivery of service not only rely on the traditional service quality identified in existing literature but also on a reliable online system to provide a comfortable end-user computing environment. Internet banking as a key component of e-finance has gained research attention.
- (iii) **Electronic point of sales (EPOS):** Electronic point of sales (EPOS) electronic payment system is user friendly simple multi-functional equipment with many possibilities of use. It enables the operators to administer payments by the customer in a simple way and subsequently to record the payments for clear accounting purposes. Evidences from the literature show that 28 billion transactions are made using dial-up POS systems in North America.
- (iv) **Mobile Banking Payments system:** Mobile payment or known also as Mobile wallet is an alternative payment method. Instead of paying with cash, cheque or credit cards, a consumer can use a mobile phone to pay for a wide range of services and digital or hard goods such as: transportation fare (bus, subway or train), parking meters and other services; Books, magazines, tickets and other hard goods; Music, videos, ringtones, online game subscription or items, wallpapers and other digital goods. There are four primary models for mobile payments identified in the literature including Premium SMS based



transactional payments, Direct Mobile Billing, Mobile web payments (WAP), and Contactless NFC (Near Field Communication). Additionally there is a new emerging model from Haiti: direct carrier/bank co-operation. Most deposit money banks in Nigeria offer mobile and/or SMS banking services. Mobile banking enables customers' (typically with Java enabled mobile phones) to access their card linked accounts through their mobile phones.

One of the most important dependent variables used in measuring the success of information system due to the non-volitional status of the majority of the systems is user satisfaction. User Satisfaction (US) is concerned with examining the successful interaction between the IS and its users. According to Doll and Torkzadeh (1988) user satisfaction describes 'an affective attitude towards a specific computer application by someone who interacts with the application directly'. In summary, user satisfaction can be regarded as a function of perceived ease of use and perceived usefulness, and so it's assumed that if users are fully satisfied with an information system, that system is a success. In other words, it is observed from literature on information system success and satisfaction that common variables used to measure information system success include system effectiveness, users' satisfaction and system adoption or acceptance. It is on the basis of this that user satisfaction was used in this study as measure of e-payment success. This is in congruent with (Delone and Mclean, 2003) position that any of net Benefits, (Intention to) Use, or User Satisfaction can be used as dependent construct or factor of system success.

### **Related Study**

Several studies have been carried out on the factors that predict the users' satisfaction of E-payment system in Nigeria. For instance, Gholami, Ogun, Koh and Lim (2010) investigated factors that affect individuals' intention to adopt e-payment systems in Nigeria. They found that several variables, including customer trust, affected individuals' intention to adopt electronic payments. Adeshina and Ayo (2010) identified that there exists low-level of trust in the security measures of internet banking technology and the capability of internet banking system in Nigeria to protect privacy.

Alao and Sorinola (2015) investigate the customers' satisfaction with the ongoing cashless policy in Ogun State, Nigeria with a survey of bank customers in Abeokuta. Questionnaire was used to gather data from the respondents while the collected data was analyzed using descriptive statistics. The formulated hypotheses were tested with correlation coefficient. The findings reveal that cashless policy contributed significantly to customers' satisfaction in Ogun State. The study concluded based on this finding that the cashless policy is customer friendly and progressive. Therefore, it was recommended, among others, that infrastructures should be improved to ensure easy operation of the policy in Ogun state and Nigeria as a whole.

