UNIVERSITY OF WITWATERSRAND

CONSUMPTION VALUES, SOCIO-ECONOMIC AND PRODUCT RELATED FACTORS INFLUENCING GHANAIANS USE OF MOBILE PAYMENT

BY

FRANK AKASREKU

(1565533)

Thesis Submitted in fulfilment of the requirements for the degree Philosophy Doctor (PhD) in Marketing in the School of Business Sciences University of Witwatersrand

Supervisor Prof Helen Inseng Duh

September, 2020

DECLARATION

I, Frank Akasreku, do hereby declare that this thesis titled Consumption Values, Socio-Economic and Product Related Factors influencing Ghanaians use of Mobile Payment submitted in fulfilment of the requirements for the degree of PhD (Marketing) at the University of Witwatersrand is solely my own research and has not been presented by anyone for any academic award in this or any other university. All references used in this work have been fully acknowledged.

29/09/2020

……..…… ……..

FRANK AKASREKU DATE

(1565533)

DEDICATION

I dedicate this research work first to Almighty God for granting me favour, wisdom and grace to come out with this research work.

I also dedicate it to my beloved sister Cynthia Akasreku, and Claudia Agbodzi for your love, unflinching support, and belief in me.

I love you all.

ACKNOWLEDGEMENTS

Unto the almighty God, the keeper of my soul do I ascribe all the praises for His gift of wisdom, strength, and spirit of endurance that has enabled me to achieve this significant milestone.

The completion of this study would have been impossible without the assistance, encouragement, and support from the many individuals to whom I wish to express my gratitude. It is my pleasure to take this opportunity to thank all of you. I would also like to apologise to those I do not mention by name here; however, I deeply value their kind support.

I wish to express my heartfelt and sincere appreciation to my thesis supervisor, Prof. Helen Inseng Duh for her meticulous supervision and unflinching support and ready guidance throughout the course of my doctoral journey.

I equally thank Dr Kobby Mensah, Dr Norman Chiliya, Prof. Richard Chinomona, Joseph Oppong and Michael Amoako. Their valuable inputs in the various phases of the study, constant encouragement, creative suggestions, and critical comments have not only contributed to the completion of this study, but have also enhanced my confidence, both professionally and personally. I am proud to have them as philosophers and guide in this journey.

I also owe a debt of gratitude to Dr. Ekow Danis Nyarko, Claudia Agbodzi, my sister, Cynthia for their support. I have to make a special mention of both of our wider families who provided immense emotional support and encouragement at all times.

My profound gratitude also goes to the staff of School of Business Sciences, University of Witwatersrand, Johannesburg for their contribution to this study. I would also express my appreciation to the University of Ghana for their contributions to my data collection.

Contents

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The traditional method of payment for goods and services (cash and carry) is gradually paving way for mobile payment in the 21st century, considering the convenience and reduced cost consumers enjoy and the competitive advantage mobile payment provides to marketers. Yet, the use and diffusion of mobile payment, compared to cash payment in Ghana is relatively slow. It was therefore important to investigate the factors that helps or hinder attitudes and the adoption of mobile payment technology. Investigations through a review of literature shows that much of the mobile payment research has been dedicated to understanding customer's intention to adopt mobile payment. A few studies have examined drivers of actual adoption. Most of the studies make use of attitude-based theories, such as the theory of reasoned action, the technology acceptance model, the theory of planned behaviour, unified theory of acceptance and use of technology and extended unified theory of acceptance and use of technology. Each of these theories are not only used in isolation, but generally overemphasis the role of psychological determinants but omit the contributions of product-related attributes provided by the diffusion innovation theory and the values consumers enjoy from the use of mobile payment provided by the consumption value theory. Also rarely examined are the socio-economic factors capable of driving decisions to adopt or not to adopt a technology.

The isolated and fragmented use of the theories provide narrow focus and incomprehensive explanation of drivers of technology adoption, especially for that related to money payment. For a more holistic explanation, it is recommended that an integrated model be developed. This is particularly important for a country like Ghana where studies on mobile payment are not only limited, but the country is socio-economically and socio-culturally different from developed countries where individual technology adoption theories have been tested. With the failure to understand Ghanaian related factors, mobile payment may not be fully embraced or may fail. This study therefore integrated aspects of the diffusion of innovation theory, consumption values theory and extended unified theory of acceptance and use of technology to examine the extent to which consumption values (functional, social, price, hedonic, conditional and epistemic values), socio-economic (peers, family, social class, and education) and product-related (relative advantage, complexity, compatibility, cost, communication and trialability) factors impact on actual use of

mobile payment through their influence on attitudes. The study also examined the extent to which the actual adoption predicts the intention to reuse.

A conceptual model was developed and tested with quantitative data collected conveniently and purposively from 400 respondents who were Executive MBA students and lecturers. Structural equation modelling was the main statistical technique employed to analyze the data and test the hypotheses. The results revealed that none of the socio-economic factors significantly impacted attitudes towards mobile payment. Consumption values, such as price value, functional value hedonic value and additionally behavioural beliefs significantly impacted attitudes. The product-related factors that significantly impacted attitudes were complexity, cost and trialability. Attitudes influenced adoption, which with complexity, trialability, and compatibility directly and significantly drove the intention to reuse mobile payment, while cost did not.

The findings of this study do not only have wider marketing implications for effective strategies aimed at designing and promoting a greater adoption of mobile payment, but they also serve to add to the literature on the emerging body of knowledge about mobile payment technology adoption from a developing country perspective. The tested integrated model which had explanatory powers of 81.2% of attitude, 67.8% of reuse intention can be used to examine drivers of adoption of other technologies in other developing and emerging economies.

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

The world now is a global village and technology has dominated it. The growth of this technology has become paramount because the development of businesses and industries all over the world would be dependent on the technology (Cudjoe, Anim & Nyanyofio, 2015). With technology, lifestyles and behaviours are altered in various ways as daily activities are made simpler and lives made comfortable. Savings are also made for people who acquire technology as well as increase productivity and income (Cobla & Osei-Assibey, 2018; Maurer, 2012). One form of technology that has revolutionised globally and has changed the lifestyles of consumers is the mobile phone technology (Cobla & Osei-Assibey, 2018; Jack & Suri, 2011).

Undoubtedly, some explanations may exist for rapid diffusion of the mobile phone technology. One remarkable cause could be other related technologies that might have made it easier for its development. Except for radio, the diffusion of earlier technologies that were introduced over time were relatively slow. Nonetheless, the rapid penetration of mobile phones and its acceptance, particularly in the developing countries, remains exceptional (Jack & Suri, 2011). It is estimated that globally, there are 866 million mobile phone subscribers with an average of 1.3billion transactions of mobile payment a day and sub-Sahara Africa alone has over 50% share of the total global customer base (Coffie, Zhao & Adjei-Mensah, 2020). By way of projection, mobile phone penetration is expected to reach 500 million subscribers by 2020 (Coffie et al., 2020).

Benefits from mobile phones to advanced and emerging economies are enormous and both will continue to benefit from this new technology. The traditional method of payment for goods and services (cash payment) is progressively giving way to modern method of payment in the 21st century. It has been nearly a quarter-century since the commercial use of the Internet and the World Wide Web began (Kannan & Li, 2017). At this time the commercial environment has drastically altered as the multinational firms such as Google, Facebook, Amazon, Alibaba, eBay and Uber, which didn't exist some decades ago, have emerged as key players in our current economy.

Studies has indicated that sales made with mobile devices have improved at a high rate and was about 22% and 27% of all online sales by 2015 (Rao, 2015; Malcolm, 2015). Firms now express the significance of developing a "digital relationship" with customers (Phillips, 2015). Statista reports that payment through mobile phones globally in 2015 amounted to 384 million in volume, and estimated to reach 450 million in 2017. Again transaction value grew from US$450 billion in 2015 to US$780 billion in 2017 and estimated to reach US$ 1080 billion in 2019 (Statista, 2016).

Furthermore, mobile payment subscribers between 2017 and 2020 is estimated to grow from 24.3% to 33.1% and smartphone owners from 50.8 to 76.0 million, yet mobile payments remain just a small proportion of overall spending (Bailey, Pentina, Mishra,& Ben Mimoun, 2020). Currently, according to Kanojia and Lal, (2020), transactional value of total amount of mobile payment is estimated at $1,328.244 billion in 2022. Both the number of users and the market size are increasing year after year (Lin, Wang &Huang, 2018). Also, approximately 40% of the users expressed their intention to re-use mobile payment (Lin et al., 2018). Mensah, Chaunyong and Zeng (2020: 21) report that mobile payment services enable the consumer "to transfer money

internationally and locally, make deposits and withdrawals, pay utility bills and retail payments, provide payroll services, make loan disbursement and management, repayments and stock exchange etc".

The mobile payment technology has been introduced and adopted in many countries, including Kenya, Sudan, South Africa, Ghana, Rwanda, some Latin American and Middle East countries. In Africa, Ghana is regarded as one of the fastest-growing telecommunication nations (Cudjoe, Anim & Nyanyofio, 2015). In terms of mobile payment it is reported by Narteh et al. (2017) that mobile money subscription in 2016 stood at 19,735,098, representing a penetration rate of 51.52%. Yet, very little is known about the drivers of the positive attitude and the use of technology in general and mobile payment particularly in Ghana (Cobla & Osei-Assibey, 2018). Research in the field of mobile payment has mostly used the Theory of Planned Behaviour (TPB) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (see for example Mensah et al., 2020) to understand drivers of mobile payment adoption. A sole use of each of these theories may limit the explanation of the adoption of mobile money in Ghana. More so, mobile payment attributes, the consumption values consumers derive from the use of mobile payment option and how socioeconomic factors influence their attitude and acceptance of mobile money payment need investigation.

The present study integrates UTAUT, TPB, Diffusion of Innovation (DOI) and the Consumption Value (CV) theories to holistically understand the extent to which consumption values, socio-economic and product-related factors influence attitude, actual use and intention to reuse mobile money payment in Ghana. This chapter starts with an introduction. Thereafter, the research problem, primary and secondary objectives of the study are presented. The key theoretical

perspectives are discussed next, followed by the proposed hypotheses. After that, a brief overview of the methodology is provided. Finally, the contribution and structure of the study is summarised.

1.2 Statement of the Problem

Understanding consumer behaviour around mobile payment has not received attention as e-commerce, Internet banking or mobile banking, where research has been widely conducted (Oliveira, Thomas, Baptista, Campos, 2016 & Dahlberg, Guo, Ondrus. 2015; Cobla & Osei-Assibey, 2018). Even though studies on mobile payment have been conducted in the last couple of years (Dahlberg et al., 2015; Mensah et al., 2020), researchers (e.g., Leong et al., 2013; Slade, Williams, Dwivedi, & Piercy, 2014; Tan, Ooi, Chong, & Hew, 2014; Mensah et al., 2020) have indicated the need for a more holistic understanding of its determinants.

A review of the existing literature shows that much of the mobile payment research is dedicated to understanding customer's intention to adopt mobile payment (Wu, Liu, Huang, 2017; Liébana-Cabanillas, Lara-Rubio, 2017; Oliveira, Thomas, Baptista, Campos, 2016; Kerviler, Demoulin, Zidda, 2016). A few studies, such as those of Lin, Wang, Huang (2018), Chen, Carpenter, Chen and Hung (2018), Yu, Cao, Liu, Gong and Adeel (2018), Park, Jun and Park (2017), Chen and Li (2017), have examined the actual adoption of mobile payment technology and customer’s continued use or reuse intention.

Most studies make use of attitude-based theories to understand the factors that influence adoption behaviour. The theories provide explanations of users' intentions and how their attitudes towards innovation influence the choice to accept or reject innovations. Prominent among these models are the theory of reasoned action (TRA) proposed by Fishbein and Ajzen (1975), the technology

acceptance model (TAM) proposed by Davis (1989), the theory of planned behaviour (TPB) proposed by Ajzen, (1991), Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh, Morris, Hall, Davis, Davis and Walton (2003), and extended unified theory of acceptance and use of technology (UTAUT2) proposed by Venkatesh, Thong and Xu (2012). These models and theories generally overemphasise the role of psychological determinants but omit the contributions of product-related attributes, the values consumers enjoy from the use of mobile payment, as well as socio-economic and socio-demographic variables capable of affecting decisions to adopt or not to adopt the technology (e.g. Abrahamse & Steg, 2011:38; Sonnenberg & Erasmus, 2013:74).

While socio-demographic factors do shape human behaviour, according to some scholars (e.g. Fishbein & Ajzen, 2010:25), Dahlberg et al. (2015:274) noted that socioeconomic factors, such as education, culture, communication and consumption values can also influence technology adoption and reuse decisions, especially in the context of the services. The isolated and fragmented use of mainly the TPB, UTUAT, DOI and CV theories to understand technology adoption provide narrow focus and incomprehensive explanation of drivers of technology adoption, especially for that related to the adoption of mobile money payment. For more holistic understanding, Chan et al. (2012:330) recommend the use of a framework that combines personal, technological, product-related and external theoretical perspectives to understand the adoption of technological innovations. This will be particularly important for a country like Ghana where studies on mobile payment are not only uni-theory focused, but the country is socio-economically and socio-culturally different from developed countries where individual technology adoption theories have been tested. Dahlberg et al. (2015:276) stress the need for theory development and application in

the field of mobile payment to assist research in this area, because hundreds of mobile payment services, including access to electronic payments and Internet banking, introduced all over the world strikingly failed. This study will contribute by integrating various theories to examine factors that influence the attitude, use of mobile payment and reuse intention in Ghana.

1.3 Research Objectives

1.3.1 Primary Objective

The primary objective of this study is to integrate the TPB, UTUAT, DOI and TCV theories to examine the determinants of mobile payment attitudes, adoption and reuse intention in Ghana. Achieving this overarching objective entails attaining the secondary objectives presented in the following subsection.

1.3.2 Secondary Objectives

The secondary objectives of this study are the following:

1) To understand the level and dynamics of technology adoption in general and mobile payment in particular in Ghana
2) To review the literature on the various theories and models explaining the adoption of technology for various product categories and countries.
3) To search literature on the possible relationships between consumption values, socio-economic, psychological and product-related factors affecting mobile payment attitude and usage.
4) To design and empirically test an integrated conceptual model that delineates the relationships between consumption values, socio-economic, psychological and product-related factors impacting on mobile payment attitude, usage and reuse intention.

1.4 Preliminary Literature Review

This section provides a brief review of relevant literature. The review starts by shedding light on mobile payment before providing an overview of the main theories used in this study to explain mobile payment attitude, adoption and intention to re-use.

1.4.1 Overview of Mobile Payment

Mobile payments are payments for goods, services, and bills with a mobile device (mobile phone, smart-phone, or tablets etc.) by the use of wireless and other communication technologies (Dahlberg, Guo & Ondrus, 2015). Mobile payment is carried out with a mobile payment instrument such as a mobile credit card or a mobile wallet. It falls broadly into two categories: payments for daily purchases, and payments of bills (credited payments). Also Turowski and Pousttchi (2013), define mobile payment as that type of payment transaction processing in which the payer employs mobile communication techniques in conjunction with mobile devices for initiation, authorisation or realisation of payment. Coffie, Zhao and Adjei -Mensah (2020), further explained that mobile payment consists of non-complex electronic devices linked to a mobile network that allows transferring and receiving of digital assets for remote transaction within service providers' geographical area. de Luna et al. (2019, p. 932) define m-payment as "business activity involving an electronic device connected to a mobile network enabling the successful completion of an economic transaction". Thus, the central element in mobile payment is the authorisation of the payment process by the ultimate customer using a mobile phone (Kodó & Hahn, 2017; Dorsey, Henderson, Grassadonia, & McKelvey, 2017). This thesis considers element and adopts the definition of de Luna et al. (2019).

The use of mobile payment provides benefits for both customers and companies. For customers, as compared with traditional payment methods like cash and carry, mobile payment adds the advantage of convenience and reduced cost in the payment process (Kodó & Hahn, 2017; Lin, Wang, Huang, 2018). It is also a pervasive phenomenon in society and creates a distinctive value for consumers thereby transforming consumers' lives because of its specific characteristics such as personalisation, location specificity, ‘anytime and anywhere’ access. It reduces search time, ease of fund receipts and payments such as quick pay (Coffie, Zhao & Adjei -Mensah 2020), and provides the purchase information through smartphones. Customers get prompt feedback as related to delivery, prevents identity fraud (Cobanoglu, Yang, Shatskikh & Agarwal, 2015; Hayashi, 2012), monitor account balances from any location (Hayashi, 2012).

Competitive advantages are achieved by companies if they manage to offer mobile payment solutions for their customers (Kodó & Hahn, 2017). The advantages are that it reduces transaction frictions by shortening transaction time thereby providing value-added for shoppers that leads to increase in demand and consumer spending. Businesses also enjoy a higher marginal benefit from reduced transaction cost and improve transaction efficiency (Bezovski, 2016). It creates consumer traffic for new businesses, helps increase revenue for firms and facilitates service customization (Sun et al., 2014). It enables the tracking of inventory and customer behaviour for businesses, provides information on customer demands and offer payment security (Bezovski, 2016; Urban, 2016). With these benefits and due to the technological development of mobile phones and the need for increased efficiency in one’s everyday life, the acceptance of mobile payment increases (Andersson, 2016). In spite of these benefits of mobile payment, some disadvantages may ensue during the mobile payment transactions process. This includes financial risk, where consumer may

perceive possible monetary loss caused because transferring money between accounts in m-payment may be concerned with divulging financial information, such as accounts and passwords which could be stolen and the subsequent the risk of losing money (Yang, Liu, Li and Yu, 2015; Slade et al., 2015). Also, privacy may be compromised. This is because private information such as phone numbers, social security numbers, pin code, consumption locations, and shopping records is required in the mobile payment process. Such information could be exposed or maliciously used if it fell into the wrong hands (Liébana-Cabanillas et al., 2015; Xin et al., 2015). Further, psychological risk may result as consumer's perception of any possible psychological frustration, pressure, or anxiety resulting from the use of m-payment (Yang et al., 2015). Nonetheless, Liébana-Cabanillas and Lara-Rubio, (2017) explained that mobile payment benefits far outwit the demerits. The study seeks to uncover factors motivating or hindering mobile payment reuse.

Nonetheless, mobile payment is still not a standardised method, especially as there are a number of psychological, economic, social, technological and even demographical factors that may hinder the adopt of this payment method (Andersson, 2016).

There are a variety of mobile payment technologies (Köster, Matt & Hess, 2016). Mobile payment solutions are provided in many ways (Molina-Castillo, Lopez-Nicolas & de Reuver, 2020). One occurs by integrating a SIM card in handset or using a chip on the motherboard (De Reuver & Ondrus, 2017) and others cloud connectivity, hence consumers face various interface of mobile payments with different standards. Some have to do with hardware and others how to access the services (e.g., downloading apps from an app store) (Molina-Castillo et al., 2020). These diverse solutions have created confusion in consumers' minds with regards to which one to adopt (Cheng & Chang, 2013). Another confusion is the interface standards where some mobile payment systems

are required to validate and approve payments by entering PIN codes. For example in Ghana, automatic download tokens is applicable. “A token may be received automatically from the device of the initiator of the mobile payment and be given to the receiver of the money. The token is checked-in over a secure communication link established with any mobile payment agent to allow a cash out. This token is a secret code/PIN only known to the initiator, receiver and the agent which allows the cash out for only one transaction. This can only take place if the receiver does not subscribe to any mobile payment system”, and some do not even specify the type of functionality to anticipate (Molina-Castillo et al., 2020).

1.4.2 Theories on Adoption of Innovations

Innovation is said to be ideas, products, programmes, or technology that is new to the adopter (Rogers, 2010:5). Prior studies have proven that research on innovation adoption essentially focuses on the characteristics of a specific innovation, the outcomes of its adoption and diffusion process, as well as adoption at firm and individual levels (Fichman 1992). This study focuses on adoption at the individual level. Fichman (1992:198), indicated that innovation adoption studies focus on individual users' behavioural intention to use innovation or actual acceptance and use behaviour.

Past decades have experienced how the theories have been applied in various studies of innovation adoption. The notable ones applied to understand technology adoption are: Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), the Theory of Planned Behaviour (TPB) (Ajzen, 1991), Innovation Diffusion Theory (Rogers, 1962), and Unified Theory of Acceptance and Use of Technology (Venkatesh *et al.*, 2003).

The TPB is commonly used to explain rational motives behind the adoption of certain behaviour. The TPB is a rational choice theory widely applied for explaining behaviour and informing behaviour change intervention (Ajzen, 1991). Stemming from the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the TPB suggests that the most significant and direct determinants of behaviour are the behavioural intention and perceived behaviour control. The psychological variables attitude, subjective norms and perceived behavioural control are the proximal determinants of behavioural intention.

The TPB assumes that most people's planned and rational decisions are motivated by self-interest and expected outcomes (Kaiser, 2006:72; Sonnenberg & Erasmus, 2013:73). The TPB is therefore relevant in explaining behaviours that entail the use of mobile payment that facilitates business transaction thereby transforming consumers' lives (Dahlberg et al, 2015). Empirical support for the TPB is evident for an array of mobile payments such as effects of behavioural beliefs, social influences, and personal traits on mobile payment adoption (Yang, Lu, Gupta, Cao, Zhang, 2012), customer satisfaction in the continued use of e-service (Liao, Chen, Yen, 2007), user behaviour in mobile payment systems in the new electronic environment (Liébana-Cbanillas, Muñoz-Leiva, & Sánchez-Fernández, 2018). Despite the widespread use of the TPB, it explains adoption behaviour mainly from a psychological perspective. There are other economic (e.g., price value) and socio-demographic factors which may help or hinder adoption behaviour. The UTAUT suggests some of these factors.

