

**DETERMINANTS OF POS ADOPTION IN MODERN NIGERIAN SHOPPING
MALLS**

By

**NZEKWU, DAVID OKAGBUE
PG/Ph. D/11/60228**

**BEING A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL
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**SUPERVISOR:
PROF. (MRS.) G.E. UGWUONAH**

SEPTEMBER, 2017

CERTIFICATION

I, **NZEKWU, DAVID OKAGBUE** with Registration Number: **PG/M.Sc./Ph.D./11/60228**, hereby declare that this research on **DETERMINANTS OF POS ADOPTION IN MODERN NIGERIAN SHOPPING MALLS** is original and was carried out by me. It is a record of my research work and has not been presented before to this or any other institution of higher learning.

NZEKWU, DAVID OKAGBUE

PG/Ph.D./11/60228

APPROVAL PAGE

This thesis has been read and approved for the Faculty of Business Administration,
University of Nigeria, Enugu Campus.

Prof. (Mrs) G.E. Ugwuonah
(Supervisor)

Date

Dr. C. E. Obeta
(Head of Department)

Date

External Examiner

Date

Dedication

Dedicated to Linda, Dubem, Olisa and Chidera.

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Abstract

This study titled, “Determinants of POS Adoption in Modern Nigerian Shopping Malls” sought to evaluate factors for the adoption of Point of Sales (POS) Terminals as a means of payment by retail shoppers in Nigeria. The aim was to determine the influence of each of the identified factors on the POS adoption. The study adopted the descriptive research design, using the quantitative research approach in which data was generated using the questionnaire instrument. The population of the study consisted of the retail shoppers who use POS in modern Nigerian shopping malls. From this group, 384 respondents were selected for sampling using the purposive sampling technique. The Data were analyzed using Analysis of Moment Structure (AMOS), part of Confirmatory Factor Analysis (CFA) and generalized linear model (GLM) which combines multiple regression and multivariate analysis of variance. The findings from the study revealed that perceived POS performance had a very significant positive influence on intention to use POS by the retail shoppers; perceived POS ease of use had a significant positive influence on intention to use POS by the retail shoppers; social factors influence had significant positive effect on intention to use POS by the retail shoppers; technical infrastructure had a significant positive effect on the usage of POS by the retail shoppers; trust in POS technology had a significant positive influence on the usage of POS by the retail shoppers. The relationship between the retail shoppers’ intention to use POS and their actual usage of POS was not significant. The findings from this research suggest that retail shoppers’ intention to use POS can be improved upon with an improvement in the POS perceived performance, improvement in POS perceived ease of use and improvement in social factors influence. The adoption of POS can be improved upon if technical infrastructure and trust in the POS technology is improved.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banking in Nigeria is gradually transforming from manual to electronic. A significant number of financial transactions are more than ever, processed via the electronic platforms such as Electronic Point of Sale Terminals (POS), Electronic Fund Transfers (EFT), Automated Teller Machines (ATMs), Mobile Banking, Internet Banking, and several other electronic platforms. These electronic platforms are believed to play a critical role in the development of efficient and robust payment systems (Central Bank of Nigeria (CBN), 2013). As such, researchers, policymakers and other stakeholders have continuously shown keen interest in the level of consumer adoption of these electronic payment platforms which is seen as a pointer to the level of advancement of a payment system. (Ovia, 2006; Klynveld Peat Marwick Goerdeler (KPMG) 2012, 2013, 2014; Omoniyi, 2012; Nigerian Inter-Bank Settlement Systems (NIBSS) 2015). [NIBSS, owned by all licensed banks and discount Houses in Nigeria - including the CBN conducts occasional studies on POS adoption in Nigeria. KPMG is a Nigerian partnership, a member firm of the KPMG network that conducts an annual survey of the Nigeria Banking Industry since 2006 to measure customer satisfaction]. The results of KPMG surveys indicate a slow rate of POS adoption by retail bank customers which has remained below the expectations of stakeholders especially when compared with the adoption of other electronic payment platforms (KPMG 2012, 2013, 2014).

In Nigeria, the advent of Electronic banking dates to the late 1980s when Citibank Nigeria, then called Nigeria International Bank (NIB) pioneered remote access for customer account information (Omoniyi, 2012). It was then preceded by the computerisation and automation of its internal processes. According to Ovia (2006), the growth of e-banking in Nigeria was driven by its merits which include: improvement in service delivery, faster, more accurate and cheaper funds transfer, promotion of the availability of financial services, the capacity to process a high volume of transactions, and much more.

Electronic banking, no doubt, has transformed the traditional method of banking in Nigeria and changed the way that banks render services to customers (Aliyu, Younus & Tasmin, 2013). Indeed, it has offered many advantages to the banks and the customers (Parisa 2006; Mishra & Sahoo, 2013; Ndlovu & Sigola, 2013). Electronic banking has helped banks improve business efficiency, service quality and attract new customers (Mishra & Sahoo, 2013). It has also enabled banks to lower operating costs, improve customer services delivery, retain customers, reduce branch traffics, and downsize the number of branch staff (Parisa, 2006). Electronic banking has improved the method of payments and provided several electronic payment platforms as alternative platforms for cash payments. To a considerable extent, the success of these electronic payment platforms depends on their level of adoption by the consumers (CBN, 2013).

In 2013, the CBN launched a cashless policy in Nigeria. The policy was aimed to improve the Nigerian payment system, by encouraging the use of electronic payment to reduce the volume of cash transaction in the country. The CBN considers adoption of new payment technologies to be crucial to its achievements of a cashless society in Nigeria (CBN, 2013). One of the key technologies that the CBN believe will aid in achieving a cashless society in Nigeria is the POS - an electronic payment device or terminal that allows consumers to pay for their purchases at a retail merchant's store or a service point by using their payment cards (popularly called ATM cards in Nigeria).

Since the introduction of the cashless policy, the CBN and commercial banks in Nigeria have been making frantic efforts to encourage the adoption and use of POS. According to The Nigeria Communications Weekly Report of May 19, 2014, Nigerian banks have invested over \$80 million in the acquisition of POS with 200,000 POS terminals deployed across the country. Despite these huge investments and the efforts of the CBN to position POS as a preferred mode of payment in Nigeria, market analysis indicates a low rate of POS adoption in the country (Adeoti & Oshotimehin, 2012; CBN, 2013; KPMG, 2013; 2014; NIBSS, 2015).

In a recent survey of the Nigeria Banking Industry, KPMG (2014:15) documented that Nigeria has a POS adoption rate of 27% of retail bank customers. Although this represents a growth of 12% from its survey in 2013, the survey also found that the level of adoption of ATM by retail bank customers is 91%. The reports show that, increase in

the adoption of ATM cards in Nigeria, has led to a rise in the preference of retail bank customers to queuing at ATM points to withdraw cash. They subsequently use the withdrawn money to pay for purchases at shopping malls and other retail outlets rather than payments through the POS terminals using the payment (ATM) cards. Nigeria Inter-Bank Settlement System NIBSS (2015: 37) report indicates that whereas 93.6% of retail merchants prefer payment through POS, only 3.1% of consumers cited Card/POS as their preferred mode of payment.

Consumers' preference of payment for purchases with cash could be because of issues which could be unique to Nigeria. Indeed, given a large number of transactions for which payment cannot be currently made through the POS system in Nigeria (e.g. buying from the local markets, payment of bus fares, taxi rides, newspapers, and even providing children's school money,). It is to be expected that ATM withdrawals will exceed payments through the POS system. However, anecdotal evidence suggests that the low level of adoption of the POS could be due to underlying Nigerian factors. Understanding these factors will help marketers in developing marketing programs that will promote the adoption of POS in Nigeria.

1.2 Statement of the Problems

Thus far, trends in Nigeria show that despite CBN efforts and desire to make POS terminal the preferred mode of payment in the country, many retail shoppers have continued to use cash as a means of payment. Sometimes the cash is withdrawn from ATMs at the shopping malls using the same payment cards they could have used to make payment through the POS. Industry reports indicate that consumer adoption of the POS platforms has fallen below the expectations of banks and policymakers (KPMG, 2013; NIBSS, 2015). Although many banks have invested hugely in technology to support CBN's desire to achieve a cashless society in Nigeria, the adoption of POS has remained low at 27% of retail bank customers (KPMG 2014: 15). The low POS adoption seems to support the notion that technological advances and service availability do not automatically lead to their widespread adoption and use (Wang, Lo, & Fang, 2008: 102). There is the need to understand Nigerian factors for the adoption of new technology especially as it relates to POS.

Existing studies on technology adoption (such as Venkatesh, Morris, Davis, and Davis (2003); Chiemeke and Ewwiekpaefe, 2011; Dulle and Minishi-Majanja, 2011 and Bhatiasavi, 2015) have identified factors for the adoption of new technology. Even though the concepts of technology acceptance and adoption are argued to be universal, most of the models and variables established to explain such behaviours were primarily developed and tested in the industrial economies (Bhatiasavi, 2015). As such, their viability may be different in emerging economies. Therefore, it is crucial to examine technology acceptance models within the context of developing economies like Nigeria, especially as it affects the acceptance and use of POS. Chiemeke and Ewwiekpaefe (2011) have called for more Nigerian researchers in this area. Similar calls have also been made by Akintunde and Agbo (2016) who called for further studies to explore the adoptability and usage of POS across Nigeria. Adeoti and Oshotimehin (2012) suggest opportunities for improving the consumer's interface with POS technology.

In recent times, scholars have utilised the factors identified by Venkatesh, Morris, Davis, and Davis (2003) in their Unified Theory of Acceptance and Use of Technology (UTAUT) to study technology adoption. Some of the researchers extended the study to include other variables within the context of the environment where their studies were conducted. The fact that other researchers have extended the UTAUT model in their research suggests that not all adoption variables may have been researched. Therefore, there is the need for more research in this area to test these variables especially within the Nigerian context and where possible, extend them to account for Nigerian factors as suggested by Chiemeke and Ewwiekpaefe (2011).

Indeed, there could be several issues relating to things that may make a retail shopper in Nigeria who already has a penchant for making payments with cash to switch to electronic payment using the POS. Existing studies such as Venkatesh et al. (2003) suggests that such issues will include the performance of the POS such that the users can be sure that they --can gain and make payment better when they use the POS -- performance expectancy. It will include the degree of ease or difficulty that the potential users associate with the use of the POS which will reflect in the effort that the potential users believe they need to put forth in order to use the technology -- effort expectancy. It

will include the influence of people around the potential users – social influence. These variables are believed to have a direct effect on the user's behavioural intention to use a new technology (Venkatesh et al., 2003). There are also issues of facilitating conditions relating to technical infrastructures that will enable the POS to function as expected. Also included are the issues of trust in the POS technology pertaining to the users believing that the POS will perform as intended which will give them the confidence to use the POS instead of making cash payment. Consumers will be concerned about the unavailability of Network that facilitates connectivity between the POS and the bank for smooth payments.

A pilot study conducted to give a better definition of the problems revealed that consumers were quite concerned about the safety and reliability of using the POS system. There are instances where consumers relate that they are not aware that they can make payments with their payment cards on POS. Some consumers complain of cases in which they have paid cash because of network connection problems after attempting to use the POS, only to find later that their accounts have been debited with the same amount of the purchase through the POS. Also, there are complaints about the procedures required to re-credit the account when this happens which sometimes takes as much as 21 days. Researchers and practitioners should be interested in understanding factors that encourage the adoption of new technologies such as POS and what could lead to their resistance. That will help marketers in their efforts towards the development of marketing programs that will promote the use of such new payment technologies.

Unfortunately, there has been limited empirical research to explain the extent that these issues interact and influence the adoption and use of POS in Nigeria. People are likely to feel concerned about using technology that they do not trust, especially when money is involved; as in the case of making payment through the POS. These problems call for research such as this; to investigate factors that encourage and discourage the adoption of POS. Many of the existing studies on technology adoption seem to have focused on the industrialised economies especially those in the west. Hence, the reason why Chiemeké and Evwiekpaefe (2011) have called for studies in this direction; to assess factors for adoption of new technologies empirically, in Nigeria. Such studies would consider the applicability of existing variables in developed countries while examining the Nigerian

factors. Studies on adoption of POS in Nigeria such as Omotayo and Dahunsi (2015) have focused on the adoption of POS by the retail merchants. There is the need for more studies that will focus on POS adoption from the angle of the retail shoppers who are the end users of the technology. These problems call for research such as this. It suggests the need for theory-grounded research in this area to evaluate the relationship between a range of factors that influence the adoption of new technology, and their level of influence on the adoption of POS by retail shoppers in Nigeria.

1.3 Objectives of the Study

This research aims to evaluate factors that determine the adoption of POS as a mean of payment in modern Nigerian shopping malls. The specific objectives of the research are:

1. Ascertain the extent to which *perceived POS performance* (performance expectancy) influences intention to use POS in Nigeria.
2. Ascertain the extent to which *perceived POS ease of use* (effort expectancy) influences intention to use POS in Nigeria.
3. Ascertain the extent to which *social factors* (Social influence) influence intention to use POS in Nigeria.
4. Ascertain the extent to which *technical infrastructure* (facilitating conditions) influence the usage of POS in Nigeria.
5. Ascertain the extent to which *trust in POS technology* influences the use of POS in Nigeria.
6. Ascertain the extent to which retail shopper's *intention to use POS* relate to the usage of POS in Nigeria.
7. Ascertain if *demographic variables of age, gender, education and occupation* play significant mediating roles on POS perceived performance, perceived ease of use, social factor influence, technical infrastructure, trust and usage behaviour.

1.4 Research Questions

The following research questions are raised for the study:

1. To what extent does *perceived POS performance* (performance expectancy) influence intention to use POS in Nigeria?
2. To what extent does *perceived POS ease of use* (effort expectancy) influence intention to use POS in Nigeria?
3. To what extent does *social factors* (Social influence) influence intention to use POS in Nigeria?
4. To what extent does *technical infrastructure* (facilitating conditions) influence the usage of POS in Nigeria?
5. To what extent does trust in POS technology influence the use of POS in Nigeria?
6. To what extent does retail shoppers' intention to use POS relate positively to the usage of POS in Nigeria?
7. Do *demographic variables of age, gender, education and occupation* play *significant mediating roles* on POS perceived performance, perceived ease of use, social factor influence, technical infrastructure, trust and usage behaviour?

1.5 Research Hypotheses

In order to handle the above objectives, the following null hypotheses were formulated:

- H1 Perceived POS performance (Performance Expectancy) does not have a positive influence on intention to use POS in Nigeria.
- H2 Perceived POS ease of use (Effort Expectancy) does not have a positive influence on intention to use POS in Nigeria.
- H3 Social factors (Social Influence) do not have a positive influence on intention to use POS in Nigeria.
- H4 Technical Infrastructure does not have a positive influence on the use of POS in Nigeria.

- H5 Trust in POS technology does not have a positive influence on the use of POS in Nigeria.
- H6 Retail Shoppers' Intention to use POS does not relate positively to the usage of POS in Nigeria.
- H7 Demographic variables of age, gender, education and occupation do not play significant mediating roles on POS perceived performance, perceived ease of use, social factor influence, technical infrastructure, trust and usage behaviour.

1.6 Significance of the Study

This study was carried out with the aim to increase the wealth of knowledge that is available on the adoption of technology especially as it relates to the adoption of POS in Nigeria. The study, therefore, has practical and theoretical implications.

Practical Implications – This research has implications for the Nigerian payment systems. It exposes some determinants that could have a role in influencing the adoption of technology especially as it relates to the POS. The study is beneficial to banks, financial policy makers, users of POS and other stakeholders including financial service providers who are interested in the adoption of POS and technology in Nigeria. One critical practical implication is that bankers and service providers could give more consideration to the performance of the POS to improve its adoption for payment by retail shoppers. Based on the outcome of the research, it is time to pay attention to how retail shoppers perceive the POS performance and how they perceive POS as being easy to use. POS adoption can be improved by manipulating the influence of people's relationship with others – social influence. Thus, this improvement will be very important especially to marketers in designing marketing programs that will promote the use of POS. Considering people's trust in the POS technology is helpful. Improvement of facilitating conditions such as technical infrastructure and trust in the POS technology has implications in the usage of POS by the retail shoppers as many of the retail shoppers who intend to use POS fail to use it because of issues around the technical infrastructure which together with trust facilitate the future usage. Some customers have psychological barriers that make them perceive POS usage as difficult and not worth trying, especially when they see that the POS does not work. As such, they resort to a more convenient method of making payment in cash. Banks and service providers could customise a

Nigeria POS that takes into consideration the findings of this study. Such POS could be an integrated POS that defaults to other options of connectivity and links customers bank accounts through alternatives windows such as direct to abank account, Near Field Contact (NFC) and Unstructured Supplementary Service Data (USSD). These can be enabled using mobile technology that rides on Android applications or similar application.

Theoretical Implications – The study adopted the UTAUT model which is considered to be parsimonious and yet comprehensive. One important implication of this study emerges from the influences represented by the core variables of the UTAUT considered universal because studies conducted in various places have repeatedly validated them. This research has replicated the explanatory abilities of the UTAUT variables and confirms that they are viable for the study of adoption in Nigeria. However, some of the investigations that utilised the UTAUT have reported shortcomings leading to the extension of its variables in their studies. In conducting this research, the UTAUT model was modified and extended by isolating technical infrastructure and trust in technology as variables under the facilitating conditions. Isolation of technical infrastructure and trust in technology is thought to have provided a better understanding of the adoption of POS in Nigeria. This study confirmed that technical infrastructure and trust in POS explain why retail shoppers who intend to use POS fail to use POS in modern Nigerian Shopping malls. Many previous studies have not isolated trust in technology to assess its viability in the determination of adoption of technology. Thus, this could be as a result of the fact that the issues which facilitate the use of technology in the Nigeria context may not reflect similarly in the Western and Asian countries where many of the previous studies that utilised the UTAUT were conducted. As such, this study established the viability of isolating technical infrastructure and trust in technology as variables that could facilitate and influence the eventual usage of new technology such as the POS in Nigeria. Such useful insight can be used to develop models for future hypotheses in the study of the adoption of technology especially in locations that share similar context with Nigeria including countries within ECOWAS and other developing countries.

1.7 Scope of the Study

The study focused on retail shoppers in Nigerian who are holders of payment cards popularly called ATM Cards. One modern retail shop was studied in each of the country's six geopolitical zones.

1.8 Limitations of the Study

Even though the literature review is extensive and careful attention was taken in designing and carrying out the field survey, this study has some limitations. Firstly, this was a single study conducted for users of POS in Nigeria. Therefore, the results should be considered with caution when applying it to other types of technology or in other countries. It is possible that the outcome may have been influenced by the nature of POS used for financial transactions. Some attributes that apply to technology used for financial transaction may not apply to technologies used for non-financial transactions. Secondly, this study modified and extended the UTAUT variable of Facilitation Conditions to Technical Infrastructure and Trust in Technology. Further studies might incorporate other factors that might better explain the adoption of POS in Nigeria. Factors that take into consideration the cultural disposition of Nigeria and Nigerians may very much yield a different result. Thirdly, data used for this study was collected from modern shopping malls in the selected states across the six geopolitical zones of the country, thus making it cross-sectional. The longitudinal method of data collection might serve as a better approach for collecting data in the future. Future research could address these issues and extend the model by integrating constructs such as perceived financial risk and culture.

1.9 Definition of Key Terms

Some important terms in this study are defined below:

Adoption - is the acceptance and continued use of a product, service or idea (Sathye, 1999).

ATM - means Automated Teller Machine. It is a banking terminal that accepts deposits and makes cash payment when it is activated to do so through an acceptable payment card or codes.

Intention- is used interchangeably with Behavioural Intention to mean plan or likelihood that someone will behave in a particular manner in specific situations – they may or may not do so. It represents the measure of a person's relative strength of intent to perform a behaviour.

Modern Shopping Malls – Are recently built retail centres with a collection of different retailers (merchants) who occupy different units of stalls that form a complex with interconnectivity, where customers visit daily and can move freely from unit to unit to conduct their shopping and other businesses.

Payment cards - also called electronic payment cards or **ATM cards (as they are called in Nigeria)** are cards issued by a financial institution for making payments. Payment cards are used for performing transactions such as deposits, cash withdrawals, settlements through acceptable platforms such as ATMs, POS, and online payment gateways, etc.

Perceived POS Performance- is used interchangeably with Performance Expectancy to mean how an individual believes that POS will help achieve the task of making payment better.

Perceived POS Ease of Use- is used interchangeably with effort expectancy to mean the degree of ease people associate with using a POS for making payment.

Point of Sale (POS)terminal- is an electronic device also known as POS terminal, which is used by Retail Shoppers to make payments at a retail merchant's location or shop utilising a payment card.

Retail Shoppers - are individuals that buy things from retail merchants. They are the consumers of POS terminals who possess payment cards popularly known as ATM cards which they use to make payment on the POS.

Technical Infrastructure- is used interchangeably with facilitating conditions to mean perceived enablers or barriers in the environment that influence the workability and usability of technology. They are organisational and technical infrastructure that is available to support the use of a POS or a new technology excluding trust considered as the individual's factors.

REFERENCES

- Aliyu, A. A., Younus M.D. & Tasmin R.B. (2013). An exploratory study on adoption of electronic banking: Underlying consumer behaviour and critical success factors. /Case of Nigeria. *Business and Management Review*, 2(1), 1–6. Retrieved January 10, 2014, from <http://www.businessjournalz.org/bmr>
- Akintunde, O. A. & Agbo, P. O. (2016). Analysis of the adoption and usage Of POS terminals by hotels in Jos metropolis, North Central Nigeria. *Academic Open Business & Management Research Journal*, 1(1), 1 – 14. Retrieved May 10, 2016, from: <http://www.akrpub.com/Journals.php>.
- Adeoti, O & Osotimehin, K. (2012). Adoption of point of sale terminals in Nigeria: Assessment of consumers' level of satisfaction. *Research Journal of Finance and Accounting*, 3(1), 1-5.
- Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In *Action control* (pp. 11-39). Springer Berlin Heidelberg.
- Bandura, A. (1986). *Social foundations of thought and action*. New Jersey: Prentice- Hall, Inc.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 1175-1184.
- Bhattacharjee, A. (2002). Individual trust in online firms: Scale development and initial test. *Journal of Management Information Systems*, 19(1), 211–241.

- Bhatiasevi, V. (2015).An extended UTAUT model to explain the adoption of mobile banking.Retrieved March 11, 2015, from: Sagepub.co.uk/journals from idv.sagepub.com at Lagos Business School PARENT.
- Central Bank of Nigeria (CBN) (2010).Consolidated annual reports of the Central Bank of Nigeria 2006 – 2010.Retrieved March 28th, 2015, from: [http://www.cenbank.org/consolidated+ annual+ reports+ of +the+ central bank+ of+ nigeria+ 2006 – 2010.pdf](http://www.cenbank.org/consolidated+annual+reports+of+the+central+bank+of+nigeria+2006-2010.pdf).
- Central Bank of Nigeria (CBN) (2012).Annual reports of the Central Bank of Nigeria 2011. Retrieved March 28th, 2015, from: [http://www.cenbank.org/ annual+ reports+ of +the+ central bank+ of+ nigeria/2011/...](http://www.cenbank.org/annual+reports+of+the+central+bank+of+nigeria/2011/...)
- Central Bank of Nigeria (CBN) (2013).Payment system vision 2020 release 2.0. Central Bank of Nigeria September 2013.Retrieved March 28th, 2015, from:[http://www.cbn.gov.ng/icps2013/papers/NIGERIA PAYMENTS S YSTEM VISION 2020%5Bv2%5D.pdf](http://www.cbn.gov.ng/icps2013/papers/NIGERIA_PAYMENTS_SYSTEM_VISION_2020%5Bv2%5D.pdf).
- Chiemeke, S. & Ewwiekpaefe, A. (2011). A Conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) Model with Nigerian factors in E-commerce adoption. *Educational Research*, 2(12), 1719-1726.
- Cody-Allen, E. & Kishore, R. (2006).An extension of the UTAUT model with E-Quality, trust & satisfaction constructs. Proceedings of the 2006 ACM SIGMIS CPR conference on computer personnel research: Forty-four years of computer personnel research: achievements, challenges & the future 82-89, Retrieved March 20th, 2015, from:<http://portal.acm.org/citation.cfm?id=1125115>.
- Davis, F.D. (1986) Technology acceptance model for empirical testing, new end-user information system: Theory and results. Cambridge, MA: MIT Sloan School of Management.

- Davis Jr, F.D. (1986). *A technology acceptance model for empirically testing new end-user information systems: Theory and results* (Doctoral dissertation, Massachusetts Institute of Technology).
- Davies, F., Moutinho, L., & Curry, B. (1996). ATM users' attitudes: A neural network analysis. *Marketing Intelligence & Planning*, 14(2), 26-36.
- Deci, E. & Ryan, R., (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Dulle F. W & Minishi-M.(2011). The Suitability of unified theory of acceptance and use of technology (UTAUT) model in open access adoption studies. *Information Development*, 27(1), 32 – 45.
- Hasan A. S. Baten A. Kamil A.A. & Parveen S. (2010). Adoption of e-banking in Bangladesh. *African Journal of Business Management*, 4(13), 2718-2727, Retrieved January 11, 2014, from: <http://www.academicjournals.org/AJBM>.
- Henley, N. Raffin, S.& Caemmerer, B. (2011). The application of marketing principles to a social marketing campaign. *Marketing Intelligence & Planning*, 29(7), 698-706.
- Islam, R., Kumar, S., & Biswas, P. K. (2007). Customer satisfaction of ATM Service: A case study of HSBC ATM. Retrieved September 20, 2013, from: http://papers.ssra.com/sol3/papers.cfrn?abstract_id=990242
- KPMG. (2012). Banking industry customer satisfaction survey. Retrieved April 3, 2015, from <http://www.kpmg.com/ng/en/pages/bankingindustrycustomersatisfactionsurvey.aspx>.

- KPMG (2013).Banking industry customer satisfaction survey. Retrieved April 3, 2015from:<http://www.kpmg.com/ng/en/pages/bankingindustrycustomersatisfactionsurvey.aspx>.
- KPMG (2014).Banking Industry Customer Satisfaction Survey. Retrieved April 3, 2015: from:<http://www.kpmg.com/ng/en/pages/bankingindustrycustomersatisfactionsurvey.aspx>.
- Madu, C.N. & Madu, A.A. (2002).Dimensions of e-quality.*International Journal of Quality& Reliability Management*, 19(3), 246-58.
- Mayer, R. C., Davis, J. H. & Schoorman, F. D. (1995).An integrative model of organisational trust.*Academy of Management Review*, 20, 709-734.
- Mishra S. K. & Sahoo, D.P. (2013).Mobile banking adoption and benefits towards customer service.*Special Issue of International Journal on Advanced Computer Theory and Engineering (IJACTE)*, 2(1), 78 – 83. Retrieved January 1, 2014, from:www.irdindia.in/Journal_IJACTE/PDF/Vol2_Iss1/16.pdf.
- Ndlovu I.,& Mlungisi S. (2013). Benefits and risks of e-banking: Case of commercial banking in Zimbabwe. *The International Journal of Engineering and Science (IJES)*, 2(4), 34-40.
- Newlyn, W.T. & Rowan, D.C. (1994). *Money and banking in British Colonial Africa*. Oxford: Clarendon Press.
- NIBSS (2015), POS adoption and usage: A study on Lagos State, Lagos. Retrieved June 12, 2015, from:<http://www.nibss-plc.com.ng/wp->

content/uploads/2015/05/NIBSS-2015-POS-Adoption-Study-Lagos-State.pdf
accessed 12/06/2015.

Nigeria Communications Weekly report of May 19, 2014. Retrieved June 20, 2015, from: <http://nigeriacommunicationsweek.com.ng/e-financial/banks-merchants-invest-80m-on-pos-terminals>

Oliveira T, Faria, M, Thomas, M. A. & Popovic, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International Journal of Information Management* 34(5), 689–703.

Omoniyi, J.U. (2012). E-banking marketing and practices in Nigeria: A performance appraisal. *International Journal of Bank Marketing*, 22(6), 36 -48.

Omotayo F. & Dahunsi O. (2015). Factors affecting adoption of point of sale terminals by business organisations in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 5(10), 115-136. Retrieved December 12, 2015, from:
http://hrmars.com/hrmars_papers/Factors_Affecting_Adoption_of_Point_of_Sale_Terminals_by_Business_Organisations_in_Nigeria.pdf.

Onoja, I.R. (1998). The contributions of research development in the banking industry in Nigeria. *Nigerian Journal of Management Research*, 210.

Ovia, J. 2006. IT development as corporate strategy in repositioning Banks in Nigeria. *Zenith Economic Quarterly*, 1(7), 11- 14.

Oyewole, O S. Abba, M., El-maude, J. G. & Arikpo, I. A. (2013). E-banking and bank performance: Evidence from Nigeria. *International Journal of Scientific Engineering and Technology*, 2(8), 766-771.

- Parisa, A. (2006). Adoption of e-banking services by Iranian customers. Unpublished M.Sc thesis. Lulea University of Technology, Division of Industrial Marketing and E-Commerce.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.
- Sathye, M. (1999). Adoption of internet banking by Australian consumers: An empirical investigation. *International Journal of Bank Marketing*, 17 (7), 324-334.
- Sripalawat, J., Thongmak, M. & Ngramyarn, A. (2011). M-banking in metropolitan Bangkok and a comparison with other countries. *Journal of computer information systems*, 51(3), 67-76.
- Uche, C. U. (1999). Foreign banks, Africans and credit in Colonial Nigeria 1890-1912. *The Economic History Review New Series*, 52(4), 669-691.
- Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.
- Venkatesh, V., Thong, J.Y. & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS quarterly*, 36(1), 157-178.
- Wang, C., Lo, S. & Fang, W. (2008). Extending the technology acceptance model to mobile telecommunication innovation: The existence of network externalities. *Journal of Consumer Behaviour*, 7(2), 101-110.
- Wessels, L. & Drennan, J. (2010). An investigation of consumer acceptance of M-banking. *International Journal of Bank Marketing*, 28(7), 547 – 568
- Yang, A. S. (2009). Exploring adoption difficulties in mobile banking services. *Canadian Journal of Administrative Sciences*, 26(2), 136-149, 2009.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter is a review of literature related to the study. In carrying out the literature review, a conceptual framework was laid out, and a model developed for the study. Key psychological and marketing concepts that relate to consumer behaviour and technology adoption were discussed. Also, an empirical review of existing studies in the subject area was carried out. This chapter comprises of six sections organised as follows:

- ❖ Conceptual Framework
- ❖ Conceptual Interpretations
- ❖ Empirical Review
- ❖ Operationalization
- ❖ Gap in Literature
- ❖ Summary

2.2 Conceptual Framework

The rationale for marketers to study adoption is to understand consumer behaviour. Understanding consumer behaviour enables marketers to provide goods and services that mostly satisfy their needs and wants -

goods and services that will be most acceptable to the consumers. Over the years, various scholars have studied technology adoption processes in different contexts and have developed useful theories to explain the human behavioural attributes at work in those processes and contexts. Literature suggests that three major disciplines – Psychology, Sociology and Information Systems have contributed to the development of models and theories to address technology acceptance, adoption and usage. While Psychology and Sociology focus on technology acceptance behaviour, Information Systems focuses on systems' characteristics about technology acceptance.

Evidence from the literature suggests that the theories most directly related to the adoption of the new technology include:

The Theory of Reasoned Action (TRA) by Ajzen and Fishbein (1980), the Diffusion of Innovation theory (DIT) by Rogers (1983), the Theory of Planned Behaviour (TPB) by Ajzen (1985), and the Technology Acceptance Model (TAM) by Davis (1989). However, in recent times, scholars have adopted a unified approach using the Unified Theory of Acceptance and Use of Technology (UTAUT) which was developed by Venkatesh, Morris, Davis, and Davis (2003). The UTAUT model is a synthesis of all the theories above and models, as well as their extensions and other models. These include the Decomposed Theory of Planned Behaviour (DTPB) (Taylor & Todd, 1995a b), Social Cognitive Theory, SCT (Bandura, 1989), Motivational Model, MM (Deci & Ryan, 1985), and Triadis' Model of PC Utilisation, MPCU (1979). Hence, the UTAUT model is adopted as the conceptual model for this research.

2.2.1 Conceptual Model

The UTAUT model was developed to address the weaknesses and limitations of previous theories and models used in the study of adoption. Venkatesh et al. (2003) noticed that researchers were confronted with a choice among a multitude of models in the study of technology adoption. Researchers were bound to choose constructs across models or choose favoured models, thus ignoring the contribution from alternative ones. They felt the need for a unified view of users' acceptance of new technology. Venkatesh et al. (2003) synthesised the eight dominant models that have been used to explain technology

acceptance behaviour. These models included TRA, TPB, TAM, combined TAM - TPB, DOI, SCT, MM, and MPCU. Following the review, the authors reported five limitations of prior model tests and comparisons and addressed them in their work. These limitations include:

- I. The technologies studied in these previous studies were individual-oriented and straightforward as opposed to complex and sophisticated organisational technology.
- II. Most participants in these studies were students.
- III. Time of measurement was general. In most of the studies, the time was well after acceptance or rejection of the usage decisions. Therefore, individuals' reactions were retrospective.
- IV. The nature of measurements was cross-sectional
- V. Most of the studies were conducted in voluntary usage contexts making it somewhat difficult to generalise results to mandatory settings (Venkatesh et al., 2003).

The authors then conducted longitudinal field studies in which they empirically compared the eight models. Four different organisations were involved in the study. The sample consisted of individuals introduced to new technology in the workplace. The measurement for the study was carried out at three different points in time - post-training, one month and three months after implementation. Over the six-month post-training period; the actual usage behaviour was measured. Data collected were divided into two groups for the eight models according to the mandatory and voluntary settings and studied the effect of some moderating variables that have been reported in previous research to affect the usage decision. These were experience, voluntariness, age, and gender.

The Results showed that the predictive validity of the models with exception to Motivational Model (MM) and Social Cognitive Theory (SCT) improved after including the moderators. The authors then examined commonalities among the models and found seven constructs which are significant direct determinants of intention or usage in one or more of the individual models. Four of these constructs were hypothesised as direct

determinants of user acceptance and usage behaviour. The constructs that they found to have a direct effect on behavioural intentions and usage are - *performance expectancy*, *effort expectancy*, *social influences*, and *facilitating conditions*. Drawing from user acceptance literature and results of models' comparison, the authors hypothesised that - attitude, computer self-efficacy, and anxiety do not have a direct effect on behavioural intention. They identified four moderators - gender, age, experience and voluntariness. The relationships that exist in the UTAUT can be seen in Figure 2.1.

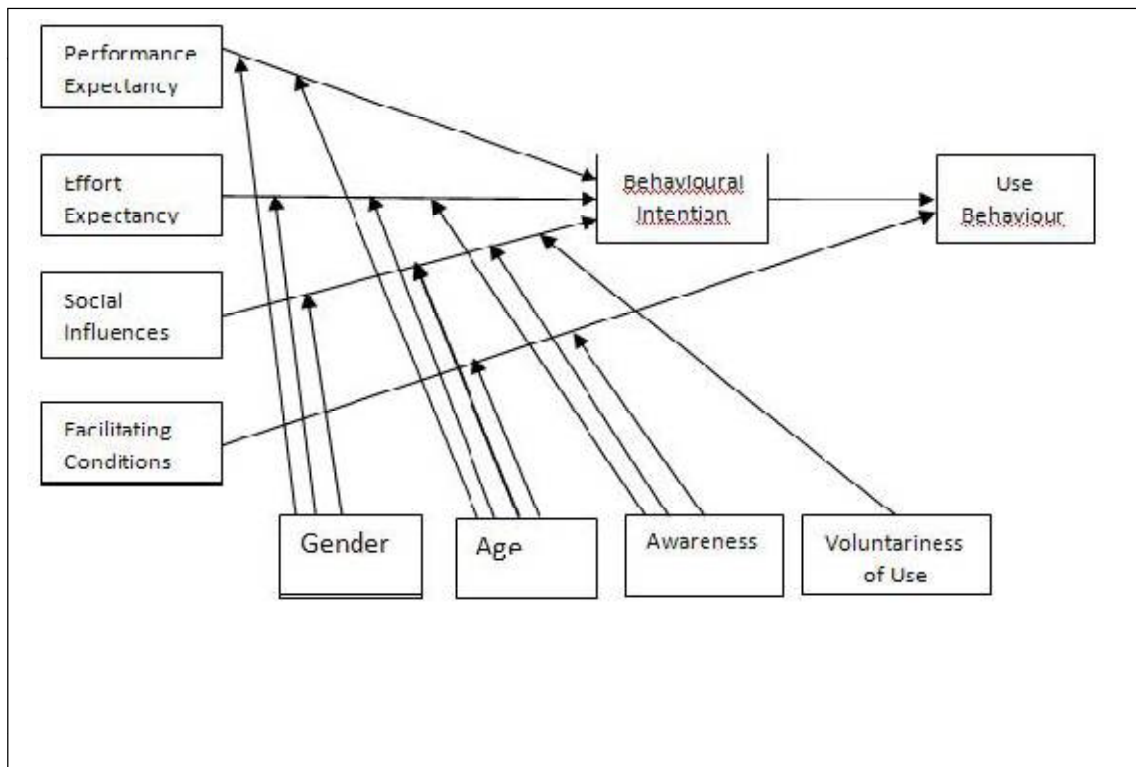


Fig. 2.1: The Unified Theory of Acceptance and Use of Technology (UTAUT) Model I

Source: Venkatesh Viswanath, Morris Michael G., Davis Gordon B., Davis Fred D., (2003)"User Acceptance of Information Technology: Toward a Unified View", *MIS Quarterly* 27 (3), 447

The model has four exogenous variables - performance expectancy, effort expectancy, social influences, and facilitating conditions; two endogenous variables - intention to use technology and user behaviour and four moderators - gender, age, experience and voluntariness.

2.2.1.1 Performance Expectancy (PE)

Performance Expectancy deals with the degree to which an individual believes that using the system will help him/her to attain gains in job performance. It relates to how individuals believe new technology will help them perform their job better (Venkatesh et al., 2003: 447). The constructs in the other models that relate to performance expectancy are perceived usefulness (Technology Acceptance Model, and combined TAM-TPB), extrinsic motivation (Motivational Model), job-fit (Model of PC Utilisation), the relative advantage (Diffusion of Innovation), and outcome expectancy (Social Cognitive Theory). Within each of these models, performance expectancy was the strongest predictor of intention. It remained significant at all points of measurement both in involuntary and mandatory settings.

Some technology acceptance studies have acknowledged the strength of this factor in predicting behavioural intention. For instance, Oliveira, Faria, Thomas and Popovic (2014: 697), validated the positive influence of performance expectancy on behavioural intention. In their study of mobile banking adoption in Portugal, the authors found that “the user sees performance expectancy as one of the most important factors in the acceptance of mBanking.” However, contrary to the findings of the initial UTAUT research, they found that performance expectancy was the only construct from the UTAUT model confirmed to influence behavioural intention. Researchers such as Zhou, Lu, and Wang (2010); Dulle and Minishi-Majanja (2011); Escobar-Rodriguez and Carvajal-Truzillo (2014); and Bhatiasavi (2015) have also validated the positive influence of performance expectancy on behavioural intention.

Within the context of POS adoption, performance expectancy model shows that users’ perception of POS can be based on convenient payment, fast response, and the effectiveness of the service (Zhou et al., 2010). It relates to users’ perceived usefulness of the POS machine. Perceived POS performance reflects in how users see the POS technology as useful such that it would help them in making payment faster and more productively in a convenient manner. Many previous studies validated this construct. For instance, in a study of the challenges facing Internet banking acceptance in Hong Kong, Liao and Cheung (2002: 285) characterised the attributes of usefulness regarding “service delivery speed, time-saving and accuracy”. Considering the prevalent use of the UTAUT

model in the study of adoption, there seems to have been a general consensus among researchers in this area that customer perception of the utility and relevance of any technology is a significant motivator for the adoption of such technology (Zhou et al. 2010; Bhatiasavi, 2015; Venkatesh, 2015). Moreover, there is no evidence in the literature to suggest that the influence of performance expectancy is restricted to a particular technology, country or culture.

2.2.1.2 Effort Expectancy (EE)

Effort Expectancy deals with the degree of ease associated with using a system. It relates to the degree of ease or difficulty associated with the use of the system (Venkatesh et al., 2003: 450). In the other models, effort expectancy relates to perceived ease of use (Technology Acceptance Model), complexity (Diffusion of Innovation and Model of PC Utilisation) and ease of use (Innovation Diffusion Theory). The construct in each of these individual models was significant in both voluntary and mandatory settings. As expected, from the literature it was significant only during the post-training measurement. Effort expectancy is believed to affect technology adoption during early stages significantly but becomes non-significant over periods of extended and sustained usage (Rogers, 2003; Venkatesh et al., 2003).

According to Venkatesh et al. (2003: 451), evidence from past literature indicated that the influence of effort expectancy on behavioural intention is stronger in older workers and young women. Based on the literature, the influence of effort expectancy on behavioural intentions is hypothesised to be moderated by gender, age, and experience; such an effect would be stronger for young women and older workers at early stages of experience (Venkatesh et al., 2003: 451). Several received studies have confirmed a positive relationship between effort expectancy and behavioural intention. For instance, Bhatiasavi (2015: 9) in his extension of the UTAUT validated the positive influence of effort expectancy on behavioural intention. Other studies such as Predicting the uptake of technology innovations in online family dispute resolution services (Casey & Wilson-Evered, 2012); examining online ticket purchasing for low-cost carriers (Escobar-Rodriguez & Carvajal-Truzillo, 2014); and examining the factors that affect the acceptance and use of interactive whiteboard (Tosuntas et al. 2015) also confirmed this positive relationship.

In the context of POS users' adoption, it will be based on how they perceive POS as being easy or difficult to use regarding their interaction with the machine and how they believe they can learn and become skilful at using it. It is characterised by the amount of effort an individual perceives that they will need to put forth to use the POS (Chiemeké & Ewwiekpaefe, 2011). The alternative to making payment with POS in Nigeria will be to pay with cash, cheques or by other forms of electronic transfers. However, cash is the predominant way for making payments in Nigeria; especially retail payments (Ovia, 2002). This method is due to the 'cash and carry' nature of the Nigerian economy (Ayo & Babajide, 2006).

As such, the effort that people consider they would need to put forth to use POS could be an important factor in people choosing to use POS; especially where they find it handy to use cash. It is evident from the literature that the easier the process of using technology, the more users are likely to try it out and to use it (Bhatiasévi, 2015). Many scholars that have researched adoption of technology have used the construct of effort expectancy which is similar to ease of use (e.g. Casey & Willson-Evered, 2012; Bhatiasévi, 2015). Evidence from the literature tends to ascribe an underpinning universality that performance expectancy and effort expectancy are the two primary determinants of technology adoption. The two are similar to perceived usefulness and perceived ease of use in TAM. Hence, this study assumes that they are as good a universal motivator of technology adoption and will apply to POS adoption in Nigeria.

2.2.1.3 Social Influence (SI)

Social Influence deals with the degree to which an individual perceives that important others believe he/she should use the new system or the people that influence them believe they should use the new system. It relates to how an individual is affected by his/her peers (Venkatesh et al., 2003: 451). In the existing models, social influence is represented by:

Subjective norms (Theory of Reason Action, Technology Acceptance Model 2, Theory of planned behaviour/Decomposed Theory of Planned behaviour, and Combined Technology Acceptance Model/Theory of planned behaviour)

Social factors (Model of PC Utilization), and

Image (Diffusion of Innovation).

The comparison between these models found that this construct behaved similarly (Venkatesh et al., 2003).

Social influence was found to be insignificant in voluntary contexts. However, it becomes significant when used in mandatory context. The literature suggests that in mandatory contexts, the effect is attributed to compliance. It appears to be important only in the early stages of individual's experience and when rewards/punishment are applicable. On the other hand, social influence in voluntary contexts operates by influencing perceptions about the technology (what is known as internalisation and identification). Again, based on the literature, the influence of social influences on behavioural intentions is hypothesised to be moderated by gender, age, voluntariness and experience; such an effect would be stronger for women, especially in mandatory settings in the early stages of experience (Venkatesh et al., 2003). Social influence has been established to significantly affect the adoption of technology in both voluntary and involuntary contexts (Bhatiasavi, 2015). Previous studies by Yu (2012) on mobile banking adoption, Thomas et al. (2013) on mobile learning adoption and Escobar-Rodriguez and Carvajal-Trujillo, (2014) on examining online ticket purchasing for low-cost carriers, concluded that there was a positive relationship between social influence and behavioural intention. This relationship was also proposed and confirmed by Venkatesh et al., (2003).

Social Factor influence is premised on people's relationship with others. It deals with how an individual is affected by other people that are important to them. People have an influence on each other which shapes their subjective norms (Wu et al., 2012). Social influence relates to how users may be influenced by others who are important to them or who they value their opinion. Thus, including, for example, the staff of a retail shop that handles the POS machine. It is possible that a consumer may not want to use a POS if the staff of a merchant store does not display a positive attitude towards the machine. Evidence from the literature suggests that many researchers have examined social factors influence in various locations in their study of adoption (examples include Ismail & Razak, 2011; Thomas et al. 2013; Attuquayefio, Achampong & Aryeetey, 2014). Additionally, there is no evidence in the literature to suggest that the social influence as a factor is restricted to any one particular country or culture. Therefore, one can assume that Social factor influence is potentially a good motivator of POS adoption in Nigeria.

2.2.1.4 Facilitating Conditions (FC)

Facilitating Conditions deals with the degree to which an individual believes that organisational and technical infrastructure exists to support the use of a system (Venkatesh et al., 2003: 453). Facilitating conditions relate to four different constructs in existing models – including perceived behavioural control (Theory of Planned Behaviour, Decomposed Theory of Planned Behaviour and Combined Technology Adoption Model-Theory of Planned Behaviour), facilitating conditions (Model of PC Utilisation), and compatibility (Diffusion of Innovation). The comparison between these models revealed that the relationship between intention and this facilitating conditions in each model is similar in both voluntary and mandatory settings in the first training period. However, such influence disappears in the second period (one month after implementation).

The literature suggests that when both performance expectancy and effort expectancy constructs are present, facilitating conditions become insignificant. Consistent with Theory of Planned Behaviour/Decomposed Theory of Planned Behaviour, facilitating conditions are also direct antecedents of usage. This attribute can also be found in MPCU. This effect is expected to increase with experiencing the new technology and as users find multiple avenues for help and support. Hence, the influence of facilitating conditions on usage is hypothesised to be moderated by age and experience, and the effect would be stronger for older workers who have gained increased experience with the new system (Venkatesh et al., 2003). Facilitating conditions have been established to positively impact actual usage of technology rather than behavioural intention (Venkatesh et al., 2003; McKenna et al., 2013; Oliveira et al., 2014; Bhatiasavi, 2015; Tosuntas et al., 2015). A positive relationship between facilitating conditions and usage, behaviour was confirmed by several studies such as the adoption of information services (McKenna et al., 2013), the adoption of mobile banking (Oliveira et al., 2014), as well as examining factors that affect the acceptance and use of interactive whiteboards (Tosuntas et al., 2015).

Facilitating conditions deal with the availability of organisational and technical conditions that support the use of POS. According to Fathema, Shannon and Ross (2015), facilitating conditions are the factors stated as “perceived enablers or barriers in

the environment that influence a person's perception of ease or difficulty of performing a task" (Ngai, Poon & Chan, 2007; Teo, 2010). Venkatesh and Bala (2008: 44) elaborated it as "...individuals' control beliefs regarding the availability of organisational resources and support structures to facilitate the use of a system". They include such things as the help the people believe they will get when they use POS including when a problem arises in the process of using the machine. Or when there are difficulties with using the machine and other technical issues such as the network being available to facilitate the workings of the POS machine (Chiemeké & Ewwiekpaefe, 2011). From the literature review, facilitating conditions will have a direct influence on usage rather than on the intention (Venkatesh et al., 2003). Facilitating conditions is considered to be important for actual usage to happen. It is conceptualised to have a direct influence on the actual usage of the POS and not on intention. For instance, while a consumer may intend to use the POS because they perceive it as useful and easy to use with social factors being available to influence its use, the consumer may not use the POS if the facilitating conditions are not available and the POS does not work. In the Nigerian context, Network issue and electricity issues present concerns in the workings of POS (Chiemeké & Ewwiekpaefe, 2011).

Facilitating conditions have been adopted in several previous studies of technology adoption that used the UTAUT model even though the results show some level of variances and disagreement (Teo (2010; McKenna et al., 2013; Oliveira et al., 2014; Bhatiasavi, 2015; Tosuntas et al., 2015. In the original UTAUT study, Venkatesh et al. (2003) observed that the result varied in voluntary and involuntary settings. In some instances, facilitating conditions were also found to be inconsequential in situations where performance effort expectancy was present (Venkatesh et al., 2003). On the other hand, Teo (2010) revealed that facilitating conditions have a significant effect on perceived ease of use (PEOU). It will be interesting to find out how facilitating conditions will apply in the context of POS adoption in Nigeria which is a voluntary setting. Therefore, it is justified to have included this construct in the study.

2.2.1.5 Intention

Behavioural intention measures a person's relative strength of intent to perform a behaviour. Behavioural intention relates to four different constructs in existing models before UTAUT – including Attitude towards Behaviour in TRA, C-TAM and TPB, and Intrinsic Motivation in MM. In line with the theory of reasoned action (TRA) Venkatesh et al., (2003) noted that behaviour is predicted by an individual's intention to engage in a given behaviour. According to Fishbein and Ajzen (1975), the intention is predicted by two factors - the individual's attitude towards the behaviour and the subjective norm. An intention represents a plan or likelihood. The intention is the plan or likelihood that someone will behave in a particular manner in specific situations – they may or may not do so (Al Qeisi & Al-Abdallah, 2013).

