UNIVERSITY OF GHANA

CUSTOMERS' ACCEPTANCE OF MOBILE BANKING: OBSTRUCTIONS AND THE ROLE OF CULTURAL MODERATORS

BY

ERASMUS YEMOFIO

(10638062)

THIS THESIS IS SUBMITTED TO THE DEPARTMENT OF OPERATIONS AND MANAGEMENT INFORMATION SYSTEMS, UNIVERSITY OF GHANA BUSINESS SCHOOL, UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MPHIL IN MANAGEMENT INFORMATION SYSTEMS DEGREE

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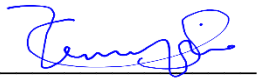
DECLARATION

This work is the result of my own research efforts and has not been presented by any other individual for any academic award in this or any other university. All references used in the work have been fully acknowledged, with citations made to the respective authors whose works contributed to the successful completion of this study.

I, therefore, bear responsibility for any shortcomings.



24/10/2020

Erasmus Yemofio **Date**

(10638062)

25/10/2020

DR. ACHEAMPONG OWUSU Date

(Supervisor)

..RICHARD BOATENG

25/10/2020

PROF. RICHARD BOATENG Date

(Co-Supervisor)

ABSTRACT

This research intended to identify and analyze security and privacy factors that impede mobile phone banking acceptance in the banking sector in Ghana. It also set out to examine the intervening effect of cultural dimensions on the factors that account for the acceptance of mobile banking. Lastly, the study sought to propose a conceptual model to depict the various obstructing factors and moderators of mobile banking acceptability from the respondents' perspective. This work was carried out by the combination of the Technology Acceptance Model (TAM), which has evolved and expanded over time, and Hofstede's Cultural theory as moderators. The study integrates constructs such as security and privacy, perceived trust, perceived risk, and regulatory influence. These constructs mostly make up underpinning theories and models of technology acceptance, such as the Theory of Reason Action (TRA), the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT).

To achieve these objectives, the study adopted a qualitative research method, using an interview guide to collect data from twenty (20) panel participants drawn from mobile banking users and non-mobile banking users. Research questions were generated, and the data collected was analyzed. The study found that privacy and security were both obstructions and motivating factors to mobile banking acceptability. To most respondents, privacy and security were the reasons why they used mobile banking as they believed that their information is secured. They felt that since their account is protected by a PIN, known only to them, their account is safe while those who have not subscribed cited fear for their security and privacy as the rationale for not using mobile banking services. They feel that putting out their information in such a virtual world riddled with hackers may lead to their information ending up in the wrong hands. More devastating maybe, when they lose their phone, since their bank account may be accessed by unscrupulous people. Meanwhile, the

study extensively, found that cultural moderators serve as factors influencing users' mobile banking acceptability or rejection. Thus, individualism and uncertainty avoidance have a significant influence on security and privacy thereby determined whether a customer used mobile banking or not. It was also found that high cost, in terms of internet charges and unreliable internet services were the reasons some consumers have perceived not to use mobile banking services.

On the basis of the findings, the study concluded that mobile banking has had a significant positive influence on the banking sector in Ghana. Mobile banking users have confidence in their banks. Though many people enjoy the ease and comfort that comes with mobile banking, efforts should be made by operators of these products to convince the few, who still do not trust the system. This country-specific study leads to mobile banking acceptance and offers authors, practitioners, and policymakers some useful insights into how to enhance the acceptability of mobile banking for countries with a similar environment. Especially, the study finally recommended that mobile banking service providers must improve security and privacy by improving security and privacy features on their mobile banking platforms to boost user confidence. More so, mobile banking service providers must use available channels to give adequate information and education surrounding the protection of mobile banking. Also, mobile banking service providers must collaborate with internet service providers to bring about affordable internet charges, and reliable internet services in the mobile banking industry. Further studies should, again, be undertaken with the focus on different possible intervening factors on mobile banking acceptability in Ghana.

DEDICATION

To my Inspirational Family (Wife and Kids), My Mum and My Manager.

ACKNOWLEDGMENT

Praise be unto the name of Jehovah, who has been my provider and guardian. I owe my gratitude to all those who have made this thesis possible and because of whom my graduate experience has been one I will forever cherish.

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I express my warm thanks to my wife and manager who ensured this dream saw the light of day. Your invaluable support and understanding will always be in my heart.

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Finally, words cannot express how grateful I am to my mother, and siblings for all the sacrifices they made on my behalf. Your prayers for me were what sustained me thus far.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADC	**Alternative Delivery Channel**
ATM	**Automated Teller Machine**
BoG	**Bank of Ghana**
GCB	**Ghana Commercial Bank**
IS	**Information Systems**
IDV	**Individualism**
ICT	**Information and Communication Technology**
IDT	**Innovation Diffusion Theory**
MA	**Masculinity**
PATU	**Perceived Ability to Use**
PDA	**Personal Digital Assistant**
PD	**Power Distance**
PFB	**Perceived Functional Benefits**
PIN	**Personal Identification Number**
SSA	**Sub-Saharan Africa**
SMS	**Short Messaging Service**
TAM	**Technology Acceptance Model**
TRA	**Theory of Reasoned Action**
TPB	**Theory of Planned Behaviour**
TO	**Time Orientation**
UA	**Uncertainty Avoidance**

UNCITRA	**United Nations Commission on International Trade**
UTAUT	**Unified Theory of Acceptance and Use of Technology**
WAP	**Wireless Application Protocols**

CHAPTER ONE

INTRODUCTION

1.1 Background to study

The development of the internet, wireless technology, and mobile apps have propelled banks to come up with creative means of outwitting competition (Alalwan, Dwivedi & Rana, 2016; Koksal, 2016; Singh & Malhotra, 2010). As a result, the progression of the internet from a fixed-line limitation to a mobile one, mobile technology gadgets such as mobile phones, which were used in communicating with others, is currently employed in banking transactions (Koenig-Lewis, Palmer & Moll, 2010). This platform, which became known as mobile banking or m-banking, has brought forth a new era in the banking industry worldwide (Shambare, 2013; Oliviera & Tam, 2017). Thus, banks around the world, including Ghana (Cudjoe, Anim & Nyanyofio, 2015), adopted mobile banking as a strategic tool outside the conventional banking structure.

M-banking is simply "the delivery of information or services by a bank to its customers by way of different delivery platforms such as mobile and personal digital assistants (PDAs) through wireless application protocols (WAP)" (Afshan & Sharif, 2016, p.371). It has many advantages over traditional banking like the everywhere/anytime service availability, elimination of queues, and reducing branch working hours, etc. Transactions such as money transfers, bill payments, accounts monitoring, managing of bank accounts, enquiries, and Automated Teller Machine (ATM) locations are made available to customers through the m-banking channel (Luarn & Lin, 2005; Goyal, Nagori & Sasmal, 2012). Particularly, there is an increased use of smartphones, which presents the opportunity for m-banking services, encouraging banks, software designers, and other related service providers to offer this innovative service to enhance operational efficiency, increase market shares and improve customer retention and satisfaction (Shaikh, 2013). Banks now provide mobile banking

services to their customers (Koenig-Lewis et al., 2010; Alalwan et al., 2016; Cudjoe et al., 2015; Makanyeza, 2017). As Juniper Research (2013) disclosed, over one billion people had used m-banking globally as of 2017, with the mobile banking market expected to be worth $14.27 billion by 2020.

While Automated Teller Machines (ATMs), telephones, and m-banking provides effective channels of distribution for conventional banking, as the latest channel of delivery set up by players within the financial service industry in most developed and developing nations, mobile phone use has had a significant market impact (Safeena, Date, Kammani & Hundewale, 2012). An example is the usage of mobile phones by Ugandan farmers, Indian barbers, and microfinance operators in Ghana to obtain prices, provide product and service details, thereby reducing transactional costs, enhancing operational efficiency, improving customer retention, etc. (Goyal, Nagori & Sasmal, 2012; Shaikh, 2013; World Bank, 2011).

Presently, various business and institutional models provide these systems. Others are provided solely by banks with others wholly provided by telecommunication service providers and even others include a relationship between a bank and a telecommunications service provider (Porteous, 2006; Goyal et al., 2012). Thus, there is no common form of mobile banking; rather, structure and purpose differ from one country to the other (Makanyeza, 2017; Camilo, Reynolds, Johnson, Halpem & Ransom, 2008).

In Africa and beyond, there have been various forms and types of m-banking. For instance, in some Asian countries, there is the Mobile Suica, Octopus NTT DoCoMo with over 20 million subscribers (Goyal, Nagori & Sasmal, 2012). In Kenya, the M-PESA provides an example of the first mobile banking technology as well as the introduction of mobile phones to support microfinance by Safaricom, a Vodafone subsidiary. Uganda is also on the rise in terms of mobile phone usage. As a result, banks have leveraged on this and the adoption

rates and the patronage of mobile banking services are high as demonstrated in the Uganda Communication Commission report (2009) and Kochhar (2009). Besides, South Africa is by far the country on the continent with both the highest mobile banking patronage and penetration. However, the legal and regulatory landscape is not entirely conducive to greater financial inclusion (Ondiege, 2010; Lawack, 2013), which has to do with security and privacy issues as well as national culture.

Notwithstanding the potential advantages that mobile banking offers to customers, its rate of acceptance has been limited and, in many cases, varies considerably between countries (Takieddine & Sun, 2015). It is grounded in literature that mobile banking is still at its infant stage and has struggled to gain potential consumers ' trust so far (Zhang, Zhu & Liu ,2012). Moreover, despite the improvement in technology and the increased use of m-banking services in developing countries like Ghana, the number of users has fallen short of expectations. Security and privacy, as well as cultural factors, play a significant role in customers' acceptance of m-banking (Koksal, 2016; Mohammedi, 2015). Therefore, a fact that merits research into the reasons and the cultural intervening effects toward mobile banking acceptance in Ghana.

1.2 Research Problem

The current situation demands banks to pay much attention to the various obstructions and the acceptance of electronic banking in its entirety. Compliance with consumers' needs and requirements (Bilan, 2013), security and privacy issues, and bank customers' acceptance and more is presently at the center of the focus of researchers and bankers. As a result, the interest of Information Systems (IS) related research is shifted to the area of m-banking channels emerging as one of the latest developments of the IS domain (Al Jabri & Sohail, 2012; Yu, 2012; Shaikh & Kajaluoto, 2015). Previous works have focused mainly on the

choosing and use of mobile banking. Research work on electronic banking security and customer satisfaction (Belas & Klujnikov, 2016), dimensions of mobile banking service quality (Jun & Palacios, 2015), determinants of mobile banking adoption in Ghana (Cudjoe, Anim & Nyanyofio 2015), mobile banking, and individual performance (Tam & Oliviera, 2017), acceptance of mobile banking framework in Pakistan (Afshan & Sharif, 2016), predicting the intention to use mobile banking (Singh & Srivastava, 2018), the relationship between electronic banking adoption and the role of cultural influence (Zhang, Zhu & Liu, 2018) and the influence of culture on mobile banking usage and individual performance (Tam & Oliviera, 2018) are a few of the many pieces of literature on mobile banking.

Firstly, in mobile banking, theoretical studies have mostly centered on adoption theories that includes the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Reasoned Behavior (TRA), Technology Acceptance Model (TAM), and the Theory of Planned Behaviour (TPB) to examine the behavioral patterns of the users of mobile banking. Some of these studies have extensively focused on the determinants of m-banking studies (Mohammedi, 2014; Cudjoe, Anim & Nyanyofio, 2015). However, there is the need to examine security and privacy, risk, trust, and regulatory influence in mobile banking acceptance from consumers' perspective. These related security and privacy obstructing factors are scattered in various determinants and theories used in studying the phenomenon of mobile banking. This study, therefore, seeks to pull the constructs from the various literature and understudy them holistically.

Secondly, according to Bojjagani and Sastry (2016), with the upsurge in mobile phone usage, challenges encountered in the use of these devices increased drastically. The privacy and security of personal financial data is a major challenge. Certainly, because of this, it has also become quite popular with hostile challenges. A perceived lack of security is seen as a

possible loss caused by fraud or system hacking (Lee, 2009). As a result, security and privacy are stated as two basic determinants of customers' trust, generally in e-banking channels (Omariba, Masese & Wanyembi, 2012; He & Tian, 2015; Bojjagani & Sastry, 2016). Thus, customers' acceptance and satisfaction with mobile banking could be significant within the Ghanaian banking industry.

Thirdly, in their contribution to literature, Keating and Hanafizadeh (2013) focused their study on analyzing and bringing together multiple existing studies to better understand electronic banking components. They subsequently, seek to draw some conclusions through comparison across a population, as well as channels or methods of distribution. Hence, they suggested in-depth research in the various components of e-banking – mobile banking (Shaikh, 2015) to intensify possibilities of comparative studies within the wider sphere of e-banking technologies. This does not exclude the various perspectives, especially, from the individual level perspective. The above, among many, is a gap that this study seeks to examine towards finding answers and enhancing literature in mobile banking acceptance.

Fourthly, the inclusion of the moderating effect of cultural dimensions in understanding customers' reluctance in order to accept mobile banking as pointed out by Tam and Oliviera (2018), isolates this study from some of the past mobile banking literature. As Behbodi, Granehim, and Lundman (2014) posit, the increasing demand to motivate customers to utilise mobile phones for their banking needs coupled with the negative trend in the acceptance of this innovative ideas in developing countries, make it relevant to study the obstructive factors of mobile banking acceptance. Moreover, research has called to mind the addition of a group of moderators that have not been mainly tested such as cultural dimensions by (Behbodi, Granehim & Lundman, 2014) to help appreciate the effects of the

relationship between the elements and the acceptance of mobile banking at the individual level.

Finally, in terms of context gap, a number of studies on mobile banking acceptance have, in some way, focused on developing countries like Kenya, South Africa, Philippines, India, Uganda, and Ghana (Kochhar, 2009; Ondiege, 2010; Klein & Mayer, 2011; Cudjoe, Anim & Nyanyofio, 2015; Asante-Gyaabah et al., 2015). There is also the need to consider the fact that such studies have taken minimal percentages as compared to the Asian and European countries. In their review, Asia and Europe have 59% and 23% respectively while Africa has 7% of studies conducted within those areas (Cudjoe, Anim & Nyanyofio, 2015). Hence, extending this study to a developing country like Ghana, which has culture as the underlined bases of life choices, to understand the impediments of mobile banking and the cultural effects, will suitably help to appreciate the maximization of the technology's acceptance within the Ghanaian banking industry. Again, with the reformation trends of the banking systems by the Bank of Ghana (BoG), such a country-specific study will be appropriate for the tapping of knowledge for the effect of the reformation in a similar context.

Against this context and these gaps, this research is driven in attempting to investigate the obstructive constituents and integrating the moderating contribution of cultural dimensions towards the acceptance of mobile banking services in the Ghanaian banking sector.

1.3 Research Purpose

The purpose of this study is to understand the factors that obstruct or serve as barriers towards mobile banking acceptance in the Ghanaian banking industry. In addition, the study seeks to examine the moderating effect of cultural dimensions on these factors towards the acceptance of mobile banking.

1.4 Research Objectives

The specific objectives of the present study are:

1. To examine factors that obstruct the acceptance of mobile banking services among customers in Ghana.
2. To explore the moderating role of culture in mobile banking acceptance among banking customers in Ghana.

1.5 Proposed Research Questions

1. Which factors obstruct the acceptance of mobile banking services among banking customers in Ghana?
2. How does culture moderate the effect of each obstructing factor – mobile banking acceptance relationship?

1.6 Significance of the Study

Firstly, this thesis will contribute immensely to the development of the relatively young m-banking literature to stimulate academic study interest in the field of information systems by contributing to the growing literature in mobile banking in the Ghanaian context, especially with the reformation trends of the banking systems by the Bank of Ghana (BoG). Hence, the country-specific study design and findings of this research will be appropriate for other countries that are similar in context. Also, the theorization and model used in this research broadens the m-banking acceptance literature. In lieu of this, future studies will assimilate this study's model and give thought to designing more discerning research in the field. In furtherance, the moderating effects of culture will bring to bear an additional behavioral pattern in m-banking acceptance.

Secondly, the findings of this research will identify the expectations and wants of customers and understanding their motivation for the acceptance and utilisation of mobile banking,

which will assist bank managers to develop strategies to improve customer acceptance and satisfaction of such technology beyond Africa.

Thirdly, the contribution of this study can inform mobile banking application developers and technical support administrators of banks of the lessons learned to enhance future best practices of mobile service provision. The knowledge and understanding resulting from this research approach will not only help banks target impediments that hinder user acceptance but will also help them to determine the decision-making factors for their services.

Lastly, the findings of the study can practically serve as a roadmap for establishing a strategic policy plan for the regulatory environment either by stipulation or improvement of an existing one.

1.7 Chapter Outline

The present study has been divided into six (6) chapters which is in line with the procedures of this work.

Chapter 1: Introduction: This chapter introduces the work in nature and outlines the research background, problem, purpose, objectives of the study, questions, significance, and the organisation of the research.

Chapter 2: Review of Literature: This chapter deals with the review of literature. In this chapter, important studies relating to the overview of m-banking services and its acceptance in the banking sector are exhausted.