Venkatesh et al. (2003) proposed eight comprehensive models and developed the unified theory of acceptance and use of technology (UTAUT). This model postulates that in addition to experience, hedonic value, price value, habit and demographic factors, there are four main constructs that are determinants of behavioural intentions and use behaviour towards an innovation: (i) performance expectancy, (ii) effort expectancy, (iii) social influence, and facilitating conditions. Ever since its introduction in 2003, studies have consistently turned to test UTAUT on explaining technology acceptance, mainly in organisational perspectives (Venkatesh et al., 2012). Mensah et al. (2020) have however found the UTAUT to be useful in explaining technology adoption from consumer perspective. However, the contribution of the various values that consumers enjoy from adopting the technology were not examined. Sheth, Newman and Gross' (1991) consumption value theory (CVT) provides the various values.

Sheth, Newman and Gross (1991) CVT assumes that (1) consumer choice is a function of multiple consumption values, (2) consumption values make different contributions in any given choice situation, and (3) consumption values are independent.

This theory classifies five consumption values impacting on consumer choice behaviour. They include functional value, social value, emotional value, epistemic value, and conditional value. According to Sheth et al., (1991) functional value is the usefulness attained from an alternative's capacity for functional, utilitarian, or physical performance and it is assumed to be the major factor of consumer's choice. It is measured on a profile of choice attributes. They explained social value to be the convenience attained from an alternative's relationship with one or more specific social groups. Also it is measured on a profile of choice imagery (Ghazali, Soon, Mutum, & Nguyen, 2017; Bakon & Hassan, 2013; Prasad, & Jha, 2014; Sheth et al., 1991). This implies that consumers

will engage in behaviour to obtain a positive reaction from their social peers including making purchases (Ghazali et al., 2017). On the other hand emotional value is perceived to be value gained from an alternative's capacity to arouse feelings or affective states. It is measured on a set of feelings related to the alternative. Also a marginal value derived to stimulate interest, provide novelty, and/or satisfy a desire for knowledge is known as epistemic value. Further, conditional value is alternative value gained as a result of certain circumstances or specific situation confronting the decision/ choice maker, it is measured on choice contingencies (Bakon & Hassan, 2013; Prasad, & Jha, 2014; Sheth et al., 1991).

In spite of extensive use of CVT to explain behavioural choices from many disciplines such as economics, sociology, psychology, and marketing, however, failed to include technology and innovation variables such as facilitative conditions, price value, relative advantage, compatibility as well as complexity which could impede or enhance behavioural choices. Innovation Diffusion Theory and UTAUT propose some of these variables.

The Innovation Diffusion Theory (IDT) usually referred to as communication, sociological, and psychological theory is often applied in approaching consumer adoption studies, explains processes, and help to understand predicting behaviours as well as successes of new technologies (Tan, Chong & Eze, 2009). This theory postulates that for an innovation to be adopted, it would depend on the new products' attributes in terms of complexity, relative advantage, compatibility, observability, trialability and cost of the innovation. The IDT has been used as the foundation of many studies that explain the adoption and diffusion of diverse technological innovations, particularly in ICT. This theory presents a collection of factors that influence the individual and

can be incorporated with the TPB, UTUAT and CVT to develop a conceptual model that can holistically explain attitudes, adoption and re-use of mobile payment.

1.4.3 Development of this Study's Conceptual Model

Due to the wide range of determining factors of innovation adoption, researchers have suggested an integrated model that combines more than one theoretical perspective, to understand the adoption of innovations (Fichman, 2004:348; Oliveira & Martins, 2011:116; Oliveira et al., 2014:506; Wu et al., 2014). Following this suggestion, this study developed an integrated conceptual model based on TPB, UTAUT, CVT, IDT and the review of relevant drivers and an outcome of mobile payment adoption.

The conceptual model proposes that product-related factors (i.e. relative advantage, compatibility, complexity, and costs), socio-economic factors (i.e., peers, family, social class, educational level), consumption value factors (i.e., social value, functional value, conditional value), UTAUT factors (i.e., price value, hedonic motivation), and TPB factors (i.e., behavioural beliefs and attitudes), will impact the adoption of mobile payment, which in turn affects the innovation re-use intention. The resultant conceptual model is presented in chapter 3, its constructs are defined in Table 4.2 of chapter 4 and the model will be tested with the research methods introduced in the next section

1.5 Brief Overview of the Research Methodology Adopted for this Study

1.5.1 The Research Paradigm

The present study operates within the positivist paradigm. Hennink, Hutter and Bailey (2011:14) note that positivist research formulates hypotheses from theoretical concepts for empirical testing. It requires the collection of empirical data, which is then evaluated with whether or not the evidence supports the hypotheses. This paradigm is generally considered as a scientific approach objectively emphasising facts and measurements. Thus, quantitative research design guides this study.

1.5.2 Research Design

The research design is a blueprint of a study which serves to direct the researcher on methods and procedures data collection and analysis (Burns & Bush, 2010). The motive of research design is to ensure the study relates to the problem at hand and applied effective processes during the study (Churchill, Brown, & Suter 2010). This study applies a quantitative research method to collect data by cross-sectional survey. This idea was conceived as a result of research problem nature, question and objectives.

1.5.3 Target Population and Sampling Method

Sampling begins by defining the target population precisely (Sekeran & Bougie, 2013:245). The target population is the entire elements/people under investigation by the study or acquire data from (Wilson, 2012:183). Iacobucci and Churchill (2010:282) and Sekera and Bougen (2013:245) argue that the population under investigation should be distinctive in terms of geographical area, and time. Hair et al. (2011:167) noted that the objectives of the research and its scope are essential in characterising the target population. Considering the primary objective of this research, the

target population is all employees and Masters Students of the University of Ghana. These were selected because the masters' students have the industry experience and the lecturers are experienced researchers and their opinions are well respected in Ghana. The other employees of the University have an appreciable standard of living that can enable them afford mobile phones and data.

Sampling frame is mostly controlled by the nature of research objectives and questions in terms of what to sample resulting to two sampling techniques i.e. probability and non-probability sampling (Zikmund, 2003). Probability sampling implies everyone in the population has equal opportunity to be selected as part of the sample. Probability sampling methods are simple random sampling, systematic sampling, stratified sampling, cluster sampling and proportional sampling. A non-probability sampling techniques are purposive sampling convenience sampling, snowball sampling and quota sampling (Zikmund, 2003). Purposive sampling methods was appropriate in collecting the data for this work because only lecturers and masters students who had indicated they have made mobile payment from a screening question were targeted to participate in the study.

1.5.4 Determining the sampling frame

The second step in selecting a sample is to specify the sampling frame. This represents all the objects in the target population for which the sample is taken (Sekeran & Bougie, 2013:245). The sample frame specifies the characteristics of the members to be selected from the sample populated (Wilson, 2012:184).

In terms of the masters' students, this study considered those who were registered Executive MBA students of the University of Ghana Business School (UGBS). In addition to the fact that executive masters students work in the industry and data were thus gathered from practitioners, they were assumed to have the means and ability to make mobile payments. The sample frame for lecturers were senior members (Professors and lecturers) from UGBS and School of Continues and Distance Education who own smart phones and should have made or have the ability to make mobile payment. Lecturers were selected to have a mix of workers from the industry (MBA students most of who work in the industry) and workers from academia. Further, the researcher chose the sample frame from the two institutions because he was familiar with the academic environment. This saved data collection time and at a reduced cost.

1.5.5 Sample Size

The sample size is the number of objects selected and examine in the study. The process of selecting the appropriate sample size is generally guided by several factors including available funds to cover data collection costs, time frame, the heterogeneity of the population, and the type of analysis the study seeks to undertake (Bryman, 2012:200). The method of analyses was taken into account in this study for determining the optimal sample size. Given that this study used mainly structural equation modelling (SEM) for data analysis, the number of variables in the proposed model would be taken into much consideration in deciding on sample size. According to Hair et al. (2014:576), the complexity of the model should be considered when running robust statistical analysis such as SEM. They suggest that a complex model encompassing more than seven constructs (latent variables) should involve at least 500 respondents. The sample size influences the accuracy of estimation but in general, however, large sample size can help minimise

sampling errors and improve the generalisability of research findings (Yang et al., 2006:604). A good sample has two properties: representativeness and adequacy (Singh, 1986:604). Considering the complexity of the conceptual model of this study with twenty four hypotheses and following Hair et al. (2014) suggestion of 500 and above for complex models, the target sample size was 510. This comprised of 293 students and 217 lecturers.

1.5.6 Data Collection

Data was collected with a cross-sectional self-administered survey questionnaire. The questions for the measurement instrument were adapted from the scales of previous studies found to be reliable. Some of the studies are those of Venkatesh et al. (2012), Oliveira et al. (2015), and Slade et al. (2015). The first section of the questionnaire consisted of the demographic data of the respondents. The other sections measured socio-economic factors, consumption value factors, product-related factors, attitude, adoption and intention to re-use of mobile payment services. The research constructs were adapted to fit the current research context and purpose. All scale items were measured on a 5 point Likert scales which were anchored by 1 = strongly disagree to 5= strongly agree to express the degree of agreement to the statements.

A pre-test involving 20 respondents was conducted to ensure that the questions were clear and the scales reliable. Saunders et al. (2012) indicate that one of the main reasons to carry out a pilot study is to improve the data collection instrument. The participants who participated in the pilot study were of similar characteristics as those who participated in the actual study. Some few adjustments in sentence wordings and items were deleted to improve the main data collection instruments.

1.5.7 Data Analyses

The main data analyses techniques employed in this study were descriptive statistics, confirmatory factor analysis (CFA), and SEM. Structural equation modelling (SEM) was the core statistical technique employed to test the hypothesised relationships formulated in the proposed conceptual model. SEM was used because of the multi-variate nature and the inter-relationships between constructs to be tested. The SEM was conducted after testing of the model fit. Several fit indices were used to assess the model fit. These were Chi-square, Adjusted Goodness-of-Fit statistic (AGFI), Turkey Lewis index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). Apart from the SEM which is performed in the AMOS 23 software package, the SPSS 23 software package was used for descriptive statistics and reliability testing.

1.5.8 The Validity of the Measurement Instrument

Validity is the extent to which a test measures what it wished to measure (Cooper & Schindler, 2011). An instrument with high reliability is useless if it is of poor validity (Bless & Higson-Smith, 1995). The validity of the study were assessed with convergent validity and discriminant validity. The convergent and discriminant validity of the research constructs were determined by checking the inter-correlation between the research constructs (discriminant), factor loadings figures and by comparing the Average Variance Extracted (AVE) and shared variance (convergent validity).

1.5.9 Reliability of Measurement Instrument

Reliability is concerned with measuring the consistency of measures and an instrument which produces different scores every time it is used to measure an unchanging value has low reliability (Bless & Higson-Smith, 1995). The following are reliability errors that were given by Saunders at al. (2012):

Participant error- These are factors which may influence the effort that will be put by the research participant when answering research questions. The appropriate time that suits the research participant will be considered when collecting data.

Participant bias- Participants may provide false or biased information that may mislead the findings of the study. Research participants will be encouraged to provide correct information.

Researcher error- This is the failure of the researcher to understand the contents of the interview or questionnaire. The researcher will ensure that all the contents of the questionnaire questions are well understood and connected adequately to the research objectives.

Researcher bias- Researchers should not be subjective when analyzing the data. The researcher will ensure that the discussion of the findings of the study will be supported by the data that have been collected.

The reliability of the constructs were tested by using Cronbach's Alpha and composite reliability coefficients. The constructs reliability were accepted if Cronbach's Alpha coefficient was at least .7 as recommended by Hair et al. (2014). Cronbach's Alpha coefficient of at least .7 is an indication of the internal consistency of items measuring the constructs. In addition to the Cronbach's alpha, the study also utilised the Composite Reliability (CR) coefficient.

1.5.10 Path Modelling / Structural Modelling (SEM)

After the model fit indices were determined by CFA, this study proceeded to run Path Modelling with AMOS 21.0. Path modelling describes the interactions among observed or measured variables and theoretic constructs. It also examine the structural paths of the conceptualised model. SEM technique validates and assess the underlying factors of the conceptualised model and its important

interactions. SEM specifies a procedure where discrete relations are allowed for every set of dependent variables and estimate methods for several independent multi-regression equations simultaneously. It allows independent, and dependent variables to be linked (Blunch, 2013; Roche, Duffield & White, 2011:1480).

1.6 Contribution of the Study

On investigating the determinants of mobile payment attitudes, adoption and reuse intention, this study makes theoretical and practical contributions. The section below highlights some of the contributions:

1.6.1 Theoretical and Practical Perspectives

• The present study will significantly contribute to the understanding of the predictors of mobile payment in developing economies. The proposed and tested model which can be termed an Extended Unified Theory of Acceptance and Use of Technology (EUTAUT) can be used beyond explaining adoption and reuse behaviour in the context of mobile payment. It can also be used to explain adoption behaviour and other innovations including products, services and ideas. This enriches the study of consumer behaviour in the context of innovation acceptance management of payments.

• In terms of practical contributions, this study provides useful insights into various antecedents of mobile payment usage and its effect on reuse intention. The findings can form bases for marketing and positioning strategies useful for technology companies and mobile payment services providers

who are responsible for designing and promoting mobile payment services in Ghanaian and other African contexts.

• Additionally, practitioner knowledge will be gained to improve the mobile payment systems.

• With the mobile payment improvement, consumers and the general society will benefit because payment of purchases and bills will be made easier and more rewarding.

1.7 The Organisation of the Study

• Chapter 1: Overview of the Study

Chapter 1 introduces the entire study and includes the introduction, problem statement, purpose of the study, research objectives and research questions, and contributions of the study.

• Chapter 2: The Nature, Trends And Benefits Of Mobile Payment Globally And In Ghana

Chapter 2 comes with reviewing the literature on the nature, trends and benefits of mobile payment globally and in Ghana.

• Chapter 3: Literature on Mobile Payment Theories of Innovation Adoption and Conceptual Model Development

Chapter 3 reviews literature on the theories and models of innovation adoption, from which a conceptual model and hypotheses are developed.

• Chapter 4: Methodology

Chapter 4 covers the methodology of the study

• Chapter 5: Presentation of Results

Chapter 5 covers the presentation of results.

• Chapter 6: Discussion of Results

Chapter 6 discusses the findings in achieving the theoretical and empirical objectives.

- **Chapter 7: Summary, Conclusions and Recommendations**

Chapter 7 provides a summary of the research findings, conclusions as well as providing some recommendations.

CHAPTER TWO

THE NATURE, TRENDS AND BENEFITS OF MOBILE PAYMENT GLOBALLY AND IN GHANA

2.1 Introduction

The extraordinary recognition and adoption of the mobile device and its ancillary services have generated amazing opportunities for individuals and firms. Many consumers and marketers are increasingly using the opportunities presented by mobile technology to restructure and modernise their ways of transacting business that results in value creation for customers and providing returns on investment. One unique aspect of the mobile technology which marketers are exploiting to facilitate payments and transact with customers is the use of a mobile payment system for a business transactions. This chapter defines mobile payments, discusses its facilitation and the nature from the adoption of mobile phones globally. The chapter then provides the benefits, global and Ghanaian trends of mobile payment, after which it highlights the challenges/barriers in the use of mobile payments. The chapter ends by discussing the marketing and the economic contribution of mobile payment.

2.2 Definitions, Nature and Benefits of Mobile Payment

2.2.1 Definition, nature and systems of mobile payment

Mobile payment (-m-payment) is the utilisation of a mobile device such as a smartphone, a personal digital assistant, to electronically send money from one person (payer) to another (receiver) directly or through an intermediary (Phonthanukitithaworn, Sellitto, Fong, 2016;

Liébana-Cabanillas, 2012). According to Liebana, Kalinic-Cabanillas, Luna and Rodríguez-Ardura (2020, p.28), "it is a type of financial process of a private or business nature, in which an electronic mobile communication device is used to initiate, authorize and carry out a financial transaction". Dahlberg, Guo, Ondrus, (2015) define mobile payment as payments through any mobile device for bills, services, goods by taking advantage of wireless and other communication technologies. According to them mobile payments can also be carried out with a mobile credit card or a mobile wallet. de Luna et al. (2019, p. 932) define m-payment as "business activity involving an electronic device connected to a mobile network enabling the successful completion of an economic transaction". This study adopts the definition by de Luna et al. (2019) and refers to mobile payment to the transfer of cash value from a payer's mobile account to payee's mobile wallet directly or through an intermediary electronically.

M-payment has been classified in terms of proximity (i.e., close proximity at the store counter or remote online payments done using mobile phones) and in terms of types of relationships with the customer (i.e., peer-to-peer, customer-to-customer and business-to-customer) by Innopay (2013) and de Luna et al., (2019). Regarding the business-to-customer (B2C) relationship, de Luna et al. (2019) suggest that there are three main technological systems have been developed to implement m-payments. The three systems SMS (Short Message Service), which is a remote payment system and the QR (Quick Response) and NFC (Near Field Communication) systems, which are close proximity systems.

2.2.2. Nature of Mobile Payment Technology

i SMS payments

Mobile payment uses Short Message Service (SMS) which involves communication protocol so as to altercate text messages between mobile devices (de Luna et al., 2019; Valcourt et al., 2005). This implies that goods and services could be purchased through just an exchange of a text message. As soon as the messages are exchanged with the payee and the necessaries information of the purchaser included, the sum for the goods/ services would be charged to purchaser's phone bill. Ekwonwune, and Enyinnaya (2020), pointed out that SMS is an element of most mobile device systems and internet that are sustained by GSM (Global System for Mobile Communications), GPRS (General Packet Radio Services), and UMTS (Universal Mobile Telecommunications System) based on currently used mobile network. This category of mobile payment technology is found in most emerging markets where most people are unbanked as well as difficulty in internet access (Fernández, 2015; Lowry, 2016).

ii Direct Carrier Billing

Direct carrier billing (DCB) – also called direct operator billing – is an online payment technology where those who belong to the network could purchase products/services and the charges be added to the phone bills (Birudavolu & Nag, 2019). Specifically, a customer enters his/her phone number on a payment page or in an app, where the purchaser will be authenticated to confirm his identity after which the payment will be taken his phone bill or prepaid SIM card. One other way of direct billing is to subscribe to a Mobile Wallet application on the user mobile device. It is a mobile device equipped with the functions of a bank card, credit card, house key, company access control ID, subway tickets, membership card, and so on (Smith et al., 2010; Madan & Yadav, 2016).

Mobile willet can support various transactions, including consumer-to-consumer, consumer-to-business, consumer-to-machine and consumer-to-online. Additionally, consumers have greater flexibility for settling transactions at the point of sale with mobile phone payments (Grigg, Jones, Keller, Kelly, & Votaw, 2012; Smith et al., 2010). In this case, the subscriber could view and select the payment page for the payment to be done as well as viewing balances (Rackley, Porter, Rickman, & Cochran, 2018). Alternatively, Mobile Wallet application provides subscribers with the following application command options to choose from: Pay Anyone command; a Payment Source selection command; and a Payment Method selection command (Rackley, Porter, Rickman, & Cochran, 2018).

iii NFC (Near Field Communication)

Near field communication payment is made by a person moving towards a shop or to a compatible terminal with a mobile device. In the works of Liébana-Cabanillas et al., (2017), NFC technology has many advantages including its widespread and availability, its wide range of applications. Additionally, it is easy to use because it only requires that the parties involved be within a specific proximity. Moreover, it is secured, since it requires the user to manually activate or approach the receiver for payment, demanding proactive behaviour from the user. Lastly, it is economical because it is based on open standards and users are not obliged to pay licencing fees. The NFC application is on the rise as the result of high rate of smartphone penetration in many countries (Liébana-Cabanillas et al., 2017). de Luna (2017) further posits that this type of payment technology attracts attention because of its easy method of data exchange which involves approximating the devices.

In spite of the above advantages some drawbacks have been noticed. Firstly, the high costs of the executing the technology which has ensued financial fees (Islam, Ahmad, Khan, & Ali, 2010). Also the complexity of the systems (Liébana-Cabanillas et al., 2017). Further, the diversity of the types of services and the lack of unified systems of payment (Liébana-Cabanillas, 2012). In addition, the large spectrum of types of terminals hindering the implementation of uniform measures of security, control and monitoring (Islam et al., 2010). Finally, the mistrust of these types of transactions (Wu, Li, Dai, & Zhao, 2010). Another payment method is QR (Quick Response) code. In this case, the codes are stored in a form of bar codes which can be printed or interpreted (de Luna, et al., 2019). QR code are linked with web addresses, e-mails, pages, location, etc, or phone numbers (Fonseca et al., 2012).

