

UNIVERSITY OF GHANA

**FACTORS THAT INFLUENCE INTERNET BANKING ADOPTION IN
GHANA**

BY

ALFRED SEKYERE MBROKOH



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DECLARATION

I do hereby declare that this work is the results of my own research and has not been presented by anyone for any academic award in this or any university. All references used in the work have been fully acknowledged.

I bear sole responsibility for any shortcomings.

.....
ALFRED SEKYERE MBROKOH

STUDENT

.....
DATE



CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

.....

DR. RICHARD BOATENG
(SUPERVISOR)

.....

DATE

.....

DR. JOHN EFFAH
(CO-SUPERVISOR)

.....

DATE



DEDICATION

Firstly, I would like to dedicate this work to the Almighty God who has given me life, good health and wisdom to enable me to undertake this research.

I also dedicate this work to my family who believed in my ability to accomplish this goal.



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ABSTRACT

The purpose of this research is to explore the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention on consumers' adoption of Internet banking in Ghana. Studies on Internet banking in developing countries have so far focused more on issues relating to adoption, use, deployment and diffusion. The most dominant among these areas is studies on adoption. However, there still remain salient factors of Internet banking adoption such as social influence, facilitating conditions and the relationship between behavioural intention and usage behaviour that have not been scrutinized by extant researchers. To address these gaps in knowledge, this study investigated Internet banking consumers of two banks in Ghana using the Unified Theory of Acceptance and Use of Technology (UTAUT) as the theoretical lens and the quantitative survey approach as the research methodology.

The result of the study found positive support for the influence of performance expectancy, effort expectancy and social influence on behavioural intention and positively supported the relationship between behavioural intention and usage behaviour. However, the relationship between facilitating conditions and usage behaviour was not supported. The study also reported a non-moderating effect of gender, age and education on the various constructs of the model adopted for the study. In view of this, the study recommends that banks should adequately invest in organising free trial services for potential adopter and help develop measures that will help educate potential customers on the benefits that can be derived from the usage of Internet banking. Finally, the study calls for future researchers to use the UTAUT model in studying the adoption of Internet banking by corporate customers. Also, the study recommends that, future studies examine the factors that influence the adoption of cloud based solutions by banks.

CHAPTER ONE

INTRODUCTION

1.1 Background

The rapid growth and diffusion of the Internet and the advancement of information and communication technologies (ICTs) have had an enormous effect on most organisations. From the sole domain of academia and computer nerd, the Internet now serves as a mainstream channel of communication (Nehmzow, 1997). With the number of Internet users approaching 3 billion and Internet access increasingly shifting to broadband and in particular mobile broadband, Africa has been adjudged the fastest growing region in terms of Internet usage between 2010 and 2013, with 93 million subscriptions, 11% penetration and an 82% cumulative annual growth rate (CAGR) (ITU, 2013). Based on this, countries such as Nigeria, Ghana, Kenya and Senegal have demonstrated social and economic gains across Sub-Saharan Africa region from the development of their Internet economies (Dalberg, 2013). Hence, the Internet can be said to be an effective channel of communication as well as a good revenue generator (Hong & Zhu, 2006). In essence, the Internet has the capacity to aid businesses and individuals to develop a new formula of relationship that leads to the emergence of a new type of economic agents and new business models.

Given that the Internet provides an additional channel to banks to both promote and deliver services, the banking sector can be said to have been particularly affected by the Internet explosion (Santouridis & Kyritsi, 2014). As a result, developed countries such as South Korea, Spain and Austria have more than 75% of all banks offering transactional services via the Internet (Maenpaa, 2006). However, although Internet users in developing countries are significantly growing as compared to developed countries, the number of financial

transactions carried out over the Internet remains very low (Njuguna, Ritho, Olweny, & Wanderi, 2012). In view of this, Islam et al. (2014) have argued that customers are generally scared of performing online financial transactions, whilst Andoh-Baidoo and Osatuyi (2009) have posited that a major challenge among several challenges to Internet banking implementation and adoption is the effective deliverance of product and services to customers.

Moreover, like other countries in an early adoption position, banks that offer Internet banking in Ghana have now enabled their system to allow customers to complete transactions such as online funds and funds transfer on their Internet banking platform (PWC, 2014). Daniel & Jonathan (2013) have also established that the quality of service delivery has been improved by banks in Ghana through the Internet with the major aim of catching up with the global development and improvement in the banking sector. Hence, Ofori-Dwumfuo and Dankwah (2013) have postulated that, the current face of banking development in Ghana is the Internet banking. Despite these developments in the banking sector, the adoption of Internet banking by customers is still at a relatively slow pace. In light of this, previous studies have sought to solve this disparity by focusing on the technological development of the Internet banking system (Alam, Magboul, and Raman, 2010; Ayadi, 2006). However, Curran and Meuter (2007) have said that the feasibility of Internet banking implementation is dependent on the acceptance of the system as an alternative to the traditional form of banking by consumers.

1.2 Research Problem

For the purpose of addressing the challenges, barriers and opposition that comes with the provision of Internet banking services, research on Internet banking in developing countries has focused more on issues of adoption, use, diffusion and deployment (Alalwan, Dwivedi & Rana, 2015; Curran and Meuter, 2007; Effah & Agbeko, 2015; Takieddine and Sun, 2015). However, Curran and Meuter (2007) have established that, failure to persuade customers to switch their behaviour from the traditional encounter to use Internet banking has been the major barrier to the adoption of the Internet technology. On the basis of this, studies that have sort to identify the more important factors that influence consumers' Internet banking adoption behaviour have dominated Internet banking research in developing countries (Effah & Agbeko, 2015).

These studies have had their focus on issues such as: factors that influence consumers' intention to adopt Internet banking (Al-Ajam, 2013; Candra, 2013; Nasri & Charfeddine, 2012; Njuguna et al., 2012); Internet banking usage (Daneshgadeh & Yildırım, 2014); attitude towards adoption (Bryson and Atwal, 2013; Kassim & Ramayah, 2015); trust (Moga, Nor, Neculita, & Khani, 2012; Yousafzai, Pallister, & Foxall, 2009); and security and privacy (Gupta & Xu, 2010; Moga et al., 2012; Normalini & Ramayah; Reis, Gülseçen, & Bayrakdar, 2011).

Nonetheless, an assessment of these studies revealed that although different factors were identified as having a significant influence on the adoption of Internet banking, several factors such as social influence, facilitating conditions and the considerable relationship between behavioural intention and usage behaviour have not been exploited by extant researchers. This has therefore led to the existence of serveral gaps in the current research.

For instance, after conducting a study in Yamin using the theory of planned behaviour (TPB) to examine customers' adoption of Internet banking services, Al-Ajam (2013) noted that, their study examined only determinants of behavioural intention, in view of this, the author has admonished future studies to enhance their research model, and include other factors such as usage behaviour. Furthermore, Candra (2013) also argued the necessity for research to examining the influence of some control variables such as gender, age and education on the adoption of Internet banking in a study on Internet banking adoption conducted in Indonesia. In addition, Safeena, Date, Hundewale and Kammani, (2013) have emphasized the need for future studies to focus on actual adoption of Internet banking, since their study focused only on exploring the factors that influence behavioural intention to adopt Internet banking.

As in other developing countries, Internet banking adoption can be said to be an emerging area of research in Ghana. Although, Ghana has been cited as recording social and economic gains through the development of its Internet economies (Dalberg, 2013), it is important to state that, research on Internet banking adoption still remains limited in Ghana. The few studies on Internet banking adoption in Ghana have focused on issues such as: the organisational perception of Internet banking in Ghana (Woldie et al., 2008); the benefits, challenges and barriers in adopting Internet banking (Ofori-Dwumfuo & Dankwah, 2013); and the factors that affect Internet banking adoption in Ghana (Angenu, Quansah, & Okoe, 2015; Daniel & Jonathan, 2013). Moreover, like most studies, a critical look at these studies reveals the need for further investigation. For instance, studies that focused on the factors that influence the adoption of Internet banking in Ghana such as Daniel and Jonathan (2013) and Angenu et al. (2015) stated that their studies were silent on examining salient technology adoption factors such as social status, ease of use, facilitating conditions and the moderating effect of gender, educational level and age as well as the relationship between

behavioural intention and usage behaviour. Hence, they have stated that future studies should consider addressing these gaps.

Furthermore, with regards to the theories used in studying the adoption of Internet banking, researchers have over the years dominated the field with technology adoption theories such as the Theory of Planned Behaviour (TPB) (Yee-Loong Chong, Ooi, Lin, & Tan, 2010) and the Technology Acceptance Model (TAM) (Al-Ajam & Nor, 2013; Ariff Yeow & Zakuan, 2014). However, these theories have been criticised for ignoring important factors that may influence intention behaviour relationship (Yousafzai et al., 2010); and providing only a limited guidance on how design and implementation can be used to anticipate technology usage. As a result, the Unified Theory of Acceptance and Use of Technology (UTAUT) has been proposed by some authors for exploring consumers' behavioural intention (AbuShanab & Pearson, 2010) and usage behaviour (Al-Qeisi, 2009). Moreover, these studies have neglected exploring the influence of the considerable relationship between behavioural intention and usage behaviour on Internet banking adoption. In addition, other salient relationships such as social influence and behavioural intention (Alalwan et al., 2014) and facilitating conditions and usage behaviour (AbuShanab & Pearson, 2007) have also been ignored.

The explanations on existing research on internet banking adoption and the limitations stated above present the research gaps, which informed this study. In view of this, the identified research problems are summarised below:

- In terms of issue gap, studies on internet banking adoption in developing countries focused more on the consumer usage behaviour to the neglect

Therefore, from the above, it can be realised that Internet banking research in developing countries tends to be an emerging and growing area of research. Based on this, there is the need for more studies in the area since there are different avenues that can be explored by researchers. So far there are only a few studies in Ghana that have focused on Internet banking. Hence, by employing the UTAUT model, the focus of this study is to respond to the call for more studies as emphasised by the above authors with the aim of contributing to the body of knowledge.

1.3 Research Purpose

Based on the limitations of the earlier studies on the factors that influence the adoption of Internet banking, the purpose of this study is to explore the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention on consumers' adoption of Internet banking in Ghana.

1.4 Research Objectives

In relation to the purpose of this study, the objectives are:

1. To explain the influence of performance expectancy, facilitating conditions, effort expectancy, social influence and behavioural intention on consumer adoption of Internet banking in Ghana.
2. To explain how gender, age and education moderates the effect of the above factors on consumer adoption of Internet banking in Ghana

1.5 Research Questions

From the research purpose and the research gap the following research questions have been formulated:

- 1) What is the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention on consumers' adoption of Internet banking in Ghana?
- 2) What is the moderating effect of gender, age and education on consumers' adoption of Internet banking in Ghana?

1.6 Synopsis of The Chapters

For the purpose of exploring the factors that influence Internet banking adoption in Ghana, it is important to examine studies on Internet banking and electronic banking in general. This study focuses on one of the salient factors in electronic commerce research, namely the Internet banking adoption. Internet banking adoption in developing countries has a rather interesting relationship with technology adoption in developing countries. Whilst it is said that developing countries can leapfrog most of the challenges of adopting new technologies and hence, benefit immensely from its adoption; that cannot be said of Internet banking adoption. Even though most banks are adopting the technology, user acceptance of the system is on the low side. Therefore, the study is orderly arranged to help explore the factors that influence the adoption of Internet banking in Ghana.

Chapter 1: This chapter gives an introduction of the study. This was done by giving a brief background of the study; identifying different issues and gaps in respect of the study in order to establish the rationale behind the study; and posing the question that ought to be answered after the study.

Chapter 2: This chapter is focused on examining literature on Internet banking adoption in order to identify the issues in literature as well as the gaps in theory, method, context and issues that have been highlighted by extant researchers.

Chapter 3: This chapter seeks to provide a justification for the model adopted for the study based on literature. In this chapter literature is used to justify the construct of the theory and the developed hypotheses.

Chapter 4: This chapter dealt with all the philosophical and methodological issues that are related to the current study. The chapter first focused on the research paradigm and the research methodology and provided a justification in line with the philosophical underpinning for the choice of the paradigm and methodology. The chapter discusses the data collection method and instrument used as well as the method of analysis and quality criteria.

Chapter 5: This chapter briefly discusses the demographic characteristics of the respondents used for the study. Descriptive statistics of the scales used in measuring the construct are presented. The chapter also deals with validity checks through confirmatory factor analyses. The chapter finally presents an analysis of the relationship of the measured variables.

Chapter 6: This chapter focuses on the discussion of the results obtained from the analyses of the findings. These discussions are based on the relationship that exists between the endogenous and exogenous variables of the model; followed by discussions to check the effect of moderators such as gender, age and education on the exogenous variables in predicting the behaviour.

Chapter 7: This chapter concludes the study by recapping all the relevant matters discussed in the thesis. The chapter offers a summary of the key findings based on the objectives of the study; and discusses the implications of the findings of the study by suggesting strategic options and policies that banks can adopt to increase consumers' acceptance and adoption of the Internet banking services.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

As discussed earlier in the previous chapter, the purpose of this study is to explore how factors such as performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention influence the adoption of Internet banking in Ghana. The current chapter therefore features a review of related literature on Internet banking adoption in developing countries in order to facilitate the advancement of knowledge on the phenomenon, unearth new research areas and justify the need for this study. The review process undertaken is divided into four parts. The first part reviews literature in the general banking context, followed by the definition and conceptualisation of Internet banking. The second part reviews studies on Internet banking in order to highlight the research issues and areas. In the third part, conceptual approaches and methodological approaches adopted by extant researchers are reviewed. Finally, the last part identifies the gaps that were highlighted during the review of the issues, frameworks and methods in order to firmly argue the need for the study.

2.2 Internet Banking – An Overview

Recently, banks have resorted to using information systems for the running of their internal business activities and major banking services for their customers. In effect, making the dematerialisation of the customer relationship with the bank branch in the banking sector become an issue of prime importance in the sector. In spite of this, banks are still finding it difficult to fully maximise the opportunities that are made available by the introduction of information systems. This has been attributed to customers' unwillingness to adopt these systems irrespective of the benefits that comes with the adoption (Martins et al., 2014). A

typical example of such information systems is the Internet banking application. Moreover, the adoption of these information systems by the customers of banks would not only benefit banks, but also enable the banks to satisfy most of the demands of its clients with the least human intervention (Frye & Dornisch, 2010; Furst, Lang, & Nolle, 2000; Jayawardhena & Foley, 2000).

Table 2.1: Selected Internet Banking Definitions

Definition	Description	Author
Internet banking is an Internet portal that allows customers to perform different banking services, ranging from bill payment to making an investment.	Service	Hosein (2011)
Internet banking is the delivery of banking services through an open access computer network (the Internet) to offer a wider range of potential benefits to financial institutions due to more accessible and user friendly use of the technology.	Technology	Mols (2000) and Yiu, Grant, & Edgar (2007)
Internet banking provides a universal connection from any location worldwide and it is universally accessible from any Internet linked computer.	Product	Bradley & Stewart (2002)

Source: Author's Construction

Internet banking researchers have over the years defined the phenomenon differently. See Table 2.1 for a list of various definitions of Internet banking. The difference in these numerous definitions can only be attributed to the different areas that internet banking research covers. Internet banking can be studied as a technology, product or service. Based on this, different definitions are required to better explain its challenges, benefits, services, and the various Internet banking levels. It should be noted that these differences in Internet banking definitions can also be a result of changes in time, space and other perspectives. Hence, it is difficult to formulate an agreed upon definition of Internet banking by extant researchers.

The definitions in Table 2.1 above conceptualise Internet banking as the use of an Internet portal of a banking website for the performance of different banking services, ranging from accessing account information and general information on bank products and services, bill payment and the making of an investment (Hosein, 2011). Padachi, Rojid, and Seetanah (2002) have also posited that, with the exception of cash withdrawal, Internet banking offers customers the opportunity to access almost any type of banking transaction at a click of a mouse. In essence, Internet banking provides universal accessibility from any Internet linked computer, irrespective of the location worldwide (Bradley & Stewart, 2002). Essinger (1999) has therefore defined Internet banking as the creation of a website that offers customers access to their bank account and enables them to enact certain transactions on their account, given compliance with stringent security checks. In view of this, Mols (2000) has mentioned that by the use of the Internet, it is possible for clients to enjoy a number of home banking services such as bill payment and money management services offered by banks on a 24 hour basis.

Based on the definitions of Hosein (2011) and Bradley and Stewart (2002), this study defines Internet banking as the use of a defined Internet portal to provide different banking services ranging from viewing and verifying transactions on an account, checking balances, printing statements, monitoring uncredited and unpaid cheques, bill payments and making investments with stringent security checks in order to offer customers a 24 hour service universally accessible on any linked computer. This definition is the most appropriate for the study since it highlights the main concerns of the study, which is to explore the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention of consumers' adoption of Internet banking in Ghana.

2.3 Technology Adoption and the Ghanaian Banking Industry

The then Gold Coast, now Ghana, started banking services in 1953 with the establishment of the Bank of England in the country. However, based on the level of optimism that surrounded the country's independence and aspirations, the Bank of Ghana pursued proactive policies to foster credit systems, hence, creating financial institutions as growth-promoting vehicles, while exercising its fundamental responsibilities of currency management and acting as the Government's banker. This led to the coming into force of the Bank of Ghana Ordinance (No. 34) of 1957.

Acquah (2007) stated that the changing conditions in the country have had an influential impact on banking activities and policies. In the mid-1990s, the banking sector began a gradual process of using computerised technology in the running of internal banking operations. The introduction of the personal computer (PC) in the banking industry became popular and banking competition intensified. Most banks began using the computer in the back office operations and then later, tellers started to use them to serve clients. The process of using information communication technology (ICT) in Ghana to run the operations of banks became a core strategic tool for competitive advantage (Abor, 2005). Banks used the new technologies in computerisation of counter processes and networking of branches across Ghana. However, the introduction of Automated Teller Machines (ATM) in 1995 brought about a major change in the industry; this made way for other ICT services like the smart cards and debit card, telephone banking, SMS banking and finally Internet banking.

In 2002, the introduction of the Bank of Ghana Act (2002) bestowed independence on the central bank. This therefore empowered the central bank to freely manage monetary and financial policies and programs in Ghana. In view of this, the central bank allowed the use

of some boundary spanning information systems in the banking sector, with the aim of catching up with global developments. As a result of this, most banks in the country have improved the quality of their service delivery through adoption and use of these systems. Woldie et al. (2008) has pointed out that these developments have led to the introduction of some form of Internet banking for clients of some banks in the country.

By 2007, seven (7) banks offering Internet banking services in Ghana (Acquah, 2007). These were basically to check account balances, print or download statements, and transfer between internal accounts. Banks offering Internet banking services increased in 2009 to 17 out of the 26 recognised banks (Ntsiful, Acka, & Obinna, 2010). Currently, almost all banks operating in Ghana (excluding the rural and savings and loans banks) offer some form of Internet banking (Angenu et al., 2015). This is as a result of the versatile nature of the platform, its speed, lower cost and its delivery time. Although not widely accepted, customers of banks that offer Internet banking services are gradually adopting the Internet for their banking services. This is as a result of the ability of the Internet to offer communications on an interactive basis, unconstrained by time or space, in a multimedia environment with sound, image, text transmission, and at relatively low and declining costs with one or more people (Yakhlef, 1998). These benefits have encouraged some banks to add increased functionality such as bill paying ability, account deposit and withdrawal alerts, SMS/text cash service, and the ability to stop cheques. Moreover, these benefits from Internet banking cannot be fully realised without carefully examining empirical evidence of the factors that influence the adoption of Internet banking in the context of Ghanaian banks (Domeher et al., 2015). Therefore, the aim of this study is to identify factors that influence adoption of Internet banking in Ghana

2.4 Internet Banking Functionalities

The concept of Internet banking functionalities refers to the host of services offered by banks using an Internet or online portal which does not require the physical presence of the customer at the bank branch, ATMs or point-of-sale terminals (Mukherjee & Nath, 2003). Services offered by Internet banking have been categorised by different researchers in different studies. Some of the common examples of the services of Internet banking cited in extant studies include: account access (balance statement, transaction history, etc.); funds transfer (intra-bank transfer and inter-bank transfer); and thirdly, bill payment (credit/debit card, bills, mortgage, insurance and brokerage services) (Diniz, 1998; Malhotra & Singh, 2010; Southard & Siau, 2004). Table 2.2 depicts a number of functionalities posited by some authors.

Table 2.2: Internet Banking Functionalities

Internet Banking Functions	Authors
Information delivery, transactions and customer relationship	Diniz (1998)
Informational, administrative, transactional, portal and others	Southard & Siau (2004)
View-only, action/ account control, applying for new banking services, more advanced transactions	Malhotra & Singh (2010)

Source: Author's Construction

The various functionalities highlighted in Table 2.2 above represents the different functions offered on Internet banking platforms globally. For the purpose of understanding the opportunities that can be derived from the use of Internet banking technologies by the banks and its consumers, Diniz (1998) pioneered a study on Internet banking in the USA, which categorised the opportunities of Internet banking technology into three separate

functionalities. These are the information delivery function, the transaction and the customer relationship function. Diniz (1998) further divided the different categories into different levels of interactivity in order to better understand the opportunities that can be derived from the use of Internet banking under each category. The three functions were, however, grouped under three different categories which include the basic, intermediary and advanced services depending on the nature or the intensity of the technology used. This model has been adapted by several authors (Chiemeké, Ewwiekpaefe, & Chete, 2006; Thulani, Tofara, & Langton, 2009) to explore online adoption in developing countries.

However, in a study by Southard and Siau (2004) to determine the way in which smaller banks could develop a product marketing strategy to compete with larger banks through the use of Internet banking technologies, they identified a broader functional classification which included information, administrative, transactional, portal and other services. The informational and administrative functions operate like (Diniz, 1998) information delivery function and transaction function respectively. However, beyond this, the other category under transactions consisted of features that allow customers to conduct business online; whilst the portal and other categories consist of features that do not easily fit into the first four categories. It focused on methods of making payments; mechanisms for pooling resources; ways to transfer economic resources; methods of managing risk; price information; ways to handle incentive problems, wireless access and search capabilities. This model has been adapted in exploring the availability of online services through banks' websites in Nigeria by Andoh-Baidoo and Osatuyi (2009).

Moreover, in looking at the present state of Internet banking in India and the extent of Internet banking services offered by Internet banks, Malhotra and Singh (2010) categorised

the function of Internet banking into four distinct areas. These include the view-only, action/account control, application for new services and more advanced transactions. The view-only and the account control function operates like the information and administrative functions categorisation in Southard & Siau (2004) study. However, the application for the new service category supports customers to apply for services such as loans and new account opening; and the more advanced transaction category involves payment and transfer transactions with third-party institutions such as those involved with mortgages, brokerage, insurance, tax and merchant firms.

For the purpose of exploring the influence of performance expectancy, effort expectancy, social influence facilitating conditions and behavioral intention on consumers' adoption of Internet banking in Ghana, this study seeks to employ Malhotra and Singh (2010) model of categorisation to help analyse in a more efficient manner how the various functionalities informs the adoption of Internet banking by consumers.

2.5 Internet Banking Adoption Research - Issues and Evidence

Internet banking has received a considerable level of attention in research and practice resulting in an extensive quest to understand the reasons behind an individual's decision to adopt or resist the service. In the quest to provide a home banking service in the 1980s, banks began to offer online banking services which required the use of the banks' proprietary software (Bidgoli, 2004). Chou and Chou (2000) have stated that, for the purpose of meeting the needs and demands of customers, financial services adopted the use of the touch-tone telephone, but its inability to provide a graphical interface and the clumsiness of using it deterred customers from adopting the technology. However, with the

introduction of the World Wide Web (WWW) the demand for home banking services increased (Dandapani, 2004).

In spite of the widespread of Internet access, some authors have stated that there is still a large number of individuals who actively access the Internet but are unwilling to use Internet banking and strongly tend to use non-banking services such as the Automated Teller Machine (ATM) (Susanto & Zo, 2011; Nasri & Charfeddine, 2012). This has attracted the attention of many researchers and has resulted in extensive research on online banking, leading to the discussion of important issues in the area. This is to better understand the dominant research issues on Internet banking in order to unearth new possible research paths in general, and for this study.