Chapter 3: Research Framework: This chapter deals with the development of a theoretical framework that will serve as the roadmap for this study.

Chapter 4: Research Methodology: The chapter encompasses the research methodology approach for this research on the acceptance of mobile banking in Ghana.

Chapter 5: Data Analysis and Discussion: The chapter includes the data presentation and combines the results and its discussions from the findings of the study.

Chapter 6: Summary, Conclusions, and Contributions: This chapter summarises the findings of this research, draws conclusions from the findings, and contributes to academia, the banking sector, and other relevant stakeholders in the mobile banking sector.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

The previous chapter discussed the general background, problem statement, main purpose, and the significance of this research. Subsequently, in this section, pertinent literature on mobile banking and its acceptance or obstructions as well as the culture was reviewed. The literature on mobile banking development, mobile banking services, and modes of operation, as well as technologies employed to provide the services, was reviewed. The chapter also empirically reviewed mobile banking research and some foundational technology acceptance models to help deduce the obstruction factors in order to identify the research gaps.

Evidence tends to indicate that mobile banking services are increasingly gaining popularity. With the increase in mobile phone penetration, a shoot up in the usage frequency of mobile devices and related services is also anticipated. Currently, five billion people were estimated to be owners of mobile phones around the world by 2019, Mobile phone penetration is projected to appreciate, rounding up to 67 percent by 2019 (Acker & Mbiti, 2010). 60% of Sub-Saharan Africa's (SSA) population uses mobile phones, with this figure estimated to grow dramatically over the years (Acker & Mbiti, 2010; Asongu, 2018). Unfortunately, mobile banking security threats and acceptance, over the past few years, have increasingly gained traction in terms of frequency and sophistication.

In this regard, it becomes prudent to study factors obstructing mobile banking in regions with significant growth to contribute insight and knowledge for other developing countries (Penard, Cliquet, & Shane, 2012).

2.2 Development of Mobile Banking

M-banking was birthed in the late 1990s when the first service was set forth by Paybox, a German firm, that partnered with Deutsche Bank. It was initially brought into service and tested in Germany, Sweden, Spain, United Kingdom, and Austria, mostly in Europe (Shaikh & Karjaluoto, 2015). In 2007, Kenya pioneered mobile banking among developing countries with a text-based m-banking service, M-Pesa. There were over seven million enlisted users of M-Pesa in Kenya by 2012 (Mbiti & Weil, 2015). According to Veijalainen, Reunamo, and Aljoki (2006), the key compelling force for the swift acceptance and usage of small mobile devices is the capacity of these devices to access services and running applications at any time and place on the go.

Studies have referred to mobile banking in various terms such as M-banking (Liu, Min & Ji, 2009), Branchless banking (Ivatury & Mas, 2008; Afshan & Sharif, 2016), and M-payments (Goyal et al., 2012). In spite of the terminology they use, scholars commonly describe m-banking as an m-commerce application that allows customers to access their bank account via mobile devices for transactions such as enquiries about their account balance, transfer of money, payments, or selling stocks (Alafeef, Singh & Ahmed, 2012; Harma & Dubey, 2009; Tam & Oliviera, 2017). Laukkamen and Kiviniemi (2010) define mobile banking as "an interaction in which a customer is connected to a bank via a mobile device such as a cell phone, smartphone, or personal digital assistant". Additionally, other studies (e.g., Akturan & Tezcan, 2012; Masrek & Khairuddin, 2012) cite m-banking as an innovative communication channel in that the customer interacts with a bank through a portable device. Ultimately, m-banking has caused some differences in the financial terrain and thus has enormous market potential due to its availability and the willingness of customers to bank practically anytime and at any location (Laukkanen & Kiviniemi, 2010).

As a technological platform or service, m-banking services have an enormous benefit for both customers and banks. For the majority of the customers in these developing economies, there seem to be an expected convenience advantage over the traditional alternative banking (travelling and queuing at branches or cash-based savings) (Shaikh & Karjaluoto, 2015). According to the review, m-banking consists of customer advantages such as; the ability to inform owners of purchases made with their credit cards, how much was charged for each transaction, customers' ability to view or check their deposits, withdrawals, balances in real-time, it also has the advantage for the customer to authorize or stop payments and cheque books as well as remind customers of their outstanding loan repayment (Rajesh, 2010; Laukkanen, 2017). Shaikh and Karjaluoto (2015) further added that there is a number of reasons that should, on the other hand, persuade banks in favour of mobile phones. In this stead, mobile banking technology helps to cut down costs for banking, improves value-added services, and makes banking more effective through mobile messaging and other such applications (Shaikh & Karjaluoto, 2015). They help improve the accounts of customer profiling, reduce operational costs, and increase market shares (Goyal, Nagori & Sasmal, 2012). Hence, the use of mobile technology is arguably seen as a middle ground situation for both banks and the bank's customers. However, these advantages can only be realized if m-banking is accepted by the parties involved in the provision of these services (Makanyeza, 2017).

2.2.1 Mobile Banking Services and Modes of Operations

2.2.2 Mobile Banking Services

M-banking is typically an alternative delivery channel (ADC) for different financial/transactional and non-financial/non-transactional services (Cruz, Barreto, Munoz-Gallego & Laukkane,2010) as outlined in **Table 2.1.** There are additional ADCs such as ATMs, telephone banking, internet banking, etc.

Table 2.1. Some services provided through m-banking

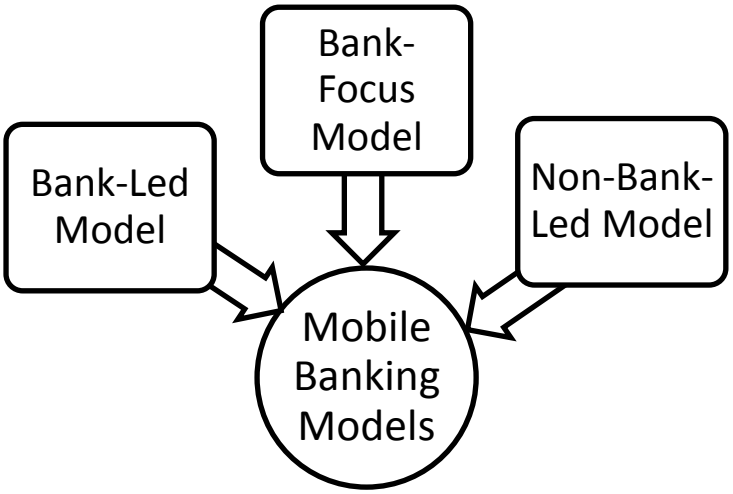
Transactional services	Non-transactional services
"Bill" Payment	"Balance" inquiry
"Peer-to-peer" payment	Mini-bank statement
Fund transfer	"PIN" change
Remittance	Checkbook request
Shopping and donations	Due alerts for payment
Recharge of m-balance	ATMs Location

Source: Shaikh et al. (2015)

2.2.3 Modes of Operation by Providers

The payment innovation working group (2012), presents three core business understanding for mobile banking: MNO-led Model, Bank-led model, and Independent Model (payment Innovation Working Group, 2012). The alliance for financial inclusion (2013), also gives the business models for mobile banking as; Bank-Based model, Bank-Led Model, Non-Bank-Based Model, and Third-Party Provider. A wide range of ideas for mobile banking is now being developed. Three models have been discovered and developed, and they vary largely from each other depending on who initiated the relationship of account opening, deposit, or withdrawal, borrowing, etc. Thus, a transaction between a bank or a non-bank company and a customer. There are variations in the Bank-Led Model, Bank Focused Model, and Non-Bank-Led Model (Anyasi & Otubu, 2009; Porteous,2011).

Figure 1. Mobile Banking Models



Source: Tiwari, Buse, and Herstatt (2006)

a. Bank –Led Model

The Alliance for Financial Inclusion (2013) gives the Bank-Led Model as, one in which the bank leads the marketing, branding, and managing of the customer relationship (Alliance for Financial Inclusion, 2013). This is when, with the aid of trade partners customers perform transactions using their smart phones, which is distinct from the branch-base. This serves as a substitute or proxy for the existing branch-based banking. Usually, this model is established between banks and telecommunications firms as a joint venture contract. This permits the bank to develop and manage the customer-account relationship (Cudjoe, Anim & Nyanyofio, 2015).

b. Bank-Focused Model

The Bank-Focused Model is one in which, the customer has a contract with the bank and the bank is mandated by the regulator to offer relevant service(s) (Alliance for Financial Inclusion,2013). The bank focus model is when a conventional bank employs distribution platforms that are low-cost, which is a non-traditional banking network for delivering services to customers such as the use of m-banking facilities, automatic teller machines

(ATMs), internet banking, etc. The bank-focus model is fundamentally an add-on and an extension of traditional branch-based banking (Anyasi & Otobu,2009)

c. Non-Bank-Led Model

Alliance for Financial Inclusion (2013), says, the Non-Bank-Led business model is one in which the non-bank takes the lead in marketing, branding, and managing the client relationship. The non-bank is not involved unless it is appropriate to do so when there is a need for a safe manager of surplus funds, enabling the telecommunications firm to manage all functions. Nonetheless, retail outlets will need to rely on mobile banking services that concentrate on low-income population earners of the population size that are mostly found in the less developed area. Majority of telecom service providers operates through their airtime resellers while banks use bakeries, pharmacies, etc. This can be discovered in some countries like Colombia, for example (Cudjoe et al., 2015)

2.2.4 Technologies Employed to Provide Mobile Banking Services

Gaffer (2009), states that browser-based applications, messenger-based applications, and client-based applications are technologies employed in mobile Banking. Mobile banking services could be used as one interface, such as short messaging and downloading applications (Tawari & Buse, 2007).

a. SMS-Short Messaging Service

According to Gaffar (2009), in message-based applications, bank-customer interactions are done through text messages. This happens when customers interact with their banks through SMS (short messaging service). The short messaging serves (SMS) operates in two ways, and either a pull mode or a push mode may be used. In the push mode, the mobile customer sends the bank a text message containing a service order with a predesignated request code to the specific number of the bank. The bank also responds with SMS carrying the basic details demanded from the bank while the pull mode is when the banks send a text message

to the receiver (customer) to remind the customer of a transaction that has just occurred over the account. The message could be in the format of an MMS (Multimedia Message Service) or SMS (Short Message Service), both of which function similarly while SMS use is more prevalent (Cudjoe, Anim & Nyanyofio, 2015).

b. Client-Based

The requirement of this approach is that customers use software installations that will serve as a user interface, which allows customers to use the mobile device offline to access certain basic transactions before they go online. According to Dilg et al. (2004) cited in Gaffar (2009), client-based applications are alluring, many banking transactions are carried out offline, which means lower internet charges (Gaffer, 2009). Typing information before connecting to the web could minimize costs. A customer-based technology is mostly advantageous because it permits customers to remain offline whiles planning transactions such as account information entry and subsequent data transmission, an offline banking mechanism reduces the time and expense of online connection (Tawari & Buse, 2007)

c. Browser-Based

Gaffar (2009), says some browser-based banking applications are transactions using WAP. He further states that the major benefit of a browser-based routine is that data processing is done mainly by the server (Gaffar, 2009). In order to use this service, customers must have internet access. The interface is created from the server transferred to the mobile device, allowing the content to be displayed via the browser. This approach is very fast depending on the server the client is linked to, but one of its drawbacks is that the client (customer) is required to stay online throughout the operation process and may result in higher costs for the customers.

2.3 The Cultural Dimension in Technology Acceptability

Parsons (1965) had imagined "culture as a value-orientated structure that resolved the issue of dual possibility in social structures through its common symbols of orientation to act" (Parsons, Shils & Smelser, 1965). Experts have recorded that sociological systems theory complements the effort of sociological conformists to describe culture to mean a long-held rationalization about the rightness of the choice people make (Douglas 1989, p.89). In terms of what others called "high culture", which is about the argument of taste (Bourdieu, 1979) or better still, a culture about morals. In sum, culture is regarded as a traditional interpretation of circumstances in which every emphasis has to do with how others are orientated (Becker, 1982).

According to Gay (2000) and Scupin (2008) as cited in the works of Al-Jumeily and Hussain (2014), culture is considered a traditional behavior which can be absorbed from the society in which one is born or emotionally attached, and which consists of the traditions, creeds, and customs of an established individual. Culture as a factor variable in technology acceptance was introduced by Hofstede (Hofstede, 1980, 2001) which consisted of five dimensions. Hofstede introduced a cultural model that was based on a study he undertook among employees of IBM's subsidiaries across 50 countries in the 1960s and 1970s. This research submitted what Hofstede originally designated as four dimensions of national culture: Power Distance (PDI), Individual versus Collectivism (IDV), Masculinity versus Femininity (MAS), and Uncertainty Avoidance (UAI). A fifth dimension, Long-Term versus Short-Term Orientation (LTO), was added following later research accomplished in the Asian countries (Hofstede cited in Sriwindono & Yahya, 2014).

In their studies, Srite and Karahana (2006) uncovered that a culture that is more feminine dominated is more likely to be more worried about ease of use of any given technology than a masculine dominated feature. As Sriwindono and Yahya (2014) reported, many factors

tend to influence ICT acceptance. In their research, cultural factors play important roles in technology acceptance. Cultural factors are important in explaining IT usage behaviour (ibid). Others also argue that a group's beliefs and values can also affect people's actions when technological changes are introduced (England, 1975). Yet others also argue that culture does not feature significantly in technology acceptance research, at least in developing economies (Sriwindono & Yahya, 2014).

In the studies of Sriwindono and Yahya (2014), research works conducted in Indonesia that captured cultural dimensions are limited. Throughout their studies, they examined the cultural aspects as factors affecting a faculty member's acceptance of technology as study samples. Their study adopted Hofstede's cultural dimension of power distance, individualism or collectivist, uncertainty avoidance, and long-term orientation as variables to perceive usefulness and perceive ease of use, social influence, and facilitating condition in the UTAUT Model. Their study was carried out on 401 respondents, consisting of academicians in Higher Learning Institution in Indonesia. Data collected from questionnaires administered and analysed, using Structure Equation Modelling, showed, that the UTAUT Model was quite appropriate for Indonesia, and the PDI and IDV have a significant influence on some constructs, while UAI had no effect. Contrastingly, Long Term Orientation had the highest effect on all constructs (Sriwindono & Yahya, 2014). While culture may not play a significant role in people's minds accepting a new technology or not, available studies have investigated the connection between technology acceptance and cultural factors in developing countries, those conducted elsewhere, such as the Arab society reveal otherwise. In his investigations into the cultural dimension and user's technology acceptance in Arab countries, Hofstede (1997) showed a high uncertainty avoidance among Arab culture, with people avoiding changes in their lives, as they tend to hold out against this kind of uncertainty continually. They believe such new technologies

are posing added risks in their already uncertain world. Also contributing to literature, Hill et al. (1998) also found Arabs showing misgivings out of cultural features in which people of Arab descend prefer the traditional ways of communication to using ICT to support their communication.

Furthermore, several other studies also corroborated similar findings. In general, it is believed that Arabs tend to be conservative in their habits, traditions, and values in their lives and engagement (Alkadi 2005; Khushman, Patel, Hosein, Lavroni & Cameron, 2009). Regarding the moderating effect of culture again, in their study on the "influence of value, attitude, and culture of the Nigerian youth towards mobile advertising", Bakare, Owusu and Abdurrahaman (2017), noted that culture moderates between customer attitude and behavior response, however, it failed to moderate between mobile advertising value and behavior response toward mobile advertising.

2.4 Review of M-banking Research

A review is of great significance when conducting research. This is because an effective literature review presents a thorough study of the research topic from existing literature, the gaps to be able to justify the research, critique and proposes ways of addressing the research problem as well as help with the planned arrangement of quality research approach, objectives, research questions, and methodologies (Boateng, 2016). This has been similar in most e-banking, specifically, mobile phones and banking studies (Sofiadin, 2014; Boateng, 2016). Current literature shows that vast research within the remits of electronic banking has its focal point on internet banking while on the contrary, research focusing on mobile banking has comparatively received trivial attention (Hanafizadeh, Byron & Khedmatgoza, 2013). The m-banking literature on acceptance was taken into consideration in view of the factors that have obstructed or influenced the acceptance of m-banking. This

review was carried out in six parts. This is to better perceive the intended meaning of the obstructions and drivers of mobile banking acceptance among banking customers. **Table 2.2** below is a summary of the different types of research papers into the elements that drive or inhibit acceptance, theories used as well as matters in question discovered. In furtherance, the papers were categorized based on the context of developing countries and later also considers the role of cultural dimensions in the acceptance. The studies, as summarised in the table, have different premises on the elements that inhibit or support the acceptance of m-banking among banking customers. These premises, especially with regards to the obstructive factors, will assist in better exploring the study.