2.2.3. Transitions on the Mobile Payment Landscape

Mobile payment has evolved through various stages as the previous literature on mobile technology has discussed the different types of mobile telephony at different levels associated with the generations of technology (Patil et al. 2012). They categorised the generations into four and are namely first, second, third and fourth generations. The generations emerged with Mobile Voice, SMS, High speed data, Mobile TV. The first generation of technology came with analogue phones made purposely for only voice calls. This system started in the 1970s (Khan et al., 2009:334) and this generation phones could not be used for payment activities. Because of their nature business people could only use them to call clients and sell to them wherever they were located. The second-generation started in 1980s and saw the (2G) mobile devices which were designed for voice calls as well as digital signal processing techniques, which permitted the development of SMS. This allows users to send text messages in addition to voice calls. The third

generation began with 3G mobile technology 2001in Asia. This came with high speed data transfer to meet the growing demand for network capacity. This era saw the light of value added service to the high speed data such as internet access, location based services, multimedia message services and mobile internet. Marketing people then took the opportunity of mobile internet access to create platforms for marketing activities including payment systems. The fourth generation started in 2010 where mobile ultra-broadband internet access began. In this era many 4G useful applications were designed into the mobile devices to make comfortable lives for consumers. Some of these applications include video conferencing such Zoom and Big blue button, high-definition mobile television, game services. The introduction of high definition TV into the mobile devices has given rise to marketers throwing adverts at consumers at any location any time and also enables prompt delivery of goods and services. This has encouraged marketers to develop more advanced mobile payment applications which serves as one-stop-shop for consumers where consumers can use mobile check-in and out of retail shops and pay for goods after watching adverts on their mobile phones.

2.2.4. Benefits of M-payment to Consumers

According to Arvidsson (2014) there are efforts in the advanced economies to encourage M-payment to the detriment of cash because of its benefits to society. He explained that economic benefits to society may be 0.3 percent of GDP annually if cash is substituted by M-payment because it costs significantly higher to render cash-based services than m-payment (Danmarks Nationalbank, 2011). Mobile Payment holds tremendous benefits for consumers and businesses. Consumers benefit from the convenience that mobile payment provides by dramatically reducing their search time – a benefit that time-conscious consumers value. This is because the mobile

payment application is on the consumers' mobile phone as a result buyers will no longer visit physical shops to buy goods. Consumers only need to order for goods and pay on their mobile phones. This intern reduce consumers' search time. Mobile payment is also beneficial to consumers for conducting transactions with regards where they are, at any time, and with the advantage of on-going interaction with the firm (Ström, Vendal and Bredican, 2014). Users can obtain the conveniences, such as quickly pay, provide the purchase information records through smartphones. Besides, mobile payment also has service compatibility, users can engage in the same way as offline payment compatible services. Prompt feedback as related to delivery: Mobile payment offers customers the opportunity to get their delivery on time. Despite the unique features of M-payment it is not widely accepted in Ghana.

M-Payment can be perceived as a contactless payment method without actually coming into direct contact with the merchant which is unique and prevent identity fraud. This could reduce fraudulent transactions perhaps because customers would no longer need to give their personal credit/debit card information to service employees/merchant (Cobanoglu, Yang, Shatskikh, Agarwal, 2015; Hayashi, 2012). Mobile payment process also takes very little time to complete with regards to convenience, flexibility, and removes the security concerns with regards to robbers attacking consumers carrying cash. Again it has the ability to receive targeted advertisement and monitor account balances from any location (Hayashi, 2012). Another benefit is its scope and availability. This implies M-payment can be implemented in all existing mobile terminals with the incorporation of a dedicated chip/sim, thereby generating a wide range of new services for users and the terminal itself (de Luna et al. 2019). Furthermore, Near Field Communication technology used for M-payment has a wide range of applications, comprising paying bills, car payments or

for leisure activities. Also, M-payment is easy to use with regards to Near Field Communication technology because the parties only requires to be within its range/specific proximity.

Additionally, this type of payment is secured as it requires the user to manually activate or approach the receiver for payment, demanding proactive behaviour from the user and it also generates added value services to the customer (Luna et al. 2019). More so it is economically attractive because it is based on open standards and users are not under any obligation to pay for licensing fees. There are no guarantees that Mobile Payment System technology will replace cash in Ghana, as it has in places such as Japan, Korea, Malaysia, Kenya, South Africa and the rest.

2.2.5. Benefits of m-payment to businesses

Agarwal, Qian, Yeung, & Zou, (2019), postulate that mobile-payment technology reduces transaction frictions by shortening transaction time. This could be value-added for shoppers that will lead to increase in demand and consumer spending. Businesses would also enjoy a higher marginal benefit from reduced transaction cost and improved transaction efficiency (Bezovski, 2016). In addition, new merchants possess a less stable customer base and thus will receive a greater benefit from an increase in consumer traffic. Mobile payment serves as service extension strategy which empowers firms to increase their revenues and facilitate service customization (Sun et al., 2014). Businesses can use the mobile payment technology to track inventory and customer behaviour. Besides, Bezovski, (2016), suggested that businesses should be able to track the products and services customers pay for to enable them understand customer demands by capturing payment information and improve their services (Urban, 2016). Moreover, mobile payment service does not only reduce the overall cost of a transaction but also offer a better payment security

(Urban, 2016). Further, mobile payment technology is viewed as an easier form of cash delivery for suppliers and business partners, because of its affordability and applicable anywhere and at any time (Bezovski, 2016). Mobile payment intensify the swiftness of checking out customers thereby enabling repeat purchase because customers prefer swift services, especially when paying for goods and services since that is typically their least favourite part of the shopping experience. So customers normally are more prepared to return if they would not have to wait a long time in queues.

2.2.6. The main inhibitors to the acceptance of mobile payment

In spite of these benefits of mobile payment, some disadvantages may ensue during the mobile payment transactions process. This includes financial risk, where consumer may perceive possible monetary loss caused because transferring money between accounts in m-payment may be concerned with divulging financial information, such as accounts and passwords which could be stolen and the subsequent the risk of losing money (Yang, Liu, Li and Yu, 2015; Slade et al., 2015). Also, privacy may be compromised. This is because private information such as phone numbers, social security numbers, pin code, consumption locations, and shopping records is required in the mobile payment process. Such information could be exposed or maliciously used if it fell into the wrong hands (Liébana-Cabanillas et al., 2015; Xin et al., 2015). Further, psychological risk may result as consumer's perception of any possible psychological frustration, pressure, or anxiety resulting from the use of m-payment (Yang et al., 2015). Nonetheless, Liébana-Cabanillas and Lara-Rubio, (2017) explained that mobile payment benefits far outwit the demerits. The study seeks to uncover factors motivating or hindering mobile payment reuse.

2.3 Adoption Rate of Mobile Phones Globally and its Facilitation of Mobile Payment

The rapid penetration and adoption of smartphone and other mobile devices globally has social and economic benefits and acceptance is likely to continue in the near future (Sun et al., 2020). An area which mobile activity has considers is the use of mobile phone for payment purposes (Verkijika, 2020; Molina-Castillo et al., 2020). Worldwide adoption of mobile payments is on an upward trend (de Luna et al., 2019). The acceptance of mobile payment all over the world has followed a trend and were deployed mostly in developing countries, notably in Africa and Asia (Iman, 2018) as the adoption is growing rapidly in some developing economies, less attention is given to it in the advance countries (Makina, 2017; Kshetri & Acharya, 2012; Humbani & Wiese, 2019). These occurrences reflect the fact that some payment types are beneficial to the emerging markets because of financial inclusion implying that most people in the developing do not have bank accounts (Fernández, 2015; Lowry, 2016; de Luna et al., 2019), while the advanced countries have the less case of acceptance because there is ready access to financial services (Flood et al., 2013; Humbani & Wiese, 2019). Therefore mobile payment adoption will likely be driven by newer version of mobile payment model and network technology.

2.4. Global Differences in the Adoption of Mobile Payments

This section discussed how mobile payment technology is dispensed and adopted in both developed economies and emerging markets. It also explained some of the mobile payment methods and the regions they are adopted.

2.4.1. Developing economies

The first form of mobile payment was mainly in the form of money transfers model (money put in mobile carrier with transfer initiated through SMS). This model appeared to be attracted in the emerging market while little thought was given to it be advanced economies. In 2013, according to the GSM Association (GSMA) there were 163 mobile payments services in operation within developing economies and 107 planning to be introduced (GSMA 2013). Ninety (90) of the above figure was found in Africa and 40 in Asia-Pacific while 17 were available in the Americas. Flood et al. (2013), pointed out that 82 million subscribers were found with 78 services providers in 49 developing countries, with six of the service providers reporting more than one million active subscribers Pénicaud (2013). Nonetheless, the degree of acceptance varies, in Kenya, Davidson and Pénicaud (2012), reported 73% mobile money adoption with M-Pesa service provider, and 23% use mobile money at least once a day (Demombynes & Thegeya 2012). In other developing countries such as Philippines, Smart (2012), reported over 10 million subscribers of Smart Money, and 4.4 million subscribers of M-Pesa in Tanzania (Awad 2012).

Table 2. 1. Examples of Mobile Payment Systems in Developing Economies.

Product/Operator	Model	Description
M-Pesa/Safaricom (Kenya)	Stored value funds and an extensive network of agents. Funds are pooled and stored in a trust fund at a bank	M-Pensa allows consumers to make personal transfers, ATM withdrawals, pay bills, make point-of-sale purchases and top-up their mobile phone account

Wizzit/A Division of the South African Bank of Athens Limited (South Africa)	Branchless banking service that customers access through their mobile phone via USSD. Operates through a network of agents, with no formal branch network	Wizzit offers a broad range of services, including: personal transfers, mobile phone account top-up, and electricity vouchers. Customers also receive a Maestro-branded debit card and access to internet banking.
Smart Money/Smart (Philippines)	Stored value under customer's name in a bank.	Facilitates customers' personal transfers, pay bills, top up a mobile phone account and receive international remittances. Customers linked MasterCard to bank for ATM access to stored funds and for point-of-sale purchases
Digicel Mobile Money/Digicel (Samoa, Fiji, Tonga)	Stored value. A network of agents is used and funds are held in trust accounts.	Permits customers to make personal transfers, top up their mobile phone account, pay their mobile phone bill and receive international remittances.
MiCash/Nationwide Microbank (Papua New Guinea)	Bank account operated through mobile phone.	Customers can top up their mobile phone account, check balances and make personal transfer payments. Deposits and withdrawals occur through branches or a network of agents.

MTN Money Ghana	Stored value funds, Operates through a network of agents. Link to personal bank accounts	Subscribers could top up their mobile phone credit accounts, request balances and make personal transfer payments. Deposits into and withdraw from branches or agents, pay bills, make point-of-sale purchases.
Vodaphone cash Ghana	Stored value funds, Operates through a network of agents. Link to personal bank accounts	Subscribers could top up their mobile phone credit accounts, request balances and make personal transfer payments. Deposits into and withdraw from branches or agents, pay bills, make point-of-sale purchases.
G-Money/GCB Ghana	Stored value funds, operates through a network of agents.	Customers can top up their mobile phone account, check balances and make personal transfer payments. Deposits and withdrawals occur through branches or a network of agents.
Express pay Ghana	Stored value funds, operates through online	Customers top up their mobile airtime account, check balances and make personal transfer payments and deposit through linking express pay account to bank account.

Source: National Communications Authority (NCA) Report, 2019

Mobile payment technology is predominantly cash transfer in emerging economies with over 80% value of transaction belonging to person-to-person transactions category (Pénicaud 2013). This elaborates the increasing domestic role mobile payment technology is enabling. Even so, some

mobile payments were established to enable point-of-sale purchases as well as consumer-to-business payments through mobile devices in the emerging economies. For example in Ghana, mobile devices are used to pay for electricity and water bills without the payer travelling to make the payment as well as paying for transport fares for instance Uber and taxi. Therefore the prospective consequence of mobile payment technology to developing countries extends beyond the financial inclusion to the broader economy.

Many factors encouraging mobile payment growth in developing countries including socioeconomic conditions where most people in these areas not having bank accounts or debits and credit cards, but devilish with poorly infrastructure coupled with high fees for money transfers services making mobile payment attractive (Evans & Pirchio, 2015; Iman, 2018). For example, people in Ghana, Kenya, Tanzania, and Zimbabwe are attracted mobile payment to avoid being robbed. Moreover mobile payment systems are believed to be valuable to working poor and unbanked population. For example, mobile transfer through MNT and Wizzit cost about US$0.05 in South Africa (Iman, 2018). Also some international organisations and NGOs have taken the initiatives to facilitate and promote the adoption of mobile payment. In a case, Safaricom and Vodafone developed M-PESA in Kenya with an aid from UK Department of international development. Gates foundation assisted Telenor Pakistan to develop Easypaisa in 2012 (Iman, 2018). Further, rapid diffusion of mobile phones and its convenience remain remarkable in the growth of mobile payment in the developing world (Dermish et al., 2012). In most developing countries, mobile payment is convenient and people do not have to travel far distances load their mobile accounts or withdraw money, wasting time and adding cost to the already high fees.

However, some factors hinder mobile payment growth in developing countries. These include lack of standards, interoperability issues, congestion in the telecommunication network, poor infrastructure and types of intermediaries to solve trust issues (Liu et al., 2015). There is also a lack of collaboration among the stakeholders in the developing world. Example is the collaboration between M-PESA and commercial banks which took 5 years to occur, where their customers were to withdraw money from their ATMs (Liu et al., 2015). Besides, regulations and restrictions constitute detrimental factors to mobile payment growth (Evans & Pirchio, 2015). According to Iman (2018), there several stakeholders in the mobile payment chain. These include Merchants, Customers, MNOs, Device manufacturers, Banks. The table below shows the expectations of different stakeholders in the mobile payment chain.

Table 2.2. Expectations among different mobile payment stakeholders

Stakeholder	**Expectations**
Merchant	Short the transaction time, minimise investment and usage cost, interoperability and compatibility, integration and simplification, increasing trust and security, customization possibilities, real-time status and reporting, good relations with financial institutions, MNOs, or other vendors,
Customer	Reduced learning curve, better personalization, trust and security, minimise cost of usage, minimise processes, real-time status, ability to pay anywhere, anytime, P2P transactions ability
MNO	Offer added value services, increase customer loyalty, new revenue channels, and increase regular revenue per user.

Device manufacturer	Market diffusion and acceptance, open standard, low-cost integration, little time to market, ability to develop and implement several applications simultaneously
Bank	Branding, loyalty of the customer, create new business, own system, maximize security, system integration.

Source: Adapted from Iman (2018)

2.4.2. Advanced economies

There are well established payment system available for consumers and businesses while cheques are disappearing, credit or debit cards are now accepted by all but a few merchants and mobile payment services are emerging in the advanced economies (Bech et al 2017). For example in Denmark, church offerings and street dancers are accepting mobile payments. Fast food can be purchased with "smile to pay" technology in China, and in the USA college students pay for pizza and beers using apps. According to Sharma and Sharma (2019), a variety of Mobile Payment services emerged from online payment market such as Apple Pay, PayPal, Alipay Wallet, and WeChat Wallet in the developed economies. In spite of its assured benefits, providers still struggle to convince users from Web Payment services to Mobile Payment services. Service providers began examining the performance of mobile payment and predict that it may suffer because of the initial use of web payment services (Slade, Williams, Dwivedi, & Piercy, 2015). Gong, Zhang, Chen, Cheung (2020) reported that among payment systems in Chinese M-payment transaction value merely accounted for 26.5 trillion dollars constituting 45%. Similarly, 4% of users were recorded in Germany, 5% in the U.K., 6% in Canada and Australia, 7% in U.S., 9% in South Africa, and 10% in South Korean, 23% in India. These explanations by Gong et al., (2020) show that there are some barriers to mobile payment adoption in the developed economies.

Table 2.3: Examples of Mobile Payment Systems in Advanced Economies

Product	Description
Square Wallet (United States)	Customers link a debit or credit card to their Square account. The consumer can use mobile device for a nearby participating retail store and their name and photo appears at the store's terminal. Customers will then pay using their names. Square can allow instore payments at a retailer by scanning a quick response (QR) code, sent to the mobile device, at the register.
Google Wallet (United States)	Allows both online and point-of-sale purchases through various 'debit' and 'credit cards'. At designated merchants, the payment, redemption of vouchers and accumulation of rewards points are combined in a single transaction called SingleTap.
PayPal (Australia, United States)	Customers link bank accounts, credit or debit cards or use funds in a PayPal account to make purchases in store or online; the customer's name and photo will be displayed at the checkout for a PayPal payment to be automatically processed. Customers make personal transfers.
Osaifu-Keitai ('Wallet Mobile') (Japan)	Osaifu-Keitai is a mobile wallet for prepaid funds transactions, event, transport ticketing. It facilitates ID credit payment service, which enables subscribers to defer payment to a later date.

Source: Adapted from Flood et al. (2013)

2.5. Trends in Mobile Payment Use

2.5.1 Trends in Mobile Payment Use: Global Markets

Technology alters lifestyles and behaviours in one way or the other as it makes work simpler, lives more comfortable, and influences savings of those who want to purchase them as well as increases productivity, income and spending (Maurer, 2012). Though various technologies have been introduced over centuries, one technology that has revolutionized the world and has, in particular, penetrated the lifestyles of consumers is the mobile phone technology (Jack & Suri, 2011). Undoubtedly, several reasons exist for this easy penetration of the mobile phone.

One remarkable reason remains that mobile phone technology followed other technologies that may have paved the way for it. Except for radio, other technologies that have been introduced over time were relatively slow to diffuse through the population (Cobla, Osei-Assibey, 2018). Yet, the speed with which the technology of mobile phones was adopted, especially in the developing world, remains unprecedented (Jack & Suri, 2011). Marketers are tapping into this phenomenal mobile growth and into the tethered relationship that customers have with their phones by building and promoting brand presence on the mobile device (Gao, Rohm, Sultan & Pagani, 2013).

A study conducted by Nielsen (2014) found that mobile payment users mostly use payment service applications were 49 percent for acquiring food, 43 percent for entertainment purposes, 39 percent for shopping, 36 percent for traffic, 19 percent for leasing, etc. Further, about 40% of the adopters stated their reuse intention of mobile payment. Nonetheless, Statistica (2015) reported that transaction of mobile payments will grow from US$450 billion in 2015 to US$780 billion in 2017

and is expected to reach US$ 1080 billion in 2019. They explain that subscribers and the market size for mobile payment continue to grow year after year.

Further research on global trend by de Luna, Liébana-Cabanillas, Sánchez-Fernández, & Muñoz-Leiva, (2019) revealed that worldwide acceptance of mobile payments is on the rise however, its adoption rest on consumers' access to the technologies, their various lifestyle changes in terms of choices as well as different multiple economic variables (Liébana-Cabanillas and Lara-Rubio, 2017). Mobile payment technology is rapidly growing as a result, there a need to carry out a comprehensive, in-depth research on acceptance procedures and actively monitor the effects that other financial solutions have on consumers' perceptions in their daily lives (de Luna, et al., 2019) as compared to mobile payment technology. Therefore understanding the factors which inspire subscribers to use mobile payments is very important to service providers of mobile payment services. Public attention was successfully drawn to the use of mobile payment and the market is presumed to be full of business potentials. Consequently the study seeks to find the factors that affect users' acceptance of mobile payments in emerging economy.

2.5.2 Mobile payment trends in Africa

Wiese and Humbani (2020), posit that since handheld mobile device were developed in 1973, mobile phones have been the fastest growing evolution of all time. Humbani and Wiese (2019), projected 720m subscribers of mobile payment services globally by 2020 (GSMA, 2016) and more than 500 million mobile users in Sub-Saharan Africa alone (GSMA 2017) by the end of 2020. Due to this anticipated growth, Lee, Park, Chung and Blakeney (2012) suggested that mobile devices would become inseparable from consumers therefore people’s lives and businesses procedures

would be changed by mobile payments services. Despite the fact that mobile payments drive economic development in Africa, it also provides financial avenues, and create business ventures, thus empowering the citizens in the developing economies (GSMA, 2016).

South Africa is believed to have the highest rate of smartphone and mobile penetration in Africa (Wiese & Humbani 2020), representing 51% of smartphones and 133% mobile penetration, followed by Kenya with 31% of smartphones and 70% mobile penetration, and then, Nigeria with 29% and 72%, respectively (Fripp, 2014; GSMA, 2016). There have been contradictory accounts in the adoption of mobile payments between emerging markets and the western world (Humbani & Wiese, 2019). Statistica, (2018) reported that mobile payments gained more attention in developed nations because of its numerous potentials to purchase on mobile phones. Conversely, Kshetri and Acharya (2012) reported that mobile payments in developing countries grow faster because of its limited substitutes to cash such as credit cards and cheque, also for the fact that mobile apps may be the solution to financial exclusion in African communities (Makina, 2017). Besides, Flood *et al*. (2013) reported that mobile payments through SMS started in developing countries well ahead of developed countries because the mature payment systems was eroding therefore there was the need for payments initiated by SMSs. The current study looks at the mobile payment reuse factors in Sub Saharan Africa.