The literature suggests that a person who is thinking about using a technology product intends or plans to use it, but may or may not follow through on that intent. In order to understand the behavioural intent seen as the primary determinant of behaviour, it is important to look at a person's (or population's) attitudes towards that behaviour, in addition to the subjective norms of influential people and groups that could influence those attitudes (Venkatesh et al., 2003). To predict if a person that intends to use a technology will use it or not, the TRA for example would explore the person's attitude about using the given technology device. i.e., (if the individual's attitude is positive or negative) as well as norms that the individual perceives from people around them (e.g., family, colleagues, friends, etc.). Considering whether or not this would be a good thing to do. Following the theory of reasoned action, attitudes and norms are the main influences on intention, and intention is the main motivator of behaviour (Miller, 2005). In bringing several models together, Venkatesh et al., (2003) linked performance expectancy, effort expectancy and social influence to have a direct effect on intention.

2.2.3 Justification for the Adoption of UTAUT Model

A synthesis of the UTAUT reveals a great effort by the authors in integrating the fragmented theories and research on acceptance of information technology, and on individual acceptance, into a unified theoretical model. The literature has revealed that each of the technology adoption models has a different investigative thrust towards the

technology adoption process. However, there are some common threads and themes among them which the UTAUT has brought together. An important observation to be noted is the ability the UTAUT model to distinguish between two types of models. On the one hand are models that can be said to be parsimonious, such as TAM (Davis, 1989) but lack the comprehensiveness needed to consider them sufficient or complete. On the other hand, are models that are comprehensive and cover a majority of constructs contributing to the acceptance behaviour, such as Triandis (1979) and Vallerand, (2000) but are considered complex and impractical to apply in a single investigation (Oliveira, Faria, Thomas & Popovic, 2014). Between these two extremes, is the UTAUT considered parsimonious and comprehensive because it can explain more of the variance in usage intentions than any of its predecessor models.

By synthesizing eight main models and theories used in the study of adoption, Venkatesh et al.'s original research found that the UTAUT model explains up to 70% of variance in usage intention. The other models accounted for between 17% to 53% (Venkatesh et al., 2003; Han et al., 2004,). The strong theoretical foundation, comprehensiveness, and the rigour that went into developing the UTAUT model is the reason it stands out as a primary tool used by researchers (Schaper & Pervan, 2007). Given that the UTAUT is a synthesis of existing theories, it is considered to perform in importance, novelty and falsifiability dimensions (Venkatesh, Thong & Xu, 2016).

The UTAUT argument is that intention is antecedence to the usage of new technology. That is, it is when an individual develops an intention to use a given technology that they will go ahead to use it. In other words, the UTAUT argues that the key factor that determines user acceptance and use of technology is the user's intention (Zhou, 2008). However, of the four key variables identified to influence usage, the UTAUT model holds that the variable of performance expectancy, effort expectancy and social influence have a direct influence on intention. Of these predictors, performance expectancy is the strongest predictor of attitude toward use and behavioural intentions (Jeng & Tzeng, 2012). Several studies before and after the model were established tend to agree with this (Han et al., 2004; Schaper & Pervan, 2007; Oliveira, Faria, Thomas & Popovic, 2014; Bhatiasavi, 2015). Effort expectancy is equally vital towards the introduction and acceptance of new technology (Bhatiasavi, 2015).

Evidence from the literature tends to ascribe an underpinning universality that performance expectancy and effort expectancy are the two primary determinants of technology adoption (Oliveira, Faria, Thomas & Popovic, 2014; Bhatiasavi, 2015). The two are similar to perceived usefulness and perceived ease of use in previous models such as TAM. Therefore, in conducting adoption research, it can be assumed that there are a universal motivator of technology adoption and will apply to POS adoption in Nigeria. The adoption process of the new technology can be constraining if

- a. the developer of a given technology fails to take into consideration its usefulness to the users, or the ease of handling.
- b. If people that wish to introduce it fail to take into consideration the factors that are related to users' perception of its usefulness or its ease of use (Orlikowski, 1992). The influence of social factors is well noted in the UTAUT model. Social influence acts as a direct determinant towards an intention to use new technology. Friends and family members are likely to influence an individual's decision to adopt or not adopt new technology.

The intention has a direct influence on actual usage, but it is different from usage. The intention will reflect in an individual anticipating to use a technology such as POS, wishing to use the POS, planning to use the POS or feeling that they will be using the POS. On the other hand, adoption of POS will reflect in actual action of using POS, always using POS and expecting to continue to use POS. It is only when a person intending to use POS begins to use it that they can be said to have adopted POS. Therefore, intention represents an individual's determination to use technology, whether or not they use it (Qeisi and Al-Abdallah, 2013). The UTAUT argues that when an individual intends to use technology, other conditions still need to be present. Venkatesh et al. (2003) termed these as facilitating conditions. Facilitating conditions are therefore the perceived enablers that make an individual use technology. They can be expected to include technical infrastructure that enables the use of technology and the individuals' feeling of trust towards the technology – Trust in technology (McKnight et al., 2011).

The fact that the UTAUT was able to explain 70% of the intention to use technology means that there is still room for further studies to expand it. Despite the validity of UTAUT in predicting consumer acceptance of various technology and its parsimony, it

has been argued that the UTAUT constructs do not fully reflect the specific influences of technological usage-context factors that may alter the usage intention and usage behaviour. Hence the reason why Venkatesh et al. (2003) recommended that future research should target at further developing and validating the model, with emphasis on revalidating or extending UTAUT with the new measures.

An analysis of research that has used the UTAUT model revealed that many of the studies had extended the variables to include other variables that were not part of the initial study. Many of the extension studies incorporated new variables predicting behavioural intention and technology use (i.e., new endogenous mechanisms). For instance, when studying consumers' use of mobile internet services, Venkatesh et al. (2012) incorporated hedonic motivation and price value as new predictors of behavioural intention and habit as a new predictor of both intention and technology use. There are also studies that extended the UTAUT with new moderation mechanisms. These new moderation mechanisms include individual differences (e.g., income, education, migration background (Niehaves & Plattfaut, 2010). Others are technology characteristics (e.g., ICT service type: Thong et al., 2011; type of recommender system: Wang, Townsend, Luse, & Mennecke, 2012), organisational-level factors (e.g., organisational facilitating conditions: Park, Lee, & Yi, 2011), and cultural differences (e.g., Korea vs. USA: Im et al., 2011). Bhatiasavi (2015) extended the UTAUT model to include perceived credibility, perceived cost and perceived convenience. Within the Nigerian context, Chiemeke and Ewuekpae (2011) recommended the extension of the UTAUT variables to include Nigerian factors which may be different from the factors used in studies done in other locations.

2.2.4 Technical Infrastructure and Trust as Nigerian factors

One key factor that could affect the adoption of POS technology in Nigeria is trust (Chiemeke and Ewuekpae, 2011). However, trust was not isolated as a factor in the existing UTAUT model. Following Chiemeke and Ewuekpae (2011) suggestion, it is thought that the UTAUT variable of facilitating conditions could be modified to include technical infrastructure and trust in the POS technology as Nigeria factors to gain a better understanding of POS adoption in Nigeria. Technical infrastructure would include organisational and technical conditions such as power, telecommunication

network, organisational and technical support that is available to facilitate the use of POS for payment, while trust represents the individuals feeling that the POS can be relied upon to make payment without any issues.

2.2.5 Trust in POS Technology

From the literature review, trust is considered an important element in financial transactions (Yousafzai, Foxall & Pallister, 2010). Trust is “an individual’s willingness to depend on another party because of the characteristics of the other party” (Rousseau, Sitkin, Burt & Camerer, 1998: 395). Such party can be an individual or an object on which the individual depend (Mcknight et al., 2011). Trust has been conceptualised as “trustor’s cognitive beliefs that result from observing the trustee’s action and attributing the cause of the behaviour to the trustee’s internal trust-related characteristics” (Mcknight, Cummings, & Chervany, 1998: 475). Komiak and Benbasat (2004) viewed trust from the emotional point of view and defined it as the extent to which an individual feels secure and confident about relying on the trustee. Trust represents an “individual’s willingness to accept vulnerability on the grounds of positive expectations about the intentions or behaviour of another in a situation characterised by interdependence and risk” (Ennew & Sekhon, 2007: 63). This willingness to be vulnerable may arise from a calculation of costs and benefits, an individual’s existing predisposition to trust, detailed knowledge and understanding of exchange partners and faith in social systems and institutions (Ennew & Sekhon, 2007).

Ennew and Sekhon’s (2007) definition combines both the emotional as well as cognitive dimensions of trust. Therefore, consumer trust can be described as a function of the degree of risk involved in the situation, and it is needful only in uncertain situations (Kesharwani & Bisht 2011: 305). Indeed, trust is fundamental in relations that involve uncertainty and risk (Fukuyama, 1995; Grazioli & Jarvenpaa, 2000). The use of POS in Nigeria may be highly uncertain because of several issues that relate to its use - such as non-availability of network facility for the transmission of the payments and lack of electricity to power the machine (Chiemeké & Ewuekpae, 2011). POS transactions depend heavily on banks, payment service providers, security policies, IT systems and other stakeholders such as the merchants and individuals who use the machines (KPMG, 2014).

The establishment of trust and confidence, therefore, play a significant role when providing financial services (Lee & Turban, 2001; McKnight, Choudhury & Kacmar, 2002; Yousafzai, Foxall & Pallister, 2010;). Yousafzai et al. (2010) have shown that trust reduces the risk of being taken advantage of by an e-vendor in online transactions. However, trust has been shown to enhance perceived risk. Early research by Pavlou (2003) showed that when an e-retailer can be trusted to show competence, integrity, and benevolence, there is much less risk involved in interacting with them. In general, trust improves the consumer's beliefs about e-retailer and the associated infrastructure. Hence, attenuating the perceived level of risks that are connected with the transaction process (Yousafzai Pallister & Foxall (2005); Yousafzai et al., 2009). When people trust others, they assume that those they trust will behave as expected, thus, reducing the complexity of the interaction (Yousafzai et al., 2010; Kesharwani & Bisht, 2012). Trust reduces risk beliefs about an electronic system. Perceived risk has a negative impact on behavioural intention and trust has a negative impact on perceived risk (Kesharwani & Bisht 2011).

However, trust is a complicated construct given that it deals with people's beliefs - trusting beliefs, (Joubert & Belle, 2013). Trusting beliefs are solid convictions that the trustee has desirable attributes to induce trusting intentions (Vidotto, Massidda, Noventa & Vicentini 2012). Trusting intentions, in turn, are a solid willingness to depend upon the trustee to induce trusting behaviours. Trusting behaviours are actions that demonstrate how a trustor relies upon a trustee, thereby avoiding any control. Trust is an important catalyst in many business relationships (Gu et al. 2009). Gu et al. (2009) suggest that trusting a technology allows consumers to see the value of that technology and encourages them to use it. Zhou (2011) associate high levels of trust with high levels of intention to use and affirms that initial trust supports usage intention (Ahmed, 2013; Hella, 2013). According to McKnight, et al., (1998) model, beliefs yield behavioural intentions, which in turn manifest in behaviour. The behavioural component of trust may be based on cognitive and emotional expectations about the behaviour of the trustee (e.g. Schlosser et al., 2006).

In trying to understand the nature of trust, researchers have developed various models for studying the concept. The model developed by McKnight & Chervany (2002) is

considered one of the strongest and recognisable, given that it has been referred to or cited by more than 1582 articles on Google as at December 13, 2015. The model was developed based on the analysis of 65 books and articles on trust. 23 in the fields of psychology/social psychology; 23 in the fields of sociology/economics/political science and 19 in either management or communications. Because each of these fields views the world differently, their concepts also differ, to reflect the nature of the research behind their origin (McKnight & Chervany, 2002).

Disposition to trust comes primarily from trait psychology, while the institution-based trust derives mainly from sociology. Disposition to trust relates to “the extent to which an individual displays a consistent tendency to be willing to depend on others in general across a broad spectrum of situations and persons” (McKnight & Chervany, 2002:45). Disposition to trust does not necessarily mean that the individual believes others to be trustworthy. Rather, it shows how an individual tends to be willing to depend on others. On the other hand, an Institution-based trust which originates from the sociology can be seen as “favourable conditions” it relates to the legal, regulatory, business and technical environment that an individual perceived to support success (McKnight & Chervany, 2002). It is founded on the tradition that people can depend on others because of structures, situations, or roles that provide assurances that things will go well. It signifies that the individual believes favourable conditions are in place that is conducive to situational success in an endeavour or aspect of one’s life (McKnight & Chervany, 2002). Just as people depend on people, people also depend on technology. Hence the reason why McKnight et al., (2011) argues for the consideration of trust in technology. According to McKnight et al. (2011), while trust in people deals with people’s attributes such as (competence, benevolence and ability), trust in technology deals with technology attributes such as (functionality, helpfulness and reliability). Trust in technology is therefore conceptualised as the attributes of the POS that makes the POS trustworthy, such that users can trust that the POS will work when they want to use it and that it can be relied upon to enable the payment in a way that they expect it without giving problems.

2.2.5.1 Trust in People vs Trust in technology

Despite the importance of trust in technology, extant literature revealed that researchers had focused more on trust in people without much regards for trust in technology. Trust in people differs from trust in technology. They differ regarding the nature of the object of dependence (McKnight et al. 2011). When one trusts a person, it involves a moral and volitional agent, but with the trust in technology, one trusts a human-created artefact with a limited range of capabilities that lacks volition, such as will and moral agency. Many of the existing researches on trust focused on trust in people. As such, researchers usually examined and defined trust regarding trust in people without regard for trust in the technology itself (McKnight et al. 2011). Therefore, the attributes developed for the study of trust are people attributes such as ability, benevolence, and integrity (Mayer et al., 1999). These were used to study initial trust and online buyer behaviour by Ho and Chen (2014), trust in websites, by Vance et al. (2008) and trust in online recommendation agents by Wang & Benbasat (2005).

McKnight et al. (2011) have argued that in trying to understand trust in technology, the concept of trust should be expanded and viewed not only from the concept of trust in people but also from the angle of trust in the given technology. Trust in technology relates to individuals depending on, or being willing to depend on the technology to accomplish a specific task because the technology has positive characteristics (McKnight et al., 2011). However, McKnight et al. (2011) noted that researchers had used human trust traits in the study of technology trust instead of technology trust traits.

According to McKnight et al. (2011), the reason why researchers have focused on people attributes is that it seems more “natural” to trust an individual than to trust technology. They argued that people present considerable uncertainty to the trustor because of their volition (i.e., the power to choose) which technology usually lacks. However, some researchers such as Friedman, Kahn and Howe (2000) seem to have stretched this idea to the extreme to create doubt about the viability of the trust in technology concept. According to Friedman et al. (2000:36) “People trust people, not technology.” Such extreme position by Friedman et al. assumes that trust exists only when the trustee has volition and moral agency – that is, the ability to do right or wrong. It also assumes that

trust is to be defined narrowly as “accepted vulnerability to another’s goodwill (or lack of goodwill) towards one.” (Friedman et al. 2000: 34). This view suggests that technology, without its will, cannot fit within this human-bound definition of what trust is. However, many of the definitions of trust in the literature extend beyond this narrow view (McKnight et al., 2011).

Trust situation occurs when an individual has to make himself/herself vulnerable by relying on someone else or an object, regardless of the individual or the object’s will or volition (McKnight et al., 2011). Therefore, if one can depend on an IT’s attributes under uncertainty, then trust in technology is a viable concept. Hence, similar to trust in people, trust in technology involves accepting vulnerability that a given technology artefact may or may not complete a task. Whether they involve people or technology, trust situations feature risk and uncertainty (McKnight et al., 2011: 3). Because trustors depend on either people or technology to complete a task, they lack total control over outcomes. There are risks involved when an individual has to depend on another. The trustor risks that the trustee may not fulfil expected responsibilities, intentionally or not. In doing this, the trustor relies on a person who may or may not intentionally fulfil their role under conditions of uncertainty (i.e., by moral choice).

Alternatively, an individual may also be relying on a technology that may not demonstrate the capability (i.e., without intention) to fulfil its role. For example, when an individual trust technology to enable payment, they become exposed to risk and uncertainties that are involved with the transmission of their data over the Internet and storing of their confidential data on a server. Regardless of what may cause a failure, technology users usually assume the risk of incurring negative consequences if a system or an application that support the payment fails to act as expected. Thus, a similar to the risks the trustor incurs if a human trustee fails to prove worthy of interpersonal trust. Therefore, both trusts in people and trust in technology involve risk (McKnight et al., 2011).

From the definition of trust, which is more accurately called trusting beliefs - that is beliefs that a person or object such as technology has the attributes necessary to perform as expected in a given situation (Mayer, Davis, & Schoorman, 1995). It follows that in

forming trust in people or technology, an individual considers different attributes of the object of dependence. Just as individuals do within people, users' assessments of attributes of technology reflect their beliefs about the ability of that technology to deliver on the promise of its objective characteristics (McKnight et al. 2011). Hence, in comparing trust in people and trust in technology, McKnight et al. (2011: 5) noted that users express expectations about different attributes:

- Competence vs Functionality – With trust in people, one assesses the efficacy of the trustee to fulfil a promise regarding their ability or power to do something for us (Barber, 1983) ... (but) With technology, users consider whether the technology delivers on the functionality promised by providing feature sets needed to complete a task (McKnight, 2005)] The competence of a person and the functionality of technology are similar because they represent users' expectations about the trustee's capability.
- Benevolence vs Helpfulness – With people, one hopes they care enough to offer help when needed (Rempel et al., 1985)... (but) Technology user's sense is no caring emotions because technology itself has no moral agency. However, users do hope that technology's help function will provide the advice necessary to complete a task, (McKnight, 2005). Evaluating helpfulness is important, because while most software has a help function, there may be substantial variance in whether users perceive the advice offered effectively enables task performance. Consequently, trusting beliefs in helpfulness represent users' beliefs that the technology provides adequate, effective, and responsive help.
- Predictability/Integrity vs Reliability – In both cases ... it is hoped that trustees are consistent, predictable or reliable (Giffin, 1967; McKnight, 2005). With people, predictability refers to the degree to which an individual can be relied upon to act predictably. This assumption is risky due to people's volition or freedom to choose. Although technology has no volition, it still may not function consistently due to built-in flaws or situational events that cause failures. By operating continually (i.e., with little or no downtime) or by responding predictably to inputs (i.e. printing on command), technology can shape users' perceptions of consistency and reliability.

The literature reviewed revealed that trust has been under-investigated in the study of adoption. Chiemeké and Ewuekpae (2011: 172) have recommended the inclusion of Nigeria factors - including trust in the study of technology adoption in Nigeria, in line

with calls by the original authors of the UTAUT model for the extension of the model to include other variables. Several researchers have responded and used the model in an extended format in previous research (e.g. Bhatiasavi 2015; Venkatesh et al. 2015 amongst others). Trust in technology is conceptualised to have a direct influence in facilitating the use of POS. Together with the technical infrastructure, they could be seen as part of the facilitating conditions that influence the use of POS. Therefore, trust in technology is included in the conceptual framework of this research as having a potential influence on the adoption of POS in Nigeria together with the technical infrastructure they could facilitate the use of POS by retail shoppers.

2.2.6 Moderating Variables

The literature indicates that other variables usually moderate the various core constructs of technology adoption. In the UTAUT model, the core variables are moderated by - gender, age, experience and voluntariness. Adoption research usually adopts moderating variables that apply to their specific research (Li and Kishore 2006; Bhatiasavi 2015). Within the POS adoption in Nigerian, it is expected that the variables will be moderated by - gender, age, occupation and level of education.

2.2.6.1 Gender

The literature indicates that different gender could behave differently towards the adoption of new technology. Many of previous studies have therefore included gender as moderators in their studies. Examples of these studies include factors explaining the acceptance, actual use and satisfaction of nurses using an electronic patient record in acute care settings (Maillet et al, 2014); understanding Internet banking adoption (Martins et al., 2014); exploring the determinants of home healthcare robots adoption (Alaiad and Zhou, 2014); understanding website design quality and usage behavior (Al-Qeisi et al, 2014); and investigating the critical factors for cloud-based e-invoice service adoption (Lian, 2015). Moreover, previous studies confirmed that women are more driven by ease of use and subjective norms while men are more driven by usefulness (Maillet et al., 2014). It will be interesting to find out gender relationship with the adoption of POS in Nigeria as such gender has been added to the conceptual framework of this research as a user factor that will be investigated in the study.

2.2.6.2 Age

Age is considered to moderate almost all the relationships within UTAUT (Venkatesh et al., 2003). From the literature, it appears that constructs of user acceptance models are different between young and old users considering the influence of age. It is obvious that older users refer to subjective norms more than young users, and are more likely to be driven by effort expectancy. Young users, however, are more realistic and they are usually more willing to try new technology (Chiemeké and Ewuekpae, 2011). It will be interesting to find out how age will relate to the adoption of POS in Nigeria. As such, age has been added to the conceptual framework of this research as a user factor that will be investigated.

2.2.6.3 Occupation

The literature suggests that the nature of people's occupation will influence their adoption of technology. Gholami and Ogun (2009) observed that it is a common proposition that occupation is used with other variables as critical factors that affect the adoption of technology. It is possible that people in formal employment and student who operate in an environment where there is more likelihood of using different technologies will be more inclined to use the POS. Also, it is expected that people who receive salaries through electronic payment may be more likely to use POS. It will be interesting to find out how different occupations related to the adoption of POS in Nigeria. As such, occupation is added to the conceptual framework of this research as a user factor to be investigated.

2.2.6.4 Education

Education level is one of the critical factors that affect the adoption of technology (Gholami and Ogun, 2009). Thus, Chiemeké and Ewuekpae (2011) proposed an extension of the UTAUT from the perspective of Nigeria to include education level amongst other variables as a control variable. The literature revealed that people that are more educated are more likely to accept new technology especially when they are educated on the technology itself (Wang et al., 2007). It will be interesting to find out how the level of education will relate to the adoption of POS in Nigeria. As such, level of

education is added to the conceptual framework of this research as a user factor to be investigated.

2.2.7 Conceptual Model for the research

Following the above review, Technical Infrastructure and Trust in Technology are isolated as variables under Facilitating Conditions and added to the existing UTAUT variables to develop a conceptual model for the research. Also, gender, Age, Occupation and education are identified as moderating variables that could mediate the variables for the adoption of POS in Nigeria. The relationship between these variables are represented in figure 2.2 below:

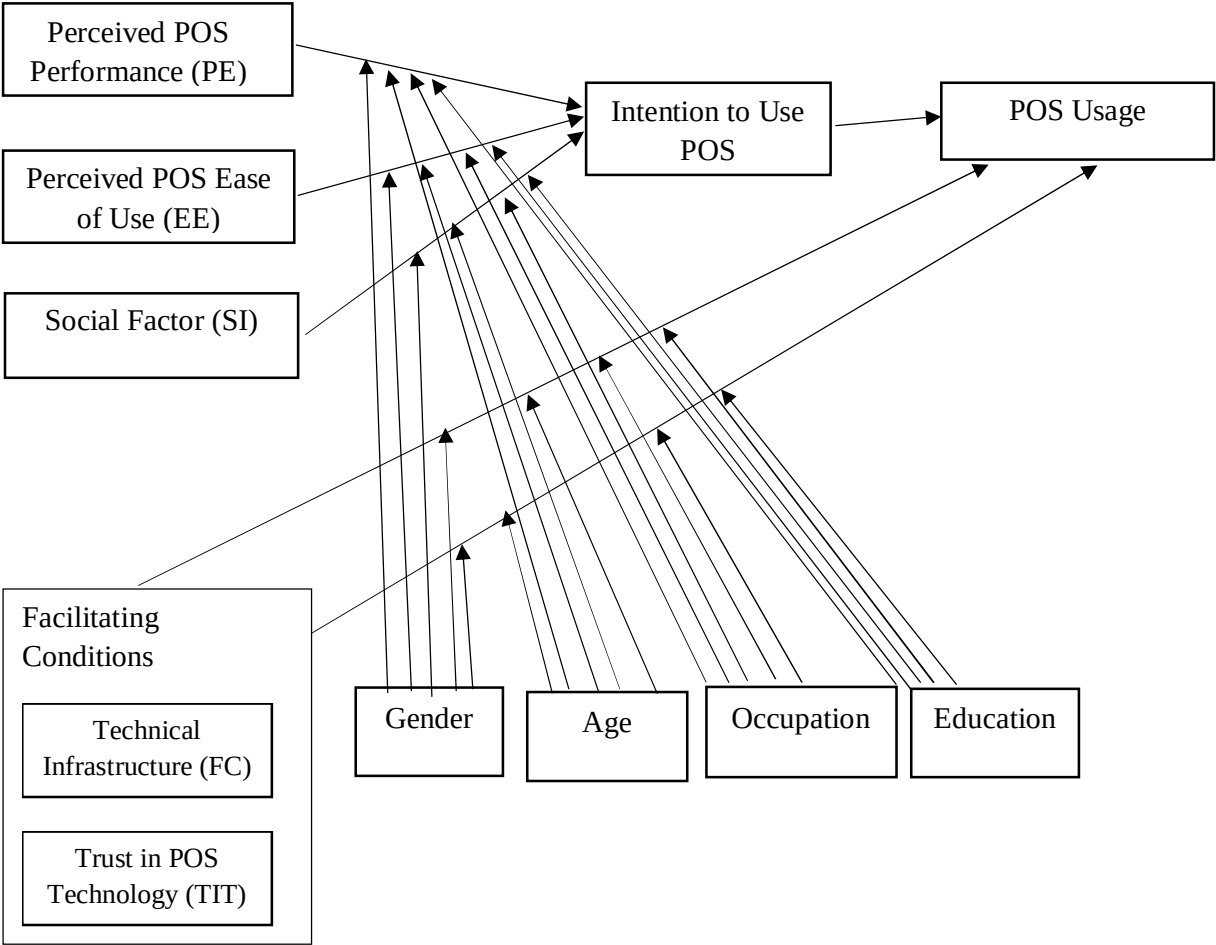


Fig. 2.2 Conceptual Model for the study indicating the proposed Intervening Variables considered for investigation in the present research

Figure 2.2 above has been generated to show the potential relationship between the proposed intervening variables towards POS adoption. According to Thornton and White (2001), many of the factors that affect adoption of technology seem to be changing with time, as does the adoption pattern itself. This observation gives extra credence to the trend noticed in the course of reviewing the factors identified from the existing literature in the preceding sections of this chapter. It further explains the efforts of (Ventkatesh et al., 2003) at the unification of these variables and why many of the researchers have extended the UTAUT model to include other variables.

Hence, having isolated those factors of the UTAUT model occurring most pervasively in most research in different countries, this study argues that it is possible that the variables of the UTAUT validated in most of the studies as potential universal affectors of adoption are likely to be applicable to the adoption of POS in Nigeria. However, given the context of Nigeria, it is believed that technical infrastructure and trust in technology will be a potential antecedence to the adoption of POS. As such, technical infrastructure and trust in technology have been isolated as Facilitating Conditions that could potentially affect POS adoption in Nigeria to develop a conceptual model for the research.

2.3 Conceptual Interpretations

In order to facilitate a better contextual understanding of the main concepts and the model employed in this study, it is necessary to review and clarify the conceptual meanings of some of the key concepts and variables that are involved in the study. This section clarifies the conceptual meaning of the component constructs and variables used in the study and other concepts that underpin them. While the other sections of this chapter review relevant research in the area, operationalising the study within the context of Nigeria.

2.3.1 The Innovation Concept

Rogers E. M. believed to be the Father of innovation and diffusion models, describes innovation as “an idea perceived as new by the individual.” “Innovation is an idea, practice, or project that is perceived as new by an individual or another unit of adoption”

(Rogers, 2003: 12). Even though innovation may have been invented for a long time, it may still be an innovation for a group of people, if they perceive it as new (Sahin 2006:14). Maranville (1992: 27) conceptualised innovation as “the application of better solutions that meet new requirements, unarticulated needs, or existing market nuisance needs.” Thus, accomplished through more effective products, processes, services, technologies or ideas that are readily available to markets, governments, and society. Therefore, innovation is defined as something that is effective and original which as a consequence, is new, that “breaks into” society or a market. They may or may not be newly invented (Frankelius, 2009:41).

In trying to understand the concept of innovation, Scholars have offered different viewpoints. These different viewpoints have thus given rise to sub-concepts such as product innovation, systems innovation, technological innovation and business management innovation (Foxall, 1984). In explaining the role of innovation in new product development, Baker (1992:125) lays more emphasis on the commercialisation aspect rather than the inventive aspect of the innovation. The scholar conceptualises innovation as “the commercialisation of an invention and its introduction to the marketplace.” In contrast, however, Afuah (1998: 4) observes that in product innovation, the new product itself is often regarded as the innovation. However, the author clarifies that innovation is more of the process of making the new product or service than the final output itself. To him, innovation is the use of new technology and new market knowledge to offer a new product or service to customers. Without a doubt, all the subsets of innovation mentioned above seem to point to the same conceptual meaning of innovation. Innovation is regarded, therefore, as being a result of a process that starts with an idea genesis and continues with its materialisation. So, a product such as POS that hits a new market can be said to be innovation within the context of (Baker (1992) and Afuah (1998) arguments.

Betz (1998: 3) defines technological innovation as “the invention of new technology and development and introduction into the marketplace of products, processes, or services based on the new technology”. Embedded in this definition is the fact that innovation encompasses the newly invented technological system or process, the new product or service made using that process, and the new business and managerial procedures

brought about by the introduction of the new technology. The scholar's assertion that "technological innovation combines the ideas of technological invention and business innovation" seems to confirm the interrelationship between all aspects of innovation. However, Foxall (1984:25) observes that in as much as scholarly conceptualisations of innovation are varied and sometimes confusing, they are still not sufficiently broad enough to embrace the innovative process in its entirety. One might, therefore, concede that innovation simply begins with a new idea and ends with the widespread use of the new product, service or process developed from that idea, as well as the widespread diffusion of the process itself (Schott, 1981).

Four main factors identified as drivers of the need for innovation in modern society include technological advances, changing customer needs and values, intensified competition and changing the business environment (Goffin & Mitchell, 2005: 3). The overall effect of these factors is the need for change in the way things are done - the way businesses are run, and the way products and services are produced and marketed to the customers, whose values and needs have been changing over the years. The change is aimed at improving production systems and management processes as well as producing new products and services that will meet the customers' changing needs.

Thankfully, the tremendous advancements in technology (especially communication and information technology) in the last forty years have accelerated the evolvement of innovations in many areas of commercial endeavour worldwide. Amongst these are the various technological innovations that have replaced the traditional method of payment in the banking industry. Chief among these technological innovations in the banking industry is the POS, which has permeated and is changing the way consumers make payment in Nigeria (NIBSS, 2015). The CBN aspiration is to change the behaviour of Nigerian consumer who for several years have shown a strong preference for cash payments as against the use of technology for making payments (Ovia, 2002). The CBN's quest to replace cash payments with POS payments is driven by its desire to modernise the Nigeria payment system and achieve a cashless society in Nigeria (CBN 2011, 2012 & 2013).

2.3.2 The Behaviour Concept

Behaviour is a Psychological term which denotes the totality of the activities, actions, reactions, interactions, sentiments and performances exhibited overtly by individuals (Minton & Khale, 2014). It refers to the way in which people do certain things. That is the manner in which act or action is carried out, especially if it is carried out repeatedly in the same way. Even though psychology describes itself as the “the science of behaviour,” it has not to date arrived at any consensus on the matter of what the concept of “behaviour” means (Angier, 2009: 20). Despite this lack of consensus, Bergner (2011) believe that within the empirical domain of behaviour, there is the set of behaviour that has as its members all behaviour and possible behaviour which can be best captured for scientific purposes by employing a formulation that includes eight parameters. Bergner (2011:148) represented these behaviour parameters as thus:

$$B = I, W, K, K-H, P, A, PC, S$$

The meaning of each of these behaviour parameters is summarised in Table 2.1 below

<i>B</i>	<i>Behaviour</i>	<i>e.g., the behaviour of Peter moving his rook during a chess match</i>
<i>I</i>	<i>Identity</i>	<i>the identity of the person whose behaviour it is; an aspect of every behaviour is that it is someone's behaviour (e.g., Peter)</i>
<i>W</i>	<i>Want</i>	<i>the motivational parameter - the state of affairs that the person seeks to bring about; an aspect of every behaviour is that it is an attempt to bring about some state of affairs (e.g., to achieve an improved strategic position in the chess match)</i>
<i>K</i>	<i>Know</i>	<i>the cognitive parameter - the distinctions (concepts) that are being acted on; an aspect of every behaviour is that it is a case of acting on distinctions (e.g., rook vs queen, knight, etc.; permissible rook movements vs non-permissible ones)</i>
<i>K-H</i>	<i>Know-How</i>	<i>the skill or competency parameter - an aspect of every behaviour is that it entails the here and now exercise of some broader or more general competency or competencies (e.g., when Peter makes his move, he exercises his general ability to move the various chess pieces in the manner appropriate to each).</i>
<i>P</i>	<i>Performance</i>	<i>The process, or product aspect of the behavior, including all bodily postures, movements, and processes that are involved in the behavior. An aspect of every behavior is that it involves the occurrence of physical processes, which in principle described on the level of multiple appropriate to the behavior's reaching from the performer to the very material (e.g., Peter's grasping and moving the rook or the rook's movement across the board).</i>
<i>A</i>	<i>Achievement</i>	<i>the outcome parameter - an aspect of every behaviour is that things about of some outcome - something is different by the behaviour than has occurred. Hence, may or may not coincide with the desired state of affairs specified in "W" (e.g., Peter's rook being in a new position; his opponent being in check)</i>
<i>PC</i>	<i>Personal Characteristics</i>	<i>The individual differences parameter - an aspect of every behaviour is that in its enactment personal characteristics of the behavior are expressed. These may include Dispositions (Traits, Attitudes, Interests, Styles, Values), Powers (Abilities, Knowledge) and Distinctive Capabilities (Skills, Talents, Stamina, Strength) (e.g., Peter's competitive knowledge of chess or tendency to prefer bold, unexpected moves)</i>
<i>S</i>	<i>Significance</i>	<i>What the person is doing by doing this something that he is doing. The meaning and purpose of behaviour raised by the behaviour in question. For example, by making his move, Peter moves a piece of wood from one square to another on a board. Peter is "taking a chess move" and "participating in the broader social practice of playing chess". Depending on the context, he might also be gaining money for an earlier debt, seeking to</i>

Table 2.1: Behaviour parameters: What is behaviour? And so, what? (Bergner, 2011: 148 – 149)

The above definitions are in line with Ajzen's (1985) clarification. According to Ajzen (1985: 13), behaviour refers to observable acts that could be studied in their rights. The author observes that people sometimes fail to distinguish between behaviours and occurrences that may be the outcomes of those behaviours (Ajzen & Fishbein, 1980: 29).

For instance, an individual's failure in a driving test is not behaviour but an outcome of series of behaviours, which may include skipping driving lessons, going to watch movies instead of practising driving, and so on. Therefore, behaviour is used when somebody overtly does something in a specific way, repeatedly, rather than a one-off action. Behaviour is hence not accidental or a mistake but a volitional tendency to act in a certain way (Ajzen, 1985:14). It involves a conscious choice by an individual to perform or not perform an action (Ajzen & Fishbein, 1980: 41). Although an action tendency, the behaviour is conceptually different from intention and attitude, both of which have been shown by psychology scholars to be antecedents of behaviour. Attitude and Intention are discussed in the sub-sections below.

2.3.3 The Attitude Concept

Attitude can be a key enabler or obstacle to the adoption of new technology. Ajzen and Fishbein (1980) cited in Abukhzam, and Lee (2010: 2) defined the term 'attitude' as "a complex conundrum of feelings, desires and fears that create a state of readiness to act in a person." Attitude is "a predisposition to respond favourably or unfavourably toward a given object (person, idea, etc.)" (Oskamp, 2004: 162). It is an overt emotional state that expresses one's "attraction or aversion (emotional valence)" to an object, subject or activity. According to Oskamp (2004: 162), one cannot develop an attitude until he or she develops "some feeling about the object in question," usually by the bits of information received about it. Hence, attitude encompasses a person's beliefs, feelings, thoughts, opinions, and overall mindset about an issue, activity or another person. Upon evaluating a specific object or issue, a person's attitude toward it reflects his/her standpoint on it. This standpoint is based on both the person's beliefs (cognitive responses) about the matter and his/her feelings (affective responses) toward it (Ajzen, 1996: 5; 2005: 4). Attitude may be positive or negative towards the object or issue depending on the person's beliefs and feelings.

An important characteristic of attitude is the fact that it is evaluative (Eagly & Chaiken, 1993). This subjective judgmental nature of human attitude explains the positive and negative divergences of attitudinal propensities in different people. Consequently, different people might find the same thing or person to be: good or bad, wise or foolish, appealing or repulsive, encouraging or discouraging, acceptable or unacceptable,

believable or unbelievable, convincing or unconvincing, worthwhile or worthless, nice or awful, harmful or beneficial, et cetera (Ajzen & Fishbein, 1980:21).

Attitude is often erroneously equated with behaviour. However, research has shown that attitude in itself is instead an antecedent of behaviour (Holdershaw & Philip, 2008; Bashir & Madhavaiah, 2015). Adopting Fishbein's (1975) Behavioural Intention Model and Ajzen and Fishbein's (1980) Theory of Reasoned Action, researchers have shown that a person's attitude towards an object leads them to form an intention to behave in a certain way regarding the object. Hence, this intention is subsequently followed by the actual behaviour of that object. Attitude is therefore not the same thing as behaviour. Rather, it leads to an intention to behave in a particular way, which in turn leads to the behaviour (Ajzen, 1996: 32). For this reason, both attitude and intention are the primary ingredients for measuring and predicting behaviour. Ajzen (2005: 30) confirms this behavioural sequence by noting that just as attitudes flow reasonably and spontaneously from beliefs, so do intentions and actions follow reasonably from attitudes. Actions here refer to the actual behaviour. Next, we look at the concept of intention.

2.3.4 The Intention Concept

The Oxford Advanced Learner's Dictionary (2015) defined intention as that which someone plans or aims to do. The intention is, therefore, different from action. Someone's intention indicates their desire towards doing something; it does not amount to a behaviour until they perform the desired action (Ajzen, 2005: 99). Ajzen (2005:99) argues that, even though an individual may form the intention to engage in a certain behaviour, "this intention remains a behavioural disposition until, at the appropriate time and opportunity, an attempt is made to translate the intention into action." The action, when performed, is the behaviour while the willingness and resolve to carry it out is the intention.

Intentions are considered the immediate antecedents of corresponding overt behaviour. Therefore, it is considered to be the best predictor of an individual's behaviour (Ajzen & Fishbein, 1980). Behaviour is the transmission of intention into action (King & Gribbins, 2002; Venkatesh et al., 2003; 2012), while the intention is evident when a person has or has not experienced conviction about the object or target of the action. Thus, the intention is formed in the individual's mind by external and internal factors, such as received information, stored facts and figures, messages and other people's experiences at the person's disposal. The interplay of all these factors induces an individual to be convinced, or not convinced, about performing the action - behaviour. Hence, behaviour can be predicted accurately if an appropriate measure of intention is obtained (Ajzen & Fishbein, 1980: 41).

2.3.5 The Consumer Behaviour Concept

Consumer behaviour is the way or manner in which people buy and use products and services. Blackwell, Miniard, and Engel (2006:4) define consumer behaviour as "activities people undertake when obtaining, consuming and disposing of products and services." These activities would include decisions as to why, how, when, where and under what circumstances people buy and use products and services. Scholars also affirm that consumer behaviour is equally a field of study about consumers' consumption behaviours. This notion tallies with that of Kuester (2012: 110) who conceptualises consumer behaviour as "the study of individuals, groups, or organisations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society." Similarly, Stanton (1978: 96) conceptualises consumer behaviour as "a study of the reasons for the consumer's series of behaviours which he or she exhibits as he or she chooses a product, a choice of shop, and a choice of the price at which to buy the product." The assumption implicit in the above perceptions is that consumer behaviour is principally about the 'reasons' why consumers buy what they buy, use what they use, buy it where they buy it, buy it when they buy it, buy it how they buy it, and use it how they use it (ibid).

Understanding the buying and consumption activities of consumers as well as the reasons behind them is a key factor in understanding the consumers themselves. This knowledge

is vital in helping marketers in their efforts to satisfy the needs of their customers. Consumers consume to satisfy various personal needs. Wright (2006: 227) supports this view by stating that “both intrinsic and extrinsic products and services play an enormous part in satisfying consumers’ needs and wants”. Thus, to facilitate the consumption of products and services they consider appropriate for satisfying their needs, consumers have to make series of decisions about what to buy, where to buy it, when to buy it, how to buy it, at what price to buy it, why it is necessary to buy it (benefits expected from using it), and whether to continue buying and using it or not. Hence, the totality of their decisions and how they make those decisions concerning spending their available resources (time, money and effort) in buying, using, evaluating and disposing of products and services in their daily lives amounts to their consumption behaviour (Schiffman & Kanuk, 2007: 3).

The theoretical analysis above implies that consumer behaviour involves a complex, but sometimes unconscious, interplay of both mental and physical activities. These include making considerations between alternative products or services, shops, prices, credit offers, payment methods, delivery systems, and after-sale benefits. Also, taking purchase decisions to buy or not to buy, where to buy it and what quantity to buy at the agreeable price; going ahead actually to make the purchase; using the products or services. Also, evaluating their quality and benefits before, during and after usage; and subsequently taking post-purchase decisions. For instance, to continue to consume the same product/service or not (Kotler, Armstrong, Saunders & Wong, 2002: 191; Blackwell et al., 2006: 4; Schiffman & Kanuk, 2007: 3). Consumer behaviour is, therefore, a problem-solving behaviour (Jobber, 2004: 70), which requires a conscious or unconscious search for alternative pieces of information. Cognitive processing of the alternatives and a decision was taken at each of the various levels of the "what, why, when, where and how" issues mentioned above relating to every product or service bought and used by the consumer.

However, two schools of thought pervade the literature concerning consumer behaviour. One is the neoclassical economics view, which ascribes perfect rationality (Mishra & Olshavsky, 2005: 362) to consumers, insisting that they make conscious, rational decisions concerning what they consume by searching for, and considering, all possible

alternatives at their disposal before making purchase decisions. Another view is that of bounded rationality (Simon, 1983), which is prevalent in Psychology and Marketing literature. Developed by H. A. Simon in 1955, bounded rationality holds that the fundamental cognitive capabilities of consumers (such as their short-term memory, slow rate of mental processing, and issues of availability and accessibility of information in the long-term memory) are rather inhibitive to their decision-making processes.

According to holders of this view, the consequence is that consumers make their consumption decisions in a trial and error manner, which involves less effort but is also less accurate (Payne et al., 1993; Mishra & Olshavsky, 2005). The proponents of bounded rationality also argue that by merely responding to the various marketing stimuli surrounding them in such a heuristic way, consumers substitute benefits for costs and accuracy of decision for less effort. They try to adapt to the advantage of whatever product or service they have chosen based on expediency. By so doing, consumers in this framework make decisions that are satisficing rather than ideal (Simon, 1983).

2.3.6 The Concept of Adoption

Something new such as innovation, new products or services and new ideas usually face users' acceptance or rejection in the market (Rogers, 2003). Kotler et al., (2002: 222) defined adoption as the decision by an individual to become a regular user of a new product or service. Kotler et al. (2002) characterised the adoption concept as a mental process which an individual goes through from the time of learning about innovation to the time of final acceptance, purchase and usage of the new product, service or idea that typifies that innovation. Adoption does not only relate to a customer's acceptance of a newly developed product, service or idea but also with the continued usage of that product, service or idea (Sathye, 1999: 325). Kotler et al. (2002) identify five mental stages of this process, including awareness, interest, evaluation, trial and final adoption, and also advise that marketers should endeavour to help their customers move through these five stages to achieve adoption.

Marketing scholars have identified two theoretical concepts associated with product and service innovations. These concepts include the innovation adoption concept and innovation diffusion concept (Kotler & Armstrong, 2001: 200; Evans, Jamal, & Foxall,

2006: 243). Additionally, and in the further development of the theory of diffusion of innovation, Rogers (1995) used time of adoption to classify users and buyers of innovation. Rogers (1995) termed this classification “adopter categories.” The Rogers (1995) classification conceptualised five adopter categories within his “adoption curve,” which was defined regarding percentage groupings within the normal distribution of the curve.

2.3.7 Adoption vs Diffusion

The preceding suggests that adoption is quite distinct from diffusion. However, it is necessary to clarify the difference between the two concepts. Extant studies have shown that adoption involves the process by which each member of the society accepts and uses an innovation, while diffusion reflects the mass acceptance and usage of the innovation by cross-sections of the society over time (Rogers, 2003). Two scholarly delineations of the concepts confirm this conception. While Sathye (1999: 325) perceives adoption as the acceptance and continued use of a product, service or idea by an individual consumer, Evans et al. (2006: 243) conceptualise diffusion as the way in which innovation is communicated and distributed through society over time. Hence, while adoption is an individual's evaluative behaviour toward innovation, diffusion is an aggregation of the adoption behaviours of numerous individuals and organisations in the society over time (ibid).

2.3.8 POS Adoption as a Consumer Behaviour

Existing literature has shown that innovative products and services evolve from changing social trends or advancements in technology (e.g. Hall & Khan, 2002). The POS is a typical example of innovation that has evolved and pervaded the payment system in various countries. Therefore, any situation in which individuals can buy products or services and make payment using the POS in the above context amounts to consumer behaviour. To analyse this notion further, the POS serves consumers as a way of making payment, albeit electronic payment. In this case, the consumer has to make a conscious decision to use the POS as a means for making payment. Therefore, POS usage decision becomes one of the series of conscious decisions which the consumer makes in interacting with marketers and retailers in various product and service purchase situations (KPMG, 2014; NIBSS, 2015).

Accordingly, since consumer behaviour is conceptualised as the series of decisions which consumers make as they purchase and consume products and services, and the decision to adopt (i.e., to accept and continue to use) the POS is one of those series of decisions consumers make in the process of purchasing and paying for products and services (Kotler et al., 2002). It stands to reason that POS adoption is part and parcel of consumer behaviour. However, as POS involves financial transactions, there is the element of risk in its use by consumers. In consumer behaviour literature, perceived risk is well-documented as a critical factor to the consumer in any financial transaction (Bashir & Madhavaiah, 2015: 77).

Consumers tend to consider all uncertainties and possible adverse outcomes when they make their product/service decisions (Mitchell, 1999). In an online environment, where negative outcomes are likely or when the uncertainty is high, the consumers' perception of risk increases (Chiou & Shen, 2012; Kesharwani & Tripathy, 2012). In other words, consumers' "use or not use" decisions are significantly influenced by perceived risk, particularly in the situations where the probability of unpredictable, unpleasant and negative consequences is connected to those decisions (Bashir & Madhavaiah, 2015: 78). Extant research provides evidence that perceived risk has a negative influence on consumers' attitude and behavioural intention to adopt electronic payment (Lee, 2009; Chiou & Shen, 2012; Kesharwani & Tripathy, 2012). However, it is not likely that consumers will adopt and use a new technology unless they trust the technology (McKnight, 2011). To understand the influence of trust on adoption, the next section of this review looks at the concept of trust.

2.3.9 POS and the Marketing Concept

The American Marketing Association (AMA, 2013) has defined marketing as "the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large." It is the study and management of exchange relationships (Bagozzi, 1975; Hunt, 1976). As a concept, POS can be seen as a product and as a service. POS as a product, is a tool that is used by authorised merchants to receive payment. As a service, POS is a

marketing product that is used to render various services such as counter payments, recharges cards, cash withdrawals etc.

Having discussed the key concepts in the study and other concepts that underpin them, the next section of this chapter will focus on reviewing some previous studies that have applied the theories and concepts. These will help in contextualising the study and will provide further justification for the factors that have been included in the study for investigation.

2.4 Empirical Review

Researchers have continued to show interest in researching the adoption of new technologies. Although researchers adopt different models and theories in the study of technology adoption, many of the recent research have adopted the UTAUT model which has been utilised as a baseline model in key areas such as - the internet, websites, mobile banking, internet banking, Hospital Information Systems, Tax Payment Systems and Mobile Technology among others. Many of these studies have focused on a variety of user groups such as students, professionals, and general users. A quick search on Google revealed that the original UTAUT article (Venkatesh et al. 2003) had been cited about 12,234 times by researchers as at the time of writing this review. Many of the researchers that used the UTAUT models have also extended the variables and adapted it according to the settings where their researches were conducted.

Omotayo and Dahunsi (2015) conducted a study of factors affecting adoption of POS by business organisations in Nigeria. The researchers used the survey design to sample 200 organisations that have adopted POS in Lagos and Ibadan metropolis. The study adopted Venkatesh and Davis (2000) Technology Acceptance Model (TAM2). The result of the research found that subjective norms and perceived ease of use have a significant relationship with the adoption of POS machine by the surveyed organisations. The results also show a moderate and significant positive relationship between subjective norms and adoption of POS. Subjective norms in TAM relate to social influence in UTAUT (Venkatesh et al. 2003).

This finding is similar to past research (such as Taylor & Todd, 1995; Karahanna & Straub, 1999; Venkatesh & Davis, 2000; Hsu & Lu, 2004; Bhatti, 2007; Ismail & Razak, 2011; Haghighi, Rahrov, & Vaezi, 2012) which found that subjective norms is significant to adoption of various technologies. However, their findings deviate from the findings of (Davis et al., 1989; Mathieson, 1991; Dishaw & Strong, 1999; Chau & Hu, 2002; Attuquayefio, Achampong & Aryeetey, 2014) which found no significant relationship between subjective norms and adoption of various technologies. The study reveals that there is no significant relationship between perceived usefulness which is similar to performance expectancy in the UTAUT and adoption of POS by business organisations in Lagos and Ibadan. This is even as several empirical studies have provided support that perceived usefulness is a major predictor of adoption of new technology, (Davis, 1989; Agarwal & Prasad, 1999; Venkatesh & Davis, 2000 Moon & Kim, 2001; Hsu & Lu, 2004; Luarn & Lin, 2005; Su, Tsai, & Hsu, 2013). Omotayo and Dahunsi (2015) are however supported by Attuquayefio et al. (2014); Bhatti (2007); Davis et al. (1989); Lucas and Spitler (1999); Venkatesh and Morris (2000) which equally found no significant relationship between perceived usefulness and adoption of various technologies.