Table 2.2. Prior Studies on Mobile Banking

STUDY/ARTICLE	THEORY	RESEARCH OBJECTIVE	COUNTRY	RESEARCH FINDINGS
Singhu and Srivastava (2018)	Extended TAM, SCT, UTAUT	To identify factors that influence the adoption of mobile banking and explain the behavioral intention to access the service in India	India	In an order of influence, "security, computer self-efficacy, perceived ease of use, financial cost, trust, and social influence" affects the customer's intention to adopt mobile banking
Cudjoe, Nyanyofio and Anim (2015)	Extended TAM, IDT	Explore the factors that determine the adoption of mobile banking among bank customers in Ghana	Ghana	Studied determinants are "awareness, perceived usefulness, perceived ease of use, compatibility, social influence perceived credibility perceived self-efficacy and perceived financial cost. Perceived

				credibility and perceived financial cost" have a stronger effect, yet they are the reason for the negative behavioral patterns towards the acceptance of m-banking services
Hanafizadeh, Behboudi, Koshksaray and Tabar (2014)	TAM	Insight into factors that affect mobile banking in Iran	Iran	They examine "perceived usefulness, perceived ease of use, need for interaction, perceived risk, perceived cost, compatibility with lifestyle, perceived credibility, and trust" was found that "adaptation with lifestyle and trust" were the most significant antecedents explaining the adoption of m-banking
Asante-Gyabaah, Oppong and Idun-Baidoo (2015)		Understand the benefits and challenges of e-banking on bankers and their customers in GCB	Ghana	SMS or mobile banking is the second most used services apart from the ATMs and, time-saving and convenience is considered the major benefit of e-banking among GCB customers. Besides, customer awareness knowledge and electronic banking laws to reduce customer

				perception of risk have been a challenge.
Makanyeza (2017)	TAM, IDT, UTAUT, TPB	Customer intention to adopt mobile banking service in Zimbabwe	Zimbabwe	"Perceived usefulness, perceived self-efficacy, social influence, relative advantage, and perceived compatibility" have a positive effect while "perceived risk" has a negative effect on the behavioral intention to accept mobile banking services in Zimbabwe
Aboobucker and Bao (2018)	TAM and Moderators	Pay attention to factors that serve as barriers to internet banking acceptance in Sri Lanka with age and gender as the moderators	Sri Lanka	"Perceived trust and website usability" are the possible structuring factors while "security and privacy and perceived risk" show insignificance.
Afshan and Sharif (2016)	UTAUT, TTF, ITM	Analysis of the unexploited "behavioral, environmental, and technological dimensions" of mobile banking adoption in Pakistan	Pakistan	Significant association of the element of task-technology fit, initial trust, and facilitating condition with an intention to adopt m-banking
Tam and Oliviera (2017)	D&M, TTF	Analyzing and synthesizing studies on factors and motivation that influence behavior intention in m-banking		Among other findings, their review captured perceived risk (17 studies) and trust (13 studies) as some of the inhibiting determinants of m-banking

				acceptance. Furthermore, there is a need to expose the phenomenon to national culture values in determining its acceptance.
Luo, Li, Zhang, and Shim (2010)	UTAUT	Examining multi-dimensional trust and multi-faceted risk perception in initial rejection and acceptance of emerging IT artifact	USA	"Risk perception", derived from eight different facets (privacy risk, psychological risk, financial risk, social risk, etc.) and "trust" is a significant antecedent to innovative technology acceptance
Sinha and Mukerjee (2016)	TAM, DOI	Examine the reasons for the unacceptability of off branch e-banks in India as compared to advance countries	India	
Bankole, Bankole and Brown (2011)	Revised UTAUT	Investigating factors that influence the acceptance of mobile banking in Nigeria and determine the adoption from a cultural perspective	Nigeria	Findings show uncertainty avoidance influences trust and privacy and power distance also influenced behaviour intention. hence, "culture is the most important factor" influence the acceptance behavior of m-banking in Nigeria
Mohammadi (2015)	TAM, UTAUT	Explore the barriers, the mediating role of "usability", and the moderating effects of	Iran	Mentioned barriers such as "perceived risk, perceived usefulness, and resistance".

		"personal innovativeness and subjective norms" on consumer attitude towards mobile banking in Iran		"System compatibility" was the main factor affecting "users' attitude and resistance" showed a negative effect on both "ease of use and usefulness"
Baptista and Oliviera (2015)	UTAUT and Culture	Understanding m-banking by evaluating the impact of culture.	Mozambique	In conclusion "performance expectancy, hedonic motivation, and habit" were found to be the most significant antecedents of "behaviour intention". To explain the mobile banking use behavior the "habit and culture" moderator effects on behaviour intention overuse behaviour were the most important drivers. "Collectivism, uncertainty avoidance, short term, and power distance" were found to be the most significant "cultural moderators"
Zhang, Weng and Zhu (2018)	UTAUT, Hofstede's' culture dimensions	Investigating national culture influence on consumer behavior toward electronic banking acceptance in China	China	Individuals pay more attention to "social influence and trust" in high power distance countries; "performance expectancy, effort expectancy,

				perceived risk" in countries with high individualism; performance expectancy and trust in high uncertainty avoidance countries as well as using the cultural difference to boost user acceptance of e-banking
Goularte and Zilbert (2018)	UTAUT2 and Hofstede's Cultural Moderators	Evaluating the impact of country culture in the adoption of m-banking services	Brazil	A replica showed that "cultural dimensions" do not present strong significance in the moderation of the "use of mobile banking". In fact, out of the five dimensions tested, three were not significant and two showed weak significance; "collectivism and short-term orientation". Those results, contrasting with that one presented by Baptista and Oliveira (2015), made sense under Ajzen's theory (1991)- the TPB, leading to the conclusions on "behaviour use" is not applicable.
Tam and Oliviera (2018)	TTF, UTAUT, Hofstede's cross-culture dimensions	The influence of culture on m-banking use by individuals	Southern Europe	Confirmed that TTF explains the use of m-banking well as again. TTF and usage explains

				approximately 72% of the discrepancy in "individual performance"
Sharif, Baabdullah, Dutta, Kumar and Dwivedi (2018)	GAM model	Investigate consumers' intentions to select mobile banking service delivery channel from "behavioral, technological, social, cultural, and organisational perspectives" for the three distinct stages like static, interaction, and transaction service	Bangladesh	"Perceived awareness, perceived ability to use, availability of resources, perceived information quality, computer self-efficacy, perceived functional benefit, perceived image, multilingual option, perceived trust, perceived uncertainty, and perceived security" were investigated at the static, interaction, and transactional stages of the services. It was found that "perceived functional benefit (PFB)" and "perceived ability to use (PATU)" are the common driving force of customers. The study has security risk as to the inhibiting factor of the mobile banking services in Bangladesh

In recent years, mobile technology and the internet have made banking activities much easier by minimizing the desire to visit a bank. Though mobile banking is trusted to become

a most improved way of banking and the advantages of fast transaction and cost-effectiveness, yet the majority of the customers have arguably refused to accept it due to security & privacy, perceived trust, perceived risk, resistance, etc. (Asante-Gyabaah, Oppong, Idun-Baidoo, 2015; Laukkanen & Cruz, 2008; Afshan & Sharif, 2016; Sinha & Kukerjee, 2016; Singhu & Srivastava, 2018). For example, Shareef et al. (2018) in their exploration on consumers' desire to pick mobile banking service channel in Bangladesh, put forward that; perceived ability to use (PATU) and perceived functional benefit (PFB) were found to be determinants of mobile banking in the static, interactive and transformation stages in the service provision than the other nine factors. They further found that for consumers to accept this service at all stages, they should be familiar with the scope, background, and functions of the mobile mode or avenue which has risks of security. Thus, customers need to have confidence and trust to be able to avail the service.

Indeed, Afshan and Sharif (2016) also mentioned trust, among many as the most significant establishments in their analysis of the unexploited dimensions of mobile banking. On this basis, Sharif et al. (2018) concluded that though the opportunity of usage is benefitial to m-banking, vulnerability to security risks may seriously impede its success. Equally, Singhu and Srivastava (2018) also identified elements that determine the acceptance of mobile banking in India using the combinations of the extended technology acceptance model, unified theory of acceptance and use of technology, and social cognitive theory. They surveyed 855 public, private, cooperative, and foreign banking customers and they revealed that amidst elements such as computer self-efficacy, perceived ease of use, financial cost and social influence, security and trust affect the customers' acceptance of the technology. This is what they argued in their order of influence on mobile banking acceptance.

Asante-Gyabaah et al. (2015) surveyed 200 customers and 25 employees using SPSS and Microsoft Excel to analyse the understanding of the benefits and challenges of e-banking on

bankers and their customers in GCB, Ghana. The findings from their study disclosed that SMS banking is the second most used service apart from ATMs. Time-saving and convenience are also considered as the major benefit of the channel. They further realised that customers' awareness knowledge and electronic banking laws to reduce customers' perception of risk, as also asserted by (Makanyeza, 2017)**,** has been the challenge.

Cudjoe et al. (2015) studied the determinants of mobile banking adoption with a survey of 150 customers of Access Bank in Ghana. Findings from their study of over ten determinants depicted that perceived credibility and perceived financial cost have a strong effect yet they are the reason for the negative behavioral patterns regarding the acceptance of m-banking services.

Besides, in moderating the obstructive factors, Zhang, Wang, and Zhu (2018) used the unified theory of acceptance and use of technology to probe national culture influence on the consumer behavior of e-banking by using Hofstede's cultural dimensional constructs (uncertainty avoidance, power distance, individualism, feminist, long/short term orientation) in a meta-analysis of 62 articles for 27 countries. According to their findings, people pay more attention to: social influence and trust in high power distance societies; performance expectancy, effort expectancy, perceived risk in societies with high individualism; performance expectancy, and trust in high uncertainty avoidance societies in accepting e-banking services.

Finally, Tam and Oliviera (2018) introduced a study on factors and motivations that influence m-banking behavior and took a systematic review of 64 articles on m-banking. Among other findings, their review captured perceived risk and trust as some of the inhibiting determinants and how this phenomenon must be exposed to cultural values in determining the acceptance of mobile banking. The above examples of past studies on

mobile banking technology and the various theoretical frameworks used show how extensively researchers have shown interest in this area of study.

Prior studies have centered mainly on one or more factors that undermine user acceptance of mobile banking services in the banking sector as depicted in the literature. Though these researches have their focal points on the barriers for mobile banking acceptance, none of these researches have covered an entirety of the perceived security and privacy arena of mobile banking such as security and privacy, risk, trust, and regulatory influence which mostly obstructs customer acceptance of mobile banking. Moreover, research has called to mind the addition of a set of moderators that have not been substantially tested such as culture dimensions by (Behbodi, Granehim & Lundman, 2014) to help appreciate the effects of the connection between the elements and the acceptance of mobile banking at the individual level.

2.4.1 The context of Studying Mobile Banking

Innovative technologies have improved the manner banking services are provided in most developed and developing countries. Even though past studies have explored the mobile banking acceptance in various contexts, most of them have been done in developed countries (Laukkanen & Cruz, 2008; Luo, Li, Zhang & Shim, 2010; Zhang, Li & Shim, 2018) and just a number of analyses have addressed developing countries such as Ghana. The banking sector in Ghana is comparatively young relative to other developed countries and some emerging countries in the world and on the African continent. In the opinion of Mohammadi (2015), the developing countries are embracing mobile banking services as every day the customers would likely want to use the m-banking channel. In view of this, previous works have tackled the acceptance of m-banking from speedily developing countries context and as such various contextual approaches have been adopted by researchers on the barriers influencing mobile banking acceptance in the developing countries (Makenyeza, 2017;

Mohammadi, 2015; Cudjoe, Anim & Nyanyofio, 2015; Hanafizadeh & Khedmatgozar, 2014). These have been elaborated in the country column of **Table 2.2**. For example, studies carried out by Makanyeza (2017) used a combination of factors in the technology acceptance model (TAM), innovation diffusion theory (IDT), and unified theory of acceptance and use of technology (UTAUT) to study the consumer intention adoption of mobile banking services in Chinhoyi in Zimbabwe. Mohammadi (2015) to examine the barriers, the mediating and moderating effect of mobile banking did so within the developing country of Iran. Cudjoe et al. (2015) and Asante-Gyabaah et al. (2015), explored the determinants as well as understanding the benefits and challenges of mobile banking services within the banking sector of Ghana. Although studies that were done in Ghana are not limited to the literature, there is a minimum number of research work in mobile banking, which is insufficient to provide meaningful insight into the obstructing factors which influence mobile banking acceptance in Ghana.

2.5 Acceptance Theoretical Models in Mobile Banking

The decision of why and how people accept or turn down a technology has been a major area of focus for information systems (IS) researchers. Over the years, researchers have aimed to comprehend, predict and explain the elements that influence the acceptance of technology at the individual as well as the organisational level (Davis, 1989; Venkatesh & Zhang, 2010; Abbasi, Blasey & Fieldman, 2015).

In lieu of this, various acceptance theories and models have been developed and employed to study or explain the connection between user beliefs, attitudes, and intentions of mobile banking acceptance. As a result, Momani and Jamous (2017) assert that acceptance models are designed to ascertain the level of acceptance and satisfaction to the individuals against any information system but from a different perspective base on the factors which represent their structure. Some of these foundational models include but not restricted: Technology

Acceptance Model (TAM) (Davis, 1989) and its extensions. Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003). Other models are the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975); and the Theory of Planned Behavior (TPB) (Ajzen.1991).

This study's perceived focus of security and privacy, trust, risk, and regulatory influence are based on the scattered factors in various works of literature which stems from a combination of the acceptance models such as the Theory of Reasoned Action, Theory of \Planned Behavior (TPB) (Ajzen, 1991), Technology Acceptance Model (TAM) (Davis, 1989) and its extensions, Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh, Morris, Davis & Davis, 2003). These 4 major theories are used as the foundational theories because of the behavioural definition and intention characterized in their perspectives.

Momani and Jamous (2017) have summarised a maximum number of the constructs in the acceptance theoretical models of which few have been mentioned below.

a) The Theory of Reasoned Action (TRA)

The Theory of Reasoned Behavior (TRA) argues that an individual's action is usually prompted by behavioural intent, which is often a feature of an individual's attitude towards the behavioural and subjective expectations that surround behavioural results. This theory typically suggests that the performance of a particular behaviour of a person is determined by his or her behavioural intent to perform the activity. Therefore, the concept of compatibility and behavioural purpose is motivated by this theory. On the topic of Mobile banking, the more positive the attitude towards Mobile Apps adoption and the greater the perception of social pressure towards the use of mobile banking platforms, the stronger the intention to accept the usage of Mobile banking. Nevertheless, Ajzen (1985) argued that

correspondence restricted the theory. In essence, an agreement of attitude and purpose on an action, goal, meaning, time frame, and precision should exist for the theory to predict specific behaviour (Sheppard, Hartwick & Warshaw, 1988). Despite this, TRA's major criticism is that it lacks contextual variables that may affect the relationship between attitude intention – intention – behaviour and are, therefore, ill-equipped to predict circumstances where individuals have a low level of volitional control (Yousafzai, Foxall & Pallister, 2010)

b) Theory of Planned Behaviour (TPB)

The theory of planned behaviour (TPB) builds on the shortcomings of reasoned action theory (TRA) by broadening the boundary conditions of reasoned action theory to resolve the actions over which individuals have insufficient control of volition via adoption. The theory suggests that an individual's conduct is influence by behavioural intention where behavioural intentions are a feature of an individual's attitude to behaviour, the social standards surrounding behavioural success, and the individual's understanding of the ease with which behavioural intervention can be conducted. Ajzen (1985) indicated that an extra determinant of intention as well as behaviour is the perceived behavioural concept. Consequently, this construct is asserted to be the resource together with possibilities available to an individual that affects the acceptance of a specific behaviour. For example, in the setting of mobile banking, if a person realises that technology is accessible and other basics are available to him and that he decides to use it, there is the possibility of acceptance along with the utilisation of mobile banking technology. The theory of planned behaviour has also shortcomings with some authors criticizing it for disregarding vital elements that may affect intention behavior relationships (Yousafzai et al., 2010). For instance, Eagly and Chaiken (1993) have claimed that perceived moral obligation and self-identity are outcomes that could fore-tell intention in the TRA that TPB refused to address. Yee-loong Chong,

Ooi, Lin, and Tan (2010) as well as Taylor and Todd (1995) have criticized the theory by mentioning that, since the theory calls for individuals to be encouraged to perform a particular behaviour, this notion may present a problem when studying consumer acceptance in addition to a similar belief structure amongst respondents when it comes to performing a behaviour. The use of the theory of planned behavior has been successfully tried in the field of electronic banking acceptance behavior and has been seen as a better preference for the theory of reason action. Subsequently, (Makanyeza, 2017) and (Momani & Jamous, 2017) have used this theory to analyse the circumstances that influence the adoption of mobile banking.

c) Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT)

Davis (1989) had developed the Technology Acceptance Model (TAM). The author proposed three user motivating attributes: perceived ease of use, perceived utility, and attitude towards using the program. Davis has indicated that the ability of a person to use a new information system or not is dependent on his or her attitude.

This theory, among researchers, is the most commonly used and accepted model because of its applicability according to the authors in (Sharif, Van der Graaf, Nathoe, Valk, Visseren & Westerin, 2018; Singh & Srivastava, 2018) and its usage has captured the intention of researchers in IS. Although the theory has captured the information management community's interest in forecasting user adoption of innovations, Lai (2017) believes that the model has its limitations and cannot be completely exploited to understand factors that determine user acceptance. Consequently, several other TAM models and extensions were proposed in other studies.