Tella and Olasina (2014) examined the technology acceptance model (TAM), to predict the users' intentions to continue using e-payment system. The hypothesized model was



validated empirically using a sample data collected from a modified e-payment questionnaire. A simple random sample technique was used to select 250 academic and non-academic staff at the University of Ilorin, Nigeria. The results show correlation among perceived usefulness and attitude to use, perceived ease of use and perceived usefulness, perceived ease of use and attitude; perceived enjoyment and continuance intention to use, speed and actual use. Additionally, attitude, satisfaction and actual use were all associated with continuance intention. Moreover, all the nine e-payment predictive factors together made 65% of e-payment continuance intention, and similarly; perceived usefulness, perceived ease of use, enjoyment, speed; perceived benefits, user satisfaction, actual use and attitude are good predictors of e-payment continuance intention. Olanipekun, Brimah and Ajagbe (2013) examined the impact of e-banking on human resource performance and satisfaction. Questionnaire was used to source for data from fifty randomly selected respondents which constitutes the sample while Chi-square analysis was used to analyze the collected data. The study demonstrated that introduction of electronic banking has impacted positively on the bank's human resource performance. It has also resulted to improved efficiency and effectiveness of service delivery by bank workforce and has enhanced customers' satisfaction. The study recommended that critical infrastructures that aid the usage of e-banking products should be provided.

Tella (2012) synthesized the technology acceptance model (TAM) to explain and predict the success of e-payment system using users' satisfaction as dependent variable. Data was collected using a modified e-payment questionnaire. The sample for the study consisted of 74 teaching and non-teaching academic staff from the Faculty of Communication and Information Sciences, University of Ilorin, Nigeria. The results revealed correlation among perceived benefits, perceive enjoyment, speed; service quality, perceive ease of use and actual use and e-payment success. Moreover, the entire seven e-payment constructs together made 69% of e-payment system success. In addition, perceived benefits, perceive enjoyment, speed; service quality, perceive ease of use and actual use are good predictors of e-payment system success. The study pointed out that instead of making use of self-reported measure, future research should consider developing more objective and accurate measure for the determining the e-payment success. Adeoti and Osotimehin (2012) investigated the consumers' satisfaction with adoption of e-payment system in Nigeria. Data for the study was collected from bank customer. Generally, the result indicated that less than 10% of the consumers were satisfied with the speed of transaction, extent of service provided by the merchants, awareness, and security. The study called for improvement of the consumer interface in order to achieve the objective of the cashless economy which the country is aiming at.

Ayo, Adewoye and Oni (2010) in a review and evaluation of the state of e-Banking implementation in Nigeria and the influence of trust on the adoption of e-Payment from the perspective of extended technology acceptance model (TAM). The study considered factors such as organizational reputation, perceived risk and perceived trust in the management of banks as they enhance customer loyalty. The results show that perceived





ease of use and perceived usefulness are not only antecedent to e-banking acceptance, they are also factors to retain customers to use e-banking system, boost organizational reputation, perceived risk and trust. Compare to the current study, Ayo et al. (2010) only focus on review and evaluation of e-banking from the perspective of an existing model (TAM). However, the current study focuses on satisfaction with e-payment system and the likely factors that determines it. Adewoye (2013) empirically studied the impact of mobile banking on service delivery in the Nigerian Commercial Banks through the use of questionnaire. He found out that the introduction of e-banking services has improved banking efficiency in rendering services to customer. His findings shows that mobile banking improve banks service delivery in a form of transactional convenience, savings of time, quick transaction alert and save of service cost which has recuperate customers' relationship and satisfaction. Olatokun and Igbinedion (2009) used DOI theory to investigate the adoption of ATM in Nigeria. They found out that constraint such as relative advantage, complexity, observability, compatibility and trialability were positively related to attitude to the use of ATM cards in Nigeria.