2.5.3 Trends in Mobile Payment Use in Ghana

This section gives a general overview of mobile payment penetration in Ghana and discusses how the mobile payment industry has evolved in Ghana. Mobile money technology in Ghana has witnessed an astronomical growth and penetration in recent times. In Sub-Saharan African, mobile

technology has already being used by consumers and businesses to make payments, send money to family members and store monetary value safely (PWC, 2016; Osei-Assibey, 2015; ITU-T Technology Watch, 2013). In Ghana mobile phone coverage was more than 25 million as at December 2012, yet only 4.1 million actually subscribed to M-payment (Osei-Assibey, 2015). Beyond the fact that M-payment interest and usage remain low, active users remain even lower than 10 per cent of subscribers. Narteh, Mahmoud, & Amoh, (2017) further explained that mobile phone subscription as of December 2016 stood at 38,305,078, representing 135.92% penetration rate and M-payment subscription within this same period stood at 19,735,098, also representing a penetration rate of 51.52%. (NCA, 2016), suggesting an improvement in M-payment usage. The mobile payment system has transformed how business operates in Ghana (Tobbin & Kowornu, 2011). For instance, M-payment users are asked to pay directly from their willet for the avoidance of carrying cash to organisations and retail outlets. This indicates that there has been a rapid growth in the mobile payment business in Ghana over the past years and can be said as the game changer in the country's financial services industry as well (PWC, 2016). This development is phenomenal as a result of Ghana's keenly competitive mobile telecommunication industry in sub-Sahara Africa with four major players (Narteh et al.2017; Yeboah-Asiamah, Nimako, Quaye, & Buame, 2016) and has been considered as one of the potent economic sectors in the Ghanaian economy (Mahmoud & Hinson, 2012).

Payment systems started in Ghana in 1997 with MICR cheque (myjoyonline, 2017). In 2008, e-zwich biometric smart card was introduced (Narteh et al. 2017). This payment instrument was introduced to ensure financial inclusion because majority of Ghanaians are so engaged in the informal sector. In 2009, mobile payment system which account for cash flows as compare to

commercial banks deposits was introduced. The NCA report, again, value of mobile payment transactions was GHc5.85 billion (US$1.7 billion) in 2014. A publication by Bank of Ghana (BOG) in 2015 showed that the value of M-Payment transactions was GH¢35.4b, up from GH¢11.2b in 2014. Currently, total value of transactions of mobile payment is GH¢66,356.41'million (BOG, 2019). This effort could have mainly been driven by the fact that the traditional payment methods are progressively being perceived as cumbersome, insecure, and not always available at the point of need (Acheampong, Zhiwen, Antwi, Otoo, Mensah, & Sarpong, 2017).

All a customer needs to own a mobile payment account is a registered cell phone SIM card of the mobile network operator offering the service and then register for a mobile money account. The customer can then make cash deposits at any of the offices of the operator's mobile payment agents or partner banks. These cash deposits create electronic money credit in the customer's account. Mobile payment account holders can make transfers of cash and airtime credit to the accounts of other mobile payment users on the same network. It is also possible for them to make cash transfers to non-account holders or customers on other networks. In this case, all that is required to access funds is a token number and a PIN from the sender. Withdrawals can be made at the offices of the network's mobile payment agents or partner banks.

2.6 Conclusion

The mobile device is perhaps the most ubiquitous personal device of the 21st century. Its adoption is universal in most developed countries. The mobile device has developed from being a simple communication tool to a versatile business tool that offers enormous business value for businesses

and consumers alike. Thus, many organisations are seeking to exploit the business value of the mobile device to improve their efficiency and effectiveness. The affordability and benefits of mobile payment providers are tremendous to consumers and firms. However, the adoption of technological innovations in Ghana remains a significant challenge. The first section of this chapter discussed the concept of mobile payment, with a focus on its definition and transitions in mobile device technology. Then followed an elaboration on the benefits. This chapter also discussed trends in mobile payment adoption both globally and in the Ghanaian market.

The next chapter will conceptualise a theoretical model for the adoption of mobile payment and delineate the hypothetical relationships between the constructs of this study.

CHAPTER THREE

MOBILE PAYMENT, THEORIES OF INNOVATION ADOPTION AND CONCEPTUAL MODEL DEVELOPMENT

3.1 Introduction

In chapter two, the concept of mobile payment was discussed in terms of its nature, systems, benefits, trends and challenges The purpose of this chapter is to review literature on the theories and models of innovation adoption in order to identify factors that can predict mobile payment adoption and to propose an integrated conceptual model. The literature review in this chapter will specifically investigate the explanatory powers of socio-economic factors, Consumption Values Theory, UTAUT, The Theory of Planned Behaviour and Diffusion of Innovation Theory (DOI to understand the use of mobile payment by consumers in Ghana. After the development of the conceptual model from the review of the theories, an empirical literature review will assist in the development of hypothetical relationships between the studied constructs.

3.2 Theories of Innovation Adoption

There is not any universal theory on innovation acceptance, and it seems improbable that an absolute one will emerge (Fichman & Kremerer, 2012, p. 222; Williams, Dwivedi, Lal and Schwarz, 2009, p. 1; Fichman & Carroll, 2000). Therefore, studies have made use of numerous theories and theoretical models to explain adopters' attitudes, adoption behaviour, and several other determinants of innovation adoption in different contexts (Hameed, Counsel and Swift 2012:362; Williams *et al.*, 2009:1). The frequently-used theories in innovation adoption research include DOI (Rogers, 1983), Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), TPB (Ajzen, 1991), Technology Acceptance Model (TAM) (Davis, 1989) and UTAUT (Venkatesh *et al.*, 2003).

Literature indicates that TAM, TRA, TPB, and UTAUT, DOI were largely used in individual adoption research (Mihailescu, Mihailescu & Carlsson, 2013, p.222; Shroff, Deneen & Ng, 2011:601; Yu & Tao, 2009:93). The sub-sections below discuss these most commonly-used theories for explaining innovation adoption behaviour at the individual consumer level adoption.

3.2.1 The Theory of Reasoned Action

The TRA proposed by Fishbein and Ajzen (1975) is a deep-rooted social psychology model that is primarily related to volitional (consciously controlled) behaviours (Fishbei & Ajzen, 2010, p.20). The TRA suggests that human beings are typically rational; as a result, would deliberate on the implications of their actions before deciding whether or not to engage in a behaviour (Fishbeing & Ajzen, 1980:40). This behavioural intent is a function of both the individual's attitude towards the actual behaviour and the normative influence (subjective norm) related to the behaviour. However, TRA does not address the effects of habit, ignoring moral factors and cognitive deliberation in predicting technology acceptance, which is the main weakness of this theory (Gunasinghe, Abd Hamid, Khatibi, & Azam, 2019).

Nonetheless, Teo and Zhou, (2017) combined TRA with TAM to study the influence of teachers' conceptions of teaching and learning on their technology acceptance. The study indicated that teachers' conceptions of learning have a significant influence on their technology acceptance, along with other factors although conceptions of learning was not the strongest contributor to teachers' technology acceptance.

Also, Sun and Chi, (2019) explore TRA to investigate the adoption of apparel m-commerce in the US market and found that factors of TRA are significant in predicting consumers intention to adopt

apparel m-commerce in US. Furthermore, Buabeng-Andoh, Yaokumah, & Tarhini (2019) compared TRA, TAM and integrated frameworks to predict students' technology usage intention and revealed that there were no differences in predictive strength of behavioural intention among the three models in determining the undergraduate students' behavioural intention in educational contexts in developing. Besides, Alryalat, Rana & Dwivedi (2020) applied TRA to study the adoption of an innovative electronic government (e-government) system called online PAN card registration system (OPCRS) in context of India. Additionally, Ramayah (2020) applied TRA to investigate students' choice intention of a Higher Learning Institution and proved that attitude toward behaviour and subjective norm explained seventy-five percentage of the variance in

3.2.2 The Theory of Planned Behaviour

The TPB, postulated by Ajzen (1985), is a rational extension of the TRA and is intended to reinstitute for the limitations of the TRA. Specifically, it seeks to deal with behaviours over which individuals do not have complete volitional control. With regards to the TRA, the TPB is dependent on the postulation that human beings are rational and that they directly or indirectly consider the consequences of their actions. In line with this, the TPB assumes that an individual's intention to perform (or not to perform) a given behaviour is the most fundamental determinant of that action (Ajzen, 2005:118). The TPB posits that behaviour (B) is a direct product of behavioural intention (BI) and perceived behavioural control, and that behavioural intention is formed by the individual's attitude (A). Attitude denotes an individual's overall positive or negative evaluation of engaging in a given behaviour, and is postulated to comprise affective (e.g., like/dislike), cognitive (beliefs and ideas) and conative (tendency to act in a particular way) elements. BI is also driven by subjective norm (SN), which refers to an individual's perceptions of social pressure

from important referents to perform a behaviour; and perceived behavioural control (PBC), which refers to the perceived level of control that individuals have over performing a behaviour (Ajzen 1985; 1991; 2005). Put succinctly, the behaviour is a weighted product of intention and PBC; and intention is a weighted aggregate of attitude, subjective norm, and PBC constructs. These relationships are presented in Figure 3.1

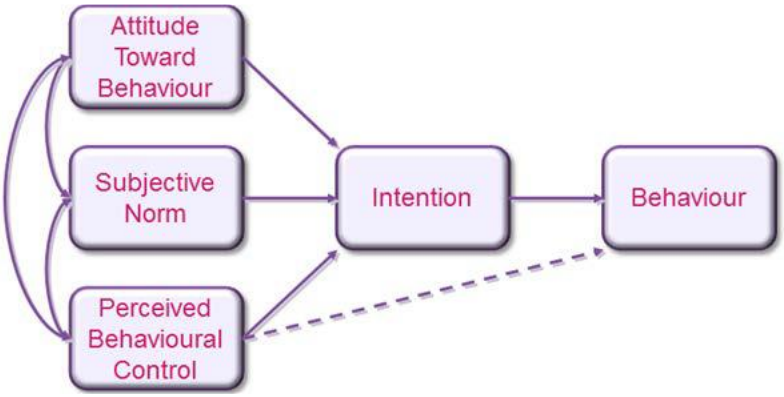

Figure 3.1: The Theory of Planned Behaviour

(Source: Ajzen, 2005:118)

PBC underscores the belief of resources availability and access to engage in a behaviour. It encapsulates two dimensions: the first is "facilitating conditions" (Triandis, 1979:200) – that is, the availability of resources that are required to perform a particular behaviour, including access to financial resources, time, and other specialised resources. The second dimension of PBC is perceived self-efficacy, which derives its source from the methodical research programme of Bandura (1977) and associates. Thus, an individuals' intention to engage in a given behaviour is significantly influenced by the belief in their ability to successfully accomplish the behaviour in question.

TPB is widely applied in studying various kinds of individual behaviour with regards to understanding innovation adoption in China. It has been widely used in the field of environmental behaviour. For example, Zhang et al. (2014) used it to study the determinants of employee electricity saving: the role of social benefits, personal benefits and organizational electricity saving climate and concluded that attitude toward electricity saving impacts positively on employee intention to save electricity. Their result also indicated that environmental benefit, organizational benefit, enjoyment, and organizational electricity saving climate significantly influence employee attitude toward electricity saving. However, anticipated extrinsic benefit was found to be insignificant. Thus TPB enhances the understanding of energy saving behaviour in a given environment. Again Cai, Long, Li, Liang, Wang, & Ding (2019) used TPB to study the determinants of intention and behaviour of low carbon commuting through bicycle-sharing in China. The empirical analysis of their study revealed that attitude towards bicycle-sharing has no significant effect on males' intention of bicycle-sharing commuting but has an influence on females' intention. Subjective norm has significant impacts on males' intention for bicycle-sharing commuting but was of no insignificant effect on females' intention. Behavioural control was insignificant to the intention of males' bicycle-sharing commuting.

On environmental innovation, for instance, TPB was used by Long et al., (2017a) and Long et al., (2017b,) to study the environmental innovation and its impact on economic and environmental performance: Evidence from Korean-owned firms in China. Their empirical analysis revealed that both environmental behavioural control and global environmental management significantly impact firms' environmental innovation intention. Environmental innovative behaviour generally has positive effect on environmental performance than on economic performance. Environmental

performance positively influences economic performance. Furthermore, on green purchasing behaviours, Wang, Wang, & Guo (2017) empirically analysed Policy implications of the purchasing intentions towards energy-efficient appliances among China's urban residents applying TPB. It was concluded that environmental awareness, social interaction and residents' educational level have significant effect on purchase intentions. Thus, TPB can be used as a theoretical background when studying the behaviours of consumers therefore TPB was applied in the current study. From the application of TPB in these various contexts, it can therefore be suitable for explaining behaviours that implicate the use of mobile payment. Empirically, Yang, Lu, Gupta, Cao and Zhang (2012) and Sun, Law and Schuckert (2020) have found the TPB useful to explain mobile payment adoption behaviours.

However, the TPB, like any theory, has limitations. Like the TRA, it emphasises proximity between intention and behaviour, which suggests that precise situational correspondence is still imperative for accurate prediction (Chudry, Foxall & Pallister 2011:135). Moreover, the relationship between belief structures and the antecedents of intention is often criticised for its lack of clarity. For instance, the TPB's constellation of belief structures into unidimensional constructs is often found problematic, as it may not consistently reflect attitude, subjective norm, or perceived behavioural control. Also, the belief set describing attitude has been seen as idiosyncratic in the empirical research setting, rendering the operationalisation of the TPB problematic. These limitations notwithstanding, Ajzen (1991:199) emphasises that the TPB is open to the inclusion of additional constructs that can demonstrate a significant variance in intention or behaviour. Following these limitations, Fishbein and Ajzen (2010) developed the integrative model of behavioural prediction.

3.2.3 The Integrative Model of Behavioural Prediction.

This model specifies that an assumed behaviour would be adopted if only that individual strongly has the intention to carry out the said behaviour with the possession of all the skills and the abilities to do so without constraints to prevent him to carry out the action (Fishbein & Ajzen, 2010:21). It expands the scope of normative pressure and introduces the moderated effect of skills and environmental constraints.

Fishbein and Ajzen (2010:21) assume that individual motivation and intention are insufficient to perform a particular behaviour. Competencies (skills) and means (environmental factors) play a determining role in the adoption of behaviour (Fishbein & Yser, 2003; Fishbein & Ajzen, 2010). For example, a person may be motivated to use mobile payment instead of walking to the banks or driving to the shopping malls to purchase goods so as to save time and money. However, the skills to use mobile payment system may be lacking or the money to buy internet data, as well as financial values placed on the payment system, might be significant barriers to the use of the mobile payment.

A significant contribution of the Fishbein and Ajzen (2010:21) model of behavioural prediction is the integration of background variables. According to the TPB, the three predictors of intention namely attitude, subjective norms and perceived behaviour control, follow reasonably from the behavioural, normative and control beliefs held by an individual. The TPB, however, does not address the question of the origin of these beliefs. The integrative model fills this gap by suggesting that a wide range of variables can influence these beliefs including socio-demographical characteristics (e.g. age, gender, income, race, level of education), individual variables (e.g.

personality, emotions, values, stereotypes) and information (e.g. knowledge, media, interventions) (Fishbein & Ajzen, 2010:24). This current study recognises these socioeconomic characteristics in investigating factors that influence the adoption of mobile payment and use.

The integrative model of behaviour prediction (Figure 3.2), however, suggests that these background variables indirectly affect behaviour and depend on the context of the study (Fishbein & Ajzen, 2010).

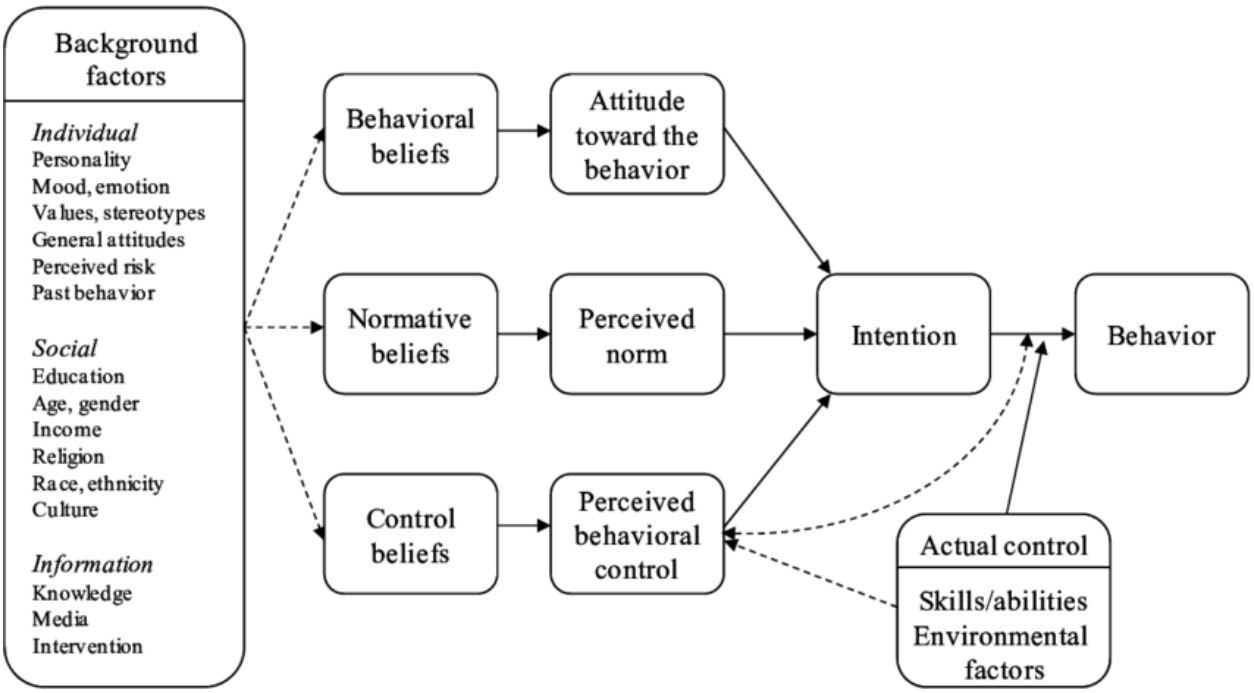

Figure 3.2: The Integrative Model of Behaviour Prediction

Adapted from Fishbein and Ajzen (2010:22)

3.2.4 The Theory of Consumption Values (TOCV)

Developed by Newman and Gross (1991), the theory makes three assumptions: (1)that, consumer choice is a function of multiple consumption values (2) that, the consumption values make varied contributions in any given choice situation, (3) that , the consumption values are independent. The consumption values, which Sheth et al. (1991) identified and whose perceptions provide

consumers utilities are emotional value, functional value, social value, conditional value and epistemic value. These value components are used as the basis upon which consumers develop their choice behaviour (Sheth et al., 1991). Customer value is derived from a person's experience and interaction with a product or service; it has become a key issue in marketing research because it is linked to overall business performance (Heinonen, Campbell & Ferguson, 2019; Sthapit and Björk, 2020). Many scholars have categorised the five consumption values into two motives for acquiring products and services: functional needs associated with functional and conditional values, and non-functional wants, associated with social, emotional, and epistemic values. These concepts may also be applied in the domain of mobile payment. The importance of the theory of consumption values lies in positing that consumers balance value assessments for making informed, intrinsically and extrinsically motivated consumption decisions. It is also evident from the theory of consumption values that while many value dimensions capturing the utility derived from various sources, their relative importance can vary from one context to another (Lin & Huang, 2012; Turel, Serenko, Bontis, 2010; Kim, Chan, Gupta, 2007).

In mobile payment, for instance, the functional value and value for money are likely to be more important than the emotional and social value in determining usage behaviour. Second, most of the consumption values are independent; changes in one dimension may not necessarily result in changes in others. This implies that mobile payment monetary value dimensions for a customer may not necessarily affect social and emotional values of the customer. Therefore, the effects of the value dimensions on behavioural outcomes are partially additive. Studies have found that the consumption values may influence more than choice decisions. They may also influence many other behavioural outcomes, such as attitudes, customer satisfaction, trust and commitment,

behavioural usage intentions, and brand loyalty (Lin & Huang, 2012; Turel, Serenko, Bontis, 2010; Yang & Peterson, 2004). Therefore, the theory would be useful in the current study and would be extended to include other theories to explain m-payment adoption behaviour.