In explaining this result Omotayo and Dahunsi (2015) noted that it is possible that judgment about a system's usefulness is affected by individual's cognitive matching of their job goals, with the consequences of system use as the usefulness of POS to the organisations studied in their research would be measured via the output performance of the technology in carrying out business transactions. This study further found that there is a moderate and positive significant relationship between perceived ease of use which is related to Effort expectancy in the UTAUT model and adoption of POS among the business organisations in Lagos and Ibadan.

This finding is in accord with other empirical studies (such as Davis, 1989; Adams, Nelson & Todd, 1992; Agarwal & Prasad, 1997; Gefen & Straub, 1997; Venkatesh & Davis, 2000; Venkatesh & Morris, 2000; Luarn & Lin, 2005; Bhatti, 2007; Adeoti & Oshotimehin, 2011; Su et al., 2013) which equally found perceived ease of use to predict intention, adoption and use of many technologies directly or indirectly. Although Omotayo and Dahunsi (2015) provided useful insight for understanding the adoption of

POS in Nigeria, their research focused on organisations. It is possible that a different result would be obtained by studying individuals. Moreover, the study was limited to only two cities. It is also possible that a different result could have been obtained if the study is broadened to cover other locations in Nigeria.

In another POS study in Nigeria, Adeoti and Oshotimehin (2012) focused on the level of consumers' satisfaction with the adoption of e-payment system in Nigeria. The data that was used for the study were collected from bank customers and consumers of the product in Lagos using the survey method. The analysis was done using ANOVA. The result from analysis of the data indicates that fewer consumers were satisfied with the speed of transaction, the level of service provided by the merchants, awareness, and security. They noted that consumers' satisfaction is an emotional response to the experiences associated with the adoption of POS. Their result indicates that majority (66.2%) of the consumers have adopted POS in the study area while 33.8 percent of the consumers have not adopted it.

A similar finding is also reported in NIBSS (2015) survey which reported 61.9% adoption rate for POS in Lagos. Adeoti and Oshotimehin (2012) findings also revealed that majority of the consumers were very satisfied with the usage of POS terminal as it relates to - convenience (87.2%), technology quality (83%), perceived usefulness (76%), and technology selection (85%). However, fewer consumers were satisfied with the speed of transaction (38%), the level of service (28%) provided by the merchants, awareness (26%), and security (41.3%).

While Adeoti and Oshotimehin (2012) research findings revealed that many of the merchants are happy to adopt POS, KPMG (2014) and NIBSS (2015) recorded that user adoption of the POS has remained low even though there has been an appreciable improvement. KPMG (2014) study of the Nigeria Banking industry documented an adoption rate of 27% of retail banking customer for POS in Nigeria. KPMG (2014) study of Banking Industry Customer Satisfaction in Nigeria indicates that 18% of retail banking customers in the country use Internet Banking (up from 7% in 2012), 27% use POS (up from 6% in 2012), mobile payments 8% (up from 2% in 2012), and mobile banking 14% (up from 6% in 2012). The study stated that ATM remains the most utilised

in the country with nine-in-ten retail banking customers using it. KPMG (2013) also documented that customers of different age groups demonstrate varying usage patterns of the various internet banking options. The majority of customers (70%) above 60 years still prefer to visit a branch to inquire about their balance compared to only 30% of customers under 30 years. On a weekly basis, a slightly higher number of older customers visit the branch than the ATM (34% compared to 23%).

Adeoti (2013) conducted a study in which he examined the Challenges to the efficient use of point of sale (POS) terminals in Nigeria. In conducting the study, Adeoti (2013) collected cross-sectional data from 650 randomly sampled respondents from 20 local government areas of Lagos State in Nigeria. The data collected were analysed using Friedman and Kendall ranking order test. The finding revealed that the most challenging factors that affect the efficient use of POS are network failure, limited numbers of POS per merchant store, frequent power outage, security of communication over the network, where they are available, and unavailability of the POS at all merchant stores.

Chiemeke and Ewwiekpaefe (2011) equally conducted a study of technology adoption in Nigeria that focused on e-commerce adoption. In the study, they proposed a conceptual framework of a modified UTAUT Model that will incorporate Nigerian factors. They noted that there is insufficient research in the area of adoption in developing countries like Nigeria. The research was based on an in-depth review of literature in which they reviewed 67 extant types of research. Following this research, the authors proposed the addition of Cultural/Language Factor, Trust/Security, Cost, Public Education and Awareness, Reliability, Power supply, Accessibility, Regulatory and Legal Issues as constructs and extension of the UTAUT variables in the study of adoption in Nigeria. Several other researchers have also recommended and extended the UTAUT in their study of adoption. These research extended the UTAUT variables to include variables that they consider relevant to the specific settings where they did their research.

In Thailand, Bhatiasavi (2015) conducted a study of the adoption of mobile banking, in which they used an extended UTAUT model. The research proposes a broad framework that extends the existing UTAUT model with other important constructs such as perceived credibility, perceived cost, and perceived convenience. In conducting the

research, Bhatia (2015) adopted a three-pronged approach that consists of an extensive review of the literature, field survey and expert interviews. The field survey was undertaken with both convergent and discriminant validities being conducted. A structural equation modelling was conducted which showed that performance expectancy, effort expectancy, social influence, perceived credibility, perceived convenience, and behavioural intention to use mobile banking enabled a positive relationship. Contrary to previous studies, the hypothesis testing revealed that financial cost and facilitating conditions in the adoption of mobile banking were not supported.

Performance expectancy was found to have a positive relationship towards behavioural intention which is consistent with the findings of Venkatesh et al. (2003), Oliveira et al. (2014) Casey and Wilson-Evered (2012) and Escobar-Rodriguez and Carvajal-Truzillo (2014). A positive relationship was also found between effort expectancy and behavioural intention which is consistent with the findings of Venkatesh et al. (2003), Casey and Wilson-Evered (2012), Escobar-Rodriguez and Carvajal-Truzillo (2014) and Tosuntas et al. (2015). Consistent with the findings of Venkatesh et al. (2003), Yu (2012), Thomas et al. (2013) and Escobar-Rodriguez and Carvajal-Truzillo (2014), the study found a positive relationship between social influence and behavioural intention. The relationship between usage and behavioural intention was also found to be positive. Hence, in line with previous findings by Venkatesh et al. (2003), Yu (2012), Finned (2012) and Escobar-Rodriguez and Carvajal-Truzillo (2014).

From the three constructs that were added to the existing UTAUT model in the study, two of the findings supported the hypotheses. The first was the positive relationship between perceived credibility and behavioural intention. Thus, this is consistent with the findings of Dasgupta et al. (2011), Yu (2012) and Jeong and Yoon (2013). The second added construct that was supported was the positive relationship between perceived convenience and behavioural intention. Thus, in line with previous findings of Jih (2007), Hossain and Prybutok (2008) and Chang, Lin and Yan (2011). Contrary to previous findings of Venkatesh et al. (2003), McKenna et al. (2013), Oliveira et al. (2014) and Tosuntas et al. (2015), the study did not find a positive relationship between facilitating conditions and usage behaviour. The third added construct which did not support the hypotheses is the negative relationship between perceived financial cost and behavioural

intention contrary to the previous findings of Sripalawat et al. (2011), Yu (2012) and Huang et al. (2012).

Dulle and Minishi-Majanja (2011) used the UTAUT model in their study of open access adoption in public universities in Tanzania. In their study, they extended the UTAUT model by modifying the constructs of the original UTAUT model to include attitude and internet self-efficacy. They also extended the moderators to include awareness and position. In their research, Dulle and Minishi-Majanja (2011) used the survey questionnaire that targeted to elicit responses from 544 respondents selected through stratified random sampling from a population of 1088 university researchers at six public universities in Tanzania. The findings suggest that the application of the UTAUT model was useful in the study of the adoption of open access in a research environment. The result established that attitude, awareness, effort expectancy and performance expectancy were the key determinants of the researchers' behavioural intentions of open access usage. The result equally found that age, awareness, behavioural intention, facilitating conditions and social influence significantly affect researchers' actual usage of open access. They recommended that these factors should, therefore, be taken into consideration in the planning and implementation of open access projects. They also recommended a further validation of the open access research model in similar research institutions in Tanzania and elsewhere (Dulle & Minishi-Majanja, 2011).

Carlsson, Carlsson, Hyvonen, Puhakainen and Walden, (2006) adopted the UTAUT model to study and explain Mobile Advanced Services and Device Adoption on an individual level and mass use context. The main objectives of the study were to examine the factors affecting the intention to use and factors affecting the use of mobile devices/services. The effect of attitude toward using mobile device/services and mobile device/services anxiety on behavioural intention and the use of mobile services studied in addition to the original paths in the model. The results showed that performance expectancy and effort expectancy had a substantial direct effect on intention to use mobile devices. However, the effect was weakened when attitude was added to the model. Thus, indicating that attitude explains part of the intention to use the mobile device. Social influences were also found to have a significant positive crude effect on intention.

However, the effect was not sustained in all models examined. Anxiety did not have a direct effect on intention, but rather the influence was mediated by other variables such as performance expectancy and social influences. Attitude did not have a direct effect on intention. Thus confirming the original model assumption that with the presence of effort expectancy and performance expectancy, the attitude would not have a direct effect on intention. When analysing the actual use of three different mobile services, the authors found that intention to use had a significant positive direct influence on the use of the studied services. However, when the model was adjusted for the other variables of Effort Expectancy, Performance Expectancy, Facilitating Conditions, Anxiety, and Attitude, the direct effect of intention disappeared.

Carlsson et al. (2006) argued that these results showed the central part played by these variables in the influence of behavioural intention on the use of mobile services. Using logistic regression models, the results showed, for all occurrences studied, that incorporating behavioural intention into the model would diminish the effect of independent variables on the use of mobile services (with one exception - when Facilitating Conditions is the independent variable for one of the services studied - ringtones). Thus, the assumption that Effort Expectancy, Performance Expectancy, Social Influence, Facilitating Conditions, Anxiety and Attitude affect usage through behavioural intentions is partly correct.

Likewise, facilitating conditions did not have a direct influence on the use of mobile services nor an indirect effect on behavioural intention. Carlsson et al. (2006) acknowledged that the results obtained do not support the original UTAUT hypotheses in all cases. Hence, their earlier reservation on the use of the UTAUT for explaining both behaviours of intention/usage of mobile devices and mobile services asynchronously was fairly justified. The authors argued for a modification or extension of the model used to account for the differences in the adoption behaviour of the mobile devices and services (Carlsson et al., 2006).

The foregoing empirical review validates the adoption of the variables that have been chosen in this study for investigation. Many of the previous studies that used these variables were able to arrive at valid results. However, many of the studies that have used

the UTAUT model have extended the model to include other variable depending on the place and context where the studies were conducted. Thus, agreeing with the recommendations of the authors who created the model and Chiemeké and Ewwiekpaefe (2011) call for the extension of the UTAUT model to include Nigerian variables. The adoption of the UTAUT model and the modification of the UTAUT variable of Facilitating Conditions to include Technical Infrastructure and Trust in POS Technology are therefore justified.

2.5 Operationalization

In order to facilitate better understanding, it is necessary to operationalise the use of POS within the context of the environment in which this study was conducted. POS is still a new concept in developing countries such as Nigeria. Research has shown that when users are presented with new technology, some factors influence their decision about how and when they will use it (Venkatesh et al., 2003). However, within the context of every environment, there is likely to be some unique factors that may have been shaped by that environment which may not be present in other environments. Because of this, many studies on adoption have adopted different approaches that reflected the unique nature of the environment in which the studies were conducted (examples include Niehaves & Plattfaut, 2010; Thong et al., 2011; Wang et al., 2012; Bhatiasavi (2015). In order to understand the POS adoption within the Nigeria context, it is important to look at some perspectives that may be unique to the country. Infrastructure issues abound everywhere in Nigeria. The POS like many other electronic banking systems relies on telecommunications and electricity infrastructure to function. In Nigeria, both telecommunication and electricity are noted to have significant challenges (Adeoti, 2012). A review of the technological profile of Nigeria is therefore necessary to understand some of these challenges and put them in perspective.

2.5.1 Technological Profile of Nigeria

One major achievement of democratic government in Nigeria is the successful introduction of the GSM network in 2001 which led to the full digitisation of the country's telecommunication services and the introduction of mobile telephony. By May 2015 there were over 143 million telephone subscribers in Nigeria (NCC, 2016).

Thus, making Nigeria the largest mobile phone market on the African continent. The rapid growth of the Nigerian Telecom industry has led to problems with network congestion and quality of service. Communication between the POS and other composite systems of the POS payment system are transmitted through the mobile telecommunication network as the land lines are inexistent. As such, the transmission is usually plagued with the challenges of mobile telecommunications network making it difficult for smooth transmission of transactions to be achieved all the time when POS is used for payment (NIBSS, 2015).

In addition to the communication problems, Nigeria has not been able to generate enough electricity to support businesses in the country. Nigeria has an endemic problem of inadequate electricity supply which has proved an insurmountable challenge to every successive government in the country since the 1970s. Nigeria's electricity need as at 2015, was projected 31,235 megawatts of energy to have a stable power supply (Abimbola, Amori, Omotosho, Igbode, Omoyeni, & Ajayi-Banji, 2015: 57). However, as at February 2015, Nigeria generates 5500 megawatts of electricity which constant vandalism has restricted to about 3500 megawatts (This day Newspaper, 21 February 2015), thus, representing 11.2% of the energy need in the country. Again, in most locations in Nigeria, the distribution network is poor, the voltage profile is poor, and the billing is inaccurate (Onochie Egware and Eyakwanor, 2015; 498).

According to World Bank report, only 55.4% of Nigerians have access to electricity. Adenikinju (2003: 521) observed that over 90% of firms in the manufacturing sector of the country resort to alternative self-generation of electricity to maintain their operations. They do so in spite of the high cost involved because the public power supply is unreliable. "The average Nigerian firm experiences a power failure or voltage fluctuations about seven times per week, each lasting for about 2 hours. Without the benefit of a prior warning" (Adenikinju, 2000: 9). The poor infrastructure, therefore, represents a major challenge to the use of POS as electricity is required to power the POS machines. Poor network connection equally creates a problem for the use of POS as users get concerned about their payments not going through and therefore may feel reluctant to use the POS.

2.5.2 The Nigerian Payment System and the Cashless Policy

Following the globalisation and liberalisation of the financial services industries around the world, the Central Bank of Nigeria instituted a national consolidation exercise of the Nigeria banking sector in 2005 (Soludo, 2006) in anticipation for the actual and potential competition from foreign banks. This exercise was similar to what was carried out by the Malaysian Central Bank in 2000 which consolidated the country's 23 banks into ten financial groups (Suganthi, Balachandher, & Balachandran, 2001). The consolidation led to a reduction in the number of banks in Nigeria from a total of 89 banks before the consolidation exercise to 25 consolidated banks by December 2005. Each one of the newly consolidated 25 banks raised a minimum paid-up share capital of 25 billion Naira (CBN, 2007), an equivalent of about US\$200 million at the time of recapitalisation.

Other important results of the consolidation process were that banks' branch network rose from 3,382 before consolidation to 4,500 post-consolidation. Hence, aggregate bank assets increased from Naira 3,209 billion in 2004 to Naira 6,555 billion in 2006, and the capital adequacy ratio climbed from 15.2% in 2004 to 21.6% in 2006 (Balogun, 2007). With the money raised from the consolidation exercise, the banks were positioned to compete favourably in the international financial market through technology acquisition, infrastructure, and service provision. All the 25 banks became fully automated and positioned to render all sorts of electronic banking services such as e-cards, Internet Banking ATMs, telephone banking, mobile banking and POS.

Following the consolidation, the CBN conceived the idea of a cashless society in 2010. According to Ajayi and Ojo (2006), one of the prerequisites for the development of the national economy is to encourage a payment system that is secure, convenient, and affordable. The CBN announced Cashless (more appropriately referred to as Cashlite) Policy for Nigeria in 2011, and formally launched a pilot of the initiative in Lagos State in April 2012. Before the introduction of the Cashless Policy, cash transactions represented over 99% of customer activity in banks. About 86% of in-branch bank cash withdrawals were less than N100,000 in value. Less than 10% of transactions were more than N100,000. Only 10% of in-branch transactions were over N150,000 (CBN, 2014). CBN's Cashless Policy is aimed at reducing and not eliminating the stock of paper

currency circulating within the economy. The essence of the policy was to encourage the use of other electronic platforms for payment and discourage the use of cash.

CBN prescribed severe fines for failure to comply with the new policy. Banks were authorised to deduct 3% for every N1,000 above N500,000 transacted by individual customers, and 5% per N1,000 above the N3 million limit transacted by their corporate customers. The contravention of this provision by the bank shall attract a fine of five times the amount that the bank waived as a first offender and subsequently, the bank shall pay ten times the charges waived. It is imperative to note that the limit is set to apply to the account irrespective of the channel by which the cash was either withdrawn or deposited. Thus, withdrawals or deposits made from over the counter, ATM and 3rd party cheques encashed over the counter all make up the cumulative limit. Furthermore, the limit applies to the cash brought through Cash-in-Transit (CIT) companies, as the CIT companies only serve as a means of transportation (CBN, 2011).

Under the policy, third party cheques above the sum of N150,000 shall not be eligible for encashment over the counter. Rather, value for such cheques shall be received through the clearinghouse. Thus, any cheque issued with a value above N150,000 to a third party can only be deposited into an account, as such cheques cannot be cashed. If a bank allows 3rd party cheque encashment, it shall be liable to a sanction of 10% of the face value of the cheque or N100,000 whichever is higher. This set-in motion steps to encourage the use of electronic platforms for payment in Nigeria (Adeoti & Oshotimehin, 2012).

Supported by the increased capital base raised from the consolidation, banks in Nigeria responded by massively deploying different forms of electronic payment platforms. Following this, 1,200 POS terminals were immediately deployed in some trial-cities (CBN, 2011). However, financial records in Nigeria, show that acceptance and use of these platforms were mixed. For instance, KPMG (2014) report indicates that Nigeria has a POS adoption rate of 27% which represents a growth of 12% from its survey in 2013. The survey also found that the level of adoption of ATM is 91% up from 86% in 2013 and 82% in 2012 respectively. Thus, showing that while customers have significantly adopted the ATM, many customers have remained reluctant to use the POS. NIBSS

(2015) report also recorded similar trends. According to NIBSS (2015), while POS is the most popular non-cash payment channel, preferred among the non-cash payment options by 93.6% of merchants, only 35.8% of consumers use it. Of this people, only 3.1% of consumers cite Card/POS as their preferred payment option. Thus, attesting to the low usage of POS. Research also shows that most of the early users of the electronic platforms were young people. For instance, Ugwuonah, Ifeancha, Egbo, and Chuba (2009:197) found that ATM in Nigeria was more patronised by young people below the age of 40.

One of the key problems reported to be affecting the usage of POS is the issue of connectivity. To increase the usage of POS across the country, the NIBSS (2015) report advised that technical features that are connectivity based must be improved. Hence, focus must be on deploying POS terminals to informal/open-air or unstructured markets where adoption and use are extremely low, and improvements must be made to the timeframe for resolving POS complaints. As at December 2014, Banks in Nigeria have deployed about 350,000 POS terminals across the country, a significant increase from the about 120,191 in 2013 and 13,100 in 2010. However, another report by NIBSS indicates that 72.5% of non-users of POS in Nigeria claim to be unaware of the benefits of using POS (NIBSS, 2015).

KPMG (2014) indicates that there has been a continuous increase in adoption of the electronic channels in Nigeria by retail bank customers. With Internet Banking increasing from 13% in 2012 to 18% in 2013, mobile banking from 10% in 2012 to 14% in 2013 and mobile payments 6% in 2012 to 8% in 2013. The adoption of POS increased to 27% in 2013 from 15% in 2012. KPMG believes that there is greater potential for further growth in the use of alternate channels with better education of the customer population and resolution of current infrastructural challenges. The only channel that suffered a decline in usage (from 12% in 2013 to 10% in 2014) was the contact centres. Aversion to call charges and the perception of the contact centres inability to sufficiently attend to customers' queries were some of the key reasons for the comparatively lower adoption of this channel.

According to KPMG (2014) report, the POS still suffers a significant expectation gap with 95% of SMEs describing it as very important to their businesses compared to only 36% who were very satisfied with availability and uptime of the terminals provided by their banks. While a lot of the focus on alternate channel improvements has been targeted at retail consumers, KPMG believes that addressing the payment needs of merchants also presents win-win opportunities for banks to increase revenues from the use of cards and POS terminals while at the same time, enabling merchants to grow their businesses.

However, Nigeria is a heavily cash-oriented economy with retail and commercial payments primarily made in cash (Adeniyi & Olutayo, 2015). Indeed, cash is a strong motivator in Nigeria's highly informal economy. As such, Nigeria has a slow pace of movement towards an alternative mode of payment (Ovia 2008). The failure to sustain an appreciable growth in the use of electronic payment cards for financial transactions in the country has not only been due to the risk of insecurity but primarily due to the culture-bound attitudinal penchant of Nigerians for carrying and displaying cash (Chiemeké & Ewuekpae, 2011). As a result, a whopping 85% of the money in the economy is freely circulating outside the banking system (CBN 2012), making the country a cash-based economy, unlike countries such as the UK and the US where only 4% and 9% of the money in the respective economies reside outside the banks (Ovia, 2002; Ojo, 2004; Ayo & Babajide, 2006).

2.5.3 Cultural/Language Factor

Nigeria has more than 250 ethnic tribes. The three largest and most dominant ethnic groups are the Hausa, Yoruba, and Igbo. English is the official language of Nigeria. English is the only language common to most people (Curry, 2010). POS and other e-commerce transactions are usually in the English language. Thus, creating a language barrier that could hinder e-commerce adoption if not adequately addressed. Nigeria is a 'cash and carry' nation (Ovia, 2008). The cash carrying culture of Nigerians has long been rooted in ignorance, illiteracy, lack of security consciousness and lack of appreciation of the merits of digital payment (Ovia, 2002; Ayo & Babajide, 2006). This attitude has also been responsible for beclouding many Nigerians, especially the uneducated ones, from even seeing the need to deposit their monies in the bank in the first place, not minding the digital one.

Enhancing Financial Innovation & Access (EFInA) (2014) reports indicate that 48.1 million out of 93.5 million adult Nigerians are unbanked. The figure represents 51 percent of bankable adult population. Also, following Hofstede's (2001) cultural dimensions, Nigeria is a highly collectivist society, which means that individuals are highly committed to families, extended families and extended relationships (Evwiekpaefe, 2011). Hofstede's (2001) cultural dimensions also indicate that Nigeria scores very high in power distance with a score of 80. Thus, people accept a hierarchical order in which everybody has a place and which needs no further justification. Nigerians are known to accept that others are higher than them. With this comes the expectation that people perceived to be higher and well off should give to those that are lower and less well off. As such, shop attendants expect tips from shoppers perceived to be well to do. Payments through POS sometimes make it less possible for such tipping (NIBSS, 2015).

The preceding has demonstrated the complexity of Nigeria. It is important that this complexity is taken into consideration in research of this nature. In the face of the issue surrounding electronic payment in Nigeria, Nigeria is highly dependent on cash for its transactions (Ovia, 2008) with crude ways of handling security issues like authentication and non-repudiation. Although, banks were able to raise enough money from the consolidation exercise which had aided the provision of technology to support the deployment of POS and other electronic payment platforms, the issue of lack of electricity; a key enabler of electronic payment has had influence on the functionality of the POS and the way people have come to perceive POS. Lack of power means that users will not be able to charge and power the POS terminal so it can be used. Also, the unique issues of Network unavailability mean that people may just believe that the POS does not work or that it will not work (Chiemeke & Evwiekpaefe, 2011).

2.6 Gaps in Literature

Most adoption studies have focused on the developed economies. The literature review has shown that there is a gap in the literature between the studies of technology adoption in the developed and developing countries. A review of the literature revealed that while some variables that affect adoption of technology may be universal, there may be other variables which are unique to different environments that could influence adoption of

new technology. Also, different variables may have different degrees of influence on adoption depending on the nature of the technology that is being adopted and as it relates to the environment in which the investigation is being carried out. Hence, the reason why (Chiemeke & Ewuekpae, 2011) has called for researchers such as this to review factors that affect the adoption of technology in Nigeria and possibly extend the UTAUT model to include the Nigerian factors. Unfortunately, there has been very limited research on technology adoption in Nigeria especially as it related to the use of POS.

Secondly, while many of the recent studies on adoption have utilised the UTAUT as a base model in their investigation, many of the studies have extended the existing UTAUT variables to include other variables depending on the settings in which they conducted their research. Thus suggesting that not all adoption variables have been researched. It also suggests that the degree of influence of the variables differ from place to place. The review of the literature revealed that trust in technology could be a major factor that affects the use of new technology such as the POS. Unfortunately, researchers have rarely isolated it as a factor for investigation. Moreover, the authors of the UTAUT have noted that the model is only able to explain 70% of adoption behavior, thus, suggesting that gaps remain to cover the study of technology adoption.

2.7 Summary

This section has reviewed previous studies. The review was used to establish a conceptual framework for the study. In doing this, the UTAUT was adopted and modified as the conceptual model for the research. Rationale for its adoption was provided. The key constructs of the UTAUT were espoused and used in developing the conceptual model for the research. However, following revelations from the literature, technical infrastructure and trust were isolated as variables of facilitating conditions in modifying the UTAUT model to create a conceptual model for the research. Key concepts that relate to the study were interpreted within the context of the research. Also, an empirical review of existing studies on POS in Nigeria and other studies that applied the UTAUT model was conducted. Finally, the section operationalized certain unique perspectives of Nigeria that could have an influence on the outcome of this type of study - including the Nigerian Technological Profile, the Nigerian Payment System and the Cashless Policy. These perspectives were used to set the study in context.

REFERENCES

- Abukhzam, M. & Lee, A. (2010). Factors affecting bank staff attitude towards E-Banking adoption in Libya, *The Electronic Journal on Information Systems in Developing Countries*, 42(2), 1-15. Retrieved June 10th, 2016, from: <http://www.ejisd.org/ojs2/index.php/ejisd/article/viewFile/674/322>
- Abimbola, O., Amori, A., Omotosho, O., Igboke, I., Omoyeni, D., & Ajayi-Banji, A.(2015). Investigation of energy use pattern and emission discharge in Nigeria: A case study of South West zone. *International Journal of Engineering and Technology Innovation*, 5(1), 56-65. Retrieved February 2nd, 2016 from: <http://sparc.nfu.edu.tw/~ijeti/download/V5-no1-56-65.pdf>.
- Adenikinju, A. (2000). *Analysis of the cost of infrastructure failures in a developing economy: The case of electricity sector in Nigeria*. Final Report submitted to the AERC, Nairobi, Kenya.

- Adenikinju, A. F. (2003). Electric infrastructure failures in Nigeria: A survey-based analysis of the costs and adjustment responses. *Energy Policy*, 3(1), 1519-1530.
- Ajayi, S. I. & Ojo, O. O. (2006). *Money and banking: Analysis and policy in the Nigerian context*, (2nd ed.). University of Ibadan: Daily Graphics Nigeria Ltd.
- Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly*, 16(2), 227-247.
- Adeniyi A. A. & Olutayo, S.O.(2015). Cashless policy and customers' satisfaction: A study of commercial banks in Ogun state, Nigeria. *Research Journal of Finance and Accounting*, 6(2), 37-47
- Adeoti, J. O. (2011). Automated teller machine (ATM) frauds in Nigeria: The way out. *Journal of Social Sciences*, 27(1), 53-58.
- Adeoti, O. O. & Oshotimehin, K. O. (2011). Factors influencing adoption of point of sale terminals in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 2(5), 388- 392.
- Adeoti, O & Oshotimehin, K. (2012). Adoption of point of sale terminals in Nigeria: Assessment of consumers' level of satisfaction. *Research Journal of Finance and Accounting*, 3(1), 1-5.
- Adesina A.A. & Ayo, C.K. (2010). An empirical investigation of the level of users' acceptance of E-banking in Nigeria. *Journal of Internet Banking and Commerce*, 15(1), 102-145.
- Agarwal, R., & Prasad, J. (1999). Are individual differences germane to the acceptance of new information technologies? *Decision Sciences*, 30(2), 361-391.
- Ahmed A. & Akhlaq E. (2013). The effect of motivation on trust in the acceptance of internet banking in a low-income country. *International Journal of Bank Marketing*, 31(2), 115-125.

- Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In *Action control* (pp. 11-39). Springer Berlin Heidelberg.
- Ajzen, I. (1996). *Attitudes, Personality and Behavior*. (1st ed.). Buckingham/Berkshire, England: Open University Press.
- Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52(1), 27-58
- Ajzen, I. (2002a). Perceived behavioural control, self-efficacy, locus of control, and the theory of planned behaviour. *Journal of Applied Social Psychology*, 32, 665-683.
- Ajzen, I. (2002b). Residual effects of past on later behaviour: Habituation and reasoned action perspectives. *Personality and Social Psychology Review*, 6(2), 107-122.
- Ajzen, I. (2005). *Attitudes, Personality and Behavior*. (2nd ed.). Buckingham/Berkshire, England: Open University Press
- Alaiad A., & Zhou L. (2013). Patient behavioural intention toward adopting home healthcare robots, in: Proceedings of the Nineteenth Americas conference on information systems, Chicago, IL, August 15–17, 2013.
- Aliyu, A. A., Younus M.D. & Tasmin R.B. (2013). An exploratory study on adoption of electronic banking: Underlying consumer behaviour and critical success factors. Case of Nigeria. *Business and Management Review*, 2(1), 1–6. Retrieved January 10, 2014, from: <http://www.businessjournalz.org/bmr>
- Al Qeisi K. & Al-Abdallah G. (2013). Internet banking adoption in Jordan: A behavioural approach. *International Journal of Marketing Studies*. 5(6). Retrieved January 3rd, 2015, from: <http://dx.doi.org/10.5539/ijms.v5n6p84>.

- Al Qeisi, K., Dennis, C., Alamanos, E. & Jayawardhena, C. (2014). Website design quality and usage behaviour: Unified theory of acceptance and use of technology. *Journal of Business Research*. 67(11), 2282–2290.
- Al-Somali, S. A., Gholami, R. & Clegg, B. (2009). An investigation into the acceptance of online banking in Saudi Arabia. *Technovation*, 29 (2), 130-141.
- Al-Somali, S., Gholami, R. & Clegg, B. (2011). An investigation into the adoption of electronic commerce among Saudi Arabian SMEs. *Journal of Electronic Commerce in Organizations*, 9 (2), 41-65.
- American Marketing Association (2013). Retrieved January 15th, 2016 from: <https://www.ama.org/AboutAMA/Pages/Definition-of-Marketing.aspx>.
- Attuquayefio, S. N. B., Achampong, A. K., & Aryeetey, I. T. (2014). Extending TAM with social norm to model students' intentions to adopt ICT. *European Scientific Journal*, 10(14), 435-446.
- Ayo, C. K & Babajide, D. O. (2006). Designing a reliable E-payment system: Nigeria a case study. *Journal of Internet Banking and Commerce*, 11(2), 1 -11.
- Bagozzi, R. (1975). Marketing as exchange. *Journal of Marketing*, 39(4), 32-39.
- Baker, M. J. (1996). *Marketing: An Introductory Text*. (6th ed.). London: Macmillan.
- Balogun, E.D. (2007). A review of Soludo's perspective of banking sector reforms in Nigeria (MPRA Paper No. 3803). Retrieved June 2nd, 2015, from: <http://mpa.ub.uni-muenchen.de/3803/>.

- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122-147.
- Bandura, A. (1986). *Social foundations of thought and action*. New Jersey: Prentice- Hall, Inc.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9) 1175-1184.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review Psychology*, 51(1), 1-26.
- Barber, B. (1983). *The logic and limits of trust*. New Brunswick, NJ: Rutgers University Press.
- Benbasat, I. & Barki, H. (2007). Quo Vadis, TAM? *Journal of the Association of Information Systems*, 8 (4), 211–218.
- Bergner Raymond M. (2011). What is behaviour? And so what? *New Ideas in Psychology*, 29, 147–155.
- Betz, F. (1998), *Managing Technological Innovation: Competitive Advantage from Change*, New York: John Wiley & Sons, Inc.
- Bhattacharjee, A. (2002). Individual trust in online firms: Scale development and initial test. *Journal of Management Information Systems*, 19(1), 211–241.
- Bhatiasevi, V. (2015). An extended UTAUT model to explain the adoption of mobile banking. Retrieved March 11th, 2015, from: idv.sagepub.com at Lagos Business School PARENT.

- Bhatti, T. (2007).Exploring factors influencing the adoption of mobile commerce.*Journal of Internet Banking and Commerce*, December 2007, 12(3), 1-13. Retrieved from <http://www.arraydev.com/commerce/jibc/>
- Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2006).*Consumer behaviour* (10thed.). Mason, OH: Thomson Higher Education.
- Carlsson, C., Carlsson, J., Hyvonen, K., Puhakainen, J., & Walden, P. (2006).Adoption of mobile devices/services-Searching for answers with the UTAUT.Proceedings of the 39th Hawaii International Conference on System Science-IEEE [Internet].Retrieved July 2, 2015, from: <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=01579556>.
- Casey, T. & Wilson-Evered, T. (2012).Predicting uptake of technology innovations in online family dispute resolution services: An application and extension of the UTAUT.*Computers in Human Behaviour*, 28(6), 2034–2045.
- Çelik, H. (2008). What determines Turkish consumers’ acceptance of Internet banking? *International Journal of Bank Marketing*, 26(5), 353-370.
- Central Bank of Nigeria (CBN), (2007).Banking supervision annual report.Retrieved 8 August 2015, from:<http://www.cenbank.org/documents/publications.asp>.
- Central Bank of Nigeria (CBN) (2010).Consolidated annual reports of the Central Bank of Nigeria 2006 – 2010.Retrieved March 28th, 2015, from: <http://www.cenbank.org/consolidated+annual+reports+of+the+central+bank+of+nigeria+2006-2010.pdf>.
- Central Bank of Nigeria (2011).Guidelines on Point-of-Sale (POS) - Central Bank of Nigeria.Retrieved March 28th, 2015, from:www.cenbank.org/.../POS_GUIDELINES_August2011_FINAL_FINAL.

- Central Bank of Nigeria (CBN) (2012).Annual reports of the Central Bank of Nigeria 2011. Retrieved March 28th, 2015, from: [http://www.cenbank.org/annual-reports-of-the-central-bank-of-nigeria/2011/...](http://www.cenbank.org/annual-reports-of-the-central-bank-of-nigeria/2011/)
- Central Bank of Nigeria (CBN) (2013).Payment system vision 2020 release 2.0. Central Bank of Nigeria September 2013.Retrieved March 28th, 2015, from: http://www.cbn.gov.ng/icps2013/papers/NIGERIA_PAYMENTS_SYSTEM_VISION_2020%5Bv2%5D.pdf.
- Chang, C.C., Lin, C.L. & Yan, C.F. (2011).The influence of perceived convenience and curiosity on continuous English learning intention in mobile environment.*Journal of Educational Media and Library Sciences*, 48(4), 571–588.
- Chau, P.Y. K., & Hu, P. J. (2002).Investigating healthcare professionals’ decisions to accept telemedicine technology: An empirical test of competing theories.*Information and Management*, 39(4), 297-311.
- Chen, Yu-Hui.& Stuart, B. (2007).Initial trust and online buyer behaviour.*Journal of Industrial Management&Data Systems*, 107(1), 21-36.
- Cheng, T. C. E. Lam, D. Y. C. & Yeung, A. C. L. (2006) Adoption of internet banking: An empirical study in Hong Kong.*Decision Support Systems*, 42(3), 1558-1572.
- Chiemeké, S. & Ewuekpae, A. (2011). A Conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) Model with Nigerian factors in E-commerce adoption. *Educational Research*, 2(12), 1719-1726.
- Chiemeké, S. C., Ewuekpae, A. E. & Chete, F. O. (2006). The adoption of internet banking in Nigeria: An empirical investigation. *Journal of Internet Banking and Commerce*, 11(3), 1-9.
- Chiou, J.S. & Shen, C.C. (2012). The antecedents of online financial service acceptance: The impact of physical banking services on Internet banking acceptance. *Behaviour and Information Technology*, 31(9), 859-871.
- Chukwueh, C.C. (2010). Utilization of indigenous communication strategies in promoting marketing practices in rural communities in Nigeria. *Canadian Social Science*, 6(6), 217-221.

- Cody-Allen, E. & Kishore, R. (2006). An extension of the UTAUT model with E-Quality, trust & satisfaction constructs. Proceedings of the 2006 ACM SIGMIS CPR conference on computer personnel research: Forty-four years of computer personnel research: achievements, challenges & the future 82-89, Retrieved March 20th, 2015, from:<http://portal.acm.org/citation.cfm?id=1125115>.
- Dasgupta, S., Paul, R. & Fuloria, S. (2011). Factors affecting behavioural intentions towards mobile banking usage: Empirical evidence from India. *Romanian Journal of Marketing* 6(1): 6–28.
- Davis, F.D. (1986). *A technology acceptance model for empirically testing new end-user information systems: Theory and results* (Doctoral dissertation, Massachusetts Institute of Technology).
- Davies, F., Moutinho, L., & Curry, B. (1996). ATM users' attitudes: A neural network analysis. *Marketing Intelligence & Planning*, 14(2), 26.
- Deci, E. & Ryan, R., (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Dishaw, M.T. & Strong, D. M. (1999). Extending the technology acceptance model with task-technology fit constructs. *Information & management*, 36(1), 9-21.
- Dulle F. W & Minishi-M. (2011). The Suitability of unified theory of acceptance and use of technology (UTAUT) model in open access adoption studies. *Information Development*, 27(1), 32 – 45.
- Eagly, A. H. & Chaiken, S. (1993) *The Psychology of 4 Attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
- Economic and Financial Crimes Commission, (EFCC). (2008). Internet Frauds. Retrieved October 5th, 2015,

from:http://www.efccnigeria.org/index.php?option=com_content&task=view&id=12&Itemid=30.

Ennew, C. & Sekhon, H. (2007). Measuring trust in financial services: The trust index. *Consumer Policy Review*, 17(2), 62-8.

Enrique P. B. & Pradeep, K. K. (2011). Effects of trust beliefs on consumers' online intentions. *European Journal of Marketing*, 45(6), 936 – 962.

Escobar-Rodriguez, T. & Carvajal-Truzillo, E. (2014). Online purchasing tickets for low-cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management*, 43, 70–88.

E-ppan.org (2013). DRAFT WHITE PAPER ON POS - E-PPAN. Retrieved March 12, 2015, from: www.epan.org/eppanlibrary/White%20Paper%20on%20POS.pdf.

Evans, M., Jamal, A. & Foxall, G. (2006). *Consumer Behaviour*. Chichester, England: John Wiley & Sons Ltd.

Eze, A. (2013). Cashless policy: ATM card users to hit 10 million marks. Retrieved March 12, 2015, from: <http://www.thisdaylive.com/articles/cashless-policy-atm-card-users-to-hit-10-million-mark/103524/>

Fathima, N., Shannon, D. and Ross, M. (2015). Expanding the technology acceptance model (TAM) to examine faculty use of learning management systems (LMSs) in higher education institutions. (MERLOT) *Journal of Online Learning and Teaching*, 11(2), 11-23. Retrieved June 20, 2015, from: http://jolt.merlot.org/Vol11no2/Fathema_0615.pdf

Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.

- Foxall, G. R. (1984). *Corporate innovation: Marketing and strategy*, London: Croom Helm Ltd.
- Frankelius, P. (2009). Questioning two myths in innovation literature. *Journal of High Technology Management Research*, 20(1), 40–51.
- Friedman, B., Kahn, P. H., Jr. & Howe, D. C. (2000). Trust online. *Communications of the ACM*, 43(12), 34-40.
- Gefen, D., & Straub, D.W. (1997). Gender difference in the perception and use of e-mail: An extension to the technology acceptance model. *MIS Quarterly*, 21(4), 389-400.
- Giffin, K. (1967). The contribution of studies of source credibility to a theory of interpersonal trust in the communication process. *Psychological Bulletin*, 68(2), 104-120.
- Goffin, K. & Mitchell, R. (2005). *Innovation management: Strategy and implementation using the pentathlon framework*. Hampshire, England: Palgrave Macmillan.
- Grazioli, S. & Jarvenpaa S. (2000). Perils of internet fraud, *IEEE Transactions on Systems, Man, and Cybernetics*, 30(4), 395-410.
- Haghighi, M., Rahrovy, E., & Vaezi, H. (2012). An application of the theory of planned behaviour (TPB) in describing customers' use of cash cards in points of sale (POS). *International Journal of Learning & Development*, 2(6), 222-233.
- Hall, B.H. & Khan, B. (2002). Adoption of new technology, *Working Paper No. E03330*. Department of Economics, University of California, Berkeley, CA.
- Hasan A. S. Baten A. Kamil A.A. & Parveen S. (2010). Adoption of e-banking in Bangladesh. *African Journal of Business Management*, 4(13), 2718-2727, Retrieved January 11, 2014, from: <http://www.academicjournals.org/AJBM>.
- Hella C. (2013). Resistance, motivations, trust and intention to use mobile financial services. *International Journal of Bank Marketing*, 31(7), 574 – 592.

- Ho, T. H. L. & Chen, Y. (2014). Moderating effect of website types in the relationship between trust and consumers' intention to use online shopping. *American Journal of Business and Management*, 3(1), 60-69.
- Holdershaw, J. & Gendall, P. (2008), Understanding and predicting human behaviour ANZCA08 Conference, *Power and Place*. Wellington, July 2008. Retrieved March 8, 2015, from: <https://www.researchgate.net/publication/22847556>
- Hossain, M.M. & Prybutok, V.R. (2008). Consumer acceptance of RFID technology: An exploratory study. *IEEE Transactions on Engineering Management*, 55(2), 316–328.
- Hsu, C. L., & Lu, H. P. (2004). Why do people play online games? An extended TAM with social influences and flow experience. *Information and Management*, 41, 853-868.
- Huang H., Liu Y & Xing, W. (2012). Adoption of mobile content service in 3G era: An empirical analysis in China. In: *Measuring Technology and Mechatronics Automation in Electrical Engineering 1–9*, New York: Springer
- Hunt, Shelby D. (1976). The nature and scope of marketing. *Journal of Marketing*, 40(3), 17-28.
- International Monetary Fund, *Nigeria, IMF Country Report*.14(103), 10- 25. Retrieved April 20, 2014, from: <https://www.imf.org/external/pubs/ft/scr/2014/cr14103.pdf>
- Ismail, M. & Razak, R. C. (2011). The determinant factors influencing young consumers' acceptance of mobile marketing in Malaysia. *African Journal of Business Management*, 5(32), 12531- 12542.
- Islam, R., Kumar, S., & Biswas, P. K. (2007). Customer satisfaction of ATM Service: A case study of HSBC ATM. Retrieved September 20, 2013, from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=990242

- Jeyaraj, A., Rottman, J.W. & Lacity, M.C. (2006). A review of the predictors, linkages, and biases in IT innovation adoption research. *Journal of Information Technology*, 21(1), 1-23.
- Jih, W.J. (2007). Effects of perceived consumer convenience on shopping intention in mobile commerce: An empirical study. *International Journal of E-Business Research* 3(4), 33–48.
- Joubert J. & Belle J. V. (2013). The role of trust and risk in mobile commerce Adoption within South Africa. *International Journal of Business, Humanities and Technology*, 3(2), 27-38.
- Karahanna, E., & Straub, D. W. (1999). The psychological origins of perceived usefulness and ease of use. *Information and Management*, 35(4), 237-250
- Kesharwani, A. & Bisht, S.S. (2012). The impact of trust and perceived risk on Internet banking adoption in India: An extension of technology acceptance model. *International Journal of Bank Marketing*, 30(4), 303-322.
- Khan, M. A. (2010). An empirical study of automated teller machine service quality and customer satisfaction in Pakistani banks. *European Journal of Social Sciences*, 13(3), 333-344.
- King, R. C. & Gribbins, M. L. (2002). Internet technology adoption as an organisational event: An exploratory study across industries. Proceedings of the 35th Hawaii International Conference on System Sciences – September 12, 2002, IEEE Society Press
- Komiak, S. Y. X. & Benbasat, I. (2006). The effects of personalisation and familiarity on trust and adoption of recommendation agents. *MIS Quarterly*, 30(4), 941-960.
- Kotler, P., Armstrong, G., Saunders, J. & Wong, V. (2002). *Principles of Marketing*. (3rd European ed.). Harlow, England: Prentice Hall.
- Kotler, P., & Armstrong, G. (2001). *Principles of Marketing* (9th Int'l ed.). Upper Saddle River, NJ: Prentice Hall.
- KPMG. (2012). Banking industry customer satisfaction survey. Retrieved April 3, 2015, from: <http://www.kpmg.com/ng/en/pages/bankingindustrycustomersatisfactionsurvey.aspx>.
- KPMG (2013). Banking industry customer satisfaction survey. Retrieved April 3, 2015, from: <http://www.kpmg.com/ng/en/pages/bankingindustrycustomersatisfactionsurvey.aspx>.

- KPMG (2014).Banking Industry Customer Satisfaction Survey. Retrieved April 3, 2015: from:<http://www.kpmg.com/ng/en/pages/bankingindustrycustomersatisfactionsurvey.aspx>.
- Lee, M.C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications*, 8(3), 130-141.
- Lee, M., & Turban, E. (2001).A trust model for consumer internet shopping.*International Journal of Electronic Commerce*, 6, 75–91.
- Liao, Z. & Cheung, M. T. (2002). Internet-based E-banking and consumer attitudes: An empirical study. *Information and Management*, 39, 283-295.
- Li, J. & Kishore, R. (2006). How robust is the UTAUT instrument? A multi-group invariance analysis in the context of acceptance and use of online community weblog systems. [Internet] Proceedings of the 2006 ACM SIGMIS CPR conference on computer personnel research.Claremont, California USA, session 6.1, 183 -189. Retrieved July 26, 2015 from: <http://portal.acm.org/citation.cfm?id=1125218>.
- Lian J. (2015). Critical factors for cloud-based e-invoice service adoption in Taiwan: An empirical study. *International Journal of Information Management*, 35(1), 98–109.
- Luarn, P. & Lin, H.H. (2005).Toward an understanding of the behavioural intention to use mobile banking.*Computers in Human Behaviour*, 21(6), 873–891.
- Lucas, H. & Spitler, V. K. (1999). Technology use and performance: A field study of broker workstations. *Decision Sciences*, 30(2), 291-311.
- Madu, C.N. & Madu, A.A. (2002).Dimensions of e-quality.*International Journal of Quality& Reliability Management*, 19(3), 246-58.

- Maillet, M. S. (2014). Modelling factors explaining the acceptance, actual use and satisfaction of nurses using an Electronic Patient Record in acute care settings: An extension of the UTAUT. *International Journal of Medical Informatics*, 84(4), 36-47.
- Maranville, S. (1992). Entrepreneurship in the business curriculum. *Journal of Education for Business*, 68(1), 27-31.
- Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with the theory of planned behaviour. *Information Systems Research*, 2 (3), 173-191.
- Mathieson, K., Peacock, E. & Chin, W.C. (2001). Extending the technology acceptance model: The influence of perceived user resources. *The Database for Advances in Information Systems*, 32 (3), 86-112.
- Martins C., Oliveira T, & Popovič, A. (2014). Understanding the internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, 34(1), 1-13.
- Mayer, R. C., Davis, J. H. & Schoorman, F. D. (1995). An integrative model of organisational trust. *Academy of Management Review*, 20, 709-734.
- McKenna, B., Tuunanen, T., & Gardner, L. (2013). Consumers' adoption of information services. *Information & Management*, 50(5), 248-257.
- Mcknight, D.H. (2005). Trust in information technology, in Davis, G.B. (ed.). *The Blackwell Encyclopedia of Management. Management Information Systems*, Malden, MA: Blackwell, 7, 329-331.
- Mcknight, D. H., & Chervany, N. L. (1996). The meanings of trust. *University of Minnesota MIS Research Center Working Paper series*, WP 96-04. Retrieved June 20, 2015, from: <http://misrc.umn.edu/wpaper/WorkingPapers/9604.pdf>.

- McKnight, D.H., Choudhury, V. & Kacmar, C. (2002). Developing and validating trust measures for e-commerce: An integrative typology. *Information Systems Research*, 13(3), 334-359.
- Mcknight, D. H., Cummings, L. L. & Chervany, N. L. (1998). Initial trust formation in new organisational relationships. *Academy of Management Review*, 23(3), 473-490.
- McKnight, D. H., Carter, M., Thatcher, J. B., & Clay, P. F. (2011). Trust in a specific technology: An investigation of its components and measures. *ACM Trans. Management Information System*, 22(12), 25 pages. Retrieved December 12, 2015, from: <http://doi.acm.org/10.1145/1985347.1985353>ACM
- Miller, K. (2005). *Communications theories: perspectives, processes, and contexts*. New York: McGraw-Hill.
- Minton E. A & Khale L. R. (2014). *Belief Systems, Religion, and Behavioral Economics*. New York: Business Expert Press LLC.
- Mishra S., & Olshavsky, R. (2005). Rationality unbounded: The internet and its effect on consumer decision making. In Haugtvedt C. P., Machleit K. A., & Yalch R. F. (Eds.), *Online consumer psychology: understanding and influencing consumer behaviour in the virtual world*. Hove, UK: Erlbaum. Pp. 361–378.
- Mishra S. K. & Sahoo, D.P. (2013). Mobile banking adoption and benefits towards customer service. *Special Issue of International Journal on Advanced Computer Theory and Engineering (IJACTE)*, 2(1), 78 – 83. Retrieved January 1, 2014, from: www.irdindia.in/Journal_IJACTE/PDF/Vol2_Iss1/16.pdf.
- Mitchell, S. (1994). Technophiles and technophobes. *American Demographics*, 16(2), 36-42.
- Moon, J. W., & Kim, Y. G. (2001). Extending the TAM for a world-wide-web context. *Information and Management*, 38(4), 217-230.