Olorunsegun (2010) used cluster sampling technique to study the impact of electronic banking in Nigerian banking system. He found out that a bank has an effective electronic banking system which has improved its customer's relationship and satisfaction. James (2012) used Statistical Package for Social Sciences (SPSS) to investigate the acceptance of e-banking in Nigeria. The result showed that acceptance of e-banking in Nigeria was significantly influenced by age, educational background, income, perceived benefits, perceived ease of use, perceived risk and perceived enjoyment. James (2013) used Rogers Diffusion of Innovation theory to investigate the determinants of the adoption of mobile banking in Nigeria. The study empirically showed that age, educational qualification, relative advantage, complexity, compatibility, observability and trialability were important determinants of the adoption of mobile banking. This therefore makes it imperative for relevant stakeholders to make efforts to positively influence these independent variables so as to make mobile banking more popular. Morufu and Taibat (2012) used qualitative survey to ascertain banker's perceptions of electronic banking in Nigeria. The results suggest that bankers in Nigeria perceive electronic banking as a tool for minimizing inconvenience, reducing transaction costs, altering customers queuing pattern and saving customers banking time. Olajide (2012) used theories to investigate cashless banking in Nigeria and its implications on the economy. He found out that cashless banking will boost the economy on the long run. Egwali (2009) used consumer acceptance theory to investigate customers' perception of security indicators (SI) in online banking sites in Benin, Nigeria. He found out that SI were not very effective at alerting and shielding users from revealing sensitive information to fool e-banking sites in Nigeria. Ezeoha (2006) used descriptive survey to examine regulating internet banking in Nigeria, problem and challenges. He found out that Internet banking in Nigeria is slowly been embraced by customers because Internet practice in Nigeria has been abused by cyber fraudsters who use real and deceptive banking websites to fool users' and set their sensitive information and funds.



Tella and Abdulmumin (2015) investigated Predictors of Users' Satisfaction with E-payment

System using Staff at the University of Ilorin, Nigeria as a case study. A sample of 260 academic and non-academic staff was taken from six out of 12 faculties that made up the university. Using a survey research approach data was collected with a modified questionnaire. Five research questions were developed to guide the study. The results revealed that, respondents (93.5%) were adequately satisfied, satisfied and moderately satisfied, while, only (6.5%) of the respondents were less satisfied and dissatisfied. Perceived speed was identified as the characteristics users mostly satisfied with, followed by system security, traceability, and convenience. Moreover, there is significant correlation among the entire e-payment characteristics/factors (perceived speed, security, anonymity, traceability, perceived ease of payment, and convenience); and that all the six factors jointly predict users' satisfaction with the e-payment system. In order of magnitude of the prediction/contribution to e-payment, users' satisfaction, perceived speed made the most significant prediction/contribution. Peter and Rasmus (2011) investigated consumer acceptance of mobile payment services (MPS). An empirical study of factors explaining Swedish consumers' intention to use mobile payment system. Based on previous surveys and theories, the researchers developed five constructs into a research model to measure consumer acceptance; Perceived Compatibility (PC), Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Perceived Security (PS) and Subjective Norm (SN). The researchers concluded that PC and PU are the main determinants for consumers' acceptance of MPS. PS is supported and important more to older than younger generations. Their model did not find PEOU and SN significant in determining the consumers' acceptance of MPS. In the end, managerial recommendations are given.

Liu and Tai (2016) examined Factors Affecting the Intention to Use Mobile Payment Services in Vietnam. This study attempts to analyze the impact of various variables extracted from mobility, convenience, compatibility, M-payment knowledge, ease to use, usefulness, risk, trust, and safe to use on intention to use mobile payment. Quantitative questionnaire is used to measure responses of participants. The statistical analysis method employed in this study applies Structural Equation Modeling to test all hypotheses. The results indicate that the strong predictors of the intention to use M-payment are perceived ease of use and perceived usefulness. All respondents show that they do not care about risk when they have intention to use mobile payment services. Convenience of mobility, compatibility, and mobile payment knowledge has impacts on ease to use and usefulness. Among of them, compatibility has the most significant impact on ease to use and usefulness in the opinion of those surveyed. Specially, it proved that trust of safe to use has no significant impact on usefulness, but instead has direct impact on intention to use mobile payment services. The outcomes of this research have important connotations for the improvement and development of mobile payment services in Vietnam.