Table 2.3: Studies on Internet Banking Adoption

Research study	Focus	Underpinning theory and framework	Research method and countries	Relevant gaps for future research
<i>Literature on adoption and determinants</i>				
Alalwan et al. (2014)	Determinants of the Internet Banking Intention in Malaysia	TAM, TR and CSE	Quantitative Malaysia	Need to consider relevant factors such as social influence and ease of use
Njuguna et al. (2012)	Internet banking adoption in Kenya: A case of Nairobi county	TAM and PCI	Quantitative Kenya	Need for future researchers to explore the moderation effect of education on the adoption of Internet banking among users.
Raza and Hanif (2013)	Factors affecting Internet banking adoption among internal and external customers: A case of Pakistan	TAM	Quantitative Pakistan	Need for future researcher to consider other factors that influence Internet banking adoption.
Rouibah, Thurasamy, and May (2009)	User acceptance of Internet banking in Malaysia: test of three competing models.	TRA, TPB and TAM	Quantitative Malaysia	Need for future studies to explore the usage behaviour factor and the relationship between behavioral intention and usage behaviour.
<i>Literature on benefits of Internet banking</i>				
Muzividzi, Mbizi, & Mukwazhe 2013	An analysis of factors that influence Internet banking adoption among intellectuals: case of Chinhoyi University of Technology.	No Framework	Quantitative Zimbabwe	Need for future researchers engage more with customers to identify other factors that influence the adoption of the Internet banking technology.
Lee (2009)	Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit	TAM, TPB, Perceived risk and Perceived benefit	Quantitative Taiwan	Need for future researchers to explore the influence of external factors such as nationality and culture on the adoption of Internet banking.
Ofori-Dwumfuo & Dankwah (2013)	Adopting Internet banking in Ghana	Stages theory	Qualitative Ghana	Need for future researchers to focus on consumers' adoption of the Internet banking technology.

<i>Literature on challenges and barriers to Internet banking</i>				
Daniel & Jonathan (2013)	Factors affecting the adoption of online banking in Ghana: Implications for bank managers	TAM intertwined with the moderating role of government support, trust and security	Quantitative Ghana	Need for future researchers to explore factors such as social influence and the moderating effect of education and age on adoption of Internet banking.
Santoso & Murtini (2014)	Usage and risk perception of Internet Banking: case study in Yogyakarta Special region, Indonesia	Awareness, usage and Perceived risk	Quantitative Indonesia	Need for future researchers focus on other factors that influence that adoption of Internet baking such as perceived usefulness perceived ease of use, social influence facilitating conditions and the relationship between behavioural intention and usage behaviour.
Andoh-Baidoo & Osatuyi, (2009)	Examining online banking initiatives in Nigeria: A value network approach	A value network theory	Qualitative Nigeria	Need for future researchers to focus on consumer adoption of Internet banking services deployed online.
<i>Literature on security and trust issues relating to Internet banking</i>				
Kesharwani & Bisht (2012)	The impact of trust and perceived risk on Internet banking adoption in India: An extension of technology acceptance model	TAM, Privacy, Security and Trust	Quantitative India	Need for future research to explore other factors that can influence technology acceptance.
Muhammad & Khalil (2011)	Internet banking and Jordanian corporate customers: Issues of security and trust	TAM, trust and percieved security	Quantitative Jordan	Need for future researcher to consider other factors such as social influence and the relationship between behavioural intention and usage behaviour.
Lin (2011)	An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust	Innovation diffusion theory and knowledge-based trust literature	Quantitative Taiwan	Need for future research in effort to explore other models and theories in order to identify other antecedent of Internet banking adoption.

<i>Literature on some comparative studies</i>				
Yuen (2013)	Gender and age effect on acceptance of Internet banking: cultural comparison between the United States of America and Malaysia	UTAUT	Quantitative Malaysia USA	Need for future researchers to factor in demographic characteristic such as education.
Migdadi (2008)	Quantitative evaluation of the Internet banking service encounter's quality: comparative study between Jordan and the UK retail banks.	QEM	Quantitative Jordan UK	Need for future researchers to examine the gap between consumer intention to use online banking and actual usage behaviour.
Al-Qeisi (2009)	Anlysing the use of the UTAUT model in explaining an online behaviour: Internet banking adoption	UTAUT	Quantitative Jordan UK	Need for future researchers to examine the relationship between facilitating conditions and usage behaviour as well as the considerable relationship between behavioural intention on usage behaviour.

Source: Author's Construction

2.5.1 Adoption and Determinant of Internet Banking

Internet banking adoption has been an area of interest for some researchers in recent times. Studies conducted in this area have sought to examine the level of Internet banking adoption (Alalwan et al., 2014; Daniel & Jonathan, 2013; Islam et al., 2014; Martins et al., 2014; Njuguna et al., 2012; Safeena, Date, & Kammani, 2011; Woldie et al., 2008). For the purpose of understanding the determinants of Internet banking adoption, some researchers in the area have examined the influence of geographical context on Internet banking adoption (Andoh-Baidoo & Osatuyi, 2009; Daniel & Jonathan, 2013). Whilst other studies have focused on issues relating to private customers' adoption of Internet banking (Alalwan et al., 2014; Martins et al., 2014), and the factors that influence corporate customers to adopt Internet banking (Chen, 2014; Muhammad & Khalil, 2011).

In view of this, several factors have been indicated by extant research as having an influence on the adoption of Internet banking. For instance, in trying to extend the understanding of the determinants of Internet banking adoption, Mohan et al. (2013) developed a model consisting of four independent variables which include: self-efficacy; perceived ease of use; trust; and media reference. The result of their study was consistent with other studies (Amin, 2007; Guriting & Ndubisi, 2006) which saw perceived ease of use as the major determinant of Internet banking followed by trust and self-efficacy. In spite of the findings and its contribution to research and practice, the study was silent on other important relationships that have impact on acceptance of Internet banking such as perceived usefulness and behavioural intention, social influence and behavioural intention, facilitating conditions and usage behaviour, behavioural intention and usage behaviour and the moderating role of demographics such as gender, age and education. Another study also sought to investigate the factors that influence Internet banking adoption among internal and external customers

(Raza and Hanif, 2013). The result indicated a higher level of support for the relationship between perceived usefulness, information of Internet business, perceived risk and security and privacy on intention of external customers to adopt Internet banking rather than internal customers. Moreover, government support provided more influence for the internal customers in the adoption of Internet banking services in Pakistan (Raza and Hanif, 2013). Therefore, Raza & Hanif (2013) have stated that there is the need for future studies to consider other factors such as social influence, facilitating conditions and the relationship between behavioural intention and usage behaviours since their study failed to address the influence of these factors on Internet banking adoption in Pakistan.

A study conducted by Rouibah et al. (2009) to explore user acceptance of Internet banking in Malaysia by testing three competing Internet banking adoption models (TAM, TRA and TPB) revealed that the five factors (perceived usefulness, perceived ease of use, subjective norm, attitude and perceived behavioural control) included in the three models had a significant relationship with behavioural intention to use Internet banking. However, although the study highlighted the importance of the various factors to the adoption of Internet banking, it is important to state that the study focused mainly on non-adopters and ignored the actual users of the system. In view of this, Rouibah et al. (2009) have pointed out the need for future studies to consider actual users of Internet banking as their respondents in order to find the relationship between consumers, behavioural intention and actual usage behaviour. Whilst it was discovered that perceived usefulness, perceived ease of use, perceived self-efficacy, perceived compatibility, perceived relative advantage and perceived results demonstrability formed the key factors that influenced the adoption of Internet banking in Kenya; Njuguna et al. (2012) posited that, with regards to the influence of awareness on Internet banking adoption, non-users' perception on risk of Internet banking

was high even though they showed a lower Internet banking perception in all other areas. In light of this, Njuguna et al. (2012) has admonished future researchers to consider examining factors such as social influence and the moderating effect of education on the adoption of the Internet banking technology in developing countries.

2.5.2 Benefits of Internet Banking Adoption

An area that has also been explored by Internet banking researchers is the benefit that can be attained from the use of the service. Several authors have stated that Internet banking adoption comes with some benefit for both users and banks (Benamati, Serva, & Fuller, 2006; Boateng, 2006; Lee, 2009; Muzividzi, Mbizi, & Mukwazhe 2013; Malhotra & Singh, 2010; Zhao, Hanmer-Lloyd, Ward, & Goode, 2008). These benefits have been stated differently by researchers. These include greater productivity, profitability, and efficiency (Lee, 2009); convenience and cost saving (AlGhamdi, Nguyen, Nguyen, & Drew, 2012; Xue, Hitt, & Chen, 2011), provision of strategic competitive advantage (Maria Correia Loureiro et al., 2014; Safeena, Kammani, & Date, 2014); customer demand satisfaction and loyalty (Montazemi & Qahri-Saremi, 2014); cost reduction and decongestion of the main banking hall (Kaleem & Ahmad, 2008); centralisation of different banking services at one location (Boateng & Molla, 2006; Singh & Malhotra, 2004); and enhancement of bank image (Hamadi, 2010).

These benefits are either directly or indirectly related to the use of Internet banking by customers. Some studies have therefore argued that both consumers and the bank can benefit directly and indirectly from the adoption of Internet banking services (Martins et al., 2014; Effah & Agbeko, 2015). For instance, whilst banks can decrease the management of branches cost by encouraging and supporting the use of Internet platforms, users can also

decrease their costs by not paying for transactions and benefiting from online exclusive product with higher profits (Martins et al., 2014). In a study by Lee (2009) on factors influencing the adoption of Internet banking in Taiwan through an integration of TAM and TPB with perceived benefits and perceived risk, it was revealed that the most positive predictor of the intention to use Internet banking is perceived benefit. Although the findings contribute immensely to Internet banking studies, it is important to state that it is only limited to behavioural intention. In view of this, there is the need for future researchers to explore the relationship between behavioural intention and usage behaviour in order to better understand the influence of these factors on the adoption of Internet banking with respect to actual users of the system.

Ofori-Dwumfuo & Dankwah (2013) also sought to understand the adoption of Internet banking in Ghana from the perspective of a bank through a qualitative case study of an anonymous bank. The result of the study revealed that, although the adoption of Internet banking by the bank comes with numerous benefits, challenges and barriers to Internet banking adoption are also inevitable. However, on the whole, Ofori-Dwumfuo & Dankwah (2013) pointed out that the benefits of adopting the system outweighs the barriers and challenges put together. Furthermore, in a study to analyse the factors that influence Internet banking adoption among intellectuals in Chinhoyi University of Technology in Zimbabwe by Muzividzi et al. (2013). Muzividzi et al. (2013) stated that, although users of Internet banking are bound to enjoy benefits such as convenience, time saving, cost saving, and quick to use, the respondents interviewed for the study were not aware of these benefits. In view of this, Muzividzi et al. (2013) have stated that education is deemed to be a prerequisite for smooth adoption.

2.5.3 Barriers to Internet Banking Adoption

Barriers to Internet banking adoption and usage have also arisen as an area that needs the attention of researchers. This has led to an increasing number of studies seeking to find the factors that hinder Internet banking adoption (Andoh-Baidoo & Osatuyi, 2009; Daniel & Jonathan, 2013; Hanafizadeh & Khedmatgozar, 2012; Laukkanen et al., 2008; Lee, 2009; Aslam, Khan, Tanveer, & Amber, 2011; Chitura, Mupemhi, Dube, & Bolongkikit, 2008; Gerrard, Barton Cunningham, & Devlin, 2006; Kuisma, Laukkanen, & Hiltunen, 2007; Maria Correia Loureiro et al., 2014; Mattila, Karjaluo, & Pento, 2003).

In a study to investigate the perceived barriers towards the adoption of Internet banking among non-metropolitan Internet users in Pakistan, Aslam et al. (2011) identified that the perception of more value and satisfaction in conventional banks as compared to Internet banking; and the customer banker communication gap seems to be the most significant barrier to the adoption of Internet banking. Also Kuisma et al. (2007) studied barriers of Internet banking adoption in relation with customers who use other forms of self-service technologies such as Automated Teller Machines (ATM) and stated that the barrier to the adoption of Internet banking to these customers are numerous. However, a strong traditional barrier to the adoption of Internet banking by these customers is the resistance to change the status quo. It is said that these customers usually bear a markedly negative image regarding new technology and they are against the trend of moving services onto the Internet.

Another study that sought to investigate the barriers of Internet banking adoption revealed that, among mature customers, the issues of security and lack of personal service hinders the adoption of the Internet banking systems (Mattila et al., 2003). Therefore, Gerrard et al. (2006) posited that although other factors such as lack of knowledge of the service, inertia,

inaccessibility, lacking the human touch, pricing and IT fatigue are usually mentioned; the two most mentioned barrier of Internet banking adoption being the perception of risk associated with Internet banking and the lack of perceived need. However, Chitura et al. (2008) have stated that finding the solution to these barriers requires the need to address issues of organisational type and culture as well as the areas of training and people development, since organisational structure and culture have a direct influence on behavioural intention.

Furthermore, in a study to explore the usage and risk perception of Internet banking in Indonesia, Santoso & Murtini (2014) revealed that the productive age group of their sample (between 25 years and 55 years) in average have little access to Internet banking or no access at all. Based on these findings, the study has admonished the need for awareness creation through educational programs by the banks. Also, a study conducted in Ghana indicated that the major challenge to the adoption and use of Internet banking in Ghana is the issues of trust and security (Daniel & Jonathan, 2013). However, Daniel & Johnathan have stated that other states should look at other factors such as perceived ease of use, and social influence in other to better address the issue regarding the factors that influence the adoption of Internet banking in developing countries. Based on this, Andoh-Baidoo and Osatuyi (2009) has postulated that although insufficient electricity supply; inadequate telecommunication; literacy of customers; cost of surfing the Internet; lack of understanding of the benefit of online banking; and security and trust issues with online banking still remain some of the challenges of Internet banking. Effective delivery of product and services of the banks through the Internet to the customers remains the most important challenge that faces electronic banking adoption. Therefore, there is the need to prioritise these issues in order to maximise the adoption of Internet banking in developing countries.

2.5.4 Security and Trust in Internet Banking Adoption

Actually, the issue of security and trust appear to have attracted the attention of most Internet banking researchers in recent years, including studies that have focused on focal points of security and trust issues in regard to Internet banking (Alnsour & Al-Hyari, 2011; Andoh-Baidoo & Osatuyi, 2009; Benamati et al., 2006; Goudarzi, Ahmad, Soleymani, & Mohammadhosseini, 2013; Krejčířová & Dvořák, 2013; Lin, 2011; Md Nor & Pearson, 2007; Muhammad & Khalil, 2011; Oghenerukeybe, 2009). Giovanis et al. (2012) stated that Internet banking providers must prioritise the issue of security and privacy when developing Internet banking systems in order to improve authentication and password handling processes; fully guarantee any financial loss; prevent excessive personal data collection; protect customer data from unauthorised secondary use; and provide extra security and privacy protection since the issue of the perception of security have a direct influence on trust and perceived usefulness (Muhammad & Khalil, 2011). Furthermore, in a study on the impact of trust and perceived risk on Internet banking adoption, Kesharwani & Bisht (2012) postulated that, whilst perceived risk negatively influence behavioural intention of Internet banking adoption, trust impacts negatively on perceived risk. Therefore, there is the need to minimise perceived risk through a well-design website which will facilitate ease of use and minimise perceived risk. In view of this, Krejčířová and Dvořák (2013) have stated that while it is necessary to prioritise the issue of security of Internet banking user, the security offered by Internet banking platforms are limited and hence, makes it difficult for customers to choose the way that best suit their security concern.

2.5.5 Comparative Analysis of Internet Banking Adoption

In recent years, Internet banking researchers are focusing more on comparative analysis of the adoption of Internet banking services. The underpinning variables are usually

represented by three groups of studies which include: population; distribution channels; and methods. In regards to comparative studies that target specific populations as a variable for comparison, it is believed that the adoption process is likely to differ based on demographic, economic, cultural, social, political, technological and developmental variables and on expansion in service and different levels of customer Internet banking adoption (Alnsour & Al-Hyari, 2011; Andoh-Baidoo & Osatuyi, 2009; Lichtenstein & Williamson, 2006; Maria Correia Loureiro et al., 2014; Prompattanapakdee, 2009; Zhao et al., 2008; Migdadi, 2008). One of the comparative studies that is noteworthy is the population study by Al-Qeisi (2009). In that study the authors focused on investigating Internet banking from the consumers' perspective and compared the adoption of customers in Jordan to that of United Kingdom (UK). This comparison was done with respect to the influence of the construct of the proposed model on the adoption of Internet banking in the two countries. However, although the research findings demonstrated that both countries' models were "configurally" similar with respect to model specifications, the models' explanatory power for usage behaviour was dissimilar: the UK's model explanatory power exceeded that of Jordan's model presenting an opportunity for future research. Thus, Yuen (2013) has posit that Internet banking features have to suite local demands. In view of this, in trying to mitigate the key causes of profit reduction in Internet banking industries, Yuen (2013) conducted a comparative study on the influence of gender and age on the acceptance of Internet banking in the United States of America and Malaysia, taking into consideration the cultural influence in these countries.

2.6 Conceptual Approaches to Internet Banking Adoption

This section focuses the dominant conceptual approaches used in Internet banking literature in order to suggest conceptual gaps for future research. Research on Internet banking

adoption, which is guided by theoretically based approaches, tends to be dominated by the technology adoption theories. The theories usually employed include: Technology Acceptance Model (TAM); Theory of Planned Behaviour (TPB); Theory of Reasoned Action (TRA); and the Innovation Diffusion Theory (IDT).

Table 2 4: Summary of Previous Research on Internet Banking Adoption

Reference	Theory	Findings
Al-Ajam & Nor (2013)	Technology Acceptance Model (TAM)	It was established that perceived ease of use and perceived usefulness impacted consumers attitude towards intention to adopt Internet banking
(Safeena et al., 2014)	The Theory of Planned Behaviour (TPB) and Technology Acceptance Model (TAM)	The result of the study indicated that perceived ease of use, perceived usefulness, attitude, subjective norm and perceived behavioural control are the important determinants of online banking adoption
(Ariff et al., 2013)	Technology Acceptance Model (TAM) and Self-Efficacy	The study unveiled that an indirect relationship existed between computer self-efficacy and behavioural intention through perceived usefulness, perceived ease of use and perceived credibility of TAM in relation to Internet banking adoption.
(Yee-Loong Chong et al., 2010)	Theory of Planned Behaviour (TPB)	The findings showed that the three main predictors relevant to the study (performance expectancy, effort expectancy, and social influence) were significant and explained a significant amount of the variance in predicting a customer's intention to adopt Internet banking
(Shih & Fang, 2006)	Theory of Reasoned Action (TRA)	In this study it was realised that attitude was significantly related to the adoption of Internet banking, while subjective norm was not.
AbuShanab & Pearson (2007)	Unified Theory of Acceptance and Use of Technology (UTAUT)	The study supported performance expectancy, effort expectancy, social influence and the role of risk as a strong predictor of users' intention to adopt Internet banking services.
(Kuisma et al., 2007)	The Theory of Perceived Risk	The findings indicated that both functional and psychological barriers arising from the use of Internet banking as a service and the Internet channel as well as the issue of convenience, communication, efficiency, economy, safety values and control values influence the resistance of Internet banking.

Source: Author's construction

2.7 The Theory of Reason Action (TRA)

The Theory of Reasoned Action (TRA) posits that the behaviour of an individual is usually driven by behavioural intention, which is often a function of an individual's attitude toward the behavioural and subjective norms surrounding the performance of the behaviour. This theory generally posits that the performance of a person's specific behaviour is determined by his or her behavioural intention to perform the behaviour. Therefore, this theory is guided by the principle of compatibility and behavioural intention. In regards to Internet banking, the more positive the attitude towards Internet banking adoption and the greater the perception of social pressure towards the use of Internet banking, the stronger the intention to adopt or continue using Internet banking. However, Ajzen (1985) has argued that the theory was limited by correspondence. In essence, for the theory to predict specific behaviour, there should be an agreement of attitude and intention on an action, target, context, time frame and specificity (Sheppard, Hartwick, & Warshaw, 1988). In view of this, a major criticism of TRA is that it ignores the situational factors that may influence the attitude–intention–behaviour relationship and is thus ill-equipped to predict situations in which individuals have low levels of volitional control (Yousafzai, Foxall, & Pallister, 2010).

2.8 The Theory of Planned Behavior (TPB)

The theory of planned behaviour (TPB) builds on the limitations of the theory of reasoned action (TRA) by expanding the boundary conditions of the theory of reasoned action to deal with the behaviours over which individuals by introduction have incomplete volition control. The theory posit that the behaviour of an individual is driven by behavioural intentions where behavioural intentions are a function of an individual's attitude towards the behaviour, the subjective norms surrounding the performance of the behaviour, and the

individual's perception of the ease with which the behaviour can be performed (behavioural control). Ajzen (1985), opined that an additional determinant of intentions and behaviour is the perceived behavioural construct. Therefore, this construct is said to be the resource and opportunities available to an individual that influence the adoption of a particular behaviour. For instance, in the context of Internet banking, if an individual realises that technology is available and other resources are available to him and that he is able to use it, there is the possibility of adoption and continued usage of Internet banking.

The theory of planned behaviour has also short comings with some writer criticising it for ignoring important factors that may influence intention behaviour relationships (Yousafzai et al., 2010). For instance, Eagly and Chaiken (1993) has argued that habit, perceived moral obligation and self-identity are variables that could predict intention in the TRA that TPB failed to address. Yee-Loong Chong, Ooi, Lin, & Tan (2010) and Taylor and Todd (1995) have criticised the theory by stating that, since the theory requires individuals to be motivated to perform a certain behaviour, this assumption may be problematic when studying consumer adoption in addition to an identical belief structure among respondents when it comes to performing a behaviour. The use of the theory of planned behaviour has been successfully applied to predict Internet banking behaviour and has been seen as a better alternative to the theory of reason action. Accordingly, (Yee-Loong Chong, Ooi, Lin, & Tan, 2010) and (Tan & Teo, 2000) have used this theory to study the factors that influence the adoption of Internet banking.

2.9 The Technology Acceptance Model (TAM)

The technology acceptance model (TAM) was developed in 1989 by Davis (1989) to test the acceptance and use of technology. This theory is focused on studying users' adoption

behaviour based on internal and external variables. The theory then turns to be an answer to the criticism of other adoption theories like the Theory of Planned Behaviour (TPB) and The Theory of Reason Action (TRA) (Fishbein & Ajzen, 1975). The Technology Acceptance Model (TAM) is a simplification of the Theory of Reason Action (TRA) and the Theory of Planned Behaviour (TPB). The two theories have been criticised for not acknowledging the influence of external factors in the adoption of technology and being limited in measuring users' attitude towards behaviour, subjective norm and perceived behavioural intentions.

This has therefore made it difficult for these two theories to assess the time gap between the assessment of behaviour and the actual behaviour, leading to the formation of the Technology Acceptance Model (TAM). TAM has two main constructs that influence behavioural intention to use a system and finally actual usage. These two factors are the perceived usefulness and perceived ease of use. Perceived usefulness is seen as having a direct influential impact on perceived ease of use. However, there have been attempts to extend TAM which has led to the development of TAM2 and TAM3. This has been done through the introduction of factors from other related models; the introduction of additional or alternative belief factors; and the examination of the antecedent and moderators of perceived usefulness and perceived ease of use (Wixom and Todd, 2005). However, most of the studies that have used TAM to study Internet banking adoption have either used it in its original form (Al-Ajam & Nor, 2013) or extended form by adding on certain constructs (Al-Somali, Gholami, & Clegg, 2009; Ariff, Min, Zakuan, Ishak, & Ismail, 2013; Ariff, Yeow, Zakuan, Jusoh, & Bahari, 2012; Cheng, Lam, & Yeung, 2006). TAM is sometimes combined with the Theory of Planned Behaviour (Lee, 2009; Nasri & Charfeddine, 2012; Safeena et al., 2013) to form a theoretical basis. In spite of this, TAM has been criticised for

relying on respondents' self-reporting and assuming that self-reported usage reflects actual usage. Taylor and Todd (1995b) criticised the model for providing only a limited guidance of how design and implementation can be used to anticipate technology usage.