- NCC.(2016). Subscriber statistics - Monthly telephone subscriber data.Retrieved January 1, 2016, from:http://www.ncc.gov.ng/index.php?option=com_content&view=article&id=125:subscriber-statistics&catid=65:industry-information&Itemid=73.
- Ndlovu I.,& Mlungisi S. (2013). Benefits and risks of e-banking: Case of commercial banking in Zimbabwe. *The International Journal of Engineering and Science (IJES)*, 2(4), 34-40.
- NIBSS (2015), POS adoption and usage: A study on Lagos State, Lagos. Retrieved June 12, 2015, from:<http://www.nibss-plc.com.ng/wp-content/uploads/2015/05/NIBSS-2015-POS-Adoption-Study-Lagos-State.pdf>.
- Obasi, S. N. & Ebirim, U, (2008). Utilisation of indigenous communication strategies in the promotion of life-long learning in rural communities in Nsukka.*Proceedings of first International Conference of the Faculty of Education, University of Nigeria, Nsukka*.University Trust Publishers, Nsukka.
- Ogundele, A. G., Christianah T. F. &Gana, P. S. (2014).Technical education as a vital tool for skill acquisition through guidance and counseling for nation building.*American Journal of Educational Research* 2(1), 50-53. Retrieved March 26, 2015, from:<http://pubs.sciepub.com/education/2/1/9/>.
- Ojo, A. T. (2004). Enhancing the efficiency of the payment system: Conceptual framework7.*A paper presented at the 9th CBN Monetary Policy Forum, Abuja, Nigeria, May 2004*. Retrieved from: <http://www.iosrjournals.org/iosr-jhss/papers/Vol.%2021%20Issue4/Version-6/A0214060107.pdf>
- Olesin, A. (2006), E-payment-stakeholders worried over switching system. *The Punch Newspaper*, 26th May 2006.

- Omotayo F. & Dahunsi O. (2015). Factors affecting adoption of point of sale terminals by business organisations in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 5(10), 115-136. Retrieved December 12, 2015, from:
http://hrmars.com/hrmars_papers/Factors_Affecting_Adoption_of_Point_of_Sale_Terminals_by_Business_Organisations_in_Nigeria.pdf.
- Oliveira T, Faria, M, Thomas, M. A. & Popovic, A. (2014). Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM. *International Journal of Information Management* 34(5), 689–703.
- Omoniyi, J.U. (2012). E-banking marketing and practices in Nigeria: A performance appraisal. *International Journal of Bank Marketing*, 22(6), 36 -48.
- Omotayo F. & Dahunsi O. (2015). Factors affecting adoption of point of sale terminals by business organisations in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 5(10), 115-136. Retrieved December 12, 2015, from:
http://hrmars.com/hrmars_papers/Factors_Affecting_Adoption_of_Point_of_Sale_Terminals_by_Business_Organisations_in_Nigeria.pdf.
- Onochie U.P., Egware, H.O & Eyakwanor, T.O. (2015). The Nigeria electric power sector (Opportunities and Challenges). *Journal of Multidisciplinary Engineering Science and Technology*, 2(4), 494-502.
- OPEC (2015) Annual Bulletin. Retrieved January 14, 2016, from:
http://www.opec.org/opec_web/static_files_project/media/downloads/publications/ASB2015.pdf.
- Osgood, C., & Tannenbaum, P. (1955). The principle of congruity in the prediction of attitude change. *Psychology Review*, 62, 42-55. Retrieved April 4, 2015, from:
<http://psycnet.apa.org/journals/rev/62/1/42/>.
- Osgood, C. E., Succi, G. J. & Tannenbaum, P. H. (1957). *The measurement of meaning*. Urbana, IL: University of Illinois Press.

- Oskamp, S. (2004). *Attitudes and opinions*. Mahwah, NJ, USA: Lawrence Erlbaum Associates Incorporated. Available as e-book Retrieved December 16, 2014, from: <http://site.ebrary.com/lib/bournemouth/Doc?id=l0103838&ppg=l77>.
- Oslo, Manual (2005):OCDE *Guidelines for Collecting and Interpreting Innovation Data*. Retrieved December 31, 2015, from:<http://www.oecd.org/science/inno/2367580.pdf>
- Ovia, J. (2002). The role of information technology in growing the Nigeria financial market. *Financial Standard*, October 21, 2002 p.25.
- Ovia, J. 2006. IT development as corporate strategy in repositioning Banks in Nigeria. *Zenith Economic Quarterly*, 1(7), 11- 14.
- Ovia J. (2008). The role of banks in promoting e-commerce in Nigeria. Internet Group Seminar. Golden Gate Restaurant, Lagos, Nigeria.
- Oyewole, O S. Abba, M., El-maude, J. G. & Arikpo, I. A. (2013). E-banking and bank performance: Evidence from Nigeria. *International Journal of Scientific Engineering and Technology*, 2(8), 766-771.
- Parisa, A. (2006). Adoption of e-banking services by Iranian customers. *Unpublished M.sc thesis*. Lulea University of Technology, Division of Industrial Marketing and E- Commerce.
- Pavlou, P. A. (2003). Consumer acceptance of electronic commerce: Integrating trust and risk with the technology acceptance. *International Journal of Electronic Commerce*, 7(3), 69-103.
- Rempel, J. K., Holmes, J. G. & Zanna, M. P. (1985). Trust in close relationships. *Journal of Personality and Social Psychology*, 49(1), 95-112.
- Rogers, E. M. (1995). *Diffusion of innovations* (4thed.). New York, NY: The Free Press.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.

- Rousseau, D. M., Sitkin, S. B., Burt, R. S. & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3), 393-404.
- Sahin, I. (2006). Detailed review of Rogers' diffusion of innovations theory and educational technology-Related studies based on Rogers' theory. *The Turkish Online Journal of Educational Technology – TOJET*, 5(2/3), 14 – 23.
- Salawu, R.O. & Salawu, M.K. (2007). The emergence of internet banking in Nigeria: An appraisal. *Information Technology Journal*. 6(4), 490-496.
- Sathye, M. (1999). Adoption of internet banking by Australian consumers: An empirical investigation. *International Journal of Bank Marketing*, 17 (7), 324-334.
- Schaper, L. K. & Pervan, G.P. (2007). An investigation of factors affecting technology acceptance and use decisions by Australian allied health therapists. Proceedings of the 40th Hawaii International Conference on System Sciences – 2007. Retrieved December 31, 2014, from: <https://www.semanticscholar.org/paper/An-investigation-of-factors-affecting-technology-Schaper-Pervan/843e7738944fe28af1df52efc57b5023ecc81d71/pdf>,
- Schiffman, L. G. & Kanuk, L. L. (2007). *Consumer Behaviour* (9thed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Schott, K. E. (1981). *Industrial Innovation in the United Kingdom, Canada and the United States*. London: British-North American Committee.
- Simon, H. (1957). *A behavioural model of rational choice*. in *models of man, social and rational: Mathematical Essays on Rational Human Behavior in a Social Setting*. New York: Wiley.
- Simon, H. (1983). *Reason in human affairs*. Stanford, C A: Stanford University Press.
- Soludo, C. (2006). Beyond banking sector consolidation in Nigeria. *Paper presented at the 12th Annual Nigerian Economic Summit*, Transcorp Hilton, Abuja. June 7-9, 2006.

- Sripalawat, J., Thongmak, M. & Ngramyarn, A. (2011). M-banking in metropolitan Bangkok and a comparison with other countries. *Journal of Computer Information Systems*, 51(3), 67-76.
- Stanton, W. J. (1978). *Fundamentals of marketing* (5thed.). New York: McGraw-Hill Book Company.
- Stemper, R.G. (1990). *e-Guide to successful consumer banking strategy*. Chichester and Toronto: John Wiley & Sons.
- Su, S., Tsai, C. & Hsu, W. (2013). Extending the TAM model to explore the factors affecting intention to use telecare systems. *Journal of Computers*, 8(2), 525-532.
- Suganthi, R., Balachandher, K. G. & Balachandran (2001). Internet banking patronage: An empirical investigation of Malaysia. *Journal of Internet Banking and Commerce*, 6(1), 437-446.
- Taylor, S. & Todd, P. (1995a) Decomposition and crossover effects in the theory of planned behaviour: A study of consumer adoption intentions. *International Journal of Research in Marketing*, 12(2), 137-155.
- Taylor, S. & Todd, P. (1995b). Understanding information technology usage: A Test of competing models. *Information Systems Research*, 6(2), 144-176.
- Teo, T. (2010). Examining the influence of subjective norm and facilitating conditions on the intention to use technology among pre-service teachers: A structural equation modelling of an extended Technology Acceptance Model. *Asia Pacific Education Review*, 11(2), 253-262.
- Thatcher J.B., Zimmer J. C., Gundlach M.J. & McKnight, D.H. (2008). Internal and external dimensions of computer self-efficacy: An empirical examination. *IEEE Transactions on Engineering Management*, 55(4), 628-644.
- Thomas, T.D., Singh, L. & Gaffar, K. (2013). The utility of the UTAUT model in explaining mobile learning adoption in higher education in Guyana. *International Journal of Education and Development using Information and Communication Technology*, 9(3), 71-85.
- Tosuntas, B. S., Karada, E., & Orhan, S. (2015). The factors affecting acceptance and use of interactive whiteboard within the scope of FATİH project: A structural

- equation model based on the Unified Theory of acceptance and use of technology. *Computers & Education*, 81, 169-178.
- Ugochukwu U.C. (1999). Foreign banks, Africans and credit in colonial Nigeria 1890-1912. *The Economic History Review New Series*, 52(4), 669-691.
- Ugwuonah, G.E., Ifeanchi, I. C., Egbo, O. P. & Chuba I. (2009). Bank customers' perception on ATM services in Nigeria. *Sustainable Human Development Review*, 1(1), 189 – 205.
- Venkatesh, V. & Davis, F. D. (2000). A theoretical extension of the technology acceptance Model: Four longitudinal field studies. *Management Science*, 46 (2), 186-204.
- Venkatesh, V., & Morris, M. (2000). Why don't men ever stop to ask for directions? Gender, social influence and their role in technology acceptance. *Management Science*, 2, 205-215.
- Venkatesh, V., Morris, M. G., Davis, G. B. & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Journal of Information Technology*, 39, 273-315.
- Venkatesh, V., Thong, J.Y. & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS quarterly*, 36(1), 157-178.
- Venkatesh, V., James Y. L. Thong, Xin Xu (2016). Unified theory of acceptance and use of technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, 17(5), 328–376.
- Vidotto, G., Davide, M., Stefano N. & Marco, V. (2012). Trusting beliefs: A functional measurement study University of Padua, Italy. *Psicologica*, 33, 575-590. Retrieved September 9, 2012, from: <http://files.eric.ed.gov/fulltext/EJ980495.pdf>.
- Wang, H. & Yang, H. (2005). The role of personality traits in UTAUT model under online stocking. *Contemporary Management Research*, 1(1) 69-82.
- Wang, W. & Benbasat I. (2007). Recommendation agents for electronic commerce: Effects of explanation facilities on trusting beliefs. *Journal of Management Information Systems*, 23(4), 217–246.

- Wang, C., Lo, S. & Fang, W. (2008). Extending the technology acceptance model to mobile telecommunication innovation: the existence of network externalities. *Journal of Consumer Behaviour*, 7(2), 101-110.
- Wessels, L.& Drennan, J. (2010). An investigation of consumer acceptance of M-banking. *International Journal of Bank Marketing*, 28(7), 547 – 568.
- World Bank (2016). Nigeria economic report: Improved economic outlook in 2014, and prospects for continued growth look good. Retrieved December 1, 2016, from: <http://www.worldbank.org/en/country/nigeria/publication/nigeria-economic-report-improved-economic-outlook-in-2014-and-prospects-for-continued-growth-look-good>.
- Wilberforce, D. (2004). Introducing smart cards into the Nigerian banking environment: The all States experience. A paper presented at a seminar of electronic banking and the information super highway in Nigeria, July 20, 2004.
- Williams, M.D. Dwivedi, Y.K., Lal, B. & Schwarz, A. (2009). Contemporary trends and issues in IT adoption and diffusion research. *Journal of Information Technology*, 24 (1), 1-10.
- Williams, D. M., Nripendra, P. R. & Yogesh, K. D. (2015). The unified theory of acceptance and use of technology (UTAUT): A literature review. *Journal of Enterprise Information Management*, 28(3), 443 – 488.
- Wright, R. (2006). *Consumer Behaviour*. London: Thomson Learning.
- Wu, J.H. & Wang, Y.M. (2007). Measuring ERP success: The key-users' viewpoint of the ERP to produce a viable IS in the organization. *Computers in Human Behaviour*, 23(3), 1582-96.
- Wu, P.H. Hwang, G.J. Su, L.H. & Huang, Y. M. (2012). A context-aware mobile learning system for supporting cognitive apprenticeships in nursing skill training. *Educational Technology & Society*, 15(1), 223–236.
- Yang, A. S. (2009). Exploring adoption difficulties in mobile banking services. *Canadian Journal of Administrative Sciences*, 26(2), 136-149.
- Yousafzai S., Pallister, J.G. & Foxall, G.R. (2005). Strategies for building and communicating trust in electronic banking: A field experiment. *Psychology & Marketing*, 22 (2), 181-201.
- Yousafzai, S., Pallister, J.G. & Foxall, G.R. (2009). Multidimensional role of trust in Internet banking adoption. *The Service Industries Journal*, 29 (5), 591-605.

- Yousafzai, S.Y., Foxall, G.R., Pallister, J.G. (2010).Explaining internet banking behaviour: Theory of reasoned action, theory of planned behaviour, or technology acceptance model.*Journal of Applied Social Psychology*,40 (5), 1172-1202.
- Yu, C.S. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research*, 13(2), 104–121.
- Zhou, T. (2011).An empirical examination of initial trust in mobile banking.*Internet Research*, 21(5), 527-540.
- Zhou, T, Lu, Y. & Wang, B. (2010).Integrating TTF and UTAUT to explain mobile banking user adoption.*Computers in Human Behavior*, 26, 760–767.
- Zhu, Z., Scheuermann, L. &Jambeau, B. J. (2004).Information network technology in the banking industry.*Industrial Management and Data Systems*, 104(5), 409-417.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In the preceding chapter, a review of relevant literature for the study was conducted. This chapter deals with the methods and procedures that were adopted in the execution of this research. Specifically, the chapter describes the design of the study, the area of the study, sources of data, the population of the study, determination of sample size, sampling techniques, research instruments that were used, the data collection procedure and the result of the pilot study. The method of data presentation and analysis are also discussed.

3.2 Research Design

The aim of this research has been to evaluate the factors that influence the adoption of POS in Nigeria as a means of payment by retail shoppers. This has led to the adoption of a descriptive research design involving survey research method. The descriptive research design is known to be suitable for social science where the researcher systematically collects data, presents and analyses it to give a clear picture of what has happened or is happening, without exerting control over the variables (Eboh, 2009: 174). While there is no universal best approach to research (Thomas, 2004), Collis and Hussey (2003) suggest that a researcher's basic belief about the world will be reflected in the way their research is conducted. However, there is the need to show that careful thoughts have been undertaken before a particular strategy was employed (Thomas, 2004: 50).

Therefore, descriptive research design was chosen for this research as it will allow the researcher to gather quantifiable information that can be used for statistical inference through data analysis. As a consequence, a quantitative approach has been adopted in the research involving the survey technique (Onodugo, 2010). Observably, surveys seem to be the most typical approach to a descriptive research. Many methodology authors support this opinion. For instance, Saunders et al., (2003: 92) note that, as a rule, surveys are "associated with the descriptive approach ... allow the collection of a large amount of data from a sizeable population in a highly economical way ... and are perceived as authoritative by people in general." Consequently, the survey method is one of the most popular and common data collection methods among business and management

researchers (Remenyi et al., 2000; Saunders et al., 2003; Ghauri & Gronhaug, 2005). Therefore, following the adoption of a descriptive design, the survey technique was equally adopted for this research.

3.3 Area of the Study

The study was carried out in Nigeria. Since the issue at stake is a national one, this study covered the six geopolitical zones of the country. This was necessary so that a truly representative national coverage can be achieved. Hence, the area of study was the state capital of one state in each of the six geopolitical zones in Nigeria. Six states were *judgmentally selected* from each of the geopolitical zones as follows:

Table 3 1The Six Selected Representative States

Geographical Zone	Selected States (Capital)	S h o p p i n g M a l l
S o u t h - S o u t h	Rivers (Port Harcourt)	P a r k n S h o p
S o u t h - E a s t	E n u g u (E n u g u)	Polo Park
S o u t h - W e s t	L a g o s (I k e j a)	C i t y M a l l
N o r t h - E a s t	B a u c h i (B a u c h i)	J i f a t u
N o r t h - C e n t r a l	B e n u e (M a k u r d i)	O G W i n n e r s
N o r t h - W e s t	K a n o (K a n o)	A d o B a y e r o
T o t a l	6 S t a t e s	

3.4 Sources of Data Collection

Fundamentally, the objective of this study necessitated the collection of primary data, which were sourced through field surveys, using structured questionnaire.

3.4.1 Primary Data Collection

The nature of this thesis required that current, realistic and valid data be obtained. To access the data, the researcher followed the method adopted by previous researchers in the subject area (Thomas, 2004). Since the study was a national one, the researcher contacted his colleagues (Bankers) in the six locations from where data was collected to confirm that they will be available to assist in collection of data and that there were large business outlets (mainly malls) where POSes are used from where data could be collected in their respective locations. A multi-mode survey method which combined online and offline questionnaire administration techniques was employed in the distribution of the questionnaires. This is in line with the suggestions of methodology scholars such as Wilson and Laskey (2003). The approach enabled data to be obtained from those who were able to complete the questionnaires at the point where they were administered and also from those who preferred to respond at a later time and return their responses electronically. Couper (2000) also encourages academic researchers to adopt this same “mixed-mode survey” procedure, whereby several distribution options are employed in the administration of the survey so as to maximise the overall response rate of the study.

The data was collected between 22nd January 2016 and 24th April 2016. The reason for adopting the three-month duration was to allow enough time to communicate, publicise, distribute and retrieve survey materials from all the geopolitical zones of the country. This involved the researcher travelling to and from some of the locations. The duration was also meant to help in maximising the number of responses received. Data were collected concurrently in the six states.

An electronic version of the questionnaire was emailed as an attachment to colleagues in the six states of the six geo-political zones in the country where the survey was conducted to print and share to respondents in different shopping malls in their locations. To boost the responses, the researcher also asked colleagues to provide emails of those who were unable to complete the questionnaire immediately but were willing to participate in the survey so that he can email electronic copies of the questionnaire to them. At the end of the three months period, a total of 237 questionnaires were received and found usable for the study.

3.4.1 Secondary Information

The researcher gathered relevant secondary information from the existing literature in the area of the study. This information were useful in providing substantial background and current information in the subject area and information relating to the economy, technology and culture of Nigeria. The collection of secondary information necessitated the visiting of several libraries including the UNEC library, Pan African University (Lagos Business School) library from where the researcher gained access to several databases. Secondary data was also sourced from CBN library in Enugu and Lagos, Ministry of Finance websites, Nigerian Inter-Bank Settlement Systems (NIBSS) website, the British National Library, Liverpool, United Kingdom and other Internet sources.

3.5 Population of the Study

The population of this study comprised of users of POS in the selected shopping malls. It was not possible to determine their exact number. It was not necessary to survey the staff of the retail shops since their opinions might not represent the true interpretation of their customers' perceptions of their POS. Moreover, according to Kasim (2005: 4), serviced customers are always in the best position to explain their perceptions of service and channel quality as well as the reasons for their choices, attitudes and intentions towards the services they receive. For this reason, it was decided that only retail shoppers who use POS would be recruited and surveyed in the study. This group represent the population or universe of interest (Odoh, 2006). Since the exact population size is unknown, the researcher considered using the number of ATM users in Nigeria to glean the number. According to EFINA (2014) reports, there are 19.8 million ATM cardholders in Nigeria who are potential users of POS machines. However, for a national study such as this one, which is not focused on any one specific financial firm, formal enumeration of such a huge research population becomes a difficult issue to tackle due to time, access and cost constraints. More so, given that the research is sponsored privately by the student-researcher. Besides, Dillon et al. (1994: 219) make it clear that a "complete enumeration of a group, called census, is rarely undertaken because it is usually much too expensive in terms of time, money, and personnel." However, a representative and manageable sample can be obtained using acceptable and known formulas.

3.6 Sample Size Determination

Since the population size of POS users in Nigeria is unknown, the researchers decided to follow the general rule of thumb – “As few as you must and as many as you can,” (Thomas, 2000: 109). The researcher adopted Cochran (1977:428) sample size determination formula for an infinite population to arrive at a representative and manageable number of sample for the survey. The researcher believes that this is justified given the preliminary nature of the research.

The sample size was therefore calculated as follows:

$$n = \frac{Z^2 pq}{e^2}$$

Where n = Sample size

p = Probability of success = (0.5)

q = Probability of failure = (0.5)

Z = Standard error of the mean = 1.96

e = Level of significance = 5% (0.05)

By substituting into the formula, the sample size is determined thus:

$$\begin{aligned} n &= \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} \\ &= \frac{0.9604}{0.0025} \\ &= \mathbf{384.16} \end{aligned}$$

Since the study cuts across six geopolitical zones in the country, this figure was distributed overall the region on an equal basis giving 64 samples for each the six states studied in the six geopolitical zones of the country.

3.7 Sampling Technique

In conducting the survey, the researcher adopted a purposive sampling technique that targeted users of POS in the selected Shopping malls where the survey was conducted. The researcher was mindful of the fact that people naturally shy away from giving information about their bank accounts and their financial transactions. This influenced the technique that was used in sampling the respondents. As a result of the constraints mentioned above, respondents were judgmentally selected using the *convenience-intercept sampling method* (White and Nteli, 2004: 51) and *snowball sampling method* (Klopper et al., 2006: 162). The previous authors justify the use of convenience-intercept and snowball sampling in recruiting respondents in researches involving financial transaction due to the private and confidential nature of such transactions (White and Nteli, 2004: 51). For obvious reasons, many individuals would also be reluctant to be formally enumerated or to assent to their private information being made available due to the fear that the researcher may use the information to peer into their personal life or even glean into their personal bank details.

The above challenge is not a new phenomenon in research in this area as evidenced in the literature show that convenience sampling is clearly an acceptable method of investigation when it comes to research works that deal with individuals and their finances. Bryman (2004) also indicates that snowballing is acceptable when convenience sampling is necessary, even though it limits the reliability of the research findings. Snowball sampling was applied by asking willing respondents to kindly suggest the survey to their relatives, colleagues and acquaintances, in line with Klopper et al. (2006: 162). The questionnaire was emailed to these people who indicated interest and provided their emails. The advantages of using the convenience intercept method of data collection in this study were that it was cheap, quick, and easy to administer. It also enabled the recruitment of a sample frame with a wide diversity of respondent profiles, while maintaining “reasonable similarity to the population of interest” (Wilson, 2006: 207). The advantages of using snowballing were that it also helped to widen the scope of recruitment as well as the profile of respondents.

The convenience-intercept sampling method was used by White and Nteli (2004) to study customer attitudes to Internet banking in the UK. Other adoption scholars who also employed the method include Laforet and Li (2005) in China and Shergill and Li (2005) in New Zealand. Reasons proffered by these scholars for adopting the convenience intercept sampling method included cost, time, and access constraints, the very same constraints experienced by this researcher in the present study. However, to ensure a fairlyhomogeneous sample frame, have a controlled data collection exercise, and to clearly delineate the desired sample frame, three specific respondent characteristics were imposed as prerequisites for qualifying to participate in the survey. These are:

- ❖ Respondents must be at least 18 years of age
- ❖ Respondents must be current customers of a banking institution
- ❖ Respondent must be one who owns an ATM card

3.8 Research Instruments

Due to the dispersed nature of the respondents, the survey strategy was adopted. *Thequestionnaire* was found to be the most suitable and applicable instrument for collecting relevant data for this study. The term questionnaire has been defined as the “self-completion means” by which a researcher gathers information from the target respondents (Bell, 2005). It contains all the questions which the researcher wants the sample respondents to answer, and the answers so provided will collectively form the data which the researcher needs to analyse to make inferences, generalisations, predictions, and recommendations concerning the subject matter of the study. According to Ghauri and Gronhaug (2005), questionnaire-based surveys are among the most widely used data collection methods in business studies. Saunders et al. (2003) also note that since each respondent is required to answer the same set of questions given to others, the questionnaire is an excellent instrument for “collecting responses from a large sample for quantitative analyses.”

3.8.1 Questionnaire Design

A *self-administered questionnaire* was designed and used for the study. There are two broad categories of the questionnaire, including self-administered (or respondent-completed) questionnaires and interviewer-administered (researcher/agent completed) questionnaires (Ghauri & Gronhaug, 2005; Saunders et al., 2003). The interviewer-administered questionnaire involves the researcher or research agent(s) recording the answers provided by the respondents in person or by telephone (Saunders et al., 2003). In contrast, the self-administered questionnaires are distributed to the prospective respondents who write down the answers to the questions themselves and return the questionnaires to the researcher. It was this self-administered questionnaire format that was used in the present study, especially as the sample respondents were scattered far and wide across the country.

Burgess (2001) asserts that the strength of any research analysis is dependent upon the quality of the data being analysed, and this, in turn, is dependent upon the design quality of the data collection instrument and the collection procedures. The author advises that to design a good quality questionnaire; the researcher must ensure that the right type of relevant questions are asked, and in the right way. He specified three simple steps for designing a questionnaire, including

- ❖ Determining the questions to be asked, based on the objectives of the study and the identified sample frame.
- ❖ Selecting the question type for each question and specifying the wordings.
- ❖ Designing the question sequence and overall layout of the questionnaire.

The above three steps guided the construction of the questionnaire used in this study. The questionnaire was designed to enable the researcher to determine the respondents regarding gender, age, occupation, education and state of abode. Questions were framed to enable the researcher to test the hypothesis and answer the research questions. In order to elicit the desired response, various forms of questions were used. As such, the questionnaire contained closed-ended questions such as dichotomous multiple-choice

questions, rating/scale questions and category questions. There were also some open-ended questions. The questionnaire was divided into two sessions. Section A of the questionnaire focused on eliciting demographic information from the respondents, while section B were issue based. Section B of the questionnaire was further divided into two parts. Part 1 focused on eliciting information from the respondents about their general understanding of the POS, their preference for making payments, their experience about using POS and challenges that they face with making payment using POS. Part B sought information on POS using the structure that was used in previous technology adoption studies that used the UTAUT model. In all, respondents were asked a total of 40 questions of which five were based on demography while 35 were issue based.

In the composition of the research questionnaire, this study did not invent any new scales. Instead, as suggested by various scholars, including Kim and Prabhakar (2000: 541), Suh and Han (2002: 252) and Wang, Wang, Lin, and Tang, (2003: 509), measurement scales contained in various previously validated research instruments in the area of technology adoption were borrowed and modified in the present study. Some of the scales were adopted verbatim while others were modified combinations of related items from the different authors' scales. This method of adopting and adapting various scales have been used in previous research. It was used by Suh and Han (2002) in their study of trust as a major factor that affects customer acceptance of Internet banking in South Korea. Oliveira et al., (2014) in their study of mobile banking adoption in South Korea; Bhatiasavi (2015) in his study of the adoption of mobile banking in Thailand; and also by Wang et al. (2003) in their study of factors affecting customer acceptance and usage of Internet banking in Taiwan.

The verbatim or modified usage of previously validated measurement instruments has also been endorsed by various other scholars, including Straub (1989), Boudreau et al. (2001), Wu et al. (2004) and Shih and Fang (2004). For instance, Straub (1989) strongly affirms the legitimacy of employing previously validated research instruments where necessary and Boudreau et al. (2001) also advises that doing so would boost not only the acceptability of the current research instrument but also increase its measurement efficiency.

3.9 Administration of Data Collection/Research Instrument

For effective administration of the research questionnaires, two research assistants were selected from colleagues who are bankers in each of the six states where the samples were collected. The assistants were asked to visit shopping malls and approach members of the public who were willing to complete the survey after their shopping. Offline data was collected immediately from those who were willing to complete the questionnaire at the malls while those that needed more time were given the questionnaire to complete and email back to the researcher. The questionnaires were also emailed to those who were unable to complete it at the mall but provided their email address to complete and return to the researcher. Also, some of the respondents were asked to recommend others who may be willing to respond to the survey by giving their email addresses. The Questionnaire was emailed to this group of people to complete and return. This meant that data was essentially collected offline and online through email.

3.10 Validity and Reliability of Research Instruments

To determine the reliability and validity of the test instruments, the researcher carried out a pilot study. Conducting a pilot study followed a similar outline as the main study, and it is in line with Oblation et al. (2003:32).

3.10.1 Pilot Survey

The research questionnaire was pre-tested during a pilot study that spanned two weeks between 22nd August 2015 and 6th September 2015. In the pilot survey, 25 copies of the draft questionnaire were purposively distributed to colleagues of the researcher who are bankers, students and some members of the department. 20 of the questionnaires were filled and returned to the researcher within the two weeks' timeframe, thus, giving a response rate of 80%. The main reason discovered for this response rate was because of the timeframe allowed for the return. All the questionnaires were later returned within one month. However, some of the respondents only returned the questionnaires when the researcher prompted them. This gave the researcher idea of what to expect in the actual survey and aided in the decision to use the multi-mode approach and the convenient-

intercept sampling technique that was applied in the distribution of questionnaires and sampling in the main survey.

The pilot enabled the researcher to determine whether the instructions were clear and also provided a distinction between usable and non-usable data (Bell, 1999). The questions were discussed with the respondents that participated in the pilot who was allowed to state:

- ❖ Whether the instructions were clear
- ❖ Whether the questions were ambiguous or unclear
- ❖ If they feel that the respondents will object to answering any of the questions
- ❖ If in their opinion there were the omission of any major issues
- ❖ If the layout of the questionnaire was clear and attractive and whether they have any other advice or critique.

The researcher received valuable suggestions on content and construct of the questionnaire. The feedback from the pilot was that the questionnaire was straightforward and easy to complete. There were, however, a few areas that needed to be amended. In particular, the question seeking to know how much respondents spent on POS was removed and then the questionnaire was made ready for distribution. This result was used in a further test of the instrument's reliability and validity.

3.10.2 Reliability of the Instrument

According to Anastasi (1969: 71), reliability refers to the consistency of scores obtained by the same individuals when re-examined with the same test on different sets of equivalent items, or under other variable examining conditions. In this study, however, statistical package for social sciences (SPSS) was used to determine the reliability, using the Cronbach's Alpha statistical tool. In doing this, the 44 issue-based questions in Appendix 2 were served the 25 respondents in the pilot survey. The 20 of them filled and returned the questionnaire within the allocated time. Upon testing the validity and reliability of responses to the 44 issue-based items in the test instrument, an Alpha of 0.865 and an inter-item (standardised) coefficient of 0.87 was obtained. Since these are

greater than 0.5, it indicates that the reliability of the test instrument is very strong. (See Appendix III for the detailed result).

3.10.3 Validity of the Instrument

Osuala (2001), described validity as the ability of research process to measure what it is supposed to measure. Poor design of questionnaire instrument, problems in interpretation by data collection personnel or respondents, or a combination of these are acknowledged sources of validity problems (Olomi, 2002). The researcher, therefore, adopted authority validation format, in which the questionnaire copies were served his colleagues in the bank, classmates, the supervisor of the research and some Lecturers at the University of Nigeria. They pointed out some areas for corrections, which the researcher corrected and resubmitted to them. This process continued until all of them validated the instrument as being okay for mass distribution.

3.11 Method of Data Presentation and Analysis

In presenting and analysing the data for this study, descriptive statistics involving the use of frequency tables, percentages, Likert scale analysis were employed for preliminary analysis of some of the data collected in this study. Likert analysis was particularly useful in analyzing and answering the research questions. The hypothesis was tested using Analysis of Moment Structure (AMOS) and Generalized Linear Model (GLM). GLM combines multiple regression and multivariate analysis of variance. This tool is appropriate as it tries to analyse the effect of many dependent variable (fixed factors) and independent variables. Analysis of Moment Structure (AMOS) is part of Confirmatory Factor Analysis (CFA). The Structural Equation Modelling (SEM) technique was used to test the relationship between the variables in this research. This technique is considered adequate for the type of investigation carried out since it allows for answering questions that involve multiple regression analysis of factors among the measured dependent variable and a group of measured independent variables (Ullman 2007). According to Haire et al. (2006), SEM is used to test theoretical models.

A structural equation model normally consists of two types of models:

- I. The measurement model that represents the theory and which specifies how measured variables come together to represent latent factors. That is, the model implies that variables represent the factors, and
- II. The structural model which represents the theory specifying how constructs are related to other constructs in the model

Confirmatory factor analysis (CFA) which is part of the SEM was used in measurement model validation. The aim was to determine whether the measured variables accurately reflect the desired constructs or factors. The justification for the use of CFA here is because the proper measurement of constructs is foundational to all quantitative research in the social sciences. Statistical Package for the Social Sciences (SPSS) and its standard supplement Analysis of Model Structures (AMOS) were used for analysis in this study. The SEM/CFA here was done to assess data integrity and evaluate the distributional assumptions of the estimation method to be used via maximum likelihood (ML), which carries with it the assumption of multivariate normality (MVN). Missing data or factor subtraction was done through list-wise deletion on available case analysis. The input matrix was SPSS/AMOS and the results were estimated on Chi-square goodness of fit (χ^2), the Root Mean Square Error of Approximation (RMSEA), the Tucker-Lewis Index (TLI), and the comparative fit index (CFI). The RMSEA and CFI are measures of overall model fit. They summarize the goodness-of-fit of a complete model in a single number. The default choices were the variance-covariance matrix with ML estimation methods.

REFERENCES

- Agbaeze, C.P. (2004), *Principles and Practices of Research*, Awka: Infotech Publishers.
- Anastasi, A. (1969). *Psychological Testing*, London: Macmillan Limited.
- Andreski, S. (1974). *The Essential Comte*. Tr. Margaret Clarke(ed.). N. Y.: Barnes and Noble.
- Bell, J. (2005). *Doing your research project: A guide for first time researchers in education, health, and social science*, (4th ed.). Berkshire, England: McGraw-Hill International Ltd.
- Boudreau, M., Gefcn, D., & Straub, D. (2001). Validation in IS research: A state of the art assessment. *MIS Quarterly*, 25(1), 1-24.
- Bryman, A. (2004), *Social research methods*, (2nd ed.) Oxford: Oxford University Press.
- Bryman A. & Bell, E. (2003). *Business research methods*, Oxford: Oxford University Press.
- Cochran, W. G. (1977). *Sampling techniques* (3rd ed.). New York: John Wiley & Sons. 428pp.
- Collis, J. & Hussey, R. (2003). *Business research: A practical guide for undergraduate and postgraduate students* (2nd ed.,) New York, NY: Palgrave Macmillan.
- Couper, M. P. (2000). Web surveys: A review of issues and approaches. *Public Opinion Quarterly*, 64(4), 464-481.
- Creswell, J. W, (1994). *Research design: Qualitative & quantitative approaches*. Thousand Oaks, California: Sage Publications Inc.
- Dillon, W. R., Madden, T. J., & Fettle, N. H. (1994), *Marketing research in a marketing environment*. (3rd ed.). Burr Ridge, IL: Richard D. Irwin, Inc.
- Easterby-Smith, M., Thorpe, R. & Lowe, A. (2002). *Management research: An introduction*. (2nd ed.). London: Sage Publications Ltd.
- Eboh, E.G. (1998). *Social and economic research: Principles and methods*, Lagos: Academic Publications and Development Ltd.

- EFInA (2015).*EFInA Access to financial services in Nigeria 2014 survey*. Retrieved December 25, 2015, from: <http://www.efina.org.ng/assets/ResearchDocuments/A2F-2014-Docs/Updated/EFInA-Access-to-Financial-Services-in-Nigeria-2014-Survey-Key-FindingswebsiteFINAL.pdf>
- Freund, J. E. & Williams, F. J. (1983).*Modern business statistics*. London: Pitman
- Ghuri, P. & Gronhaug, K. (2005).*Research methods in business studies: A practical guide*. (3rd ed.). Harlow, England: FT Prentice Hall.
- Jankowicz A. D. (1991).*Business research projects for students* London: Chapman and Hall.
- Kassim, N. A. (2005).E-banking service quality: Gaps in the Qatari banking industry.*Journal of Internet Banking and Commerce*, 10(2), 1 -8.
- Klopper, H. B., Petzer, D., Ismail, Z., Roberts-Lombard, M., Hem, L., Klopper, H., Subramani, D., Wakeham, M., Chipp, K. & Bemdt, A. (2006).*Marketing: Fresh perspectives*, Cape Town: Pearson South Africa.
- Nwodu, L. C. (2006).*Research in communication and other behavioural sciences*. Enugu: Rhyce Kerex Publishers.
- Odo, C.O. (2004).*Marketing research: A primer*.Enugu: Benak Ventures.
- Olomi, J. O. (2002).*Research methodologies and applications*. Ibadan: University of Ibadan Press.
- Onodugo, V.A. (2010). *Social science research: Principles, methods and applications*. Enugu:Ed-Demark.
- Osuala, E.C. (1987).*Introduction to research methodology*. Onitsha: Africa-FEP Publishers.
- Romneya, D., Williams, B., Money, A. & Swartz, E. (2000).*Doing research in business and management: An introduction to process and method*. London: Sage Publications Ltd.

- Uduji, J. I. (2006). *Management of human resources for health: A Study of motivational and productivity in federal teaching hospitals in Nigeria*. Enugu: New Generation Books.
- Saunders M., Lewis, P. & Thornhill A. (2003). *Research methods for business students*. (3rd ed.). London: FT Prentice Hall.
- Sherrill, G. S. & Li, B. (2005). Internet banking - An empirical investigation of customers' behaviour for online banking in New Zealand. *Journal of e-Business*, 5(1), 1- 16.
- Shih, Y.Y. & Fang, K. (2004). The use of a decomposed theory of planned behaviour to study Internet banking in Taiwan. *Internet Research*, 14(3), 213-223.
- Straub, D. W. (1989). Validating instruments in MIS research. *MIS Quarterly*, 13(2), 147-169.
- Suh, B. Han, 1. (2002). Effect of trust on customer acceptance of Internet banking. *Electronic Commerce Research and Applications*, 1, 247 - 263.
- Thomas A. B. (2004). *Research skills for management students*. London and New York: Routledge
- Ullman, J. (2007). Structural equation modelling. In: B. G. Tanakhic & L.S. Fadel (ad), *Using Multivariate Statistics* (pp. 676-780). US: Pearson Education Inc.
- Wang, Y.S., Wang, Y.M., Lin, H.H. & Tang, T.1. (2003). Determinants of user acceptance of Internet banking: An empirical study. *International Journal of Service Industry Management*, 14(5), 501-519.
- White, H. & Nteli, F. (2004). Internet banking in the UK: Why are there not more customers? *Journal of Financial Services Marketing*, 9(1), 49-56.
- Wilson, A. (2006). *Marketing research: An integrated approach* (2nd ed.,). Harlow, England: Pearson Education Limited.
- Zikmund, W.G. (2000). *Business research methods*, (6th ed.). The Dryden Press.

CHAPTER FOUR

DATA PRESENTATION, ANALYSES, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

In the preceding chapter, the methodological approach employed in the collection of data that was used in this study was discussed. In this chapter, the data collected from the field survey are presented, analysed and interpreted. The findings are discussed. The research questions are answered and the hypotheses tested. To aid the analysis, statistical tools such as tables and charts are used and explanatory discussions attached to each table for clarity. It is, however, important to note that the data presented and subsequently analysed were only those that bear directly on the problems, aim and objectives of the research and those that were particularly relevant answering the research questions and testing the hypotheses.

4.2 Data Presentation and Analyses – Non- Issue Based

4.2.1 Composite Sample

In the survey, 384 users of POS were sampled across the six geopolitical zones in Nigeria. Out of this number, 237 (61.72%) questionnaires were correctly completed and returned. These questionnaires were found valid for analysis. Table 4.1 captures details of the distribution and return of the questionnaires.

Table 4.1: Distribution and return of questionnaire

S / N	O p t i o n	F r e q u e n c y	P e r c e n t a g e
1	Number of questionnaires correctly completed	2 3 7	6 1 . 7 2
2	Number of questionnaire not returned	1 4 7	3 8 . 2 8
	T o t a l	3 8 4	1 0 0

Source: Field Survey, 2016

Table 4.1 shows that out of 384 questionnaires that were distributed, 237 representing 61.72 percent were completed and returned; while 147 representing 38.28 percent of the questionnaire were not returned.

4.2.2 Distribution of respondents by gender

Table 4.2: Distribution of respondents by gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	120	50.6	50.6	50.6
Valid Female	117	49.4	49.4	100.0
Total	237	100.0	100.0	

Source: Field Survey, 2016

Table 4.2 above shows that out of the 237 respondents surveyed, 120 representing 50.6 percent are male; and 117 representing 49.4 percent are females.

4.2.3 Distribution of respondents by age

Table 4.3: Distribution of respondents by age

	Frequency	Percent	Valid Percent	Cumulative Percent
18-25 years	204	86.1	86.1	86.1
26-35 years	20	8.4	8.4	94.5
Valid 36-45 years	11	4.6	4.6	99.2
46-55 years	2	.8	.8	100.0
Total	237	100.0	100.0	

Source: Field Survey, 2016

Table 4.3 above shows that out of the 237 respondents surveyed, 204 representing 86.1 percent aged between 18 to 25 years; 20 representing 8.4 percent aged between 26 to 35 years; 11 representing 4.6 percent aged between 36 to 45 years; 2 representing 0.8 percent aged between 46 to 55 years; and none of the respondents was from 56 years.

4.2.4 Distribution of respondents by Occupation

Table 4.4: Distribution of respondents by occupation

	Frequency	Percent	Valid Percent	Cumulative Percent
Civil/Public Servant	41	17.3	17.3	17.3
Student	188	79.3	79.3	96.6
Valid Business/Self Employed	2	.8	.8	99.2
Unemployed	2	.8	.8	100.0
Total	237	100.0	100.0	

Source: Field Survey, 2016

Table 4.4 above shows that out of the 237 respondents surveyed, 41 representing 17.3 percent are civil or public servants; 188 representing 79.3 percent are students; 2 representing 0.8 percent are into business or self-employed; and 2 representing 0.8 percent are unemployed.

4.2.5 Distribution of respondents by state of residence

Table 4.5: Distribution of respondents by state of residence

	Frequency	Percent	Valid Percent	Cumulative Percent
Bauchi	39	16.5	16.5	16.5
Valid Benue	41	17.3	17.3	33.8
Kano	39	16.5	16.5	50.2

E n u g u	4	1	1 7 . 3	1 7 . 3	6 7 . 5
R i v e r s	3	9	1 6 . 5	1 6 . 5	8 4 . 0
L a g o s	3	8	1 6 . 0	1 6 . 0	1 0 0 . 0
T o t a l	2 3 7		1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table 4.5 above shows that out of the 237 respondents surveyed, 39 representing 16.5 percent reside in Bauchi State; 41 representing 17.3 percent reside in Benue State; 39 representing 16.5 percent reside in Kano State; 41 representing 17.3 percent reside in Enugu State; 39 representing 16.5 percent reside in Rivers State; and 38 representing 16.0 percent reside in Lagos State.

4.2.6 Distribution of respondents by educational qualification

Table 4.6: Distribution of respondents by educational qualification

Q u a l i f i c a t i o n	Frequency	Percent	Valid Percent	Cumulative Percent
WASC/GCE/SSCE/Equivalent	1 4 5	6 1 . 2	6 1 . 2	6 4 . 1
Diploma/ND/NCE	3 4	1 4 . 3	1 4 . 3	7 8 . 5
MBBS/B. Sc/BA/HND/Equivalent	3 4	1 4 . 3	1 4 . 3	9 2 . 8

Postgraduate Qualification	1	7	7	.	2	7	.	2	1	0	0	.	0
T o t a l	2	3	7	1	0	0	.	0	1	0	0	.	0

Source: Field Survey, 2016

Table 4.6 above shows that out of the 237 respondents surveyed, 145 representing 61.2 percent are WASC/GCE/SSCE/Equivalent qualification holders; 34 representing 14.3 percent are Diploma/ND/NCE qualification holders; 34 representing 14.3 percent are MBBS/BSC/BA/HND holders; and 17 representing 7.2 percent have postgraduate qualifications.

4.2.7 Distribution of respondents by awareness of POS

Table 4.7: Distribution of respondents by awareness of POS

	Frequency	Percent	Valid Percent	Cumulative Percent
N o	0	0	0	0
Valid Y e s	2 3 7	1 0 0	1 0 0	1 0 0 . 0
Total	2 3 7	1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table 4.7 above shows that out of the 237 respondents surveyed, all the respondents representing 100 percent are aware of POS.

4.2.8 Distribution of respondents by knowledge of POS usage

Table 4.8: Distribution of respondents by knowledge of POS usage

	Frequency	Percent	Valid Percent	Cumulative Percent
No	0	0	0	0
Valid Yes	237	100	100	100.0
Total	237	100.0	100.0	

Source: Field Survey, 2016

Table 4.8 above shows that out of the 237 respondents surveyed, all the respondents representing 100 percent are aware of what POS is used for.

4.2.9 Distribution of respondents by POS usage

Table 4.9: Distribution of respondents by POS usage

	Frequency	Percent	Valid Percent	Cumulative Percent
N o	0	0	0	0
Valid Y e s	2 3 7	1 0 0	1 0 0	1 0 0 . 0
Total	2 3 7	1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table 4.9 above shows that out of the 237 respondents surveyed, all the respondents representing 100 percent have made use of POS.

4.2.10 Distribution of respondents by payment preference

Table 4.10: Distribution of respondents by payment preference

	Frequency	Percent	Valid Percent	Cumulative Percent
Cash	1 4 3	6 0 . 3	6 0 . 3	6 0 . 3
Valid P O S	9 4	3 9 . 7	3 9 . 7	1 0 0 . 0
Total	2 3 7	1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table 4.10 above shows that out of the 237 respondents surveyed, 143 respondents representing 60.3 percent prefer to make payments with cash; while 94 respondents representing 39.7 percent prefer to make payments with POS.

4.2.11 Distribution of respondents by frequency of POS usage

Table 4.11: Distribution of respondents by frequency of POS usage

	Frequency		Percent	Valid Percent	Cumulative Percent
Valid Very Often	7	6	32.1	32.1	32.1
Often	7	5	31.6	31.6	63.7
Rarely	3	1	13.1	13.1	76.8
Very Rarely	5	5	23.2	23.2	100.0
Not at all		0	0.0	0.0	100.0
Total	23	7	98.7	100.0	

Source: Field Survey, 2016

Table 4.11 above shows that out of the 237 respondents surveyed, 76 representing 32.1 percent used the POS very often. 75 representing 31.6 percent used the POS often. 31 respondents representing 13.1 percent rarely used POS. 55 representing 23.2 percent very rarely used POS. None of the respondents indicated not at all.

4.3 Data Presentation and Analyses – Issue Based

4.3.1 Answering the Research Questions

In order to find answers to the research questions, Likert analyses of relevant questions that relate directly to research questions one to six are presented below and the mean responses to the questions computed. Four questions each were raised for each of the research question in this study. In conducting the Likert analysis, it was necessary to set decision rules. To do this, weights were assigned to the range of mean responses obtained from the survey. Very Low Extent (VLE) is represented by mean/grand mean of 1.00 – 1.99, Low Extent (LE) is represented by mean/grand mean of 2.00 – 2.99, Some Extent (SE) is represented by mean/grand mean of 3.00 – 3.99, Great Extent (GE) is represented by mean/grand mean of 4.00 – 4.99 and Very Great Extent (VGE) is

represented by a mean/grand mean of 5.00. (See details appendix IV for details of decision rule and frequencies). Analysis in table 4.26 which showed the effects of the moderating variables was used to answer research question seven.

4.3.1.1 Research Question 1:

To what extent does *perceived POS performance* (performance expectancy) influence intention to use POS in Nigeria?

Table 4.12: Mean Responses for perceived POS performance

S / N	QUESTIONNAIRE ITEM	VGE 5	GE 4	SE 3	LE 2	VLE 1	$\sum F X$	$\bar{x}$	DECISION
1	To what extent do you find POS useful for making payments?	129 645	86 344	10 30	9 18	0	1037	4.43	GE
2	To what extent does using POS enable you to make payments better?	61 305	108 432	44 132	12 24	9 9	902	3.85	SE
3	To what extent does POS enable you to make payments more quickly?	118 590	82 328	24 72	13 26	0 0	1016	4.29	GE
4	To what extent do you consider POS efficient for making payment?	58 290	108 432	42 126	20 40	3 3	891	3.86	SE
							GRAND MEAN	4.11	G E

To find out the extent to which perceived POS performance influences intention to use POS in Nigeria, respondents were asked to indicate the extent to which they find POS useful, how they believe POS enables them to make payment better, how POS enabled them to make payments quickly and the how they consider POS to be efficient for making payment. Perceived POS performance which expresses performance expectancy measures how users perceive POS as being useful. It measured how users see the POS as being able to enable them to accomplish their goal and attain gain in making payments. From the table 4.12 above, it is seen that performance expectancy influences intention to use POS to a great extent with a grand mean of 4.11. To a great extent, respondents find POS useful for making payments with a mean of 4.43. Respondents indicated that to some extent POS enables them to make payments better with a mean of score of 3.85. To a great extent POS enables the respondents to make payments more quickly with a mean of 4.29. Respondents also indicated that to some extent they consider POS efficient for making payments with a mean of 3.86.

4.3.1.2 Research Question 2:

To what extent does *perceived POS ease of use* (effort expectancy) influence intention to use POS in Nigeria?