## Research Objectives

This research aims to examine the predictor factors that influencing users' satisfaction with E-payment system in Nigerian universities. Specifically, the objectives of this research are:

- (i) To examine which of the e-payment factors will best predict users' satisfaction with e-payment system.
- (ii) To examine the joint contribution of each of the factors that predict users' satisfaction with e-payment system.

## Conceptual Model and Research Hypotheses

The conceptual framework in this study shows the relationship between independent variables (Perceived Security, Perceived Speed, Ease of Payment, Convenience, Subjective Norm, Perceived Usefulness, Perceived Compatibility, Perceived Credibility, Perceived Trust, Safe to Use and dependent variable (Users' Satisfaction of E-payment System in Nigerian Universities).

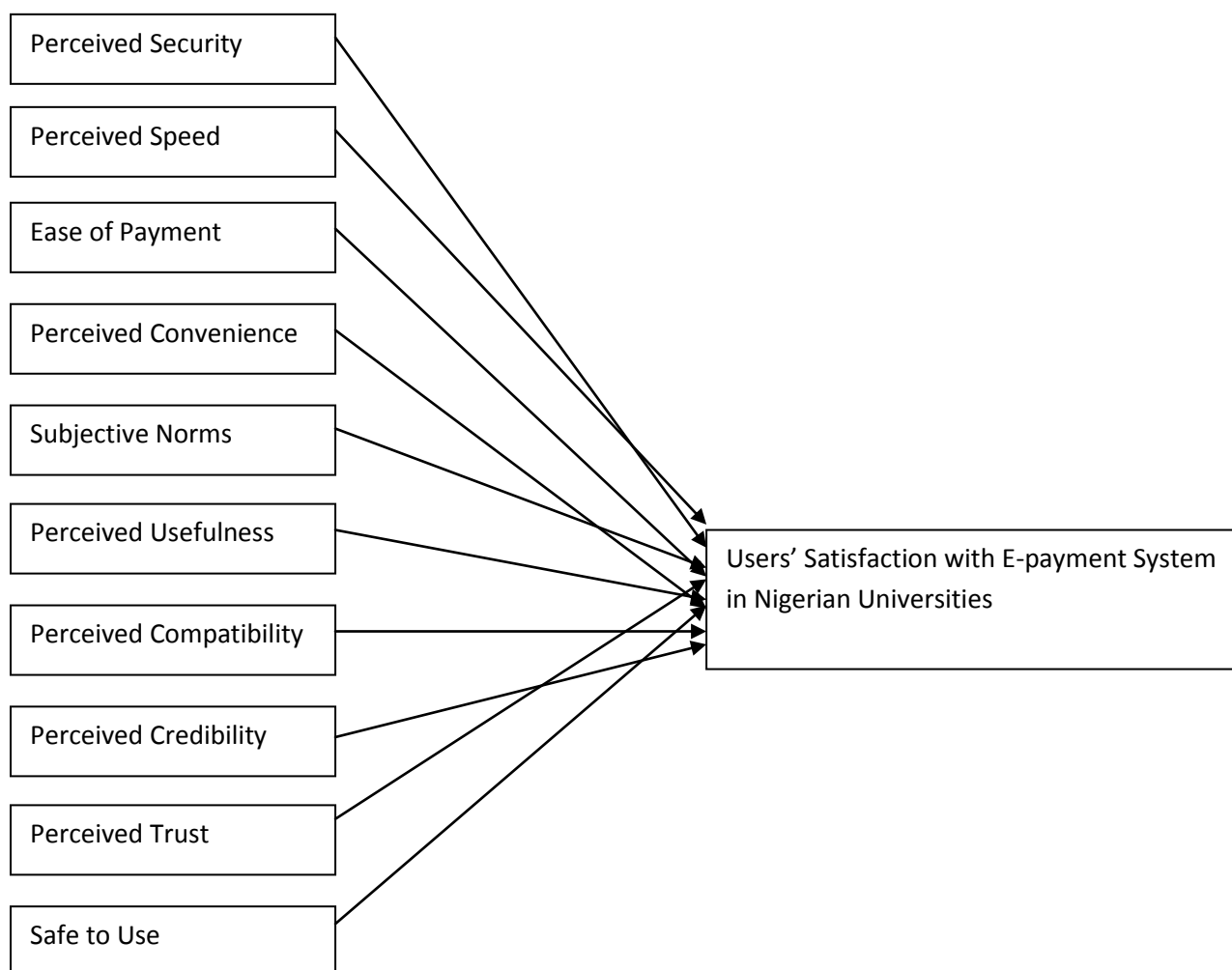


Figure 1: Conceptual Research Model of the Study (Adapted from Tella and bdulmumin, 2015; Peter and Rasmus, 2011)





The following hypothesis was formulated and tested for this study:

- (i) **H1:** Perceived Security (PS) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (ii) **H2:** Perceived Speed (PSD) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (iii) **H3:** Ease of Payment (EP) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (iv) **H4:** Perceived Convenience (PC) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (v) **H5:** Subjective Norms (SN) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (vi) **H6:** Perceived Usefulness (PU) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (vii) **H7:** Perceived Compatibility (PCOM) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (viii) **H8:** Perceived Credibility (PCD) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (ix) **H9:** Perceived Trust (PT) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.
- (x) **H10:** Safe to Use (SU) has significant influence on the users' satisfaction with E-Payment System in Nigerian Universities.

### Research Methodology

The researcher adopted a descriptive survey research design and the targeted population of the study comprised all students in the following university (i.e. Obafemi Awolowo University, Ile-Ife, University of Ibadan, Ibadan, Osun State University, Osogbo, Ladoke Akintola University, Ogbomoso and Federal University of Agriculture, Abeokuta. An incidental random sampling random sampling technique was utilized to select 200 students from each institution making a total sample of 1000. The