2.10 Unified Theory of Acceptance and Use of Technology (UTAUT)

While explaining user adoption of new innovation is a full grown exploration train in contemporary information systems research, the plethora of theoretical models and experimental examinations that began a decade-and-a-half earlier was reviewed and synthesised as a unified theory of acceptance and use of technology (UTAUT) by Venkatesh, Morris, Davis, and Davis (2003). A more comprehensive set of factors is obtained from Venkatesh et al. (2003) UTAUT as a unified view of user adoption.

By combining eight competing theoretical models, the authors derived an overarching set of four constructs that have an immediate influence on acceptance and usage behaviour. Performance expectancy which is the first among the other constructs comprises of constructs like perceived usefulness (Davis, 1989) and extrinsic motivation (Davis et al., 1989) in TAM and Relative advantage in Diffusion Theory (Moore and Benbasat, 1991). Effort expectancy is also made up of constructs such as perceived ease of use (Davis, 1989) in TAM and complexity in Diffusion Theory (Moore and Benbasat, 1991). Whilst social influence is made up of subjective norm (Davis, 1989) in TAM and image in Diffusion Theory (Moore and Benbasat, 1991), facilitating conditions comprises of constructs such as behavioural control (Davis, 1989) in TAM and compatibility (Moore and Benbasat, 1991) in Diffusion theory.

These factors are deemed as having a direct effect on Internet banking adoption and are likewise used as fundamental antecedents to unravelling Internet banking adoption in the developing world. Although UTAUT is still a relatively new model and has not been as widely used as TAM, it has gradually drawn researchers' attention and has been recently applied to exploring the users' acceptance of Internet banking (Alalwan et al., 2014; Martins et al., 2014; Zhou, Lu, & Wang, 2010).

2.11 Discussion of Future Research Areas

Considering the details of the studies examined, Internet banking adoption seems to be dominating Internet banking research in developing countries. However, as realized from Table 2.3, there still remain some technological adoption factors that have not been scrutinised by extant Internet banking researchers such as the relationship between social influence and behavioural intention, facilitating conditions and usage behaviour and behavioural intention and usage behaviour as well as the effect of demographics such as age, gender and education on the adoption of Internet banking. In view of this, there is the need for future studies to focus on exploring these factors that influence technology adoption to better understand the adoption behaviour of Internet banking users in less developed regions, particularly in some parts of Africa Asia and South America (Hanafizadeh, Keating, and Khedmatgozar, 2014; Boateng and Molla, 2006; Lee, 2009).

On this basis, this review's contribution lies in the attempt to bridge this disparity by providing a holistic definition and highlighting the dominant issues and conceptual approaches adopted by Internet banking researchers to study the phenomenon. Moreover, apart from the issue of context and major issues like deployment, service quality, support and implementation that have been potentially overlooked, there still exists the need for

researchers to devote additional attention to studying other salient technology adoption factors such as social influence, facilitating conditions and comparative effects of Internet banking adoption on a broader set of descriptive population variables such as demographic factors in order to better understand their impact on Internet banking adoption (Couto, Tiago, & Tiago, 2013; Daniel & Jonathan, 2013; Muzividzi & RangariraiMbizi, 2013; Njuguna et al., 2012; Yuen, 2013).

Another issue highlighted by this review is the issue of the conceptual approaches adopted by Internet banking researchers. The review of conceptual approaches conducted in section 2.6. clearly established that Internet banking literature is dominated by a particular set of theories. These theories have mostly focused on the fundamental antecedent of behavioral intention to the neglect of the relationship between behavioural intention and usage behaviour. Therefore, in view of this, there is the need for future studies to test other information systems theories in order to contribute to the understanding of Internet banking usage in developing countries. The evidence presented in section 2.6. about the conceptual approaches used in existing Internet banking research emphasised the need for a framework that is deemed as having the fundamental antecedents to unravel most of the factors that influence the adoption of Internet banking in a developing country.

Therefore, this review has brought to the fore the need for two major issues deemed as fertile for future research on Internet banking adoption. The first is research on factors that influence Internet banking adoption in developing countries and the moderating effect of some descriptive population variables such as demographic factors. The second is the theory development aspect. Even though TAM and TPB have dominated Internet banking adoption studies, there is the need for Internet banking researchers to focus on other theories

that will unravel most of the fundamental antecedents of Internet banking adoption in developing countries.

It is important to emphasise that the forgoing discussion and future research areas highlighted have some implications for this study. The future research areas highlighted borders on the specific gap underlying this study and the choice of theoretical foundation. Hence, the next section discusses these implications.

2.12 Research Gap - Why Internet Banking Adoption

The preceding section attempted a review and discussion on Internet banking adoption in developing countries. This section intends to study the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention on consumers' adoption of Internet banking in Ghana based on the evidence presented and the future directions suggested. Since the success of Internet banking is dependent on consumers' acceptance of the system, this study is motivated to understand the factors that influence the usage of the system in order to identify why Internet banking adoption in Ghana is relatively slow. The decision to study the gap is informed by:

- i. The need for research to explore the influence of the social influence on behavioural intention among Internet banking users in developing countries.
- ii. The need for research to identify the influence of the facilitating conditions variable on usage behaviour among users of Internet banking in developing countries.
- iii. The need for research to examine the relationship between behavioural intention and usage behaviour from a developing country perspective.
- iv. The need to establish the moderating effect of age, gender and education on consumers' adoption of Internet banking.

2.13 Summary

The main purpose of this chapter was to explore the thematic areas in Internet banking research and finding the most researched issues, and the most used theoretical approaches in the area and suggest the need for further studies. As a result of this, the various evidence presented and the subsequent discussions produced, indicated the need for more studies to focus on other factors that influence the adoption of Internet banking in developing countries; and the need to use a stronger framework that would incorporate most of the factors that influence the adoption of Internet banking in developing countries. In view of this, the gaps coincide with the purpose of the study that seeks to explore the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention on consumers' adoption of Internet banking and how these factors are moderated by demographics like age, gender and education.

CHAPTER THREE

RESEARCH FRAMEWORK

3.1 Introduction

Having discussed different issues in the field of Internet banking, this chapter seeks to probe further into the research framework adopted for the study. In order to effectively delve into the issue of the influence of performance expectancy, effort expectancy, social influence and facilitating conditions on consumers' adoption of Internet banking in Ghana, this study sought to use the Unified Theory of Acceptance and Use of Technology (UTAUT) as its theoretical lens. The reason behind the adoption of this theory is its ability to help researchers reach a unified view of users' acceptance of technology. Therefore, for the purpose of finding answers to the research questions in chapter 1, this section discusses literature relating to the chosen theoretical framework in order to build a solid research structure (hypothesis) on the influence of performance expectancy, effort expectancy, social influence and facilitating conditions of consumers' adoption of Internet banking in Ghana. This chapter therefore will provide an overview of the UTAUT, followed by an explanation of the construct of the theory and the development of hypothesis base on the review of literature that have used the theory.

3.2 Overview of Unified Theory of Acceptance and Use of Technology (UTAUT)

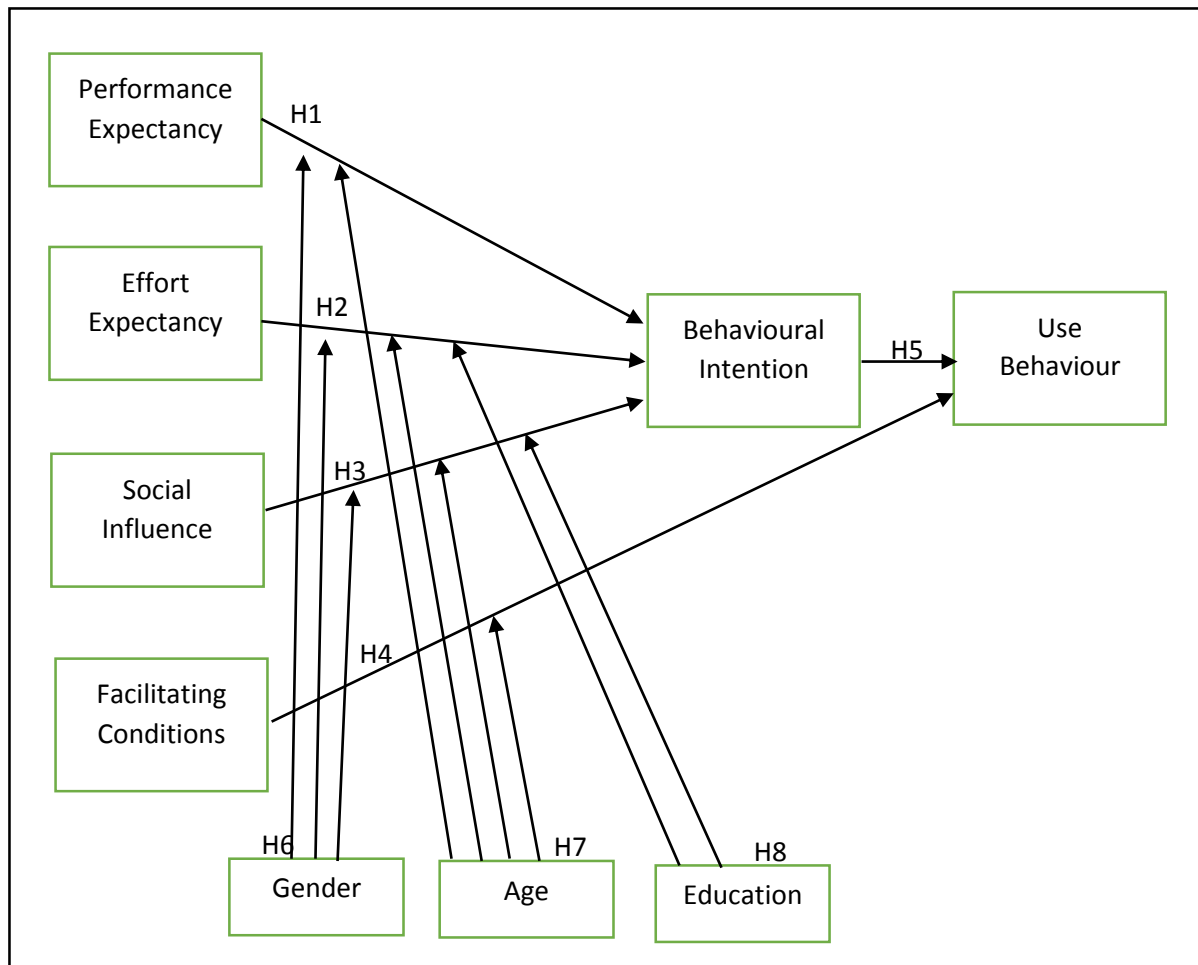
The problem with information systems researchers having to choose a suitable model among multitudes of models, and the issue of being bound to choose a construct across models or a favoured model which may result in ignoring the contribution from other alternative ones, led to the need for a combination of eight different adoption models in order to reach a unified view of the acceptance of technology by users (Venkatesh et al., 2003). Venkatesh et al. (2003) reviewed and compared eight dominant models that have been used by

information systems researchers to explain technology acceptance behaviour. However, upon the review, the authors identified five major limitations of the use of these dominant theories; these include:

- a. As compared to the complex and sophisticated organisational technology, the technology studied were simple and individualistic;
- b. Except for a few of the studies most participants used for these studies were students;
- c. Individuals' reactions were retrospective since times of measurement were general and in most studies well after acceptance or rejection of the usage decision;
- d. In general cross-sectional form of measurement was used; and
- e. It becomes rather difficult to generalised results to mandatory settings since most studies were conducted in voluntary usage context.

In order to overcome these limitations Venkatesh et al. (2003), empirically compared the eight models in a longitudinal field study and divided the data into mandatory and voluntary settings. Moderating variables that had been reported in literature as having an influence on information systems adoption and usage decisions were also considered. However, it was realised that, with the exception of motivation model and social cognitive theory, there was an increase in the predictive validity of the models after the inclusion of the moderators. Venkatesh et al. (2003), also investigated the commonality among these models and found seven constructs to be significant direct determinants of intention or usage in one or more of the individual models. Therefore, they hypothesised that five of these constructs play a significant role as direct determinants of user acceptance and usage behaviour. These include performance expectancy; effort expectancy; social influence; facilitating conditions; and behavioural intention.

- a) **Performance Expectancy:** This refers to the degree to which an individual perceives that the use of a system will help him/her to attain gains in job performance.
- b) **Effort Expectancy:** This refers to the perception of ease associated with the usage of a new technological innovation or system.
- c) **Social Influence:** This refers to the degree to which an individual perceives that important others believe he/she should use a new technological innovation or system.
- d) **Facilitating Conditions:** This refers to the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of a new technological innovation or system.
- e) **Behavioural Intention:** This refers to the degree to which an individual intends to use a system.

Figure 3 1: Research Model

Source: (Venkatesh et al., 2003)

3.3 Hypothesis Development

3.3.1 Performance Expectancy

This represents the degree to which individuals using Internet banking believes that the use of the system will help in the attainment of gains in the job performance. This particular construct is made up of constructs of other models that are deemed as having a relation with performance expectancy. These constructs include: perceived usefulness (TAM, and combined TAM-TPB); extrinsic motivation (MM); job-fit (MPCU); relative advantage (DOI); and outcome expectancy (SCT). However, in relation to Internet banking adoption, Alalwan et al. (2014) has defined performance expectancy as the terms of utilities extracted

by using Internet banking which is productive relative to the traditional encounter. Therefore, it is motivating to add that other related constructs such as perceived influence and relative advantage have been widely captured as fundamental determinants of behavioural intention towards Internet banking adoption (AbuShanab, Pearson, & Setterstrom, 2010; Al-Somali et al., 2009; Foon & Fah, 2011; Martins et al., 2014). Based on this, Foon and Fah (2011) has empirically demonstrated that the greater the perceived relative advantage, the more likely Internet banking would be adopted. Similarly, other studies have also indicated that a more critical factor to the adoption of Internet banking is the perceived usefulness construct (AbuShanab & Pearson, 2007; Al-Somali et al., 2009; Alalwan et al., 2014; Martins et al., 2014; Riffai, Grant, & Edgar, 2012; Tan & Teo, 2000). Hence, the following hypothesis is proposed:

H1: Performance expectancy will positively influence consumers' intention to adopt Internet banking in Ghana.

3.3.2 Effort Expectancy

Effort expectancy on the other hand represents the degree of ease associated with the use of a system. Other constructs in different models also capture this same concept. They include: perceive ease of use (TAM); and complexity (DOI and MPCU). However, the relationship between effort expectancy and behavioural intentions is often debated due to the effect of performance expectancy on behavioural intention. Even though the effort expectancy construct was aggregated in the UTAUT from the perceived ease of use and complexity construct, research conducted using the TAM model has provided contradictory outcomes when reviewing the perceived ease of use and studies using TAM, IDT and MPCU in examining complexity (Davis, Bagozzi, & Warshaw, 1989; Moore & Benbasat, 1991; Thompson, Higgins, & Howell, 1991). Moreover, in respect of the effort expectancy

construct, Zhou et al. (2010) has posited that when users feel that Internet banking is easy to use and does not require much effort, they will have a high expectation towards acquiring the expected performance; or else, their performance expectation will be low. In view of this, we conclude that a positive relationship exist between perceived ease of use and intention to adopt a system. Hence, the hypothesis:

H2: Effort expectancy will positively influence consumers' intention to adopt Internet banking in Ghana.

3.3.3 Social Influence

Social influence can also be defined as the degree to which an individual perceives how important others believe he/she should use a new system. This particular construct is represented differently in existing models such as subjective norms (TRA, TAM2, TPB/DTPB and combined TAM-TPB), social factors (MPCU), and image (DOI). Al-Qeisi (2009) has posited that a comparison between models established that the behaviour of these construct in relation to the adoption of new systems is similar. Hence, making Datta (2011) posit that for adopters without enough experience, the perception of referent becomes an important issue for behavioural intention. Moreover, although social influence has been modelled on different models, the result in regards to its importance in predicting behavioural intentions has been debatable. AbuShanab et al. (2010) have therefore stated that social influence is expected to positively influence behavioural intention in relation to Internet banking adoption. Based on the review of literature, social influence can be deemed as having a positive influence on behavioural intention of consumers to adopt Internet banking in Ghana. Hence, the hypothesis:

H3: Social influence will positively influence consumers' intention to adopt Internet banking in Ghana.

3.3.4 Facilitating Conditions

Facilitating conditions refer to the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of a system (Venkatesh et al., 2003). It is important to note that the usage of a system requires a particular skill, resources and technical infrastructure (Riffai et al., 2012; Yeow, Yuen, Tong, & Lim, 2008); and these facilities such as the Internet and computers are usually not free from the consumer context (Venkatesh et al., 2012). Therefore, Joshua and Koshy (2011) have postulated that, the more convenient the access of respondents to the Internet and computers, the more proficient their use of the computer and Internet, which may result in a higher adoption rate of respondents using the Internet. Hence, facilitating conditions has a major role to play in enhancing or hindering consumers' intention and adoption of Internet banking as well as facilitating the utilities that are extracted from using online banking (Lin & Anol, 2008; Riffai et al., 2012). Thus, the hypothesis:

H4: Facilitating conditions will positively influence consumers' adoption of Internet banking in Ghana.

3.3.5 Behavioural Intention

In support with all the different model from psychological theories, which argue that individual behaviour is predicted and influenced by individual intention, the UTAUT model contended and proved behavioural intention to have significant influence on technology usage (Venkatesh et al. 2003; Venkatesh & Zhang 2010). Therefore, for the purpose of maintaining consistency with the underlying theory for all the intention models, behavioural

intention is expected to have a significant positive influence on the usage of a new system (Venkatesh et al., 2003). Considering that the ultimate goal of every business is to attract consumers to adopt a system rather than their intention to adopt, it is necessary for authors to examine the relationship between behavioural intention and actual usage. Extant studies have posited that behavioural intention positively influence Internet banking usage (Njuguna et al. 2012), thus, it can be hypothesised that:

H5: Behavioural intention (BI) will have a significant positive influence on Internet banking usage behaviour in Ghana.

3.4 Effect of Moderators

The study also explores the effect of some demographic moderators in relation with the constructs of the UTAUT model. Information systems researchers studying Internet banking adoption have reported investigation of some demographic moderates such as age, education, experience and gender. This is aimed at establishing the extent to which these demographics tend to influence the adoption of Internet banking for the purpose of understanding and making informed decisions on Internet banking usage, deployment, design and implementation (AbuShanab, Pearson, & Setterstrom, 2010; Al-Somali et al., 2009; Martins et al., 2014). Correspondingly, based on the reported influence of some demographics on Internet banking adoption intention, this study seeks to explore gender, age and education to replicate the model in order to establish consumers' Internet banking adoption intentions and usage as well.

3.4.1 Gender

Extant research have highlighted that with respect to technology acceptance studies, decision making processes by males and females are different (Morris, Venkatesh, & Ackerman, 2005; Venkatesh, 2006). For instance, Karjaluoto, Cruz, Barretto Filgueiras Neto, Muñoz-Gallego, and Laukkanen (2010) posited that, with regard to electronic banking services adoption, men appear to be more task-oriented as compared to women and Internet banking is typically motivated by goal achievement, therefore, the likelihood of males accepting Internet banking is higher than that of females (Wan, Luk, & Chow, 2005). On the other hand, Garbarino and Strahilevitz (2004) has also stated that the influence of social norm on intention to adopt a technology are stronger among women than men. Based on this, (Martins et al., 2014) posited that men are more likely to adopt Internet banking services than women. In respect of the UTAUT model, gender is reported as a moderator in the relationships between performance expectancy (which is deemed as stronger for men), effort expectancy (which is also regarded as stronger for women) and social influence (regarded as stronger for women under mandatory use) (Venkatesh et al., 2003). Therefore based on the finding pertaining to gender in relation to the UTAUT model, it is hypothesised that:

H6: Gender will significantly moderate the relationship between PE, EE, SI (performance expectancy, effort expectancy, and social influence) and BI (behavioural intention) in UTAUT.

H6.1: Performance expectancy effect on Internet banking usage is stronger for males than females.

H6.2: Effort expectancy effect on Internet banking usage is stronger for females than males.

H6.3: Social influence effect on Internet banking usage is stronger for females than males.

3.4.2 Education

Knowledge in relation to computer usage is deemed to have a relationship with educational level. Extant authors have stated that the level of education has a positive impact on perceived ease of use rather than perceived usefulness (Agarwal & Prasad, 1999). This assertion is made based on the fact that education leads to a positive association with perceived usefulness; and greater education increases perceived ease of use by reducing anxiety and improving attitude. Clemes, Gan, and Du (2012) have posited that customers with lower educational qualifications are less likely to adopt Internet banking; this is as a result of their general lack of knowledge about computer technology and their lack of IT skills as compared to people with higher educational qualification. Therefore, it is important to state that, with regards to Internet banking adoption, researchers have stated that an increase in educational levels has a significant effect on consumers' adoption intention (AbuShanab et al., 2010; Al-Qeisi, 2009). Moreover, Burton-Jones and Hubona (2006) revealed that, with regards to social influence, increased education and experience empowers users and decreases the effect of social influence on behavioural intention. Furthermore, in Zimbabwe, the association between the level of education and Internet banking adoption was tested and the test proved that there was a significant relationship between the level of education and Internet banking adoption (Muzividzi & RangariraiMbizi, 2013). Hence, it is hypothesised that:

H7: Education will significantly moderate the relationship between (performance expectancy and social influence) and Internet banking adoption intention in the UTAUT model.

H7.1: Effort expectancy effect on Internet banking usage is stronger for those with higher levels of education than those with lower levels of education.

H7.2: Social influence effect on Internet banking usage is stronger for those with lower levels of education than those with higher levels of education.

3.4.3 Age

Although young people have been cited as favourites for the adoption of new technologies by the UTAUT model, other researchers have stated otherwise. For instance, some authors have established that elderly people tend to adopt the system more, since they are believed to have higher incomes and need to use Internet banking for their financial needs (AbuShanab et al., 2010). Contrary to this assertion other studies have said that older people are more risk averse, hence prefer a more personal banking relation to Internet banking (Gan, Clemes, Limsombunchai, & Weng, 2006). Other studies have also affirmed the assertion of the model by stating that the younger population are adopting and using Internet banking more than the older generation (Njuguna et al., 2012). Therefore, age can be said to have a positive influence on Internet banking adoption. Hence, it is hypothesised that:

H8: Age will significantly moderate the relationship between PE, EE, SI (performance expectancy, effort expectancy and social Influence) and BI (behavioural intention) in UTAUT.

H8.1: Performance expectancy effect on Internet banking usage is stronger for young individuals than older individuals.

H8.2: Effort expectancy effect on behavioural intention is stronger for young individuals than older individuals.

H8.3: Social influence effect on behavioural intention is stronger for older individuals than younger individuals.

H8.4: Facilitating conditions effect on behavioural intention is stronger for older individuals than younger individuals

3.5 Summary

In summary, the chapter comprised of the theoretical foundation used for the study, that is, the Unified Theory of Acceptance and Use of Technology (UTAUT). The chapter discussed the UTAUT model and provided an overview, detailed description and explanation of the theory as posited by Venkatesh and other relevant researchers that are directly related to the studied area. The chapter also showed evidence of the extent to which the UTAUT framework has been used in prominent studies. The chapter then proposed specific hypotheses under each construct of the framework with the view of satisfying the first and second research questions set out at the beginning of the study.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

This chapter is aimed at discussing all the philosophical and methodological issues that are related to this study. The methods of quantitative and qualitative research are also discussed in this chapter with justification being made in line with the research approach and philosophy underpinning the study for choosing quantitative method. The data collection method as well as the instruments used in data collection, analysis and quality criteria are discussed. Finally the chapter discusses sampling issues as well as explaining the construct measure used for the study. The focus of this chapter is therefore on the research paradigm, research method, data collection method, sampling and data analysis technique used in the study.

4.2 Research Paradigm

Kuhn (1970) defines research paradigm as a “set of beliefs, values and techniques which are shared by members of a scientific community, and which acts as a guide or map, dictating the kinds of problems scientists should address and the types of explanations that are acceptable to them” (p. 175). Thus, paradigms can be said to aim at developing research within a particular set of acceptable ideological or philosophical thinking (Johnson & Clark, 2006). In view of this, authors like Myers and Avison (2002) have stated that, in addition to a given definite definition of research (i.e. ‘valid research’), the most appropriate and applicable methods to use for a study is provided by a paradigm. This is because it enables the researcher to better defend the stance chosen in relation to other possible alternatives, and does not dwell on the researcher’s philosophical know-how or the ability to reflect on a specific philosophical choice. Information systems research over the years has seen three

paradigms dominating its literature. These include positivist, interpretivist and critical paradigm (Mingers, 2004). These three dominant paradigms dictate how social phenomena can be studied based on their respective view of issues.