Table 4.13: Mean Responses on perceived POS ease of use (Effort Expectancy)

S N	QUESTIONNAIRE ITEM	VGE 5	GE 4	SE 3	LE 2	VLE 1	$\sum F X$	$\bar{x}$	DECISION
1	To what extent do you find POS easy to use?	114 570	75 300	1 6 48	17 34	7 7	952	4.16	GE
2	To what extent do you understand how to use POS?	60 300	98 392	37 111	37 74	2 2	879	3.76	SE
3	To what extent can you use the POS?	65 325	96 384	42 126	25 50	0 0	885	3.88	SE
4	To what extent was it easy for you to learn how to use POS?	96 480	96 384	2 6 78	13 26	0 0	968	4.19	GE
							GRAND MEAN	3.99	S E

To find out the extent to which POS perceived ease of use influence intention to use POS, respondents were asked to indicate the extent to which they find POS easy to use, their understanding of how to use POS, the extent they believe they can use the POS and to what extent was it was easy for them to learn how to use POS. Perceived ease of use which expresses effort expectancy measures how respondents perceived the POS as being easy to use. It measures the how users perceive the effort that they need to put forth in order to use the POS. The result in table 4.13 above, indicate that to some extent perceived ease of use influence intention to use POS with a grand mean of 3.99. To a great extent respondent, find POS easy to use with a mean score of 4.16. The respondents indicated that to some extent they understand how to use POS with a mean of 3.76. The respondents indicated they can use POS to some extent with a mean of 3.88. Respondents equally indicated that to great extent it was easy for them to learn how to use in POS with a mean of score 4.19.

4.3.1.3 Research Question 3:

To what extent does *social factors* (Social influence) influence intention to use POS in Nigeria?

Table

4.14: Mean Responses on Social Factors Influence

SN	QUESTIONNAIRE ITEM	VE 5	GE 4	SE 3	LE 2	VLE 1	$\sum F X$	$\bar{x}$	DECISION
1	To what extent do your family members encourage you to use POS?	4 6 230	58 232	63 189	42 84	2 5 25	760	3.25	SE
2	To what extent do your friends and people around you encourage you to use POS?	4 3 215	83 332	40 120	43 86	2 5 25	778	3.32	SE
3	To what extent do you get encouragement to use POS from people that you value their opinion?	4 8 240	74 296	51 153	48 96	1 3 13	798	3.41	SE
4	To what extent do the retail shop staff encourage you to use POS?	6 6 330	94 376	31 93	37 74	9 9	882	3.72	SE
							GRAND MEAN	3.43	S E

To find out the extent to which Social factors influence intention to use POS, respondents were asked to indicate the influence of family members on their decision to use POS, the extent to which they are encouraged by friends and people around them, the people they value their opinion and the staff of the retail shops. Social factors measure the influence of people around the respondent. Table 4.14 above, indicates that to some extent social factors influence intention to use POS with a grand mean of 3.43. To some extent Family members encourage the respondents to use POS with a mean of 3.25. Respondents indicated that to some extent friends and people around them encourage them to use POS with a mean of 3.32. To some extent people that the respondents value their opinion influence their use of POS with a mean of 3.41. The retail shop staff equally influenced respondents' use of POS to some extent with a mean of 3.72.

4.3.1.4 Research Question 4:

To what extent does Technical Infrastructure influence the usage of POS in Nigeria?

Table 4.15: Mean Responses for Availability of Technical Infrastructure

S N	QUESTIONNAIRE ITEM	VGE 5	GE 4	SE 3	LE 2	VLE 1	$\sum F X$	$\bar{x}$	DECISION
1	To what extent does power availability influence your ability to use POS?	67 335	61 244	50 150	43 86	13 13	828	3.54	SE
2	To what extent do you use POS because you believe help is available if problems arises?	56 280	79 316	48 144	38 76	13 13	829	3.54	SE
3	To what extent do you use POS because you believe there is someone available to assist you with POS service difficulties?	60 300	86 344	2 8 84	39 78	18 18	824	3.57	SE
4	To what extent does network availability on POS affect your ability to use POS?	1 4 70	40 160	84 252	57 114	39 39	635	2.71	LE
							GRAND MEAN	3 . 3 4	S E

To find out the extent to which technological infrastructure or facilitating conditions influence the usage of POS, respondents were asked to indicate the extent to which power availability influence their ability to use POS, the extent availability of help influenced their use of POS, the extent they use POS because they believe there is someone available to assist in case of service difficulties and to what extent they believe

network availability influence their ability to use POS. Facilitating Conditions deals with the degree to which an individual believes that organisational and technical infrastructure exists to support their use of the POS. It relates to the extent to which the consumers perceive that technical infrastructures such as power and network are available to support them to use POS. Table 4.15 above, indicates that to some extent facilitating condition influence usage of POS with a grand mean of 3.34. The respondents indicated that to some extent availability of power influence their use of POS with a mean of 3.54. To some extent, availability of help influences the use of POS with a mean of 3.54. To some extent someone being available to assist in case of service difficulties influence the use of POS with a mean of 3.57. Respondents' use of POS is also influenced by availability of network to a low extent with a mean score of 2.71.

4.3.1.5 Research Question 5:

To what extent does trust in technology influence the use of POS in Nigeria?

To find out the extent to which trust in technology influence the usage of POS, respondents were asked to indicate the extent to which they use POS because they trust that their transaction will be concluded on the POS, the extent they use POS because they trust they will get useful help from the POS Help Menu, the extent they use POS because they trust that the POS will be reliable and the extent they trust to get prompt refund when their account is debited for failed transaction on POS. Trust in technology relates to the attributes of the POS that makes the POS trustworthy, such that users can trust that the POS will work when they want to use it and that it can be relied upon to enable the payment in a manner that protects their data and guarantees that payments can be made without issues. It deals with the POS being seen as reliable, functional and capable of enabling the payment successfully without hitches.

Table 4.16: Mean Responses for Trust in POS Technology

S N	QUESTIONNAIRE ITEM	VGE 5	GE 4	SE 3	LE 2	VLE 1	$\sum F X$	$\bar{x}$	DECISION
1	To what extent do you use POS because you trust your transaction will be concluded on the POS?	48 240	83 332	63 189	31 62	9	832	3.56	SE
2	To what extent do you use POS because you trust you will get useful help from the POS Help Menu?	35 175	73 292	45 135	60 120	21 21	743	3.18	SE
3	To what extent do you use POS because you trust you can rely on POS for your payments?	38 190	82 328	73 219	24 48	14 14	799	3.46	SE
4	To what extent do you use POS because you trust a prompt refund when your account is debited for failed transaction on POS?	47 235	89 356	62 186	19 38	14 14	829	3.59	SE
							GRAND MEAN	3.45	S E

Table 4.16 above indicates that to some extent trust in technology influence usage of POS with a grand mean of 3.45. The respondents indicated that to some extent their ability to conclude transaction on POS influence the usage of POS with a mean of 3.56. Respondents indicated that to some extent trust that they can get useful help from the POS menu influence their use of POS with a mean of 3.18. Respondents indicated that they use POS because they trust that to some extent they can rely on POS for making payment with a mean of 3.46. Respondents equally indicated that to some extent they use POS because they trust they will get prompt refund when their account is debited for failed transaction on POS with a mean score of 3.59.

4.3.1.6 Research Question 6:

To what extent does retail shoppers' intention to use POS relate to the Usage of POS in Nigeria?

Table 4.17: Mean Responses for POS Usage Behaviour

SN	QUESTIONNAIRE ITEM	VGE 5	GE 4	SE 3	LE 2	VLE 1	$\sum F X$	$\bar{x}$	DECISION
1	To what extent do you always use POS?	2 10	12 48	49 147	88 176	86 86	467	1.97	VLE
2	To what extent do you think you will always use POS?	2 10	29 116	51 153	91 182	61 61	522	2.23	LE

3	To what extent have you always made payment with POS successfully?	58 290	97 388	56 168	19 38	2 2	886	3.82	SE
4	To what extent are you always able to use POS?	5 8 290	85 340	41 123	35 70	13 13	836	3.60	SE
							GRAND MEAN	2.95	L E

To measure the extent to which retail shoppers intention to use POS relates with the actual usage of POS in Nigeria, respondents were asked to indicate the extent to which they always use POS, they were asked to indicate the extent that they think they will always use POS, the extent that they have always made payment with POS successfully and the extent to which they have always been able to use POS. From the literature review, it is believed that intention leads to usage behaviour. Therefore, an individual that intends to use POS plans to use it. However, they may or may not actually follow through on the intent or plan. A retail shopper can be said to have adopted the usage of POS when they accept the product and continue to use it in a sustained manner. Table 4.17 above indicates that retail shoppers' in Nigeria who use POS have adopted it to a low extent with a grand mean of 2.95. The respondents indicated that they always use POS to a very low extent with a mean of 1.97. Respondents indicated that they think they will always use POS to a low extent with a mean of 2.23. Respondents indicated that they have always made payment with POS successfully to some extent with a mean of 3.82. They also indicated that they have always been able to use POS to some extent with a mean of 3.60.

4.3.1.7 Research Question 7:

Do demographic variables of age, gender, education and occupation play significant mediating roles on POS perceived performance, perceived ease of use, social factor influence, technical infrastructure, trust and usage behavior?

Analysis of the effects of the moderating variables of age, gender, education and occupation on POS perceived performance (PE), perceived ease of use (EE), social factor influence (SI), technical infrastructure (TI), trust in technology (TIT) and usage behavior (UB) show that education level of the respondent had significant effect on POS perceived

performance and Trust in Technology. People who were more educated were more likely to use POS. Occupation has significant effect on technical infrastructure. While Age and gender did not have significant effect on the variables.

4.4 Testing the hypotheses

The hypotheses were tested with Analysis of Moment Structure (AMOS) part of Confirmatory Factor Analysis (CFA). The following research hypotheses were tested in the SEM/CFA analysis:

- H1 Improved perceived POS performance (Performance Expectancy) does not have a positive influence on intention to use POS in Nigeria.
- H2 Improved perceived POS ease of use (Effort Expectance) does not have a positive influence on intention to use POS in Nigeria.
- H3 Improved social factors (Social Influence) does not have a positive influence on intention to use POS in Nigeria.
- H4 Improved facilitating conditions does not have a positive influence on the use of POS in Nigeria.
- H5 Improved trust in technology does not have a positive influence on the use of POS in Nigeria.
- H6 Retail shoppers' intention to use POS does not relate positively with the usage of POS in Nigeria.
- H7 Demographic variables of age, gender, education and occupation do not play significant mediating roles on POS perceived performance, perceived ease of use, social factor influence, technical infrastructure, trust and usage behavior.

4.4.1 Measurement Model Assessment and Confirmatory Factor Analysis (CFA)

The CFA is part of the larger family of methods known as structural equation modelling (SEM) and plays an essential role in measurement model validation in path or structural analyses as in this case. The aim is to determine whether the measured variables accurately reflect the desired constructs or factors. The justification for the use of CFA

here is because the proper measurement of constructs is foundational to all quantitative research in the social sciences.

The SEM/CFA here was done to assess data integrity and evaluate the distributional assumptions of the estimation method to be used via maximum likelihood (ML), which carries with it the assumption of multivariate normality (MVN). Missing data or factor subtraction was done through list-wise deletion on available case analysis. The input matrix was SPSS/AMOS and the results were estimated on Chi-square goodness of fit (X^2), the Root Mean Square Error of Approximation (RMSEA), the Tucker-Lewis Index (TLI), and the comparative fit index (CFI). The RMSEA and CFI are measures of overall model fit. They summarize the goodness-of-fit of a complete model in a single number. The default choices were the variance–covariance matrix with ML estimation methods. The total sample size for the analysis was 237 ($n = 237$). Number of models tested is two. All these were done to achieve the most reliable parameter estimates and fit indices in the study.

4.4.2 Model Fit Criteria

Model fit are based on the following relative fit index (RFI) criteria:

1. The model fits the data when the chi-square value is low. The lower the chi-square value, the lower the discrepancy between our model and the observed data.
2. Model is considered “Good” when the Root Mean Square Error of Approximation (**RMSEA**) is below **0.06**.
3. Model is considered “Good” when the Tucker-Lewis Index (**TLI**) is above **0.95**.
4. When the comparative fit index (CFI) is below 0.90 ($CFI < 0.90$), reject model.

4.4.3 Model Modification Criteria

Modification indices indicate how much the chi-square value of a model would drop if the parameter were free instead of constrained (in other words, by how much the model fit would improve). They are chi-square tests for individual equality constraints: high values (i.e. a modification index larger than 20 and a parameter change larger than 0.10

in absolute value) indicate that the respective parameter constraint is ‘wrong.’ That is, the first model is wrong, and the second is better.

4.4.4 Model Presentation and Result Interpretation

4.4.4.1 Model 1

SEM model 1 was tested with a total of 67 variables, where the Observed Endogenous variables were represented as follows: *perceived POS performance* (performance expectancy [PE]), *perceived POS ease of use* (effort expectancy [EE]), Social Factors influence (SI), Facilitating conditions (FC), trust in technology (TIT) and intention to use (INT). The PE, EE and SI accounted for 4 variables each. The SI had 3 variables, while TIT and INT had 5 respectively. Total number of variables in the model is 67, with 29 observed variables and 38 unobserved variables. However, adding the error variances it translated to 36 numbers of exogenous variables and 31 numbers of endogenous variables (see details in appendix VI).

4.4.4.1.1 Parameter Summary and Assessment of normality (Group number 1)

The Parameter measures of variances and covariance show that there wasn't a high degree of divergence between the constructs measured. The model achieved a fair distribution or normality since differences in values between the minimum and the maximum in each of the variables tested is below 5. The model has 464 number of distinct sample moments, with 107 number of distinct parameters to be estimated, making the degree of freedom to be 357 with a probability of 0.000. (See appendix VI for full details on this model).

4.4.4.1.2 Final Output Result Interpretation of Model 1

The results are interpreted with four (4) SEM statistical tools - the chi-square goodness of fit, and baseline comparisons with Tucker–Lewis index (TLI), Comparative fit index

(CFI), and the root-mean-square error of approximation (RMSEA) as stated earlier by the researcher.

4.4.4.1.3 Model Fit Summary

Table 4.18: The Chi-Square Goodness of Fit (CMIN)

M o d e l	NPAR	C M I N	D F	P	CMIN/DF
Default model	1 0 7	1435.357	357	.000	4 . 0 2 1
Saturated model	4 6 4	. 0 0 0	0		
Independence model	5 8	3831.958	406	.000	9 . 4 3 8

Table 4.18 shows that the chi-square goodness of fit (X^2) result was 1,435 at 357 degree of freedom and $p = 0.000$. However, the chi-square to degree of freedom ratio (X^2/df ratio) was 4.021, showing a high degree of convergence. Meanwhile, due to the high value of the chi-square, the researcher made a resort to baseline comparisons with other statistical tools like the Tucker–Lewis index (TLI), Comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA) as stated earlier. The numerous other results like the normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Akaike information criteria (AIC), Expected cross-validation index (ECVI) and many more details could also be viewed from the appendix VI.

4.4.4.1.4 The Baseline Comparisons

Table 4.19: The Baseline Comparisons

M o d e l	N F I Delta1	RFI rho1	I F I Delta2	TLI rho2	C F I
Default model	. 6 2 5	.574	. 6 9 0	.642	.685
Saturated model	1.000		1.000		1.000

M o d e l	N F I	RFI	I F I	TLI	C F I
	Delta1	rho1	Delta2	rho2	
Independence model	. 0 0 0	.000	. 0 0 0	.000	.000

1. The Tucker–Lewis index (TLI)

Table 4.19 shows that the Tucker–Lewis index (TLI) is $0.642 < 0.95$, hence the Model one is considered “**Not Fit**” for the Data.

2. Comparative Fit Index (CFI)

Table 4.19 also shows that the comparative fit index (CFI) $0.685 < 0.90$, hence, Model one is considered “**Not Fit**” for the Data.

3. The Root-Mean-Square Error of Approximation (RMSEA)

Table 4.20: The Root Mean Square Error of Approximation (RMSEA)

M o d e l	RMSEA	LO 90	HI 90	PCLOSE
Default model	. 1 1 3	.107	.119	. 0 0 0
Independence model	. 1 8 9	.184	.195	. 0 0 0

Table 4.20 shows that the Root Mean Square Error of Approximation (**RMSEA**) is 0.113 > 0.06 , hence, Model one is considered “**Not Fit**” for the Data.

All these results posted above, then, necessitated a modification of the model for a better fit and better result for the constructs and data.

4.4.4.2 Model 2

The structural equation modification model 2 (appendix VI) shows that one more factor each were added to the Observed Endogenous variables of perceived POS performance (performance expectancy [PE]), perceived POS ease of use (effort expectancy [EE]), while social factors (Social influence [SI]) remained 4 factors. Facilitating conditions (FC) was also retained with 3 factors, while trust in technology (TIT) and intention to use (INT) also had their 5 initial factors retained respectively. Total number of variables in the model is 67, with 29 observed variables and 38 unobserved variables. However, adding the error variance it translated to 36 numbers of exogenous variables and 31 numbers of endogenous variables.

4.4.4.2.1 Parameter Summary & Assessment of normality (Group number 1)

The parameter measures of variances and covariances show there wasn't a high degree of divergence between the constructs measured. It could be seen that the models achieved a fair distribution between and amongst the variables measured. For a detailed result of these models, see details in appendix IV.

4.4.4.2.2 Final Output Result Interpretation of Model 2

Again, the results will be interpreted with four (4) SEM statistical tools - the chi-square goodness of fit, and baseline comparisons of Tucker–Lewis Index (TLI), Comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA) as stated earlier.

4.4.4.2.3 Model Fit Summary

Table 4.21: The Chi-Square Goodness of Fit (CMIN)

M o d e l	NPAR	C M I N	D F	P	CMIN/DF
Default model	7 8	916.755	357	.000	2 . 5 6 8
Saturated model	4 3 5	. 0 0 0	0		
Independence model	2 9	1279.805	406	.000	3 . 1 5 2
Z e r o m o d e l	0	3422.000	435	.000	7 . 8 6 7

Table 4.21 shows that the chi-square goodness of fit (X^2) result was 916 at 357 degree of freedom and $p = 0.000$. However, the chi-square to degree of freedom ratio (X^2/df ratio) was 2.568, showing a high degree of convergence. Meanwhile, due to the high value of the chi-square, a resort was made to baseline comparisons with other statistical tools like the Tucker–Lewis index (TLI), Comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA) as stated earlier by the researcher. The numerous other results like the normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Akaike information criteria (AIC), Expected cross-validation index (ECVI) and many more details could also be viewed from the appendix VI.

4.4.4.2.4 Baseline Comparisons

Table 4.22: Baseline Comparisons

M o d e l	N F I	RFI	I F I	TLI	C F I
	Delta1	rho1	Delta2	rho2	
Default model	. 2 8 4	.185	. 3 9 3	.971	. 9 1
Saturated model	1.000		1.000		1.000
Independence model	. 0 0 0	.000	. 0 0 0	.000	.000

1. The Tucker–Lewis index (TLI)

Table 4.22 shows that the Tucker–Lewis index (TLI) is $0.971 > 0.95$, hence Model two is considered “**Fit**” for the Data.

2. Comparative Fit Index (CFI)

Table 4.22 also shows that the comparative fit index (CFI) $0.91 > 0.90$, hence, Model two is considered “**Fit**” for the Data.

Table 4.23: The Root-Mean-Square Error of Approximation (RMSEA)

M o d e l	RMSEA	LO 90	HI 90	PCLOSE
Default model	. 0 5 2	. 0 7 5	.088	. 0 0 0
Independence model	. 0 9 5	. 0 9 0	.101	. 0 0 0

Table 4.23 shows that the Root Mean Square Error of Approximation (**RMSEA**) is $0.052 < 0.06$, hence, Model two is considered “**Fit**” for the Data.

The baseline comparison indicated that the second model adopted is fit, we therefore proceed with the hypothesis testing.

4.4.5 Research Hypotheses Tested

For the core variables (Hypotheses 1 to 6), the factor loadings (regression weights) output indicate that the hypothesized paths between the major constructs and the dependent variable are significant except path between intention and usage behaviour.

Table 4.24: Selected AMOS text output for the model estimates

	Estimate	S.E.	C.R.	P	Label
INT <--- P E	. 8 0 8	.184	4.399	***	par_20
INT <--- E E	. 5 4 5	.206	2.653	.002	par_21
INT <--- S I	. 4 9 3	.115	4.303	***	par_22
UB <--- F C	. 1 0 2	.171	.599	.003	par_23
UB <--- TIT	. 2 5 1	.114	2.192	***	par_24
UB <--- INT	. 1 6 2	.173	4.980	.013	par_25

Note: *** $p < .001$; ** $p < .01$; * $p < .05$.

From Table 4.24 above, five of the research hypotheses are supported. The p values are all less than 0.05 except for intention to use POS. This implies that:

- i. Perceived POS performance (performance expectancy) had a significant positive influence on intention to use POS in Nigeria.
- ii. Perceived POS ease of use (effort expectancy) had a significant positive influence on intention to use POS in Nigeria.
- iii. Social factors influence (social influence) had significant positive influence on intention to use POS in Nigerian.
- iv. Technical Infrastructure had a significant positive influence on usage of POS in Nigeria.
- v. Trust in technology had a significant positive influence on usage of POS in Nigeria.
- vi. That the relationship between intention to use POS and POS usage behaviour was not significant in Nigeria.

The standardized regression weights are interpreted as the correlation between the observed variable and the corresponding common factor. Five of the six observed

variables indicate that the respective factor explains a respectable portion of the variance. The standardized regression weights (factor loading) are show in the table below:

Table 4.25: Selected AMOS text output for standardized regression weights:

								E	s	t	i	m	a	t	e
I	N	T	<	-	-	-	P	E	.	7	3	3			
I	N	T	<	-	-	-	E	E	.	4	0	5			
I	N	T	<	-	-	-	S	I	.	5	8	8			
U		B	<	-	-	-	F	C	.	4	0	9			
U		B	<	-	-	-	T	I	T	.	5	8	8		
U		B	<	-	-	-	I	N	T	.	0	7	2		

For the mediating role of demographic variables of age, gender, education and occupationon POS perceived performance (PE), perceived ease of use (EE), social factor influence (SI), technical infrastructure (TI), trust in technology (TIT) and usage behavior (UB).The hypothesis was tested using generalized linear model (GLM) which combines multiple regression and multivariate analysis of variance. This tool is appropriate as it analyses the effect of many dependent variable and independent variables (fixed factors).

Table 4.26: Multivariate Result for the Demographic Variables:

S o u r c e	Dependent Variable	Type III Sum of Squares	d	f	Mean Square	F	P value
Corrected Model	P	E 104.762 ^b	2	8	3 . 7 4 1	3.603	. 0 0 0
	E	E 111.308 ^c	2	8	3 . 9 7 5	. 5 5 1	. 9 6 8
	S	I 125.407 ^d	2	8	4 . 4 7 9	1.666	. 0 2 5
	T I	T 143.120 ^e	2	8	5 . 1 1 1	2.773	. 0 0 0
	F	C 118.416 ^f	2	8	4 . 2 2 9	2.360	. 0 0 0
	U	B 144.440 ^g	2	8	5 . 1 5 9	1.874	. 0 0 8
Intercept	P	E 1169.881		1	1169.881	1126.459	. 0 0 0
	E	E 1111.943		1	1111.943	154.149	. 0 0 0
	S	I 803.523		1	803.523	298.837	. 0 0 0
	T I	T 789.553		1	789.553	428.345	. 0 0 0
	F	C 790.671		1	790.671	441.304	. 0 0 0
	U	B 726.201		1	726.201	263.759	. 0 0 0
Gender	P	E 1 . 9 3 5		1	1 . 9 3 5	1.863	. 1 7 4
	E	E . 0 2 4		1	. 0 2 4	. 0 0 3	. 9 5 5
	S	I 1 . 7 6 7		1	1 . 7 6 7	. 6 5 7	. 4 1 9
	T I	T . 1 8 0		1	. 1 8 0	. 0 9 7	. 7 5 5
	T I	T . 9 6 4		1	. 9 6 4	. 5 3 8	. 4 6 4
	U	B 2 . 5 5 4		1	2 . 5 5 4	. 9 2 8	. 3 3 7
Age	P	E 5 . 8 6 2		3	1 . 9 5 4	1.881	. 1 3 4

	E	E	3 . 0 2 1	3	1 . 0 0 7	. 1 4 0	. 9 3 6
	S	I	1 1 . 8 0 7	3	3 . 9 3 6	1.464	. 2 2 6
	T	I	T 1 4 . 3 5 6	3	4 . 7 8 5	2.596	. 0 5 4
	F	C	6 . 0 9 1	3	2 . 0 3 0	1.133	. 3 3 7
	U	B	1 1 . 6 5 3	3	3 . 8 8 4	1.411	. 2 4 1
O c c u p a t i o n	P	E	1 . 3 4 9	4	. 3 3 7	. 3 2 5	. 8 6 1
	E	E	6 . 2 1 4	4	1 . 5 5 3	. 2 1 5	. 9 3 0
	S	I	8 . 0 6 0	4	2 . 0 1 5	. 7 4 9	. 5 6 0
	T	I	T 8 . 7 7 8	4	2 . 1 9 5	1.191	. 3 1 6
	F	C	2 0 . 0 7 8	4	5 . 0 1 9	2.802	. 0 2 7
	U	B	8 . 8 9 5	4	2 . 2 2 4	. 8 0 8	. 5 2 2
E d u c a t i o n	P	E	1 2 . 8 2 1	4	3 . 2 0 5	3.086	. 0 1 7
	E	E	4 7 . 0 2 4	4	1 1 . 7 5 6	1.630	. 1 6 8
	S	I	6 . 5 1 2	4	1 . 6 2 8	. 6 0 5	. 6 5 9
	T	I	T 4 5 . 6 2 3	4	1 1 . 4 0 6	6.188	. 0 0 0
	F	C	1 5 . 6 2 3	4	3 . 9 0 6	2.180	. 0 7 3
	U	B	9 . 9 7 9	4	2 . 4 9 5	. 9 0 6	. 4 6 2

From the results above using the corrected model, Education had significant effect on POS perceived performance and Trust in Technology with P values of 0.017 and 0.000 respectively. Occupation has significant effect on technical infrastructure with a P value of 0.027 while the rest were not significant including Age and Gender at 0.05 level of significance. See appendix for between-Subjects factors.

4.5 Discussion of Findings

The results obtained from testing the hypotheses is in line with the answers obtained for the research question in section 4.3.1 above. From table 4.25, it is obvious that perceived POS performance (Performance Expectancy) explains about 73.3% of the variation in intention to use POS in Nigeria. This result is in line with earlier result that perceived POS performance to a great extent influence intention to use POS in Nigeria. Education had a significant effect of perceived POS performance. Perceived POS ease of use (effort expectancy) explains 40.5% of the variation in intention to use POS in Nigeria. This result is in line with earlier result that Perceived POS ease of use to some extent influence intention to use POS in Nigeria. Social factors influence (Social Influence) explains 58.8% of the variation in intention to use POS in Nigeria. This result is in line with earlier result that Social factors to some extent influence intention to use POS in Nigeria. Technical Infrastructure explains 40.9% of the variation in the usage POS in Nigeria. This result is in line with earlier result that Technical Infrastructure to some extent influence the usage of POS in Nigeria. Trust in Technology explains 58.3% of variation in usage of POS in Nigeria. This result is in line with earlier result that Trust in Technology to some extent influence the usage of POS in Nigeria. The relationship between intention to use POS and the actual usage behaviour was not significant with a variation of 7.2%. The results are in line with earlier result obtained in answering the research question that retail shoppers in Nigeria have adopted the use of POS to a low extent. The findings on the factors that affect POS adoption in Nigeria and the extent to which they affect the adoption of POS are discussed further below.

4.5.1 Factors that affects the adoption of POS in Modern Nigeria Shopping malls

4.5.1.1 Perceived POS Performance

Perceived POS Performance was found to have a positive relationship towards consumers' behavioural intention to adopt the use of POS in Nigeria. Perceived POS Performance has a very significant influence on the intention to use POS in Nigeria. The result indicates that an increase in perceived POS performance will lead to an increase in behavioural intention to use POS. The results of the statistical analysis indicate that Perceived POS Performance explained 73 percent of the variation in intention to use POS. Perceived POS Performance was found to have the greatest influence on the adoption of POS in Nigeria. Perceived POS Performance improves in a situation where users consider POS to be useful for making payment, believe it can be used to make payment better, believe it can be used to make payment quicker and efficiently. Perceived POS performance which represents POS performance expectancy deals with the degree to which an individual believes that using the POS will help him/her to gain better performance in making payment. An increased Perceived POS Performance will lead to an increase in the retail shoppers' intention to use POS in Nigeria.

This finding is in line with Venkatesh et al. (2003: 447) findings. It validates Oliveria et al. (2014: 697) study which also found positive influence of performance expectancy on behavioural intention of mobile banking customers in Portugal. In their study, the authors found that "performance expectancy is seen by the user as one of the most important factors in the acceptance of m-Banking." The findings of this study are also consistent with the findings of Bhatiasevi (2015), Escobar-Rodriguez and Carvajal-Truzillo, (2014), Oliveria et al. (2014), Casey and Wilson-Evered (2012), and Venkatesh et al. (2003). The finding is however contradicted by Omotayo and Dahunsi (2015) study conducted recently on POS adoption by business organisations in Nigeria. The authors found that there is no significant relationship between perceived usefulness which is similar to perceived POS performance or performance expectancy and adoption of POS by business organisations in Lagos and Ibadan. However, the finding of Omotayo and Dahunsi (2015) disagrees with NIBSS (2015) which indicated that businesses in Nigeria had 93.6% preference for the use of POS against the use of cash.

The finding of this research proved that improved perceived POS Performance will have a positive influence on retail shoppers' intention to use POS in Nigeria. This will occur in an instance where consumers consider the POS to be useful, believe that POS will enable

them to make payment better, in a quick and efficient manner. This finding is not surprising, given that consumers are usually motivated by workability or performance of new technology facilities in their decisions to use or to continue using such technology (Venkatesh & Davis, 2010). This finding is also supported by earlier studies by Rogers (1983) diffusion of innovation theory and Cody-Allen and Kishore (2006). Cody-Allen and Kishore (2006), identified that perceived usefulness which is similar to performance expectancy is an important antecedent to an individual's intention to use a new technology. Given that POS provides convenience for payment, it is not surprising that consumers in Nigeria found performance of the machine to have the greatest influence on their intention to use it. Therefore, improvement in the performance of POS will lead to improvement in the user's intention to adopt POS in Nigeria. Consumers who perceive the POS to be useful, believe that POS will enable them to make payment better, in a quick and efficient manner are more likely to adopt and use the POS for making payment.

4.5.1.2 Perceived POS Ease of Use

Perceived POS Ease of Use was found to have a positive relationship towards behavioural intention to use POS in Nigeria. The result indicated that Perceived POS Ease of Use explained 40.5 percent of the variation in intention to use POS in Nigeria. This indicates that when consumers perceive that they do not have to put forth too much effort in order to use POS, they are more likely to use the machine for making payment. Improved effort expectancy will lead to improvement in the adoption of POS. Perceived POS Ease of Use which relates to Effort Expectancy indicate the degree to which consumers believe that using a POS will be free from frustrating efforts. Perceived POS Ease of Use improves in a situation where there is an improvement in the extent users consider POS easy to use, understand how to use POS, believe they can use the POS and find it easy to learn how to use POS. The result from this study indicated that an improvement in Perceived POS Ease of Use will lead to improvement in the consumers' intention to use POS. Consumers develop intention to use POS when they believe that they do not need to put forth too much effort in order to conclude their transaction on POS.

This finding is validated by Omotayo and Dahunsi (2015) who found that perceived ease of use has significant positive relationship with adoption of POS machine by organisations in Nigeria. The finding is also supported by Bhatiasavi (2015) study of mobile banking in Thailand which confirmed a positive relationship between effort expectancy and behavioural intention. Similar findings were also documented by Casey and Wilson-Evered, (2012) and Escobar-Rodriguez and Carvajal-Truzillo (2014). This finding is also consistent with Tosuntas et al. (2015), Escobar-Rodriguez and Carvajal-Truzillo, (2014), Oliveria et al. (2014), Casey and Wilson-Evered (2012), and Venkatesh et al. (2003).

The findings of this research proved that improved Perceived POS Ease of Use, will have a positive influence on consumers' intention to use POS in Nigeria. This will reflect in an instance where consumers understand how to use the POS and find it easy to use POS. It will also reflect in a situation where consumers can easily learn to use POS and where they possess the ability to use POS. This study has shown that for POS to be adopted, users must be able to use it without having to put forth extraordinary efforts to do that/so. Earlier study by Rogers (1983) documented that ease of use or reduced complexity improves adoption. Given that consumers do not usually like to go through extraordinary efforts to use a technology, it means that improved Perceived POS Ease of Use will lead to improvement in the users' intention to adopt POS in Nigeria.

4.5.1.3 Social Factors Influence

The findings from this research show that social factors influence has positive relationship towards consumers' intention to adopt and use POS in Nigeria. Social Factor Influence explained about 58.8 percent of the variation in intention to use POS in Nigeria. To some extent, Social Factors influence the consumers' intention to use POS in Nigeria. Social Factors Influence deals with the degree to which an individual perceives that important others believe he/she should use POS or that people that have influence on them believe that they should use the POS system. It shows that people are influenced by peers. Improvement in social influence will lead to improvement in users' intention to use POS. Social influence improve in a situation where there is an improvement in the extent that family members encourage an individual to use POS, friends and people

around an individual encourage the use of POS, people whose opinion are valued encourage a user to use POS and the retail shop staff encourage the use POS.

This result is not surprising given the cultural dimensions of Nigeria. Chiemeke and Evwiekpaefe (2011) had suggested that culture could have a significant influence in the adoption of technology in Nigeria. According to Hofstede's (2001) cultural dimensions, Nigeria is a highly collectivist society, which means that individuals are highly committed to families, extended families and extended relationships. This is reflected in the findings of this study. In the context of this study, people that are close to the users of POS were found to have some influence on the users' intention to use POS. These include - family members, friends and people around the consumer, people who the consumer values their opinion and retail shop staff. They choose to use POS because they believe that if people who are important or familiar to them think that they should use POS, they themselves will indeed use it. They choose to use POS when they are encouraged to use it by people they interact with at the shops. The finding of this research is collaborated by recent study of organisations that used POS in Nigeria by Omotayo and Dahunsi (2015) and other previous studies such as Bhatiasevi (2015), Thamas et al., (2013) Huang and Qin (2011), Yu (2012), Zhou, (2012) and Wu, Yu & Weng, (2012), Foon and Fah (2011),), Yamin and Lee (2010), Al-Shafi and Weerakkody, (2009).

4.5.1.4 Technical Infrastructure

Availability of technical infrastructure was found to have a positive relationship towards the use of POS in Nigeria. Availability of technical infrastructure which are facilitating conditions, have a direct relationship with the usage of POS in Nigeria. Facilitating conditions explained 40.9 percent of the variation in the usage of POS in Nigeria. The result indicates that improvement in the availability of technical infrastructure will lead to improvement in the adoption and usage of POS in Nigeria. Facilitating Conditions deals with the degree to which an individual believes that organisational and technical infrastructure exists to support the use of the POS. It relates to the extent to which an individual perceives that technical infrastructures such as power and network are available to support the use of POS. It also relates to the support that an intending user of

POS believe is available from the POS machine and that people are available to support the use of POS if they encounter problem while using the POS.

Facilitating conditions improve in a situation where there is an improvement in the extent that an individual believes there is availability of power so that the POS is powered on, an individual believes that help is available if problems arise in the process of using the POS, they believe that someone is available to assist with POS service difficulties and they believe that network is available on the POS. The result of this study shows that to some extent, people who intend to use POS are influenced by availability of technical infrastructure in their eventual use or non-use of POS. The presence of technical infrastructure has direct influence on the eventual usage of POS. An increased availability of technical infrastructure will lead to an increase in the adoption and use of POS. Such issues as the POS being powered on when consumers want to use it, consumers being able to get help when problem arises in the course of using POS, someone not being available to assist with POS service difficulties and the POS having network availability with signal when consumers wish to use it, all determine whether a consumer who intended to use POS eventually uses it.

This finding disagrees with Bhatiasavi (2015) who did not find a positive relationship between facilitating conditions and usage behaviour in the adoption of Mobile banking in Thailand. The finding is however corroborated by Tosuntas et al. (2015), Oliveira et al. (2014) McKenna et al. (2013) Alrawashdeh et al., (2012) and Venkatesh et al. (2003). Alrawashdeh et al., (2012) conducted a study on the adoption of e-learning in Jordan and found a significant relationship between facilitating conditions and the adoption of e-learning in that country.

Given that previous studies in Nigeria by NIBSS (2015) had shown that many businesses would prefer to receive payment through POS, this finding is interesting as one would have expected that the merchants would do more to ensure that technical infrastructure that facilitate the use of POS are available to aid the use of POS in Nigeria. The findings of this study show that improvement in technical infrastructure will lead to increased usage of POS. People are not likely to adopt and use POS if the facilitating conditions are not present. While technical infrastructure may not be an issue in developed economies, Gholami, Ogun, Koh and Lim (2010) has recorded that facilitating conditions such as

infrastructure is a major issue for technology adoption in developing countries. This viewpoint was also supported in the study by Yaqub, Bello, Adenugba and Ogundeji (2013). Within the Nigerian context, power availability has remained a major issue which together with network availability appear to be major factors affecting the use of many technologies including the POS. However, Cody-Allen and Kishore (2006) argue that the presence of performance expectancy and effort expectancy diminishes the influence of facilitating conditions. This study does not tend to agree with this position given that facilitating conditions was found to have direct influence of the actual usage behaviour. Whilst a person may intend to use POS following the availability of performance expectancy, effort expectancy and social influence, they can only use the POS if the POS is working. POS will not work unless relevant technical infrastructure such as power and network are available.

4.5.1.5 Trust in POS Technology

Trust in technology was found to have a positive influence on the use of POS in Nigeria. Trust in technology explained 58.3 percent of the variation in the usage of POS. The result of this study indicates that to some extent people that intend to use POS are influenced by trust in their decision to use or not to use POS. An improvement in the level of trust that people have on the POS will lead to an improvement in the adoption and usage of POS in Nigeria. Trust in technology relates to the attributes of the POS that makes the POS trustworthy, such that users can trust that the POS will work when they want to use it and that it can be relied upon to enable the payment in a manner that protects their data and guarantees that payments can be made without issues. An intending user of POS can only use POS if they find the POS to be reliable, functional and capable of enabling the payment to be successful and without hitches. Where a user attempts to make payment with POS and discovers that the payment did not go through, they tend to lose trust in the POS.

An increase in trust in technology will lead to an increase in the adoption and use of POS in Nigeria. Therefore, when people notice that a POS has not worked consistently, they lose trust in the machine. Trust is reflected in three beliefs people hold about a new technology - these are functionality, helpfulness, and reliability. Nigerians who use POS do so because they know that their transaction will be concluded on POS, when they

know that they can get useful help from the POS. They use POS when they find it reliable and when they are sure that they can get prompt refund when their accounts are debited for failed transaction on POS. The result from this research shows that positive expectations by the consumers as it relates to using POS affects the usage of POS.

This is supported by Kimery and McCord (2012), who found that a consumer's willingness to accept vulnerability in an online transaction is based on their positive expectations regarding the behaviour of the online retailer. According to Morgan and Hunt (2011), this is because trust has been shown to ameliorate perceived risk by customers, thus breaking down barriers of fear. When a user trusts the POS, it increases the ultimate benefits the user gains from using the POS and potentially, the trust they have about the merchant. The user also gains the satisfaction of knowing that the merchant is capable and trustworthy (Gefen, Karahanna & Straub, 2010). It is only when an individual can form a belief that a POS is capable of performing its expected function, and will act with the user's best interests in mind, can that individual fully expect that the POS will fulfil the individual's needs to use the machine for making payment. Anecdotal evidence shows that many Nigerians who may intend to use POS do so with some level of fear that the machines may not work. This may explain the reason why many Nigerians still queue at the ATM machines to collect cash when they visit shopping malls instead of making payment with their cards (See Appendix VII)

4.5.1.6 POS Usage Behaviour

Intention and usage of POS did not show significant relationship. The result obtained in this study which showed 7.2 percent variation in intention and usage of POS indicates that many retail shoppers who intend to use POS do not always use POS. This result shows that retail shoppers in Nigeria do not use POS in a sustained manner. This indicates very low adoption of POS in Nigeria. Many users of POS in Nigeria have not always used the POS and they are not always able to use the POS. Although the result indicated that improvement in perceived POS performance along with improvement in perceived POS ease of use and improvement in social factors will lead to an improvement in the Intention to use POS; evidence from the research has also shown that the eventual usage of POS in Nigeria is influenced by availability of technical infrastructure to facilitate the use of POS such as network being available, the POS being

functional and the user having the trust in the POS that it will work and not cause them problems when they use it. As such, intention did not always result in usage as these technical issues abound.

An intention is a plan or a likelihood that someone will behave in a particular way in specific situations - whether or not they actually do so (Al Qeisi & Al-Abdallah, 2013). An individual that is thinking about using POS to make payment intends or plans to use it, but may or may not actually follow through on that intent. An intending user of POS will not use POS if conditions that will enable the usage of the POS are not present. The researcher believes that the reason for the insignificant relationship between shoppers' intention to use POS and usage behaviour is because the shoppers have issues with availability of technical infrastructure that support the use of POS such as power, network and support that individuals get whilst using POS. Retail shoppers are not able to use POS in a situation where technical infrastructure that will enable the use of POS is not available or where there is reduced trust in the POS.

This result worrisome given the result of NIBSS (2015) which showed the willingness of merchant to adopt POS. NIBSS (2015) report indicated that POS is the most popular non-cash payment channel, preferred among the non-cash payment options by 93.6% of merchants, the fact that there is a variation of 7.2 percent between shoppers' intention and usage of POS shows that while many consumers may intend to use POS, they do not end up using the POS. This may not be unconnected to peculiar issues in Nigeria. Many of the respondents that recorded their experience with POS had one negative thing or another to say. Some of the comments included previous bad experiences, not being able to make payment with the POS, suffering embarrassments when the POS will not work and they have no cash on them, POS debiting them several times for one payment, going to shop not knowing if the POS will work or not, network failure when they need to use POS, POS not being charged by the shop attendants. These issues could lead to consumer who intend to use POS not using the POS. The result of this study makes it clear that retail shoppers who intend to use POS do not always use POS. As such it can be said that significant number of shoppers who use POS in Nigeria has not adopted the usage of POS.

4.6 Summary

In this chapter, the data that was collected from the field survey have been presented, analysed and interpreted. The research questions were answered and the hypotheses tested. The hypotheses testing indicated that five of the hypotheses advanced in respect of the core variables are supported while one is not. The findings were also discussed. The analyses were used in validating the research model. Correlation analyses was performed on the various variables that were examined in the study. The results from the study indicate that perceived POS Performance has the greatest influence on intention to use POS in Nigeria. Perceived POS Ease of Use and Social Factor Influence also have significant positive influence on the intention to use POS in Nigeria. Technical Infrastructure and trust in technology were found to have influence on the eventual usage of POS in Nigeria. It was also discovered that the relationship between intention and actual usage of POS was not significant. Education had significant effect on POS Performance Expectation and Trust in Technology while Occupation had significant effect on Facilitating Conditions. The rest of the demographic variables had no significant effect.

References

- Abukhzam, M. & Lee, A. (2010). Factors affecting bank staff attitude towards E-Banking adoption in Libya. *The Electronic Journal on Information Systems in Developing Countries*, 42(2), 1-15. Retrieved June 10th, 2016, from: <http://www.ejisd.org/ojs2/index.php/ejisd/article/viewFile/674/322>
- Bhatiasevi, V. (2015). An extended UTAUT model to explain the adoption of mobile banking. Retrieved March 11, 2015, from: Sagepub.co.uk/journals from idv.sagepub.com at Lagos Business School PARENT.
- Casey T and Wilson-Evered T (2012) Predicting uptake of technology innovations in online family dispute resolution services: An application and extension of the UTAUT. *Computers in Human Behaviour*, 28(6), 2034–2045.
- Chiemeke, S., & Ewwiekpaefe, A. (2011). A conceptual framework of a modified unified theory of acceptance and use of technology (UTAUT) model with Nigerian factors in E-commerce adoption. *Educational Research*, 2(12), 1719-1726.
- Cody-Allen, E. & Kishore, R. (2006). An extension of the UTAUT model with E-Quality, trust & satisfaction constructs. Proceedings of the 2006 ACM SIGMIS CPR conference on computer personnel research: Forty-four years of computer personnel research: achievements, challenges & the future 82-89, Retrieved March 20th, 2015, from: <http://portal.acm.org/citation.cfm?id=1125115>.
- Davis, F.D. (2012), Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319-340.

- Escobar-Rodriguez, T.& Carvajal-Truzillo, E. (2014). Online purchasing tickets for low cost carriers: An application of the unified theory of acceptance and use of technology (UTAUT) model. *Tourism Management*, 43, 70–88.
- Foon, Y. S., & Fah, B. C. Y. (2011). Internet banking adoption in Kuala Lumpur: an application of Utaut model. *International Journal of Business and Management*, 6(4), 161.
- Gefen, D., Karahanna, E. & Straub, D.W. (2010). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organisations across nations* (2nd ed.). Thousand Oaks, California: Sage Publications, Inc.
- Ifinedo, P. (2012). *Technology acceptance by health professionals in Canada: An analysis with a modified UTAUT model*. In: Proceedings of the 45th Hawaii International Conference on System Sciences January 4-7, 2012, Hawaii, USA.
- Huang, N., & Qin, G. (2011). *A study of online virtual fitting room adoption based on UTAUT*. Paper presented at the E -Business and E -Government (ICEE), 2011 International Conference on.
- Keat, T.K. & Mohan, A. (2012). Integration of TAMbased electronic commerce models for trust. *Journal of American Academy of Business*, 5 (1/2), 404-410.
- Kim, Y.J., Kishore, R. & Sanders, G.L. (2010). From DQ to EQ: Understanding data quality in the context of E-Business systems. *Communications of the ACM*, 48 (10), 75-81.
- Kimery, K.M. & McCord, M. (2012). Third-party assurances: Mapping the road to trust in e-retailing. *Journal of Information Technology Theory and Application*, 4 (2), 63-83.
- Morgan, R.M. & Hunt, S.D. (2013). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58 (3), 20-39.
- NIBSS (2015), POS adoption and usage: A study on Lagos State, Lagos. Retrieved June 12, 2015, from: <http://www.nibss-plc.com.ng/wp->

content/uploads/2015/05/NIBSS-2015-POS-Adoption-Study-Lagos-State.pdf
accessed 12/06/2015.

- Oliveira T, Faria, M, Thomas, M. A.& Popovic, A. (2014).Extending the understanding of mobile banking adoption: When UTAUT meets TTF and ITM.*International Journal of Information Management* 34(5), 689–703.
- Omotayo F. & Dahunsi O. (2015).Factors affecting adoption of point of sale terminals by business organisations in Nigeria.*International Journal of Academic Research in Business and Social Sciences*, 5(10),15-136. Retrieved December 12, 2015, from:http://hrmars.com/hrmars_papers/Factors_Affecting_Adoption_of_Point_of_Sale_Terminals_by_Business_Organisations_in_Nigeria.pdf.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.
- Tosuntas, B, S., Karada, E., & Orhan, S. (2015). The factors affecting acceptance and use of interactive whiteboard within the scope of FATIH project: A structural equation model based on the Unified Theory of acceptance and use of technology. *Computers & Education*, 81, 169-178.
- Venkatesh, V. Morris, D., Davis, F. D. (2003). User acceptance of information technology: Toward a unified view.,*MIS Quarterly*,27(3), 425–478.
- Venkatesh, V.& Davis, F.D. (2010).A theoretical extension of the technology acceptance model - Four longitudinal field studies.*Management Science*, 46 (2), 186-205.
- Wu, M.Y., Yu, P.Y., & Weng, Y.C. (2012).A Study on user behavior for I pass by UTAUT: Using Taiwan's MRT as an example.*Asia Pacific Management Review*, 17(1), 92-111.
- Yamin, M., & Lee, Y. (2010).*Level of acceptance and factors influencing students' intention to use UCSI University's e-mail system*.Paper presented at the User Science and Engineering (i-USer), 2010 International Conference on.
- Yu, C. S. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research*, 13(2), 104-121.
- Zhou, T. (2008).*Exploring mobile user acceptance based on UTAUT and contextual offering*. Paper presented at the Electronic Commerce and Security, 2008 International Symposium on.

CHAPTER FIVE

SUMMARY OF FINDINGS, IMPLICATIONS, LIMITATIONS, RECOMMENDATIONS, CONCLUSION, CONTRIBUTIONS TO KNOWLEDGE AND AREAS FOR FURTHER RESEARCH

5.1 Introduction

In the preceding chapter of this work, the data collected from the field survey was presented, analysed, interpreted and discussed. The research questions were answered. The analyses were used in testing the causal relationships hypothesized in the study. In this chapter, a summary of the findings of this research is presented. The implications of the overall research findings are discussed, following which conclusions and recommendations are made. Areas for further research are also recommended.