research design was chosen based on its definition and use in previous studies (Tella and Abdulmumin, 2015; Peter and Rasmus, 2011). Structured questionnaire which was made of three sections was used as an instrument for data collection. The first section sought information on demographic information of the respondent, the second section consists of 34 items measuring ten potential determinants and the third section consists of 4 measure items for users' satisfaction with e-payment system. All these measurement items were adapted from the previous questionnaires used in related studies (Adewoye, 2013; Adewoye and Oni, 2010; Adeoti and Osotimehin, 2010; Tella and Olasina, 2014; Chen, 2008; Kim, Mirusmonov and Lee, 2010; Liu and Tai, 2016) and analyzed by five-point Likert-type scales anchored at 1 for "strongly disagree" and 5 for "strongly agree". Since the items were adapted from previous questionnaires used in related studies, it is believed that such might have undergone validation process. This in part justifies the validity of the questionnaire. However, after development, the questionnaire was given to two experts who are knowledgeable in research for scrutiny. To test the reliability and validity of the data collection instrument, the instrument was administered on 20 respondents who



did not eventually participated in the study. A test-retest reliability method of two weeks interval was embarked upon. Data collected was subjected to Cronbach Alpha and the reliability coefficient returned  $\alpha = 0.94$  for the overall questionnaire while the reliability coefficient of the sub-scale returned the following: Perceived Security  $r = 0.79$ ; Perceived speed  $r = 0.85$ ; Ease of payment  $r = 0.77$ ; Convenience  $r = 0.75$ ; Subjective Norms  $r = 0.76$ ; Perceived Usefulness  $r = 0.89$ ; Perceived Compatibility  $r = 0.71$ ; Perceived Credibility  $r = 0.81$ ; Perceived Trust  $r = 0.74$ ; Safe to use  $r = 0.82$  and the Users' satisfaction section 0.92. The researcher administered the questionnaires personally with the assistance of some lecturers in each institution at their respective departments. The questionnaire administration covered ten days (two day for each institution). A total of 1000 copies of questionnaire were administered and only 950 copies of it were returned. Collected data was analyzed using Pearson Product Moment Correlation (PPMC), ANOVA and multiple regressions to determine which of the factors best determine users' satisfaction with e-payment system in Nigerian universities.