In the work of Lai (2017), Venkatesh, Morris, Davis, and Davis, (2003) integrated elements from eight prominent Information System (IS) models in addition to some moderators to develop UTAUT. The four key constructs that determine intention and usage, according to this theory, are performance expectance, effort expectance, social influence, and facilitating conditions. The four moderators employed in this model include age, experience, gender, and willingness to use. These influences are known to have a direct consequence on the acceptance of the mobile banking and are also used in emerging economies as basic precedents for unraveling the acceptance of Mobile banking (Luo, Li, Zhang & Shim, 2010; Mohammedi, 2015; Tam & Oliviera, 2018).

2.6 Chapter Summary

This chapter gave the details to pertinent literature on mobile banking and its acceptance or obstructions. Details on mobile banking development, mobile banking services, and modes of operation as well as technologies employed to provide the services were also reviewed. Furthermore, this chapter looked at the cultural dimensions towards the acceptance of the technology. There were also some reviews on mobile banking research and some foundational technology acceptance models from which the constructs of this study will be deduced to help understand the individual acceptance of mobile banking.

CHAPTER THREE

RESEARCH FRAMEWORK

3.1 Chapter Overview

The chapter consists of the integration of constructs from various technology acceptance models (TAM) works of literature to design the research model. The model is to investigate and explain the perceived elements (security and privacy, trust, risk, and regulatory influence) that may have come up as some concerns towards mobile banking acceptance in varied works of literature. The chapter further resorts to the cultural moderators (power distance, individualism, and uncertainty avoidance) that may influence the relationship – obstructions, and acceptance of m-banking. Hence, the section discusses the main literature for each construct and the moderators towards the development of this research and further justifies the choice of the model integration and the chosen moderating dimensions. A Research framework gives rise to how research questions are brought about, studies are conducted, data are analysed, comprehension of findings, and results are used based on specific concepts and proposition. Its overall purpose is to make research findings meaningful and generalizable (Alderson, 1998; Boateng, 2016, p. 261).

3.2 Development of the Research Framework

3.2.1 Security and Privacy

Security is an important factor to remember when conducting applications for mobile commerce. Confidentiality, authentication, integrity, authorization, and non-repudiation are key factors required for successful mobile financial transactions (Chen & Zao, 2012). Many banking services are currently being provided through the Internet and smart devices, so consumers are more deeply worried about security issues.

Security and privacy in the context of mobile banking have not been far from that of the preceding channel, internet banking. It is defined as "a possible loss due to fraud or a hacker undermining the security of an online bank user" (Lee, 2009, p.2). In the same vein, the privacy of information is said to be the desire of an individual to control or have some influence over data about him or her. Advances in IT have raised questions about information privacy and its implications (Crossler & Belanger, 2011; Owusu, Broni & Akakpo, 2019).

The main activities of mobile banking include financial transactions. Financial transactions using the internet and mobile devices are vulnerable to consumers being harassed and lost as illegal activities can be performed easily without any physical contact. Consequently, most consumers are reluctant to accept services accessed through the internet and mobile devices because of their security and privacy concerns (Lee, 2009; Raja & Anil, 2016).

3.2.1.1 Security and Privacy in Mobile Banking

The problem of security and privacy was deemed as one of the most primal factors influencing consumer adoption of electronic banking and technology based on the various literature studies (Koskosas, 2011; Polasik, Pikkarainen, Karajaluoto & Phanila, 2009; Yoon & Steege, 2013).

In this regard, data protection and security concerns have been described as important restraining factors for the acceptance and utilisation of e-banking applications. Thus, user privacy must be protected in mobile commerce applications. Mobile banking has two areas, one is the user's handset and the other is the banking area. Hence, there is the likelihood of a security threat that exists for transactional services using a mobile device (Shaikh & Karjaluoto, 2015).

A study by Singhu and Washburn (2010) showed that security issues in the current mobile banking scenario are the main concern. Security is deemed as a prime concern for many mobile banking customers. The study further revealed that in respect with security related issues with m-banking, 31% of customers are prepared to pay more, 63% are prepared to move their account to one with stronger security features and 71% are ready to transfer their funds to banks that will reimburse guaranteed losses (Heggestuen, 2014).

Besides, to better understand the privacy concerns, evidenced in a study of 1,200 households in America shows that very rich sets of personal information are stored on the user's phone. Also, location awareness, specifically with the use of GPS is a significant feature of mobile phones – tracking devices. Mobile banking features and benefits have to do with tracking ATMs and transactions, and this may also imply that users of the service will stand at a similar fate. As with many other tracking technologies, it seems to be designed to operate without the knowledge of the individual (Urban, Li & Hoofnagle, 2012)

Again, for example, in mobile banking services, the customer must provide personal contact details and download banking "apps" to enable him/her to access the mobile banking platforms of a bank. These undertakings can open up communications with circles of contacts and unnecessary feedbacks and information to the customer, which can ardently end up with the wrong user (Urban, Li & Hoofnagle, 2012).

A summary of some security and privacy threats related to m-banking is found in **Table 3.1**.

Table 3.1. Security Issues

Security issues in mobile banking	
Security Issues	Mobile banking and security issues with Wireless Application Protocol (WAP)
	"Password" or "PIN" for identification
	Password for identification of the third-party enrollment in a mobile banking application
	"SMS based" mobile banking
	Virus Attacks in mobile banking

Source: Goyal, Nagori, and Sasmal (2012)

In the context of mobile banking, there exist security concerns regarding information. The security of m-banking is more complex due to the differences in mobile devices and platforms (Lee, Zhang & Chen, 2013). Elkhodr, Shahrestani and Kourouche, (2012) believed that the protection and privacy of customers financial information is a key determinant in the acceptance and use of m-banking. Edge and Sampaio (2009), thus, identified that the feeble and fixed authentication issued by signature, "PIN", "password", and "Security Code (SC)" in mobile banking has countless defects and loopholes. In lieu of this, privacy and security concerns have been mentioned to be the major sources of dissatisfaction in most electronic banking cases (Oni & Ayo, 2010). On the basis of the literature discussed, it can be posited that:

Proposition 1: Security and privacy may be a serious concern for mobile banking among banking customers in Ghana.

3.2.2 Perceived Trust

Generally, many studies have explored the impact of trust on consumers ' perception of accepting electronic services (Roca, Garcia & Vega, 2009; Yousafzai, Pallister & Foxall, 2009; Chaouali, Helings, Thiel & Karl, 2016) and found that trust considerably influences consumers' perception towards the use of electronic banking services.

Mayer, Davis, and Schoorman (1995) defined trust as behavioural, based on one person's beliefs about the attributes of another person. In the space of explanations, three dimensions of trust were suggested by McKnight (2005): trust disposition, structural assurance, and trust belief. Trust disposition is the general tendency of people to trust others, which can be expressed in the form of the personality trait. Structural assurance is the feeling of confidence in the institutional environment. Trust belief is the idea that the vendor's trustworthiness consists of a collection of clear convictions regarding honesty, benevolence, and competence.

In order for a client to have hope in e-banking, the individual must be made to accept that the transactional channel is secure and that no information sent through those channels is intercepted or given to a third party. Consequently, the absence of direct physical contact in an online transaction distorts the trust factor within a transaction (Chaouali, Heling, Thiel & Karl, 2016).

3.2.2.1 Perceived Trust in Mobile Banking

The Technology Acceptance Model (TAM) original concepts do not fully give consideration to the impact of technology and usage factors especially in the context of mobile services. Prior research expanded this model by incorporating trust-like constructs (Gefen, Benbasat & Pavlou, 2008). Trust is a significant concern about mobile service acceptance. As we cannot presume that all mobile-trade participants are truthful. The

willingness to accept mobile banking services depends on the customers' perceived trust. Thus, technology trust and bank trust are equally significant in securing customer trust.

There are no assurances that online shoppers do not act opportunistically at the detriment of the vendors. Concerning mobile banking, trust is the appreciation of the availability of the required legal and technological frameworks and other standards in the wireless internet to ensure financial transactions with a bank are completed successfully (Roca, Garcia, & Vega, 2009).

Trust of the customers' needs to be created to lead to an acceptance of technology, thus, understanding and perceiving the needs of the customer is very useful for the banks in recognizing the obstructions towards acceptance and eliminating them. Kim, Gailite, Moussian, Goette, Frickle, Honeman-Capito, Grubmuller, and Wodarz (2009), reported that when m-banking is considered to be related with a higher risk compared with conventional banking, the individual's initial trust in services is evidenced as the required factor for using m-banking.

Furthermore, trust should be a crucial component in an online environment where the customer has no direct influence over the vendor's behavior. The user's trust in an e-service is therefore a significant determinant in evaluating his / her understanding and embracing behaviours relevant to any e-service (Roca, Garcia, & Vega 2009). Therefore, on this premise it can be proposed that:

Proposition 2: Perceived trust of customers may influence their acceptance of mobile banking within the banking sector.

3.2.3 Perceived Risk

Since 1960, risk theory has been proposed to describe the consumer actions and factors that influence their decision-making (Taylor, 1974). Mobile banking and internet banking are subject to common threats. The variation lies in the platform of contact with knowledge. Some researchers also jointly investigate internet banking and mobile banking (Shaikh & Karjaluoto, 2015). Lee (2009, p.2) clarified perceived risk as "the subjectively determined expectation of loss by an online bank user in contemplation in a particular online transaction". Whereas perceived risk is generally defined as a perception of implicit risk when using the open internet facility to exchange private information in connection with online transactions (Chen, 2013). Perceived risk is a specific perceived financial risk factor, perceived performance risk, perceived time risk, perceived psychological risk and perceived privacy or security risk. Customers assume that the more money involved in the process the greater the risk. In this situation, there will be an increase in their perceived risk and lower their e-banking trust (Yang, Sado, Hirt & Pasco-Viel, 2015). Zhao, Xu, Qian, Lv, Chen, Xie, and Zheng (2008), pointed out that the perceived risk to the acceptance of internet banking services by the Chinese consumer is privacy, finance, security, and performance risk, thus, in turn, prevents the consumer from accessing e-banking. The possible risks can emerge from several springs, such as wireless and internet communication network weakness and banks' technological capability. Perceived risk, to customers, is critical when determining whether to purchase new technology or services.

3.2.3.1 Perceived risk in mobile banking

Some e-banking studies, specifically, m-banking research distinguishes perceived risk as a salient factor that influences individual acceptance behaviour (Chen, 2013; Shim, 2010; Bao, 2018; Zhang, Zhu & Liu, 2018). Shim (2010) contended that Jacoby and Kaplan's risk dimensions model is important and suitable for m-banking study. Hence, this research

additionally, extends the perceived risk construct to the study of m-banking and the effect of cultural moderators on it. However, this research sterns on the wholesome in the use of the perceived risk of customers rather than dissecting the factor. The risk component is deemed very paramount in mobile services. On the basis that, due to a distant link, there is a high risk in m-banking than in other fixed devices. As a result of the high likelihood of fraud and theft of a mobile device, the risk related to m-banking is great. The risk related with m-banking is posed in this line of thought from many previous studies (Chen, 2013; Shim, Chung, Nicollete, Zhang, Davis, Zhu, Ira, Lee & Paull, 2010) For example, Wessels and Drennan (2010) examined the impact of m-banking risk on attitude. We concluded that this aspect affects the mindset and use of m-banking significantly. That is, the greater the danger of using modern technology, the more negative the attitude towards it, and the less the willingness to use it.

In the breakdown of perceived risk in banking, security/privacy risk, as well as a financial risk; is mostly mentioned (Lee, 2009). Lee (2009) further maintained that there is a primary association between perceived risk and intention to use mobile banking. Consequently, the impact of perceived risk on consumers' acceptance of electronic services is hard to be ignored from the literature; hence it can be proposed that:

Proposition 3: Perceived risk in mobile banking is seen as a major concern among banking customers in Ghana.

3.2.4 Regulatory or Legislative Influence

This concept has been added to help in fully understanding the research model as far as issues of susceptibility to mobile banking and security and privacy is a concern. Since there cannot be security issues without a regulatory or legislative body or influence to curb the problems that come with the usage of the electronic services. This is part of what makes this

integrated model different as found in (Bao & Aboobucker, 2018). Collectively, literature that has security and privacy often appears in the company of risk or trust as important constructs. However, in the studies of Gyabaah et al. (2015) and Owusu et al. (2019), there has been a challenge of laws or regulations to ensure consumers' safety with regards to their online security and privacy in Ghana. Hence, the need to integrate it as a major concern.

Regulatory influence or structures is meant to emphasise legal monitoring, reporting, and compliance which, thus, benefit the financial industry (Schueffel, 2017). Its objective is to enhance transparency, consistency, and standardization of banking as well as to deliver a sound interpretation of ambiguous regulations. Legislative or regulatory influence is usually so much attached to the government of a country - environment (Worku, 2010; Acheampong & Moyaid, 2016).

In concern with some amplification on the challenges in developing a regulatory framework, one of the sectors strike by m-commerce includes: financial services, such as customers using their mobile handsets to access their account and payment transactions. Jododwana (2009) noted that, on the positive side, few African governments are in the process of implementing and incorporating regulatory reforms based on the e-commerce model of the United Nations Commission on International Trade Laws (UNCITRAL); which in some ways actually provides a legal structure for online transactions and privacy protection. However, concerns have repeatedly been raised about the effectiveness of the authorities towards the acceptance of any form of e-services. (Jobodwana, 2009)

3.2.4.1 Regulatory Influence in Mobile Banking

Countries such as Nigeria, India, South Africa, Ethiopia, and many others who are supportive of mobile banking have put in place many regulations to ensure a technologically safe environment (Worku, 2010; Adewuyi, 2011; Goyal, Nagori & Sasmal, 2012). Examples of these guidelines are:

1. Restrictions of m-banking to financial institutions,
2. Transactions can only be carried out in national currency and,
3. The guidelines that also states that mobile banking will be permitted only to those with a valid bank account, etc.

However, for most of the literature, some challenges need to be overcome to successfully introduce mobile banking services or platforms to be widely accepted as a mode of banking. For that matter, regulatory framework and extensively accepted principles will be the backbone on which mobile banking services and platforms will be built and used (Klein & Mayer, 2011; Goyal, Nagori & Sasmal, 2010).

In furtherance, trade and business communications through electronic means have brought about several legal issues. An example is an agreement of the considered geographical location of a transfer from one place to the other, issues of language and cultural barriers, different national currencies, and security and privacy issues. These examples are very important for consumer protection and the establishment of jurisdiction. This regulatory or legal lapse in some way causes customers reluctance in accepting mobile banking services in the face of their fate if a transaction should suffer from this obstacle (Arner, Barberis & Buckley, 2016).

Another example is in Ethiopia where there are numerous obstacles such as high rate of illiteracy, high cost of internet, frequent power outages, and many other found among e-banking in general, amongst them suitable legal and regulatory framework for this channel has become paramount towards the acceptance and usage of the technology (Worku, 2010). Based on the issues raised, it can be proposed that:

Proposition 4: The legal or regulatory environment may influence the acceptance of the mobile banking delivery channel.

Furthermore, due to the growing response of banks to e-banking in Nigeria coupled with the supervisory position of the Central Bank of Nigeria led to the formulation of guidelines on e-banking based on reports submitted by set up committees and mentioned that the automation of banking operations such as internet banking and mobile banking presenting challenges to the regulatory authorities in Nigeria. A major challenge is the lack of legal or regulatory requirements to protect the user of the product/services (Adewuyi, 2011).

3.2.5 Cultural Moderating Effect and the Acceptance of Mobile Banking

Many forms of moderators have been used to study the acceptance and usage of various technologies. Some of these are sociodemographic, socio-economic, or psychological in the description. However, this study subscribes to the cultural dimensions postulated by Hofstede's, to serve as the moderators of the relationship for the obstructing factors in the research model. Past studies contended that culture played a pivotal role in the acceptance or resistance of electronic banking (Baptista & Oliveira, 2015; Tam & Oliviera, 2018; Zhu, Weng & Zhang, 2018). However, the relevant literature is sparse and does not present an explicit view of how each of the cultural dimensions affects the main constructs in the growth of online banking, especially with regard to security and privacy issues in mobile banking.

Despite the endless meanings given to culture, the focal idea is "the total of values, beliefs, perceptions, and customs that are shared by a society" (Leidner & Keyworth, 2006). On the contrary, Hofstede et al. (2011) elucidate culture in the context of IT/IS as "the dissimilarity between members of one society to another owing to the shared setting accommodate from the national level to individual level". They further argued that culture is "partially shared with people who live or lived in the same social environment".