5.2 Summary of Findings

This research is one of the few attempts towards understanding the behavioural aspects of retail shoppers in the adoption and use of POS in Nigeria. The research adopted a descriptive research design, using quantitative research approach in which data was collected from all the six geopolitical zones of the country. Questionnaire was used as the survey instrument. seven hypotheses were postulated and tested. The result indicated that five of the six hypotheses postulated for the core variables are supported while the result of the test of hypothesis postulated for the moderating variables were mixed. The results from the research are summarized below. The result of analysis for the core variables in this study indicate that the adoption of POS is influenced by the following factors:

- i. Perceived POS Performance ($\beta = .733, p < .001$)
- ii. Perceived POS Ease of Use ($\beta = .405, p = .002$)
- iii. Social Factors Influence ($\beta = .558, p < .001$)
- iv. Technical Infrastructure ($\beta = .409, p = .003$)
- v. Trust in POS technology ($\beta = .588, p < .001$)
- vi. Intention to use POS ($\beta = .072, p = .013$)

The result indicated that Perceived POS Performance has very significant influence on intention to use of POS, Perceived POS Ease of Use and Social Factors

Influence has significant influence on the intention to use POS. Therefore, an improvement of any of the three factors will have a positive impact on the intention of retail shoppers in modern Nigeria shopping malls to use POS. POS Performance was found to have the greatest impact on intention to use POS. It accounted for 73.3 percent of the variation in intention to use POS in Nigeria. While Improved POS Ease of Use accounted for 40.5 percent of the variation in intention to use POS, Improved Social Factor Influence accounted for 55.8 percent of the variation.

The impact of Technical infrastructure, trust in technology and behavioural intention were measured on the usage of POS. The result indicated that the relationship between intention and usage was not significant. This implies that intention to use did not always result in actual usage of POS in Nigeria. An individual that intends to use POS is only able to use POS if technical infrastructure and trust is available to facilitate its use. The result of the research indicated that technical infrastructure accounted for 40.9 percent of the variation in the adoption of POS while Trust in technology accounted for 55.8 percent of the variation. The positive relationship between technical infrastructure and trust in technology on the usage of POS indicates that an improvement in availability of technical infrastructure and trust in the POS technology will lead to improvement in the adoption and usage of POS in Nigeria. The Implications of these findings on the adoption of POS in Nigeria are discussed below.

5.3 Implications of the Findings

The findings of this research work have both practical and academic implications. For the practical implications, this study provides solid empirical evidence of the factors that are taken into consideration by individuals in their decision to adopt and use POS in Nigeria. The study revealed the extent that each of the identified factors influenced the users' intention to adopt and use POS. It is especially important for policy makers, retail banks, CBN and the retail merchants to understand the behaviour of the consumers if they want to encourage the use of POS. The result of this study has documented the various factors that affect the adoption of POS in Nigeria and their level of influence. An improvement in these factors will lead to improvements in the adoption of POS in Nigeria.

The findings in this research has indicated that Perceived POS Performance is the factor that has the greatest influence on people's intention to use POS in Nigeria. Perceived POS Performance affects the intention to use POS to a great extent. It explained 73 percent of the variation in intention to use POS in Nigeria. This implies that an improvement in Perceived POS Performance will lead to an increase in the adoption of POS in Nigeria. Therefore, interventions that improve POS Performance will lead to improvement in the adoption of POS in Nigeria. The more people see POS as being useful for making payment, believe it can be used to make payment better and believe it can be used to make payment quicker and efficiently, the more they are likely to adopt and use POS.

The findings in this research equally revealed that improvement in Perceived POS Ease of Use will lead to increased adoption of POS in Nigeria. Perceived POS Ease of Use explains 40.05% of the variation in intention to use POS in Nigeria. Retail shoppers do not wish to put forth too much effort in trying to use POS. Therefore, to encourage the use of POS, promoters of POS use must ensure that the POS delivers what it promises the users and that the users do not have to go through so much stress in trying to use POS. Consumers are likely to increase their adoption of POS if they find the POS easy to use, understand how to use POS, can use the POS and where they find it easy to learn how to use the POS. Interventions that address these factor could very much lead to increased adoption of POS in Nigeria.

The outcomes in this research revealed a positive relationship between Social Factors Influence and the adoption of POS in Nigeria. An improvement in social influence will lead to improvement in the adoption of POS in Nigeria. Social Factor Influence accounted for 55.8 percent of the variation in intention to use POS in Nigeria. People can be influenced to use POS by their family members, friends and people around them, people that they value their opinion and members of staff at the retail shops. This finding will have implications in the way that the use of POS is promoted and advertised. Adverts created to appeal to users through people that have influence on them are likely to induce increased usage of POS.

Availability of technical infrastructure was found to have direct influence on the actual and eventual usage of the POS. Technical infrastructure are those conditions that have to be present to enable the use of POS. Technical infrastructure include the availability of power on the POS machine to enable its use, the availability of help in the process of using the POS, someone being available to assist and the availability of Network on the POS so that payment can be transmitted. This means that while people may intend to use POS, they are only able to use the POS if they find these facilitating conditions to be available. Technical infrastructure accounted for 40.9 percent of the variation in the usage of POS. Many of the respondents are worried about network availability and power issues. This has implication in the kind of POS that is deployed in Nigeria. To encourage increased use of POS, there is the need to consider POS machines that can work offline. Offline POS machines will enable users make payment in the event that there is no network to transmit the payment immediately.

However, in designing a system for off line payment, it must be designed in a manner that guarantees that the payment instruments are debited in an offline mode and synchronised once the instrument makes contact in any online environment. These will help ameliorate power and network connectivity issues. In addition, the result also demonstrates that if users are able to get help from the POS machine when they encounter difficulties they are likely to adopt POS the more. If POS is improved with help functions such as being able to perform auto reversals when payments fail, it will lead to improvement in the adoption of POS in Nigeria. Also, POS adoption will improve if staff of retail shops are able to provide support to users when they encounter problems whilst using the POS.

The findings also revealed that the relationship between intention and actual usage of POS was not significant. Consumers who intend to use POS did not always use it. The eventual usage of POS is affected by facilitating conditions being available and consumers being able to trust that the POS will be functional and that it will enable them make payment in a reliable manner. It is also influenced by users knowing that help will be available when issues arise with the use of POS. Trust in technology accounted for 58.8 percent of the variation in the adoption of POS in Nigeria. Consumers are not able to make use POS when they discover that the POS is not working or is not working

properly. It is therefore important that the promoters of POS ensure that the machine is always up and running as this will help improve on the trust and consequently, lead to the adoption of the POS machine by the consumers. Regular failures of POS affect the users' trust in the POS technology.

5.4 Recommendations

What has emerged from this study indicates that certain key factors influence the adoption of POS by retail shoppers in modern Nigeria shopping malls. If these factors are improved upon, it would lead to improvement in the adoption of POS in the country. We now know that Perceived POS Performance, Perceived POS Ease of Use, Social factors Influence, Technical Infrastructure and Trust in Technology are key factors that influence the adoption of POS in Nigeria. This study has revealed the extent to which each of these factors influence the adoption of POS in Nigeria. We now know that intention to use did not always lead to usage of POS in Nigeria. Users who intend to use POS are not able to use the POS where facilitating conditions such as technical infrastructure and trust are not available to support its use. Retail shoppers use POS if they trust the machine as being reliable, functional and capable of enabling payment.

The following recommendations are made to improve the adoption of POS in Nigeria:

5.4.1 Improve POS Perceived Performance

The result of the study has shown that POS perceived performance has the most significant influence on the retail shoppers' intention to use POS. Therefore, an improvement in POS perceived performance would lead to significant increase in the use of POS. Accordingly, promoters of POS adoption should bear this in mind in seeking to increase the adoption of POS in Nigeria. Perceived POS Performance improves in a situation where users consider POS to be useful for making payment, believe it can be used to make payment better, believe it can be used to make payment quicker and efficiently. To improve POS perceived performance the following are recommended:

- i. **The deployment of more efficient POS machines with improved uptime capability** -Such machines should be designed to use of global SIM cards along with connecting through Local Area Network (LAN) –

the use of a combination of global SIM cards and LAN options are recommended to improve the connectivity problem which will increase the reliability and functionality of the POS. As such, they will induce positive perception of POS by retail shoppers as being useful and that it will always perform the intended task of making payment. Using the two options, will provide assurance to users that there is fall back when one option fails and will assure them that the POS will enable them make payments better.

- ii. **Banks Need to Deploy More Offline POS and Payment Options -** which can take payment with or without network being available. However, this should be done with caution. Any offline POS deployment must be such that the card used for the payment can be debited off line and synced with the customer's account in a manner that guarantees fraud free transactions. The newly launched PayWithCapture (PWC) by Access bank is a step in this direction. PWC enables payment for goods and services offline using a pre-generated QR-Code (Quick Response Code). It enables users' link all their cards to their mobile phone and make payments online and offline via secured SMS and USSD channels.
- iii. **Enhancement of POS Capacity for Debit before Sales Option -** Deployment of POS that is capable of checking balance and holding the balance before a purchase is processed especially for fixed price items like fuel will improve the management of failed payments and by extension the retail shoppers' perception of POS performance.
- iv. **Advertising** – There is the need for stakeholders to intensify the advertising of POS. Such adverts must showcase the benefits of using POS and has to be delivered in a sustained manner across the country. Advertising can be used to show the positive attributes of POS which will ultimately impact the retail shoppers' perception of POS as being able to perform the task of making payment.

- v. **Introduction of Direct/Card Less POS** The result from this study also suggests the need to provide alternative forms of POS payments. It is believed that POS that could enable direct and card less payment where POS payments are taken directly from a payer's bank account without cards would help eliminate many of the issues associated with payment cards. This will also improve the options that are available for making payments. Such systems should ride on computer applications that are simple and can be implemented on mobile POS devices using mobile phone technology. The Card Less POS system should be designed to be available on and able to switch between USSD, Mobile and Web. It is believed that this will considerably reduce the incidences of failed payments. In so doing, it will improve POS perceived performance.

5.4.2 Improve POS Perceived ease of use

Results from the study show positive relationship between Perceived POS Ease of Use and intention to use POS. Therefore, interventions that will reduce the effort that consumers believe they will need to put forth to use POS will lead to increased usage of POS in Nigeria. Perceived POS Ease of Use improves in a situation where there is an improvement in the extent users consider POS as easy to use, understand how to use POS, believe they can use the POS and find it easy to learn how to use POS. Improvement in POS perceived ease of use can be achieved through:

- i. **Convenient Placement of POS at the Merchants tills** - POS should be made available at tills and placed conveniently in a manner that conveys to the users that it is easy and ready to be used.
- ii. **Make POS Payment Easier with Near Field Contact (NFC) Option** – POS payment can be further improved with NFC option for tiny and appropriate payments. Card issuers should be able to determine the maximum amount that they can allow to be paid using the NFC option.
- iii. **Stakeholders to Initiate Programmes on How to Use POS** - Programmes from all stakeholders (banks, CBN, NIBSS, Merchants, PTSPs etc.) on how to use POS will serve to simplify the process of POS

use and convey to intending users that the POS is quite easy and simple to use.

5.4.3 Improve Social Factors Influence

The results of this study indicates that social factor influence has a significant effect on retail shoppers intention to use POS. Therefore, social influence factors can be used to improve the adoption of POS in Nigeria. This can be achieved by manipulating the various social factors influence such as family members, friends and people around an individual and people whose opinion are valued to influence an individual to use POS. To achieve this, promoters of POS adoption should:

- i. **Increase Awareness through Joint Marketing Programs that appeal to the social factors**– Moving from cash to electronic payment is an objective of all industry stakeholders. Therefore, the stakeholders will do well to present joint marketing programs involving all banks in Nigeria with the support of CBN and NIBSS. There is the need for CBN and NIBSS to lead in an aggressive nationwide awareness campaign to get more people to start using the POS terminals. Nigerians should be enlightened on the benefits of POS and encouraged to use it. This will lead to more people using the POS and influencing and encouraging other people around them to use it.
- ii. **Merchant in-house POS Awareness Campaigns** – The merchants' store is a very fundamental place to promote the use of POS. There is a lot that the merchant staff can do to promote the use of POS by creating awareness that POS is available in store. POS adoption will improve when merchants advertise the availability of POS in their shops in a persuasive and convincing manner. This will help build confidence.
- iii. **Social Influence Driven Campaigns and Adverts** - Given the positive relationship discovered between Social Factor Influence and intention to use POS and Nigeria being a collectivist nation, POS adoption can be

improved through awareness and marketing campaigns that will target consumers through their social circles – family, friends, relatives and shop attendants.

- iv. **Encourage Shop Attendants to Offer POS as First Option** – Shop attendants should be encouraged to offer POS payment as first option for payment. This is given the discovery of the impact that they have in influencing the use of POS. Attendants should be put on reward programs that will reward them based on number and volume of transactions that they process through POS.
- v. **Tipping Options on POS** – result of an initial pilot survey that was undertaken to give better definition to the research problems of this study indicated that shop attendants get tips when payments are made in cash. It is possible that some shop attendance could be discouraging POS payments in order to increase *cash tips*. Enabling tipping on POS could serve to persuade more shop attendants to encourage shoppers to pay using the POS. Therefore, modifying POS features to include tipping options could very much compel shop attendants to encourage POS payments.
- vi. **Provide calls to action using Loyalty Programmes**– Stakeholders should present a common front in the provision of calls to action for POS payment by making POS payments more intuitive and exciting through loyalty programs. Rewarding shoppers for making payments with Cards will serve to increase adoption of POS; especially when it is tied with promotional campaigns that make effective use of the positive relationship observed between social influence and adoption as revealed in this study.

5.4.4 Improvement of technical infrastructure

Some technical infrastructure that facilitate the use of POS in Nigeria are lacking. Critical factors such as steady power supply, network connectivity and support are lacking. Moreover, users do not always get help when they are faced with challenges whilst using POS. This means that improving these conditions would facilitate the use of

POS in Nigeria. Solving power and network problems in Nigeria is a major challenge. Therefore, the right approach will be to focus on how the POS can be manipulated at the face of these challenges to deliver on users' expectation. The following specific recommendations are made:

- i. **Deployment of POS Machines with Extended Battery Life** - Banks need to deploy POS machines with extended battery life. This will help solve the power problems associated with POS usage.
- ii. **Need for More Merchants Staff Training** - Retail merchants need to do more in training staff on the benefits of encouraging customers to use POS. Staff should also be trained to provide support for users who they face difficulties whilst making payment with the POS.
- iii. **Make Errors Easy to Fix** – POS should be provided with help menus that will enable for easy fixing of common errors that occur in the process of payments.
- iv. **Provide Assurance on Security and Privacy** – Stakeholders to provide assurances on security and privacy issues associated with POS payments. Such assurances should be displayed conspicuously so that users can know what to expect incase problems arise in the process of payment.

5.4.5 Improvement in users trust in POS Technology

The result of the study has shown that trust play a significant role in the use of POS in Nigeria. As such, interventions that will improve users trust will very well improve the adoption of POS in Nigeria. Trust improves when retail shoppers know that their transaction will be concluded on POS, they can get useful help from the POS, they find the POS reliable and when they are sure that they can get prompt refund if their accounts are debited for failed transaction on POS. The following are recommended to improve trust in POS:

- i. **The deployment of more intelligent POS terminals** that are designed with the Nigerian peculiarities will help improve trust and by extension the adoption of the POS. Such machines should be designed with the help functions that can address issues spontaneously.

- ii. **Provision of Other Forms of Authentication When Network Fails –** More people are likely to be using POS if they are sure that POS will always work. As such, the modification of POS with new systems that allow other forms of authentication where the POS fails due to network problems will serve to improve trust and ultimately improve the usage of POS in Nigeria.
- vi. **Merchants to Ensure that POS Machines Are Always Charged –** Despite the challenges of electricity in Nigeria, it is still possible to use POS given that they are battery operated. Therefore, merchants should ensure that the shop attendants always charge the POS and where possible other forms of energy such as inverters can be used to achieve constant power for the POS.
- vii. **Role of All Parties Must Be Clear –** In order to improve trust and facilitate increased use of POS in Nigeria, it is important to ensure that the roles and responsibilities of the parties involved in the use of POS is clear. Users must be aware of what to expect when issues arise in the course of their payment through the POS. Resolution must be done in a timely, fair and clear manner.
- viii. **Regulatory Bodies to Implement Better Service Standard -** Regulatory authorities – CBN and NIBSS should implement service standards for the industry that incorporates improvements in the factors identified in this study. Such standard should:
 - i. **Reduce the Current 21 Days Window for Resolution of POS Issues** Regulatory authorities should guarantee users of POS that in instances where they make payments and issues arise, that reversals will be effected immediately. A situation where it takes up to 21 days to effect reversals when issues arise with POS payments (as is currently the case) serves to discourage the adoption of POS. POS should be configured to enable immediate reversals when they are merchant induced.

- ii. **Enhance the Support Framework** –NIBSS and other agencies that provide support services should enhance the support framework that is available to the processors and other parties involved in the use of POS to improve standards. Users that encounter issues with POS should be given all necessary support to ensure they do not lose money.
- iii. **Improve on Risk Management Guidelines** -Regulatory bodies need to improve on risk management guidelines for the industry. It is also important that these guidelines are properly communicated to all stakeholders to improve security, build stakeholder confidence and encourage further adoption and use.
- iv. **Mitigate POS Users' Risks** – the key risks facing users of POS are already known. These risks should be mitigated by addressing the concerns upfront. For instance, users should be made aware that they get full refund of their money in the event that their accounts are debited and the merchant did not receive corresponding credit. Users' risk can further be mitigated by ensuring that common issues associated with POS are addressed and alternatives provided. Stakeholders should ensure that there is service at all times through SIM or LAN and all other conditions including POS being charged with paper, ink, and power being available on the machines.

5.5 Conclusion

Despite CBN's efforts to make Nigeria a cashless society, many Nigerians have not embraced the use of POS for payment. This has been a source of concern for policy makers, banks, regulatory bodies and retail merchants. Although quite a number of studies have been conducted on adoption of new technology, these studies focused on the developed countries. While various factors have been argued as determinants of technology adoption in various parts of the world, some of them have been counteracted in other parts. In the face of consumer resistance to the adoption of POS in Nigeria, the country lacks sufficient researches that explicate the factors that affects the adoption of this very important technology. This was considered to be a conspicuous gap. This study therefore set out to contribute towards bridging this gap by investigating key variables isolated from studies from various parts of the world and pulled them together into a model of potential antecedents of consumer adoption of POS in Nigeria. The UTAUT model was adopted, modified and extended to investigate adoption of POS in Nigeria. In doing this, the study assumed that a successful evaluation and validation of the variables of this model would enable a proposition of interventions that would improve the adoption of POS in Nigeria. The findings from the study have been reported, analyzed and discussed.

The study adopted a two- pronged approach consisting extensive review of the literature to gather existing information and a field survey of POS users in the six geopolitical zones of Nigeria. The study proposed a number of hypotheses to test various relationships that affected the adoption of POS by retail shoppers and modern Nigerian shopping malls. Six hypotheses relating to the core variables were proposed in an attempt to test the key significant paths as follows:

Perceived POS Performance	→	Behavioural Intention to Use POS
Perceived POS Ease of Use	→	Behavioural Intention to Use POS
Social Factors Influence	→	Behavioural Intention to Use POS
Technical Infrastructure	→	POS Usage Behaviour
Trust in Technology	→	POS Usage Behaviour
Behavioural intention	→	POS Usage Behaviour

Five of these hypotheses were supported. The study found that the path that posited the strongest influence was between Perceived POS Performance and Behavioural Intention to use POS. While the path between Behavioral Intention and POS Usage Behaviour was the least significant. It was found that retail shoppers who intend to use POS did not always use it. This is so when technical infrastructure that facilitate its use and trust are lacking. This research has shown that when people believe that the POS will enable them to perform their task of making payment better, they are more likely to want to use the POS. When effort is minimised for people wishing to use a new technology such as POS, they are more likely to adopt the technology. Social Factor Influence such as the influence of family, friends, relatives, peers, shop attendants have significant effect the adoption of POS by retail shoppers in modern Nigerian shopping malls. It was revealed that when the POS performs well, people are more likely to tend to use it. Findings from the study revealed that perceived POS performance had a very significant positive influence on intention to use POS in Nigeria; perceived POS ease of use had a significant positive influence on intention to use POS in Nigeria; social factors influence had significant positive effect on intention to use POS in Nigeria; availability of technical infrastructure had a significant positive effect on the usage of POS in Nigeria; trust in POS technology had a significant positive influence on the usage of POS in Nigeria. Technical infrastructure and trust are facilitating conditions that influence the eventual usage of the POS. They both must be present when users have developed intention to use POS for them to use the POS. The relationship between retail shoppers' intention to use POS and usage of POS was not significant. Based on this finding, the study concludes that retail shoppers in Nigeria have not significantly adopted the use of POS for payment.

5.6 Contributions to Knowledge

This research provides solid empirical evidence as to what factors are taken into consideration by retail shoppers and their level of influence in the adoption of POS in modern Nigerian shopping malls. It has revealed that Perceived POS Performance, Perceived POS Ease of Use, Social Factor Influence, Technical Infrastructure and Trust in POS Technology are key factors that influence adoption of POS in Nigeria. Perceived

POS performance has the most significant influence on retail shoppers' intention to use POS. Perceived POS Ease of Use and Social Factors also have significant influence on the retail shopper intention to use POS in modern Nigerian shopping malls. However, the eventual usage of the POS after intention has been developed is determined by the availability of technical infrastructure and the users' trust in the POS technology which are the facilitation conditions.

This study demonstrates that even though there may be universal factors that affects the adoption of technology, the influence of such factors must be taken in the context of the environment and the nature of technology that is being adopted. We now know that significant number of POS users in Nigeria have not adopted the use of POS even though they may have the intention of use POS. This is as a result of issues with technical infrastructure and trust which are facilitating conditions that encourage the eventual usage of the POS machine.

This study makes a noteworthy contribution to the adoption of new technology such as POS by isolating and including technical infrastructure and trust in technology as factors of facilitating conditions that influence the eventual usage of the POS technology. The study modified the existing UTAUT model factor of facilitating conditions by isolating technical infrastructure and trust in technology as a key variable of facilitating conditions. In doing this, the study has created a potential model for the study of adoption of new technology in Nigeria and other countries that have similar technological climate with Nigeria - including the ECOWAS countries and other developing countries.

The study has also recorded that intention to use does not always lead to usage, as it relates to the adoption of POS in Nigeria. An intending user is a potential user who may not end up using the POS, except where technical infrastructure and trust are available to facilitate its use. Intending users of POS are more likely to use POS where such technical infrastructure as - power, network, being able to get help from the machine and the operators being able to assist when they face difficulties are available. Even though intention is antecedent to usage of a new technology, it does not always lead to usage of new technology. Similarly, users can only use POS if they trust the POS and find the POS to be reliable, functional and capable of enabling the payment to be completed successfully without hitches. Therefore, technical infrastructure and trust in the POS

technology are important factors in the adoption of POS for payments in Nigeria that are worth being isolated and studied to give better understanding of factors for the adoption of the new technology.

5.7 Areas for Further Study

The outcome of this research has revealed the need for further research on how people come to develop trust in a new technology. There is also the need to investigate other factors that could affect the adoption of new technology in developing countries beyond the factors that were investigated in this study. Future research should investigate the influence of culture on the adoption of new technologies such as the POS.

BIBLIOGRAGHY

- Aabkhare, A. A. Babbb, O.M.M. & Abedini, E. (2013).Advantages and Disadvantages of E-banking and commerce.*Life Science Journal*, 10(4s),458-462.
- Abrahamson, E. (1991). Managerial fads and fashions: The diffusion and rejection of innovation. *California Management Review*, 16, 586–612.
- Abubakar,F. M. & Hartini, B. A. (2013). The moderating effect of technology awareness on the relationship between UTAUT constructs and behavioural intention to use technology: A conceptual paper.*Australian Journal of Business and Management Research*, 3(2), 14-23.
- Adeloye, L.A. (2008). E-banking as new frontiers for banks.*Sunday Punch*, September, 14, p. 25.
- Adeoti, J. O. (2011). Automated teller machine (ATM) frauds in Nigeria: The way out.*Journal of Social Sciences*, 27(1), 53-58.
- Adeoti, O. O. & Oshotimehin, K. O. (2011).Factors influencing adoption of point of sale terminals in Nigeria.*Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 2(5), 388- 392.
- Adeoti, O & Oshotimehin, K. (2012).Adoption of point of sale terminals in Nigeria: Assessment of consumers’ level of satisfaction. *Research Journal of Finance and Accounting*, 3(1), 1-5.
- Agbaeze, C.P. (2004). *Principles and practices of research*. Awka: Infotech Publishers.
- Al-Hawari, M., & Ward, T. (2006).The impact of automated service quality on financial performance and the mediating role of customer retention.*Journal of Financial ServiceMarketing*, 10(3),228-43.
- Al-Hawari, M., Ward, T. & Newby, L. (2009).The relationship between service quality and retention within the automated and traditional contexts of retail banking.*Journal of Service Management*, 20(4), 455-472.
- Aliyu, A.Younus, S.M.D.,Aliyu, A., Younus, S.M.D. & Tasmin, B.H.T. (2012).An exploratory study on adoption of electronic banking: Underlying consumer behaviour and critical success factors. Case of Nigeria.”*Business and Management Review*, 2(1) 01- 06.
- Almossawi, M. (2001). Bank selection criteria employed by college students in Bahrain: an empirical analysis *International Journal of Bank Marketing*, 19(3),115-125.
- Anastasi, A. (1969). *Psychological testing*. London: Macmillan Limited.

- Anderson, R., & Ross, V. (2005). *Questions of communication: A practical introduction to theory* (2nd ed.). New York: St. Martin's Press.
- Andreasen, A.R. (2006). *Social marketing in the 21st century*. Thousand Oaks, CA: Sage Publications.
- Athanassopoulos, A. (2000). Customer satisfaction cues to support market segmentation and explanation behaviour. *Journal of Business Research*, 47(3), 191-207.
- Bauer, H.H., Falk, T., & Hammerschmidt, M. (2006). A transaction process-based approach for capturing service quality in online shopping. *Journal of Business Research*, 59, 866-75.
- Bee J.C. (2012). Consumer Motivation, *Behaviour and Human Decision Processes*, 66,, 131-152.
- Beerli, A., Martin, J.D., & Quintana, A. (2004). A model of customer loyalty in the retail banking market. *European Journal of Marketing*, 38(1/2), 253-75.
- Bell, W.E. (2003). Consumer innovators: A unique market for newness, In Stephen A. Greyser, (Ed.), *Toward Scientific Marketing*, (pp.90-93). Chicago: American Marketing Association.
- Berry, L. L. (2008). Services marketing is different. *Business Magazine*, May-June, pp. 24–29.
- Borys, J. & Raffin, S. (2006). Preventing non-communicable diseases: An integrated community approach. *Diabetes Voice*, 51(1), 41-43.
- Businessdayonline.com (2013). Only 3,000 functioning E-POS machines. <http://www.businessdayonline.com/NG/index.php/tech/78-computing/26343-only-3-000-functioning-POS-terminal-in-nigeria>
- Castell, S. (2009). Seeking after the truth in computer evidence: any proof of ATM fraud? — ITNOW. Itnow.oxfordjournals.org.
- CBN (2011). CBN Half year analysis 2011 and annual reports 2006, 2007, 2008, 2009 and 2010. http://en.wikipedia.org/wiki/Central_Bank_of_Nigeria.
- Cenbank.org (2011). Guidelines on Point-of-Sale (POS) - Central Bank of Nigeria. www.cenbank.org/.../POS_GUIDELINES_August2011_FINAL_FINAL...
- Cheng, T. C. E. Lam, D. Y. C. & Yeung, A. C. L. (2006) Adoption of internet banking: An empirical study in Hong Kong. *Decision Support Systems*, 42(3), 1558-1572.

- Chukwueah, C.C. (2010). Utilization of indigenous communication strategies in promoting marketing practices in rural communities in Nigeria. *Canadian Social Science*, 6(6), 217-221.
- Cnn.com. (2005). ATM frauds on the rise, June 06, Retrieved 2013-07-17.
- Cody-Allen, E. & Kishore, R. (2006). An extension of the UTAUT model with E-Quality, trust & satisfaction constructs. Proceedings of the 2006 ACM SIGMIS CPR conference on computer personnel research: Forty-four years of computer personnel research: achievements, challenges & the future 82-89, Retrieved March 20th, 2015, from: <http://portal.acm.org/citation.cfm?id=1125115>.
- Davis, F.D. (2012). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
- Davies, F., Moutinho, L., & Curry, B. (1996). ATM users' attitudes: A neural network analysis. *Marketing Intelligence & Planning*, 14(2), 26.
- Dilijonas, D., Kriksciunien, D., Sakalauskas, V. & Simutis, R. (2009). Sustainability based service quality approach for automated teller machine network. http://www.vgtu.lt/leidiniai/leidykla/KORSD_2009/PDF/241-246-pl00-Dilijonas-47.pdf.
- Dima I.C., Man M., & Kot, S. (2010). Use of Abraham Maslow's motivation theory for setting consumers' satisfaction-non-satisfaction. *Polish Journal of Management Studies*, 2.
- Eboh, E.G. (1998). *Social and economic research: Principles and methods*. Lagos: Academic Publications and Development Ltd.
- Economic and Financial Crimes Commission, (EFCC), (2008), Internet Frauds, Retrieved October 5, 2015, from: http://www.efccnigeria.org/index.php?option=com_content&task=view&id=12&Itemid=30.
- Elsan, M. (2012). Offer and acceptance of electronic transactions. *Journal of Legal Studies*, 43, 66.
- E-ppan.org (2013). DRAFT WHITE PAPER ON POS - E-PPAN, www.e-ppan.org/eppan_library/White%20Paper%20on%20POS.pdf
- Eveland, J.D. (2002). Diffusion, Technology Transfer and Implementation. *Knowledge: Creation, Diffusion, Utilization*, 8(2), 303-22.
- Eze, A. (2013). Cashless Policy: ATM card users to hit 10 million mark- <http://www.thisdaylive.com/articles/cashless-policy-atm-card-users-to-hit-10-million-mark/103524/>

- Fitzsimmons, J. A. & Seay, W. H. (2003). Is self-service the future of services? *Managing Service Quality*, 13(6), 443-444.
- Foon, Y. S., & Fah, B. C. Y. (2011). Internet banking adoption in Kuala Lumpur: An application of UTAUT model. *International Journal of Business and Management*, 6(4), 161.
- Gefen, D., Karahanna, E. & Straub, D.W. (2010). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51.
- Gerrard, P. & Cunningham, J. B. (2003). The diffusion of Internet banking among Singapore consumers. *International Journal of Bank Marketing*, 21(1), 16-28.
- Grabner-Krauter, S. & Kalusha, E. (2003). Empirical research in on-line trust: A review and critical assessment. *International Journal of Human-Computer Studies*, 58(6), 783-812.
- Grübler, A. (2000). *The rise and fall of infrastructures: Dynamics of evolution and technological change in transport*. Heidelberg and New York: Physica-Verlag
- Henley, N., Raffin, S. & Caemmerer, B. (2011). The application of marketing principles to a social marketing campaign. *Marketing Intelligence & Planning*, 29(7), 697 – 706.
- Hochbaum, D.S., Moreno-Centeno, E., Yelland, P. & R.A. Catena. (2011). Rating customers according to their promptness to adopt new products. *Operations Research*, 59(5)1171-1183.
- Hoehle, H. & Huff, S. (2009). Electronic banking channels and task-channel fit. In: *ICIS 2009 Proceedings (paper no, 98)*. <http://aiseLaisnet.org/icis2009/98>.
- Hoffman, K., Douglas B. & John, E. G. (2011). *Services marketing, concepts, strategies & cases*. Mason Ohio: Thomson Higher Education.
- Huang, N., & Qin, G. (2011). *A study of online virtual fitting room adoption based on UTAUT*. Paper presented at the E -Business and E -Government (ICEE), 2011 International Conference on.
- Ippanigeria.org (2013). Current E-payment structure discriminates against small retailers, www.ippanigeria.org/press/10.html
- Islam, R., Kumar, S. & Biswas, P. K. (2007). Customer satisfaction of ATM service: A case study of HSBC ATM. Retrieved September 20, 2013, from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=990242.

- Jackson, Tim (2005). Motivating sustainable consumption: A review of evidence on consumer behaviour and behavioural change. A Report to the Sustainable Development Research Network. Centre for Environmental Strategy. University of Surrey. Retrieved June 20, 2015, from: <http://www.c2p2online.com/documents/MotivatingSC.pdf>
- Joseph, M. & Stone, G. (2003). An empirical evaluation of US bank customer perceptions of the impact of technology on service delivery in the banking sector. *International Journal of Retail and Distribution Management*, 31(4), 190-202.
- Karjatooto, H., Mattila, M., & Pento, T. (2002). Electronic banking in Finland: Consumer beliefs and reactions to a new delivery channel. *Journal of Financial Service Marketing*, 6(4), 346-361.
- Katz, E. & Lazarsfeld, P. (2005). *Personal influence: The part played by people in the flow of mass communications*. Glencoe: Free Press.
- Keat, T.K. & Mohan, A. (2012). Integration of Tam based electronic commerce models for trust. *Journal of American Academy of Business*, 5 (1/2), 404-410.
- Kennison, D. (1986). Reports on ATM frauds in UK. Retrieved November 4, 2012, from: Austlii.edu.au.
- Kerem, K. (2007). Adoption of electronic banking: Underlying consumer behaviour and critical success factors. Case of Estonia, Ph.D. Thesis, Tallinn Technical University, Estonia.
- Khan, M. A. (2010). An empirical study of automated teller machine service quality and customer satisfaction in Pakistani banks. *European Journal of Social Sciences*, 13(3), 333-344.
- Kim, Y.J., Kishore, R. & Sanders, G.L. (2010). From DQ to EQ: Understanding data quality in the context of E-business systems. *Communications of the ACM*, 48 (10), 75-81.
- Kimery, K.M. & McCord, M. (2012). Third-party assurances: Mapping the road to trust in e-retailing. *Journal of Information Technology Theory and Application*, 4 (2), 63-83.
- Komal, Singh, S. (2009). Impact of ATM on customer satisfaction (A comparative study of SBI, ICICI & HDFC bank). *Business Intelligence Journal* 2(2), .276-87.
- Kotler, P. (2005). *Marketing management: Analysis, planning, implementation and control*. (7th ed.0., New Jersey: Prentice Hall Inc.

- Kyari, A. (2005). Electronic banking in Nigeria: Issues and prospects. A paper presented at a seminar for finance economic correspondents, Lagos, Aug. 5th, 2005
- Laforet, S. & Li, X. (2011). Consumer's Attitude towards online and mobile banking in China, *International Journal of Bank Marketing*, 23, 362-80.
- Lai, V. S. & Li, H. (2005), "Technology Acceptance Model for Internet Banking: An Invariance Analysis." *Information & Management*, 42(2), p.373-386.
- Lazarsfeld, P., Berelson, B., Gaudet, H. (2004), *The People's Choice*. New York: Duell, Sloan and Pearce.
- Leblanc, G. (1990), "Customer motivation: use and non-use of automated banking." *International Journal of Bank Marketing*, 8(4), 36-40.
- Levine, R. (2005), Finance and growth: Theory and evidence, In Philippe, A. & Durlauf, S. (eds.), *Handbook of Economic Growth*, 1, 865-934.
- Liao, Z., & Cheung, M. T. (2002). Internet-based E-Banking and consumer attitudes: An empirical study. *Information and Management*, 39, 283-295.
- Long, M. & McMellon, C. (2004). Exploring the determinants of retail service quality on the internet. *Journal of Services Marketing*, 18(1), 78-90.
- Madu, C.N. & Madu, A.A. (2002). Dimensions of e-quality. *International Journal of Quality & Reliability Management*, 19(3), 246-58.
- Mahajon, V., Muller, E. & Srivastava, R.K. (2000). Determination of adopter categories by using innovation diffusion models. *Journal of Marketing Research*, 22(5), 43-55.
- Majidi, P. M. & Setareh, F. (2010). Electronic payment, evolutionary and conventional approaches. *Electronic Banking Journal*, 30, 37-41.
- Malhotra, N.K. (2004). *Marketing research: An applied orientation*. Upper Saddle River, New Jersey: Pearson Education Inc..
- Methodofsolutions.com (2013). Advantages and disadvantages of online banking. Retrieved June 20, 2015, from: <http://www.methodofsolutions.com/.../advantages-and-disadvantages-of-online-bank...>
- Mobarek, A. (2007). E-banking practices and customer satisfaction - A case study in Botswana. Retrieved August 14, 2009, from <http://papers.ssrn.com/sol3/papers.cfin?abstractid=1011112>.
- Moore, G. A. (2004). *Marketing and selling high-tech products to mainstream customers*. (Revised edition). New York: HarperCollins.

- Moore, S. & Simon, J. (2001). The greatest century that ever was: 25 miraculous trends of the last 100 years. *The Cato Institute: Policy Analysis*, 364, 121. Morgan, R.M. & Hunt, S.D. (2013). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58 (3).20-39.
- Morris, W. N. (2012). A functional analysis of the role of mood in affective systems, Retrieved June 25, 2015, from: <http://crab.rutgers.edu/.../ConsumerbehaviourMotivationnotes>
- Moutinho, L. & Brownlie, D.T. (1989). Customer satisfaction with bank services: A multidimensional space analysis. *International Journal of Bank Marketing*, 7(5), 23-27.
- Muhammad, A.K. (2010). An empirical study of automated teller machine service quality and customer satisfaction in Pakistani Banks. *European Journal of Social Sciences*, 13(3), 333-344.
- Nabudere, D. W. (1995). How can new information technologies be used for learning in pastoral communities? Retrieved July 10, 2016, from: [http://www.awe-international.com/reports/ict and POSToral education-distance learning.html](http://www.awe-international.com/reports/ict%20and%20Storal%20education-distance%20learning.html).
- Nwodu, L. C. (2006). *Research in Communication and Other Behavioural Sciences*, Enugu: Rhyce Kerex Publishers.
- O'Donohoe, S. (1995). Attitudes to advertising: A review of British and Americans. *International Research Journal of Advertising*, 14, 245-261.
- Obasi, S. N. & Ebirim, U. (2008). Utilisation of indigenous communication strategies in the promotion of life-long learning in rural communities in Nsukka. *Proceedings of first International Conference of the Faculty of Education, University of Nigeria, Nsukka*. University Trust Publishers, Nsukka.
- Odigbo, B. (2013). Social-public relations (SPR) model for effective immunisation campaigns against childhood killer diseases in Nigeria. A Ph.D. Thesis report, Department of Marketing, University of Nigeria Nsukka
- Odo, C. O. (2006). *Marketing research: A primer*. Enugu: Benak Ventures.
- Okafor, E. E. & Ezeani, F. N. (2012). Empirical study of the use of automated teller machine (ATM) among bank customers in Ibadan metropolis, South Western Nigeria. *European Journal of Business and Management*, 4(7).
- Oliver, R. L. (2011). Conceptual issues in the structural analysis of consumption. Retrieved March 30, 2009, from: <http://www.consumerbehaviour4vtu.blogspot.com/2009/03/motivation.html>

- Olomi, J. O. (2002). *Research methodologies and applications*. Ibadan: University of Ibadan Press.
- Omankhanlen, O. (2009). ATM fraud rises: Nigerians groan. *Daily News*, Sunday, June 21, p12.
- Onodugo, V.A. (2010). *Social science research: Principles, methods and applications*. Enugu:Ed-Demark.
- Onyedimekwu, O. & Oruan, M. K. (2013). Empirical evaluation of customers' use of electronic banking systems in Nigeria. *African Journal of Computing & ICT*, 6(1),
- Osuala, E.C. (1987). *Introduction to research methodology*. Onitsha: Africa-FEP Publishers.
- Ovia, Jim (2002). The role of information technology in growing the Nigeria financial market. *Financial Standard*, October 21, p.25.
- Oyewole, O S. Abba, M., El-maude, J. G. & Arikpo, I. A. (2013). E-banking and bank performance: Evidence from Nigeria. *International Journal of Scientific Engineering and Technology*, 2(8), 766-771.
- Pandey, S., Yadama, G.N. (2002). Community development programs in Nepal: A test of diffusion of innovation theory. *Social Service Review* 23(7), 112.
- Parandoush, F. (2012). An overview of advantages and disadvantages of e-banking infrastructure. *Journal of E-banking*, 3(5), Retrieved July 10, 2016, from: www.ce.sharif.ir / ... / Ebanking.
- Parasuraman, A., Zeithaml, V. & Malhotra, A. (2005). E-S-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, 7(3), 213-234.
- Parcel, G.S., Vries, H. & Dijkstra, M. (2003). The linkage approach applied to a school-based smoking prevention program in the Netherlands. *Journal of Health*, 32(3), 45.
- Parisa, A. (2006). Adoption of e-banking services by Iranian customers. Unpublished M.Sc thesis. Lulea University of Technology, Division of Industrial Marketing and E- Commerce.
- Patrick, F. (2003). The plastic card, the bank in your pocket. *Banking World*, April 27, p.24-30.
- Patton, P. (2011). The Bucklands boys and other tales of the ATM. Retrieved November 11, 2012, from: Wired.com.

- Payne, J. W. James R. B.& Mary F. L. (2006).When time is money. Retrieved November 4, 2016, from: [https://ideals.illinois.edu/bitstream/handle/motivation-need theories and consumer behaviour...](https://ideals.illinois.edu/bitstream/handle/motivation-need-theories-and-consumer-behaviour...)
- Pickton, D. & Broderick, A. (2005).*Integrated marketing communications*. New York, NY:Prentice Hall
- Polatoglu, V. N., & Ekin, S. (2001).An empirical investigation of the Turkish consumers'acceptance of internet banking services.*International Journal of Bank Marketing*, 19(4), 156-165.
- Prakash, A.& Malik, G. (2008).Empirical study of internet banking in India.*Internet research*, 12(5), 83-92.
- Reichheld, F. & Schefter, P. (2000). E-loyalty: Your secret weapon on the Web. *Harvard Business Review*, July-August: 105-113.
- Renana, P. Eitan, M.& Mahajan, V. (2010). Innovation diffusion and new product growth models: A critical review and research directions.*International Journal of Research in Marketing*, 27(2), 91-106.
- Robinson, J.& Moore, W. (2012).Attitudes and preferences in relation to internet banking in the Caribbean.*First Caribbean International Bank Newsletter*, p.55.
- Rogers, E.M. (2003). *Diffusion of innovations* (5th ed.). New York: The Free Press.
- Rutgers.edu (2013).Consumer Behaviour Motivation Notes,
<http://crab.rutgers.edu/.../ConsumerbehaviourMotivationnotes>
- Sangeeta, S. (2009).Consumer behaviour, Vinod Gupta School of Management.
Retrieved October 10, 2015, from:
[https://ideals.illinois.edu/bitstream/handle/motivation-need theories and consumer behaviour...](https://ideals.illinois.edu/bitstream/handle/motivation-need-theories-and-consumer-behaviour...)
- Schlichter, S. (2007). Using ATM's abroad - Travel - Travel Tips - msnbc.com.MSNBC.Retrieved 2012-11-11.
- Shamsuddoha, M., Chowdhury, M.T. & Ahsan, A.B.J. (2005).*Automated teller machine: A new dimension in the bank services of Bangladesh*. Retrieved February 20, 2015, from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1302301
- Solati, A. (2101).E-banking. Sabziinwh Magazine, No: 8, (www.ebg.ir).
- Stemper, R.G. (1990).*e-Guide to successful consumer banking strategy*.Chichester and Toronto: John Wiley & Sons,

- Suganthi, B. & Balachandran, G. (2001). Internet banking patronage: An investigation of Malaysia. *Journal of Internet Banking and Commerce*, Retrieved June 20, 2015, from:http://www.arraydev.com/commerce/jibc/0103_01.htm
- Sun, B. & Han, I. (2002). Effect of trust on customer acceptance of internet banking. *Electronic Commerce Research and Applications*, 1(3/4), 247-263.
- Szymanski, D.M. & Hise, R.T. (2000). E-satisfaction: An initial examination. *Journal of Retailing*, 76(3), 309-323.
- Tan, K.C., Xie, M. & Li, Y.N. (2003). A service quality framework for web-based information systems. *The TQM Magazine*, 15(3), 164-172.
- Tan, M. & Thompson, S. H. (2000). Factors influencing the adoption of internet banking. *Journal of the Association of Information Systems*, 1(1/5), 1-42.
- Thackeray, R., Neiger, B.L. & Hanson, C.L. (2007). Developing a promotional strategy: Important questions for social marketing. *Health Promotion Practice*, 8, 332-336.
- Tong, Y.K. (2009). A study of e-recruitment technology adoption in Malaysia. *Industrial Management & Data Systems*, 109(2), 281-300.
- Valente, T.W. (2006). Social network thresholds in the diffusion of innovations. *Social Networks*, 18(1), 69-89.
- Vandecasteele, B. (2010). Motivated consumer innovativeness & concept ..., Retrieved July 20, 2016, from:<http://www.sciencedirect.com/science/article/pii/S016781161000073X>
- Veneris, Y. (1984). *The Informational Revolution, Cybernetics and Urban Modelling*. PhD Thesis. University of Newcastle, Tyne, UK.
- Veneris, Y. (2000). Modeling the transition from the industrial to the informational revolution. *Environment and Planning*, 22(3), 399-416.
- Venkatesh, V., James Y. L., & Thong, X.X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1) 57-178.
- Venkatesh, V. & Davis, F.D. (2010). A theoretical extension of the technology acceptance model - Four longitudinal field studies. *Management Science*, 46 (2), 186-205.
- Vorgelegt, V. (2009). An integrated method to assess consumer motivation in difficult market niches: A case of the premium car segment in Russia. Master of Science in Economics Dissertation, Marina Shcheglova aus Nowosibirsk, Russland.

- Wan, W.N., Luk, C. L., & Chow, W.C. (2005). Customers' adoption of banking channels in Hong Kong. *International Journal of Bank Marketing*, 23(3),255-272.
- White, H. & Nteli, F. (2004). Internet banking in the UK: Why are there not more customers? *Journal of Financial Services Marketing*, 9(1),49-56.
- Willberforce, D. (2004).Introducing smart cards into the Nigerian banking environment: The all states experience. A paper presented at a seminar of electronic banking and the information super highway in Nigeria, July 20.
- Wood, J. (2008).The effect of buyers' perceptions of environmental uncertainty of satisfaction and loyalty.*Journal of Marketing Theory and Practice*, 16(4),309-20.
- Wu, J.H., & Wang, Y.M. (2007). Measuring ERP success: the key-users' viewpoint of the ERP to produce a viable IS in the organization. *Computers in Human Behaviour*, 23(3),1582-1596.
- Wu, M.Y., Yu, P.Y. & Weng, Y.C. (2012).A study on user behaviour for I pass by UTAUT: Using Taiwan\'s MRT as an example.*Asia Pacific Management Review*, 17(1), 92-111.
- Yamin, M., & Lee, Y. (2010).*Level of acceptance and factors influencing students' intention to use UCSI University's e-mail system*.Paper presented at the User Science and Engineering (user), 2010 International Conference on.
- Yavas, U., Benkenstein, M.,& Stuhldreier, U. (2004). Relationship between service quality and behavioural outcomes: A study of private bank customers in Germany. *The International Journal of Bank Marketing*, 22(2/3),144-157.
- Yoo, B. & Donthu, N. (2001).Developing a scale to measure the perceived quality of an Internet shopping site (SITEQUAL).*Quarterly Journal of Electronic Commerce*, 2(7), 31-45.
- Yu, C.S. (2012). Factors affecting individuals to adopt mobile banking: Empirical evidence from the UTAUT model. *Journal of Electronic Commerce Research*, 13(2), 104-121.
- Zhou, T. (2008).*Exploring mobile user acceptance based on UTAUT and contextual offering*. Paper presented at the Electronic Commerce and Security, 2008 International Symposium on.
- Zhu, Z., Scheuermann, L. & Babmeauz, B. J. (2004).Information network technology in the Banking industry.*Industrial Management and Data Systems*, 104(5), 409-417.

APPENDIX I

Department of Marketing,
Faculty of Business Administration,
University of Nigeria Enugu Campus,
November 10, 2015.

Dear Sir/Madam,

I am a postgraduate student in the Department of Marketing, University of Nigeria, currently undertaking a research work on the adoption of Electronic Point of Sales terminal (POS) in Nigeria. I will appreciate if you could assist by filling the attached questionnaire as best as you can. Your responses will be of immense benefit in the overall success of this research.

Please be assured that any information given herein, will be treated with utmost confidentiality, and will be strictly used for the academic purposes. You do not need to disclose your name. However, I will appreciate if you would provide the state of your abode as the time of your response. No attempt will be made to associate responses with individuals or institutions during this research or afterwards.

Thank you for the co-operation.

Yours faithfully,

Nzekwu, David

PG/M. Sc/Ph.D/11/60228

(Researcher)

APPENDIX II

The Questionnaire

Instruction: Please tick appropriate answer in the box provided against your choice of response to the questions as shown here: [☒]

SectionA: Demographic Questions

1. **Gender?**

(a) Male [☐] (b) Female [☐]

2. **Age?**

(a) 15 - 25 years [☐] (b) 26 - 35 years [☐]

(c) 36 - 45 years [☐] (d) 46 – 55 years [☐]

(e) 56 years and above [☐]

3. **Occupation?**

(a) Civil/Public Servant [☐] (b) Student [☐]

(c) Business/Self Employed [☐] (d) Unemployed [☐]

(e) Others specify:

4. **Your state of abode?**

Please specify:

5. **EducationalQualification?**

(a) WASC/GCE/SSCE/TCH II [☐] (b) Diploma/ND/NCE [☐]

(c) MBBS/B.Sc./BA/HND/Equivalent [☐]

(d) Postgraduate Qualification [☐]

SECTION B: Issue-Based Questions

Part A

i. How often do you use POS terminal for making payment?

Very Often [☐] Often [☐] Rarely [☐] Very rarely [☐] Not at all [☐]

- ii. How do you prefer to make payment in a retail shop? Cash [] POS Terminal []
- iii. Please give reasons for your response to question number ii above (i.e. what are the reasons for your preferred mode of payment)?.....

- iv. What infrastructural challenges do you encounter or envisage with using POS terminal to make payment?.....

- v. If these challenges were not there, would you prefer to use POS terminal for making payments instead of cash? Yes [] No []
- vi. Have you had any negative experience with using POS? Yes [] No []
- vii. Please state your experience with respect to your answer to question number iv above.....

.....

.....