## Results

**Table 1: Demographic data of the respondents**

Demographic	Frequency	Percentage
<b>Age</b>		
19-21 Years old	106	11.2
22-24 Years old	127	13.4
25-28 Years old	364	38.3
Above 28 Years old	353	37.1
<b>Gender</b>		
Male	592	62.3
Female	358	37.7

Source: Survey, 2017

Table 1 showed the demographic information of the participants. The table indicates that older participants were more represented than the younger ones (i.e. 38.3% and 37.1%) is more than (11.2 and 13.4%). In terms of gender, 62.3% were male and 37.7% were female; this shows that male was more represented than female participants.

**Table 2: Multiple Regression Analysis of Predicting factors influencing users' Satisfaction with E-Payment system (N=950)**

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Standard Error of the Estimate	
1	0.824	0.756	0.750	1.795	
<b>Analysis of Variance</b>					
Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	664.600	10	66.460	20.628	0.000
Residual	3025.262	939	3.222		
<b>Coefficient of the Prediction (N=950) ** Significant at 0.05</b>					
Model	Unstandardized Coefficient	Standardized Coefficient			



	B	Std. Error	Beta	t	Sig.
PS	0.030	0.028	0.042	1.049	0.000**
PSD	0.237	0.054	0.382	4.404	0.007**
EP	0.212	0.032	0.415	6.596	0.000**
PC	0.245	0.058	0.396	4.627	0.014**
SN	0.009	0.022	0.017	0.428	0.006**
PU	0.060	0.024	0.134	2.547	0.000**
PCOM	0.017	0.039	0.021	0.442	0.001**
PCD	0.161	0.053	0.143	3.017	0.003**
PT	0.191	0.046	0.275	4.126	0.002**
SU	0.201	0.027	0.345	7.517	0.000**
CONSTANT					
(Users' Satisfaction)	17.342	0.267		14.894	0.000**

Source: Survey, 2017

The coefficient of determination  $R^2$  and adjusted  $R^2$  are 0.824 and 0.756 respectively meaning that 75.6% of the variation of users' satisfaction with e-payment system in Nigerian universities was explained by the ten independent variables shown in table 2 below.  $R^2$  value ranges from zero and one, the closer the value is to one, the better "fit" the model is. The results of the significant test of regression model F value of 20.628 and sig. f is 0.000 indicates that the model has a significant statistic and it indicates the "goodness" of fit of the model.

In addition, perceived security ( $\beta = 0.042$ ,  $t(939) = 1.049$ ,  $p < 0.05$ ), perceived speed ( $\beta = 0.382$ ,  $t(939) = 4.404$ ,  $p < 0.05$ ), ease of payment ( $\beta = 0.415$ ,  $t(939) = 6.596$ ,  $p < 0.05$ ), perceived convenience ( $\beta = 0.396$ ,  $t(939) = 4.627$ ,  $p < 0.05$ ), subjective norms ( $\beta = 0.017$ ,  $t(939) = 0.428$ ,  $p < 0.05$ ), perceived usefulness ( $\beta = 0.134$ ,  $t(939) = 2.547$ ,  $p < 0.05$ ), perceived compatibility ( $\beta = 0.021$ ,  $t(939) = 0.442$ ,  $p < 0.05$ ), perceived credibility ( $\beta = 0.143$ ,  $t(939) = 3.017$ ,  $p < 0.05$ ), perceived trust ( $\beta = 0.275$ ,  $t(939) = 4.126$ ,  $p < 0.05$ ), safe to use ( $\beta = 0.345$ ,  $t(939) = 7.517$ ,  $p < 0.05$ ) contributed significantly to the regression model. That is, users' satisfaction with e-payment system were facilitated by their perceptions of ease of payment, convenience, speed, safe to use, trust, credibility, usefulness, security, compatibility and subjective norms. Also, by examining the standardized regression coefficients, ease of payment ( $\beta = 0.415$ ) appeared to be the strongest predictor that contributed to the variance in users' satisfaction with e-payment system, followed by perceived convenience ( $\beta = 0.396$ ), perceived speed ( $\beta = 0.382$ ), safe to use ( $\beta = 0.345$ ) and perceived trust ( $\beta = 0.275$ ) respectively.