4.2.1 Positivist Paradigm

The positivist research paradigm holds that objective reality can be observed empirically and explained with logical analysis. This paradigm maintains that the researcher and the study must be seen as separate entities. Thus, it is assumed that the positivist researcher is neither affected by the subject under study nor does he affect the subject under study since the researcher is deemed as being independent of the subject of research (Rermenyi, Williams, Money, & Swartz, 1998). Hence, it uses direct observation in establishing facts (Krauss, 2005). Positivism adopted Rene Descartes's epistemology and belief that the best way to generate knowledge about reality is through reasoning (Descartes & Cress, 1998). The assumption of positivism is not only based on the existence of reality or the real world that exists beyond the cognition of human beings, but also on the acquisition of objective knowledge of reality or the real world (Weber, 2004). However, ontological positivist argues that the existence of reality is not only beyond human creation but also on action and knowledge of human beings (Orlikowski & Baroudi, 1991).

Information systems researchers who adopt the positivist paradigm focus their emphasis on measurable quantifiable variables, hypothesis testing based on phenomena samples from a population acknowledged in the study and the preposition of formal evidence. Smith (1991) and Guba and Lincoln (1994) have argued that positivist adopt scientific methods from the natural science in studying social phenomenon. Therefore, epistemological positivists have

indicated that knowledge can be attained by the independent and objective study of reality, even though there exists objective knowledge.

4.2.2 Interpretive Paradigm

Interpretive study seeks to understand the contextual meaning people assign to social phenomenon (Myers, 1997; Orlikowski & Baroudi, 1991; Walsham, 2006). The assertion of interpretivist is that social construction like language consciousness and shared meaning is what reality is accessed through (Myers, 1997). Therefore, they focus fully on the human sense and its complexity as events emerge (Kaplan & Maxwell, 2005). Walsham (1995a) has therefore said that reality under interpretivism can be group into two forms: inter-subjective reality constructed between researchers and their respondents and subjective reality which is constructed by an individual or groups of people. In contrast with positivist, the interpretivist believe that knowledge is humanly composed, therefore fact and values are subjective (Walsham, 1995a, 2006). In essence, knowledge without the researcher is unrealistic since the experiences drawn from the researcher may help in steering the study. Furthermore the perception of the respondent and the researcher may change as a result of the interaction with each other during the study (Myers, 1997).

Methodologically this paradigm applies more of a social approach to studying a phenomena than a scientific method as the case of a positivist (Walsham, 1995b). The belief of interpretive is that the purpose of their study is to pass on to their audiences meanings of a phenomenon derived from its social context (Walsham, 1995a). Interpretive researchers in information systems prefer using methods of research that help collect data about a phenomenon and its habitants in order to understand the reciprocal relationship between the phenomenon and its context (Walsham, 1995a). Hence, the approaches used by interpretivist

are emergent in order to better explain the different nature of their understandings and those of respondents (Myers, 1997). However, this paradigm has been criticised for not giving recognition and acknowledgment to the fact that conflicts and contradictions are inherent in social relations (Jonsson, 1991).

4.2.3 Critical Paradigm

Whether used as a theory or a research lens critical realist envision many levels of objective truth from empirically or historically derived evidence collected through looking for relationships and causality to explain, describe, and theorise about a social phenomenon. The assumption of critical realist is that people can consciously act to change their social and economic conditions (Klein & Myers, 1999). Therefore, the research of critical realists is channel towards trying to change the existing status quo and help liberate the less fortunate in society from some peculiar circumstances, since they assume that social reality is unfair (McAulay, Doherty, & Keval, 2002; Orlikowski & Baroudi, 1991). Critical authors like Kwwasny, Greenhill, and Trauth (2005), Wilson and Howcroft (2002), and Mingers (2004) have posited that critical realist centers their studies on issues such as gender in information systems, information systems failure and power respectively, since they view the world as unjust and unfair. Another area of concern to critical realist is about rationality; the understanding of it and its application (Varey, Wood-Harper, & Wood, 2002). Although critical researchers recognise peoples' ability to change their social and economic situations, they contend that various forms of social, cultural and political dominations as well as laws and resource limitations have the tendency of restraining these ability (Klein & Myers, 1999; Orlikowski & Baroudi, 1991). Thus, critical research seeks to bring to the fore these restraining circumstances in order to positively impact the lives of people who are affected by these circumstances so that they can exploit their potential and liberate themselves from

the less fortunate circumstances they find themselves in (Hirschheim & Klein, 1994). This paradigm has been extensively used by information systems researchers.

Ontologically critical realists believe and defend that there exists an independent causally efficacious world different from what we know (Mingers, Mutch, & Willcocks, 2013). Mingers et al. (2013) defends this against both positivism which reduces the world to one that can be empirically observed and measured; and constructivism which reduces the world to our human knowledge of it. The ontological position of critical researchers is that reality is socially constructed which is the same as the interpretivist positions (Hirschheim & Klein, 1994). But researchers using the critical paradigm assume that social reality is also constituted historically; hence, it possess some cultural, political, economic and social powers that makes people dominate others (Hirschheim & Klein, 1994). Furthermore, Orlikowski and Baroudi (1991), have argued that since social relations are changing constantly and resulting in conflicts by giving some people in society privileges and constraining others, solutions are needed to address these conflicts and liberate the oppressed. Epistemologically critical realists acknowledge that there is a limitation to our access to this world and it is usually mediated by our perceptual and theoretical lenses. Critical researchers believe that all views must be equal, even though they believe knowledge is local and historic (Mingers et al., 2013). The critical approach also argues that facts and knowledge are seen not to be value-free as under the positivist tradition but value-laden. The methodological stance of the critical researcher supports an ethnographic as well as long-term historical study that analyses the comparison between past and present events and brings to fore militating conditions (Orlikowski & Baroudi, 1991).

4.2.4 Positivist Paradigm Chosen: Why Positivism?

In each of the natural, social and human sciences the scholarship intended to generate new knowledge is informed by the research paradigm (McGregor & Murnane, 2010). Therefore, after explaining the various paradigms that have dominated information systems research over a period of time, this particular section of the chapter is to emphatically state the reason for choosing one of these paradigms. Hirschheim (1985) has said that the renaissance of the positivist paradigm came in the sixteenth and seventeenth centuries after a long, dark period in European scientific thought. Until the late 1970s information systems research and organisation science was dominated by interpretivist (Vreede, 1995), however, the positivist paradigm has taken over (Dickson & DeSanctis, 1990).

According to Weber (2004), positivists do not only assume the existence of reality or the real world that exists beyond the cognition of human beings, they also assume that acquiring the objective knowledge of reality or the real world is possible. Corbin and Strauss (2008) have said that the intention to identify regularities in, and to form association between some elements, through the manipulation of reality with variations in only a single independent variable is called positivism. Information systems researchers have, over the years, used the positivist paradigm in various works, causing Orlikowski and Baroudi (1991) to posit that there is a clear dominance of the positivist perspective in the field of information systems literature. Similar to this accession, Guba (1990) and Chen and Hirschheim (2004) have also opined that 81% of published empirical information system research is dominated by positivist research. This is also in agreement with the review of Internet banking adoption literature in this study as presented in Chapter Two (2). Therefore this study is aimed at contributing to knowledge by using the paradigm to explore the influence of performance

expectancy, effort expectancy, social influence facilitating conditions and behavioral intention on consumers' adoption of Internet banking in Ghana. .

Unlike the positivist paradigm, the interpretivist paradigm was not chosen because interpretive authors intentionally (i.e. (Guba, 1990) hinder the development and use of systematic standards for research quality judgment by stating equivocally that they adopt an unqualified or strong relativism, which is logically self-refuting. Although researchers ought to respect the opinions and views of different people and different groups, in dealing with human research there is the need for researchers to understand and depict individual or social/+*9 group differences in order to adopt a democratic approach to group opinions for value selection. On this basis, using the interpretive paradigm for this research was not appropriate. However the critical paradigm was also not chosen because it focuses much on identifying alien issues for the purpose of initiating changes to already existing economic, political and social factors (Klein & Myers, 1999; Orlikowski & Baroudi, 1991).

4.3 Research Approach

Benbasat, Goldstein, and Mead (1987) have stated that from observation it is very clear that no single research methodology is intrinsically better than the other. Other authors such as Benbasat (1984) and Pervan (1994) have stated that the best methodology suitable for any study should be dependent on the research problem under consideration, the richness and complexity of the real world and the stated objective of the researcher. In essence, the choice of the kind of methodology a researcher adopts is usually based on the goal of the researcher and not the paradigm (Cavaye, 1996). Despite the existence of many research method classifications, the most dominant group of classification are the quantitative and the

qualitative (Johnson & Onwuegbuzie, 2004; Myers, 1997). Detailed descriptions of the two most dominant research methods are stated below.

4.3.1 Qualitative Method

Myer (1997) defines the qualitative research method as an approach or technique designed with the aim of enabling authors to gain an understanding of the socio-cultural surrounding of people. Thus, this method was developed by the social sciences to enable the study of social and cultural phenomenon. According to Myer (1997), observation (fieldwork), interviews, questionnaires, documentation and the researcher's impressions and reactions are the main data sources used in qualitative research.

4.3.2 Quantitative Method

A quantitative research method, on the other hand, is defined as a set of techniques used to answer research questions in relation to human exchanges between computers (Straub, Boudreau, & Gefen, 2004). These consist of two different perspectives. Firstly, the emphasis of the researcher should be on the positivist perspective; and secondly, the emphasis of the researcher should be on the use of quantitative data. The first emphasis represents values, the level of theoretical construct and concept with numbers and the interpretation of these numbers as strong scientific evidence of how a phenomenon works. Furthermore, Straub et al. (2004) stated that essential tools used for quantitative researchers involve statistical tools and software packages due to the presence of numbers in such research. This method has been linked with the positivist paradigm (Mingers et al., 2013).

4.3.3 Why the Quantitative Method of Research?

Ardent dispute has evolved around advocates of qualitative and quantitative research paradigms. With quantitative researchers consistently articulated assumptions that are linked with the philosophical thinking of positivism (Ayer, 1959; Maxwell & Delaney, 2004; Popper, 1959; Schrag, 1992). Quantitative purist have indicated that, like the treatment of physical phenomenon by physical scientists, social observation should be treated as entities. Quantitative researchers have also stated that social science inquiry should be objective and hence, the researcher must be separated from the research. However, qualitative pursuits on the other hand have strongly opposed the philosophical ideals of positivism.

Guba and Lincoln (1989) have said that the qualitative researchers usually argues for constructivism, idealism, relativism, humanism, hermeneutics and sometimes postmodernism. Thus, they contend that time and context free generalisation are neither desirable nor possible, since multiple constructed realities abound and research is value bound. Based on this, they assume that the flow of logic from specific to general is not right, and that, it is impossible to differentiate fully between causes and effects. They also believe that the knower and known cannot be separated because the only source of reality is the subjective knower (Guba, 1990). It therefore becomes very clear that both methods are extremely relevant in understanding a phenomenon. In essence, it becomes impossible to identify one as being better than the other. In view of this, Newman and Benz (1998) have posited that an approach that serves to answer a specific research question or problem is deemed as the appropriate approach for a particular study. Therefore, the study chose the quantitative approach as the appropriate approach for the study taking into consideration the research problem and the research questions outlined in the first chapter.

This method of research allows for statistical analysis and generalisation of a large context beyond the studied objects (Bryman, 2001). This method of research is linked with the positivist paradigm which also allows for context free generalisation (Nagel, 1986). Accordingly, Neuman and Neuman (2006) argue that authors that employ the use of the quantitative approach to research are likely to apply reconstructed logic. This implies that the logic of how to do research is highly organised and restated in an idealised, formal, and systematic form. Based on this, the quantitative research method is usually used to measure how people feel, think or act in a particular way. It seeks to quantify data and apply some statistical analysis which are often formalised and well-structured. Data used for quantitative studies are usually obtained from large samples (i.e., anything from 50 upwards) (Tull & Hawkins, 1990). As a result, it usually employs the use of a structured questionnaire that incorporates closed-ended questions that are made up of already set responses. Based on this, the quantitative approach is deemed as being concise and having a sample that is representative of a large population (Yin, 1994).

4.4 Deductive Research

Deductive study can be explained as the process of deducing meanings from pre-specified concepts, constructs and hypothesis that makes up a theory (Neuman & Neuman, 2006). The reason is to confirm the theory by outlining relationships using testable hypotheses and working towards more empirically concrete evidence. The inductive approach however starts from the collection of data to the developing of theory from the data collected (Saunders, Saunders, Lewis, & Thornhill, 2011). Since the objective of the study was clearly defined as intended to sample relatively large cases and use it to test hypotheses on the factors that influence consumers' adoption of Internet banking in Ghana, quantitative and deductive approach was best suited for the study.

4.5 Research Purpose

According to Saunders et al. (2011), there are three basic forms of research purpose that includes explanatory, descriptive and exploratory research. Descriptive method of research refers to the type of research that is aimed at obtaining information about the current state of a phenomenon. The use of a descriptive form of research enables the researcher to describe the existing condition properly. As the name suggests, the main focus of descriptive research is to accurately provide the description of an observed phenomenon. Polit, Beck, and Hungler (2001) has posited that descriptive research seeks to naturally describe, observe and document an occurring phenomenon which cannot be ascribed an objective value. On the other hand, for the purpose of explaining the relationship that exists between variables, Sullivan (2001) has posited that an explanatory research purpose helps this type of study. For instances, an explanatory form of research seeks to find the reason behind the facts established by a quantitative study. It also seeks to identify the actual reason behind the occurrence of a particular phenomenon. Therefore, explanatory research is usually in the form of a qualitative study.

However, exploratory research can be defined as a research type that helps one gain fresh insight into a situation or a phenomena in order to build, elaborate, extend or test a theory (Neuman & Neuman, 2006). This form of research purpose is usually adopted in the early stages of research or in research where the concepts are not clear enough to enable the researcher to develop an operational definition and properly design the research (Saunders et al., 2011). Therefore, the objective of exploratory research is to identify key issues and key variables. Therefore, in studying an issue like the factors that influence Internet banking adoption in Ghana, where the variables are not clear enough for the development of an

operational definition, using an exploratory research method remains the most appropriate research purpose for the study.

4.6 Research Strategy

Whilst data can be collected about the real world environment, the use of a survey enhances the studying of numerous variables at an instance than what laboratory or field experiments typically permits. Based on this, the study used the survey approach which is also linked with the positivist paradigm (Neuman, 2011). Hair, Tatham, Anderson, and Black (2006), have said that the use of a survey in studying the cause of a phenomenon with empirical evidence in relation to attitude and behaviours of organisations is deemed to be most appropriate. This is because, in studying a sample of a population, the survey provides a numeric or quantitative description of trends, attitudes or opinions of the population (Creswell & Clark, 2007). In light of this, Nesbary (1999) has defined survey research as “the process of collecting representative sample data from a larger population and using the sample to infer attributes of the population” (p. 10). Quantitative studies are mostly classified into two: studies that describe events; and studies that discover inferences or causal relationships.

Descriptive research is aimed at finding what already exists and thus observational survey methods are frequently used to collect data (Borg and Gall, 1989). On this basis, the use of the observational method of data collection is inappropriate; hence this study will focus on discovering inference or causal relationships. Due to the strict privacy rules of banking, the observational method of collecting data is nearly impossible; more so when the quantitative approach to research is being used. In essence, the survey method was used in collecting data for this study.

4.6.1 Sampling Techniques

Survey sampling describes the process of selecting a sample (a smaller number of subjects) of elements from a target population in order to measure the characteristics and/or attitudes of people. The survey technique involves the use of structured questions to assess and report people's beliefs, attitudes and behaviour. Collected data can be a complete enumeration of the elements of a population or a sub-group or sample of the elements of the population selected for participation in the study (Malhotra & Birks, 2007). Berg (2001) argued that the logic of using a sample of subjects for a study is that the smaller sample has the ability to make an inference about the larger population. This, in effect, reduces the cost and/or amount of work that would have been involved in studying the whole target population.

There are broadly two types of survey samples, probability samples and non-probability samples. The respondents engaged in this study were sampled by convenience. Convenience sampling is a type of non-probability sampling which involves the sample being drawn from that part of the population that is close at hand. Moreover, some authors have criticised this form of data collection as having the ability to suffer from bias and arbitrariness of the researcher. This is based on the fact that selection of respondent is based on the researcher's judgement and not by chance selection (Malhotra & Birk, 2006). In spite of this, because banks operate under strict secrecy and privacy and would not divulge information about their clients in whole to enable the population be known in order to probabilistically sample for the study. The use of a non-probabilistic sample can yield a good reflection of the population and allow for the circulation of confidence interval when biases like researcher skewed selection of respondent are addressed.

Out of the thirty licensed banks in Ghana, Angenu et al. (2015) has said that most of the commercial banks in the country offers Internet banking services. With only seven (7) banks

offering Internet banking services as at the end of 2007 and 17 banks out of 26 banks offering the services in 2009 (Ntsiful et al., 2010; Woldie et al., 2008), the recent deployment of Internet banking by almost all the licensed banks in the country is an indication of the fact that the service no longer serves as a strategic tool for competitive advantage but is now an integral aspect of the banking logistic system. Moreover, Internet banking services deployed by these banks are different in respect of the type of bank offering the service. Based on this, the study considered two different banks in Ghana that were adjudged the winners for the category of Technological advanced bank in 2014 and the best bank in ICT innovations in 2013 in the Ghana Telecom Awards. These banks are the Guaranty Trust bank and the Fidelity bank.

The Fidelity Bank Limited received its license on 28th June, 2006. The bank, which is owned by Ghanaians, foreign individuals and institutions such as ADB, SSNIT and the bank's executives was the 22nd bank to be licensed in the country. The bank has an Internet banking platform that helps the bank offer online products and services like balance enquiry, standing order request, funds transfer within the bank, cheque confirmation and utility bill payment such as DSTV bills settlement, ECG bills, school fees, insurance premium payments, online payments and online ticketing (transport, airline and municipal). The Guaranty Trust bank was registered in Ghana in October 2004, however, it obtained its universal banking license in Ghana on 23rd February 2006. The Bank is a subsidiary of Guaranty Trust Bank Plc which owns 96% of the issued share capital of the Bank with Alhaji Yusif Ibrahim, a Ghanaian business entrepreneur, holding 2% and Nederlandse Financierings-Maatschappij Ontwikkelingsland N.V. (FMO) holding the remaining 2%. With the aim of being committed to continuous improvement of service delivery and providing unrivalled convenience for customers of the bank, the bank has an Internet

banking platform that allows customers to perform a variety of services using the platform. These services include: account balance enquiry and transaction inquiry; own and third party transfers (transfer to any cedi account of any bank in Ghana); utility bills payments, stop cheque, cheque confirmation; cheque book request; bank drafts request; cash-in-transit; draft-in-transit; and pre-registered transfer.

Since the functionalities deployed by these banks are almost similar, the study used customers of these banks that actually use the Internet banking service to study the factors that influence the adoption of Internet banking in Ghana. However, due to the large population size of customers of both banks, the study employed a mathematical formula to determine an ideal sample size in order to determine the appropriate sample for the study. The ideal sample for infinite populations as outlined by (Cochran, 1977) is given as:

$$n_0 = \frac{z^2 \times p(1-p)}{e^2}, \text{ Where:}$$

- n_0 is the sample size
- Z is the two tailed area under the normal curve where $\alpha = 0.05$ and the z value is 1.96
- e is the acceptable sampling error
- p is the population of a proportion with a desired attribute (assumed to be 0.5 which maximises the sample size to be determined)

Given these values and an acceptable sampling error of 6.5%, the sample size is determined as:

$$n_0 = \frac{1.96^2 \times 0.5(1-0.5)}{0.060^2}$$

This gives the acceptable sample size to be approximately 267.

Therefore, a convenient sample of 267 respondents were selected for the quantitative study.

The researcher's strategy was to ask all respondents a primary question to know whether they operate personal account or sole proprietorship/enterprise account and are Internet banking users. Respondent that do not use Internet banking and have corporate account were asked no further questions, hence, leading to some form of randomisation in actual selection of respondents used for the study even though the initial selection of respondents was by convenience sampling. Given that copies of questionnaires ought to be administered to customers of Fidelity Bank and Guaranty Trust Bank, the researcher stood at the entrance of the banks' branches at Osu and East Legon in Accra to randomly access individual customers of the banks and administer copies of the questionnaires to them. It was initially decided that 320 questionnaires in all would be administered to the respondents of the two banks. Moreover, after some deliberations with the banks it was realised that individual Internet banking customers were far lower than what was envisage, even though the banks would not disclose the actual number of users of this technology. Therefore, the researcher settled on 300 questionnaires, having in mind that the target population as individual customers of the bank that use Internet banking services. It is important to state that there was no question asked about the nationality of the respondents. Hence, it is possible to state that the respondents might include other nationals who reside in Ghana and banks with these two banks.

4.6.2 Data Types and Sources

The data used for this study was primarily from primary data sources. Moreover, the findings gathered after the analysis of the primary data was further confirmed with information gathered from secondary sources in order to substantiate our claims. Neumann (2006) has posited that primary data is gathered in response to a specific research problem

through the use of questionnaires, interviews or observations. The self-administered multiple choice and short answer questionnaires were distributed to respondents who have an experience in the use of Internet banking, moreover, the participation of the respondents was on a voluntarily basis. Respondents were initially interviewed by asking specific questions to know whether they fall within the required spectrum of respondents before the questionnaires were administered to them. Snowball sampling was used to gain participants who were encouraged to recommend others to participate; together with convenience sampling to gain more participants. For instance, respondents were encouraged and requested to refer the questionnaires to others who were interested in the field. Sue and Ritter (2007), have established that this is an effective method of administering a survey to a large sample of a population.

4.7 Data Collection Methods

Based on the purpose of this study, a non-contrived research setting was adopted. Data were collected from people who were familiar with the use of Internet banking in the two banks. Hence, making it possible for the gathering of information from the natural setting in order to minimise the influence of the researcher. With the sole aim of looking at the factors that influence Internet banking adoption in Ghana, the study adopted a one shot or cross-dimensional form of study that allows for the gathering of data once. In essence, data are gathered during a period of days, weeks and months and were not revisited. However, it is important to emphasise that for the purpose of collecting useful data and information required to answer the research questions of the study (Creswell & Clark, 2007), the process of data collection used for this study went through three distinct steps: survey instrument design; selecting an appropriate sampling frame; and conducting survey with selected customers of the banks from the sampling frame. Since the positivist paradigm and the

quantitative research approach was adopted for the study, using questionnaires for this survey research was deemed as the most appropriate data collection method for this study.

Questionnaires: The use of questionnaires in a research study helps a researcher explore the views of a large number of people (Stroh, 2000). Questionnaires contain the survey questions that respondents are required to address. Therefore, items and questions on questionnaires must be clear enough and must seek no further clarification and assistance in answering them. There was a face to face administering of questionnaires to the respondents. Contact addresses of respondents who failed to immediately fill out the questionnaires were taken and they were contacted later for the questionnaires. Appendix II depicts a copy of the questionnaire used for the study.

For the purpose of insightfully understanding the factors that affect the adoption of Internet banking in Ghana, a total of 300 questionnaires were used for the study. The questionnaires were adapted from the instrument used in Internet banking adoption studies (AbuShanab et al., 2010; Al-Somali et al., 2009; Alalwan et al., 2014). The items on the questionnaires were mostly closed-ended questions with a few open-ended question. The questionnaires were distributed to 300 respondents; however, only 284 were received. After analysing those received from missing data and incomplete responses, it was realised that a total of 273 data sets were available for entry into the Statistical Package for Social Sciences (SPSS) for analysis.