Please indicate your agreement with the extent to which the following factors influence your use of POS terminal for making payment in retail shops. **Very Great Extent (VGE) or Strongly Agree (SA) = 5 points, Great Extent (GE) or Agree (A) = 4, Some Extent (SE) or Undecided (Und) = 3 points, Little Extent (LE) or Disagree (D) = 2 points, and Very Little Extent (VLE) or Strongly Disagree (SD) = 1 point).** Please tick only one column.

S/N	Q u e s t i o n s	VGE (SA)	G E (A)	S E (Und)	L E (D)	VLE (SD)
	PERCEIVED POS PERFORMANCE (Performance Expectancy)					
1	To what extent do you find POS useful?					
2	To what extent does using POS enable you to make payment better?					
3	To what extent does POS enable you to make payment more quickly?					
4	To what extent is POS efficient for making payment?					
	PERCEIVED POS EASE OF USE (Effort Expectancy)					
5	To what extent is POS easy to use?					
6	To what extent do you understand how to use POS?					
7	To what extent can you use the POS?					
8	To what extent was it easy for you to learn how to use POS?					
	SOCIAL FACTORS INFLUENCE					
9	To what extent do your family members encourage you to use POS?					
1 0	To what extent do your friends and people around you encourage you to use POS?					
1 1	To what extent do you get encouragement to use POS from people that you value their opinion?					

1	2	To what extent do the retail shop staff encourage you to use POS?					
		TECHNICAL INFRASTRUCTURE (Facilitating Conditions)					
1	3	To what extent does power availability influence your ability to use POS?					
1	4	To what extent do you use POS because you believe help is available if problems arises?					
1	5	To what extent do you use POS because you believe there is someone available to assist you with POS service difficulties?					
1	6	To what extent does network availability on POS affect your ability to use POS?					
		T R U S T I N T E C H N O L O G Y					
1	7	To what extent do you use POS because you trust your transaction will be concluded on the POS?					
1	8	To what extent do you use POS because you trust you will get useful help from the POS Help Menu?					
1	9	To what extent do you use POS because you trust you can rely on POS for your payments?					
2	0	To what extent do you use POS because you trust to get prompt refund when your account is debited for failed transaction on POS?					
		I N T E N T I O N					
2	1	To what extent do you always plan to use POS to make payment?					
2	2	To what extent do you always wish to use POS to make payment?					
2	3	To what extent are you disposed to using POS for your payments?					
2	4	To what extent are you always enthusiastic about using POS?					
		U S A G E B E H A V I O U R					
2	5	To what extent do you always use POS?					
2	6	To what extent do you think you will always use POS?					
2	7	To what extent have you always made payment with POS successfully?					
2	8	To what extent are you always able to use POS?					

Thank you for the cooperation.

Nzekwu, David

PG/M.Sc/Ph.D/11/60228 (Researcher)

APPENDIX III

Reliability/Validity Test Analysis Tables

T a b l e A 1 C a s e P r o c e s s i n g S u m m a r y

	N	%
C a s e s V a l i d	251	100.0
E x c l u d e d ^a	0	0.0
T o t a l	251	100.0

a. List wise deletion based on all variables in the procedure.

T a b l e A 2 R e l i a b i l i t y S t a t i s t i c s

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
0.868	0.870	44

Source: SPSS version 44 analysis.

APPENDIX IV

DECISION RULE FOR LIKERT ANALYSIS OF RESEARCH QUESTIONS

W E I G H T H S	RANGE FOR MEAN/GRANDMEAN	D E C I S I O N
1	1 . 0 0 - 1 . 9 9	VERY LOW EXTENT (VLE)
2	2 . 0 0 - 2 . 9 9	LOW EXTENT (LE)
3	3 . 0 0 - 3 . 9 9	SOME EXTENT (SE)
4	4 . 0 0 - 4 . 9 9	GREAT EXTENT (GE)
5	5 . 0 0 - 5 . 9 9	VERY GREAT EXTENT (VGE)

Table A3 Decision Rule for Likert Analysis of Research Questions

APPENDIX V

Tabular Presentation of Field Reports

Table A4 Distribution of respondents' responses according to the question: To the extent do you find POS useful for making payments?

	Frequency	Percent	Valid Percent	Cumulative Percent
Little Extent	9	3 . 8	3 . 8	3 . 8
Some Extent	1 0	4 . 2	4 . 3	8 . 1
Valid Great Extent	8 6	3 6 . 3	3 6 . 8	4 4 . 9
Very Great Extent	1 2 9	5 4 . 4	5 5 . 1	1 0 0 . 0
T o t a l	2 3 4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m	3	1 . 3		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A5 Distribution of respondents' responses according to the question: To what extent does using POS enable you to make payments better?

	Frequency	Percent	Valid Percent	Cumulative Percent
Very Little Extent	9	3 . 8	3 . 8	3 . 8
Little Extent	1 2	5 . 1	5 . 1	9 . 0
Some Extent	4 4	1 8 . 6	1 8 . 8	2 7 . 8
Valid Great Extent	1 0 8	4 5 . 6	4 6 . 2	7 3 . 9
Very Great Extent	6 1	2 5 . 7	2 6 . 1	1 0 0 . 0
T o t a l	2 3 4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m	3	1 . 3		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A6 Distribution of respondents' responses according to the item: To what extent does POS enable you to make payments more quickly?

	Frequency		Percent	Valid Percent	Cumulative Percent
Little Extent	1	3	5 . 5	5 . 5	5 . 5
Some Extent	2	4	1 0 . 1	1 0 . 1	1 5 . 6
Valid Great Extent	8	2	3 4 . 6	3 4 . 6	5 0 . 2
Very Great Extent	1	1	8 4 9 . 8	4 9 . 8	1 0 0 . 0
T o t a l	2	3	7 1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table A7 Distribution of respondents' responses according to the item: To what extent do you consider POS efficient for making payment?

	Frequency		Percent	Valid Percent	Cumulative Percent
Very Little Extent		3	1 . 3	1 . 3	1 . 3
Little Extent	2	0	8 . 4	8 . 7	1 0 . 0
Valid Some Extent	4	2	1 7 . 7	1 8 . 2	2 8 . 1
Great Extent	1	0	8 4 5 . 6	4 6 . 8	7 4 . 9
Very Great Extent	5	8	2 4 . 5	2 5 . 1	1 0 0 . 0
T o t a l	2	3	1 9 7 . 5	1 0 0 . 0	
Missing S y s t e m			6 2 . 5		
T o t a l	2	3	7 1 0 0 . 0		

Source: Field Survey, 2016

Table A8 Distribution of respondents' responses according to the item: To what extent do you find POS easy to use?

	Frequency		Percent	Valid Percent	Cumulative Percent
Very Little Extent		7	3 . 0	3 . 0	3 . 0
Valid Little Extent	1	7	7 . 2	7 . 4	1 0 . 4
Some Extent	1	6	6 . 8	6 . 9	1 7 . 3

Great Extent	7	5	3 1 . 6	3 2 . 5	4 9 . 8
Very Great Extent	1	1	4 8 . 1	4 9 . 4	9 9 . 1
T o t a l	2	3	1 9 7 . 5	1 0 0 . 0	
Missing S y s t e m		6	2 . 5		
T o t a l	2	3	7 1 0 0 . 0		

Source: Field Survey, 2016

Table A9Distribution of respondents' responses according to the item: To w

	Frequency	Percent	Valid Percent	Cumulative Percent
Very Little Extent	2	. 8	. 9	. 9
Little Extent	3	7 1 5 . 6	1 5 . 8	1 6 . 7
Some Extent	3	7 1 5 . 6	1 5 . 8	3 2 . 5
Great Extent	9	8 4 1 . 4	4 1 . 9	7 4 . 4
Very Great Extent	6	0 2 5 . 3	2 5 . 6	1 0 0 . 0
T o t a l	2	3 4 9 8 . 7	1 0 0 . 0	
Missing S y s t e m		3 1 . 3		
T o t a l	2	3 7 1 0 0 . 0		

Source: Field Survey, 2016

Table A10 Distribution of respondents' responses according to the item: To what extent can you use the POS?

	Frequency	Percent	Valid Percent	Cumulative Percent
Little Extent	2	5 1 0 . 5	1 1 . 0	1 1 . 0
Some Extent	4	2 1 7 . 7	1 8 . 4	2 9 . 4
Great Extent	9	6 4 0 . 5	4 2 . 1	7 1 . 5
Very Great Extent	6	5 2 7 . 4	2 8 . 5	1 0 0 . 0
T o t a l	2	2 8 9 6 . 2	1 0 0 . 0	
Missing S y s t e m		9 3 . 8		
T o t a l	2	3 7 1 0 0 . 0		

Source: Field Survey, 2016

Table A11 Distribution of respondents' responses according to the item: To what extent was it easy for you to learn how to use POS?

	Frequency		Percent	Valid Percent	Cumulative Percent
Little Extent	1	3	5 . 5	5 . 6	5 . 6
Some Extent	2	6	1 1 . 0	1 1 . 3	1 6 . 9
Valid Great Extent	9	6	4 0 . 5	4 1 . 6	5 8 . 4
Very Great Extent	9	6	4 0 . 5	4 1 . 6	1 0 0 . 0
T o t a l	2	3	1 9 7 . 5	1 0 0 . 0	
Missing S y s t e m		6	2 . 5		
T o t a l	2	3	7 1 0 0 . 0		

Source: Field Survey, 2016

Table A12 Distribution of respondents' responses according to the item: To what extent do your family members encourage you to use POS?

	Frequency		Percent	Valid Percent	Cumulative Percent
Very Little Extent	2	5	1 0 . 5	1 0 . 7	1 0 . 7
Little Extent	4	2	1 7 . 7	1 7 . 9	2 8 . 6
Valid Some Extent	6	3	2 6 . 6	2 6 . 9	5 5 . 6
Great Extent	5	8	2 4 . 5	2 4 . 8	8 0 . 3
Very Great Extent	4	6	1 9 . 4	1 9 . 7	1 0 0 . 0
T o t a l	2	3	4 9 8 . 7	1 0 0 . 0	
Missing S y s t e m		3	1 . 3		
T o t a l	2	3	7 1 0 0 . 0		

Source: Field Survey, 2016

Table A13 Distribution of respondents' responses according to the item: To what ext

	Frequency	P e r c e n t	Valid Percent	Cumulative Percent
V a l i d Very Little Extent	2 5	1 0 . 5	1 0 . 7	1 0 . 7
Little Extent	4 3	1 8 . 1	1 8 . 4	2 9 . 1
Some Extent	4 0	1 6 . 9	1 7 . 1	4 6 . 2
Great Extent	8 3	3 5 . 0	3 5 . 5	8 1 . 6
Very Great Extent	4 3	1 8 . 1	1 8 . 4	1 0 0 . 0
T o t a l	2 3 4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m		3 1 . 3		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A14 Distribution of respondents' responses according to the item: To what extent do you get encouragement to use POS from people that you value their opinion?

	Frequency	Percent	Valid Percent	Cumulative Percent
V a l i d Very Little Extent	1 3	5 . 5	5 . 6	5 . 6
Little Extent	4 8	2 0 . 3	2 0 . 5	2 6 . 1
Some Extent	5 1	2 1 . 5	2 1 . 8	4 7 . 9
Great Extent	7 4	3 1 . 2	3 1 . 6	7 9 . 5
Very Great Extent	4 8	2 0 . 3	2 0 . 5	1 0 0 . 0
T o t a l	2 3 4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m		3 1 . 3		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A15 Distribution of respondents' responses according to the item: To what extent do you get encouragement to use POS from people that you value their opinion?

	Frequency	P e r c e n t	Valid Percent	Cumulative Percent
V a l i d Very Little Extent	9	3 . 8	3 . 8	3 . 8
Little Extent	3 7	1 5 . 6	1 5 . 6	1 9 . 4

Some Extent	3	1	1 3 . 1	1 3 . 1	3 2 . 5
Great Extent	9	4	3 9 . 7	3 9 . 7	7 2 . 2
Very Great Extent	6	6	2 7 . 8	2 7 . 8	1 0 0 . 0
T o t a l	2 3 7		1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table A16 Distribution of respondents' responses according to the item: To what extent does the POS have power when you wanted to make payment?

	Frequency	P e r c e n t	Valid Percent	Cumulative Percent
V a l i d Very Little Extent	1 3	5 . 5	5 . 6	5 . 6
Little Extent	4 3	1 8 . 1	1 8 . 4	2 3 . 9
Some Extent	5 0	2 1 . 1	2 1 . 4	4 5 . 3
Great Extent	6 1	2 5 . 7	2 6 . 1	7 1 . 4
Very Great Extent	6 7	2 8 . 3	2 8 . 6	1 0 0 . 0
T o t a l	2 3 4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m	3	1 . 3		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A17Distribution of respondents' responses according to the item: To what extent does the POS have power when you wanted to make payment?

	Frequency	P e r c e n t	Valid Percent	Cumulative Percent
V a l i d Very Little Extent	1 3	5 . 5	5 . 6	5 . 6
Little Extent	3 8	1 6 . 0	1 6 . 2	2 1 . 8
Some Extent	4 8	2 0 . 3	2 0 . 5	4 2 . 3
Great Extent	7 9	3 3 . 3	3 3 . 8	7 6 . 1
Very Great Extent	5 6	2 3 . 6	2 3 . 9	1 0 0 . 0
T o t a l	2 3 4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m	3	1 . 3		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A18 Distribution of respondents' responses according to the item: To what

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	1	8	7 . 6	7 . 8
Little Extent	3	9	1 6 . 5	2 4 . 7
Some Extent	2	8	1 1 . 8	3 6 . 8
Great Extent	8	6	3 6 . 3	7 4 . 0
Very Great Extent	6	0	2 5 . 3	1 0 0 . 0
T o t a l	2 3	1	9 7 . 5	1 0 0 . 0
Missing S y s t e m		6	2 . 5	
T o t a l	2 3 7	1	0 0 . 0	

Source: Field Survey, 2016

Table A19 Distribution of respondents' responses according to the item: To what extent do you find network available with signal on the POS?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	3	9	1 6 . 5	1 6 . 7
Little Extent	5	7	2 4 . 1	4 1 . 0
Some Extent	8	4	3 5 . 4	7 6 . 9
Great Extent	4	0	1 6 . 9	9 4 . 0
Very Great Extent	1	4	5 . 9	1 0 0 . 0
T o t a l	2 3	4	9 8 . 7	1 0 0 . 0
Missing S y s t e m		3	1 . 3	
T o t a l	2 3 7	1	0 0 . 0	

Source: Field Survey, 2016

Table A20 Distribution of respondents' responses according to the item: To what extent are you always able to conclude your transactions on the POS?

	Frequency	Percent	Valid Percent	Cumulative Percent
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Valid	Very Little Extent	9	3	.	8	3	.	8	3	.	8
	Little Extent	3	1	1	3	.	1	1	3	.	2
	Some Extent	6	3	2	6	.	6	2	6	.	9
	Great Extent	8	3	3	5	.	0	3	5	.	5
	Very Great Extent	4	8	2	0	.	3	2	0	.	5
	T o t a l	2	3	4	9	8	.	7	1	0	0
Missing	S y s t e m		3	1	.	3					
T o t a l		2	3	7	1	0	0	.	0		

Source: Field Survey, 2016

Table A21Distribution of respondents' responses according to the item: To

		Frequency		Percent		Valid Percent		Cumulative Percent	
Valid	Very Little Extent	2	1	8	.	9	9	.	0
	Little Extent	6	0	2	5	.	3	2	5
	Some Extent	4	5	1	9	.	0	1	9
	Great Extent	7	3	3	0	.	8	3	1
	Very Great Extent	3	5	1	4	.	8	1	5
	T o t a l	2	3	4	9	8	.	7	1
Missing	S y s t e m		3	1	.	3			
T o t a l		2	3	7	1	0	0	.	0

Source: Field Survey, 2016

Table A22Distribution of respondents' responses according to the item: T

		Frequency		Percent		Valid Percent		Cumulative Percent	
Valid	Very Little Extent	1	4	5	. 9	6	. 1	6	. 1
	Little Extent	2	4	1 0	. 1	1 0	. 4	1 6	. 5
	Some Extent	7	3	3 0	. 8	3 1	. 6	4 8	. 1
	Great Extent	8	2	3 4	. 6	3 5	. 5	8 3	. 5
	Very Great Extent	3	8	1 6	. 0	1 6	. 5	1 0 0	. 0
	T o t a l	2	3	1 9	7 . 5	1 0	0 . 0		
Missing	S y s t e m		6	2	. 5				

T o t a l	2 3 7	1 0 0 . 0		
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Source: Field Survey, 2016

Table A23 Distribution of respondents' responses according to the item: To what extent do you always get prompt refund when your account is debited for failed transaction on POS?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	1 4	5 . 9	6 . 1	6 . 1
Little Extent	1 9	8 . 0	8 . 2	1 4 . 3
Some Extent	6 2	2 6 . 2	2 6 . 8	4 1 . 1
Great Extent	8 9	3 7 . 6	3 8 . 5	7 9 . 7
Very Great Extent	4 7	1 9 . 8	2 0 . 3	1 0 0 . 0
T o t a l	2 3 1	9 7 . 5	1 0 0 . 0	
Missing S y s t e m	6	2 . 5		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A24 Distribution of respondents' responses according to the item: To what extent do you always plan to use POS to make payment when you go for shopping?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	8 6	3 6 . 3	3 6 . 3	3 6 . 3
Little Extent	8 8	3 7 . 1	3 7 . 1	7 3 . 4
Some Extent	4 9	2 0 . 7	2 0 . 7	9 4 . 1
Great Extent	1 2	5 . 1	5 . 1	9 9 . 2
Very Great Extent	2	. 8	. 8	1 0 0 . 0
T o t a l	2 3 7	1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table A25 Distribution of respondents' responses according to the item: To what extent do you always plan to use POS to make payment when you go for shopping?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	6 1	2 5 . 7	2 5 . 7	2 5 . 7

Little Extent	9	1	3 8 . 4	38.4	6 4 . 1
Some Extent	5	1	2 1 . 5	2 1 . 5	8 5 . 6
Great Extent	2	9	1 2 . 2	1 2 . 2	9 8 . 8
Very Great Extent		2	. 8	. 8	1 0 0 . 0
T o t a l	2 3 4		9 8 . 7	1 0 0 . 0	
Missing S y s t e m		3	1 . 3		
T o t a l	2 3 7		1 0 0 . 0		

Source: Field Survey, 2016

Table A26 Distribution of respondents' responses according to the item: To what extent are you disposed to using POS for your payments?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	2	. 8	. 9	. 9
Little Extent	1 9	8 . 0	8 . 2	9 . 1
Some Extent	5 6	2 3 . 6	2 4 . 1	3 3 . 2
Great Extent	9 7	4 0 . 9	4 1 . 8	7 5 . 0
Very Great Extent	5 8	2 4 . 5	2 5 . 0	1 0 0 . 0
T o t a l	2 3 2	9 7 . 9	1 0 0 . 0	
Missing S y s t e m	5	2 . 1		
T o t a l	2 3 7	1 0 0 . 0		

Source: Field Survey, 2016

Table A27 Distribution of respondents' responses according to the item: I predict I will be using POS.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	1	3 . 5	5 . 6	5 . 6
Little Extent	3	5 1 4 . 8	1 5 . 1	2 0 . 7
Some Extent	4	1 1 7 . 3	1 7 . 7	3 8 . 4
Great Extent	8	5 3 5 . 9	3 6 . 6	7 5 . 0
Very Great Extent	5	8 2 4 . 5	2 5 . 0	1 0 0 . 0

T o t a l	2	3	2	9 7 . 9	1 0 0 . 0
Missing S y s t e m			5	2 . 1	
T o t a l	2	3	7	1 0 0 . 0	

Source: Field Survey, 2016

Table A28 Distribution of respondents' responses according to the item: To what extent do you always use POS to make payments?

	Frequency		Percent	Valid Percent	Cumulative Percent	
Valid Very Little Extent	4	5	1 9 . 0	1 9 . 0	1	9 . 0
Little Extent	7	8	3 2 . 9	3 2 . 9	5	1 . 9
Some Extent	3	8	1 6 . 0	1 6 . 0	6	7 . 9
Great Extent	4	6	1 9 . 4	1 9 . 4	8	7 . 3
Very Great Extent	3	0	1 2 . 7	1 2 . 7	1	0 0 . 0
T o t a l	2	3	7	1 0 0 . 0	1 0 0 . 0	

Source: Field Survey, 2016

Table A29 Distribution of respondents' responses according to the item: To what extent will you always use POS to make payments?

	Frequency		Percent	Valid Percent	Cumulative Percent	
V a l i d Very Little Extent	2	0	8 . 4	8 . 5	8	. 5
Little Extent	4	7	1 9 . 8	2 0 . 1	2	8 . 6
Some Extent	4	9	2 0 . 7	2 0 . 9	4	9 . 6
Great Extent	8	0	3 3 . 8	3 4 . 2	8	3 . 8
Very Great Extent	3	8	1 6 . 0	1 6 . 2	1	0 0 . 0
T o t a l	2	3	4	9 8 . 7	1 0 0 . 0	
Missing S y s t e m		3	1 . 3			
T o t a l	2	3	7	1 0 0 . 0		

Source: Field Survey, 2016

Table A30 Distribution of respondents' responses according to the item: To what extent have you been using POS consistently to make payments?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	2	7	11.4	11.5
Little Extent	4	8	20.3	32.1
Some Extent	6	5	27.4	59.8
Great Extent	5	9	24.9	85.0
Very Great Extent	3	5	14.8	100.0
T o t a l	23	49	87	
Missing S y s t e m		3	1.3	
T o t a l	23	7	100.0	

Source: Field Survey, 2016

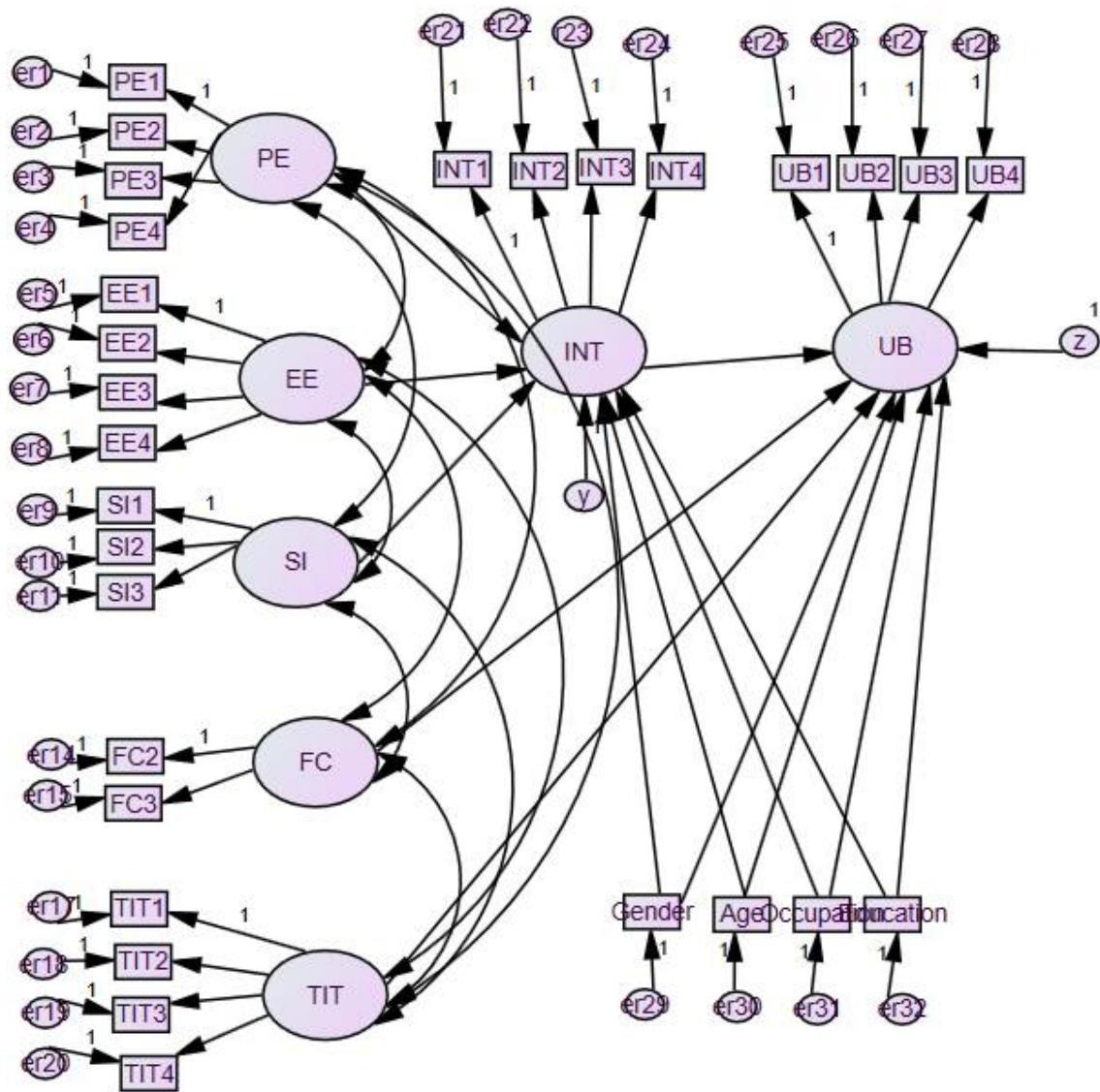
Table A31 Distribution of respondents' responses according to the item: To what extent are you always able to use POS to make payments?

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Little Extent	1	7	7.2	7.3
Little Extent	3	4	14.3	21.8
Some Extent	5	3	22.4	44.4
Great Extent	6	4	27.0	71.8
Very Great Extent	6	6	27.8	100.0
T o t a l	23	49	87	
Missing S y s t e m		3	1.3	
T o t a l	23	7	100.0	

Source: Field Survey, 2016

APPENDIX VI

Details of Structural Equation Model Output



Structural Equation Default Model

2nd method

C:\Users\DR JOEL\Desktop\juliet\structural model.amw

Analysis Summary

Date and Time

Date: Tuesday, May 3, 2016

Time: 11:36:53 PM

Title

Structural model: Tuesday, May 3, 2016 11:36 PM

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.

Sample size = 237

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables

PE1

PE2

PE3

PE4

EE1

EE2

EE3

EE4

SI1

SI2

SI3

FC2

FC3

TIT1

TIT2

TIT3

TIT4

INT1

INT2

INT3

INT4

UB1

UB2

UB3

UB4

Gender

Age

Occupation

Education

Unobserved, endogenous variables

UB

INT

Unobserved, exogenous variables

er1

er2

er3

er4

er5

er6

er7

er8

er9
er10
er11
er14
er15
er17
er18
er19
er20
TIT
FC
SI
EE
PE
er21
er22
r23
er24
er25
er26
er27
er28
z
y
er29
er30
er31
er32

Variable counts (Group number 1)

Number of variables in your model: 67
 Number of observed variables: 29
 Number of unobserved variables: 38
 Number of exogenous variables: 36
 Number of endogenous variables: 31

Parameter Summary (Group number 1)

	Weights		Covariances		Variances		Means		Intercepts		Total
F i x e d	3	7		0		1		0		0	3 8
L a b e l e d		0		0		0		0		0	0
U n l a b e l e d	3	3	1	0	3	5	0	2	9	10	7
T o t a l	7	0	1	0	3	6	0	2	9	14	5

Assessment of normality (Group number 1)

Variable	min	max	skew	c . r .	kurtosis	c . r .
Education	1.000	4.000	1.206	7.578	. 1 0 2	. 3 2 0
Occupation	1.000	4.000	-.096	-.602	4 . 6 4 4	14.594
A g e	1.000	4.000	2.909	18.283	8 . 1 4 8	25.606
G e n d e r	1.000	2.000	. 0 2 5	. 1 5 9	-1.999	-6.283
U B 4	1.000	5.000	-.459	-2.882	- . 8 4 5	-2.656
U B 3	1.000	5.000	-.083	-.523	- . 9 4 8	-2.978
U B 2	1.000	5.000	-.286	-1.795	- . 9 3 6	-2.941
U B 1	1.000	5.000	. 3 2 2	2.024	-1.096	-3.445
I N T 4	1.000	5.000	-.610	-3.834	- . 5 4 1	-1.700
I N T 3	1.000	5.000	-.481	-3.025	- . 2 7 9	-.878
I N T 2	1.000	5.000	-.452	-2.840	- . 6 1 7	-1.939
I N T 1	1.000	5.000	-.716	-4.497	- . 0 5 9	-.186
T I T 4	1.000	5.000	-.640	-4.023	- . 0 8 0	-.252
T I T 3	1.000	5.000	-.509	-3.201	- . 2 2 4	-.704
T I T 2	1.000	5.000	-.162	-1.019	-1.065	-3.347

Variable	min	max	skew	c . r .	kurtosis	c . r .
T I T 1	1.000	5.000	-.449	-2.825	-.471	-1.480
F C 3	1.000	5.000	-.581	-3.650	-.809	-2.542
F C 2	1.000	5.000	-.467	-2.936	-.716	-2.249
S I 3	1.000	5.000	-.273	-1.716	-.929	-2.919
S I 2	1.000	5.000	-.417	-2.621	-.930	-2.922
S I 1	1.000	5.000	-.214	-1.348	-.940	-2.954
E E 4	2.000	5.000	-.909	-5.711	.215	.676
E E 3	2.000	5.000	-.541	-3.398	-.541	-1.699
E E 2	1.000	5.000	-.563	-3.537	-.635	-1.996
E E 1	1.000	5.000	-1.368	-8.600	1.202	3.777
P E 4	1.000	5.000	-.768	-4.827	.266	.836
P E 3	2.000	5.000	-1.107	-6.960	.522	1.641
P E 2	1.000	5.000	-.967	-6.079	.813	2.554
P E 1	1.000	5.000	-1.576	-9.907	2.765	8.690
Multivariate					72.007	13.071

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p 1	p 2
5	6 8 . 6 4 2 .000 .011		
3	5 6 1 . 7 0 8 .000 .004		
1 3	5 6 1 . 7 0 8 .000 .000		
2 0	4 5 5 . 9 9 1 .002 .001		
4	4 5 5 . 0 0 9 .002 .000		
1 4	4 5 5 . 0 0 9 .002 .000		
5	2 5 3 . 5 3 4 .004 .000		
1 5	2 5 3 . 5 3 4 .004 .000		
8	7 5 3 . 0 0 4 .004 .000		
1 8	7 5 3 . 0 0 4 .004 .000		
2 0	3 5 2 . 2 9 2 .005 .000		

Observation number			Mahalanobis d-squared						p 1	p 2
		7	5	1	.	9	3	8	.006	.000
1	0	7	5	1	.	9	3	8	.006	.000
2	1	1	5	1	.	9	3	8	.006	.000
9		1	4	7	.	4	5	3	.017	.000
1	9	1	4	7	.	4	5	3	.017	.000
9		6	4	6	.	1	6	6	.023	.000
1	9	6	4	6	.	1	6	6	.023	.000
4		0	4	5	.	0	7	2	.029	.000
1	4	0	4	5	.	0	7	2	.029	.000
7		4	4	3	.	1	5	7	.044	.002
1	7	4	4	3	.	1	5	7	.044	.001
3		7	4	2	.	5	3	4	.050	.002
1	3	7	4	2	.	5	3	4	.050	.001
6		1	4	2	.	4	7	5	.051	.001
1	6	1	4	2	.	4	7	5	.051	.000
		1	4	2	.	0	3	3	.056	.000
5		3	4	1	.	9	9	5	.056	.000
1	5	3	4	1	.	9	9	5	.056	.000
6		3	4	1	.	6	8	7	.060	.000
1	6	3	4	1	.	6	8	7	.060	.000
3		1	4	1	.	4	3	0	.063	.000
1	3	1	4	1	.	4	3	0	.063	.000
5		4	4	1	.	1	0	7	.067	.000
1	5	4	4	1	.	1	0	7	.067	.000
3		8	4	0	.	8	8	2	.071	.000
1	3	8	4	0	.	8	8	2	.071	.000
2		9	4	0	.	6	1	6	.074	.000
1	2	9	4	0	.	6	1	6	.074	.000
9		7	4	0	.	4	4	5	.077	.000

Observation number			Mahalanobis d-squared			p 1	p 2
1	9	7	4	0	.	4 4 5	.077 .000
7		3	3	9	.	3 8 6	.094 .000
1	7	3	3	9	.	3 8 6	.094 .000
1		0	3	7	.	5 3 1	.133 .014
1	1	0	3	7	.	5 3 1	.133 .009
2	1	4	3	7	.	5 3 1	.133 .005
2	0	1	3	7	.	2 9 1	.139 .007
6		4	3	7	.	0 5 1	.145 .010
1	6	4	3	7	.	0 5 1	.145 .006
2	1	9	3	6	.	6 2 7	.156 .015
8		0	3	6	.	6 0 9	.156 .010
1	8	0	3	6	.	6 0 9	.156 .007
2	0	9	3	6	.	5 4 4	.158 .005
1		1	3	6	.	4 9 5	.160 .004
1	1	1	3	6	.	4 9 5	.160 .002
2	1	5	3	6	.	4 9 5	.160 .001
7		2	3	6	.	3 9 5	.162 .001
1	7	2	3	6	.	3 9 5	.162 .001
		9	3	6	.	1 2 1	.170 .001
1	0	9	3	6	.	1 2 1	.170 .001
2	1	3	3	6	.	1 2 1	.170 .000
9		4	3	5	.	8 7 4	.177 .001
1	9	4	3	5	.	8 7 4	.177 .000
4		6	3	5	.	1 0 9	.201 .006
1	4	6	3	5	.	1 0 9	.201 .004
		4	3	5	.	0 7 1	.202 .003
1	0	4	3	5	.	0 7 1	.202 .002
2	0	8	3	5	.	0 7 1	.202 .001
9		8	3	4	.	9 4 2	.206 .001

Observation number			Mahalanobis d-squared						p 1	p 2
1	9	8	3	4	.	9	4	2	.206	.001
		6	3	4	.	6	9	2	.215	.001
1	0	6	3	4	.	6	9	2	.215	.001
2	1	0	3	4	.	6	9	2	.215	.001
2		0	3	4	.	6	4	3	.217	.000
2	2	4	3	4	.	6	4	3	.217	.000
6		6	3	4	.	5	8	1	.219	.000
1	6	6	3	4	.	5	8	1	.219	.000
5		7	3	4	.	0	5	3	.237	.001
1	5	7	3	4	.	0	5	3	.237	.001
7		6	3	3	.	7	4	9	.249	.001
1	7	6	3	3	.	7	4	9	.249	.001
1	2	0	3	3	.	0	2	9	.277	.011
6		9	3	2	.	2	8	1	.308	.090
1	6	9	3	2	.	2	8	1	.308	.070
1	0	5	3	1	.	3	4	9	.349	.403
1	0	0	3	0	.	4	3	7	.392	.841
2	0	0	3	0	.	4	3	7	.392	.806
3		6	3	0	.	3	6	6	.396	.799
1	3	6	3	0	.	3	6	6	.396	.760
4		2	3	0	.	2	6	6	.401	.766
1	4	2	3	0	.	2	6	6	.401	.723
1		5	3	0	.	1	3	6	.407	.746
1	1	5	3	0	.	1	3	6	.407	.701
1		8	2	9	.	4	1	8	.443	.936
1	1	8	2	9	.	4	1	8	.443	.917
2	2	2	2	9	.	4	1	8	.443	.896
2	3	6	2	9	.	4	1	8	.443	.870
9		2	2	9	.	3	9	4	.445	.849

Observation number			Mahalanobis d-squared				p 1	p 2		
1	9	2	2	9	.	3	9	4	.445	.816
9		5	2	9	.	2	1	4	.454	.854

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 464

Number of distinct parameters to be estimated: 107

Degrees of freedom (464 - 107): 357

Result (Default model)

Minimum was achieved

Chi-square = 1435.357

Degrees of freedom = 357

Probability level = .000

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
INT <---	P	E	1 . 2 6 6	.210	6.036	***	par_20
INT <---	E	E	- . 6 2 3	.222	-2.806	.005	par_21
INT <---	S	I	. 1 3 9	.051	2.749	.006	par_22
INT <---	G e n d e r		. 1 1 5	.079	1.459	.145	par_40
INT <---	A g e		- . 1 6 8	.096	-1.746	.081	par_41
INT <---	Occupation		. 0 3 5	.097	.356	.722	par_42
INT <---	Education		. 0 4 8	.049	.966	.334	par_43
U B <---	z		. 6 5 1	.062	10.437	***	par_13
U B <---	F	C	. 0 3 5	.074	.479	.632	par_23
U B <---	T I T		. 5 0 4	.110	4.583	***	par_24
U B <---	I N T		. 4 7 4	.110	4.312	***	par_25
U B <---	G e n d e r		- . 2 7 3	.107	-2.539	.011	par_36
U B <---	A g e		- . 1 5 3	.132	-1.160	.246	par_37
U B <---	Occupation		- . 5 2 1	.137	-3.805	***	par_38
U B <---	Education		. 0 4 9	.066	.742	.458	par_39
TIT4 <---	T I T		1 . 0 0 5	.116	8.699	***	par_1
TIT3 <---	T I T		1 . 1 9 9	.121	9.909	***	par_2
TIT2 <---	T I T		1 . 2 7 4	.132	9.671	***	par_3
TIT1 <---	T I T		1 . 0 0 0				
FC3 <---	F	C	. 7 6 3	.158	4.821	***	par_4
FC2 <---	F	C	1 . 0 0 0				
SI3 <---	S	I	1 . 0 7 1	.072	14.902	***	par_5
SI2 <---	S	I	. 9 3 7	.073	12.911	***	par_6
SI1 <---	S	I	1 . 0 0 0				
EE4 <---	E	E	1 . 3 6 8	.221	6.183	***	par_7
EE3 <---	E	E	1 . 3 1 4	.240	5.470	***	par_8
EE2 <---	E	E	1 . 1 8 6	.213	5.577	***	par_9
EE1 <---	E	E	1 . 0 0 0				
PE4 <---	P	E	1 . 0 9 1	.122	8.965	***	par_10

	Estimate	S.E.	C.R.	P	Label
PE3 <--- P E	1 . 1 0 2	.112	9.841	***	par_11
PE2 <--- P E	1 . 0 4 0	.130	8.026	***	par_12
PE1 <--- P E	1 . 0 0 0				
UB4 <--- U B	. 7 5 8	.099	7.676	***	par_14
UB3 <--- U B	1 . 1 5 4	.098	11.826	***	par_15
UB2 <--- U B	1 . 0 7 4	.097	11.080	***	par_16
UB1 <--- U B	1 . 0 0 0				
INT4 <--- I N T	1 . 0 4 7	.103	10.154	***	par_17
INT3 <--- I N T	1 . 0 1 4	.080	12.737	***	par_18
INT2 <--- I N T	1 . 1 4 2	.083	13.844	***	par_19
INT1 <--- I N T	1 . 0 0 0				

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
INT <--- P E	. 9 6 3
INT <--- E E	- . 4 1 3
INT <--- S I	. 1 9 3
INT <--- G e n d e r	. 0 7 8
INT <--- A g e	- . 1 2 6
INT <--- Occupation	. 0 2 1
INT <--- Education	. 0 6 3
U B <--- z	. 6 8 7
U B <--- F C	. 0 3 6
U B <--- T I T	. 3 9 0
U B <--- I N T	. 3 6 7
U B <--- G e n d e r	- . 1 4 4
U B <--- A g e	- . 0 8 9
U B <--- Occupation	- . 2 4 2
U B <--- Education	. 0 5 0

	Estimate
TIT4 <--- T I T	. 6 8 1
TIT3 <--- T I T	. 8 1 1
TIT2 <--- T I T	. 7 6 6
TIT1 <--- T I T	. 6 7 1
FC3 <--- F C	. 5 8 7
FC2 <--- F C	. 8 3 3
SI3 <--- S I	. 9 2 9
SI2 <--- S I	. 7 6 2
SI1 <--- S I	. 8 1 7
EE4 <--- E E	. 7 7 5
EE3 <--- E E	. 6 8 4
EE2 <--- E E	. 5 5 9
EE1 <--- E E	. 4 6 3
PE4 <--- P E	. 6 3 1
PE3 <--- P E	. 7 1 7
PE2 <--- P E	. 5 8 4
PE1 <--- P E	. 7 1 7
UB4 <--- U B	. 5 6 2
UB3 <--- U B	. 8 7 2
UB2 <--- U B	. 8 2 7
UB1 <--- U B	. 7 1 1
INT4 <--- I N T	. 6 6 1
INT3 <--- I N T	. 8 0 5
INT2 <--- I N T	. 8 4 1
INT1 <--- I N T	. 7 9 3

Intercepts: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
G e n d e r	1 . 4 9 4	. 0 3 3	45.896	***	par_69
A g e	1 . 2 0 3	. 0 3 6	33.452	***	par_70
Occupation	1 . 8 5 2	. 0 2 9	64.709	***	par_71
Education	1 . 6 5 4	. 0 6 3	26.158	***	par_72
P E 1	4 . 4 1 8	. 0 5 1	87.173	***	par_44
P E 2	3 . 8 5 2	. 0 6 5	59.580	***	par_45
P E 3	4 . 2 8 7	. 0 5 6	76.752	***	par_46
P E 4	3 . 8 2 3	. 0 6 3	60.876	***	par_47
E E 1	4 . 1 7 7	. 0 6 8	61.202	***	par_48
E E 2	3 . 7 6 8	. 0 6 7	56.109	***	par_49
E E 3	3 . 8 8 2	. 0 6 1	63.857	***	par_50
E E 4	4 . 1 7 7	. 0 5 6	74.774	***	par_51
S I 1	3 . 2 5 3	. 0 8 1	39.954	***	par_52
S I 2	3 . 3 3 3	. 0 8 2	40.727	***	par_53
S I 3	3 . 4 0 1	. 0 7 7	44.348	***	par_54
F C 2	3 . 5 4 0	. 0 7 6	46.450	***	par_55
F C 3	3 . 5 4 0	. 0 8 3	42.900	***	par_56
T I T 1	3 . 5 3 2	. 0 7 1	49.648	***	par_57
T I T 2	3 . 1 8 6	. 0 7 9	40.166	***	par_58
T I T 3	3 . 4 4 3	. 0 7 1	48.795	***	par_59
T I T 4	3 . 5 7 8	. 0 7 0	50.770	***	par_60
I N T 1	3 . 9 2 5	. 2 8 8	13.634	***	par_61
I N T 2	3 . 6 3 1	. 3 2 9	11.053	***	par_62
I N T 3	3 . 6 9 6	. 2 9 2	12.650	***	par_63
I N T 4	3 . 4 9 4	. 3 0 5	11.467	***	par_64
U B 1	4 . 1 6 1	. 4 1 6	10.010	***	par_65
U B 2	4 . 8 0 5	. 4 3 5	11.057	***	par_66
U B 3	4 . 7 4 3	. 4 6 6	10.177	***	par_67
U B 4	4 . 5 9 2	. 3 2 7	14.044	***	par_68

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
TIT <--> FC	. 1 9 7	.065	3.024	.002	par_26
TIT <--> PE	. 1 9 1	.039	4.845	***	par_27
F C <--> PE	. 2 5 9	.051	5.058	***	par_28
S I <--> PE	. 1 7 2	.048	3.606	***	par_29
E E <--> PE	. 1 8 6	.039	4.728	***	par_30
TIT <--> EE	. 0 3 1	.030	1.018	.309	par_31
F C <--> EE	. 1 3 9	.048	2.911	.004	par_32
S I <--> EE	. 0 7 9	.042	1.880	.060	par_33
TIT <--> S I	. 1 8 9	.061	3.105	.002	par_34
F C <--> S I	. 4 0 3	.092	4.400	***	par_35

Correlations: (Group number 1 - Default model)

	Estimate
TIT <--> FC	. 2 7 6
TIT <--> PE	. 4 6 6
F C <--> PE	. 4 7 7
S I <--> PE	. 3 0 1
E E <--> PE	. 6 8 5
TIT <--> EE	. 0 8 6
F C <--> EE	. 2 9 3
S I <--> EE	. 1 6 0
TIT <--> S I	. 2 5 2
F C <--> S I	. 4 0 5

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Z	1 . 0 0 0				
TIT	. 5 3 7 .100	5.366	***	par_73	
F C	. 9 5 1 .218	4.365	***	par_74	
S I	1 . 0 4 4 .144	7.251	***	par_75	
E E	. 2 3 6 .073	3.243	.001	par_76	
P E	. 3 1 2 .053	5.872	***	par_77	
er29	. 2 5 0 .023	10.863	***	par_78	
er30	. 3 0 5 .028	10.863	***	par_79	
er31	. 1 9 3 .018	10.863	***	par_80	
er32	. 9 4 4 .087	10.863	***	par_81	
Y	. 1 5 9 .042	3.832	***	par_82	
er1	. 2 9 4 .034	8.594	***	par_83	
er2	. 6 5 0 .066	9.794	***	par_84	
er3	. 3 5 8 .041	8.664	***	par_85	
er4	. 5 6 0 .059	9.418	***	par_86	
er5	. 8 6 3 .088	9.846	***	par_87	
er6	. 7 3 2 .079	9.316	***	par_88	
er7	. 4 6 5 .058	7.980	***	par_89	
er8	. 2 9 5 .050	5.852	***	par_90	
er9	. 5 2 1 .068	7.696	***	par_91	
er10	. 6 6 4 .074	8.997	***	par_92	
er11	. 1 9 0 .056	3.377	***	par_93	
er14	. 4 2 0 .186	2.260	.024	par_94	
er15	1 . 0 5 4 .144	7.332	***	par_95	
er17	. 6 5 7 .072	9.063	***	par_96	
er18	. 6 1 3 .078	7.894	***	par_97	
er19	. 4 0 3 .058	6.900	***	par_98	
er20	. 6 2 9 .069	9.111	***	par_99	
er21	. 3 1 7 .038	8.403	***	par_100	

	Estimate	S.E.	C.R.	P	Label
er22	. 2 9 1	.039	7.397	***	par_101
r23	. 3 0 1	.037	8.081	***	par_102
er24	. 7 6 2	.079	9.690	***	par_103
er25	. 8 7 6	.094	9.346	***	par_104
er26	. 4 7 7	.065	7.360	***	par_105
er27	. 3 7 6	.064	5.878	***	par_106
er28	1 . 1 1 5	.110	10.128	***	par_107

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
Education	. 0 0 0
Occupation	. 0 0 0
A g e	. 0 0 0
G e n d e r	. 0 0 0
I N T	. 7 0 4
U B	. 5 2 8
U B 4	. 3 1 6
U B 3	. 7 6 1
U B 2	. 6 8 4
U B 1	. 5 0 6
I N T 4	. 4 3 7
I N T 3	. 6 4 8
I N T 2	. 7 0 7
I N T 1	. 6 2 9
T I T 4	. 4 6 3
T I T 3	. 6 5 7
T I T 2	. 5 8 7
T I T 1	. 4 5 0
F C 3	. 3 4 4

			Estimate
F	C	2	. 6 9 4
S	I	3	. 8 6 3
S	I	2	. 5 8 0
S	I	1	. 6 6 7
E	E	4	. 6 0 0
E	E	3	. 4 6 7
E	E	2	. 3 1 2
E	E	1	. 2 1 5
P	E	4	. 3 9 9
P	E	3	. 5 1 4
P	E	2	. 3 4 2
P	E	1	. 5 1 4

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

			M.I.	Par Change
er32 <-->	TIT		4.068	- . 0 9 1
er31 <-->	er32		6.741	- . 0 7 2
er30 <-->	er32		76.973	. 3 0 6
er30 <-->	er31		44.212	- . 1 0 5
er29 <-->	er30		5.182	- . 0 4 1
Y <-->	TIT		9.411	. 0 8 0
er28 <-->	P E		18.860	. 1 3 2
er28 <-->	S I		6.782	. 1 8 3
er28 <-->	TIT		4.903	- . 1 1 1
er28 <-->	Z		6.617	- . 2 1 3
er28 <-->	er31		4.855	. 0 6 8
er28 <-->	Y		8.260	. 1 1 6

	M.I.	Par Change
er27 <--> E E	4.761 - . 0 4 8	
er27 <--> F C	5.903 - . 1 2 3	
er26 <--> F C	4.098 . 1 0 7	
er26 <--> er29	7.462 - . 0 7 1	
er25 <--> P E	4.390 - . 0 5 8	
er25 <--> E E	13.511 . 1 0 4	
er25 <--> Y	8.102 - . 1 0 5	
er24 <--> S I	8.778 . 1 7 5	
er24 <--> TIT	5.088 - . 0 9 5	
er24 <--> er29	6.554 - . 0 7 6	
er24 <--> er28	5.986 . 1 5 8	
er24 <--> er25	10.335 - . 1 9 0	
r 2 3 <--> P E	8.082 - . 0 4 8	
r 2 3 <--> E E	9.917 . 0 5 5	
r 2 3 <--> S I	10.978 - . 1 3 2	
r 2 3 <--> F C	17.297 . 1 6 9	
r 2 3 <--> TIT	5.007 . 0 6 4	
r 2 3 <--> er32	8.370 - . 1 1 2	
r 2 3 <--> er24	4.214 . 0 7 4	
er22 <--> F C	21.373 - . 1 9 2	
er22 <--> er26	4.539 - . 0 6 9	
er21 <--> er31	7.527 - . 0 4 9	
er20 <--> er29	7.033 - . 0 7 3	
er20 <--> er25	6.781 . 1 4 4	
er20 <--> er24	7.616 . 1 3 9	
er19 <--> er30	9.701 . 0 8 4	
er19 <--> er29	5.699 - . 0 5 9	
er19 <--> Y	5.851 . 0 6 7	
er19 <--> er26	8.484 . 1 1 4	