3.2.5 The Technology Acceptance Model

Like the TPB, The Technology Acceptance Model (TAM) is an adaptation of the TRA. TAM was postulated by Davis (1989) to explain and predict user acceptance of IT. The overriding principle of the TAM is to specify a basis for discovering the influence of external variables on internal beliefs, attitudes, and intentions. The TAM employs the TRA as the theoretical foundation of the casual relationships between two fundamental beliefs – perceived usefulness (PU) and perceived ease of use (PEOU) – and users' attitudes, intentions, and actual IT system adoption behaviour (Davis, Bagozzi and Warshaw, 1989:986). The TAM is presented in Figure 3.3

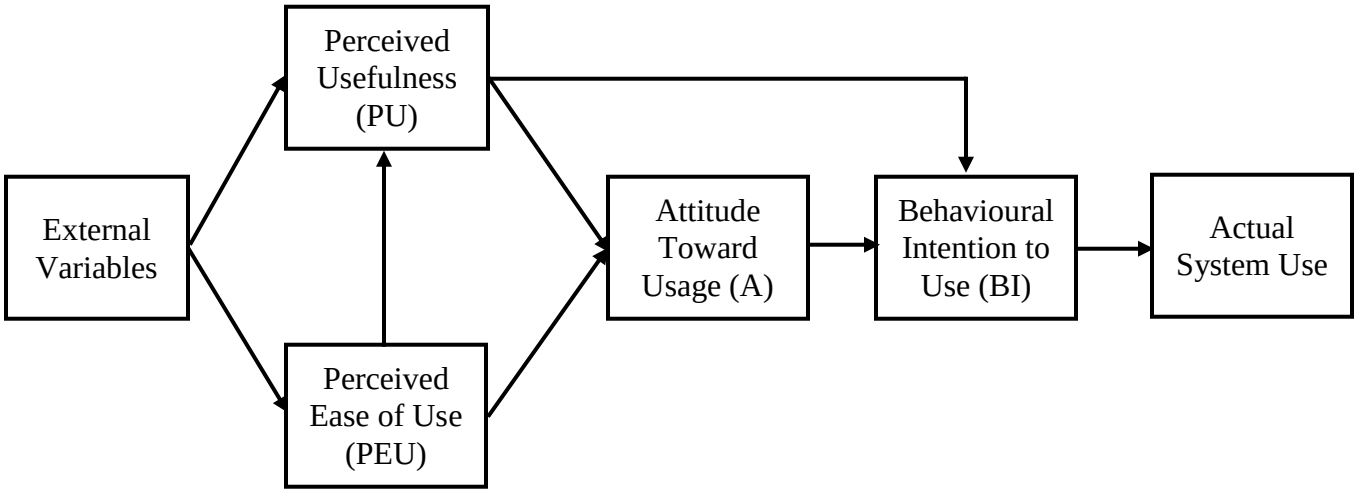

Figure 3.3: The Technology Acceptance Model

Source: Davis (1993:475)

In the TAM in Figure 3.4, Davis (1993:475) posits that a potential user's overall attitude (A) towards an IT system is seen as a major determinant of whether or not that person will use the system. Attitude is thus defined as an affective (positive or negative) evaluation of performing a particular behaviour (Davis, 1993:477). This attitude is considered as a function of two basic beliefs: perceived usefulness (PU) and perceived ease of use (PEU). Perceived usefulness is expressed as "the degree to which a person believes that using a particular system would enhance his or her job performance", and PEU refers to "the degree to which a person believes that using a particular system would be free of effort". This flows from the definition of 'ease': "freedom from difficulty or great effort" (Davis, 1989:320).

The TAM posits that a person's perception of PU will be influenced by his/her perception of PEU, since – all other things being equal – the easier that person finds a technology system to use, the more useful they will perceive the system to be. Moreover, under the TAM, PU is hypothesised to be a strong determinant of BI. Actual use of the system is predicted by BI.

Of all the theoretical models that have been applied to study users' acceptance of IT, the TAM is the most widely-used according to Polančič, Heričko and Rozman (2010:154). Consequently, the TAM has become entrenched as a robust, powerful, and parsimonious model for understanding and predicting user acceptance of IT systems (Venkatesh and Davis, 2000:187). The overwhelming application of the TAM in IT research can be credited to its outstanding attributes, which include (a) its specific focus on IT; (b) its demonstrated robust validity and reliability across various IT use contexts; and (c) its accumulated research tradition (Polančič *et al.*, 2010:156; Sharp, 2007:3).

Additionally, Yu and Tao (2009) extended the TAM by adding subjective norm and characteristics of the firm to understand the determinants of e-marketplace adoption among Chinese businesses. The results of their study indicate that perceived usefulness, perceived ease of use, subject norm, and characteristics of the firm itself are significant variables that influence the attitudes of businesses towards e-marketplace adoption at the pre-decision stage. However, only perceived usefulness and subject norm demonstrated a significant positive relationship with attitudes towards e-marketplace among businesses at the in-decision stage (Yu and Tao, 2009:101). Despite the widespread use of TAM, it has been criticized for its weak predictive power. TAM has also been criticised for having a deterministic approach without much consideration for users' individual characteristics, and assuming that usage is volitional without constraints (Agarwal & Prasad, 1999; McMaster & Wastell, 2005). It was therefore the extended version of TAM, which is UTAUT that was preferred in the current study.

3.2.6 Extended Unified Theory of Acceptance and Use of Technology (UTAUT)

Venkatesh, Morris, Davis, and Davis (2003) came out with the unified theory of Acceptance and use of technology (UTAUT). They did this after a critical review of eight key user adoption models. It's hypothesis is that performance expectancy effort expectancy, and social influence affect behavioural intention which in combination with other facilitating factors affect user behaviour behaviour. In addition, the model indicates that the effects of these key constructs on behavioural intention and use behaviour are influenced by different degrees of gender, sex, experience, and voluntariness of use. The model has been used to examine a wide range of technologies (Williams, Rana, Dwivedi, & Lal, 2011) and has been used by a handful of quantitative studies examining the acceptance of mobile payment (Thakur, 2013; Wang & Yi,

2012). For example, UTAUT has been used to explain employee technology acceptance within an organisational context, mobile shopping (e.g., Ko, Kim, & Lee, 2009) and SMS advertising (e.g., Zhang & Mao, 2008),

Venkatesh et al. (2012) further developed UTAUT to UTAUT 2. The significance of this new extension was to add three more constructs to the original model; that is, hedonic motivation, price value, and habit. UTAUT2 is represented in figure 3.4 below

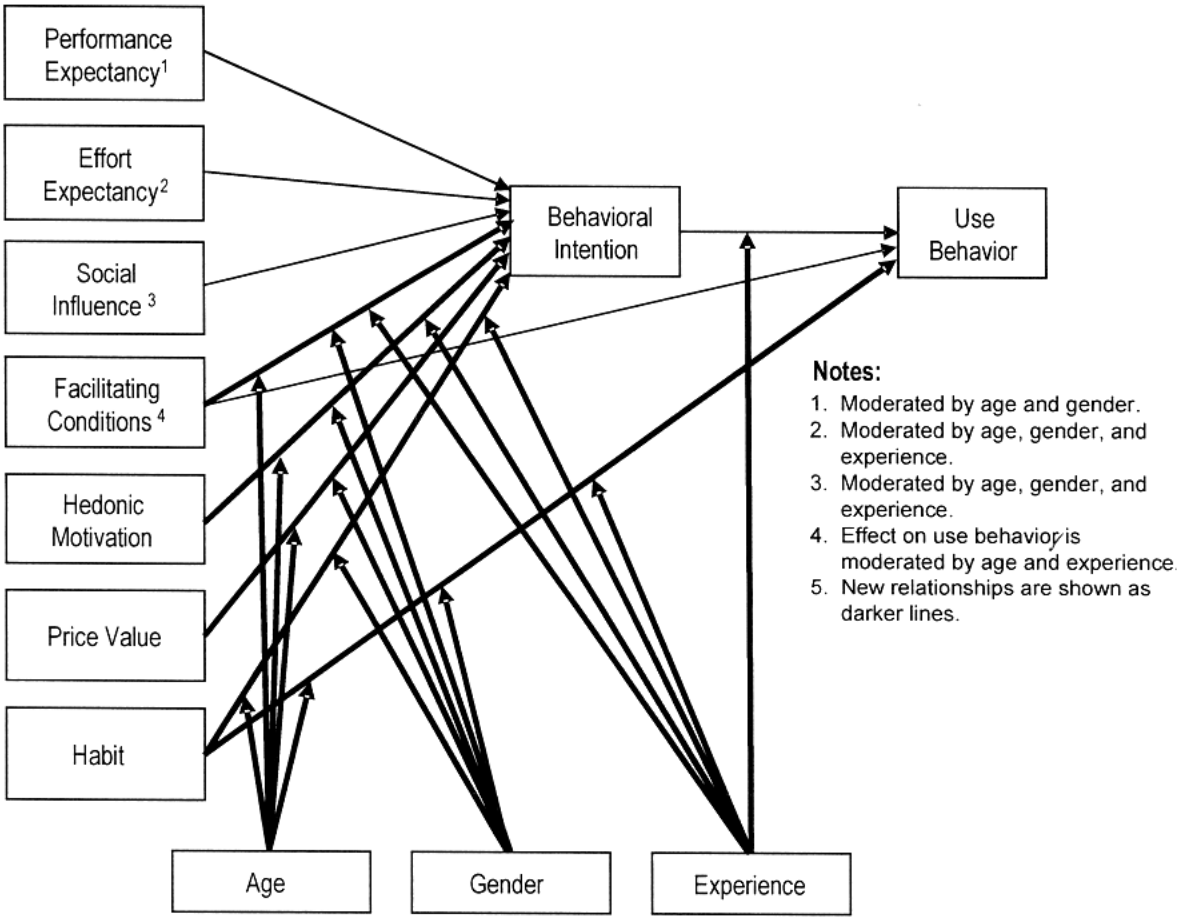

Figure 3.4: UTAUT2

Adopted from Venkatesh et al. (2012: 160)

Venkatesh et al. (2012) suggest that future research should apply UTAUT2 in different countries, across different age groups, and on different technologies. For this reason, this study employs some aspects of the UTAUT2 and this is integrated with other models to explain consumers' attitude, adoption and reuse intentions to use mobile payment.

3.2.7 Diffusion of Innovation Theory (DOI)

This theory was found to be the basis of many studies that explain the adoption and diffusion of diverse technological innovations, particularly in ICT. The origin of the theory dates back to the earliest study of Tarde (1903), who was the first to chart the original S-shaped diffusion curve to illustrate the rate of diffusion of innovation in society. The key factor in this S-shaped diffusion curve is the gradient of the 'S'. This denotes that certain innovations diffuse rapidly, producing a steep S-curve (Innovation 1); conversely, other innovations have a slower rate of adoption, creating a gradual gradient of the S-curve (Innovation 3).

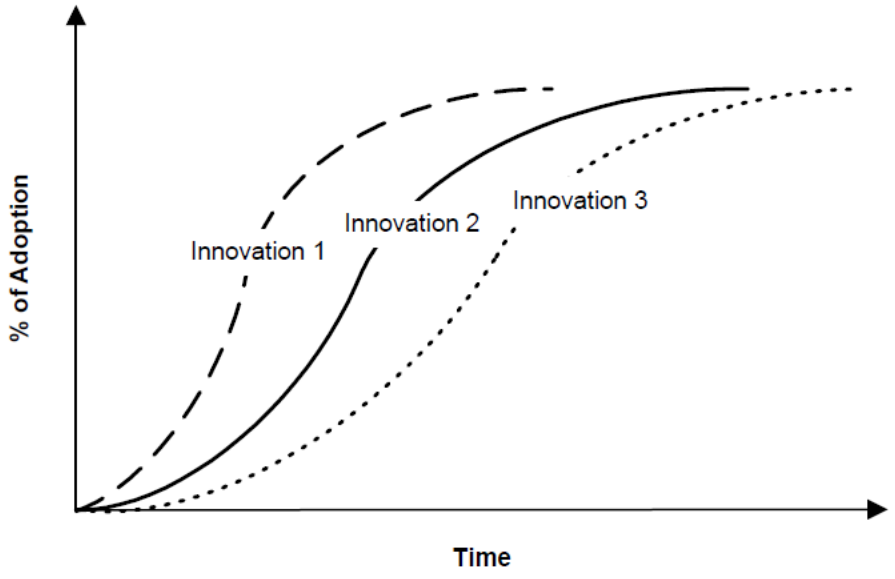

Fig. 3.5: The S-curve of innovation diffusion and adoption Source: Rogers (1962)

Although several successive studies have propounded a number of theoretical models to explain the process of diffusion of an innovation (Premkumar, 2003; Baptista, 1999; Drury and Farhhomand, 1999), Rogers' Diffusion of Innovations (DOI) model (Rogers, 1995) has emerged as the most formalised and the most widely-used model. Inspired by the results of a seminal study of over 3,000 innovations, Rogers (1995) emphasised that the S-shaped diffusion curve still has contemporary significance, as most of the innovations studied showed an S-shape rate of diffusion. The DOI is defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Fanelli & Maddalena 2012, p. 643). This definition delineates four key elements of the diffusion process, which are (1) the innovation, (2) the communication channel(s), (3) time, and (4) the social system.

Innovation is seen as "an idea, practice, or object that is considered as new" (Rogers 1995 p.12). For innovation to diffuse rapidly among prospective users, it must possess certain characteristics. The perception of these characteristics by potential adopters determines its rate of adoption (Rogers, 2010:14). In the classical DOI model, Rogers (2010:15) identifies the five characteristics of an innovation that influence its adoption as follows:

Relative advantage – "the degree to which an innovation is perceived to be a better idea than the idea it supersedes" (Rogers, 2010:15). The fact that innovation does indeed have an objective relative advantage is not enough. What is necessary is that innovation is perceived as advantageous. According to Rogers (2010:15), the more that individuals or adopting units perceive the innovation to be highly beneficial, the more likely the adoption of that innovation.

Compatibility – "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2010:15). An innovation that

is inconsistent with the values and norms of a social system will not be adopted as rapidly as an innovation that is compatible.

Complexity – "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers, 2010:16). Complexity, in this case, is analogous to the level of mental or physical effort that an individual exerts in attempting to use the innovation. Innovations that are easier to understand are adopted more rapidly than innovations that require the adopter to develop new skills and understandings.

Observability – "the extent to which the outcomes of innovation are noticeable to others" (Rogers, 2010:16). The easier it is for potential users to see the results of an innovation, the more likely they are to adopt it.

Trialability – "the degree to which an innovation may be experimented with on a limited basis" (Rogers, 2010:16). Innovations that can be divided and experimented with in phases are generally adopted more quickly than innovations that are not divisible. Thus, the higher the level of trialability associated with innovation, the less the uncertainty of its adoption by potential users.

Subsequently, innovations that are perceived by potential adopters as having a superior relative advantage, compatibility, trialability, observability, and less complexity are adopted more rapidly than innovations that do not (Rogers, 2010:16). These five characteristics have been extensively applied by many researchers to examine the adoption and diffusion of IT innovations. Nevertheless, of the five characteristics, only relative advantage, compatibility, and complexity have been widely acknowledged as critical factors that help to explain the adoption of IT innovations (Tsai, Lai and Hsu, 2012:61; Fichman and Kemerer, 2012:226; Othman *et al.*, 2011:1776). According to Fichman and Kemerer (2012:226), organisations are more likely and

able to adopt IT innovations that offer clear advantages, that do not radically interfere with existing practices, and that is easier to understand.

The next element of Rogers' DOI theory is the category of a communication channel. Rogers (2010:17) defined communication as the "process by which participants create and share information to reach a mutual understanding". Communication must come about if an innovation is to be adopted. This communication proceeds through a channel – defined by Rogers (2010:17) as "the means through which messages are transmitted from one individual to another". According to Rogers (2010:18), the use of mass media channels is necessary to create initial knowledge about the innovation, while interpersonal channels are more powerful in developing and changing attitudes toward innovation and therefore inducing a decision to accept or reject it. For most individuals, the decision to accept or reject an innovation does not rest on scientific outcomes from experts, but on the opinion of peers who have previously adopted the innovation.

Another element in the innovation diffusion process is time, which includes three aspects: (i) the decision-making process, (ii) innovativeness, and (iii) the rate of adoption. The decision-making process denotes the length of time between the introduction of innovation and the decision to accept/reject it. The decision process on innovation is indicated in (Figure 3.7) is therefore seen as a mental process through which a potential adopter goes:

1. Acquire information on innovation;
2. Develop attitude toward the innovation;
3. Decide to adopt or reject innovation
4. Implement the new idea acquired; and
5. Confirm the decision.

The innovativeness is the degree to which a potential adopter is relatively earlier in adopting new ideas than other members of a social system. Figure 3.6 shows the stages in the innovation diffusion process.

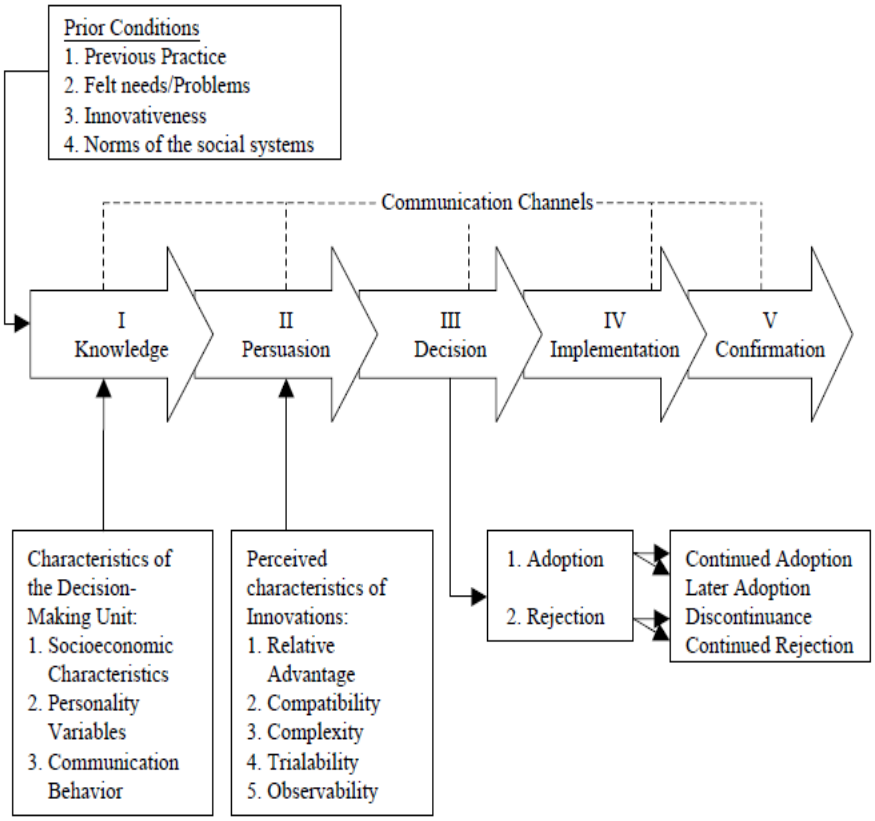

Figure 3.6: Stages in the Innovation Diffusion Process

Source: Rogers (2010:20)

Rogers (2010:37) identified five adopter categories of the members of a social system based on their innovativeness: (1) innovators, (2) early adopters, (3) early majority, (4) late majority, and (5) laggards. Rogers (2010:37) describes the five adopter categories as follows:

Innovators are the first 2.5 per cent of individuals or other adopting agents in the system to adopt an innovation. Venturesomeness is an outstanding characteristic of innovators. Therefore, innovators are interested in new ideas and are eager to try them. Moreover, they are primed to handle sporadic setbacks associated with the innovation as they try to use it, and are not discouraged if the intervention proves unsuccessful (Rogers, 2010:37).

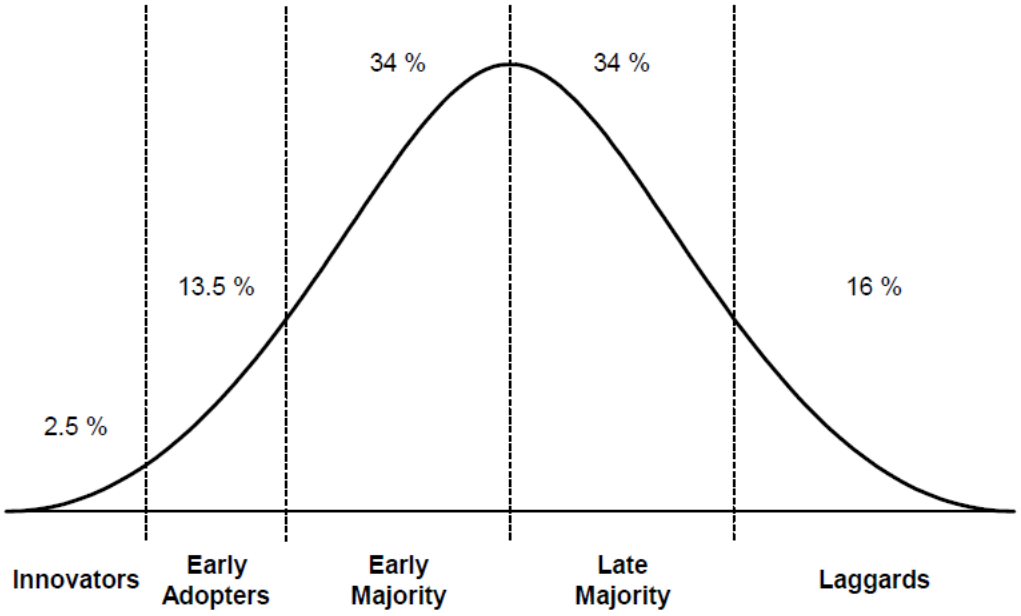

Figure 3.7 Innovation Adopter categories Source: Rogers (2010:37)

Early adopters are the second category: the next 13.5 per cent of individuals or adopting agents to adopt an innovation. Rogers noted that while innovators are 'cosmopolites', early adopters are 'localities 'because they are an integrated part of the social system with a reasonably high level of opinion leadership, making them a crucial resource for an organisation in search of advice, cues, and information to facilitate rapid adoption. Potential adopters thus look up this category of adopters for information and advice about the innovation (Rogers, 2010:37).

The early majority is the third category – the next 34 per cent of individuals in a system to adopt an innovation. This adopter group is cautious about change and new ideas or technology. The early majority rarely rises to leadership positions, and so seldom leads crucial change efforts; they are keen to adopt new ideas and technology, although they put a lot of time and effort into deliberation before adoption. The unique position of the early majority, who are found between the very early and relatively late adopters, makes them a crucial link in the diffusion process (Rogers, 2010:38).

Late majority represents the next 34 per cent of adopters in a social system. The late majority view changes with scepticism and caution but feels pressure to accept the change from others in the social system or from the organisation that has adopted the innovation. Their comparatively limited resources imply that most of their uncertainties about the innovation need to be overcome if they are to trust the late majority before they will feel that it is safe to adopt (Rogers, 2010:38).