Subject to the above, a distinction has been drawn between national, organisational, and individual culture as a relationship of beliefs, values, and practices which are shared by a group of people or persons (Chatti, Schroeder & Wosnitza, 2015). On this basis, Hofstede (2011) has established five dimensions of national culture which dominate society and individuals. The summary of Hofstede's five dimensions can be found in **Table 3.2.**

Table 3.2. Hofstede's Five Cultural Dimensions

Dimension	**Description**
Power Distance (PD)	The "degree to which differences in power, status, and privileges are accepted in society and considered a natural order"
Uncertainty Avoidance (UA)	The "degree to which novel phenomena or ambiguities are perceived as threats"
Individualism (IDV)	This is the "degree to which people derive their identity primarily from being an individual ("T') versus being a member of social groups ("We")"
Time orientation (TO)	"Degree of how society prioritize and deals with its past with the challenges of the present and the future"
Masculinity (MA)	The distinction could be related to "what motivates people, wanting to be best (Masculine), or liking what one does (Feminine)". This is associated to gender roles

Source: Tam and Oliviera (2019)

However, for this study, the focus will be on the Power Distance (PD), Individualism (IDV), and Uncertainty Avoidance (UA) of Hofstede's cultural dimensions – individual cultural perspective.

Building on the UTAUT model, Tammimies, and Hoang (2015) explored the cross-cultural differences of internet banking adoption in the United States and Malaysia and concluded that global consumers have diverse internet banking adoption patterns. However, this research seeks to focus on the security and privacy acceptance model and to find out the preferences towards acceptance within a country with a highly diverse cultural background.

There are quite a few factors used as moderators to understudy user acceptance of the technology. For example, some researchers have used sociodemographic characteristics to help identify potential mobile banking acceptance and usage (Hsieh & Liao, 2011). Technological acceptance determinants and constructs studied to understand mobile banking acceptance behaviours affirmed that all of Hofstede's cultural dimensions have a moderating effect on some of the relationships (Baptista & Oliviera, 2015; Zilber & Alexander, 2019). This study draws on Hofstede's cultural dimensions as the moderators of the obstructing factors of mobile banking. In furtherance, because individual-difference cultural characteristics is a significant subject of study (Zhu, Weng & Zhang, 2018), It can be posited that:

Proposition 5: Individual culture differences may have a moderating effect on the security and privacy obstructions towards the acceptance of m-banking.

The chosen dimensions are explained as follows:

3.2.5.1 Power distance (PD)

Power distance (PDI) talks about the degree to which people recognize disparities in the distribution of power within a society. Individuals also show respect for authority in high-power distance cultures which can influence their decision making (Hofstede's, 2011). In particular, individuals from these cultures tend to be told what to do and are more reliant on reference group opinions (Daniels & Greguras, 2014). Until adopting emerging technology, people in these communities are more likely to think about the comments of others (Tarhini & El-Masri, 2017). There is also a greater impact on customer behavioural preferences in the use of electronic banking if it is highly effective. Here social influence can be inferred.

Additionally, the prevalence of opportunism in these countries is comparatively small, meaning that trust plays a key role in the decision-making of the customer, as it can reduce

the potential opportunistic behaviour of providers, specifically in electronic markets (Hallikainen & Laukkanen, 2018). As far as electronic banking is concerned, customers make financial transactions in a virtual world, which contributes to the relevance of the trust of individuals in bank officials to provide protection for their personal property and privacy (Alalwan, Dwivedi & Rana, 2017). Hence, trust is a major significant determinant of customer behavioral intent in the utilisation of e-commerce in high power distance cultures, as people are less able to innovate.

Contrary to this, individuals own the autonomy in low-power distance cultures and are less concerned about status. As such, individuals may demonstrate creative behaviours in this setting and embrace new ideas more openly than in cultures that are distant from high power (Capece, Di Pillo & Levialdi, 2013). Cultures with a low power distance will allow people to become more informed about new technologies. If the latest technology is considered useful and simple, they are more likely to embrace it (Tarhini, Hone & Liu, 2017). In addition, people should be more worried over the protection of e-banking in low-power-distance cultures, since they mostly make free decisions on their own and might not identify all possible threats (Yuen, Thiruvahindrapuram, Merico, Walker, Tammimies & Hoang, 2015). Therefore, the expectation that perceived risk will be more impactful on preventing individuals from accepting m-banking in cultures of low power distance. I therefore propose that:

Proposition 5a: The factors (security and privacy, perceived risk, perceived trust, and regulatory influence) on customer acceptance of mobile banking can be influenced by power distance.

3.2.5.2 Individualism/Collectivism

Individualism represents to what degree people tend to care more for themselves and their families. Individuals also make independent choices in strongly individualistic societies and become more creative (Hofstede, Hofstede & Minkov, 2010). When embracing new technology, they tend to concentrate on the creative features of new technology rather than on word of mouth (Abbasi, Blasey & Fieldman, 2015). Under collectivism, people want to look after everything and rely not on individual goals but on collective accomplishment (Guesalaga & Pitta, 2014).

In lieu of the above, Tam and Oliviera (2018) have argued that individuals with a greater tendency to individualism prefer to use mobile or internet services that display their persona and are further likely to prioritize individual goals. Through this, we conclude that m-banking users with a strong individualistic tendency will have a detrimental effect on the use of m-banking, and this will ultimately affect the acceptance of individuals.

Besides that, people with an individualistic viewpoint will be more worried about possible risks to emerging technology, because they would bear the potential implications of their own choices. It can, therefore, be concluded that individualists would be more affected by perceived danger when making choices about the adoption of electronic banking (Ashraf, Javed, Bukhari, Mahmood & Iftilehar, 2014).

Furthermore, people also seek information from social networks in collectivistic cultures as a result of their clear preference for herd behaviour. In particular, they consider the views of others such as early-user feedback. For example, when these suggestions or feedbacks are given by bank employees to them, these customers will be more likely to consider electronic banking (Zheng, Ghoul, Guedhami & Kwok, 2013). The building of relationships in collectivistic cultures is more important for people. To avoid swapping costs, individuals

from collectivistic cultures tend to develop long-term ties with bank staff (Farah, 2017). Trust plays an essential role in maintaining and building clients' relationships (Altinay, Madanoglu, Daniele & Lashley, 2014; Hoorn, 2015). Therefore, I propose the following:

Proposition 5b: The factor (security and privacy, perceived risk, perceived trust, and regulatory influence) on customer acceptance of mobile banking may be influenced by the individualistic cultural trait of the customer.

3.2.5.3 Uncertainty avoidance (UA)

Authors have conducted several pieces of research on the characteristics of consumer uncertainty avoidance for acceptance decisions, consumer morale, etc. (Al-Samid, 2012; Guesalaga & Pitta, 2014). Uncertainty Avoidance (UA) is the degree to which people in a society feel uncomfortable by an unknown situation and find ways to do away with them (Hofstede, 2011). This is related to people's perception of risk in financial decisions (Pennington-Gray & Liu, 2016). People from cultures that avoid high uncertainty often value safety more than people who avoid low uncertainty (Al Kailani & Kumar, 2011). In particular, customers in cultures with high uncertainty avoidance should be more worried over the risks involved in using electronic banking, such as hacking, fraud, and privacy concerns (Khan, Abidi, Skinner, Tian & Smith-Bolton, 2017). Also, people with a high degree of uncertainty are more prone to perceived risks in mobile banking, which in turn increases resistance to mobile banking. It is inferred that perceived risk is most likely to be an obstacle to electronic banking acceptance in such cultures (Laukkenen, 2015).

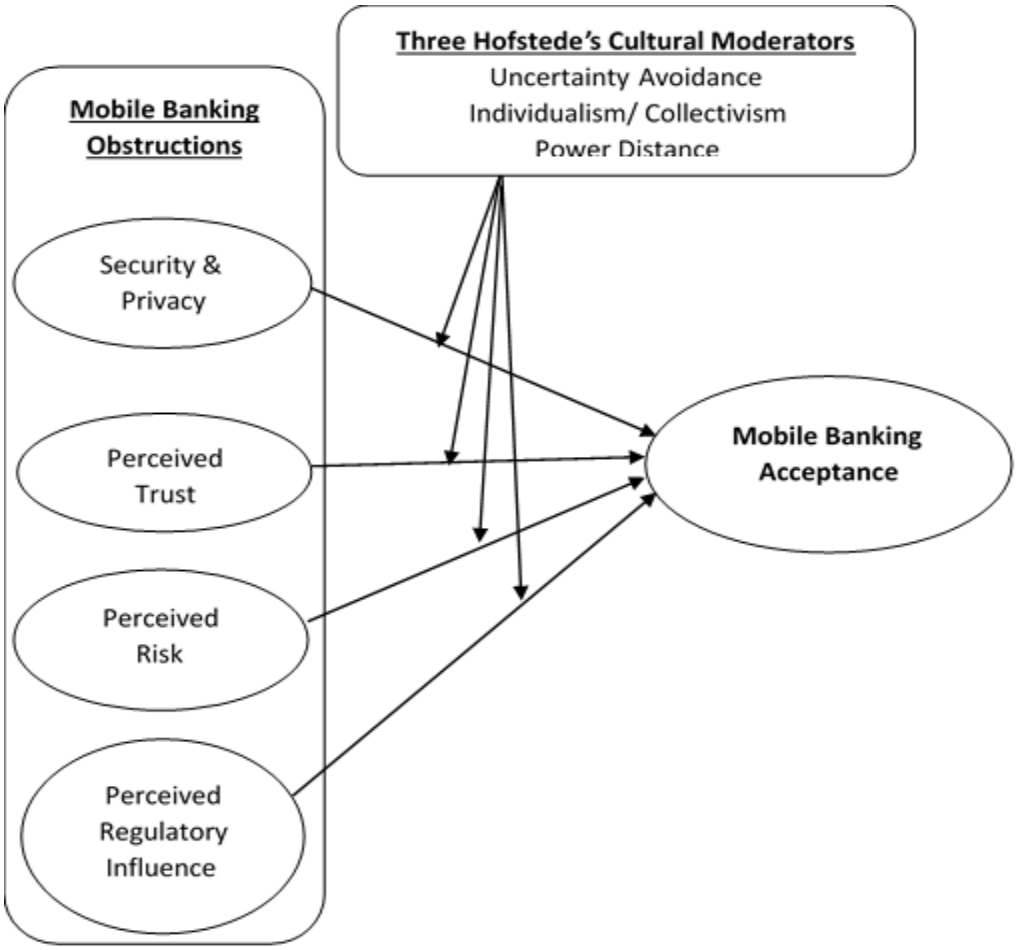
Countries high in uncertainty avoidance, too, will not implement a new technology unless they trust it. They are, mentioned differently, resistant to change and their loyalty is decided primarily by confidence (Ndubisi & Sinti, 2012). They, however, tend to establish a lasting relationship and get high loyalty while trusting the bank provider (Hallikainen &

Laukkanen, 2018). Consistently, earlier studies have shown that in cultures of high uncertainty, the role of trust in people's decision making to accept new technology is more dominant. There is, therefore, the expectation that trust will have a greater influence on the adoption of electronic banking in cultures of higher avoidance uncertainty. Based on the literature discussed, I posit that:

Proposition 5c: The factor (security and privacy, perceived risk, perceived trust, and regulatory influence) on customer acceptance of mobile banking can be moderated by uncertainty avoidance.

The above explanations have elaborated on the contributions of these factors and moderators towards the acceptance or obstructions of e-services and technologies. The integrated model, security and privacy, perceived trust, perceived risk, and perceived regulatory influence with the cultural moderating dimension, is depicted in **Figure 3.1** below:

Figure 3.1. Proposed Research Model



Source: Authors Integrated Constructs and Moderators

3.3 Justification for the Research Framework

The acceptance of M-banking has been discussed using diverse models (TAM, TRB, TPB, UTAUT, etc.) and varied opinions have been made from previous research. They have described the relationship of user beliefs, attitudes, and intentions towards the acceptance of the technology. In view of this, relevant acceptance issues have been discussed in the context of electronic banking; precisely mobile banking, such as dimensions of mobile banking quality (Jun & Palacio, 2015), acceptance of mobile banking framework in Pakistan (Afshan & Sharif, 2016), mobile banking and individual performance (Tam & Oliviera, 2017) and many others. TAM has found to have an adequate explanation and the addition

of moderators can further improve it (Aboobucker & Bao, 2018). In an attempt to examine the security and privacy obstruction towards the acceptance of mobile banking, there was adoption and integration of scattered obstructive elements found within various literatures.

These, Technological Acceptance Model (TAM), elements are security and privacy (Eggert et al., 2012), perceived trust (Roca et al., 2009), perceived risk (Hanafizadeh, Behboudi, Koshksaray & Tabar, 2012), and perceived legislative or regulatory influence (Okoye et al., 2018). The prior study's main focus was mainly on one or more factors that limit user acceptance of mobile banking (Singhu & Srivastava, 2018; Cudjoe, Anim & Nyanyofio 2015; Makenya, 2017). In addition, the regulatory construct is added to capture in full the individual perception of the security and privacy concerns of the customer in accepting mobile banking or any other technology.

The ability to vary the factors or measures for any new study situation makes the technology acceptance model highly adaptable. Thus, scholars have seen little need to improve or perfect the theory itself but rather expand it (Awa, Ojiabo & Emecheta, 2015). If new technologies are developed, the need to understand their antecedents towards acceptance and usage indicates that this framework can advance some discernment for researchers and practitioners. Therefore, the framework is best used to undertake this study on mobile banking acceptance and any other technology.

Again, the framework, in its attempt to explore the logic behind and the changes in the individual perception towards acceptance, used cultural stimuli as the intervening factors to understand the deeper influences between the relationship of the obstructing factors and the customers' acceptance. The choice of the most suitable and important cultural dimensions to address the study questions is certainly the most critical challenge (Tam & Oliviera, 2018).

However, this research model has adopted Hofstede's cultural dimension because it is the most evidence-based theories used in the IS/IT field. Leidner and Kayworth (2006) report that over 60% of IS/IT research analysed made use of some of Hofstede's cultural dimensions. Based on the successful application of Hofstede's culture dimensions, this model takes on three of them: power distance, uncertainty avoidance, and individualism. The main reasons for this selection are as follows. First, many researchers have pragmatically analysed the Hofstede's culture dimensions and have applied it to the technology acceptance or usage context (Zhang, Weng & Zhu, 2018) and in this study, I examine the effect of culture on m-banking acceptance, which has not yet been tested within a single country with a diverse culture like Ghana. Second, the most applied dimensions of Hofstede's culture theory were uncertainty avoidance and individualism. The premise is that uncertainty avoidance plays a major role in whether individuals might embrace an IT or not, which means that IT acceptance requires some trust and risk. At the same time, the social behaviour addresses the interest of people with a high propensity to individualism, whereas, for people with a high propensity toward collectivist culture, the main influence of social behaviour addresses the group or collective interest (Hofstede, 2011; Tam & Oliviera, 2018).

3.4 Chapter Summary

This section constituted the integration of constructs from various technology acceptance literatures to design the study model. The various perceived elements (security and privacy, trust, risk, and regulatory influence) that serve as obstructions towards mobile banking acceptance were explained. The chapter further resorted to the cultural moderators (power distance, individualism, and uncertainty avoidance) that were seen as moderators on the relationship – obstructions, and acceptance of m-banking. Lastly, the section discussed the justification for the choice of the model integration and moderating dimensions.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Chapter overview

The methodology used was discussed based upon the specific reason for which this study was carried out and the research questions carved out from the above research problem. This chapter described the various methods and procedures that were used to collect and analyse data. It has been therefore divided into sections that discussed the research paradigm, research design, research strategy, sampling technique, data collection procedure, data collection instrument, and data analysis techniques used.

It is the responsibility of the researcher to select an appropriate procedure in researching a variety of methods such as case study, practice, experiment, interview, mathematical models, survey, and observations (Chen & Hirschheim, 2004; Creswell & Clark, 2010; Golafshani, 2003).

4.2 Study Paradigm

According to Turyasingura (2011) an academic research is based on philosophical assumptions with regards to what the researcher perceives to be the reality. Sarantakos (1998) understands research methodology to be "a model which entails theoretical principles as well as a framework that provides guidelines about how research is done in the context of a particular paradigm". Paradigm is said to be a "set of beliefs, values, and techniques which is 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" (Kuhn, 1970). Paradigm forms the basic philosophical premises that set out the 'true' and appropriate methods of research that can be applied (Myers & Avison,

2002). Epistemology, Ontology and Methodology are the three grounded dimensions of the paradigms (Creswell, 2009; Lincoln, Lynham & Guba, 2011).

An Ontology researcher considers the existence, the form of facts and decides what constitutes researchable legitimate questions (Guba & Lincoln, 1994). The ontological dimension of a study paradigm also considers the phenomenological perspective and assesses the biasness, distinctiveness or whether the phenomenon is an act from the researcher. Epistemology looks at the nature and what really counts as knowledge (Ritchie & Lewis, 2003). Contrarily, the methodological aspect of a study paradigm refers to the methods used by the researcher to explore what they perceive may be understood and the justifications for the use of these methods which consist of quantitative, qualitative, or mixed methods (Lincoln, Lynham & Guba, 2011).

The main paradigms that have shown the major theoretical directions in information systems are the positivist, the interpretive, and the critical paradigms (Mingers, 2004; Myers & Avison, 2002). These paradigms have their specific assumptions of the phenomenon and demand the ways to study social phenomena but "in the practice of social research, their distinctions are not always clear cut" (Myers & Avison, 2002).

Critical realism, according to Fisher (2010), concludes that perceptions have some flexibility and ascertain what reality is and what individuals perceive as truth (Bisman, 2002). The critical realist intends to clarify social phenomena by analyzing the setting-process-effect patterns like patterns of explanation and association.