	M.I.	Par Change
er19 <--> er24	10.594	- . 1 4 6
er19 <--> er22	14.144	. 1 1 6
er18 <--> er32	5.904	- . 1 3 6
er18 <--> er30	15.957	- . 1 2 7
er18 <--> er29	7.294	. 0 7 8
er18 <--> er28	7.939	- . 1 7 6
er18 <--> er27	30.022	. 2 4 2
er18 <--> er26	13.545	- . 1 6 8
er17 <--> F C	23.066	. 2 7 5
er17 <--> TIT	4.317	- . 0 8 2
er17 <--> Z	6.626	- . 1 7 1
er17 <--> er28	20.865	. 2 7 9
er17 <--> er27	14.669	- . 1 6 6
er17 <--> er25	5.667	- . 1 3 4
er17 <--> r 2 3	5.618	. 0 8 2
er15 <--> er29	6.375	. 0 9 0
er15 <--> Y	5.131	. 0 9 2
er15 <--> er20	10.455	- . 1 9 7
er14 <--> er27	9.792	- . 1 5 0
er14 <--> r 2 3	14.454	. 1 4 6
er14 <--> er22	31.079	- . 2 1 9
er14 <--> er18	5.700	- . 1 3 2
er14 <--> er17	13.220	. 1 9 6
er11 <--> er32	23.748	- . 2 0 6
er11 <--> er15	4.353	- . 1 0 0
er10 <--> Z	5.298	. 1 5 4
er10 <--> er32	15.390	. 2 1 6
er10 <--> er27	10.367	. 1 4 0
er10 <--> er26	10.423	- . 1 4 6

	M.I.	Par	Change
er10 <--> er25	4.424	.	1 1 9
er10 <--> er24	11.414	.	1 7 5
er10 <--> r 2 3	11.647	- .	1 1 9
er10 <--> er19	21.397	- .	1 9 8
er10 <--> er18	10.134	.	1 6 0
er10 <--> er15	5.793	.	1 5 0
er 9 <--> er32	14.098	.	1 9 0
er 9 <--> Y	4.573	.	0 6 3
er 9 <--> er26	7.301	.	1 1 2
er 9 <--> er18	7.503	- .	1 2 6
er 8 <--> Y	7.703	.	0 6 7
er 8 <--> er28	4.742	.	1 0 1
er 8 <--> r 2 3	22.450	.	1 2 4
er 8 <--> er21	6.558	- .	0 6 8
er 8 <--> er19	4.883	.	0 7 1
er 8 <--> er10	7.665	- .	1 0 3
er 7 <--> TIT	8.035	- .	0 9 9
er 7 <--> Z	9.738	- .	1 8 1
er 7 <--> er27	9.986	- .	1 1 9
er 7 <--> er24	14.893	.	1 7 3
er 7 <--> er22	4.581	- .	0 6 6
er 6 <--> P E	9.784	- .	0 7 8
er 6 <--> S I	5.061	.	1 3 1
er 6 <--> TIT	6.018	.	1 0 2
er 6 <--> Z	12.963	.	2 4 9
er 6 <--> Y	4.342	- .	0 6 9
er 6 <--> er28	7.893	- .	1 7 9
er 6 <--> er25	10.760	.	1 9 1
er 6 <--> er24	5.071	- .	1 2 0

	M.I.	Par Change
er6 <--> er17	4.189	- . 1 0 4
er6 <--> er10	7.715	. 1 4 2
er5 <--> TIT	6.980	. 1 1 7
er5 <--> Z	4.416	. 1 5 5
er5 <--> Y	5.483	- . 0 8 3
er5 <--> er26	11.640	- . 1 6 9
er5 <--> er25	34.922	. 3 6 7
er5 <--> er24	7.298	- . 1 5 4
er5 <--> er18	8.020	. 1 5 6
er5 <--> er10	5.555	. 1 2 8
er5 <--> er7	23.175	- . 2 2 5
er5 <--> er6	8.637	. 1 6 4
er4 <--> Y	6.316	- . 0 7 2
er4 <--> er27	7.761	. 1 0 9
er4 <--> er26	12.693	- . 1 4 5
er4 <--> r23	9.219	- . 0 9 5
er4 <--> er19	15.789	- . 1 5 3
er4 <--> er18	14.247	. 1 7 1
er4 <--> er15	5.084	. 1 2 7
er4 <--> er11	8.947	- . 1 0 2
er4 <--> er10	48.963	. 3 1 2
er4 <--> er8	6.199	- . 0 8 3
er4 <--> er5	7.326	. 1 3 2
er3 <--> E E	4.103	- . 0 3 7
er3 <--> Z	5.518	- . 1 1 7
er3 <--> er27	7.923	- . 0 9 1
er3 <--> r23	6.915	- . 0 6 8
er3 <--> er21	4.031	. 0 5 3
er3 <--> er8	4.831	- . 0 6 0

	M.I.	Par	Change
er2 <--> S I	12.298	.	1 9 0
er2 <--> F C	11.097	- .	1 8 4
er2 <--> Z	4.020	- .	1 2 9
er2 <--> er20	5.168	- .	1 0 5
er2 <--> er14	5.958	- .	1 2 8
er2 <--> er10	5.722	- .	1 1 4
er2 <--> er9	11.654	.	1 4 9
er2 <--> er8	6.018	.	0 8 7
er2 <--> er5	4.153	- .	1 0 6
er1 <--> TIT	9.049	- .	0 8 2
er1 <--> er24	7.049	.	0 9 3
er1 <--> er17	6.676	- .	0 8 6
er1 <--> er7	9.350	.	0 8 8
er1 <--> er6	4.153	- .	0 7 0
er1 <--> er4	7.286	.	0 8 1

Variances: (Group number 1 - Default model)

	M.I.	Par	Change
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Regression Weights: (Group number 1 - Default model)

	M.I.	Par	Change
Education <--- A g e	13.406	.	1 7 5
Occupation <--- A g e	7.700	- .	0 6 0
A g e <--- Education	19.740	.	0 8 3
I N T <--- T I T	5.473	.	1 2 8
U B 4 <--- P E	17.011	.	5 6 4
U B 4 <--- E E	4.328	.	3 4 0
U B 4 <--- S I	12.736	.	2 5 9
U B 4 <--- F C	7.417	.	2 2 6

	M.I.	Par Change
U B 4 <--- z	6.617 - . 2 1 3	
U B 4 <--- I N T	26.686 . 5 2 0	
U B 3 <--- P E	16.172 - . 3 8 9	
U B 3 <--- E E	19.015 - . 5 0 4	
U B 3 <--- F C	11.811 - . 2 0 2	
U B 1 <--- E E	7.386 . 4 0 8	
I N T 4 <--- S I	8.780 . 1 8 1	
I N T 3 <--- E E	4.054 . 1 8 6	
I N T 3 <--- F C	8.245 . 1 3 5	
I N T 2 <--- F C	17.841 - . 2 0 3	
T I T 3 <--- F C	4.134 - . 1 1 7	
T I T 1 <--- P E	8.533 . 3 1 8	
T I T 1 <--- E E	5.413 . 3 0 4	
T I T 1 <--- S I	10.785 . 1 9 0	
T I T 1 <--- F C	34.591 . 3 9 0	
T I T 1 <--- z	6.626 - . 1 7 1	
T I T 1 <--- I N T	6.911 . 2 1 1	
S I 3 <--- Education	6.090 - . 0 5 6	
S I 2 <--- z	5.298 . 1 5 4	
E E 4 <--- S I	4.495 - . 0 9 3	
E E 4 <--- F C	4.246 - . 1 0 3	
E E 3 <--- z	9.738 - . 1 8 1	
E E 2 <--- S I	8.311 . 1 7 3	
E E 2 <--- F C	5.602 . 1 6 3	
E E 2 <--- T I T	4.102 . 1 7 6	
E E 2 <--- z	12.963 . 2 4 9	
E E 1 <--- T I T	4.064 . 1 8 6	
E E 1 <--- z	4.416 . 1 5 5	
E E 1 <--- U B 1	4.914 . 0 4 5	

						M.I.	Par Change
P	E	3	<---	z		5.518	- . 1 1 7
P	E	2	<---	S	I	6.487	. 1 4 3
P	E	2	<---	z		4.020	- . 1 2 9
P	E	1	<---	S	I	4.188	- . 0 8 1
P	E	1	<---	T	I T	7.663	- . 1 5 7

Means: (Group number 1 - Default model)

	M.I.	Par Change
--	------	------------

Intercepts: (Group number 1 - Default model)

	M.I.	Par Change
--	------	------------

Model Fit Summary

CMIN

M o d e l	NP	AR	C M I N	DF	P	CMIN/DF
Default model	1	0 7	1435.357	357	.000	4 . 0 2 1
Saturated model	4	6 4	. 0 0 0	0		
Independence model	5	8	3831.958	406	.000	9 . 4 3 8

Baseline Comparisons

M o d e l	N F I Delta1	RFI rho1	I F I Delta2	TLI rho2	C F I
Default model	. 6 2 5	.574	. 6 9 0	.642	.685
Saturated model	1.000		1.000		1.000
Independence model	. 0 0 0	.000	. 0 0 0	.000	.000

Parsimony-Adjusted Measures

M o d e l	PRATIO	PNFI	PCFI
Default model	. 8 7 9	.550	.603
Saturated model	. 0 0 0	.000	.000
Independence model	1 . 0 0 0	.000	.000

NCP

M o d e l	N C P	LO 90	HI 90
Default model	1078.357	965.459	1198.789
Saturated model	. 0 0 0	. 0 0 0	. 0 0 0
Independence model	3425.958	3231.377	3627.874

FMIN

M o d e l	FMIN	F 0	LO 90	HI 90
Default model	6.082	4.569	4.091	5.080
Saturated model	. 0 0 0	. 0 0 0	. 0 0 0	. 0 0 0
Independence model	16.237	14.517	13.692	15.372

RMSEA

M o d e l	RMSEA	LO 90	HI 90	PCLOSE
Default model	. 1 1 3	.107	.119	. 0 0 0
Independence model	. 1 8 9	.184	.195	. 0 0 0

AIC

M o d e l	A I C	B C C	BIC	CAIC
Default model	1649.357	1680.522		
Saturated model	928.000	1063.146		
Independence model	3947.958	3964.851		

ECVI

M o d e l	ECVI	LO 90	HI 90	MECVI
Default model	6.989	6.510	7.499	7.121
Saturated model	3.932	3.932	3.932	4.505
Independence model	16.729	15.904	17.584	16.800

HOELTER

M o d e l	HOELTER		HOELTER
	.05		.01
Default model	6	7 7	0
Independence model	2	8 3	0

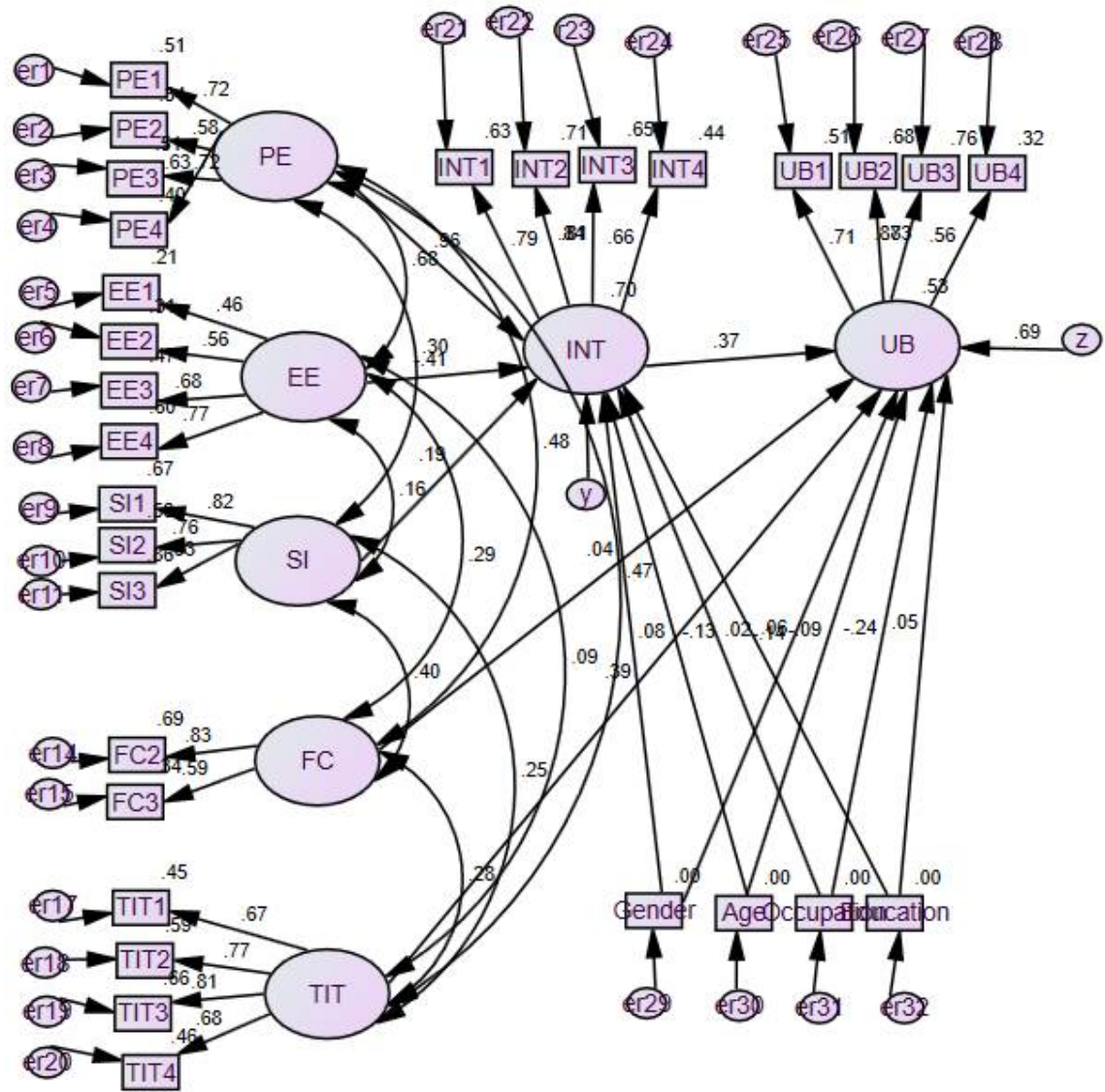
Execution time summary

Minimization: .047

Miscellaneous: 1.215

Bootstrap: .000

T o t a l : 1.262



Structural Equation Modification Model 1

C:\Users\DR JOEL\Desktop\juliet\structural model.amw

Analysis Summary

Date and Time

Date: Tuesday, May 3, 2016

Time: 11:49:24 PM

Title

Structural model 2: Tuesday, May 3, 2016 11:49 PM

Groups

Group number 1 (Group number 1)

Notes for Group (Group number 1)

The model is recursive.

Sample size = 237

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables

PE1

PE2

PE3

PE4

EE1

EE2

EE3

EE4

SI1

SI2

SI3

FC2

FC3

TIT1

TIT2

TIT3

TIT4

INT1

INT2

INT3

INT4

UB1

UB2

UB3

UB4

Gender

Age

Occupation

Education

Unobserved, endogenous variables

UB

INT

Unobserved, exogenous variables

er1

er2

er3

er4

er5

er6

er7

er8

er9
er10
er11
er14
er15
er17
er18
er19
er20
TIT
FC
SI
EE
PE
er21
er22
r23
er24
er25
er26
er27
er28
z
y
er29
er30
er31
er32

Variable counts (Group number 1)

Number of variables in your model: 67

Number of observed variables: 29

Number of unobserved variables: 38

Number of exogenous variables: 36

Number of endogenous variables: 31

Parameter Summary (Group number 1)

	Weights		Covariances		Variances		Means	Intercepts	Total
F i x e d	3	7		0		1	0	0	3 8
Labeled		0		0		0	0	0	0
Unlabeled	3	3	1	0	3	5	0	0	7 8
T o t a l	7	0	1	0	3	6	0	0	1 1 6

Assessment of normality (Group number 1)

Variable	min	max	Skew	c . r .	kurtosis	c . r .
Education	1.000	4.000	1.206	7.578	. 1 0 2	. 3 2 0
Occupation	1.000	4.000	-.096	-.602	4.644	14.594
A g e	1.000	4.000	2.909	18.283	8.148	25.606
G e n d e r	1.000	2.000	. 0 2 5	. 1 5 9	-1.999	-6.283
U B 4	1.000	5.000	-.459	-2.882	-. 8 4 5	-2.656
U B 3	1.000	5.000	-.083	-.523	-. 9 4 8	-2.978
U B 2	1.000	5.000	-.286	-1.795	-. 9 3 6	-2.941
U B 1	1.000	5.000	. 3 2 2	2.024	-1.096	-3.445
I N T 4	1.000	5.000	-.610	-3.834	-. 5 4 1	-1.700
I N T 3	1.000	5.000	-.481	-3.025	-. 2 7 9	-.878
I N T 2	1.000	5.000	-.452	-2.840	-. 6 1 7	-1.939
I N T 1	1.000	5.000	-.716	-4.497	-. 0 5 9	-.186
T I T 4	1.000	5.000	-.640	-4.023	-. 0 8 0	-.252
T I T 3	1.000	5.000	-.509	-3.201	-. 2 2 4	-.704
T I T 2	1.000	5.000	-.162	-1.019	-1.065	-3.347
T I T 1	1.000	5.000	-.449	-2.825	-. 4 7 1	-1.480
F C 3	1.000	5.000	-.581	-3.650	-. 8 0 9	-2.542

Variable			min	max	Skew	c . r .	kurtosis	c . r .
F	C	2	1.000	5.000	-.467	-2.936	-.716	-2.249
S	I	3	1.000	5.000	-.273	-1.716	-.929	-2.919
S	I	2	1.000	5.000	-.417	-2.621	-.930	-2.922
S	I	1	1.000	5.000	-.214	-1.348	-.940	-2.954
E	E	4	2.000	5.000	-.909	-5.711	.215	.676
E	E	3	2.000	5.000	-.541	-3.398	-.541	-1.699
E	E	2	1.000	5.000	-.563	-3.537	-.635	-1.996
E	E	1	1.000	5.000	-1.368	-8.600	1.202	3.777
P	E	4	1.000	5.000	-.768	-4.827	.266	.836
P	E	3	2.000	5.000	-1.107	-6.960	.522	1.641
P	E	2	1.000	5.000	-.967	-6.079	.813	2.554
P	E	1	1.000	5.000	-1.576	-9.907	2.765	8.690
Multivariate							72.007	13.071

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number			Mahalanobis d-squared			p 1	p 2
		5	6	8	.642	.000	.011
3		5	6	1	.708	.000	.004
1	3	5	6	1	.708	.000	.000
2	0	4	5	5	.991	.002	.001
4		4	5	5	.909	.002	.000
1	4	4	5	5	.909	.002	.000
5		2	5	3	.534	.004	.000
1	5	2	5	3	.534	.004	.000
8		7	5	3	.909	.004	.000
1	8	7	5	3	.909	.004	.000
2	0	3	5	2	.292	.005	.000
		7	5	1	.938	.006	.000
1	0	7	5	1	.938	.006	.000

Observation number			Mahalanobis d-squared						p 1	p 2
2	1	1	5	1	.	9	3	8	.006	.000
9		1	4	7	.	4	5	3	.017	.000
1	9	1	4	7	.	4	5	3	.017	.000
9		6	4	6	.	1	6	6	.023	.000
1	9	6	4	6	.	1	6	6	.023	.000
4		0	4	5	.	0	7	2	.029	.000
1	4	0	4	5	.	0	7	2	.029	.000
7		4	4	3	.	1	5	7	.044	.002
1	7	4	4	3	.	1	5	7	.044	.001
3		7	4	2	.	5	3	4	.050	.002
1	3	7	4	2	.	5	3	4	.050	.001
6		1	4	2	.	4	7	5	.051	.001
1	6	1	4	2	.	4	7	5	.051	.000
		1	4	2	.	0	3	3	.056	.000
5		3	4	1	.	9	9	5	.056	.000
1	5	3	4	1	.	9	9	5	.056	.000
6		3	4	1	.	6	8	7	.060	.000
1	6	3	4	1	.	6	8	7	.060	.000
3		1	4	1	.	4	3	0	.063	.000
1	3	1	4	1	.	4	3	0	.063	.000
5		4	4	1	.	1	0	7	.067	.000
1	5	4	4	1	.	1	0	7	.067	.000
3		8	4	0	.	8	8	2	.071	.000
1	3	8	4	0	.	8	8	2	.071	.000
2		9	4	0	.	6	1	6	.074	.000
1	2	9	4	0	.	6	1	6	.074	.000
9		7	4	0	.	4	4	5	.077	.000
1	9	7	4	0	.	4	4	5	.077	.000
7		3	3	9	.	3	8	6	.094	.000

Observation number			Mahalanobis d-squared						p 1	p 2
1	7	3	3	9	.	3	8	6	.094	.000
1		0	3	7	.	5	3	1	.133	.014
1	1	0	3	7	.	5	3	1	.133	.009
2	1	4	3	7	.	5	3	1	.133	.005
2	0	1	3	7	.	2	9	1	.139	.007
6		4	3	7	.	0	5	1	.145	.010
1	6	4	3	7	.	0	5	1	.145	.006
2	1	9	3	6	.	6	2	7	.156	.015
8		0	3	6	.	6	0	9	.156	.010
1	8	0	3	6	.	6	0	9	.156	.007
2	0	9	3	6	.	5	4	4	.158	.005
1		1	3	6	.	4	9	5	.160	.004
1	1	1	3	6	.	4	9	5	.160	.002
2	1	5	3	6	.	4	9	5	.160	.001
7		2	3	6	.	3	9	5	.162	.001
1	7	2	3	6	.	3	9	5	.162	.001
		9	3	6	.	1	2	1	.170	.001
1	0	9	3	6	.	1	2	1	.170	.001
2	1	3	3	6	.	1	2	1	.170	.000
9		4	3	5	.	8	7	4	.177	.001
1	9	4	3	5	.	8	7	4	.177	.000
4		6	3	5	.	1	0	9	.201	.006
1	4	6	3	5	.	1	0	9	.201	.004
		4	3	5	.	0	7	1	.202	.003
1	0	4	3	5	.	0	7	1	.202	.002
2	0	8	3	5	.	0	7	1	.202	.001
9		8	3	4	.	9	4	2	.206	.001
1	9	8	3	4	.	9	4	2	.206	.001
		6	3	4	.	6	9	2	.215	.001

Observation number			Mahalanobis d-squared			p 1	p 2
1	0	6	3	4	.	6 9 2	.215 .001
2	1	0	3	4	.	6 9 2	.215 .001
2		0	3	4	.	6 4 3	.217 .000
2	2	4	3	4	.	6 4 3	.217 .000
6		6	3	4	.	5 8 1	.219 .000
1	6	6	3	4	.	5 8 1	.219 .000
5		7	3	4	.	0 5 3	.237 .001
1	5	7	3	4	.	0 5 3	.237 .001
7		6	3	3	.	7 4 9	.249 .001
1	7	6	3	3	.	7 4 9	.249 .001
1	2	0	3	3	.	0 2 9	.277 .011
6		9	3	2	.	2 8 1	.308 .090
1	6	9	3	2	.	2 8 1	.308 .070
1	0	5	3	1	.	3 4 9	.349 .403
1	0	0	3	0	.	4 3 7	.392 .841
2	0	0	3	0	.	4 3 7	.392 .806
3		6	3	0	.	3 6 6	.396 .799
1	3	6	3	0	.	3 6 6	.396 .760
4		2	3	0	.	2 6 6	.401 .766
1	4	2	3	0	.	2 6 6	.401 .723
1		5	3	0	.	1 3 6	.407 .746
1	1	5	3	0	.	1 3 6	.407 .701
1		8	2	9	.	4 1 8	.443 .936
1	1	8	2	9	.	4 1 8	.443 .917
2	2	2	2	9	.	4 1 8	.443 .896
2	3	6	2	9	.	4 1 8	.443 .870
9		2	2	9	.	3 9 4	.445 .849
1	9	2	2	9	.	3 9 4	.445 .816
9		5	2	9	.	2 1 4	.454 .854

Models

Default model (Default model)

Notes for Model (Default model)

Computation of degrees of freedom (Default model)

Number of distinct sample moments: 435

Number of distinct parameters to be estimated: 78

Degrees of freedom (435 - 78): 357

Result (Default model)

Minimum was achieved

Chi-square = 916.755

Degrees of freedom = 357

Probability level = .000

Group number 1 (Group number 1 - Default model)

Estimates (Group number 1 - Default model)

Scalar Estimates (Group number 1 - Default model)

Generalized Least Squares Estimates

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
INT <--- P E	. 8 0 8 .184	4.399	***	par_20	
INT <--- E E	. 5 4 5 .206	2.653	.002	par_21	
INT <--- S I	. 4 9 3 .115	4.303	***	par_22	
INT <--- G e n d e r	. 0 0 8 .101	. 0 7 9	.937	par_40	
INT <--- A g e	- . 2 0 3 .320	-.636	.525	par_41	
INT <--- Occupation	- . 3 3 9 .166	-2.044	.041	par_42	

	Estimate	S.E.	C.R.	P	Label
INT <--- Education	. 0 9 8 .150	. 6 5 4	.513		par_43
U B <--- z	. 4 4 1 .066	6.673	***		par_13
U B <--- F C	. 1 0 2 .171	. 5 9 9	.005		par_23
U B <--- T I T	. 2 5 1 .114	2.192	***		par_24
U B <--- I N T	. 1 6 2 .173	4.980	.013		par_25
U B <--- G e n d e r	. 0 4 6 .132	. 3 4 7	.729		par_36
U B <--- A g e	- . 1 4 8 .412	-.359	.719		par_37
U B <--- Occupation	- . 3 8 8 .228	-1.699	.089		par_38
U B <--- Education	- . 3 8 2 .215	-1.775	.076		par_39
TIT4 <--- T I T	1 . 0 0 4 .172	5.823	***		par_1
TIT3 <--- T I T	1 . 1 1 8 .178	6.277	***		par_2
TIT2 <--- T I T	1 . 4 8 9 .211	7.059	***		par_3
TIT1 <--- T I T	1 . 0 0 0				
FC3 <--- F C	1 . 0 4 6 .389	2.691	.007		par_4
FC2 <--- F C	1 . 0 0 0				
SI3 <--- S I	1 . 0 2 9 .096	10.713	***		par_5
SI2 <--- S I	1 . 0 4 5 .127	8.204	***		par_6
SI1 <--- S I	1 . 0 0 0				
EE4 <--- E E	1 . 3 4 2 .226	5.947	***		par_7
EE3 <--- E E	1 . 1 5 5 .293	3.941	***		par_8
EE2 <--- E E	1 . 2 1 6 .264	4.609	***		par_9
EE1 <--- E E	1 . 0 0 0				
PE4 <--- P E	1 . 1 5 1 .133	8.670	***		par_10
PE3 <--- P E	. 8 4 0 .129	6.516	***		par_11
PE2 <--- P E	. 9 6 1 .187	5.130	***		par_12
PE1 <--- P E	1 . 0 0 0				
UB4 <--- U B	. 9 9 5 .164	6.057	***		par_14
UB3 <--- U B	1 . 3 0 6 .145	9.035	***		par_15
UB2 <--- U B	1 . 1 3 9 .124	9.165	***		par_16

	Estimate	S.E.	C.R.	P	Label
UB1 <--- U B	1 . 0 0 0				
INT4 <--- I N T	1 . 0 6 1 .156	6.796	***	par_17	
INT3 <--- I N T	1 . 0 1 2 .118	8.548	***	par_18	
INT2 <--- I N T	1 . 1 3 4 .104	10.929	***	par_19	
INT1 <--- I N T	1 . 0 0 0				

Standardized Regression Weights: (Group number 1 - Default model)

	<i>Estimate</i>
INT <--- P E	. 7 3 3
INT <--- E E	. 4 0 5
INT <--- S I	. 5 8 8
INT <--- G e n d e r	. 0 0 5
INT <--- A g e	- . 0 7 2
INT <--- Occupation	- . 1 5 7
INT <--- Education	. 0 6 6
U B <--- z	. 5 5 9
U B <--- F C	. 4 0 9
U B <--- T I T	. 5 8 8
U B <--- I N T	. 0 7 2
U B <--- G e n d e r	. 0 2 2
U B <--- A g e	- . 0 4 2
U B <--- Occupation	- . 1 4 4
U B <--- Education	- . 2 0 4
TIT4 <--- T I T	. 7 1 2
TIT3 <--- T I T	. 8 4 2
TIT2 <--- T I T	. 9 0 1
TIT1 <--- T I T	. 7 6 4
FC3 <--- F C	. 5 7 2
FC2 <--- F C	. 7 0 0

	<i>Estimate</i>
S I 3 <--- S I	. 9 1 3
S I 2 <--- S I	. 8 9 5
S I 1 <--- S I	. 7 9 1
EE 4 <--- E E	. 8 7 4
EE 3 <--- E E	. 7 5 7
EE 2 <--- E E	. 6 4 9
EE 1 <--- E E	. 6 1 5
PE 4 <--- P E	. 8 1 9
PE 3 <--- P E	. 7 1 5
PE 2 <--- P E	. 6 9 9
PE 1 <--- P E	. 8 7 7
UB 4 <--- U B	. 7 5 7
UB 3 <--- U B	. 9 3 5
UB 2 <--- U B	. 8 6 6
UB 1 <--- U B	. 8 0 8
INT 4 <--- I N T	. 7 4 7
INT 3 <--- I N T	. 8 6 4
INT 2 <--- I N T	. 8 7 9
INT 1 <--- I N T	. 7 8 7

Covariances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
TIT <--> FC	. 0 9 7	.082	1.179	.238	par_26
TIT <--> PE	. 1 6 2	.045	3.562	***	par_27
FC <--> PE	. 1 3 3	.063	2.109	.035	par_28
S I <--> PE	. 1 1 9	.060	1.980	.048	par_29
EE <--> PE	. 1 4 9	.039	3.821	***	par_30
TIT <--> EE	. 0 1 8	.037	.483	.629	par_31
FC <--> EE	. 0 4 2	.036	1.163	.245	par_32

	Estimate	S.E.	C.R.	P	Label
S I <--> EE	. 1 0 4	.046	2.261	.024	par_33
TIT <--> S I	. 1 9 1	.068	2.808	.005	par_34
F C <--> S I	. 2 0 6	.084	2.455	.014	par_35

Correlations: (Group number 1 - Default model)

	Estimate
TIT <--> FC	. 2 8 3
TIT <--> PE	. 4 5 4
F C <--> PE	. 4 2 6
S I <--> PE	. 2 7 6
E E <--> PE	. 5 5 8
TIT <--> EE	. 0 6 1
F C <--> EE	. 1 6 4
S I <--> EE	. 2 9 7
TIT <--> S I	. 4 0 7
F C <--> S I	. 5 0 0

Variances: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Z	1 . 0 0 0				
INT	.132	.019	8.545	***	par_43
TIT	. 3 8 8	.108	3.602	***	par_44
F C	. 3 0 0	.146	2.060	.039	par_45
S I	. 5 6 4	.137	4.116	***	par_46
E E	. 2 1 9	.079	2.784	.005	par_47
P E	. 3 2 7	.060	5.405	***	par_48
er29	. 1 4 7	.017	8.545	***	par_49
er30	. 0 4 9	.012	4.117	***	par_50
er31	. 0 8 5	.011	7.442	***	par_51

	Estimate	S.E.	C.R.	P	Label
er32	. 1 7 8 .040	4.463	***	par_52	
Y	. 0 6 1 .029	2.111	.035	par_53	
er1	. 0 9 8 .024	4.027	***	par_54	
er2	. 3 1 6 .048	6.580	***	par_55	
er3	. 2 2 0 .030	7.260	***	par_56	
er4	. 2 1 2 .037	5.692	***	par_57	
er5	. 3 6 0 .056	6.441	***	par_58	
er6	. 4 4 5 .056	7.963	***	par_59	
er7	. 2 1 8 .039	5.615	***	par_60	
er8	. 1 2 2 .035	3.482	***	par_61	
er9	. 3 3 8 .047	7.157	***	par_62	
er10	. 1 5 3 .041	3.714	***	par_63	
er11	. 1 1 9 .034	3.520	***	par_64	
er14	. 3 1 3 .093	3.353	***	par_65	
er15	. 6 7 7 .119	5.667	***	par_66	
er17	. 2 7 7 .045	6.182	***	par_67	
er18	. 1 9 9 .052	3.801	***	par_68	
er19	. 1 9 9 .035	5.616	***	par_69	
er20	. 3 7 9 .051	7.426	***	par_70	
er21	. 2 4 3 .030	8.013	***	par_71	
er22	. 1 5 0 .027	5.541	***	par_72	
r23	. 1 3 8 .024	5.777	***	par_73	
er24	. 3 5 3 .049	7.175	***	par_74	
er25	. 3 3 0 .058	5.665	***	par_75	
er26	. 2 7 0 .046	5.861	***	par_76	
er27	. 1 5 2 .041	3.702	***	par_77	
er28	. 4 6 0 .071	6.516	***	par_78	

Squared Multiple Correlations: (Group number 1 - Default model)

	Estimate
Education	. 0 0 0
Occupation	. 0 0 0
A g e	. 0 0 0
G e n d e r	. 0 0 0
I N T	. 8 4 7
U B	. 6 8 8
U B 4	. 5 7 3
U B 3	. 8 7 4
U B 2	. 7 4 9
U B 1	. 6 5 3
I N T 4	. 5 5 9
I N T 3	. 7 4 7
I N T 2	. 7 7 3
I N T 1	. 6 2 0
T I T 4	. 5 0 8
T I T 3	. 7 0 9
T I T 2	. 8 1 2
T I T 1	. 5 8 3
F C 3	. 3 2 7
F C 2	. 4 8 9
S I 3	. 8 3 3
S I 2	. 8 0 1
S I 1	. 6 2 6
E E 4	. 7 6 4
E E 3	. 5 7 2
E E 2	. 4 2 1
E E 1	. 3 7 8
P E 4	. 6 7 1
P E 3	. 5 1 2

			Estimate
P	E	2	. 4 8 9
P	E	1	. 7 6 8

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change
er31 <--> er32	7.763	. 0 3 7
er30 <--> er32	5.003	. 0 2 7
er30 <--> er31	10.992	- . 0 2 3
er29 <--> er32	12.664	. 0 5 9
er29 <--> er31	4.035	- . 0 1 9
er29 <--> er30	8.132	- . 0 2 6
Y <--> TIT	4.665	. 0 3 6
er28 <--> er30	4.055	. 0 3 8
er26 <--> S I	6.730	- . 0 8 2
er26 <--> er30	5.542	- . 0 3 5
er26 <--> y	5.216	- . 0 4 6
er25 <--> er32	8.075	- . 0 8 6
er25 <--> er29	5.543	. 0 5 1
er24 <--> er25	8.324	- . 1 0 2
er22 <--> F C	6.581	- . 0 6 3
er22 <--> er26	4.849	- . 0 5 0
er21 <--> er32	4.160	. 0 4 6
er21 <--> er30	4.618	- . 0 2 7
er21 <--> er28	8.662	. 0 9 1
er20 <--> er25	9.584	. 1 1 2
er20 <--> er24	10.324	. 1 0 7
er19 <--> er32	5.911	- . 0 5 6

	M.I.	Par	Change	
er19 <--> er31	9.119	.	0 3 9	
er19 <--> er30	12.151	.	0 4 3	
er19 <--> er22	6.528	.	0 5 0	
er18 <--> er27	4.095	.	0 5 2	
er18 <--> er25	4.861	- .	0 7 5	
er17 <--> F C	5.230	.	0 7 1	
er17 <--> er28	6.165	.	0 8 9	
er17 <--> er26	4.990	.	0 6 5	
er17 <--> er21	6.134	- .	0 6 1	
er15 <--> er32	6.210	- .	0 9 5	
er15 <--> er30	4.216	.	0 4 4	
er15 <--> er29	4.777	.	0 5 9	
er15 <--> er26	4.596	.	0 9 0	
er14 <--> r 2 3	4.445	.	0 5 1	
er14 <--> er22	9.859	- .	0 8 0	
er11 <--> er32	7.817	- .	0 5 7	
er11 <--> y	9.761	- .	0 5 1	
er11 <--> er27	7.642	.	0 5 9	
er11 <--> er25	5.784	- .	0 6 6	
er10 <--> er32	8.359	.	0 6 8	
er10 <--> er30	6.501	- .	0 3 4	
er10 <--> er29	10.294	- .	0 5 4	
er10 <--> er28	4.731	.	0 7 3	
er10 <--> er25	7.219	.	0 8 2	
er9 <--> TIT	8.897	- .	0 7 9	
er9 <--> y	5.766	.	0 4 8	
er8 <--> er25	6.511	- .	0 6 8	
er7 <--> z	5.392	- .	1 1 9	
er7 <--> er28	8.972	- .	0 9 9	

	M.I.	Par	Change
er7 <--> er25	5.024	.	0 6 9
er7 <--> er24	4.901	.	0 6 2
er7 <--> er17	6.501	.	0 6 8
er7 <--> er14	4.021	- .	0 6 3
er5 <--> TIT	5.595	.	0 6 9
er5 <--> er26	6.783	- .	0 8 4
er5 <--> er25	13.654	.	1 3 1
er5 <--> er24	4.874	.	0 7 8
er5 <--> er20	4.709	- .	0 7 8
er5 <--> er14	5.356	- .	0 8 9
er5 <--> er10	4.578	- .	0 6 4
er5 <--> er7	8.576	- .	0 8 6
er4 <--> er32	14.377	- .	0 8 8
er4 <--> er30	7.329	.	0 3 5
er4 <--> er29	4.117	.	0 3 4
er4 <--> er17	6.857	.	0 6 8
er4 <--> er11	9.256	- .	0 6 2
er4 <--> er10	9.605	.	0 6 9
er3 <--> er30	5.836	.	0 3 0
er3 <--> er28	4.261	- .	0 6 4
er3 <--> er26	8.094	.	0 6 9
er3 <--> er25	5.618	- .	0 6 8
er3 <--> er22	7.279	.	0 5 0
er3 <--> er20	6.307	.	0 6 7
er3 <--> er19	7.243	- .	0 5 8
er3 <--> er5	8.080	.	0 7 7
er2 <--> er32	5.246	.	0 6 3
er2 <--> y	4.221	- .	0 4 3
er2 <--> er25	10.295	.	1 1 3

	M.I.	Par Change
er2 <--> er14	7.422	- . 0 9 7
er2 <--> er8	5.921	. 0 5 7
er2 <--> er5	11.446	- . 1 1 4
er1 <--> er32	8.933	. 0 5 4
er1 <--> er30	5.471	- . 0 2 4
er1 <--> er28	8.415	. 0 7 4
er1 <--> er27	4.262	- . 0 3 8
er1 <--> er17	10.332	- . 0 6 4
er1 <--> er11	14.089	. 0 6 1
er1 <--> er10	11.629	- . 0 6 1
er1 <--> er7	4.443	. 0 3 8

Variances: (Group number 1 - Default model)

	M.I.	Par Change
--	------	------------

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change
Education <--- Occupation	7.763	. 4 3 8
Education <--- A g e	5.003	. 5 4 0
Education <--- G e n d e r	12.664	. 3 9 8
Occupation <--- Education	7.763	. 2 1 0
Occupation <--- A g e	10.992	- . 4 5 5
Occupation <--- G e n d e r	4.035	- . 1 2 9
A g e <--- Education	5.003	. 1 5 1
A g e <--- Occupation	10.992	- . 2 6 4
A g e <--- G e n d e r	8.132	- . 1 7 9
G e n d e r <--- Education	12.664	. 3 2 9
G e n d e r <--- Occupation	4.035	- . 2 2 2
G e n d e r <--- A g e	8.132	- . 5 3 3

	M.I.	Par Change
U B 4 <--- A g e	4.055 . 7 6 1	
U B 4 <--- I N T 1	5.497 . 1 6 7	
U B 3 <--- P E 2	5.972 - . 1 3 0	
U B 3 <--- P E 1	5.106 - . 1 4 1	
U B 2 <--- A g e	5.542 - . 7 0 2	
U B 2 <--- T I T 1	4.959 . 1 3 1	
U B 2 <--- S I 3	4.286 - . 1 1 8	
U B 2 <--- P E 3	5.728 . 1 6 8	
U B 1 <--- Education	8.075 - . 4 8 6	
U B 1 <--- G e n d e r	5.543 . 3 4 6	
U B 1 <--- I N T 4	4.447 - . 1 2 8	
U B 1 <--- E E 3	5.318 . 1 7 7	
U B 1 <--- E E 1	12.166 . 2 4 5	
U B 1 <--- P E 2	5.060 . 1 5 6	
I N T 4 <--- T I T 4	6.445 . 1 4 5	
I N T 4 <--- E E 1	4.245 . 1 4 4	
I N T 2 <--- F C 2	8.929 - . 1 4 4	
I N T 1 <--- Education	4.160 . 2 5 7	
I N T 1 <--- A g e	4.618 - . 5 3 9	
T I T 4 <--- E E 1	4.207 - . 1 4 6	
T I T 3 <--- Education	5.911 - . 3 1 5	
T I T 3 <--- Occupation	9.119 . 4 5 8	
T I T 3 <--- A g e	12.151 . 8 6 5	
F C 3 <--- Education	6.210 - . 5 3 6	
F C 3 <--- A g e	4.216 . 8 8 2	
F C 3 <--- G e n d e r	4.777 . 4 0 0	
S I 3 <--- Education	7.817 - . 3 2 3	
S I 2 <--- Education	8.359 . 3 8 2	
S I 2 <--- A g e	6.501 - . 6 9 5	

	M.I.	Par Change
S I 2 <--- Gender	10.294	- . 3 6 9
S I 1 <--- T I T	4.405	- . 1 6 5
S I 1 <--- T I T 4	4.887	- . 1 2 1
S I 1 <--- T I T 3	4.770	- . 1 2 9
S I 1 <--- T I T 2	4.003	- . 0 9 1
E E 3 <--- z	5.392	- . 1 1 9
E E 3 <--- U B 4	4.121	- . 0 8 2
E E 3 <--- E E 1	4.239	- . 1 1 9
E E 1 <--- T I T	4.485	. 1 8 2
E E 1 <--- T I T 3	4.388	. 1 3 6
E E 1 <--- T I T 2	5.698	. 1 1 8
E E 1 <--- T I T 1	5.139	. 1 5 0
E E 1 <--- P E 3	5.391	. 1 8 3
P E 4 <--- Education	14.377	- . 4 9 3
P E 4 <--- A g e	7.329	. 7 1 7
P E 4 <--- Gender	4.117	. 2 3 0
P E 3 <--- A g e	5.836	. 6 0 6
P E 3 <--- T I T 3	4.172	- . 1 0 0
P E 3 <--- E E 1	4.614	. 1 1 7
P E 2 <--- Education	5.246	. 3 5 7
P E 2 <--- T I T 3	5.007	. 1 3 5
P E 2 <--- E E 1	5.889	- . 1 6 4
P E 1 <--- Education	8.933	. 3 0 6
P E 1 <--- A g e	5.471	- . 4 8 5
P E 1 <--- U B 4	4.026	. 0 6 3
P E 1 <--- T I T 4	4.712	- . 0 8 1
P E 1 <--- T I T 1	7.910	- . 1 1 2

Correlations of Estimates (Default model)

Model Fit Summary

CMIN

M o d e l	NPAR	C M I N	DF	P	CMIN/DF
Default model	7 8	916.755	357	.000	2 . 5 6 8
Saturated model	4 3 5	. 0 0 0	0		
Independence model	2 9	1279.805	406	.000	3 . 1 5 2
Z e r o m o d e l	0	3422.000	435	.000	7 . 8 6 7

RMR, GFI

M o d e l	RMR	G F I	AGFI	PGFI
Default model	.171	.732	.674	.601
Saturated model	.000	1.000		
Independence model	.376	.626	.599	.584
Z e r o m o d e l	.423	.000	.000	.000

Baseline Comparisons

M o d e l	N F I Delta1	RFI rho1	I F I Delta2	TLI rho2	C F I
Default model	.284	.185	.393	.271	.359
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Parsimony-Adjusted Measures

M o d e l	PRATIO	PNFI	PCFI
Default model	.879	.249	.316
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

M o d e l	N C P	LO 90	HI 90
Default model	559.755	474.171	653.006
Saturated model	. 0 0 0	. 0 0 0	. 0 0 0
Independence model	873.805	769.616	985.588

FMIN

M o d e l	FMIN	F 0	LO 90	HI 90
Default model	3.885	2.372	2.009	2.767
Saturated model	.000	.000	.000	.000
Independence model	5.423	3.703	3.261	4.176

RMSEA

M o d e l	RMSEA	LO 90	HI 90	PCLOSE
Default model	. 0 8 2	.075	.088	. 0 0 0
Independence model	. 0 9 5	.090	.101	. 0 0 0

AIC

M o d e l	A I C	B C C	B I C	C A I C
Default model	1072.755	1095.474	1343.264	1421.264
Saturated model	870.000	996.699	2378.606	2813.606
Independence model	1337.805	1346.251	1438.378	1467.378
Z e r o m o d e l	3422.000	3422.000	3422.000	3422.000

ECVI

M o d e l	ECVI	LO 90	HI 90	MECVI
Default model	4.546	4.183	4.941	4.642
Saturated model	3.686	3.686	3.686	4.223
Independence model	5.669	5.227	6.142	5.704

M o d e l	ECVI	LO 90	HI 90	MECVI
Z e r o m o d e l	14.500	13.726	15.305	14.500

HOELTER

M o d e l	HOELTER .05			HOELTER .01		
Default model	1	0	4	1	0	9
Independence model	8		4	8		8
Z e r o m o d e l	3		4	3		5

Execution time summary

M i n i m i z a t i o n :
M i s c e l l a n e o u s :
B o o t s t r a p :

T o t a l :

APPENDIX VII

Relationship between Subject Factors – **Demographic Variables**

G	e	n	d	
G	e	n	d	e
Age				
A	g			
Occupation				
O c c u p a t i				
Educational Qualification				
Educational Qualific				

Table showing Multivariate Result for the Demographic Variables.

S o u r c e		Dependent Variable	Type III Sum of Squares	d f	Mean Square	F	P value	
Corrected Model		P	104.762 ^b	2	8	3 . 7 4 1	3 . 6 0 3	. 0 0 0
		E	111.308 ^c	2	8	3 . 9 7 5	. 5 5 1	. 9 6 8

S			I	125.407 ^d	2	8	4 . 4 7 9	1.666	. 0 2 5		
T			I	T	143.120 ^e	2	8	5 . 1 1 1	2.773	. 0 0 0	
F				C	118.416 ^f	2	8	4 . 2 2 9	2.360	. 0 0 0	
U				B	144.440 ^g	2	8	5 . 1 5 9	1.874	. 0 0 8	
I n t e r c e p t P				E	1169.881		1	1169.881	1126.459	. 0 0 0	
E					E	1111.943		1	1111.943	154.149	. 0 0 0
S					I	803.523		1	803.523	298.837	. 0 0 0
T				I	T	789.553		1	789.553	428.345	. 0 0 0
F					C	790.671		1	790.671	441.304	. 0 0 0
U					B	726.201		1	726.201	263.759	. 0 0 0
G e n d e r P				E	1 . 9 3 5		1	1 . 9 3 5	1.863	. 1 7 4	
E					E	. 0 2 4		1	. 0 2 4	. 0 0 3	. 9 5 5
S					I	1 . 7 6 7		1	1 . 7 6 7	. 6 5 7	. 4 1 9
T				I	T	. 1 8 0		1	. 1 8 0	. 0 9 7	. 7 5 5
T				I	T	. 9 6 4		1	. 9 6 4	. 5 3 8	. 4 6 4
U					B	2 . 5 5 4		1	2 . 5 5 4	. 9 2 8	. 3 3 7
A g e P				E	5 . 8 6 2		3	1 . 9 5 4	1.881	. 1 3 4	
E					E	3 . 0 2 1		3	1 . 0 0 7	. 1 4 0	. 9 3 6
S					F	11.807		3	3 . 9 3 6	1.464	. 2 2 6
T				I	T	14.356		3	4 . 7 8 5	2.596	. 0 5 4
F					C	6 . 0 9 1		3	2 . 0 3 0	1.133	. 3 3 7

U B		1 1 . 6 5 3	3	3 . 8 8 4	1 . 4 1 1	. 2 4 1
Occupation P		E 1 . 3 4 9	4	. 3 3 7	. 3 2 5	. 8 6 1
E		E 6 . 2 1 4	4	1 . 5 5 3	. 2 1 5	. 9 3 0
S		F 8 . 0 6 0	4	2 . 0 1 5	. 7 4 9	. 5 6 0
T I		T 8 . 7 7 8	4	2 . 1 9 5	1 . 1 9 1	. 3 1 6
F		C 2 0 . 0 7 8	4	5 . 0 1 9	2 . 8 0 2	. 0 2 7
U		B 8 . 8 9 5	4	2 . 2 2 4	. 8 0 8	. 5 2 2
Education P		E 1 2 . 8 2 1	4	3 . 2 0 5	3 . 0 8 6	. 0 1 7
E		E 4 7 . 0 2 4	4	1 1 . 7 5 6	1 . 6 3 0	. 1 6 8
S		F 6 . 5 1 2	4	1 . 6 2 8	. 6 0 5	. 6 5 9
T I		T 4 5 . 6 2 3	4	1 1 . 4 0 6	6 . 1 8 8	. 0 0 0
F		C 1 5 . 6 2 3	4	3 . 9 0 6	2 . 1 8 0	. 0 7 3
U		B 9 . 9 7 9	4	2 . 4 9 5	. 9 0 6	. 4 6 2

a. Design: Intercept + Gender + Age + Occupation + Education + Gender * Age + Gender * Occupation + Gender * Education + Age * Occupation + Age * Education + Occupation * Education + Gender * Age * Occupation + Gender * Age * Education + Gender * Occupation * Education + Age * Occupation * Education + Gender * Age * Occupation * Education

b. Weighted Least Squares Regression - Weighted by INT

c. Exact statistic

d. The statistic is an upper bound on F that yields a lower bound on the significance level.

APPENDIX VIII

Retail Shoppers in Polo Park Mall, Enugu queue at the ATM points to withdraw cash for their shopping.