### Discussion of the Findings

Evidence from the previous studies indicates that limited studies have been undertaken on the factors influencing users' satisfaction with e-payment system in higher institution of learning particularly in a developing country context. This study demonstrates a solid



theoretical base of extended Technology acceptance model (TAM) as a useful framework for identifying the factors that influence users' satisfaction with e-payment system in Nigerian universities. The study investigated the influence of perceived security (PS), perceived speed (PSD), ease of e-payment (EP), perceived convenience (PC), subjective norm (SN), perceived usefulness (PU), perceived compatibility (PCOM), perceived credibility (PCD), perceived trust (PT) and safe to use (SU) on users' satisfaction with e-payment system.

The influence of **H6**, **H3** and **H5** is confirmed revealing that perceived usefulness (PU), ease of payment (EP) and subjective norms (SN) influence the users' satisfaction with e-payment system in Nigerian universities. For perceived usefulness (PU) and ease of payment (EP) (**H6** and **H3**) these results are consistent with previous studies findings which indicated that perceived usefulness was one of the predictor in the use of mobile commerce applications (Chan and Chong, 2013; Issa and Mamoun, 2013; Zhou, 2014; Kabata, 2015; Peter and Rasmus, 2011; Liu and Tai, 2016; Tella and Olasina, 2014). For ease of payment (**H3**), this result also resonates with the findings of Tella and Abdulmumin (2015) which revealed that ease of payment had a positive influence on the users' satisfaction with e-payment system in Nigerian universities. Subjective norm (**H5**) was found to be positively influence the users' satisfaction with e-payment system in Nigerian universities. The results are contradicts with (Chan and Chong, 2013; Kabata, 2015; Peter and Rasmus, 2011) findings which revealed that subjective norm did not influence the use of transaction base mobile commerce applications. But the results is consonant with the findings of (Issa and Mamoun, 2013; Keramati, Taeb, Larijani and Mojir, 2012; Nguyen, Cao, Dang and Nguyen, 2016; Phonthanakitithaworn, Sellito and Fong, 2016; Schierz, Schilke and Wirtz, 2010; Shin, 2010; Yang, Lu, Gupta, Cao and Zhang, 2012; ) which indicated that subjective norm was the one of the predictor of the use of mobile commerce applications in Saudi Arabia.

The influence of perceived security (**H1**) was also confirmed with the hypotheses having a significant influence on the users' satisfaction with e-payment system in Nigerian universities. This result is similar to previous studies findings which revealed that perceived security was an important driver in the use of mobile commerce transaction applications (Chan and Chong, 2013; Zhou, 2014; Kabata, 2015; Tella and Abdulmumin, 2015; Peter and Rasmus, 2011). Perceived trust (**H9**) was found to have a direct effect on users' satisfaction with e-payment system in Nigerian universities. This result implies that users are highly concerned about the issue of trust with entities involved in the e-payment process and activities as they are acutely aware of giving e-payment providers their personal information (e.g., telephone number, date of birth, address, credit card number) when conducting such payment transactions. Perceived speed (**H2**) was found to be significantly influence users' satisfaction with e-payment system in Nigerian universities. This finding supports the findings of the Tella and Abdulmumin (2015) which founds that perceived speed affect users' satisfaction with e-payment system in Nigerian universities. The influence of perceived compatibility (**H7**) was found to have positive and significant influence on users' satisfaction with e-payment system in