4.8 Data Analysis

After the collection of the quantitative survey data, the researcher proceeded to organise and summarise the collected data based on the variables selected from existing literature and according to the research questions. As posited by Clark and Creswell (2011), data analysis

refers to the process of probing, cleaning, metamorphosing and modelling collected data into meaningful information that provides an adequate response to the research question. In view of this, the study analyses data collected from respondents and compares the findings based on the research questions and the selected variables. The raw data from the personally administered survey were first edited for non-answered questions. After the editing the raw data of the consumers of the banks were coded and entered into different data files. The coded database was then analysed using SPSS 2.0 for windows. However, for the purpose of detecting any coding error the researcher employed the use of the frequencies command function in SPSS. Hence, this led to the re-coding and transformation of data into different types of variables. Data analysis consists of multiple facets and encompasses approaches that help describe facts, detect patterns, develops explanations and tests hypotheses (Berkowitz, 1997). Based on this, other techniques were adopted to help better describe the facts, detect patterns, develop explanations and test hypothesis of the collected data.

4.8.1 Structural Equation Modelling (SEM)

The Structural Equation Modelling (SEM) technique is a family of widely used techniques for multivariate data analysis that seeks to explain the relationship among multiple variables (Hair, Babin, Anderson, & Tatham, 2006). SEM consists of several multiple regression models that can act as a response variable in one instance and a predictor variable in another instance. Therefore, SEM can be said to be comparable with other common quantitative methods, such as correlation, multiple regression and analysis of variance (ANOVA), as well as factor analysis and multivariate analysis of variance (MANOVA) (Weston & Gore, 2006). However, the Structural Equation Modelling technique helps to simultaneously evaluate more than one regression models. According to Hair, et al. (2006), it is possible to make empirical inferences of causation using SEM when the hypothesised relationship has

strong theoretical support. Therefore, since there exists a lot of literature on established theories and hypothesis in the area of Internet banking studies that helps in making inferences, SEM is seen as most useful in assessing the soundness of the causal relationships formulated based on the theory (Tobbin & Kuwornu, 2011; Toma, McVittie, Hubbard, & Stott, 2011).

Although a multiple regression is noted for the assessment of cause and effect of variables and the assessment of the degree of association between variables, one major limitation of the multiple regression model is its inability to handle more than a single dependent variable at a time. However, unlike the multiple regression, using the SEM enables a researcher to handle more than a single dependent variable at a time. It bears all the capabilities of the multiple regression analysis. Therefore, it is able to help test the significance of a model, determine the error terms, and provide standardised and unstandardized coefficients. Furthermore, for the purpose of accessing measurement errors and composite reliability of estimates, using SEM is seen as an appropriate tool since it is incorporated with the Confirmatory Factor Analysis. Finally the SEM is made up of an interactive graphical user interface which makes viewing of items and the relationship of variables easier. In view of this, the Structural Equation Modelling technique is regarded as having certain advantages that distinguishes it from other quantitative and multivariate techniques. Applying the SEM-based procedure helps in the generation of some form of substantial advantages over other first-generation techniques due to its greater flexibility to:

- a. Model relationships among multiple predictors and criterion variables;
- b. Construct unobservable variables (also known as latent variables; these represent multidimensional constructs);
- c. Model errors in measurement for observed variables; and

- d. Statistically test a priori substantive/theoretical and measurement assumptions against empirical data (i.e. confirmatory analysis).

SEM involves generalisation and extensions of first-generation procedures (Chin, 1998). It is also the only multivariate technique that allows for the simultaneous estimation of multiple equations (Hair, et al., 2006). In this study, the researcher employed the use of the SEM technique to estimate the relationships that were hypothesised to exist among performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention and the various items employed in measuring them.

4.9 Constructs' Measurement

The differences that exist between the term 'construct' and the term 'variable' are related to the measurement. This implies that by the usage of an actual measure such as marks on a scale, the operational definition of the construct turns it into a variable (Ghauri, Elg, & Sinkovics, 2004). By looking at behavioural dimensions or properties donated by a concept and translating it into observable and measurable elements in order to develop an index of measurement, a concept is operationalised to become measurable (Sekaran, 2003). In measuring the items of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intentions towards the target behaviour of Internet banking usage, the operational constructs for the proposed research framework specified by Venkatesh et al.'s (2003) work was adapted with some adjustment.

4.9.1 Main Measures

The design of the research instrument consisted of a four page document and a cover letter, which indicated the purpose of the study and the contact details for the researcher and the supervisor. The measuring instrument consisted of four parts: Part One covered the

respondents' demographic variables; Part Two covered the respondents' computer and Internet knowledge level of experience; Part Three covered the empirical measurement of the constructs in the proposed model; and Part Four reviewed the frequency of Internet banking services usage.

The variables are therefore measured as follows:

Performance Expectancy: This variable measures the degree to which an individual believes that using Internet banking will help him/her attain gains in performing banking tasks through the Internet channel. Statements 1-4 of Part Three measure this variable using a five point Likert scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Effort Expectancy: This variable measures the degree of ease associated with the use of Internet banking. Statements 5-8 of Part Three measures this variable using a five point Likert scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Social Influence: This variable measures the degree to which an individual perceives that important others believe he/she should use Internet banking; and measures bank staff support in usage of the Internet channel. Statements 9-13 of Part Three measures this variable using a five point Likert scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Facilitating Conditions: This variable measures the degree to which an individual believes that an organisational and technical infrastructure exists to support the use of Internet banking; and measures bank staff support in the usage of the Internet channel. Statement 14 to 17 of Part Three measures this variable using the five point Likert scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Behavioural Intention: This variable measures the degree to which an individual's intention to use Internet banking actually influences the usage behaviour of the system. Statement 18 to 22 of Part Three measures this variable using the five point Likert scale ranging from (1) "strongly disagree" to (5) "strongly agree".

Usage Behaviour: This variable is measures the actual usage behaviour of the Internet banking facilities. Q1 and Q2, of part four measure Internet banking usage in terms of years of adoption and weekly usage pattern. In addition, Q3 to Q10 measures usage of typical banking services deployed on the Internet channels of the banks understudy using five pattern of frequency (Never, rarely, sometimes, often and always).

4.9.2 Moderators

Demographics: This refers to gender, educational level, marital status, occupation, age and type of employment of the respondents. Q1-Q6 of Part One covers these variables. Only moderators such as gender, age and educational level are deem as the most important for this study since they are reported in literature pertaining to Internet banking adoption as the most relevant. However, other demographics serve as the profile description for the samples.

Table 4. 1: Measurement Variables and Their Corresponding Items

Variable	Description	Item
Performance Expectancy	The degree to which an individual perceives that the use of a system will help him/her to attain gains in job performance.	<ul style="list-style-type: none"> • Internet banking is useful to carry out my task • I think that using Internet banking enables me conduct task more quickly • I think that using Internet banking increases my productivity • I think using Internet banking improves my performance
Effort Expectancy	the perception of ease associated with the usage of a new technological innovation or system	<ul style="list-style-type: none"> • My interaction with Internet banking is clear and understandable • It is easy for me to become skilful at using Internet banking • I find Internet banking easy to use • I think that learning to operate Internet banking is easy for me
Social Influence	the degree to which an individual perceives that important others believe he/she should use a new technological innovation or system	<ul style="list-style-type: none"> • People who influence my behaviour think that I should use Internet banking • People who are important to me think that I should use Internet banking • People in my environment who use Internet banking services have more prestige than those who do not • People in my environment who use Internet banking services have a higher profile • Having Internet banking services is a status symbol in my environment
Facilitating Conditions	The degree to which an individual believes that an organisational and technical infrastructure exist to support the use of a new technological innovation or system	<ul style="list-style-type: none"> • I have the resources necessary to use Internet banking • I have the knowledge necessary to use Internet banking • Internet banking is compatible with other systems I use • Help is available when I get problem using Internet banking
Behavioural Intention	the degree to which an individual intends to use a system	<ul style="list-style-type: none"> • I intend to use the system in the next months • I predict I would use Internet banking in the next months. • I plan to use the system in the next months • I intend to consult the balance of my account on the platform of Internet banking. • I intend to perform a transfer on the platform of Internet banking.
Usage Behaviour	The degree to which an individual uses a system.	<ul style="list-style-type: none"> • How long have you been using Internet banking facilities? • On weekly basis, how many times do you use Internet banking?

4.10 Quality Standards for Research: *Validity and Reliability*

4.10.1 Reliability

The assessment of the degree of consistency between multiple measurements of a construct is referred to as reliability (Hair, et al., 2006). In essence, reliability is a measure of the stability of the proposed measure (Ghauri & Gronhaug, 2005). Based on this, consistency of items within a measure and stability of the measure over time are deemed the two basic concerns that are addressed with respect to reliability of a measure. Reliability assessment is therefore conducted with approaches such as test-retest, alternative forms and internal consistency (Malhotra & Birks, 2007). However, Hair, et al. (2006) have posited that the commonly used approach for assessing reliability is internal consistency. Internal consistency is measured using the split half reliability, which is mostly measured by using coefficient alpha and Cronbach alpha (Hair, et al., 2006; Malhotra & Birks, 2007).

4.10.2 Validity

In order for a measurement scale to be used confidently, the scale must possess some level of validity. This implies that a measurement scale ought to measure what it purports to measure. In view of this, validity can be defined as the extent to which a scale or set of measures accurately represents the concept of interest (Hair, et al., 2006). Therefore, types of validity used for this study includes convergent validity, construct validity, and divergent validity (Malhotra & Birks, 2007).

4.11 Summary

An outline of the research methodology used for answering the research questions stated at the beginning of the study was presented in this chapter with attention given to the research paradigm, research method, sampling techniques, data collection and method of analysis.

The positivist paradigm was selected after a careful consideration of the research problem, the research purpose, the objective of the research and the research questions. For the main aim of accurately answering the research questions an exploratory method of research and a quantitative approach was used. The data used for the study was primary in nature and the data analysis technique adopted was the multivariate technique in order to ensure that validity reliability was created; hence, enabling the assurance of the necessary validity reliability creation in the study.

CHAPTER FIVE

FINDINGS AND ANALYSIS

5.1 Introduction

This chapter presents the assessment and testing of the proposed research model using Structural Equation Modelling. Based on this, the chapter will focus mainly on the demographic characteristics of the respondents, data screening, and the analysis of the data collected through the survey instrument. The process of analyses in this section is therefore categorised into three main parts. The first part, which focuses on the description of the demographic characteristics of the respondents delves into issues relating to gender, age, marital status, educational level, occupation and the level of computer and Internet knowledge. This is done in order to assess the respondents used for the study. The second part involved the assessment of the research model proposed in Chapter 3 of the study using the Structural Equation Modelling analysis to test the model fit and validity based on satisfactory results. The final part then proceeds to test the research hypothesis formulated in the third chapter of the study. A combination of the results from the model validating and the hypothesis testing ensured the determination of *the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention on consumers' adoption of Internet banking in Ghana and the moderating effect of gender, age and education on the proposed model*. This, in effect, leads to the answering of the first and second research questions and agrees with the assertion by Hair, et al. (2006) that the combination of the two approaches helps assure that good construct measures are represented in the valid structural model.

5.2 Sampled Characteristics

5.2.1 Demographic Profile of Respondents

For the purpose of statistically distinguishing the characteristics of a segment of a population from others, demographics are usually employed. In this study demographics are represented using age, marital status, occupation, income, employment information, geographical location and educational level. This demographic analysis represents the general Internet banking adoption settings among the various bank customers in Ghana.

Table 5.1: Demographic Distribution of Respondents

Demographic Factors	Categories	Frequency	Percentage
Bank	Fidelity Bank	142	52
	Guaranty Trust Bank	131	48
Gender	Male	161	59
	Female	112	41
Marital Status	Single	157	57.5
	Married	115	42.1
	Other	1	0.4
Age	20 or Under	1	0.4
	21-30	113	41.4
	31-40	124	45.4
	41-50	31	11.4
	51-60	4	1.5
	60+	0	0
Educational Level	SHS and Below	6	2.2
	Diploma	25	9.2
	First Degree	119	43.6
	Masters	122	44.7
	Ph.D.	1	0.4
Type of Employment	Not Working	31	11.4
	Salaried Worker	196	71.8
	Self-Employed	46	16.8
Occupation	Public Sector	112	41
	Private Sector	128	46.9
	Student	33	12.1

Source: Author's Construction

Table 5.1 above shows the demography of the respondents in terms of their gender, age, education level, marital status, employment status and occupation. The respondents for the study were made up of customers of two separate banks in Ghana of which 142 of the respondents were customers of Fidelity Bank and 131 of the respondents were customers of Guaranty Trust Bank representing 52 per cent and 48 percent respectively. The respondents were made up of 161 males which represent 59 percent and 112 females which represents 41 percent female. With respect to the age distribution of the respondents, the ages ranged between 20 years and below which was the least represented at 0.4 percent followed by 51-60 years representing a low representation of 1.5%; 21-30 years which also represented 41.4%; and 31-40 years which accounted for the largest age group distribution of respondents, representing 45.4% of the sample respondents.

In spite of this, it is important to state that the sample were highly educated; this suggests that most of them could read and comprehend the issues raised in the questionnaire on their own, therefore reducing the biases of the researcher. Over 80% of the sample had had at least a first degree, while 9.2% had HND diploma certificates, with the remaining 2.2% having basic education or no formal education. In term of the marital status of the respondents it was recorded that 42.1% of the sample were married while 4% were either divorced, separated, widowed or cohabiting, and the remaining 57.5% being single who have never married. In terms of the employment status of the sample, it was recorded that 11.4% of the sample were not working while 16.8% were self-employed and the remaining 71.8% of the sample were salaried workers. Moreover, it is important to clarify that the majority of these respondents were private sector workers which represented 46.9% of the sample while 41.0% were public sector workers with the remaining 12.1% being students. Table 5.1 depict the demographic distribution of the respondent as elaborated above.

5.3 Internet Banking Services

For the purpose of statistically understanding the usage behaviour of the respondents, Table 5.3 indicates the percentage of patronage of some Internet banking services. In view of this, it is important to state that, although there are more than two categories of Internet banking functionality as posited by Malhotra and Singh (2010), the findings revealed that the other functionalities were non-applicable among the two banks used for the study. However, with the view only and the action or account control function, it was realised that these functions were highly patronised by the users of the system. It was noticed that, although patronage for the account control function was encouraging, the requests for standing order service within the account control function was not as highly patronised as the other services. Balance enquiry, monthly statements by mail and the receipt of alert services saw the highest level of patronage within the two groups of Internet banking functionalities. The statistical analysis of the frequency of usage of Internet banking services are depicted in Table 5.2 below.

Table 5.2: Percentage of Internet Banking Services Usage

Services	Never	Rarely	Sometimes	Often	Always
<i>View only services</i>					
Balance enquires		5.1%	22.7%	35.2%	37.0%
Foreign exchange rates updates		26.4%	22.7%	20.9%	30.0%
Interest rate updates		30.0%	24.9%	20.5%	24.5%
Monthly statement by mail		15.4%	20.9%	27.1%	63.4%
<i>Action/Account Control</i>					
Money transfer	0.7%	15.4%	27.1%	28.6%	28.2%
Bill payments		22.7%	25.3%	24.9%	27.1%
Requesting standing instructions	12.1%	29.7%	23.8%	19.4%	15.0%
Receiving alerts		16.5%	19.0%	24.9%	39.6%

Source: Author's Construction

5.4 Data Screening

Data screening involves examining the research data for missing data, outlier and normality assumption responses to determine the readiness of the dataset for further statistical analysis. Therefore, prior to the analysis, the research instrument items were examined through SPSS for accuracy of data entry, missing values and outliers. Missing data refers to an unanswered item on a survey instrument by a respondent either intentionally or unintentionally (Hair, et al., 2006). Moreover, copies of answered questionnaires that had missing data were not used for the analysis.

Outliers on the other hand, also refers to extreme data values with a unique combination of attributes that are different from other data values (Hair, et al., 2006). The effect of an outlier may be significant on the consequent model fit, parameter estimates and standard errors in the dataset (Byrne, 2013). Hence, outliers are deemed as an important aspect of the analysis. Based on this, the results of the test for outliers using the Mahalanobis distance statistics are presented in Appendix C. These statistics represent the square distance from the centroid of

a dataset. Amos 2.0 presents two additional statistics, p1 and p2. The column p1 shows the observation exceeding the square Mahalanobis distance of the observation. On the other hand, the p2 column shows the probability that the largest square distance of any observation would exceed the Mahalanobis distance computed. Moreover, Arbuckle (1997) posited that a heuristic for determining which observation may be outliers is that, although small numbers in the p1 may be expected, small numbers in the p2 column would indicate observations that are improbably far from the centroid under the hypothesis of normality. On the basis of this, all the observations listed below with p2 values less than 0.1 were individually examined. Hence, a total of forty-four observations were identified as possible outliers, but upon closer inspection, the observations proved to be valid data points and therefore, they were retained in the dataset.

However, Hair, et al. (2006) have posited that the estimate of maximum likelihood in Structural Equation Modelling (SEM) requires that the dataset should be normally distributed. Although a histogram can be used to check for normality, kurtosis and skewness are two other methods that are usually used by extant researchers for checking for normality. While kurtosis measures the flatness of the distribution in the data set, skewness measures the extent to which a distribution of a dataset deviates from the mean. Hence, the rule of thumb of kurtosis and skewness is that, in order to achieve the normality of a variable, the value of kurtosis and skewness must fall between -2 and +2. Moreover for a larger sample size that is above 200, the effect of the non-normality of data may be negligible on the result (Hair, et al., 2006). In all, a total of 273 respondents were used in the further analysis. The normality test was conducted in Amos 2.0 and the result indicates a normal distribution of the dataset (Fotopoulos & Psomas, 2009). The result is presented in the Appendix C of the study

5.5 Descriptive Analysis

This section of the analysis explores the descriptive statistics of all the items of the study to determine the mean and the standard deviation. Table 5.3 below represents the descriptive statistic of the variables that were used in testing for the factors that influence consumers to adopt Internet banking. Table 5.3 shows the summation of the indicator of each of the variables. These are represented by TPE, TEE, TSI, TFC, TBI and TAU: where TPE represents performance expectancy; TEE represents effort expectancy; TSI represent social influence; TFC represents the total indicators of facilitating conditions; TBI represents the total indicators of behavioural intention; and TAU represents actual usage behaviour.

Table 5.3: Descriptive Statistics

Descriptive Statistics				
Variables	Minimum	Maximum	Mean	Std. Deviation
TPE	5.00	20.00	16.7473	2.66345
TEE	6.00	20.00	16.3223	2.88609
TSI	5.00	25.00	12.5604	4.02988
TFC	4.00	20.00	13.9451	2.89381
TBI	10.00	25.00	21.1355	2.93432
TAU	3.00	8.00	6.4469	1.10394

Source: Author's Construction

5.6 Measurement Model Assessment and Confirmatory Factor Analysis (CFA)

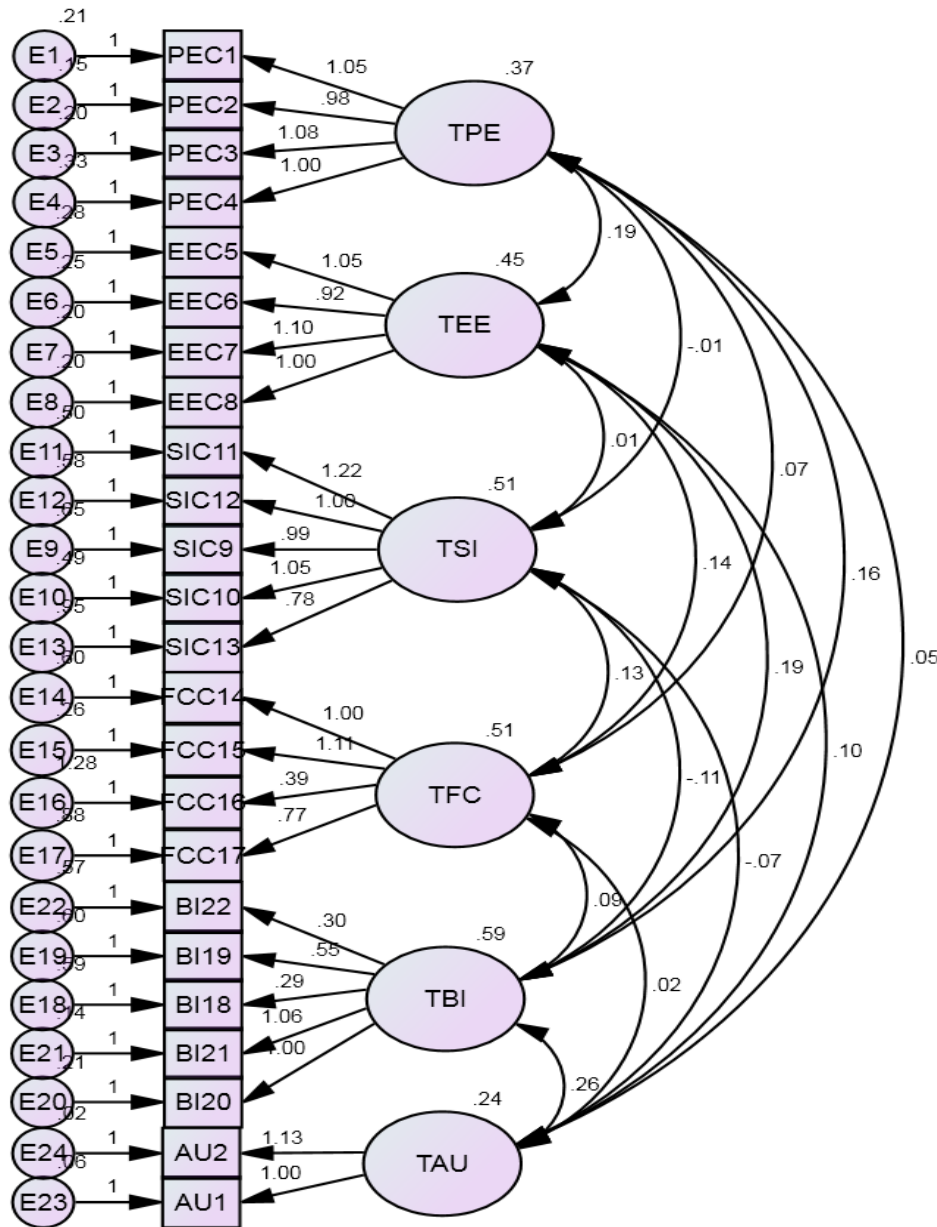
Under Structural Equation Modelling (SEM) data analysis, the measurement model is an essential tool for the assessment of the validity of the model for further analysis. Exploratory factor analysis, confirmatory factor analysis and a hybrid of both approaches called the hybrid approach are the three main approaches used for model assessment (Ahire & Devaraj, 2001). Although the two approaches are helpful for model assessment, the exploratory factor analysis (EFA) approach extracts factors based on statistical results not on theory and can be conducted without prior knowledge of the number of factors or which items belong to

the construct. However, with the confirmatory factor analysis (CFA) approach, both the number of factors within the set of variables and the factors that each item loads highly on, is made known to the researcher before results are computed (Hair, et al., 2006). In view of this, CFA as a tool enables a researcher to either confirm or reject a preconceived theory. Thus, it can be said that CFA provides an assessment of fit whilst EFA does not. Moreover, with regards to detecting uni-dimensionality issues and multi-dimensionality sets within construct measurement, using EFA is deemed as far better when compared to CFA which is only capable of detecting uni-dimensionality problems without indicating the dimensions. On the basis of this, the current study has chosen to apply the CFA approach as the method needed for confirming a good representation of the construct of the conceptual model by the proposed items or indicators through validation of the measurement model (Hair, et al., 2006).

The CFA conducted on a measurement model is usually made up of a series of steps that assigns items to their respective latent variables with the appropriate error terms. The steps involved in a model assessment using CFA in a study includes model specification, iterative model modification and estimates of Goodness of Fit (GOF) statistics using Amos 20.0. The 24 latent variables were specified with six items measuring them but these 24 variable themselves belonged to six different constructs, namely: performance expectancy (PEC); effort expectancy (EEC); social influence (SIC); facilitating conditions (FCC); behavioural intention (BI); and actual usage (AU). As showed in Figure 5.1 below, the CFA was run with all the variables of the measurement models linked together by labels that match statements 1-24 on the Likert scale. The next stage of the study was to test for the validity of the measurement model under the second order CFA to determine the convergent and discriminant validity. These two forms of validation were tested in an iterative model

modification process of refinement and testing. Then the second stage of structural model testing was carried out.