Laggards are the last 16 per cent of people in the social system of all adopters of innovation. They are old-fashioned in their outlook and are the last group in the social system or institution to adopt a change. They do not possess any opinion leadership, and they always use the past as a point of reference in their decisions. Laggards most often view innovations and change agents with suspicion. They too have limited resources, so they rationalise their hesitation by making certain that the innovation will never fail before proceeding to adopt it (Rogers, 2010:38).

The third aspect related to the time element in the diffusion process is the rate of adoption. This is defined as the relative speed with which an innovation is adopted by members of a social system. The rate of adoption is often posited as the number of members of the social system who adopt the

innovation within a given period. As emphasised previously, an innovation's rate of adoption is determined by the five perceived characteristics of the innovation (Rogers, 2010:38).

The fourth and last element in the diffusion process is the social system, defined by Rogers (2010:37) as "a set of interrelated units that are engaged in joint problem-solving to accomplish a common goal". Rogers (2010:37) notes that participants in or units of a social system may be made up of individuals, informal groups, firms, and/or subsystems. The social system delineates the parameters within which an innovation diffuses. Every social system comes with norms, opinion leaders, and change agents who play different roles in the diffusion process.

The DOI has been successfully applied in studying several IT adoption decisions (Andrews *et al.*, 2014; Ferro *et al.*, 2013; Chang, 2010). Ferro *et al.* (2013:105) applied the DOI theory in studying the adoption of social media by government agencies in Italy. Results of their study identified relative advantage, compatibility with existing values and processes, reasonable complexity, trialability, and observability as significant factors that influence the decisions of government agencies to adopt social media. The DOI was modelled with the adoption behaviour of individuals in mind. It will be useful in this study to study the product/innovation related factors impacting attitudes and intention to reuse m-payment.

3.3 Development of Conceptual Model and Hypotheses for this Study

Guided by the foregoing literature review on the merits and demerits of the innovation adoption theories, this study integrated aspects of the TPB, UTAUT2, TOCV, and DOI to develop a conceptual model with which to examine the socio-demographic, consumption values, product-

related and psychological factors impacting the adoption and intention to reuse mobile payments in Ghana. The integration of aspects of the theories was done with the knowledge that: (i) consumers' acceptance of a new technology is a complicated occurrence that requires more than a single model or theory to explain it (Shen, Huang, Chu, & Hsu, 2010), (ii) an integrative perspective provides a more holistic account of the causal mechanisms underlying the relationships as well as unique insights that cannot be obtained with a single theory-driven model (iii) it will reinforce the significance and predictability of the adoption behaviour (Jackson, Yi, & Park, 2013).

3.3.1 Socio-Economic Factors and Attitudes towards Adoption of Mobile Payment

The integrative model of behaviour prediction (Fishbein & Ajzen, 2010) posits socio-demographical variables as background variables which are assumed to have an indirect effect on behavioural intention. The existing literature on technology adoption behaviour uncovers certain socio-economic characteristics that have an impact on technology adoption behaviour including gender, age, income, occupation, family, peers and social class (Bongomin and Munene, 2019; de Luna et al., 2019; Kalinic et al., 2019; Cao et al., 2018; Aslam et al., 2017). For example, Venkatesh et al.'s (2012) UTAUT2 model suggest that age, gender and social influence impact adoption intention. Considering Murendo, Wollni, De Brauw, & Mugabi, (2018)'s study that showed that age and gender did not significantly impact mobile payment adoption in Uganda, they were not examined in this study. For social factors, since Venkatesh et al. (2012) did not specify the type of social influence, this study categorises the social influence into peer, family and social class to suggest that these three dimensions of social influence will first influence attitudes, before impacting adoption intention.

Even though social class incorporates income, education and occupation (Boucher, 2020), this study examines education as a separate construct, because according to the social resources theory (SRT), education is one of the strongest predictors of information search and products adoption. Specifically, education alongside (amongst the) income, occupation and other socio-economic factors that SRT suggest to be drivers of information access was found to more strongly predict the frequency at which health information is sought in the USA (Song & Chang, 2012) and the propensity to seek and accept information products in China (Zhang et al., 2012).

The current study recognises these socioeconomic variables and include some of them in the model as well as educational level. The level of education of an individual should have an impact on the adoption of mobile payment in the sense that a higher education level is usually associated with a higher propensity of using technology application. The explanation is that higher education entails an upper lifestyle and a greater level of knowledge about technology (Song & Chang, 2012; Zhang et al., 2012).

In Uganda, Murendo et al. (2018) found that it was income and the number of a social network (made up of peers and family members) and not education that impacted the adoption of m-payment. In Ghana as well, Narteh, Mahmoud and Amoh (2017) found that social influence in terms of peers and family significantly impacted m-payment. Narteh et al. (2017, p. 428) explained that social influence predicts m-payment because "a user may be reluctant to participate in a certain behaviour at first, but when taking into consideration the importance of what the referents (i.e. friends/peers, family, etc.) think" they can change their attitudes and adopt an innovation. For the adoption of organic food, Persaud and Schillo (2017) also found that peers and family are

important influencers. Narteh et al. (2017, p. 429) provide three reasons why peers and family exert influence on consumers. They are:

1) the aspiration to embrace correct opinions
2) the ability to agree with others in quest to seek social rewards
3) the capacity to uphold and express an important identity

Kalinic, Marinkovic, Molinillo, Liébana-Cabanillas (2019) suggested that subjective norms (family, social class) variable is the main antecedent of intention to use peer-to-peer mobile payment. Similarly, findings of Handarkho and Harjoseputro (2019) indicated that consumer innovativeness has direct effect on mobile payment adoption whereas perceived enjoyment and subjective norms were found to have an indirect effect on the adaptation of mobile payment through mediator convenience. de Luna, Liébana-Cabanillas, Sánchez-Fernández and Muñoz-Leiva (2019) also found that subjective norms and perceived usefulness as well as attitude have great influence on the intention to use a new payment system. The results of Aslam, Ham and Arif (2017) indicated that perceived usefulness, perceived compatibility, and subjective norms (family and friends) are the most influential variables in determining consumer attitude towards mobile payment services. An empirical study by Thakur (2013) on customer adoption of mobile payment services by professionals across two cities in India established that the constructs of performance expectancy, effort expectancy, social influence (friends) and facilitating conditions constituted the determinants of mobile payment services adoption among the consumers. Further, it was noted in the work of Cao, Yu, Liu, Gong and Adeel (2018) that gender and education positively affected continuance intention to use mobile payment in China. In determining the roles of demographic and motivation variables for mobile commerce usage activities it was established that age and educational level have significant relationships with m-commerce usage activities (Chong, 2013). Equally, Zheng, Zhao and Stylianou (2013) and Chong et al., (2012) indicated that differences in

age, gender, and educational levels of mobile payment users may affect their usage behaviour. Prior findings from Liébana-Cabanillas et al., (2014b) also suggested that gender and education positively affected continuance intention to use mobile payment.

In terms of the infuence of social class, Bongomin and Munene (2019) report that in the consumption of financial services provided by various mobile money platforms, the influence of social class and other social groups matters. In line with the foregoing arguments, the following hypotheses can be proposed:

H1: There is a significant positive relationship between peers and mobile payment attitude

H2: There is a significant positive relationship between family and mobile payment attitude

H3: Social class will positively and significantly impact mobile payment attitude

H4: Educational level has a positive and significant relationship with mobile payment attitude

3.3.2 Consumption Values and Attitudes towards Adoption of Mobile Payment

Functional value concerns the utilitarian functions and services that a product can offer (Wang, Liao, & Yang, 2013). The value is mostly showed through combined attributes of products such as qualities and features that can deliver impressive functional performance (Tzeng, 2011). Functional value of mobile payment denotes the information provision and its physical attribute to perform the utilitarian function for the consumer. Previous studies discussed functionality in the context of website evaluation and mobile payment. For example, Sun, Law and Schuckert (2020)'s study revealed that functionality and usability relate to customer satisfaction. Other studies discussed functional value in the context of ease of use which the present study considers to be its navigation/complexity. Current study reflects on the information provision and the solution its uses provide for the consumer with regards to speed of payment in a mobile device, network connectivity and usefulness in entire payment process. This factor is limited in previous studies.

For example, Bailey, Pentina, Mishra and Mimoun (2020), indicate that perceived ease of use; perceived usefulness and risk perception all influence attitude toward mobile payment among millennial consumers in US. Wang and Dai (2020), explore factors affecting the adoption of mobile payment at physical stores and point out that attitude is the most important factor influencing users' intention to adopt offline mobile payment compared to perceived usefulness and social influence whereas the perceived ease of use is not as important as others but does with significant effect on perceived usefulness.

In South Africa, Wiese and Humbani (2020), conducted empirical test on technology readiness for mobile payment app users. The study explores attitude, ease-of-use, and usefulness and continuance intention to use mobile payment apps using the technology readiness index and concluded that South African mobile users are ready to use mobile payment applications, with the 'explorer' emerging as the best segment to target due to optimism levels. In India, Singh, Sinha, and Liébana-Cabanillas (2020), tested the moderating effect of innovativeness, stress to use and social influence on user's perceived satisfaction and recommendation to use mobile wallet services. They found that ease of use, usefulness, perceived risk, attitude, to have significant effect on user's intention, which further influenced user's perceived satisfaction and recommendation to use mobile wallet services. Molina-Castillo, Lopez-Nicolas and de Reuver (2020), in Spain establish that negative effects from learning costs are fully mediated by perceived functional value and facilitating conditions affect the attitudes towards the mobile payment services.

Social value has been defined as the perceived utility acquired from an alternative's association with one or more specific social groups (Wang et al., 2013, p.14). Choices involving products are often driven by social value (Sheth et al., 1991a), hence, social value relates to social approval and

the enhancement of self-image among other individuals. Social value refers to positive changes people experience in their lives from most people in their social networks towards the use of mobile payment (Slade, Dwivedi, Piercy, & Williams, 2015). People commonly turn to certain groups for their standards or judgements towards a particular behaviour (Sun, Law & Schuckert, 2020). In the words of Wang et al., 2016a when consumers intend to search for product information sources, they first fall on social networking platforms to communicate with their friends and families using their smartphones.

According to Zhang and Mao (2020), with limited or no experience with mobile payments, consumers are expected to be more likely to look for social norms to guide their behaviour. Thus this study define social value as the utility of mobile payment derived from its ability to enhance social well-being. Social value have been shown to create social pressure that influences consumers' use of new electronic payment services (Arvidsson, 2014) yet few studies addressed the impact of social value on mobile payment. Most studies used social image and social influence but failed to address the value derived the social norms. For example, in US Zhang and Mao (2020)'s study of the effects of consumer factors on behavioural intention to adopt mobile payments found that relative advantage affects intention to adopt directly and through the mediating effect of attitude; attitude is found to be the most important factor predicting the behavioural intention of mobile payment, the social image tends to reflect the degree to which consumption of a product or an innovation is perceived to improve one's image or status in a social group. Also Phonthanukitithaworn et al., (2015) and Slade et al., (2015) found social influences to have a direct effect on intention to adopt mobile payment services. In emerging economy such as in Taiwan, Lin, Wang & Huang (2020) examined the behavioural motivations underlying

individual intentions to continue using mobile payment and indicated that perceived value, social norms and social self-image played crucial roles in the intention to use mobile payment services. They also suggested that perceived relative advantage and service compatibility and costs determined users' perceived value.

According to Sheth et al. (1991a), conditional value is the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker. Wang et al. (2013), postulate that conditional value rest on the context in which the value judgment occurs and exits only within a specific context. Therefore, conditional value relates to products or services whose value (is) are tied to use in a particular circumstance. Wang, Shan, Chen, Zheng, Wang, Mingwei, and Haihua (2020), explained that mobile technologies are useful because of their (its) anywhere and anytime situations. Conditional value stems from the fact that the customers can access the mobile payment service to pay for the products/goods promptly even if they do not carry cash/card, without having to go to another location to withdraw money. Thus, the conditional value is more applicable to explain individual consumption behaviour. However, there are arguably few studies that applied conditional value in examining mobile payment services. Examples of such studies include the following; Wang et al. (2013), examine the determinants of behavioural intention of Apps users based on the theory of consumption values, and explore the roles of these values in mobile Apps context. The results reveal that consumption values significantly affect consumer behavioural intention to use mobile Apps. Agag, Brown, Hassanein and Shaalan (2020), empirically examined travellers' willingness to pay more for green travel products using demographic variables, consumption values, normative influence, personality traits and beliefs can stimulate travellers' willingness to pay more. They indicated conditional value was significant in changing consumers' attitude towards the consumption of green products. Hariguna,

Adiandari and Ruangkanjanases (2020), assessing customer intention use of mobile money application and the antecedent of perceived value, economic trust and service trust. It was evident that Perceived value was related to the customer's intention to use mobile money application services and economy-based trust. In the study of green buying behaviour Gonçalves, Lourenço and Silva (2016), revealed that functional value is almost always necessary but is not sufficient by itself for predicting consumer attitude towards green buying. However, emotional, conditional and social values with the functional value are sufficient. Based on the above discussion, the following hypothesis are developed:

H5: Positive relationship exists between social value and mobile payment attitude

H6: There is a positive relationship between functional value and mobile payment attitude

H7: Conditional value positively relates to mobile payment attitude

From UTAUT2 model four drivers were included (social influence, facilitation conditions, hedonic motivations/values, and price value). The habit construct was not included in the research model since mobile payment is a relatively new technology that has not yet gained sufficiently widespread use among consumers to generate a habit. UTAUT2 attested to be proficient for better strengthening of behavioural intention. It has been adopted by many studies in various areas which include mobile social networking (Wong et al., 2015), and gain insights of mobile commerce (Shaw & Sergueeva, 2019) and biometric e-gates (Morosan, 2016). Hedonic value is in a form of fun or pleasure resulting from using a technology (Venkatesh et al. 2012). It has been proven that enjoyment and playfulness are essential determinants in technology adoption (Dhiman, Arora, Dogra and Gupta 2019). On the other hand price value is the trade-off between the costs incurred and benefits received in adopting a technology (Dhiman et al., 2019).

In spite of the vast literature on the use of UTAUT2 and e-commerce, not much literature is available focusing on the behavioural attitudes and use behaviour of people in Ghana. By way of results of Ozturk, Nusair, Okumus and Hua (2016), hedonic value had a significant positive impact on intention to continue using mobile booking for hotels. Equally, as clothing business is concerned, initial trust toward their adoption is suggestively derived from hedonic motivation (Gu, Wei & Xu, 2016). Furthermore, in situation of acceptance of mobile banking, hedonic motivation appeared to be a compelling factor (Boonsiritomachai &Pitchayadejanant, 2017).

In more recent studies, empirical examination conducted by Gupta and Arora (2019), on the effect of key antecedents of UTAUT2 model on attitude to accept and use mobile payment systems in India and reported that social influence and hedonic motivation were weak predictors of behavioural attitude. As far as e-satisfaction is concerned Alalwan (2020), empirically establish that hedonic motivation has a crucial impact on both e-satisfaction and continued intention whereas price value on e-satisfaction and continued intention to reuse among Jordanian customers. An and Han (2020), found a mediating effect of the hedonic value between customer engagement and shopping memories, and between customer engagement and customer satisfaction and confirmed that there is a mediating effect of shopping memories between the hedonic value and customer satisfaction in South Korea. In Egypt Hamed and El-Deeb (2020), confirmed that consumers' positive attitudes toward online purchasing, Utilitarian and hedonic value were discovered to have a positive effect on purchase intention, even though perceived risks have a negative one.

Behavioural beliefs are a probability of a given outcome of behavioural choices that individuals make (Carfora et al., 2017; Ding, 2018). This could be as a result of any possible adverse effect

which could be allied with the planned choice when making a decision (Verkijika, 2020). Consequently, any variations between the selected choice and the available alternatives can invoke an expected dissatisfaction (Ding, 2018; Lazuras et al., 2017). People who entertain fear when it comes to the usage of information technology may end up refraining from it or have lower intention to use it (Verkijika, 2020; Bailey et al., 2017). Based the preceding discussion some studies have recommended that much attention should be drawn to behavioural belief related factors (Verkijika, 2020; Park et al., 2019; Wu et al., 2017; Koenig-Lewis et al., 2015). Verkijika, (2020) concluded in his study that emotions such as regret and anxiety have high influence on the intention to adopt mobile payments in South Africa. In Greece, Giovanis, Tsoukatos and Vrontis (2020), reported that consumers' attitude was the main driver of consumers' intentions followed by normative, control and risk beliefs. Vuong (2020), in Vietnam empirically found that behavioural control and subjective norm were significantly related to customer's intention to use mobile banking services Therefore the following hypotheses can be proposed:

H8: Price value will relate positively with mobile payment attitude

H9: Hedonic value influences mobile payment attitude positively

H10: There is a positive relationship between Behavioural beliefs and mobile payment attitude

3.3.3 Product-related Factors provided by DOI and Attitudes towards Adoption of Mobile Payment

Considering mobile payment as a disruptive technology, innovation factors play an important role in the behavioural intention leading to its adoption. Earlier studies have established the role of DOI constructs in predicting intentions to adopt new IT systems (Koenig-Lewis, Palmer, & Moll, 2010). Diffusion denotes "the process by which an innovation is communicated through certain channels

over time among the members of a social system" (Rogers, 1995, p.5). Relative advantage was explained by Rogers as the "degree to which an innovation is perceived as being better than the idea it supersedes" (p. 229); He again defined compatibility as the "degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (p. 240); According him complexity signifies the "degree to which an innovation is perceived as relatively difficult to understand and use" (p. 257). Agarwal and Prasad (1998, p. 206) defined trialability (personal innovativeness) as "the willingness of an individual to try out any new information technology". The current study included the DOI constructs in the research model to determine their influence on the adoption of mobile payment.

From the DOI model, four factors were included in the model (relative advantage, complexity, compatibility, trialability). Observability construct was not included in the research model since mobile payment is a technology which it needs to be applied practically but not to is observed. As mobile payment involves financial information that is personal and sensitive, information asymmetry concerns can become a barrier to technology adoption, therefore communication was included in the research model. DOI has been comprehensively used in many studies such as information technology and e- commerce (Johnson et al., 2018; Shao et al. 2019). In spite of the vast literature on the use of DOI and e- commerce, there are limited studies on mobile payment in the developing economies such as Ghana. Osei-Assibey (2015) found relative advantage and the age of susu collectors to be statistically significant in influencing the behavioural intention of mobile money adoption. Likewise, Cudjoe et al. (2015) concluded that awareness, usefulness, simplicity, compatibility, self-efficacy and creditability impacted on the adoption of mobile

banking service. Narteh et al. (2017) discovered that relative advantage and complexity positively predicts customers' behavioural intention in the mobile money services.

In China, it was significantly noted that security is the most significant antecedent of customers' trust, followed by platform reputation, relative advantage (mobility and customization). Similarly, in India, Chawla and Joshi (2019), explained that ease of use, usefulness, trust, security, facilitating conditions and lifestyle compatibility were significantly impacted on the consumer attitude in Mobile wallets. Sullivana and Kohb (2019), also indicated that complexity, enjoyment, and communication quality are the main antecedents of social media continuance intention. In the study of Lee, Ryu and Lee (2019), findings suggest that trust, direct network externality, ease of use, and usefulness influence the attitude of the users with regards to compatibility, accessibility, indirect network externality, and perceived ease of use in South Korea. Kalinic et al. (2019) concluded that trialability does not have a statistically significant impact on intention to use P2PM-pay. Shankar and Datta (2018), found that trialability has no significant impact on m-payment adoption intention in India. Upadhyay and Jahanyan, (2016), indicated in their study that factors such as perceived monetary value, absorptive capacity and trialability have been found to be insignificant to usage intention of mobile money services. Lin et al. (2020) proposed that relative advantage, service compatibility and costs determined mobile payment users' perceived value.

Ho, Wu, Lee, Pham (2020) in Taiwan and Vietnam respectively concluded that trialability compatibility, perceived usefulness, and perceived risk have positive impact on attitude towards adopting mobile banking in both countries. Equally, Park, Ahn, Thavisay and Ren (2019) posited that social influence and technology anxiety influence multiple benefits of mobile payment services, while technology anxiety, information security, and economic benefit are not significant.

Convenience, enjoyment, and economic benefits positively influence attitudes, whereas experiential benefit has a negative impact. However, attitudes positively influence the intention to adopt mobile payment services. Empirical evidence from Liu, Wang, Huang, Huang, Yang and Li (2019) indicated that perceived mobility directly influenced ease of use and usefulness, as well as an indirect influence on adoption intention, conversely, perceived risk and perceived cost negatively affect a user's intention to use mobile payments. Drawing from the study of Sobti (2019) cost and perceived risk proved to have explanatory power as precursors of behavioural intention to use mobile payment.

Shaw and Kesharwani (2019) found in moderating effect of smartphone addiction on mobile wallet payment adoption that financial cost has a negative influence on intention to use mobile wallet payment as well as the importance of communication to the right consumer through proper channels. In a study conducted by Pal, Herath, De and Rao (2020) on Contextual facilitators and barriers influencing the continued use of mobile payment services in a developing country in India, price has not influenced the intention to continue the usage of mobile payment services.