Nigerian universities. This finding supported the findings of Puschel, Mazzon and Hernandez (2010) that surveyed 666 Brazilian consumers and found that perceived compatibility is one of the significant predictors of mobile financial services and Koenig-Lewis, Palmer and Moll (2010) who surveyed 155 consumers in Germany and also found that perceived compatibility is very significant in the use of mobile financial services. But the result contradicted the findings of Aminu and Asadullah (2014) that surveyed 214 students in Nigerian tertiary institutions and found that perceived compatibility not found to have positive and significant relationship with the behavioural intention to adopt mobile payment system.

Moreover, the influence of **H<sub>4</sub>** and **H<sub>8</sub>** is confirmed revealing that perceived convenience (PC) and Perceive credibility (PCD) influence the users' satisfaction with e-payment system in Nigerian universities. For both perceived convenience (PC) and Perceive credibility (PCD) (**H<sub>4</sub>** and **H<sub>8</sub>**) these results are consistent with previous studies findings which indicated that perceived convenience and perceived credibility were both the predictors in the use of mobile commerce applications (Chen, 2008; Tella and Abdulmumin, 2015; Ayoade, 2016; Blomme and Lindback, 2010; Kim et al., 2010; Liu and Tai, 2016; Mohammad, 2016). Finally, safe to use was a significant predictor of users' satisfaction with e-payment system in Nigerian universities (**H<sub>10</sub>** was also supported). It is important for students to be able to trust the technology as well as the service provider prior to using e-payment for conducting any financial transaction. Also, students are likely to have certain expectations about the risks associated with e-payment system, providers of these types of services would benefit from clearly articulating their ability to protect critical information during the transaction process. This assurance might be provided through satisfaction guarantee policies that protect users from the harmful consequences of service failure or through offers of potential user training and trial use activities. Mobile service providers should particularly focus on building trust and making their payment services easy to use. In order to enhance trust, service providers should increase services' security and reliability, reduce transaction errors, and protect consumers' privacy.

## CONCLUSION

The main aim of this study is to extend the technology acceptance model (TAM) and explore the predicting factors that influence users' satisfaction with e-payment system in Nigerian universities. This study provided both theoretical and managerial implications. From the perspective of theory, six additional variables (PT, PCOM, PCD, PC, PS and SU) were integrated into the original TAM which provided a comprehensive understanding of the predictors of factors influence users' satisfaction with e-payment system in Nigerian universities. The regression results show that ten variables; perceived security (PS), perceived speed (PSD), ease of e-payment (EP), perceived convenience (PC), subjective norm (SN), perceived usefulness (PU), perceived compatibility (PCOM), perceived credibility (PCD), perceived trust (PT) and safe to use (SU) significantly influence users' satisfaction with e-payment system in Nigerian universities. Findings from this study suggest that the e-payment system providers should concentrate





on strategizing towards EP, PC, PSD, SU, PT, PCD and PU. The providers of the service should pay much attention on EP by making sure that the e-payment systems are robust, users friendly and more accessible anytime and anywhere so as to attract more adoption. Also, e-payment system should be reliable, free of technical errors and trustworthy, fast and convenience for the users.

## RECOMMENDATIONS

Based on the findings of this study, the following suggestions were recommended:

- (i) E-payment service providers should organized awareness campaigns to the potential users properly and emphasize the ease of use of e-payment services to them.
- (ii) E-payment service providers should make sure the their system are robust, fast, easily accessible 24/7 and affordable to the users
- (iii) E-payment service providers should ensure that their system is reliable, free of technical errors, and highly responsive to users' enquires or any problems that might arise.
- (iv) E-payment service providers should particularly focus on building trust and making their payment services easy to use.
- (v) E-payment service providers should increase services' security and reliability, reduce transaction errors, and protect consumers' privacy.

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