Figure 5.1: Measurement Model for Internet Banking Usage



Source: Author's Construction

5.6.1 Measurement Model Fit

In running the maximum likelihood estimate, the working model file revealed that the model should be rejected. This was as a result of a Chi-square statistics which was $\chi^2 = 396.671$ with 237 degrees of freedom and probability level = 0.000. Moreover, it is more misleading to rely on only Chi-square statistics for assessing model specification (Byrne, 2013; Hair, 2010; Hair, et al., 2006; Schmacker and Lomax, 2004). This is usually as a result of a number of distinct reasons that include:

- Larger samples are likely to lead to the rejection of the model, hence, leading to a type II error (rejecting something that is true);
- A tiny difference in the observed model and the preferred fit model in a large sample may be found significant; and
- Chi-square fit index is very sensitive to the violations of assumption of multivariate normality.

In view of this, the Chi-square goodness of fit (GOF) was not used as the sole indicator of model fit (Hair, et al., 2006). The next step for assessing GOF using the Chi-square was introduced to help solve the problem associated with the sample size. This was done by finding the ratio of the sample size to the degree of freedom. Other GOF were introduced in the study to test for model fit. These can be categorised into absolute, incremental and parsimony fit measures (Hair, et al., 2006).

Absolute fit indices are direct measures used to assess how well a proposed model reproduces an observed data or fits the sample data. Such indices include the root mean square residual (RMSR), the standardised root mean square (SRMSE) and the root mean square error of approximation (RMSEA). The RMSR measures the average of the residuals

between individual observed and estimated covariance and variable terms. Better fit is usually represented by a lower RMSR and standardised root mean square residual (SRMSR) values whilst a higher value represents a worst fit (Byrne, 2013; Hair et al., 2006). In view of this, a value less than 0.05 is widely regarded as a good fit and other values below .08 are classified as an accurate fit. However, some studies have set these cut off at < 0.10 , 0.09, 0.08 and even 0.05, depending on the authority cited (Al-Fahim, 2012). The root mean square error of approximation (RMSEA) is another fit index that is commonly cited. This fit index takes into account the error of approximation in the population and explicitly tries to correct for both sample size and model complexity by including each in its computation. The 90 percent confident interval is also reported by AMOS around RMSEA value along with the closeness to fit p value. Moreover, how well a model fits is also indicated by the narrow interval values around the RMSEA values with an insignificant p value ($p > 0.05$) (Byrne, 2013).

On the other hand, the confidential or incremental fit index differs from that of absolute indices. This is because confidential indices assess how well a model fits relative to some alternative baseline model usually known as null models which assumes that all observed variables are uncorrelated. Hence, it is important to state that, by the specification of related multi-item construct, this class of indices represents the improvement in the fit. The comparative fit index is an example of the incremental fit index, which ranges from 0-1 with higher values indicating a better fit and lower values less than .09 indicating that the model does not have a good fit (Byrne, 2013; Hair, et al., 2006).

Moreover, parsimony fit indices takes into consideration the model fit relative to its complexity to provide information about which model among a set of competing models is

best. In view of this, a parsimonious fit measure can be improved either by a better fit or simpler model (fewer estimate parameters paths). Hence, the most likely parsimony fit index applied is the parsimony normed fit (PNF). This is derived from the incremental fit index (NFI: normed fit index) but it is only adjusted by multiplying it times the parsimony ratio (PR= degree of freedom used by the model). However, a parsimony normed fit (PNF) with a relatively high value is deemed as a better fit (Hair, et al., 2006).

In Amos, 25 goodness-of-fit measures are printed. However, knowing which of these to report is a matter of dispute among methodologists. Hence, Hair, et al. (2006) has recommended reporting Chi-square statistics in addition to another absolute index such as RMSEA and an incremental index such as CFI. Moreover, in an event of comparing models of varying complexity, adding the PNFI measure is recommended. Others report GFI or more recently, SRMR instead. Therefore, in following these guidelines, the initial run of the CFA resulted in the following model fit indexes: CMIN = 396.671, DF = 237, P-value = 0.000, CMIN/DF = 1.674, GFI = 0.893, RMSEA = 0.050 with 90% confident interval (.041, .058), RMR = 0.047, NFI = 0.874, CFI = 0.944, RFI = 0.853, IFI = 0.945, AGFI = 0.864, PCFI = 0.811, and PNFI = 0.750

5.6.2 Model Refinement Criteria

In trying to refine the model, it is important to scan the output to identify whether the following criteria have been met in order to achieve a better fit:

- a) The standardised regression weights (SRW) values should exceed 0.6 (preferably above .7);
- b) The squared multiple correlations (SMCs) should exceed the cut-off point of 0.5;

- c) The standardised residual covariance (SRC) should exceed 2.58 or below - 2.58 - what is known as the absolute value 2.58 (Byrne, 2013); and
- d) Modification indices (MI) that shows a high covariance between measurement errors accompanied by high regression weights between these errors' construct are candidates for deletion (Byrne, 2013; Hair et al., 2006).

On the basis of these, it was revealed that the current run had items in the SRW output that were below 0.6. Additionally, the SMCs values had values of some items lower than the cut off level. With regards to the SRC, although most of the items fell within the threshold, it was realised that EEC5, EEC8, SIC10, SIC9, FCC17 and BI19 had values below the threshold. Lastly, the MI output revealed that there was the need for measurement refinement.

Table 5.4: Selected MI Text Output

Errors	MI-Covariance	Path	MI-regression Weight
e18 < - - > e19	60.747	SIC10 → SIC9	23.687
		SIC9 → SIC10	30.598

Source: Author's Construction

The items that demonstrated a high covariance plus high regression weight in the modification indexes were chosen as the suitable candidates for deletion (Byrne, 2013). In light of this, SIC10 and SIC9 were deleted. However, in relation to the other criteria, an item is deemed necessary for deletion if the item proves to be problematic on most of the levels mentioned above. Based on this, SIC13, FCC16, FCC17, BI18, BI19 and BI22 were seen to be problematic based on the first two criteria. This led to the deletion of these items. After

the deletion of SIC9, SIC10, SIC13, FCC16, FCC17, BI18, BI19 and BI22 the result of the model fit indices for the total sample in the CFA after the re-run is reported in Table 5.5 below.

Table 5.5: Goodness of Fit Indices for Measurement Model

Fit Indices	Accepted Value	Model Value
Absolute Measure		
Chi-square		118.377
Degree of Freedom		89
CMIN/DF	≤ 2	1.330
Probability	$P \geq 0.05$	0.020
GFI (Goodness of Fit Index)	≥ 0.90	0.952
RMSEA (Root Mean Square Error of Approximation)	≤ 0.08	0.035
RMR		0.027
Incremental Fit Measures		
NFI (Normed Fit Index)	≥ 0.90	0.951
CFI (Comparative Fit Index)	≥ 0.90	0.987
TLI (Tucker-Lewis Index)	≥ 0.90	0.983
IFI (Incremental Fit Index)	≥ 0.90	0.987
RFI (Relative Fit Index)	≥ 0.90	0.934
Parsimony Fit Measures		
AGFI (Adjusted Goodness of Fit Index)	≥ 0.80	0.927
PCFI (Parsimony Comparative of Fit Index)	≥ 0.50	0.732
PNFI (Parsimony Normed Fit Index)	≥ 0.50	0.705

Source: Author's Construction

5.7 Constructs' Validity

After the assessment of the model fit, the next step was to check the validity of the construct. Hair, et al. (2006), have posited that construct validity looks at the extent to which the theoretical essence of the measure is captured. Based on this, the assessment of the construct validity can be done through convergent validity, discriminant validity and nomological validity.

Convergent validity therefore represents the extent to which the indicators of a specific construct converge or share a high proportion of variance in common. Based on this, convergent validity can be estimated by factor loadings, variance extraction and reliability. After a test was run on the average variable estimate (AVE) of the second order latent variables, it was realised that all the latent variables were statistically significant. On the basis of this, reliability coefficient was run using SPSS for each of the set of items comprising the construct and the result is as presented in the Table 5.6 below. Construct reliability is expected to be 0.7 or above, therefore as represented in the Table 5.6, it can be seen that all constructs used were above the threshold. In view of this, the next step was to check for reliability through inter-item correlation. Table 5.6 depicts the result of the construct reliability for the pooled data.

Table 5.6: Construct Reliability Results for the Pooled Data File

Construct	Items	Factor Loadings	AVE	Composite Reliability	Cronbach Alpha
TPE	PEC1	0.808	0.639	0.876	0.873
	PEC2	0.832			
	PEC3	0.825			
	PEC4	0.728			
TEE	EEC5	0.798	0.664	0.888	0.887
	EEC6	0.772			
	EEC7	0.858			
	EEC8	0.830			
TSI	SIC11	0.894	0.647	0.783	0.771
	SIC12	0.703			
TFC	FCC14	0.796	0.590	0.742	0.738
	FCC15	0.739			
TBI	BI20	0.834	0.783	0.878	0.875
	BI21	0.933			
TAU	AU1	0.906	0.877	0.934	0.932
	AU2	0.965			

Source: Author's Construction

Discriminant validity also refers to the extent to which a construct is distinct from other constructs (Hair, et al., 2006). There are usually different ways of calculating discriminant validity. A conservative approach is the comparison of the average variance estimated (AVE) by a construct's scale items with a square inter-scale correlation for that construct. In an event where the AVE is consistently higher than the square inter-scale correlation of the construct, discriminant validity is supported (Hair, et al., 2006). Based on this assertion, it is important to state that the discriminate validity of the study was therefore supported. Table 5.7 shows the result.

Table 5.7: Correlation Matrix for the Major Constructs

	TPE	TEE	TSI	TFC	TBI	TAU
TPE	0.799					
TEE	0.470	0.815				
TSI	-0.009	0.062	0.804			
TFC	0.140	0.296	-0.175	0.768		
TBI	0.320	0.354	0.157	0.129	0.885	
TAU	0.182	0.302	0.164	0.024	0.683	0.936

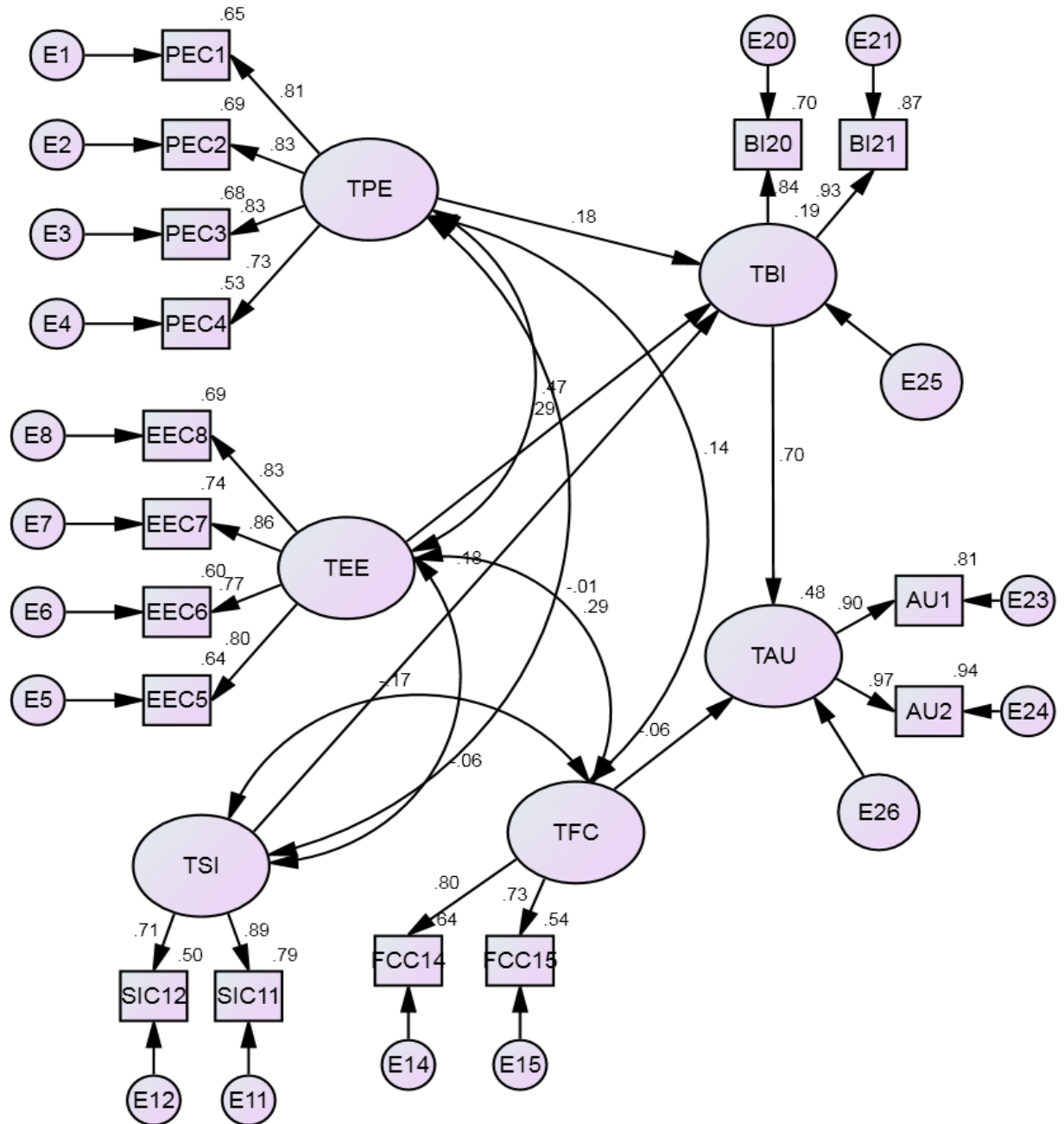
Source: Author's Construction

The final test of validity is the test for nomological validity. The nomological validity takes into account the extent to which the summated scale makes accurate predictions of other concepts in a theoretically based model. Nomological validity is tested by checking if the correlation among the constructs in the measurement theory makes sense. Hence, this form of validity is tested in the structural model.

5.8 The Structural Model

After an assessment of the measurement model fit and construct and discriminant validity, the next step was to assess the structural model. This involves the testing of the hypothesised theoretical model and the relationship between its latent constructs. The structural model is a part of SEM that describes the interrelationships that exist among constructs or latent variables (Weston & Gore, 2006). The structural model, unlike the measurement model, emphasises more on the nature and magnitude of the relationship between constructs (Hair, et al., 2006). In essence, the structural model is essentially the corresponding structural theory, or the specification of the hypothesised relationship based on the theory represented with a set of structural equations that can be depicted with a visual diagram (Hair, et al., 2006). It is therefore the part of SEM process that is employed in estimating relationships among constructs. Figure 5.2 depicts the hypothesised theoretical model.

Figure 5.2: Structural Model



Source: Author's construction

5.8.2 Assessing the Structural Model

The assessment of the structural model in Amos involves the determination of whether the specified theoretical relationships in the model are indeed supported by data (Cobb, 2007). Based on this, the assessment of the structural model in this study was to determine whether the relationships hypothesised based on theory were supported by data. The fitness of the structural model was, however, tested using the various fit indices. The chi-squared (χ^2) test was used to assess the exact model fit for the study. Moreover, other appropriate approaches that helps in determining model fit were also examined to provide additional information on model fit and the indices ranged from good to very good (Bagozzi & Yi, 2012). The study estimated a full measurement model whereby all items were entered simultaneously to predict the measurement model. In light of this, Table 5.8 below depicts the structural path analysis of the model.

Table 5.8: Structural Path Analysis

H	Path	Estimate	S.E.	C.R.	P
H1	TPE \longrightarrow TBI	0.250	0.102	2.459	0.014
H2	TEE \longrightarrow TBI	0.365	0.092	3.950	***
H3	TSI \longrightarrow TBI	0.204	0.075	2.729	0.006
H4	TFC \longrightarrow TAU	-0.042	0.039	-1.070	0.285
H5	TBI \longrightarrow TAU	0.409	0.037	10.994	***

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Source: Author's Construction

Table 5.8 indicates the hypothesised paths in the model; and reveals that the hypothesised link between performance expectancy and behavioural intentions (H1), effort expectancy and behavioural intention (H2), social influence and behavioural intention (H3) and the link

between behavioural intention and usage behaviour (H5) were positively significant. It also revealed that, with regards to the hypothesized link between facilitating conditions and usage behaviour (H4), the relationship was insignificant.

As a result of this, the next step was to test for the strength of the direct path in the model and its influence on the dependent variables. The standardised factor loadings (regression weights) output indicated the strength of the direct path in the model and the impact on the dependent variables as shown in Table 5.9 below.

Table 5.9: Standardised Regression Weight

Path			Estimate
TPE	→	TBI	0.181
TEE	→	TBI	0.292
TSI	→	TBI	0.182
TFC	→	TAU	-0.060
TBI	→	TAU	0.696

Source: Author's Construction

Effort expectancy (0.292) has the highest direct impact on behavioural intentions; followed by social influence (0.182) and performance expectancy (0.181) respectively. However, with respect to the highest direct impact on usage behaviour, behavioural intention (0.696) recorded the highest overall impact.

5.9 Effect of Moderators

Prior to exploring the effect of the three demographic groups, the dataset for the variables were recoded into two groups using the median split approach (Hair, et al., 2006). However, the variables under gender were not recoded since it already existed in only two groups. The recoding was done mainly to enable or facilitate the running of the group analysis examination properly.

5.9.2 The Effect of Gender

The descriptive analysis revealed that the sample was distributed into 161 male and 112 females which represented 59 and 41 percent of the sample respectively. In view of this, prior to the running of the multiple group analysis, the covariance structure was run separately for each sample in order to examine if each gender group can achieve an adequate fit separately.

The male sample fit statistics revealed the following results: CMIN = 128.743 with DF = 89 and CMIN/DF ratio = 1.447, RMR = 0.038, CFI = 0.973, and RMSEA = 0.053 with 90 percent confident interval (0.031, 0.072) and PCLOSE = 0.392. The female sample fit statistics had the following result: CMIN = 112.173 with DF = 89 and CMIN/DF ratio = 1.260, RMR = 0.038, CFI = 0.974 and RMSEA = 0.048 with 90 percent confident interval (0.003, 0.074) and PCLOSE = 0.518. Therefore, these results indicate an accepted fit for both the two groups.

Notwithstanding, after the establishment of a satisfactory model fit for the gender sample groups, the next step was to test for factor structure equivalence. This test is run on the

sample groups of gender simultaneously rather than separately. The estimates (Coefficients) output and critical ratio (t-value) obtained after the test are reported in Table 5.10 below.

Table 5.10: Un-standardised Estimates and Critical Ratio for Gender

Path			Males		Females		Notes
			Estimate	C.R.	Estimate	C.R.	
TPE	→	TBI	0.368 (**)	2.998	0.051	0.379	Path not significant for female group
TEE	→	TBI	0.162	1.646	0.474 (***)	3.398	Path not significant for male group
TSI	→	TBI	0.152	1.932	0.272 (*)	2.084	Path not significant for male group
TFC	→	TAU	-0.037	-0.683	0.001	-0.018	Both paths not significant
TBI	→	TAU	0.457 (***)	7.365	0.454 (***)	8.851	

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Source: Author's Construction

As showed in Table 5.10 above, it can be realised that, except for the path relationships between TBI and TAU which is significant for both groups, the path relationships are either not significant for both groups or significant for one group and not significant for the other. Based on this, the next stage of the analysis was to perform a comparison text.

The Amos model comparison text output for the two groups (male and female) revealed that the two groups were invariant at the measurement weight level and the structural weight level. Therefore, assuming model constraints to be correct, the measurement weight between the two groups are invariant as depicted by the insignificant p value (> 0.05).

Model	DF	CMIN	P	NFI	IFI	RFI	TLI
				Delta-1	Delta-2	rho-1	rho2
Measurement weights	10	15.194	0.125	0.006	0.006	0.001	0.001

On the other hand, assuming the measurement model to be correct, the second level of invariant is at the structural weight level, the output indicates that the two groups are non-invariant on the structural weights level. The readings therefore shows an insignificant p value (>0.05) which indicates invariant between the two groups.

Model	DF	CMIN	P	NFI	IFI	RFI	TLI
				Delta-1	Delta-2	rho-1	rho2
Structural weights	5	5.022	0.413	0.002	0.002	-0.001	-0.001

However, although the p-value for the measurement weight and the structural weight level is insignificant, historical evidence of invariance testing has usually been based on the differences in χ^2 test. For instance, if the value of $\Delta\chi^2$ is statistically insignificant, it stands to suggest that the constraints specified in the more restricted model holds true. In spite of this, researchers have argued for evidence of invariance based on the ΔCFI value between models being insignificantly small. Therefore, researchers have indicated that to test for invariance using the ΔCFI , the difference in CFI should not exceed 0.01 (Byrne, 2013; Cheung & Rensvold, 2002). Hence, based on this latest trends, the model fit output for the multiple group analysis revealed satisfactory results in relation to the ΔCFI (being less than 0.01) in the case of the measurement weight and the structural weight and is accordingly depicted in Table 5.11 below.

Table 5.11: Baseline Compression for Gender

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI	Δ CFI
Unconstrained	0.904	0.876	0.973	0.964	0.972	
Measurement weights	0.898	0.875	0.971	0.963	0.970	0.002
Structural weights	0.896	0.876	0.971	0.964	0.970	0.000
Saturated model	1.000		1.000		1.000	
Independence model	0.000	0.000	0.000	0.000	0.000	

Source: Author's Construction

Having established the first level of invariance, the next appropriate step is to run the mean and covariance structure (MACS) to assess the mean difference between the two groups. In view of this, the current level of investigation involves the estimation of means on the observed and latent variables using the mean and covariance structure (MACS) analysis (Byrne & Stewart, 2006). After the application of the constraint to the first and higher-order variable, the male group was treated as the reference group. The result indicated in Table 5.12 establishes that TEE, TSI and TFC have positive estimates whilst TPE have a negative estimate. In view of this, it can be stated that the mean scores for the male group is higher than that of the female group.

Table 5.12: Means: Male - Measurement Intercepts

	Estimate	S.E.	C.R.	P
TPE	-0.024	0.082	-0.290	0.772
TEE	0.023	0.088	0.255	0.799
TSI	0.007	0.078	0.085	0.932
TFC	0.246	0.089	2.775	0.006

Source: Author's Construction

The output also indicates that, except for the mean scores of TFC which is significantly different, all the other variables had a means score with p-value > 0.5 . Therefore, it cannot be said that the male and female groups differ on their mean scores in regards to the insignificant latent variables.

A further test for model fitness was conducted which revealed the following fit indices: CFI = 0.967, IFI = 0.967, TLI = 0.962, PCFI = 0.838, PNFI = 0.772, RMSEA = 0.037 with 90% interval (0.026 and 0.048) and a PCLOSE = 0.981, all indicating an acceptable fit.

In summary, it was found that the inequality result at the structural weight level indicated that the factor loadings for the structural path are not significantly different between the male group and the female group. Hence, the hypothesised moderating effect (H6) cannot be supported.

5.9.3 The Effect of Age

The age descriptive analysis frequency allows for the dividing of the response into five sizeable groups: ages 20 and under; 21-30; 31-40; 41-50 and more than 51 years. Moreover, after testing each group separately with the structural model, only the second and third groups produced a good statistical fit. As a result of this, the group comparison test was carried out for the second and third groups. These two groups were therefore categorised between the sample population that were 30 years and below (younger group) and those who were above 30 years (older group). This represented a frequency of 114 and 159 respectively.

After applying the model to the younger age group, the model fit statistics readings indicated an adequate fit: CMIN = 134.228 with DF = 89 and CMIN/DF ratio = 1.508, standardised

RMR = 0.034, CFI = 0.947, and RMSEA = 0.067 with 90 per cent confidence interval (0.042 and 0.089) and PCLOSE = 0.115. The statistics for the second age group 31-40 years (older group) also indicated a good fit: CMIN = 100.544 with DF = 89 and CMIN/DF ratio = 1.130, RMR = 0.040, CFI = 0.992 and RMSEA = 0.029 with 90 per cent confidence interval (0.000 and 0.054) PCLOSE = 0.914

Therefore, after establishing a satisfactory fit index for the two age groups, the next step was to proceed with multiple group covariance analysis (MCOVA). The output of the estimates and the critical ratios shows that with respect to the age groups two of the paths for the younger age are insignificant while one of the paths is not significant for the both age groups. This is depicted in Table 5.13 below.