The research results of Molina-Castillo, Lopez-Nicolas and de Reuver (2020) demonstrate the hidden role of learning costs in explaining adoption intentions of mobile payment, mediated through perceived functional value and facilitating conditions. In determining the factors of mobile payment adoption in Indonesia perceived risk and cost factors were found to be the main disruptions that cause the low adoption rate on the usage of mobile payment, and social influence has proven to be a highly crucial, driving factor for users in using mobile payment (Andre, Baptista, & Setiowati, 2019). The following hypotheses can thus be formulated:

H11: Relative advantage relates positively with mobile payment attitude

H12: Negative relationship exists between complexity and mobile payment attitude

H13: Cost will influence mobile payment attitude negatively

H14: Compatibility has a positive relationship with mobile payment attitude

H15: Communication will relate positively to mobile payment attitude

H16: Trialability will have positive effect on mobile payment attitude

3.3.4 Psychological Factor (Attitude towards Mobile Payment Use) and Adoption of Mobile Payment

TPB states that attitude towards a certain behaviour shapes an individual's behavioural intentions (Sichone, Milano, & Kimea, 2018; Lu, Huang, & Lo, 2010) while the behavioural intention is an indication of the individual's readiness to perform a given behaviour. TPB indicates further that intentions are major determinants of real performance. By way of finding the relation between attitude and adoption de Luna et al., (2019) and Liébana-Cabanillas et al. (2017b) empirically indicated that attitude was an essential determinant of intention to use m- payment. A discovery from Hong Kong by Lau, Lam, Cheung and Leung (2019), disclosed that perceived usefulness, ease of use, compatibility, and subjective norm affect customers' attitudes towards intention to use mobile payment. Also in South Korea, Kang (2019), indicated that performance expectancy was the most influential factor for current users' attitude towards the re-use of mobile payment technology. Further, Sinha, Majra, Hutchins and Saxena (2019), revealed that technology adoption readiness absolutely mediates the relationship between technology readiness and attitude towards intention to adopt mobile payments in India.

In Malaysia Ariffin & Lim (2020)'s findings show that attitude and perceived behavioural control have a positive and significant relationship toward intention to use mobile payment among young professionals. Notably Ting, Yacob, Liew, Lau (2016) demonstrated that attitude, subjective norm

and perceived behavioural control are positively predicted by their respective belief factors, and they also have positive effect on intention to use mobile payment system in a study conducted among young American consumers. Cao, Yu, Liu, Gong, Adeel (2018) indicated that the trust transfer process and satisfaction certainly encourage the persistence intention to use mobile payment in China.

The empirical findings provided by Khalilzadeh, Ozturk and Bilgihan (2017) demonstrated a strong evidence of the effects of risk, security, and trust on customers' intentions to use near-field communication (NFC) based mobile payment technology in restaurant settings. They further proved that attitude, security, and risk have the most significant control on customers' behavioural intentions of mobile payment technology. Empirical evidence from Su, Wang, Yan (2018) revealed that internet experience increases users' perceived usefulness, ease of use, and compatibility of mobile payment enhances users' intention to adopt mobile payment. In the analyses of the factors affecting financial technology adoption from consumer and retailer perspectives respectively, Lee, Ryu, Lee (2019) suggested that attitude affects the intention to continue to use financial technology in Korea.

Furthermore, in assessing the intentions to use internet banking in Thailand Namahoot and Laohavichien (2018) show that service quality, perceived risk and trust influence behavioural intentions to use internet banking.

An empirical study was conducted among consumers in Bangladesh by Kumar, Kumar, Shareef (2017) to capture the critical factors that contribute towards shaping consumer attitudes toward mobile banking. Trust, security, accessibility, superior service, and user-friendly design emerged as the most important issues influencing consumers to develop either favourable or unfavourable attitudes toward the technology driven service. Thus the following hypothesis.

H17: Mobile payment Attitude will impact the intention to use mobile payment positively.

3.3.5 Adoption, Product-related Factors and Intention to Reuse Mobile Payment

Actual doption of an innovation is consumers' decision of making use of innovation fully (Rogers, 2003; Alan, Kabadayi, Bakis, Sekerin, 2017). Intention to reuse an innovation is defined by Li, Duan, Fu and Alford (2012, p.4) as the degree to which users intend to adopt the innovation and increase its use of it in the future. Adoption theories (e.g., TPB, TAM, UTAUT etc.) and previous research that have tested these theories have limited their studies on adoption decision. Most have in fact limited their studies on intention to adopt. Even though the adoption of an innovation does not guarantee reuse of that innovation, there are limited studies post adoption behaviour (Bhandari, Neben & Chang, 2015) and the factors that would drive such post adoption behaviour (Prodanova, Ciunova-Shuleska & Palamidovska-Sterjadovska, 2019) . In terms of the factors that predict post-adoption behaviour like intention to reuse branded apps, Chalomba, Duh and Gujral (2019) indicated that the factors were customer satisfaction, functional and social values. Social value however had a negative impact on intention to reuse.

For mobile banking, Prodanova et al. (2019) found functional and epistemic values to be an important drive of reuse intention. Explaining the DOI as a theory that posits that an innovation attributes can influence the adoption of the innovation, Yen et al. (2019) found that compatibility, mobility and some consumption values impacted reuse intentions of mobile social network services. In the current study, it is proposed that while the innovation/product related factors directly impact reuse intention, it will first influence the adoption behaviour.

A study by Afshan and Sharif (2016) revealed that consumer intentions to adopt mobile banking significantly depended on task technology fit (TTF), initial trust (IT), and facilitating condition (FC). The empirical analysis of Chen and Li (2017) also suggested that mobile payment services user satisfaction has a substantive positive impact on continuous use intention of such services. Evidence from Humbani and Wiese (2019) further indicated that satisfaction appeared to be the key predictor of the intention to reuse of mobile payment apps. According to these authors, satisfaction is the result of meeting customers' expectations of the service, it is therefore essential to ensure that customer experiences are unfailing in order to strengthen their continuance intention of the app. According to the findings of Lu, Yang, Chau and Cao (2011), customers' perceptions of relative advantage, compatibility, and image strongly increase the intention to use mobile payment services. Kapoor, Dwivedi and Williams (2013) investigated the role of innovation attributes that significantly influence the behavioural intention and actual adoption of potential consumers towards the interbank mobile payment service and identified relative advantage, compatibility, complexity and trialability to play a significant role in predicting the use of interbank mobile payment while observability exhibited a poor impact on behavioural intention. Similarly, Makanyeza (2017) found that perceived usefulness, perceived self-efficacy, social influence, relative advantage and compatibility positively influence behavioural intention to adopt mobile banking services in Zimbabwe.

In India, Kaur, Dhir, Bodhi, Singh and Almotairi (2020) revealed in their study that relative advantage, compatibility, complexity, and observability were significantly associated with participants' intentions toward mobile-wallets. Conversely, trialability did not influence the participants' intentions to use and recommend mobile-wallets to others. Likewise the findings of Johnson, Woolridge and Bell (2019) indicated that consumer confusion impacts usage intention

through relative advantage (reducing consumer confusion) and compatibility while relative advantage (saving time) positively impacts compatibility. Trialability and compatibility directly impact Mobile Self-Checkout adoption usage intention. From Zimbabwe, Muzurura and Chigora (2019) demonstrated that the likelihood of adopting mobile banking in rural Sub-Saharan Africa regions are influenced by perceived usefulness, compatibility, perceived ease of use and demographic factors. They explained that adoption of mobile banking was influenced by complexity, relative advantages, perceived usefulness, social influence and perceived risk.

On the accounts of Chung (2019) innovativeness of compatibility, complexity and relative advantage directly impact mobile commerce intention in Central Asia while potential adoptee place great emphasis on trialability and security of mobile commerce. The results of empirical analysis by Mensah (2019) in China showed that perceived usefulness, perceived ease of use, perceived service quality, social influence, internet self-efficacy, relative advantage, compatibility, and complexity were significant predictors of the continued use of WECHAT mobile payment services. A study conducted by Min, So, Jeong (2019) on consumer adoption of the Uber mobile application suggested that relative advantage, compatibility, complexity, observability, and social influence have a significant influence on both perceived usefulness and perceived ease of use, which in turn lead to subsequent consumer attitudes and adoption intentions. From the results of empirical testing of integration of intention and resistance in adopting Near Field Communication-Based mobile payment innovation in Indonesia, Pitari, Gayatri, Furinto, Assauri (2020) as well concluded that the role of relative advantages, compatibility and complexity in consumer intentions to adopt innovation is essential. Thus, the following hypotheses are formulated:

H18: Relative advantage will positively impact the intention to reuse mobile payment

H19: There is a negative relationship between complexity and the intention to reuse mobile payment

H20: The relationship between perceived cost and intention to reuse mobile payment will be negative

H21: Compatibility will positively impact the intention to reuse mobile payment

H22: There is a positive relationship between communication and intention to reuse mobile payment

H23: There is a positive relationship between trialability and intention to reuse mobile payment

H24: The adoption of mobile payment will positively lead to the intention to reuse it.

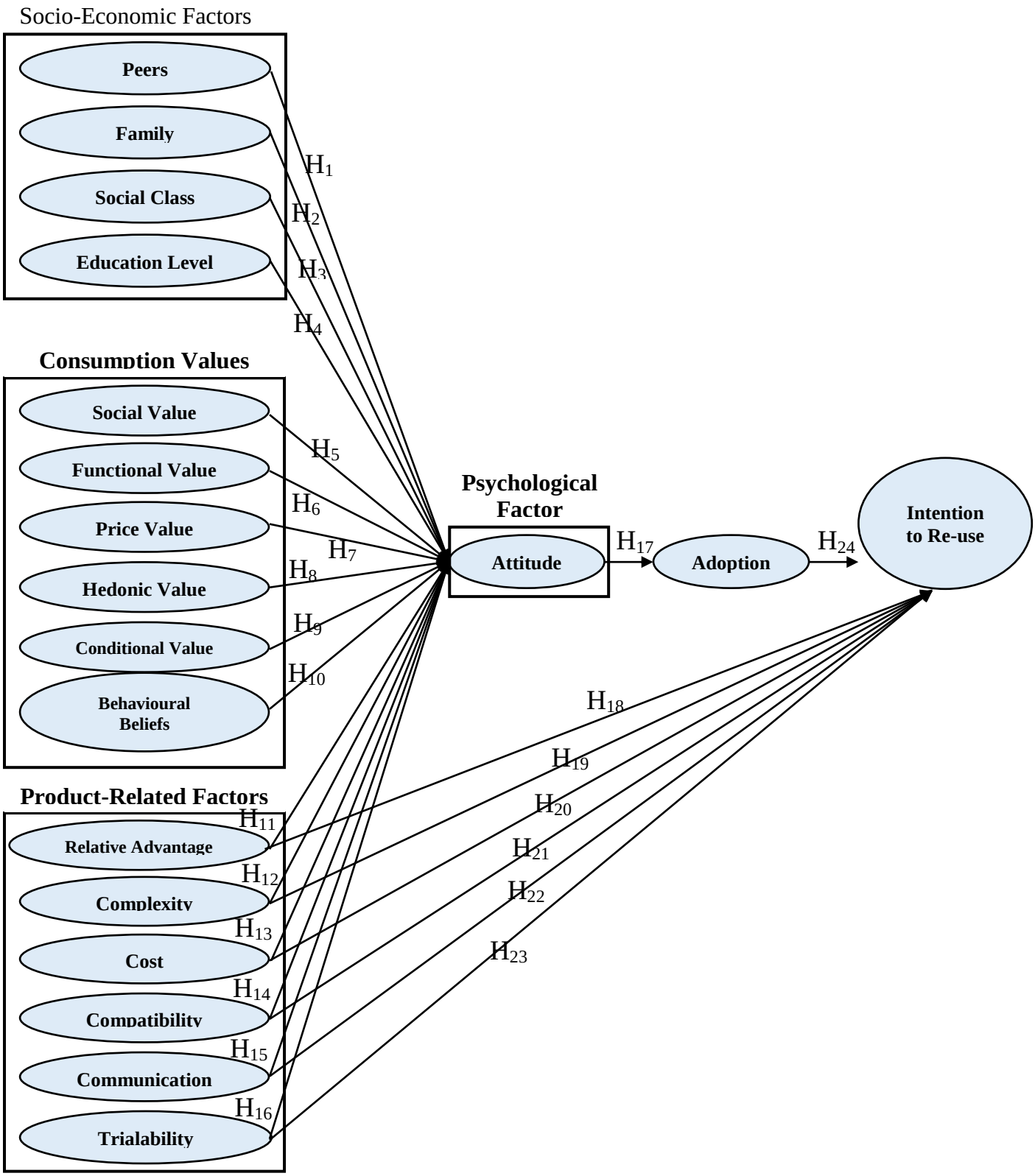

Figure 3.8: A Proposed Conceptual Model

3.4 Conclusion

The mobile device is perhaps the most ubiquitous personal device of the 21st century. Its adoption is universal in most developed countries. The mobile device has developed from being a simple communication tool to a versatile business tool that offers enormous business value for businesses and consumers alike. Consequently, many organisations are seeking to exploit the business value of the mobile device to improve their efficiency and effectiveness. This chapter was divided into two sections to discuss the concept of mobile payment innovation, and to examine the most common theoretical models that are proposed and employed to understand individuals' adoption decisions. The first section of this chapter discussed the concept of mobile payment, with a focus on its definition and on transitions in mobile device technology, defining the various developments in mobile payment methods. Then followed an elaboration on the value of mobile payment for consumers. This chapter also discussed trends in mobile payment adoption both globally and in the Ghanaian context.

The second section of this chapter identified and discussed the major theoretical models in the literature that have been developed and are used to understand technology adoption by consumers. These include Theory of Planned Behaviour, and the Technology Acceptance Model, Extended unified theory of acceptance and use of technology (UTAUT2), the theory of consumption values (TOCV), and the Diffusion of Innovations Theory. The next section is the conceptualization of a theoretical model to examine factors that influence the attitude and use of mobile payment in Ghana and will outline the hypothetical relationships between the constructs of this study.

In the next chapter, the research method that will be used to collect the data and to statistically test the conceptual model empirically will be discussed.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1. Introduction

The preceding chapter reviewed theoretical and empirical literature to develop the conceptual model and hypotheses of this research. This chapter discusses the methodology used to collect the data and tests the relationships proposed in the conceptual model.

This chapter starts by presenting the philosophical foundation underpinning this research. This is followed by a presentation of the framework that was followed for conducting marketing research in the study. The important issues covered in this research process are the purpose of the research, the research strategy utilized the design of the research, the methods followed in obtaining the primary data of the study, and the data analyses procedures. The ethical ramifications of the survey research and the ethical measures taken into account in undertaking this research are also highlighted in this chapter.

4.2.Research Philosophy

The research process begins with a choice of the appropriate research philosophy for a research project (Dyson & Brown, 2006:3; Newby, 2014:35). 'Research philosophy' is an all-embracing term denoting the school of thought that reinforces the development of knowledge and the nature of that knowledge with regards to research (Winit-Watjana, 2016; Saunders et al., 2011:107). Researchers must consider the influence of their underlying philosophy on how they approach their research and interpret their data (Moon, Blackman, Adams, Colvin, Davila, Evans, & Sherren, 2019). The philosophical position of the researcher frames their theoretical perspective

(i.e., the ideas, concepts, and assumptions the researcher brings to their research), thereby influencing the kinds of questions they ask and how they seek to answer them (Moon et al., 2019). These elements enlighten the types of methodology that best suits the philosophy as well as how theory and the anticipated research result/s are integrated, and the justification for the preferred methods (Mora et al., 2012). There are two major philosophical viewpoints that one can take in conducting research: the positivist view, and the interpretivist view. Table 4.1 summarises the research approaches of these philosophies.

Table 4.1: Positivists and Interpretivists Philosophies

	Positivists	**Interpretivists**
Assumptions	Knowledge is objective and quantifiable.	Knowledge is gained through understanding the meaning of the process or experience
Key factors/ideas	Search for contextual variables that cause actions	Search for patterns of meaning
Goal of paradigm	test and expand a theory	Describe people's subjective lived realities, experiences, and understandings.
Research Method	experiments and surveys	case studies, ethnographic, observation, interviews
Theory transference approach	Deductive (confirmatory)	Inductive (discovery)

Source: adapted from Swanson and Chermack (2013: 40) and Venkatesh et al. (2012)

Table 4.1 highlights that positivist approaches are usually focused on the precise and replicable documentation of a phenomenon resulting in valid generalisations. In contrast, interpretive studies are interested in understanding how an observed phenomenon has come into being (Mora et al., 2012:3). In moving away from a positivist to an interpretive examination of a research topic, the goal of the study changes from who, what or how many, to how.

From the understanding of the facts presented in Table 4.1, the positivist paradigm was used to find answers to the research questions of this study. The choice of the positivist approach to conducting the current study is based on the following considerations:

• In the positivist paradigm, research questions are usually framed in quantifiable and measurable terms (Steinert, 2014:383). This study's research objectives and questions are measurable (refer to section 1.3 of Chapter 1).

• Positivist research studies are contingent on the assumption that there are prior causal relationships between variables, and that these can be used to explain phenomena (Swanson and Chermack, 2013:41). With the aid of the conceptual research model (Figure 3.1), this study proposed that there were 22 relationships between the main variables of the study. The positivist approach thus made it possible to test the posited relationships empirically.

• Unlike the interpretivist philosophy, which aims to discover theories, the positivist approach strives to confirm theories (Swanson and Chermack, 2013:40). From the extensive literature reviews conducted in chapters three and four of this study, some theories were identified and used to propose a detailed conceptual model and hypotheses.

Ultimately bound up in the discussion of epistemological considerations of positivist and interpretivist research philosophies is the issue of quantitative and qualitative data (Ashwin, 2011:137; Frauendorf, 2007:150, Migoro and Osako, 2010:334; Rudy, 2007:58). Quantitative research provides explicit, objective documentation of a phenomenon. It enables a wider reach and population generalisations. Qualitative research, on the other hand, “provides the story behind the statistics” (Mora et al., 2012:3). A quantitative design using a survey data collection approach was

used to collect data from the respondents. Quantitative techniques were used to test and analyse the relationships proposed in the conceptual model.

4.3.The Marketing Research Process Followed in this Study

Many researchers have outlined various steps to be followed in carrying out marketing research. For instance, Burns and Bush (2010:50) identify eleven steps in the marketing research process, while Iacobucci and Churchill (2010:31) outline a six-step research process for conducting scientific social research. However, Kothari (2011:10) sees the research process as a series of seven sequential steps. These steps include:

1. Problem definition;
2. Literature review
3. Formulation of research hypotheses;
4. Research design formulation;
5. Data collection;
6. Data analysis; and
7. Interpretation and reporting of findings.

Considering that Kothari's (2011:10) seven-step process is a comprehensive framework that adequately addresses the activities involved in the marketing research process, this research was conducted following that framework. The sections that follow discuss in detail the steps followed in this investigation.

4.3.1. Define the Research Problem

Defining the research problem entails narrowing down the general interest in a research topic and focusing on a specific research problem within the topic that is small enough to be investigated (Fox and Bayat, 2008:13). A research problem is thus defined as an "intellectual stimulus calling for a response in the form of scientific enquiry (Frankfort-Nachmias, Nachmias, & DeWaard, 2015). Defining the research problem is the process of bringing the subject 'down to earth' (Eribo and Tanjong, 2002:90).

The research problem defined for this study (refer to Chapter One) was formulated through a review of secondary data and theories on innovation adoption. The review revealed that much of the mobile payment research is dedicated to understanding customer's intention to adopt mobile payment with limited study on drivers of actual adoption. Another gap identified in the study was the fact models and theories generally overemphasise the role of psychological determinants but omit the contributions of product-related attributes, the values consumers enjoy from the use of mobile payment as well as socio-economic and socio-demographic variables capable of affecting decisions to adopt or not to adopt the technology. The identification of these gaps guided the definition of the research problem.

4.3.2. Literature Review

The literature review is that aspect of the marketing research process where extensive reference is made to related research and theory in the field of study (Ridley, 2012:3). In this study, the literature review conducted on the field of study is reported in Chapters 2, 3, and 4. From the literature review, the researcher identified previous research findings and theories on innovation

adoption. The theories and accompanying models delineated some consumer-related (, product-related and socio-economic factors influencing the adoption of various innovations. These theories and models guided the design of the proposed conceptual model and the development of this study's hypotheses.

The literature review was also useful in guiding the selection of the appropriate sample size, and in identifying items used to measure constructs of interest (Mertens, 2014). From the literature review, the researcher also identified suitable data analyses procedures for this study.

4.3.3. Hypotheses Formulation

Hypotheses are formulated after a literature review has been conducted (Fain, 2014:104). Hypotheses are conditional assertions involving the relationship between two or more variables regarding social reality. They are stated in a form suitable for testing through empirical research (Cargan, 2007:33). Formulating hypotheses requires the researcher to identify variables that are relevant to the study from the literature. Hypotheses are thus based on an existing body of knowledge, and they must be capable of being verified (Mertens, 204). According to Latusek and Gerbasi (2010:177), hypotheses are specific expectations deduced from the framework of a theory. Hypotheses guide scientific enquiry for the advancement of knowledge.

Chapter three of this research presented the conceptual framework and research hypotheses formulated for this study. Flowing from the literature reviews conducted in Chapters 2 and 3, a clear rationale was obtained for the hypotheses and constructs used in the study. All the hypotheses formulated for this study were derived from a related set of propositions from the existing body of

literature. Furthermore, the hypotheses were based on major theoretical models. Hypotheses influence the selection of the appropriate research design, sampling techniques, and plans for data collection and analysis (Fain, 2013:105). The next sections discuss the research design followed in this study.