The positivist model assumes a single and precise objective reality which is independent of what is being researched (Kaplan & Duchon, 1988). The motive of the positivist is to understand reality instrumentally so that, generally, the regulations governing reality can be uncovered as well as clarified for the description, prediction, and controlling reality.

The study's interpretive model holds the view that many realities exist because it is socially formed (Fisher, 2010). The interpretive researcher seeks assesses beyond the visible actions of people in the sense of social experiences and to consider the subjective meanings they attribute to their behaviour, thereby explaining as well as recognizing the reasons behind those behaviours (Neuman, 2011). By employing theories (the Security and Privacy framework) and case studies to study the social phenomenon of m-banking services in banks, the interpretive paradigm is considered appropriate to guide this study.

4.3 Study Design

A research design offers a body of knowledge for data collection, evaluation, and study. The chosen selection of the study design considered represents the priorities depending on; how to generalize to broader groups of people besides the actual participants, how to understand behaviour and make sense out of them in their particular societal setting and lastly how to appreciate social phenomena and how they inter-relate. Research design is also the basic technique or method of data analysis that was employed by the study (Fraenkel & Wallen, 2000). The research approach and strategy make up the research design.

4. 3.1 Research Approach

In undertaking a study, researchers have proposed two main approaches. These approaches are the quantitative and the qualitative methods (Engstrom & Salehi 2007). Quantitative analysis aims to assess the nature of an issue or the presence of a relationship between aspects of a phenomenon by quantifying the variance. While, on the contrary qualitative method examines the imports, beliefs, and behaviours that individuals assign to a phenomenon to rather create a better comprehension rather than evaluating a relationship for approval or disapproval (Boateng, 2014). Qualitative research is "typically used to answer questions about the complex nature of phenomena, often to describe and understand

the phenomena from the participants “point of view” (Leedy & Ormrod, 2010). In most cases, the qualitative approach is often related to the Interpretivist paradigm, and the mixed approach to the Critical paradigm (Mingers, 2004).

However, in this study, the qualitative approach was adopted because it provided direct measures to understand how and why banking customers are reluctant in accepting a technology meant to provide value and advantage in the provision of banking services. Customers' perceptions were equally very relevant to this study as they allowed for subject variables to be measured as a function of the perception of banking customers, hence, the justification for the qualitative method. The more descriptive space afforded by this approach is the reason for its desirability by the researcher (Cooper & Schindler, 2006) which is necessary for gaining a complex and thorough understanding of matters, which only comes out by directly talking with people, and understanding the context or setting within which these things arise (Creswell, 2009).

4.3.2 Research Strategy

A research strategy permits the researcher to undertake a systematic investigation of a phenomenon of interest and a tool for data collection and analysis (Sarankos, 1998; Marshall & Rossman, 1999). Various research strategies include case study, survey, and experiments and they all have unique questions to be answered. Research designs are possibly guided by "three conditions: the type of research question posed, the extent of control the investigator has over actual behavioural events and the focus on contemporary as opposed to historical events" (Yin, 2003). An Experimental research is where a variable is influenced and controlled to test a contributory relationship stating that “causality suggests that a single event (the "cause") always leads to another single event (the "effect")” (Powell & Connaway, 2004). A survey research strategy involves the technique that asks questions from respondents by using systematic methods of measurement such as questionnaires

and/or interviews (Powell & Connaway, 2004). The "who, where, what, how many, how, much" are the basic questions that forms the research agenda (Yin, 2003). On the other hand, a case study is one of many methodological inquiry techniques and is perhaps the most widely used and the best known (Stake, 1995). Also, it is one of the easiest ways to perform qualitative research (Denzin & Lincoln, 2000). Saunders et al. (2007) propose that the case study approach is better used when acquiring a wealth of information about a problem in terms of the mechanisms being applied and the specific issues involved. Case studies are employed in situations or phenomenon that has the characteristics of changing at a rapid pace and complexities (Benbasat, Goldstein & Mead, 1987). This exactly reflects the m-banking phenomenon in Ghana. In this analysis, the case study method was used considering this. Again, in a case study, there are no basic laws to define important elements and relationships as well as determining when the factors and relationships can be observed directly (Fidel, 1984).

4.3.3 Research Target Population

A population refers to a large group that one intends to apply an outcome to (Fraenkel & Walled, 2000). Cooper and Schindler (2003), however, describes the population as the complete selection of elements or participants that the researcher makes certain conclusions about. The target population refers to the whole community of individuals or objects involved in generalizing the conclusions. Presently, there are as many banks in Ghana as possible; however, this study targets banking customers in Accra, Ghana. The study target population boundaries consisted of customers of these banks and specific customers who have declined to access or accept the mobile banking service in the banking sector.

4.3.4 Sample Size

Fraenkel and Wallen (2000) describe a sample as any group in which knowledge is collected in a study. Generalization emerges when the sample results reflect the true representation of the entire population (Creswell, 2009; Taherdoost, 2016). The researcher selected a sample size of twenty (20) respondents which consisted of both mobile banking users and non-users.

4.3.5 Sample Technique

According to Chaturvedi (2005), a sample is a smaller (but hopefully representative) collection of a population used to ascertain or verify the realities or truths about that population. The probability as well as the non-probability sampling forms the basis as far as sampling techniques is concerned. For a participant to be considered as a probability sample, he/she must be selected randomly with an equal chance in the sampled population. This helps to make reasonable statistical inferences. In comparison, non-probability does not allow valid population inferences (Creswell, 2009; Kivunja & Kuyini, 2017).

Two different sampling techniques are used in the study to sample both users and non-users' mobile banking customers. These are convenience sampling and purposive sampling. Convenience sampling is usually described as a non-probable sampling technique in which participants are selected based on their expedient availability and closeness to the researcher (Chaturvedi, 2005; Kivunja & Kuyini, 2017). It further states that subjects selected are selected for convenient sampling because they are easiest to select for the study and not because they are representative of the entire populace. Researchists may, however, often generalize from unusual population samples, but not from a statistical perspective (Creswell, 2009; Taherdoost, 2016).

In this research, the focus is to gather information on the mobile banking obstructions towards its acceptance and how culture influences their relationship. The study was therefore, carried out using a nonprobability sampling so that not all of the population but only some chosen banking clients were reflected by samples. The twenty (20) bank customers were selected because of their mobile banking use or non-user status, particularly in a Ghanaian bank. These banking clients also have long-standing experience in banking transactions.

Banking institutions usually sign non- disclosure terms of agreement with their clients. This makes it impossible or difficult for a researcher to access the client database of banks. The researcher relied on the availability and readiness of prospective participants to partake in the study. For this reason, the convenient and the purposive sampling techniques were adopted by the researcher to select the sample to constitute the interview session of twenty (20) interviewees for the structured and the unstructured interview. The twenty interviewee's responses were used to ensure confidence and triangulation in data. Etikan, Musa, and Alkassim (2015) cited Dornyei (2007), as saying that convenience sampling is the faction of the whole group serves as research participants based on the study purposes that are in common with the functional requirements, such as accessibility and availability or acceptance of participation. (Etikan, Musa & Alkassim, 2015). The small sample size was used to enable the researcher to have an in-depth interview discussion with participants as well as ask the participants with more probing questions.

4.3.6 Data Collection Methods

In reference to Fraenkel and Wallen (2000), instrumentation is the method of data collection which entails the variety or layout of the instrument and how it is administered. They are either in the form of interview guides or questionnaires. This research assumed interviews as the method for gathering data. Interviews serves as one of the famous ways of collecting

data and a critical fonts of knowledge (Yin,1994; Yin, 2003) that allows the interviewer the choice to change the line of questioning, comments, as well as to examine basal reasons contrary to self-administered questionnaires (Robson, 1993). Consequently, this research used both structured and unstructured interviews to gather a worth of information on factors obstructing the acceptance of mobile banking and the role of cultural influence among banking customers in Ghana.

Table 4.1. Main Research Constructs and Definitions

CONSTRUCTS USED	CONSTRUCT DEFINITION	SOURCE OF ADAPTION
Security and Privacy	"A possible loss due to fraud or hacker compromising the security of an online bank user's information" – in the context of mobile banking.	(Lee, 2009, p.2; Crossler & Belanger, 2011; Raja & Anil, 2016; Urban, Li & Hoofnagle, 2012)
	Proposition 1: Security and privacy may be a serious concern for mobile banking among banking customers in Ghana.	(Oni & Ayo, 2010)
Perceived Trust	Trust is "the perception about the availability of the necessary legal, technical, and procedural structure in the wireless space" to ensure the successful completion of a financial transaction	(Mayer, Davis & Schoorman, 1995; McKnight, 2005; Roca, Garcia, & Vega, 2009).
	Proposition 2: Perceived trust of customers may influence their acceptance of mobile banking within the banking sector.	(Roca, Garcia, & Vega, 2009).
Perceived Risk	Perceived risk as "the subjectively determined expectation of loss by an online bank user is contemplating a particular online transaction" or as perception about implicit risk in using the open internet infrastructure to exchange private information.	(Lee, 2009, p.2; Chen, 2013)
	Proposition 3: Perceived risk in mobile banking is seen to be a serious concern among banking customers in Ghana.	(Wessels & Drennan, 2010; Lee, 2009)
Perceived Regulatory Influence	Regulatory influence or structures is meant to put emphases on legal monitoring, reporting, and compliance which, thus, benefits the financial industry and transactions	(Schueffel, 2017; Jobodwana, 2009)

	Proposition 4: The legal or regulatory environment may influence the acceptance of the youngest delivery channel – mobile banking.	(Worku, 2010; Adewuyi, 2011).
Culture	Culture in the context of IT/IS "the dissimilarity between members of one society to another owing to the shared setting accommodate from the national level to individual level". They further contended that people who live or lived in the same social environment partially have a shared culture	(Hofstede, 2011)
	Proposition 5: Individual culture differences may have a moderating effect on the obstructions towards the acceptance of m-banking.	(Zhu, Weng & Zhang, 2018)
Power Distance (PDI)	The "degree to which differences in power, status, and privileges are accepted in society and considered a natural order."	(Hofstede, 2011)
Uncertainty Avoidance (UAI)	The "degree to which novel phenomena or ambiguities are perceived as threats".	(Hofstede, 2011)
Individualism (IDV)	This is the "degree to which people derive their identity primarily from being an individual ("I") versus being a member of social groups ("We")."	(Hofstede, 2011)

4.3.7 Data Analysis and Interpretation

Data analysis requires that the researcher can comfortably develop and make comparisons and contrasts. The researchers must also be open to perspectives and see opposite or alternate reasons for their results. It is often the most interesting and the hardest aspects of any research (Creswell, 1994).

4.3.7.1 Unit of analysis

The study's units of analysis are the banking customers who access the mobile banking platform services on one hand and those who do not.

4.3.7.2 Thematic Analysis

The thematic analysis was the analysis tool used for the analysis of this study. Thematic analysis is a qualitative data categorization strategy. The scientist takes notes and divides them into different categories of thematic analysis (Hinson, Owusu-Frimpong & Dasah, 2009). These analysis ranges under a wide perusing of the data to patterns and subjects. To take note of key opinions stated by interviewees and how they comment on the main topics in the research questions, interview information was translated, transcribed, and thoroughly read. The data were further coded into patterns which the researcher had formed out of the research questions and their underlying conceptions. This allowed the recognition of similarities, disparities, lessons, and problems.

4.4 Ethical Issues and Considerations

The research has been guided by ethical questions and considerations, which seek the consent of all participating interviewees. This was done by taking a studentship letter of clearance from the Department of Operations and Management Information Studies (OMIS), University of Ghana Business School to undertake this research exercise. Accordingly, the researcher has identified all the academic documents that are reviewed,

including books, magazines, theses, journals, and field data, to prevent plagiarism and to maintain the confidentiality of the details given by the respondent.

4.5 Chapter Summary

This section addressed the numerous data gathering methods and analytical procedures to be used to conduct the studies in consideration to these themes: the study approaches and strategies, study's population objective, sampling size, sampling method, data gathering tool, data analytics, and interpretation, and finally ethical issues.

CHAPTER FIVE

DATA FINDINGS AND ANALYSIS

5.1 Chapter Overview

The preceding chapter outlines the methods used in conducting the study. Each section presents the observations and interpretation and sets a key stage in which the empirical evidence brings forth the theoretical sections. The chapter begins with data presentation (biodata and demographic details of users and non-users of mobile banking); knowledge about M-banking as well as its acceptability. The section further speaks on the obstructions from the customers' perspective and finally the cultural dimension towards the acceptance of Mobile Banking. A resume of the results is presented at the end of the chapter.

5.2 Introduction

The main aim of this research is to understand rather than measure, the security, and privacy as well as accompanying factors that obstruct or serve as barriers in mobile banking acceptability among bank account holders in Ghana. In addition, the study seeks to examine the moderating effect of cultural dimensions on the factors towards the acceptance of mobile banking. In our part of the world, where culture tends to play significant roles in our life choices and other decisions, this study sought to find out if the culture does have a moderating influence on customers' decisions to use mobile banking. The study proceeded to establish this among participants in a focus-group interview. The study sought to blend this with a supplementary objective of adapting a conceptual model to help depict the various obstructing elements of mobile banking acceptability.

5.3 Data Presentations

The study collected data from participants, using an interview guide. This instrument was administered on the participants in focus-group discussions. The analytical tool for analyzing this data was the thematic analysis. The categorizing strategy for qualitative data reflects the features of thematic analysis. Under this thematic analysis approach, the researcher made notes and sorted key responses and information into various categories as per the advice of (Hinson et al., 2009). The discussant data was transcribed, translated, and analyzed. This section presents data collected and analyzed from respondents, picking on the core subject matters built around the responses of participants concerning the proposed research framework.

5.3.1 Biodata and Demographics

The gender composition of participants was evenly distributed into ten representatives each. Educational backgrounds of participants were varied; the highest educational qualifications consist of senior high school certificates, diploma, and first degree. The highest modal educational qualification among participants was the first degree as per **Table. 5.1**. Two respondents claimed they were in the lower class whiles all the other eighteen respondents belongs to the middle-class status in society, or at their locations. Participants' banks with whom they transact and operate a business with include Fidelity Bank, Standard Chartered Bank, Zenith Bank, Eco-bank, and GCB Bank. All participants hold personal accounts with their respective banks and transact businesses with their banks, ranging from a minimum of two weeks to three weeks.

Table 5.1. Demographic factors affecting technology acceptability.

Demographic Factors		**Frequency**	**Percentage**
Gender:	Male	10	50%
	Female	10	50%
Highest Edu. Of Participants:	WASSCE/ SSCE	3	15%
	Diploma	6	30%
	Degree	11	55%
Social Status:	Lower class	2	10%
	Middle class	18	90%
	Upper class	0	
Mobile Bank Usage:	Yes	12	60%
	No	8	40%
Bankers:	Fidelity Bank	8	40%
	Eco-Bank	2	10%

	GCB Bank	4	20%
	Zenith Bank	2	10%
	Standard Chartered Bank	4	20%
Length of time on m-banking:	1-4 years	11	55%
	5-8 years	5	25%
	More than 9 years	4	20%
Account type:	Corporate	0	
	Personal	20	100%
M-banking transaction:	Enquiries	9	45%
	Withdrawals	5	25%
	Deposits	2	10%
	Transfers	3	15%
	Others	1	5%

Frequency of usage:	Once a week	6	30%
	Once a month	2	10%
	Very often	9	45%
	2-3 times/ week	3	15%
	Twice a month	0	

Source: Author's Field data (2019)

5.3.2 Knowledge about Mobile Banking

Experts have defined M-banking as simply transmitting information or services of a bank to its customers through different delivery platforms such as mobile phone or any other devices through wireless application protocols (WAP) (Afshan & Sharif, 2016; Liu, li, Wei & Nong, 2009; Ivatury & Mas, 2008; Goyal, Nagori & Sasmal, 2012). Based on this, the study resolved to make sure that respondents understand what the subject matter before them was. All respondent attempts indicated their understanding of mobile banking, which reflects features of the definitions offered by Afshan and Sharif (2016) on m-banking. The following are some of the transcribed definitions offered by some respondents:

> *"Electronic banking is checking your account information and withdrawal on the mobile phone without walking or going to the bank."*

> *"Mobile banking can be described as banking at the comfort of your zone without going to the bank."*

> *"Mobile banking is about doing business with the bank without going there at your convenient place, and convenient time and it save time too."*

Throughout the focus-group discussions, respondents demonstrated a wealth of understanding of mobile banking. They individually defended their decisions for using their mobile phones or electronic gadgets to transact banking business from the comfort of their offices and homes. Regarding the nature of mobile banking transactions participants engaged in, the majority (60%) revealed that they normally used mobile banking to make enquiries, checking bank accounts balances, making withdrawals, and deposits as well as money transfer services. The purpose for which participants use mobile banking supports the work and findings of Luarn and Lin (2005); and Goyal, Nagori, and Sasmal (2012).