Table 5 13: Un-standardised Estimates and Critical Ratios for Age Groups

Path			Younger group		Older group		Notes
			Estimate	C.R.	Estimate	C.R.	
TPE	→	TBI	-0.083	-0.437	0.340 (***)	3.412	Path not sig. for younger groups
TEE	→	TBI	0.533 (***)	3.279	0.188 (*)	2.026	
TSI	→	TBI	0.077	0.551	0.209 (**)	2.810	Path not sig. for younger age group
TFC	→	TAU	-0.027	-1.026	-0.071	-1.152	Path not sig. for both age groups
TBI	→	TAU	0.444 (***)	7.430	0.462 (***)	8.199	

Note: *** p< 0.001; ** p< 0.01; * p< 0.05

Source: Author's Construction

The output from AMOS for the model comparison indicated that the measurement weight and the structural weight level were invariant for both groups. Assuming the unconstrained

model to be correct, the measurement model statistics shows that the two age groups are invariant as indicated by the insignificant p value (>0.05).

Model	DF	CMIN	P	NFI	IFI	RFI	TLI
				Delta-1	Delta-2	rho-1	rho2
Measurement weights	10	17.919	0.056	0.007	0.007	0.002	0.002

Assuming the measurement model weight to be correct, the structural weights statistics readings indicates that the p-value (>0.05) is statistically insignificant therefore indicating that the two groups are invariant on the structural weight level.

Model	DF	CMIN	P	NFI	IFI	RFI	TLI
				Delta-1	Delta-2	rho-1	rho2
Structural weights	5	6.233	0.284	0.002	0.003	0.000	0.000

However, since the measurement weight level and the structural weight indicated an insignificant p-value, which indicates invariant, a further test of invariant was conducted to confirm invariance through the change in CFI for the first two weight levels. The changes associated in CFI reading revealed that the Δ CFI did not exceeded the threshold of 0.01 for the first two invariance weight levels. Based on this, the model can be said to be operating equivalently across the two age groups as is depicted in Table 5.14 below.

Table 5.14: Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI	ΔCFI
Unconstrained	0.906	0.879	0.975	0.967	0.974	
Measurement weights	0.899	0.876	0.972	0.965	0.971	0.003
Structural weights	0.897	0.877	0.971	0.965	0.971	0.000
Saturated model	1.000		1.000		1.000	
Independence model	0.000	0.000	0.000	0.000	0.000	

Source: Author's Construction

Having established invariance through the change in CFI, it is therefore possible to check for the mean score differences between the two age groups using the MACS analysis while treating the younger group as the reference group. The critical value and the p value revealed that the mean score for the model was higher in terms of performance expectancy, effort expectancy and social influence for the older group and higher in term of facilitating conditions for the younger group. Furthermore, the result of the MACS also revealed that the latent variables are not significantly different for either of the two age groups.

Table 5.15: Scalar Means Estimates for the Younger Age Group

	Estimate	S.E.	C.R.	P
TPE	-0.016	0.079	-0.197	0.843
TEE	-0.021	0.087	-0.240	0.811
TSI	-0.081	0.069	-1.179	0.238
TFC	0.210	0.109	1.926	0.054

Source: Author's Construction

The fit statistics for the MACS are: CFI = 0.973, IFI = 0.973, TLI = 0.968 and RMSEA = 0.034 with 90% confidence interval (0.022 and 0.045), PCLOSE = 0.995, all indicating an adequate fit.

In summary, the result of the invariance at the structural weight level indicates that the factor loadings are not significantly different between the two age groups. Therefore, the hypothesised age moderating effect (H7) was not supported.

5.9.4 The Effect of Education

The descriptive frequency sample for the education variable indicated the possibility of dividing the sample into three different levels (i.e., below bachelor degree, bachelor degree, and above bachelor degree). However, when a test was run on these three different groups, one of the groups produced a solution that was not admissible. Hence, this led to dividing the groups into two different levels (i.e. bachelor degree and below and above bachelor degree).

Applying the structural model to the two groups separately revealed the following statistics. Bachelor degree and below statistics are: CMIN = 112.806 with DF = 89 and CMIN/DF = 1.267, standard RMR = 0.030, CFI = 0.982 and RMSEA = 0.042 with 90% confidence interval (0.007 and 0.064) and PCLOSE = 0.691, all indicating an acceptable fit. The above bachelor degree statistics are: CMIN = 109.158 with DF = 89 and CMIN/DF = 1.226, standard RMR = 0.039, CFI = 0.978 and RMSEA = 0.043 with 90% confidence interval (0.000 and 0.068) and PCLOSE = 0.646, all indicating a good fit.

Having established an acceptable model fit for each group, the next stage was to run the multiple group covariance analysis (MCOVA). The estimates and the critical ratio for the two groups of education are reported in Table 5.16 below.

Table 5.16: Un-standardised Estimates and Critical Ratio for Education Level

Groups

Path			Bachelor's degree and below		Above bachelor's degree		Notes
			Estimate	C.R.	Estimate	C.R.	
TPE	→	TBI	0.123	0.948	0.310 (**)	2.654	Path not sig. for bachelor and below group
TEE	→	TBI	0.469 (***)	3.806	0.101	0.874	Path not sig for above bachelor group
TSI	→	TBI	0.198 (*)	2.034	0.150	1.597	Path not sig for above bachelor group
TFC	→	TAU	-0.032	-0.717	-0.074	-1.125	Path not sig for both groups
TBI	→	TAU	0.493 (***)	9.277	0.354 (***)	5.299	

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Source: Author's Construction

The paths estimates indicated that the relationships are either not significant for one group or for both groups. However, the relationship between TBI and TAU were found to be significant for both groups. Based on this, the next step is to run the AMOS comparison text.

The AMOS comparison text output indicated that the two groups are invariant across the measurement weight level and non-invariant across the structural weight levels. Assuming model constraints to be correct, the measurement weight is invariant for both groups as evident from the insignificant p value (>0.05).

Model	DF	CMIN	P	NFI	IFI	RFI	TLI
				Delta-1	Delta-2	rho-1	rho2
Measurement weights	10	16.436	0.088	0.007	0.007	0.002	0.002

The next level of invariance check at the structural weight level, shows that the output of the two groups are non-invariant on the structural weight level. The significant p value (<0.05) reading indicates this inequality between the groups.

Model	DF	CMIN	P	NFI	IFI	RFI	TLI
				Delta-1	Delta-2	rho-1	rho2
Structural weights	5	11.556	0.041	0.005	0.005	0.003	0.003

However, the change in CFI which is less than 0.01 for the measurement weight and the structural weight refuted the earlier findings of non-invariance for the structural weight level. This is depicted in Table 5.17 below.

Table 5.17: Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI	ΔCFI
Unconstrained	0.908	0.881	0.981	0.975	0.981	
Measurement weights	0.902	0.879	0.978	0.973	0.978	0.003
Structural weights	0.897	0.877	0.975	0.970	0.975	0.003
Saturated model	1.000		1.000		1.000	
Independence model	0.000	0.000	0.000	0.000	0.000	

Source: Author's Construction

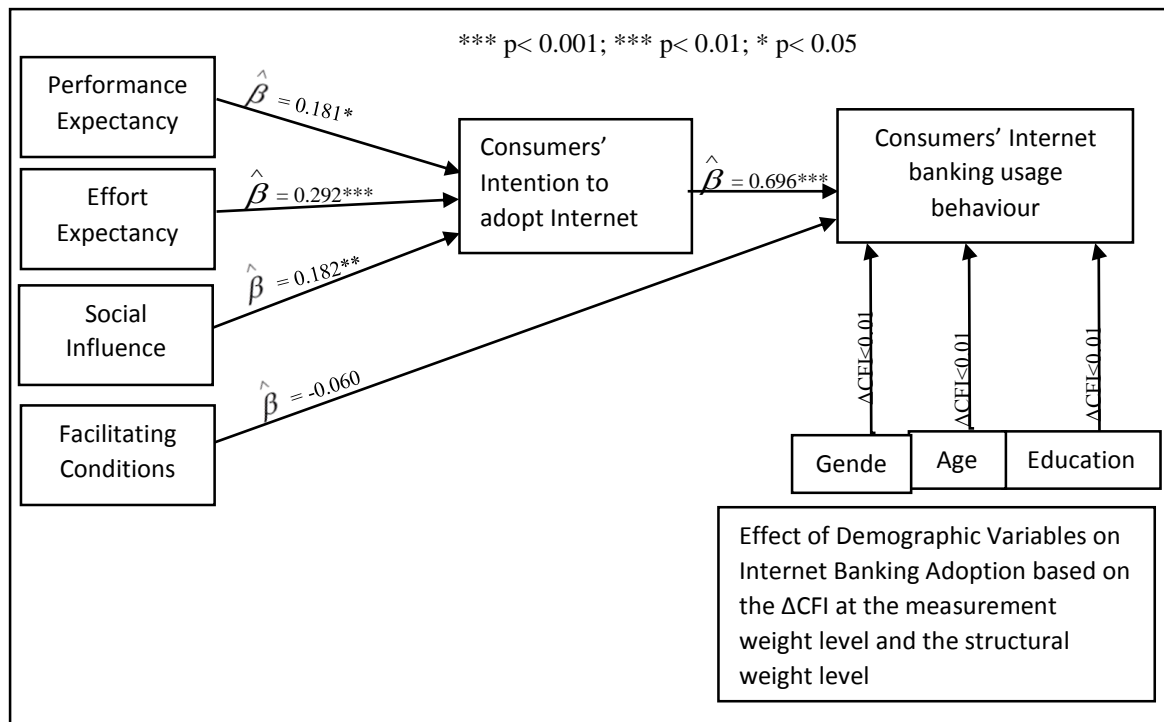
Having established invariance for the measurement weight and the structural weight, running the MACS to assess the mean difference for the two groups was appropriate. The MACS analysis was run, while treating the bachelor's degree and below group as the reference group. The output of the scalar means shows that except for TFC, the reference group have negative estimates. Therefore, this indicates that the reference group has a lower means score than that of the above bachelor degree group. It could also be seen that, except for the effort expectancy variable, all the other mean scores are insignificant (p value >0.05). Therefore, the result of the p values is an indication of no significant difference between the two groups.

Table 5.18: Means: Bachelor Degree and Below - Measurement Intercepts

	Estimate	S.E.	C.R.	P
TPE	-0.138	0.082	-1.681	0.093
TEE	-0.385	0.087	-4.428	***
TSI	-0.006	0.096	-0.064	0.949
TFC	0.047	0.092	0.506	0.613

Source: Author's Construction

The model fit statistics are indicative of a good fit: CFI = 0.978, IFI = 0.978, TLI = 0.975, RMSEA = 0.030 with 90% confidence interval (0.015 and 0.041) and PCLOSE = 0.999, all indicating a good fit. In summary, the invariant result at the measurement weight level and the structural weight level is an indication of an insignificant structural path. Hence, the education hypothesised moderating effect (H13) was not supported for the sample.

Figure 5 3: Measurement Model

Source: Author's Construction

5.10 Summary

This chapter discussed the findings of the study. The chapter focused on issues relating to the demographic characteristics of the respondents. The chapter also focused on analysing the factors that influence Internet banking adoption using the UTAUT model for testing the proposed hypotheses outlined in Chapter 3. Finally the chapter analysed the influence of moderators such as gender, age and education on the proposed model used for the study, in order to explore the effect of these moderators on the adoption of Internet banking in Ghana.

CHAPTER SIX

DISCUSSIONS OF RESULTS

6.1 Introduction

The previous chapter sought to give an analysis of the empirical findings in relation to the objective of the research. In this chapter, the discussion is based on the hypotheses testing results and findings in respect to the UTAUT model. On the basis of this, the current chapter is divided into two different parts: the first focuses on exploring the influence of performance expectancy, effort expectancy, social influence on behavioural intention and the influence of facilitating conditions and behavioural intention on actual usage of Internet banking systems in Ghana; the second explores the influence of moderators on the relationships in the UTAUT model in relation to the adoption of Internet banking in Ghana. This chapter, then, concludes by addressing the fulfilment of the research objectives.

6.2 Part One: The UTAUT Model

Although the need for an IT-based solution in the banking sector of most developing countries has been inarguably established, the reason behind the change in adoption behaviours has not received much clarification from extant researchers. Therefore, the focus of this section is to discuss the various conditions and contingencies that surrounds the adoption of Internet banking in a developing country context of Ghana in order to understand the essential dimensions that define the actual adoption of Internet banking in developing countries. The UTAUT model was empirically tested using data collected from 273 respondents from two different banks in Ghana. The findings provided almost an overall support for the model. The analysis of the study proved that performance expectancy, effort expectancy and social influence had a statistically significant influence on users' behavioural intention to adopt Internet banking, whilst behavioural intention on the other

hand, statistically supported the usage behaviour of consumers. However, contrarily to our views in accordance with the UTAUT model (Venkatesh et al., 2003), it was found that the effect of the facilitating conditions construct from the model over usage was insignificant.

Table 6.1 depicts the result of the findings stated above.

Table 6 1: Hypotheses Conclusions

Hypotheses	Independent variable →	Dependent variable	Moderators	Findings	Conclusion
H1	Performance expectancy →	Behavioural intention	Gender, Age, Education	Positive and significant ($\hat{\beta} = 0.181$; $p < 0.05$) Moderating effect insignificant	Partially supported
H2	Effort expectancy →	Behavioural intention	Gender, Age	Positive and significant ($\hat{\beta} = 0.292$; $p < 0.001$). Moderating effect insignificant	Partially supported
H3	Social Influence →	Behavioural Intention	Gender, Age, Education	Positive and significant ($\hat{\beta} = 0.182$; $p < 0.01$). Moderating effect insignificant	Partially supported
H4	Facilitating condition →	Usage behaviour	Age	Insignificant. Moderating effect insignificant	Not supported
H5	Behavioural Intention →	Usage behaviour	None	Positive and significant ($\hat{\beta} = 0.696$; $p < 0.001$)	Supported

Source: Author's Construction

The various constructs of the UTAUT model were treated generally as individual first-order constructs even though the theory is made up of multiple dimensions. However, the result of the analysis revealed the influence of the other dimensions on the first order constructs.

As a result of this, it is important to note that the findings have highlighted some aspects of the constructs that have not been considered by extant studies.

6.2.1 Performance Expectancy

The performance expectancy construct is made up of expectancies of economic, social or strategic usefulness (Datta, 2011). According to UNCTAD (2004), social issues are usually overshadowed by economic rationalism under bleak economies, hence, making the adoption of Internet banking by customers in developing countries like Ghana centre more on instrumental economic benefits rather than social and strategic issues. Based on this, users of Internet banking in most developing countries feel the need to herald in Internet banking in order to dramatically jump start their business due to the unique opportunities Internet banking offers to the banking customer. In view of this, Alalwan et al. (2014) has stated that performance expectancy can be defined as the terms of utilities extracted by using Internet banking which is productive relative to the traditional encounter. In this study, the performance expectancy construct positively contributed to explaining the variance in behavioural intention. This implies that customers who have high performance expectancy are likely to have the intention to use Internet banking. The result of this study is therefore in support with some works in the UTAUT model (Venkatesh et al., 2003) and in TAM (Davis et al., 1989) and other replication of those models (AbuShanab & Pearson, 2007; Al-Somali et al., 2009; Alalwan et al., 2014; Daniel & Jonathan, 2013; Riffai et al., 2012; Tan & Teo, 2000).

6.2.2 Effort Expectancy

The relationship between effort expectancy was also positively supported. It accounted for the largest unique contribution in explaining the variance in behavioural intention. This means that customers' intention to use Internet banking is highly dependent on higher effort expectancy. The result is in line with the assertion by extant researchers that, in relation to highly educated respondents' effort expectancy has a higher influence on Internet banking adoption (Agarwal & Prasad, 1999). In essence, given that the sample used for the study were highly educated and actual users of the Internet banking technology, it is assumed that they do not find it complex to operate the system. Therefore, according to this study, customers prefer to use Internet banking system which is comfortable to operate and learn how to use. The user-friendly features of the system, familiarity of tasks, clear and easy to follow instructions' might be important aspect which encourages customers to use Internet banking. Based on this, Zhou et al. (2010) has pointed out that when users feel that Internet banking is easy to use and does not require much effort, they will have a high intention towards the adoption of the system. Existing studies have supported this relationship based on the association between the ease of use of a system and the higher intentions to use it (AbuShanab et al., 2010; Amin, 2007; Daniel & Jonathan, 2013; Davis et al., 1989; Guriting & Ndubisi, 2006; Mohan et al., 2013; Venkatesh, 2000; Venkatesh & Davis, 2000).

6.2.3 Social Influence

The social influence variable in the UTAUT model represents a number of other resembling constructs such as subjective norm in TRA, TAM2, TPD/DTPB, combined TAM-TPB, social factors in MPCU, and image in DOI. It represents the degree to which an individual perceives that important others believe he/she should use a new system (Venkatesh et al., 2003). Research has found that social influence is a positive predictor of consumers'

intention to adopt Internet banking. Therefore, Taiwo, Mahmood, and Downe (2012), have posited that consumers might not be obliged to use an information system until they are motivated by important others that can influence their attitude and behaviour. In light of this, the current study reported that social influence positively contributes significantly towards explaining the variance in behavioural intention. Hence, the significant effect of the social influence on behavioural intention is a clear indication that the respondent used for the study are concerned about environmental factors such as the opinion of friends. This is therefore in agreement with Kelman (1958), who stated that social influence is understood by the dimensions of compliance, identification and internalisation. However, Burton-Jones and Hubona (2006) have stated that in situation users are not familiar with a particular information system, social influence may be seen as having a more significant influence on behavioural intention. In light of this, this study is in support with other studies in the UTAUT model (Venkatesh et al., 2003) and in TPB (Ajzen, 1985) and other replication of those models (AbuShanab & Pearson, 2007; Safeena et al., 2014; Yee-Loong Chong et al., 2010;).

6.2.4 Facilitating Conditions

The facilitating conditions variable in the UTAUT model is defined as the degree to which an individual perceives that an organisational and technical infrastructure is to support the use of a system (Venkatesh et al., 2007). It focuses mainly on the role that external factors play directly on the actual usage behaviour of Internet banking without the mediating role of behavioural intention (Venkatesh et al., 2003). In essence, facilitating conditions refers to external indicators from the surroundings of users that influence the use of a system. These external indicators of facilitating conditions include the economy, society, policy and access. In light of this, extant researchers have posited that Internet banking requires users

to have skills such as configuring and operating computers and connecting to the Internet as well as financial resources to bear operational and transactional cost (Zhou et al., 2010). However, the result of the study indicated that, contrarily to our expectations, the effect of the facilitating conditions construct from the UTAUT model over usage was not supported. Therefore this suggests that the surrounding environment of our respondents does not influence their usage of Internet banking. This result is in agreement with some existing works (Alalwan et al., 2014; Martins et al., 2014).

6.2.5 Behavioural Intention

As recorded in previous studies, the relationship between behavioural intention and actual usage behaviour was supported. The study therefore revealed that behavioural intention accounted for the largest unique contribution to explaining the variance in usage behaviour. Hence, Martins et al. (2014) have posited that Internet banking users are more likely to use the system provided they had the intention. This is to say that customers with high behavioural intention to use the system had high usage behaviour. It is important to indicate that the respondents used for the study were actual users of Internet banking, therefore, it is assumed that they need not to reconsider their intention to reuse the system, since it has become an integral part of their banking routine. This result is in support with (Venkatesh et al., 2003)'s work and other replicated works (AbuShanab et al., 2010).

6.3 Part Two: Effect of Moderators

The current section focuses mainly on the discussions of the effect of moderators on the relationships in the model. The moderators used for the study refers to the demographics of the respondents such as gender, age and educational level. In view of this, the discussion

centres around the effect of each demographic variable on the UTAUT model used for the study.

6.3.1 The Effect of Gender

In testing for the measurement invariance among the gender groups, it was found that both the measurement weight and the structural weight level indicated invariance between the two groups. In essence, the test established that gender was not a moderator for Internet banking usage in Ghana. The latent mean analysis test indicated that performance expectancy was high for the female group whilst effort expectancy, social influence and facilitating conditions was high among the male group. However, in respect to TFC, it was found that the mean score was significantly different between the two groups. In view of the fact that findings from extant studies and the respondents used for this current studies are actual users of Internet banking with prior computer and Internet knowledge, the non-moderating effect of gender is a confirmation of the fact that under non-mandated conditions and increased experience, gender difference in relation to IT adoption tends to be insignificant. The result of this study confirms other findings reported in similar conditions (AbuShanab & Pearson, 2007; Al-Qeisi, 2009; Martins et al., 2014).

6.3.2 The Effect of Age

The invariance analysis test showed that the two different groups for age were invariant at both the measurement weight level and the structural weight level. For this reason, it is appropriate to state that age was found not to be a moderator for Internet banking usage behaviour in Ghana. The latent means scores for the younger age indicated a higher mean score for only the TFC variables and a lower mean score for the TPE, TEE and the TSI variables. This implies that performance expectancy, effort expectancy and social influence

were rated higher for the older age group, whilst facilitating conditions were rated higher for the younger age group. However, none of the mean scores for the latent variables had a significant p value (<0.05).

The results obtained can be explained based on the composition of the age ranges of the two groups. The inability to use a wider range for age groups due to the demographic characteristic of the respondents in respect of the age distribution makes the comparison less effective. In light of this, the non-invariance can therefore be attributed to the closeness of the age ranges of the respondent as can be seen in studies such as Martins et al., (2014). Moreover, existing studies (Morris et al., 2005) have examined the effect of age on the adoption of Internet banking using wider age range categories for young age, middle age and older age such as ages 39 and below as younger age group and ages 40 and above as older age group based on the research that suggest that the above 40 years are considered the older or maturing workforce. However, since the second and the third aged groups used for the study all lie between the ages 21 to 40, it is obvious that, according to the study by Morris et al. (2005), the majority of the age groups used for the analysis lies within the category of the younger age. In view of this, it is impossible for the two groups to be non-invariant.

6.3.3 The Effect of Education

The measurement invariance analysis test revealed that the two different groups of education used for the study were invariant at both the measurement weight level and the structural weight level. The result of this invariant reported by the study can be attributed to the high level of educated respondents used for the study. This is because highly educated people are assumed to be more familiar with computers and Internet based application (AbuShanab et

al., 2010). The latent mean structure revealed that respondents who had bachelor's degree and below had a lower mean score compared with those in the category of the above bachelor's degree. The effort expectancy mean score was statistically different. This is an indication that the effort expectancy variable is rated higher by the bachelor's degree and below group. Since there was invariance on measurement weight level and the structural weight level, it can be concluded that there is invariance between the two groups of education. Hence, education is not a moderator for the usage of Internet banking in Ghana.

6.4 Summary

This chapter discussed the relationships that existed between the proposed hypotheses and its influence on Internet banking adoption in Ghana. The objective of this assessment was to determine the extent to which the hypotheses influenced consumers' adoption of Internet banking in Ghana. The second part of this chapter delved into the issue of how demographics such as gender, age and education moderates the factors of the proposed model. The objective was to assess the effect of these moderators on Internet banking adoption in Ghana. This enabled the study to give recommendation in terms of which aspects of the factors that influence Internet banking adoption needs to be prioritised in order to increase user acceptance of the system.

CHAPTER SEVEN

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

7.1 Introduction

The previous chapter discussed the analysis of the empirical findings and addressed the research questions in relation to the literature. Hence, the current chapter focuses on concluding the study by recapping the relevant matters discussed in the preceding chapters. This chapter focuses on offering a summary of the key findings of the study based on the objective of the study and discusses the implication of the findings on research, policy and practices for the sole aim of increasing the adoption of Internet banking among bank customers in Ghana.

7.2 Review of Previous Chapters

The purpose of this research is to explore the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioral intention on consumers' adoption of Internet banking in Ghana as was stated in the initial stages of this study. The need for such a study was justified by the research problem. As stated in Chapter 1, it was found that, although the area of Internet banking adoption has been explored by some information systems authors, there still remained gaps that needed the attention of future authors. These include: (1) the need for future studies to examine the influence of important factors such as social influence and facilitating condition as well as the relationship between behavioural intention and usage behaviour on the adoption of Internet banking; and (2) the effect of moderators such as gender, age and education on the adoption of Internet banking.