5.3.3 Mobile Banking Acceptability and Usage

Jeong and Yoon (2012), in their studies, to find out key factors that influenced users of mobile phones to accept mobile banking or otherwise**,** summed up their findings, highlighting five key factors which influenced mobile phone users to accept mobile banking: perceived usefulness, perceived ease of use, perceived credibility, perceived self-efficacy, and perceived financial cost. These results also featured prominently in this study.

Participants accessed various banking platforms to transact electronic banking. Among them are ATM, internet banking, and mobile applications. While about 60% of participants accepted and used mobile banking, approximately 40% of interviewees do not use mobile banking for various reasons. According to most of the participants, they used mobile banking for its convenience (100%), user-friendliness (75%), time-saving (100%), less cost (75%), and privacy (50%) features. Those who do not use mobile banking services raised reasons for lack of security (50%) of their information and no trust (75%) in their bankers as far as mobile banking is concerned. So, among the sample population of this study, about 40% do not use mobile banking services. This means that in Ghana, there is a likelihood that a significant number of mobile phone users do not use their phones to transact banking

business. This also confirms the works of others that notwithstanding the potential benefits that mobile banking can offer users, the rate of m-banking acceptability has been limited between countries (Bielski, 2003; Takieddine & Sun, 2015). Those who use mobile applications also cited the issue of the high cost of bank charges for the use of electronic banking in general.

Some participants, in expressing their opinions on why banks resolved to introduce mobile banking, participants cited cost-cutting, value-added, and accessibility factors as reasons why most banks decided to introduce mobile banking services on their service menu. As to whether these perceived reasons of the banks correspond with their reasons for subscribing to these unconventional banking services, participants answered in the affirmative. They explained that they normally access these mobile banking services through SMS communication interface and feedback.

Table 5.2. Major factors influencing mobile banking Acceptability in Ghana.

	Influencing Factors	Frequency	Percentage
Reasons for accepting mobile banking	User-friendly	9	75%
	Convenience	12	100%
	Less cost	9	75%
	Privacy	6	50%
	Security	8	67%
	Time-saving	12	100%

Source: Author's Field data (2019)

5.3.4 Obstructing factors towards the acceptance of M-banking

The following sections examine the perceived obstructing elements of security and privacy, trust, risk, and regulatory influence on the acceptance of M-banking among bank customers. The elements are explored below.

5.3.4.1 Security and Privacy Obstructions

Out of the twelve respondents sampled for the focus-group interview, 50% of those who used m-banking cited privacy as an attraction factor for their resolve to accept m-banking while 67% of those who use m-banking also cited security as the reason why they were on m-banking platforms as illustrated in the table above. Meanwhile, eight (8) or 40% of respondents said they were not using mobile banking because of security and privacy reasons.

In terms of the security factor, respondents *"expressed fear and doubt on the security of their financial information being shared on the mobile platform"*.

To them, their information is not secured on such platforms since anybody can easily access their information to their disadvantage. To ensure their information security, respondents resolved not to use the m-banking platform despite the fact that, m-banking presents some advantages too. They, however, agree with others who cited convenience, time-saving, and relative less cost as some of the advantages for those using mobile banking.

On the privacy factor, respondents, who are using m-banking cited privacy as their motivation for accepting it. In their view, m-banking means that you do not necessarily have to personally go to the bank but sit in ones' corner and transact banking business without anyone seeing you, let alone knowing what you have gone to do at the bank. They cited incidences *"where individuals were trailed by criminals and robbed of their monies after cashing them from the bank"*. They argued that with m-banking, these are avoided, hence their resolves to the acceptance of mobile banking. Those who are not on m-banking platforms said, *"their privacy is not guaranteed as their personal information will have to be divulged for the purposes of being put on the platform"*. Their privacy fears were

reinforced by the studies of Luo, Li, Zhang, and Shim (2010), which have reported risk perception, occasioned by eight variables, including privacy risk.

5.3.4.2 Perceived Risk and Trust Obstructions

Trust in physical facilities and technologies has been raised by bank customers as one major concern towards technology acceptance. As a result, 87% (7) of non-mobile banking users raised an issue of trust as a major concern towards their acceptance of mobile banking.

In summary, they explained that *"they sometimes spend minutes or hours at their banks trying to access banking services. Other times they would drive to the bank only to be told that "service is down" and they had to drive home, burning fuel at a cost"*. In another response *"it is not like they do not trust the bank but it's the technology they do not trust"*. This is confirmed by the findings in the works of Makanyeza (2017) and Tam and Oliviera (2017) who identified perceived risk, and trust as some of the inhibiting determinants of m-banking acceptance; negative obstruction on the behavioral intention of users to accept mobile banking services in Zimbabwe, Bangladesh and elsewhere (Sharif, Baabdullah, Dutta, Kumar & Dwivedi, 2018).

On a contrary view, those who are using m-banking feel that they are safer and more secured using m-banking than the conventional banking method. They are of the view that *"their applications or platforms use PIN codes (Personal Identification Number) which is accessible by them only and therefore, in case their phones get lost, their PINs cannot be accessed by anyone else apart from their banks, who generated those codes"*. Their confidence finds support in the studies of Makanyeza (2017). Thus, there is some mitigating process in the security and risk threats towards the acceptance of m-banking.

Regarding the above, banking customers see security and privacy, perceived trust, and risk as major concerns that obstruct their acceptance of mobile banking and thus support the respective propositions (i.e., propositions 1,2, and 3).

5.3.4.3 Perceived Regulatory Influence as an Obstruction

On the aspect of regulatory influence, majority of banking customers are of the view that their decision to accept or not to accept an m-banking technology is in one way or the other influenced by the convenience and the time-saving advantages as well as the other concerns proposed in this research that the platform comes with. Pursuant to the question on this concern raised, mobile banking customers said; *"they do not think of legal issues as a problem because they think that should and can be taken care of by their banks".* Similarly, the above view was also shared by non-mobile banking customers. This is not consistent with the mobile banking as well as privacy challenges raised in the study of Asante-Gyaabah et al. (2015) and Bakare et al. (2017) in Ghana and Nigeria, respectively.

Hence, the assertions above show that m-banking and non-m-banking customers are generally concerned about security and privacy, trust, and risk concerns when it comes to the acceptance of mobile banking. On the contrary, banking customers do not attribute regulatory influence towards their acceptance of mobile banking.

In terms of theory compatibility, this study's analysis reveals very complimentary correlations between what was found and what the various theories predicted. The confirmations from respondents confirm the postulates of the Technology Acceptance Model (TAM) (Davis, 1989) and its extensions.

5.3.5 Cultural Influence Toward M-banking

This unit details the influence of Hofstede's cultural dimensions (specifically Uncertainty Avoidance, Individualism/Collectivism, and Power Distance) on the relationship between the obstructions and the acceptance of M-banking.

The moderating effect uncertainty avoidance culture, according to this study, can be viewed from the trust, risk, and security and privacy perspective. Zhang, Weng and Zhu (2019) posited that people pay more attention to perceived risk and trust in high uncertainty avoidance societies.

A view that supports this proposition from an interview states; *"M-banking provides a menu for service offered to make usage easy, however, there is some uncertainty"*

Another respondent states that "*Although the convenience of being able to perform banking anywhere, anytime reduces anxiety and uncertainty about financial affairs, the fear usually lies in the privacy and trust concerns"*

Of course, trust is of the utmost importance when making use of new technology. The trust will always be attributed to the m-banking service provider (Bankole et al., 2011). Hence, as stated by one of the respondents before acceptance or usage *"I will first visit the service provider to understand the risks before the acceptance of the technology and I also ascertain the amount of money involved in the transaction before usage."* Thus, the higher the amount, the higher the attention given to the risk's issues.

As a result, according to this study, uncertainty avoidance trait towards m-banking acceptance is high amongst m-banking users and non-users. This influence has been depicted in the relationship between the obstruction of security and privacy, perceived trust, and perceived risk. However, was insignificant on the relationship between the regulatory influence and m-banking acceptance.

Concerning individualism/collectivism culture, some authors have established that people tend to accept the usage of a technology based on the influence of friends, relatives, or persons who have an experience of usage (Baptista & Oliviera, 2015). Contrarily, other studies have asserted otherwise by stating that people accept m-banking based on their disposition (Goularte & Zilbert, 2018).

Below is a summary of interview responses from m-banking users and non-users on the moderating role of individualism/collectivism:

"Banking is an activity with password protection and M-banking allows for this individual activity to take place in privacy". – M-banking user.

"Although my friends are using it, I do not feel like using it" – M-banking non-user.

"Bank employees have mentioned the convenience and efficiency of m-banking, but I decided not to use it"- M-banking non-user.

Hence, individual knowledge of m-banking usage helps affirm the model that individualism influences the acceptance of m-banking. This assertion is confirmed in the works of Bankole et al., (2011).

Additionally, the moderating factor power distance in m-banking can be considered from different perspectives. One non-user said, *"Though there have been marketing messages about m-banking and its advantages, these institutions of power does not cause me to defer to m-banking acceptance"*.

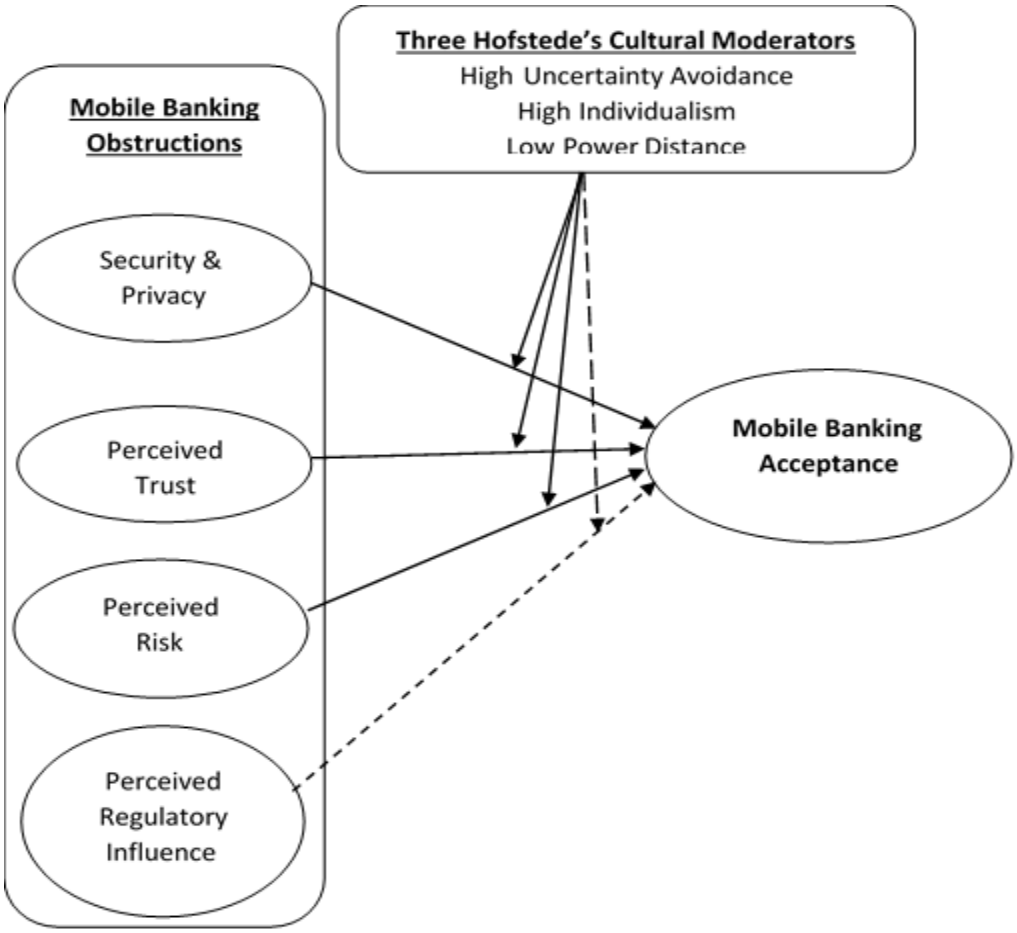
As said by one of the respondents, *"desire or undesirability to use or not to use mobile banking are not borne out of the fact that very important personalities or friends are using the technology".* Their predispositions are the determinant factors in such life choices.

Other obstructive factors such as cost, convenience, ease of use, and time-saving dominated factors that influence participants' acceptability of mobile banking technology. The issue of self-efficiency and privacy are some of the obstructive factors that affect respondents' propensity to accept mobile banking technology. No respondent cited power distance and friend's influence as factors that affect their mobile banking adaptability.

Conclusively, in considered opinions, culture is an influential factor in technology acceptance as reported by Hofstede (1980, 2011) which consisted of five dimensions that Hofstede introduced in his cultural model that was based on a study he undertook at IBM in the 1960s and 1970s. Several other studies found culture as an active variable in choice-making among people (Srite & Karahana, 2006; Sriwindono & Yahya, 1975; Bankole et al., 2015). Many studies have established a strong effect of culture on technology acceptability in the Arab world, where new technologies, especially, communication technologies are not accepted easily (Hofstede, 1997; Hill et al., 1998; Alkadi, 2005; Khushman et al., 2009). While cultural influence may seem to have an insignificant effect on behavioural intentions as corroborated in Brazil by Goularte and Zilbert (2018), the insignificant effect of the cultural dimension in mobile banking acceptability among respondents in this current study in Ghana could not be established as respondents were emphatic that *"cultural norms or considerations do influence their desirability to accept or not to accept the mobile banking technology"*. This is certainly in sharp validation to what is the case in the Arab world.

The current study's findings of factors that influence participants' technology acceptability choices are modeled below in **figure 5.2.**

Figure 5.2. Factors obstructing the acceptance of m-banking.



Source: Author's research outcome model (2019)

5.3.6 Challenges with Mobile banking

Responding to the question of what challenges participants might have encountered in mobile banking applications, majority of respondents complained of cost in relation to data acquisition and network breakdowns. They also cite instances where they are unable to complete a transaction but would later be told by their bankers that they (respondents) had made withdrawals on their accounts which they were unsuccessful trying to transact. Those who do not use such unconventional applications said the challenge they have were high bank service charges and the unresolved fear of security obstructions, especially in this era of internet fraud.

5.4 Chapter Summary

The chapter explained the issues relating to the demographic characteristics of the interviewees. The chapter also concentrated on analysing the components that may obstruct the acceptance of Mobile Banking using an assimilated Security and Privacy, Perceived Trust, Perceived Risk, and Perceived Regulatory influence as a lens for testing the propositions outlined in Chapter 3. Finally, the chapter examined the influence of cultural moderators such as Individualism/ collectivism, Power Distance, and Uncertainty Avoidance on the presented model used for the study, to explore the outcome of these moderators towards the relationship between the obstructions and the acceptance of M-banking in Ghana.

CHAPTER SIX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.1 Chapter Overview

The study sought to find out if these elements of TAM, security, and privacy, perceived risk, perceived trust, and regulatory influence, influenced mobile banking acceptance in the banking sector of Ghana. It also sought to investigate if Hofstede's Cultural Dimensions had an intervening effect on these proposed obstructive factors. The study tried to identify a conceptual model to help depict the various obstructing factors and the moderators of mobile banking acceptance from customers' perspective. Specifically, the study examined some factors that obstructed the acceptance of mobile banking services among customers in Ghana; to explore the moderating role of culture in mobile banking acceptance among banking customers in Ghana. The summary of the findings found in relation to these objectives is outlined in this chapter. The chapter also talks about the conclusions of the study and touches on the study's contribution to literature, policy, and practice. It also recommends the stakeholders of this study as well as makes recommendations for future research.

6.2 Summary of findings

- One of the objectives of this research was to find out the obstructions towards the acceptance of mobile banking by customers. From the responses obtained, privacy and security, perceived trust, and perceived risk were the major concerns that determined whether customers used mobile banking or not. Customers who subscribed said their privacy and security were the reasons they used it; those who have not subscribed stressed that the fear for their security and privacy was the

reason they did not use mobile banking. In contradiction, banking customers did not emphasise on the regulatory influence towards the technology's acceptance.

- Some other objectives of the study were to find out if culture had an influence on customer acceptance or otherwise, of mobile banking. From the responses obtained amongst the three cultural dimensions, the moderating influence of uncertainty avoidance was high on security and privacy, perceived trust, and perceived risk. There was also individualism influence towards the acceptance of m-banking. Furthermore, the influence of power distance was not fulfilled from customers' point of view. Hence, culture did have an influence on the acceptance of mobile banking as far as non-users are concerned.

- The research also found out that in Ghana, there was the likelihood that a significant number of mobile phone users did not use their phones to do bank transactions, though majority of respondents used mobile banking, a significant number did not.

- The study also revealed that respondents had adequate knowledge about mobile banking.

- The research also found that high internet charges and unreliable internet services were the reasons some consumers did not use mobile banking.