In view of this, the study set out to address the following questions:

1. What is the influence of performance expectancy, effort expectancy, social influence, facilitating conditions and behavioural intention on consumers' adoption of Internet banking in Ghana?
2. What is the moderating effect of gender, age and education on consumers' adoption of Internet banking in Ghana?

Based on these, the study used the following procedure in addressing the research questions:

Chapter 2 reviewed existing literature on Internet banking adoption and found that some studies had focused on consumer adoption, use, deployment, benefit, and diffusion. However, it was found that, although there have been some studies on Internet banking adoption in developed countries, there are few studies that have explored the factors that influence Internet banking adoption in less developed countries. Furthermore, the literature review acknowledged that there still exists the need for researchers to devote additional attention to studying important factors such as social influence, facilitating conditions and the relationship between behavioural intention and usage behaviour as well as the comparative effect of Internet banking on a broader set of descriptive population variables such as demographics, socio-cultural and political factors in order to better understand their impact on Internet banking adoption.

Chapter 3 discussed the unified theory of acceptance and use of technology (UTAUT) and its limitations. This theory was chosen in order to explore the factors that influenced the adoption of Internet banking in Ghana. The reason behind the choice of the theory was based on the fact that it combines eight competing theoretical models, which have factors that are

deemed to have a direct effect on Internet banking adoption and are likewise used as a fundamental antecedent to unravell Internet banking adoption in developing countries.

Chapter 4 discussed the research methodology. The chapter initially reviewed the three main paradigms used in information systems studies (i.e. positivism, critical realism and interpretivism) and discussed them in respect of their ontological, epistemological and methodological stance: it selected the positivist approach as the preferred paradigm for the study. The chapter then reviewed the research purpose, research technique, data collection technique, analysis technique and the sample population used for the study.

Chapter 5 examined the demographic characteristics of the respondents as well as their knowledge of computers and the Internet. The chapter presented an assessment and testing of the proposed research model using Structural Equation Modelling (SEM) and examined the frequency of the usage of Internet banking services in respect to the users of the facility (Internet banking customers). The analysis of the proposed framework revealed that most of the factors that were tested were significant. However, with regards to the effect of moderators, it was found that none of the hypothesized moderating effect was statistically supported.

Chapter 6 discussed the analysis of the findings; and sought to address the issues of the research questions and the hypothesis in light of Chapters 2 and 3 and the empirical findings and resultant analysis in chapter 5. As a result, the chapter explored the relationship between the dependent and independent variables in order to ascertain whether the relationship was supported or not. The chapter also examined the use of the model in respect to Internet banking adoption and gave a brief explanation on how each of the construct influences adoption of the system.

7.3 Implication to Research

Studies on Internet banking adoption have been identified as an area with a vibrant future, both from an academic and practical engagement perspective. However, as argued earlier, literature on Internet banking adoption tends to have been silent when addressing salient factors that influence the adoption of Internet banking such as social influence, facilitating conditions and the relationship between behavioural intention and usage behaviour as well as the moderating effect of demographics such as gender, age and education. This research has therefore answered this call and opened more opportunity for further research with its findings.

Therefore, in exploring the factors that influence Internet banking adoption, there seem to be some mileage in the use of the UTAUT model. However, the UTAUT model, although proven to be stronger than other competing models such as TAM and TPB, it is important to state that only few UTAUT-based research exist, particularly compared to the huge TAM/TPB-based research. Therefore, in using the UTAUT model, this study has provided a unique insight on the behavioural pattern of Internet banking users from a developing country context of Ghana. This is therefore an answer to the call by Venkatesh & Zhang (2010) who have admonished future studies to examine the generalisability and validity of the UTAUT model in various technological contexts and demands. Furthermore, more emphasis should be placed on the effort needed to use the internet banking systems as it is the main indicator in influencing consumers' intention to use it. Effort expectancy was integrated from two constructs (perceived ease of use, complexity) used in three different models in the area, which supports the strong influence of these constructs and its inclusion in future study.

7.4 Implications for Practice and Policy

Based on the research framework used for the study, the current study identified different factors that influence adoption of Internet banking in Ghana. Thus, the current study deems it important to indicate the implications of these factors on the Ghanaian banking sector. The findings suggested that consumers' behavioral intention to adopt Internet banking is largely characterised by effort expectancy. This implies that consumers' perception of being able to easily operate the Internet banking technology has a greater influence on their intention to adopt the system. In view of this, the study admonishes banks to invest more in organising free trial services for customers, since customers perception of being able to easily operate the system has a higher influence on behavioural intention to adopt the system.

Additionally, the performance expectancy construct was also identified as having a positively significant relationship on consumers' behavioural intention to adopt Internet banking. On the basis of this, it should be noted that, though there is the need for banks to focus on easy operability of the Internet banking system in order to increase the number of users, the benefits of the system must also be made known to potential adoptors, since it has a significant influence on consumers behavioural intention. Hence, in advertising for Internet banking in Ghana, banks should emphasize on the benefits and the advantages of the system and how it can improve performance and productivity of users.

Given that the social influence construct had a positively significant influence in explaining the variance on consumers' intention to adopt Internet banking, banks' effort to advertise the benefits of Internet banking can be amplified through social influence on people. This is because as a highly social society, the daily life of Ghanaians are usually influenced by

others, and also in the adoption of the Internet banking technology. Therefore, in providing incentives and promotions, customers' referrals can be a sure way of influencing consumer use of the Internet banking technology.

Furthermore, the study reveals that consumers with higher behavioural intention were more likely to adopt Internet banking. In view of this, banks are advised to implement strategies and policies that would highly influence behavioural intention such as free trial services, deployment of additional Internet banking functionalities and provision of incentives and promotions to Internet banking users' for referrals that would make consumers accept the online platform as an alternative to the traditional form of banking. Finally, the banks should invest more in organising free trial services for potential adopter and customers, especially the young and educated working professionals. This is as a result of the revelation that the respondents used for the study were from the young educated working class category.

7.5 Research Contribution to Implementation

In regards to the contribution of this study, it is important to state that, this study have had an immense contribution on the several areas of implementation. Firstly, in implementation, the validity of the UTAUT model which was established in a western culture have been examined in explaining a similar behavior in a non-western culture. Secondly, though, the UTAUT model was established in an organisational context, the contribution of this study lies in the application of the model to a voluntary type of usage behavior. Finally, in addition to support the interrelationships among the key construct in technology acceptance research, this study validate the the UTAUT measure as developed by its authors.

7.6 Research Contribution to Empirical Analysis

With regards to empirical analysis, this research contributed to knowledge in the area of study. The current work utilized the Structural Equation Model analytical technique that permits a concurrent assessment of the adequacy of the measurement model and the conceptual model used to assess the factors that influence the adoption of internet banking in Ghana. For instance, the study employed the use of the confirmatory factor analysis to validate the measurement model in the proposed research model. Another important contribution of this study lies in the fact that, the study used an advanced technique, which studies have only recently begun using to examine invariance. In essence, this work used the mean and covariance structure analysis, which is an advanced technique for answering questions relating to group comparison or difference among cultures and demographics such as gender, age and educational level. Based on this, the current study used two different types of group analysis to examine the moderating effect of gender, age and education on the research model with regards to the adoption of internet banking in Ghana.

7.7 Research Limitations

Despite the general support for the model and the interesting finding that this study has produced, it is important to acknowledge that the study has certain limitations. Firstly, the study reports a limitation in respect of the sample population and the type of technology investigated or the context of the online behavior. The respondents chosen for the study were mostly young and highly educated. In view of this, the behaviours of such respondents can be anticipated as being different from the average population. Furthermore, since the convenience sampling technique which is a non-probability sampling technique was used in selecting the sample population, the issue of selection bias can be anticipated as waning some of the findings. Thus, even though the subjective data were combined for the purpose

of reducing common method bias , it is important to state that the issue of how representative the sample is in relation to the larger population still remains an issue of great concern and a limitation of the study. Secondly, the use of the UTAUT model as the theoretical lens to assess the adoption of Internet banking among consumers of Internet banking in Ghana has certain limitations. The UTAUT model is assumed to have the ability to be recast into different scenarios. Moreover, since the UTAUT was established in a western culture, in explaining a similar behaviour in a non-western culture like Ghana, it could be assumed that user adoption in Ghana is contingent upon other factors that are not considered by the UTAUT model. In contrast to the original UTAUT model, which was a longitudinal study, this current research only measured the respondent perception, intention and usage at a single time point.

7.8 Future Research Pointers

The result of this study have major implications and points to several avenues for future research. However, outlining every possible area worthy of further investigation is impossible. In view of this, the following highlighted areas have been found to be relevant and significant avenues future research.

The current study's result of non-equality in relation to the moderating effect of gender, age and education, suggests further investigation for situations where gender equality might be more prevalent. Likewise, the age and education ranges should be considered when examining technology acceptance behaviors. Since this study explored the age and education range within the work place, it is important for future studies to focus on younger users and potential adopters since the current generation of users are savvy, young and educated. Given the expectation that Internet technology would provide a better and more

distinctive strategic position for banks and its customers, and help mitigate some of the challenges posed by global business trends, future researchers can also consider studying the factors that influence the adoption of cloud based solution by banks using the UTAUT model. Also, since the result of the study provided support for most of the construct used in investigating consumers' adoption Internet banking, the study admonishes future researchers to explore the adoption of Internet banking among different segment of customers such as corporate customers.

Hence, for the purpose of generalizability and validation, future researchers are admonished to consider examining the factors that influence the adoption of mobile banking using the UTAUT model. Furthermore, another issue that needs the attention of future research is that, although the use of the UTAUT model as the theoretical lens for the study produced some interesting findings, Donner (2008) have posited that technological adoption in developing countries is a complex artefact that yields distinct modes of adoption and use across varying region, culture and communities. In view of this, future studies may consider the inclusion of additional variables from other fields of technology adoption into the UTAUT model in order to increase its explanatory power, given the varying regional, cultural and communal disitinction among developing countries. Finally, a longitudinal studies could be conducted in order to adequately investigate the factors that influence the adoption of Internet banking using the UTAUT model in different time periods.

7.9 Research Conclusion

In conclusion, the study presents how the research objectives were realised in light of the previous elaborated discussions. In view of this, the study began with the aim of exploring the factors that influence consumers' adoption of Internet banking in Ghana. Although some

studies have examined the adoption of Internet banking, it must be noted that most of these studies were realised to have emerged from a developed country perspective (Yu, Balaji, & Khong, 2015). Moreover, though some studies were found looking at Internet banking adoption from the context of developing countries, after carefully analysing those studies, it was noticed that those studies failed to examine some salient factors that influence technology adoption such as social influence, facilitating conditions and the relationship between behavioural intention and usage behaviour as well as the moderating effect of some demographics like gender, age and education. As a result, Internet banking adoption research in developing countries has deemed as an area that has been less accounted for in literature (Nasri & Charfeddine, 2012).

Therefore, for the purpose of bridging this gap in research and adequately exploring the different factors that influence the adoption of Internet banking in developing countries, using the UTAUT model as the theoretical lens for the examination was deemed as appropriate. Given the higher predictive power of UTAUT model as compared with other mostly used competing technology adoption theories such as TAM/TAM2, TPB/DTPB, and IDT, and the ability of the model not to only underscore the main individual level factors that affect technology adoption, but identifies the contingencies that moderates the effect of these factors, this study adapted the model to explore the factors that influence the adoption of Internet banking from a developing country context of Ghana. The study drew on the positivist paradigm and the use of the quantitative survey approach to research to explore the factors that influence Internet banking adoption from two banks in Ghana. Based on the survey questionnaires collected from users of Internet banking in Fidelity Bank and Guaranty Trust Bank, the study provided a rich insight of the relationship between the construct of the model from a developing country perspective.

The result of the study supported the relationship between variables like performance expectancy and behavioural intention, effort expectancy and behavioral intention and social influence and behavioural intention. However, whilst the relationship between behavioural intention and usage behavior was supported, the relationship between facilitating conditions and usage behavior was found to be insignificant. Hence, there was no support for that relationship. With regards to the mediating role of gender, age and education on the adoption of Internet banking, its effect were also not supported.

In sum, based on the discussions in the preceding Chapter, this study draws a number conclusion. First and foremost, within the area of Internet banking adoption in developing countries, the effort expectancy variable remains very important. The finding from this study provide evidence from the users' of the system in Ghana to support this conclusion. This observation therefore implies that consumers' perception of the ease to use technological innovation has an influence on their usage behaviour. In view of this, banks can consider offering free trial services to consumers to enable the acceptance of the technology. Secondly, the performance expectancy variable was also identified as being an important factor that influence Internet banking adoption. In essence, the perception of usefulness of the Internet banking technology, influence consumers adoption of the system. As a result of this, banks can consider deploying other services on the platform and educating its customers on the benefits of the Internet banking technology in order to enhance the acceptance of the technology by customers as an alternative to the traditional branch base banking system. The relationship between social influence and facilitating conditions was also found to be significant therefore, banks have been admonised to provide incentive and promotion for customers' since referrals from customer can be a strong technique to influence consumers adopt Internet banking. Finally, this work support the application of

the UTAUT model in exploring the factors that influence Internet banking adoption in developing countries, even though the generalisation of the effect of the demographic moderators' on the model is subjected to some reservations.

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Appendix A**Sample SPSS descriptive analysis****COMPUTER KNOWLEGDE**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MODERATE	35	12.8	12.8	12.8
	GOOD	135	49.5	49.5	62.3
	VERY GOOD	103	37.7	37.7	100.0
	Total	273	100.0	100.0	

INTERNET KNOWLEDGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MODERATE	37	13.6	13.6	13.6
	GOOD	142	52.0	52.0	65.6
	VERY GOOD	94	34.4	34.4	100.0
	Total	273	100.0	100.0	

YEARS DURATION OF INTERNET USAGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MORE THAN 2 YEARS	273	100.0	100.0	100.0

DURATION OF INTERNET USAGE PER DAY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LESS THAN AN HOUR	2	.7	.7	.7
	1-2 HOURS	1	.4	.4	1.1
	3-4 HOURS	65	23.8	23.8	24.9
	MORE THAN FOUR HOURS	205	75.1	75.1	100.0
	Total	273	100.0	100.0	

Appendix B

Copy of Questionnaire**Department of Management Information Systems****THE FACTORS THAT INFLUENCE INTERNET BANKING ADOPTION IN GHANA**

Dear Sir/Madam,

I am an MPhil candidate at the University of Ghana Business School. I am conducting a research on the factors that influence the adoption of Internet banking in Ghana. The study seeks to determine the influence of factors like performance expectancy effort expectancy social influence and behavioural intention on consumers' adoption of Internet banking in order to better understand the relationship between user perception, behavioural intention and usage behaviour among users of the system.

Many thanks for taking a few minutes to answer this questionnaire. Please note that all information provided will be strictly confidential and will be used for academic purposes only. By completing the survey, you indicate that you voluntarily wish to participate in this research.

For any questions please contact me; my details are provided below:

Researcher's Name: Alfred Sekyere Mbrokoh

Email: alfred.sekyere@gmail.com

Survey Questionnaires**Do you use the Internet for banking? Yes [] No []**

Name of bank _____

Part One: Demographic information (Please tick [√])

1. Gender: Male [] Female []
2. Marital Status: Single [] Married [] Divorced [] Other []
3. Age: 20 or under [] 21-30 [] 31-40 [] 41-50 [] 51-60 [] 61+ []
4. Highest level of education: SHS and below [] Diploma [] First degree []
Masters [] Ph.D. []
5. Type of employment: Not working [] Salaried worker [] Self-employed []
Pensioner []
6. Occupation (Please specify, eg. "university lecturer in business school legon")

Part Two: Computer Knowledge and Experience (Please tick [√])

7. How do you describe your general knowledge about computers?
Very poor [] Poor [] Moderate [] Good [] Very good []
8. How would you describe your Internet knowledge?
Very poor [] Poor [] Moderate [] Good [] Very good []
9. How long have you been using the Internet?
Don't use [] Less than 1yr [] 1- 2 yrs. [] More than 2 yrs. []
10. How often do you use the Internet per day?
Don't use [] Less than 1hr [] 1-2 hrs. [] 3- 4 hrs. [] More than 4 hrs. []

Part Three: Internet banking Adoption Factors

Using a rating scale from the lowest point of 1 to the highest point of 5, please circle the number that indicates your level of agreement or disagreement with the following statement.

SD = strongly disagree | D = Disagree | N = Neutral | A = Agree | SA = Strongly Agree | NA= Not Application

No	Statement	SD	D	N	A	SA	NA
<i>Performance expectancy</i>							
1.	Internet banking is useful to carry out my tasks	1	2	3	4	5	-
2.	I think that using Internet banking enables me conduct tasks more quickly	1	2	3	4	5	-
3.	I think that using Internet banking increases my productivity	1	2	3	4	5	-
4.	I think using Internet banking improves my performance	1	2	3	4	5	-
<i>Effort expectancy</i>							
5.	My interaction with Internet banking is clear and understandable	1	2	3	4	5	-
6.	It is easy for me to become skilful at using Internet banking	1	2	3	4	5	-
7.	I find Internet banking easy to use	1	2	3	4	5	-
8.	I think that learning to operate Internet banking is easy for me	1	2	3	4	5	-
<i>Social Influence</i>							
9.	People who influence my behaviour think that I should use Internet banking	1	2	3	4	5	-
10.	People who are important to me think that I should use Internet banking	1	2	3	4	5	-
11.	People in my environment who use Internet banking services have more prestige than those who do not	1	2	3	4	5	-
12.	People in my environment who use Internet banking services have a high profile	1	2	3	4	5	-
13.	Having Internet banking services is a status symbol in my environment	1	2	3	4	5	-
<i>Facilitating conditions</i>							
14.	I have the resources necessary to use Internet banking	1	2	3	4	5	-

15.	I have the knowledge necessary to use Internet banking	1	2	3	4	5	-
16.	Internet banking is compatible with other systems I use	1	2	3	4	5	-
17.	Help is available when I get problem using Internet banking	1	2	3	4	5	-
Behavioural intention		SD	D	N	A	SA	NA
18	I intend to use the system in the next months.	1	2	3	4	5	-
19	I predict I would use Internet banking in the next months.	1	2	3	4	5	-
20	I plan to use the system in the next months.	1	2	3	4	5	-
21	I intend to consult the balance of my account on the platform of Internet banking.	1	2	3	4	5	-
22	I intend to perform a transfer on the platform of Internet banking.	1	2	3	4	5	-

Part Four: Actual use of Internet bank (Please tick [√])

- How long have you been using Internet banking facilities?
Under 1year [] 1-2 years [] 3- 4 years [] more than 4 years []
- On a weekly basis, how many times do you use Internet banking?
Not at all [] once a week [] 2-3 times [] more than 3 times []
- How frequently do you use your Internet banking for the following services:

Functionality	Never	Rarely	Sometimes	Often	Always	NA
	1	2	3	4	5	-
View Only						
Balance enquiry						
Foreign exchange rates updates						
Interest rate updates						
Monthly statement by mail						
Action/Account Control						
	Never	Rarely	Sometimes	Often	Always	NA
	1	2	3	4	5	-
Money transfer						

Bill payments						
Requesting standing instructions						
Receiving alerts						

Appendix C**Results from multivariate test.****Table 5.3: Normality Test Results**

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
AU2	1.000	4.000	.600	4.049	-.912	-3.076
AU1	1.000	5.000	-.155	-1.042	-1.484	-5.004
FCC14	1.000	5.000	-.578	-3.902	-.350	-1.181
FCC15	1.000	5.000	-.737	-4.972	.432	1.455
FCC16	1.000	5.000	-.417	-2.811	-.433	-1.459
FCC17	1.000	5.000	-.154	-1.042	-.677	-2.284
SIC9	1.000	5.000	.337	2.270	-.355	-1.199
SIC10	1.000	5.000	.487	3.287	-.134	-.452
SIC11	1.000	5.000	.696	4.697	-.051	-.171
SIC12	1.000	5.000	.447	3.018	-.155	-.522
SIC13	1.000	5.000	.605	4.078	-.236	-.796
BI18	1.000	5.000	-1.105	-7.455	1.195	4.032
BI19	1.000	5.000	-1.193	-8.048	1.075	3.625
BI20	1.000	5.000	-.939	-6.332	.656	2.212
BI21	1.000	5.000	-.947	-6.385	.709	2.391
BI22	2.000	5.000	-1.069	-7.214	.649	2.188
EEC5	2.000	5.000	-.589	-3.975	-.372	-1.254
EEC6	1.000	5.000	-.712	-4.802	.724	2.441
EEC7	1.000	5.000	-.781	-5.269	.387	1.305
EEC8	1.000	5.000	-.949	-6.402	1.205	4.064
PEC1	1.000	5.000	-1.072	-7.230	1.290	4.352
PEC2	1.000	5.000	-1.101	-7.429	1.868	6.300
PEC3	1.000	5.000	-.844	-5.692	.633	2.135
PEC4	1.000	5.000	-.584	-3.937	-.045	-.150

Variable	min	max	skew	c.r.	kurtosis	c.r.
Multivariate					61.929	14.482

Table 5.4: Analysis of Outliers

Observation number	Mahalanobis d-squared	p1	p2	Observation number	Mahalanobis d-squared	p1	p2
1	66.723	0	0.002	139	31.139	0.15	0.055
2	66.075	0	0	132	31.119	0.15	0.042
164	61.421	0	0	221	31.106	0.151	0.031
234	57.32	0	0	272	31.077	0.152	0.023
262	54.715	0	0	150	30.947	0.155	0.024
259	51.319	0.001	0	191	30.947	0.155	0.017
11	50.473	0.001	0	163	30.752	0.161	0.022
12	50.02	0.001	0	170	30.752	0.161	0.015
113	49.343	0.002	0	133	30.693	0.163	0.013
17	47.928	0.003	0	216	30.331	0.174	0.03
146	47.313	0.003	0	180	30.31	0.175	0.023
179	47.206	0.003	0	35	30.273	0.176	0.018
76	46.706	0.004	0	119	30.134	0.18	0.021
252	46.096	0.004	0	110	30.018	0.184	0.022
19	44.845	0.006	0	54	29.36	0.207	0.116
232	42.762	0.011	0	107	29.197	0.213	0.137
175	41.435	0.015	0	30	28.901	0.224	0.216
244	41.267	0.016	0	112	28.679	0.232	0.278
255	41.205	0.016	0	197	28.434	0.242	0.364
41	40.481	0.019	0	25	28.217	0.251	0.441
228	40.436	0.019	0	201	27.717	0.272	0.695
157	39.382	0.025	0	37	27.635	0.276	0.693
219	39.181	0.026	0	183	27.593	0.278	0.668
111	38.946	0.028	0	249	27.464	0.283	0.695
204	38.598	0.03	0	227	27.394	0.286	0.687
178	37.733	0.037	0	213	27.029	0.303	0.83
73	36.85	0.045	0	202	27.02	0.304	0.798
22	36.712	0.047	0	98	26.957	0.306	0.79
261	36.564	0.048	0	127	26.942	0.307	0.757
236	35.722	0.058	0.001	141	26.761	0.316	0.808
156	35.502	0.061	0.001	271	26.672	0.32	0.813
165	35.258	0.065	0.001	223	26.67	0.32	0.776
128	34.705	0.073	0.003	123	26.668	0.32	0.736
245	34.427	0.077	0.004	120	26.617	0.323	0.722
106	34.093	0.083	0.007	154	26.574	0.325	0.702

172	33.926	0.086	0.007	27	26.562	0.325	0.663
131	33.793	0.088	0.006	242	26.318	0.337	0.761
268	33.228	0.099	0.022	92	26.295	0.338	0.732
258	33.197	0.1	0.015	83	25.836	0.362	0.901
88	32.481	0.116	0.069	63	25.824	0.362	0.881
144	32.229	0.121	0.089	167	25.82	0.362	0.856
263	32.207	0.122	0.068	42	25.792	0.364	0.837
16	32.182	0.123	0.051	264	25.759	0.366	0.82
6	31.9	0.13	0.074	185	25.737	0.367	0.795
229	31.599	0.137	0.11	48	25.515	0.378	0.863
148	31.514	0.139	0.1	137	25.471	0.381	0.852
189	31.514	0.139	0.074	173	25.394	0.385	0.855
195	31.476	0.141	0.059	253	25.394	0.385	0.824
40	31.4	0.143	0.052	94	25.292	0.39	0.839
103	31.38	0.143	0.039	198	25.25	0.392	0.826