Table 6.1. Mapping out Study Objectives with Study Outcomes and Contributions

Study Objectives	Sub- Objectives	Findings	Extant Literature	Contributions, Implications, and Recommendations
1. To examine security and privacy factors; as well as other factors that obstruct the acceptance of mobile banking services among customers in Ghana	To ascertain whether concern over personal data ending up in the hands of third parties influenced customers' acceptance of mobile banking.	1. The study found that privacy and security determined whether customers used mobile banking or not. 2. According to the bank customers, the higher the amount of money involved in the transaction, the higher the perceived risk. Hence, perceived trust and risk are significant concerns towards m-banking acceptance. 3. Furthermore, the respondents of this study indicated that among the above-mentioned concerns reflected in the propositions, regulatory influence is not an obstruction towards m-banking acceptance.	Yoon and Steege (2013), as well as Singhu and Srivastava (2018) found security and privacy to be one of the most important determinants which affect customer acceptance of electronic banking and technology. Tam and Oliviera (2018), Cudjoe et al. (2015), and Makenya (2017) have mentioned	This study contributes to the literature collection by identifying the obstacles of individual acceptance in the sense of m-banking. The literature had hardly studied the effect of culture on acceptance of the technology. Recent work fills this void by integrating the dimension of perception with the theory of culture by Hofstede. The results of this study have provided a detailed understanding of decision factors affecting the attitudes of individuals towards acceptance of m- banking. The study model shows that security and privacy, as well as perceived trust and risk, are of major concern to mobile banking acceptance or non-acceptance in Ghana. Though regulatory influence is lacking as far as customers' technology acceptance is concerned. Again, this work has proven that it is not necessary to emphasise only the features of views centred on TAM, UTAUT, TPB, etc., but also to consider the importance of the impact of cultural values on the acceptance process. Differences in culture reach well beyond national boundaries or may be encompassed in the same area. The model shows that individualism affects the acceptance process and uncertainty avoidance has a major impact on security and privacy, and perceived trust and risk. Contrary to this, power distance has a low impact on acceptance by bank customers.

		4. The study also ascertained that high internet charges and unreliable internet services were the reasons some consumers did not use mobile banking – additional findings.	among many other elements that perceived trust and risk are the most significant antecedents explaining m-banking acceptance. Asante-Gyabaah et al. (2015) and Owusu et al. (2019) have mentioned the challenge of the need for banking laws to reduce customers' perception of risk. Zhang, Weng, and Zhu (2018) have stated that people pay more attention to: social influence and trust in high power distance countries; performance	My theoretical efforts are revolving around the proposed extended TAM. Hence this study helps expand the TAM to address its two commonly recorded limitations (Aboobucker & Bao, 2018). Firstly, expanding the model by adding the normative and, secondly, exploring the effect of cultural values on the proposed model. It has also further broadened the scope of the acceptance decision as far as this research constructs (security and privacy, perceived trust, risk, and regulatory influence) are concerned. In addition, about this study's contribution to knowledge, this study conceptualized a security and privacy framework based on the TAM system that was commonly used quantitatively in other studies. However, in this study, the TAM extension framework has been qualitatively used. Hence, this research, therefore, provides a foundation for researchers to also explore this integrated framework qualitatively. Furthermore, this work adds, from a developing world to the minimal literature in the field of M-banking acceptance. This study responds to the study gaps as it is arguable that many studies have not been carried out academically from a perspective of emerging economy and region, in which banking sectors are under reformation. It is also hoped it will serve as a stepping-stone for further studies in this area. This study helps the managers to appreciate customers' concerns towards an introduction or update of culture-based technologies. The findings made in this study also guide in strategically guiding stakeholders such as bank customers, traders, bank owners, and regulatory agencies in Ghana and
2. To explore the moderating role of culture in mobile banking acceptance among banking customers in Ghana	To examine the influence of Hofstede's culture dimensions of Uncertainty Avoidance, Individualism,	Uncertainty Avoidance has a moderating effect on the relationship between Security and Privacy; Perceived Trust; Perceived Risk and, however, does not affect Regulatory Influence.		

	and Power Distance on the relationship between the obstructions and the acceptance of mobile banking by customers'	The majority of the respondents (both m-banking users and non-users) raised their concern of anxiety in undertaking transactions in service. Individualism has a significant moderating influence on the acceptance of m-banking. Most of the banking customers interviewed expressed the view that their usage or willingness to accept the technology is based on their disposition and not another individual or group. The study has proven that no marketing institutions, nor the experience or position of banking members' relationship can cause the desire to accept m-banking. Thus, the decision lies with the individual. In summary, this study found that culture arguably influences the	expectancy, effort expectancy, perceived risk in countries with high individualism; performance expectancy and trust in high uncertainty avoidance countries as well as using the cultural difference to boost user acceptance of e-banking. Baptista and Oliviera (2015) have explained that in mobile banking use behaviour, the	other emerging economies to recognize and use the results of this analysis to their advantage. My work has shown that individuals are generally concerned about security and privacy, as well as perceived trust and risk in the relegation of regulatory influence towards accepting m-banking. This refers to both m-banking users and non-users. Therefore, mobile developers and financial service providers will provide the latest apps and easy services for m- banking. This research focuses on individual issues regarding m-banking users' acceptance and retention. Understanding the link between perception and actual acceptance stages may help service providers devise strategies to deal with the future of m-banking usage. Understanding cultural features may be important in the creation and management of m-banking solutions. For example, service providers may provide customized services for people with a high inclination to individualism. To those with a strong propensity to avoid confusion, service providers may provide solutions that reduce the risk of using m-banking, which could have a beneficial impact on the sense of security and willingness of customers to embrace this service. This would help reduce the risk of uncertainty and optimize the technology's benefits. Having identified Mobile banking as a field with a dynamic future, this study also, practically, presents a good base of reference for students and researchers. Not only in Ghana but also examine the propositions of this study in other developing countries.

		acceptance of mobile banking by customers.	habit and culture moderator effects on behaviour intention overuse behaviour were the most important drivers. Collectivism, uncertainty avoidance, short term, and power distance were found to be the most significant cultural moderators. Tam and Oliviera (2018) have posited the effect of these cultural dimensions on usage and performance in e-banking.	

6.3 Conclusion

Mobile banking has had a significant influence on the banking sector in Ghana. It is time-saving and less stressful. Customers do not need to drive to their bank branches to join long winding queues before enjoying banking services. Though many people enjoy the ease and comfort that comes with mobile banking; worry for their security and privacy, trust, as well as risk prevents them from partaking in it. They feel that putting out their information in such a virtual world riddled with hackers may lead to their information ending up in the wrong hands. More devastating maybe when they lose their phone; since their bank account may be accessed by individuals who lay their hands on these misplaced or stolen phones. Some respondents also felt mobile banking is safer. They felt that since their account is protected by a PIN known only to them, their account is safe. They stated that some persons were followed and robbed after withdrawing money from banks. They felt they can do their transactions in privacy without anybody knowing. Thus, their privacy and security were assured through mobile banking. It is therefore apparent that some customers consider mobile banking a threat to their privacy and security, while others consider it safe for their privacy and security. From the research, we can safely conclude that culture has an influence on the acceptance or otherwise of mobile banking security and privacy concerns. High internet charges and unreliable internet services are challenges faced by the mobile banking sector. Though customers show adequate knowledge about mobile banking, a significant number of mobile phone users do not access mobile banking technology.

6.4 Implication to Research and Practice

The importance of the study can be examined along with two stripes: theoretical or research implications and practical implications.

6.4.1 Research Implications

Among the top priorities for any business that offers consumers with services or goods are attracting and retaining consumers. Research on embracing mobile banking is a key issue, as the vision of the future for financial institutions is related to emerging technology. Banks find it important because it is the financial services frontier, substituting internet banking (Lee et al., 2015). However, mobile banking also helps to increase the proceeds of other players like mobile dealers and internet service providers (Lee et al., 2015).

This work adds, from a developing world to the minimal texts in the domain of M-banking acceptance. This research responds to the study gaps as it is arguable that many studies have not been carried out academically from a perspective of emerging economy and region, in which banking sectors are under reformation. This work also provides the students and researchers on a fair basis for reference. This contributes to the works of researchers who would like to research in the field, not only in Ghana but also in other parts of the world, especially in other developing economies, to test the propositions of this research.

Furthermore, several theoretical models have been used in the literature to explain the determinants of e-banking adoption among banking clients (Shaikh & Karjaluoto, 2015; Nasri & Charfeddine, 2012). The interconnection between user interests, attitudes, and expectations in information systems has been represented in these theoretical models. Among them, TAM has been discovered to have sufficient explanatory capacity, and it could be further improved by the introduction of moderators (Sun & Zung, 2006; Tam & Oliviera 2018).

This research work adds to the literature collection by identifying the obstacles and drivers of individual acceptance in the sense of m-banking. The literature had hardly studied the effect of culture on the acceptance of technology. Recent work fills this void by integrating

the dimension of perception with the theory of culture at Hofstede. The results of this research have provided a detailed understanding of decision factors affecting the attitudes of individuals towards acceptance of m- banking. The study model highlights that security and privacy, as well as perceived trust and risk, are of utmost concern to mobile banking acceptance or non-acceptance. Though regulatory influence is lacking in the concern for technology acceptance.

Again, it is unnecessary to highlight only the features of views centred on TAM, UTAUT, TPB, etc., but also to assess the importance of the impact of cultural values on the acceptance process. Cultural variations reach well beyond national boundaries or may be encompassed in the same area. The model shows that individualism affects the acceptance process and avoidance of uncertainty has a major impact on security and privacy, and perceived trust and risk. Contrary to this, power distance has no effect on the acceptance of m-banking. My theoretical efforts are revolving around the proposed augmented TAM and discussing some of the absent constructions. Hence, this study helps expand the TAM to address its two commonly recorded limitations (Aboobucker & Bao, 2018). Firstly, expanding the model by adding the perceptions and, secondly, exploring the effect of moderators (cultural principles) on the proposed model. This has further emphasized and elaborated on the customer's scope of the acceptance decisions as far as security and privacy are concerned.

In addition, and in relation to this study's contribution to knowledge, this study conceptualized a security and privacy framework based on the TAM that was commonly used quantitatively in other studies. However, in this study, the TAM extension framework has been qualitatively used. Hence, this study, therefore, provides a fundamental for researchers to also explore this integrated framework qualitatively.

6.4.2 Practical implications

As to the consequences of the work to reality, this analysis demonstrates many aspects from the customers' viewpoint during the acceptance process of new technology. Thus, practical implications for building strong relationships with m-banking users and service providers are key.

Firstly, this study helps the managers to introduce and update the latest culture-based technologies. The findings from the recommendations made in this study also provide guidance in strategically guiding stakeholders such as bank customers, traders, bank owners, and regulatory agencies in Ghana and other emerging economies to recognize and use the results of this analysis to their advantage.

Secondly, my work has shown that individuals are generally concerned about security and privacy, as well as perceived trust and risk in relegation of regulatory influence towards accepting m-banking. This refers to both m-banking users and non-users. Therefore, mobile developers and financial service providers will provide the latest apps and easy services for m- banking. This research focuses on individual issues regarding m-banking users' acceptance and retention. Understanding the link between perception and actual acceptance stages may help service providers devise strategies to deal with the future of m-banking usage.

Thirdly, understanding cultural features may be important in the creation and management of m-banking solutions. For example, service providers may provide personalized services for individuals with a high inclination to individualism. People with a strong propensity to avoid uncertainty, service providers may provide solutions that reduce the risk of using m-banking, which could have a beneficial impact on the sense of security and willingness of

customers to embrace this service. This would help reduce the risk of uncertainty and optimize the technology's benefits.

Also, the user's perspective indicates that the banking channel may offer benefits. Knowing how m-bank users view and conduct financial services more efficiently and effectively would provide many benefits, such as time savings and efficiency in simple banking transactions, which can in turn retain more potential as well as m-banking users.

6.5 Research limitations

A few limitations were identified during the conduct of this study. One such limitation is that this study focused on a single perspective - banking customers. Moreover, the conceptual model used in the study happens to be the first one in the sense of mobile banking.

Furthermore, time was also another limitation, as the researcher would have explored and produced more content into other impediments that underdetermine the acceptance of mobile banking. Also, appointments for the researcher to interview respondents suffered some delays and were sometimes brief due to respondents' schedules.

Again, the lack of consideration of some cultural dimensions, indulgence, and some few according to Hofstede (2016), is not treated in this research due to the lack of comprehensive texts on the subject in scientific work repositories. Consequently, this study applied only three cultural dimensions of Hofstede, power distance, individualism, and avoidance of uncertainty. Given this limitation of only studying three dimensions of Hofstede, the researcher believes the conclusions of this study are useful for other researchers and practitioners.

Another drawback of this analysis was the consideration of a non-probabilistic-sized sample and the fact that the sample did not have any regional stratification covering all Ghanaian

regions. Understanding that culture can differ widely in regions, even within a country's borders, particularly in an African country with diverse cultural settings like Ghana, it may be significant (Hofstede et al., 2010). This has a limit on the generalizability of the study, however, the researcher's findings can still serve as the foundation for further researches.

6.6 Future Research Direction

The findings of this study have significant implications and point to a variety of areas of study. The following highlighted areas were considered important and significant for potential research exploration.

First, this research was conducted using the qualitative approach to analyse the barriers of mobile banking technology acceptance and its moderators. Moreover, undertaking this study quantitatively and qualitatively may produce different results if tested among bank customers utilizing different e-banking channels. Therefore, the researcher suggests exploring this analysis using a quantitative and mixed approach to provide some generalization in these respects. This type of research has the potential to satisfy the full involvement as well as cover the regional stratification of the country.

Second, this work was carried out from the bank customers' point of view without looking at the mobile banking administrators and application developers, which restricts the reach of this report. Therefore, pursuing a multi-perspective study that also involves the mobile banking administrators and application developers would be imperative.

Third, future researchers may analyse socio-demographic consideration of mobile banking participation issues using the same model, and other cultural aspects may be of interest for subsequent research and may provide a deeper understanding of m-banking and users.

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APPENDIX A

SECURITY AND PRIVACY OBSTRUCTIONS AND THE ROLE OF CULTURAL MODERATORS IN MOBILE BANKING: A CASE FROM A DEVELOPING COUNTRY

Appendix A – Interview Guide

Department of Management Information Systems

Introduction

My name is Erasmus Yemofio an M.Phil. student at the University of Ghana Business School pursuing Management Information Systems. I am conducting a study on "security and privacy obstructions and the role of cultural moderators on mobile banking acceptance in Accra, Ghana".

Overview of Research

As the internet evolved from fixed-line constraint to being mobile, mobile communications devices such as mobile phones, which used to be a preserve for making calls, are now being used to conduct banking transactions (Koenig-Lewis et al., 2010). This platform, which came to be known as mobile banking or m-banking has ushered a new era in the banking industry all over the world (Shambare, 2013; Oliviera & Tam, 2017). Thus, banks all over the world, including Ghana (Cudjoe et al., 2015), have embraced mobile banking as a competitive strategy beyond traditional banking.

The research seeks:

1. **To examine the factors that obstruct the acceptance of mobile banking services among customers in Ghana.**

2. **To explore the role of culture in mobile banking acceptance among banking customers in Ghana.**

You are however not under any obligation to answer questions to which you feel uncomfortable.

Thank you for your valuable contribution in advance. Any information gathered from this interview is purely intended for academic purposes. This applies to both users and non-users of mobile banking in Ghana.

SECTION A: BIODATA AND DEMOGRAPHIC DATA

1. Please tell me about yourself or background (where you come from, where u reside or grew up, tribe, etc)?
2. What is your level of education and profession?
3. Which social category do you belong to?
4. What is the name of your bank?
5. How long have you been banking with your bank?
6. What type of account do you operate (Corporate or personal)?
7. How often do you access banking services?
8. What transactions do you mostly undertake with the bank?
9. In your understanding what is **Electronic Banking** and what is **Mobile Banking**?

SECTION B: MOBILE BANKING ACCEPTANCE BY BANKING CUSTOMERS – (FOR USERS AND NON-USERS)

10. What are some of the electronic banking channels you often access?
11. Do you use mobile banking? If you do or not, why?
12. Has there been a stage when you were not accessing or were accessing the mobile banking services of your bank? Why did you stop?
13. What do you think is the main purpose of the mobile banking channel?
14. Does the purpose stated above apply to why you access mobile banking?
15. What mode of operations do your providers employ in providing the services?
16. Which of the mobile technologies do you employ when engaging in a transaction with your bank?
17. What makes you choose or not choose or not frequently use mobile banking services over the other channels?

18. Can you explain to me the reasons why you refuse to conduct banking services with your phone? (Non-users)
19. How do you think any of these factors below influence your acceptance of the mobile banking services of your bank?
    i) **Security and Privacy concerns**
    ii) **Perceived Trust concerns**
    iii) **Perceived Risk Issues**
    iv) **Perceived Regulatory influence either of the bank or the Nation towards the use of e-services.**

(Kindly provide a 'yes or no' answers before giving examples concerning these factors if any)

SECTION C: CULTURAL MODERATORS AND MOBILE BANKING ACCEPTANCE

20. How does culture influence the relationship between obstructions and mobile banking acceptance?

21. What is your observation about the cultural dimensions and their influence on mobile banking acceptance? for instance?

a. **Individualism/Collectivism,**
b. **Uncertainty Avoidance**
c. **Power Distance (with examples if any)**

CLOSURE

22. I am done with my questions; do you have any questions to ask me/ Is there anything you might have wanted to say that I did not ask?

23. Can you please lead me to another informant if there is any that you know of who can provide me with further/ other view information?

Thank you for your time.