4.3.4. Research Design

After the hypothesis has been formulated; a researcher has to select a suitable research design. (Khan, 2008:5; Kothari, 2011:12). Sekaran and Bougie (2013:95) define a research design as the blueprint for the collection, measurement, and analysis of data, based on the research question of the study. Similarly, Malhotra (2010:102) states that a research design is a framework or blueprint for conducting the marketing research project. A research design is, therefore, a set of advance decisions that make up the master plan, specifying the methods and procedures for collecting and analysing the information that is needed (Burns & Bush, 2010:143).

Research design is very relevant as it connects the significance of the research problem to the research procedures (Churchill, Brown, & Suter 2010:79). The current study employs the quantitative design approach.

The selection and formulation of a proper research design are essential for the success of the research (Khan, 2008:5). Sekaran and Bougie (2013:95) note that a good research design focuses on issues related to:

1. The purpose of the study (descriptive, or causal);
2. The research strategy (experiments, surveys, interviews, case studies);

3. Measurements and measures;

4. Development and pre-testing of the data collection instrument;

5. Sampling design;

6. Data collection; and

7. How data will be analysed to test the hypotheses.

In designing this study, the researcher made use of the components of research design outlined by Sekaran and Bougie (2013:95), owing to its comprehensive collection of many issues that ought to be addressed in research design. The sections that follow discuss the theories behind these key components and how they were applied in this study.

4.3.5. The Purpose of the Study

Research designs are traditionally grouped into three categories: exploratory, descriptive, and causal (Burns & Bush, 2010:143; Iacobucci & Churchill, 2010:59; Sekaran & Bougie, 2016). These categories differ substantially in research purpose, research questions, the nature of the formulated hypotheses, and methods of data collection (Aaker et al., 2013:65).

Exploratory studies are undertaken when not much is known about the situation at hand, or when no information is available on how similar problems or research issues have been solved in the past (Sekaran and Bougie, 2016). A researcher making use of exploratory research seeks to gain insights into the general nature of the problem, the possible alternatives, and the relevant variables that need to be considered in future research (Aaker et al., 2013:65). This research design was considered inappropriate for the current study because the study's research problem had been

identified and clearly defined, based on knowledge gained from the existing literature. Moreover, exploratory research design methods (usually qualitative in nature) are inconsistent with the positivist philosophical foundation adopted for the current study.

Descriptive designs are undertaken to address questions of who, what, where, when, and how (Burns and Bush, 2010:149; Churchill et al., 2010:107; Wilson, 2012:35). With a descriptive research design, researchers are usually interested in trying to describe a group of people or other entities (Churchill et al., 2010:107; Malhotra, 2010:106). In descriptive research, researchers must clearly define what they intend to measure (Kothari, 2011:39). The current research has identified and defined a marketing problem to be investigated. Moreover, research objectives that provided an outline of what needed to be attained had been established. The study also proposed a conceptual model with hypotheses to be tested. To serve these purposes, the current study followed a descriptive research design.

Descriptive research can take the form of either a cross-sectional or a longitudinal study. In a cross-sectional descriptive research study, researchers collect and measure information from any given sample of population elements only once (Burns and Bush, 2010:150; Churchill et al., 2010:108; Malhotra, 2010:108). With longitudinal descriptive research designs, a fixed sample (or samples) of population elements is measured repeatedly on the same variables (Wilson, 2012:35). Due to the repeated measurements taken over time, longitudinal studies are often time-consuming. For this reason, a cross-sectional study was implemented. In doing so, the researcher collected data only at one point in time from the population elements under investigation in their natural

environment. This data was then analysed to ascertain the relationships between the variables of the study.

Although descriptive research may characterise marketing phenomena and demonstrate associations among variables, statements about cause-and-effect relationships are not possible with this type of research design (Feinberg, Kinnear, and Taylor, 2012:58). When it is necessary to show that one variable causes or determines the values of other variables, a causal research design is deemed appropriate (Aaker et al., 2013:67). This study was designed to study the population in their natural setting; causal research was thus unsuitable because it transcends the natural order of doing things by using manipulation to be able to provide evidence of cause-and-effect relationships (Malhotra, 2010:113).

4.3.6. Target Population and Sampling Method

Sampling begins by defining the target population precisely (Sekeran & Bougie, 2013:245). The target population is the total group of people that the researcher wishes to examine in a study or obtain information from (Wilson, 2012:183). Iacobucci and Churchill (2010:282) and Sekera and Bougen (2013:245) argued that the target population must be defined in terms of elements, geographical boundaries, and time. Generally, the simpler the definition of the target population, the higher the incidence and the easier and less costly it is to find the sample (Iacobucci & Churchill, 2010:283). Hair et al. (2011:167) noted that the research objectives and the scope of the study are critical in defining the target population. Considering the primary objective of this research, the target population was all employees and Masters Students of the University of Ghana.

The research objectives and questions usually inform the sampling frame which often determines the sampling techniques. There are two types of sampling techniques; probability and non-probability sampling (Zikmund, 2003). Probability sampling implies that each member of the population has an equal chance to be chosen as a member of the sample. Simple random sampling, systematic sampling, stratified sampling, cluster sampling as well as proportional sampling are examples of probability sampling techniques. A non-probability sampling includes convenience sampling, purposive sampling, snowball sampling and quota sampling (Zikmund, 2003). Purposive and convenience non-probability sampling techniques were used in gathering the data for this study. The purposive and convenience sampling methods were used to select lecturers and Executive MBA students because the researcher, a lecturer had closer access to these respondents and they were considered to have the social class, financial resources and skills to adopt mobile payment.

4.3.7. Determining the Sampling Frame

The next step is choosing the sampling frame. A sampling frame is a list of the actual cases from which sample will be drawn and should be representative of the population (Taherdoost, 2016, p.20). When the sampling frame does not perfectly correspond to the study population, generalisation would only be made to the sample frame because not all members of the population have the opportunity to be selected to participate by completing the research instrument, and as such coverage error may occur (Champ, Boyle & Brown, 2017, p.60). This study distributed 510 questionnaires to registered Executive MBA students of the University of Ghana Business School, Lecturers from UGBS and the School of Continuing and Distance Education. The respondents

qualified to participate in the study from a screening question that ensured that they have used mobile payment before.

4.3.8. Sample Size

The sample size refers to the number of elements to be included in the study. The process of determining the appropriate sample size is generally guided by several factors, including available funds to cover data collection costs, time frame, the heterogeneity of the population, and the type of analysis the study seeks to undertake (Bryman, 2012:200). This study took the analyses method into account in determining the optimal sample size. Given that this study used mainly structural equation modelling (SEM) for data analysis, Hair et al.'s (2014:576) suggestion that a complex model encompassing more than (seven constructs latent variables) should involve at least 500 respondents. Following this recommendation, the target sample size for this study was 510 comprising 293 MBA students and 217 lecturers.

4.4. Data Collection

A self-administered survey was used to collect data. The questions for the measurement instrument were mainly adapted from Venkatesh et al. (2012), Oliveira et al. (2015).

In this study, the measurement instrument consists of two sections: the first section consisted of the bio-data of the respondents. The second section measured socio-economic factors, consumption value factors, product-related factors, attitude the use of mobile payment services and the intention to reuse. The research constructs were operationalised following prior works. Proper modifications were made to fit the current research context and purpose. All scale items

were measured on a 5 point Likert scale which was anchored by 1 = strongly disagree to 5= strongly agree to express the degree of agreement.

A pre-test involving 20 respondents was first conducted to ensure that the questions are clear and the scales reliable. Saunders et al., (2012) indicate that one of the main reasons to carry out the pilot study is to improve the data collection instrument. The participants who were involved {participated} in the pilot study have similar characteristics with those who participated in the actual study. Some few suggestions made were used to improve the data collection instrument before it was used to collect data. Some of the suggestions were that the questions were too many and this would deter respondents from answering them; some of the questions included technical words which needed to be explained to respondents to enable them answer the questions so some of the questions were changed to simple language.

4.4.1. Development of the Research Instrument (Questionnaire)

A survey uses a questionnaire as an instrument to generate the data necessary to accomplish the research objectives (Malhotra, 2010:211; Wilson, 2012:154). A questionnaire is a formalised set of questions for obtaining information from respondents (Malhotra, 2010:335). Questionnaires provide a critical communication link between the researcher and the respondent. According to Wilson (2012:154), a questionnaire must be designed to communicate to the respondents what the researcher is asking for, and to communicate to the researcher what the respondent has to say.

4.4.2. Planning What to Measure

Descriptive research requires sufficient prior knowledge to allow for the formulation of hypotheses for investigation, which will then guide the writing of the questionnaire (Iacobucci & Churchill, 2010:204). Aaker *et al.* (2013:250) noted that obtaining information on what to measure is achieved through:

• Having clear research objectives that describe as fully as possible the kind of information the decision-maker needs, the hypotheses, and the scope of the research. The current research outlined clear objectives to be achieved at the end of this study. These objectives provided the scope for selecting what needs to be measured to arrive at valid conclusions based on the research objectives.

• Experience with similar studies. The current study reviewed the literature to identify scales that were used in previous related studies. This exercise helped the researcher to obtain ample information on what needs to be measured and to measure those variables that were included in the study.

• Pre-testing of preliminary versions of the questionnaire. Preliminary versions of the questionnaire were tested. This helped to provide the researcher with insights into what to include in the final questionnaire. (The section below on *pre-testing and correcting problems* provides more information on how the pretesting of the questionnaire was carried out).

4.4.3. Developing Questions

The questionnaire included both open-ended questions and closed-ended questions. Open-ended questions or unstructured questions refer to questions that allow the respondents to respond in their own words (Hair et al., 2013:190). An example of an open-ended question is: "indicate the number of people living in your household". Here respondents were requested to insert a number from one

upwards. Closed-ended question or structured questions refer to questions that necessitate the respondent's choice from pre-set responses (Hair et al., 2013:190). The structured question can be either multiple-choice, dichotomous or scale (Malhotra, 2010:344).

The conceptual model developed in the previous chapter includes behavioural, psychological and socio-demographic variables. The term construct alludes to concepts that are measured with multiple items (Zikmund & Babin, 2010:325). All the constructs incorporated in the conceptual model have been developed from the extant literature and were adapted to the present context.

Table 4.2 recapitulates the conceptual definition of each construct and provides details on the type of scale used to measure it as well as sources of items.

Table 4.2: Conceptual Definition of Construct, Scaling and Source of Scale Items

Construct	The Conceptual Definition of the Construct	Source of items	Number of items
Peers	A person's perception that most people who are important to them think he should or should not perform the behaviour.	Yang, Lu, Gupta, Cao, & Zhang, (2012).	4
Family	A person's perception that most people who are important to them think he should or should not perform the behaviour	Yang, Lu, Gupta, Cao, & Zhang, (2012).	3
Social class	A person's perception that most people who are important to them think he should or should not perform the behaviour	Venkatesh et al., 2012, Venkatesh, Morris, Davis, and Davis, 2003	4
Education	Whether educational level serves as an advantage in using mobile payment technology	Yang, Lu, Gupta, Cao, & Zhang, (2012).	3

Social value	The utility of mobile payment derived from its perceived ability to enhance social well-being	Venkatesh et al., 2012	3
Functional value	The ability of mobile payment to perform its functional, utilitarian, or physical purpose.	Bhattacharjee 2002, Yousafzair et al., 2009, Venkatesh and David 2000	4
Hedonic value	Fun or pleasure derived from using technology.	Oliveira et al. 2015, Yi et al., 2006	3
Price value	The monetary cost of using technologies.	Oliveira et al. 2015, Yi et al., 2006	4
Conditional value	the perceived utility acquired by an alternative as the result of the specific situation or set of circumstances facing the mobile payment user.	Assarut, & Eiamkanchanalai, (2015). Thye Goh, Mohd Suki, & Fam, (2014), Wang, Liao, & Yang, (2013), Pihlstrom, & Brush, (2008).	4
Behavioural beliefs	Willingness of the user to believe that mobile payment technology serves him/her better	Oliveira et al. 2015, Yang, Lu, Gupta, Cao, & Zhang, (2012).	4
Relative advantage	Ability of mobile payment having advantage of the traditional mode of payment	Kim, Shin, & Lee, (2009), Yang, Lu, Gupta, Cao, & Zhang, (2012).	4
Complexity	Ability of adopters to use the mobile payment technology easily	Khraim, Al Shoubaki, & Khraim, (2011), Agarwal and Prasad, 1997), Chen & Adams, (2005)	3
Costs	consumer's a cognitive trade-off between the perceived benefits of the technologies and what they sacrifice, such as the effort, opportunity cost and time	Venkatesh et al., 2012, Cronin, Brady, Brand, Hightower, Shemwell, (1997), Cronin, Brady, Hult, (2000)	4
Compatibility	Perceived compatibility of mobile payment services	Oliveira et al. 2015, Moore & Benbasat, 1991, Khraim, Al Shoubaki, & Khraim,	5

		(2011), Chen & Adams, (2005)	
Communication	Wiliness of the telecommunication companies and policy makers to advertise to the citizens about mobile payment systems	Kim et al., 2010	3
Trialability	The ability/ willingness of consumers to try the mobile payment.	Khraim, Al Shoubaki, & Khraim, (2011). Moore & Benbasat (1991),	3
Attitude	A person's general feeling of favourableness or un-favourableness for that behaviour. An individual's positive or negative feeling about performing the target behaviour	Oh, et al. (2003), van der Heijden (2003), Yang and Yoo (2004), Fishbein and Ajzen (1975)	4
Behavioural intention	A willingness to try to perform the behaviour and the behaviour refers to a defined action. Intention to use mobile payment services	Oliveira et al. 2015, Belanger & Carter, 2008; Venkatesh et al.,2012)	3
Reuse	Ability to continue using the mobile payment technology for transactions	Belanger and Carter 2008, Venkatesh et al., 2012	4

4.4.4. Formatting the questions

As aforementioned, the questionnaire was divided into two sections. The first section of the questionnaire comprised of the profile of the respondents and the second section contained closed or structured format questions. Scaling questions were used. Scaling questions use a rating scale with a continuum of labelled categories, where respondents are asked to select a response that closely corresponds to their position on the subject (Aaker *et al.*, 2013:253; Iacobucci and Churchill, 2010:212). The Likert scale is arguably the most commonly used in marketing research (Wilson, 2012:168). A labelled Likert scaled response format was used for the multi-item scale, with characteristics measured (Section B: PS1-AU4) on a five-point rating scale with end-points anchored by '*strongly agree*' and '*strongly disagree*'. The final questionnaire developed for this

study embraced closed-ended questions. This is in line with quantitative methods for questionnaire design.

4.4.5. Question Wording

The wording of questions has huge implications for how respondents interpret them (Aaker *et al.*, 2013:257). Poor phrasing of questions can prevent respondents from answering them, or lead them to answer the question incorrectly (Iacobucci & Churchill, 2010:216). To avoid these problems in formulating the research questions, the researcher followed the guidelines of Aaker *et al.* (2013:257) critically to evaluate and to improve questions by making sure that:

• the vocabulary used was simple, direct, and familiar to all respondents

• all words with vague and ambiguous meanings were eliminated

• instructions were not potentially confusing

• the questions applied to all respondents

• the questions were of an appropriate length

• difficult or sensitive questions were avoided as far as possible.

4.4.6. Sequencing and Layout Decisions

After properly formulating the questions, their order and layout need to be considered. The need to gain and maintain the respondent's cooperation, and to make the questionnaire as easy as possible for the researcher to administer, are key considerations in ordering the questions (Aaker *et al.*, 2013:221). Iacobucci and Churchill (2010:221) noted that the physical appearance of the questionnaire influences respondents' co-operation.

The basic guidelines proposed by Aaker *et al.* (2013:262) for sequencing a questionnaire to make it interesting and logical to both interviewer and respondent were used to guide the sequencing of the questions in the questionnaire. So the final questionnaire prepared for this study was sequentially planned in the following manner: Cover letter**:** the first page of the questionnaire was a cover letter that introduced the purpose of the study and sought to convince respondents about the importance of the research and of their participation. The cover letter also contained aspects that assured respondents of their anonymity, the confidentiality of their responses, and their right to pull out of the study at any time they wished.

The main questionnaire was divided into two sections, each indicating what it sought from the respondents. The sequence of the questions was as follows: Section A (profile of respondents): Questions in Section A were designed to obtain biographical information about respondents in the study. This section contained questions about the respondents' age, gender, level of education, work type and years of experience in that position. Questions in this section were measured on ratio scales. Section B (Perceptions towards studied drivers of mobile payment adoption and reuse): Questions covered in this section sought to measure the respondents' attitude or behaviour towards mobile payment adoption and use. The 19 variables used in this section were measured on an interval scale making use of a five-point Likert response format scale, with end-points anchored by '*strongly agree*' and '*strongly disagree*'. The final questionnaire used in this study is contained in Appendix A.

4.4.7. Pretesting and Correcting Problems

A pre-test encompasses using a limited number of potential respondents to complete a questionnaire so as to identify and rectify errors (Wilson, 2012:177). Iacobucci and Churchill (2010:224) advised that pretesting should be done by the researcher so that he can note where they get confused and determine the appropriateness of the questionnaire for the target population.

While Wilson (2012:178) noted that the sample for pretesting a questionnaire is relatively small – ranging between 10 and 40 respondents, depending on the heterogeneity of the target population – Burns and Bush (2010:354) stated that between five and ten respondents are adequate for pretesting to take place.

Following the recommendations noted above, the questionnaire developed for this study was pretested. This took place with 20 respondents taken from population of the study. Each respondent was asked to complete a copy of the questionnaire, and give a feedback on:

• the accuracy of the guidelines;

• the phrasing of the questions;

• the flow of the questions;

• the terminology used;

• the questionnaire's layout; and

• the time is taken to complete the questionnaire.

Iacobucci and Churchill (2010:224) advised that responses that emerge from the pretesting should be coded and tabulated, and revisions made to the questionnaire where possible. If, however,

significant changes are made to the questionnaire following the pretesting, it is recommended that the pretesting be replicated with the revised questionnaire (Wilson, 2012:178).

Overall, the participants confirmed that questionnaire was comprehensible and easy to complete. However, some of the participants criticised the questionnaire to be lengthy. With this response, no further modifications were made to the questionnaire rather participants were convinced to fill it.

4.5. Data analysis

Descriptive statistics, confirmatory factor analyses and structural equation modelling were methods used to analysed data as discussed below.

4.5.1 Descriptive Statistics

Descriptive statistics sum up the features of a data set numerically (Wilson, 2012:210). For this study, the profile of the participants was presented using frequency distribution. The descriptive statistics also provided the mean, standard deviation and percentages of the patterns in respondents' responses to the interval scale items. Percentages were used to specify respondents' level of agreement to the statements that measured the constructs.

4.5.2. The Validity of the Measurement Instrument

Validity is the degree to an instrument is able to measure what is designed for extent (Cooper & Schindler, 2011). A high-reliability instrument is useless if it has poor validity measurement (Bless & Higson-Smith, 1995). The validity of a measurement instrument is assessed with convergent validity and discriminant validity. The discriminant validity of the research instruments were obtained by examining the relationships of the research constructs and compare Average Variance

Extracted (AVE) and shared variance (discriminate validity). Factor loading and item-to-total correlation values were utilised as indicators to check convergent validity.

4.5.3. Reliability of Measurement Instrument

Reliability test determines the consistency of measures. This instrument delivers similar scores which is said to be consistent, however, if the instrument indicates dissimilar scores anytime it is applied, then it has low reliability (Bless & Higson-Smith, 1995; Saunders et al., 2014). The reliability of the scales or instruments for data collection was tested using Cronbach's Alpha coefficient. The reliability is accepted when Cronbach's Alpha coefficient is least 0.7. Cronbach's Alpha coefficient of at least 0.7 is an indication of the internal consistency of data that has been collected. SPSS software was used to determine the reliability of data.

4.5.4. Path Modelling / Structural Modelling (SEM)

After Confirmatory Factor Analysis (CFA) was used to evaluate the model fit, the study continued to carry out SEM analysis by applying AMOS 21.0. Path analysis or SEM describes the interactions among observed elements and theoretic constructs (Blunch, 2013; Allam, Bliemel, Spiteri, Blustein & Ali-Hassan, 2019) and assess the structural paths of the conceptualised research model. Structural equation modelling method authenticates and tests the theoretic foundations of a suggested study and the implication of the interactions amongst the model's constructs. SEM specifies methods for distinct interactions of every set of dependent variables and specify methods of testing multi-regression equations to be assessed simultaneously (Blunch, 2013). It also contains both structural and measurement models. In structural model, independent and dependent variables are linked whereas measurement model allows indicators to test how much the conceptual model

fits the data (Hair et al., 2014).

SEM, also known as covariance structure analysis, latent variable analysis, or causal modelling, was used to test the hypotheses and the conceptual model proposed for this study. SEM belongs to the group of statistical methods that explain relationships among multiple variables (Hair et al., 2010:364). SEM presents a sequence of structural equations and relations that can be modelled graphically to provide a more robust conceptualisation of the theory being investigated. According to Byrne (2012:3), the statistical technique takes a confirmatory (i.e. hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon.

The conceptual model proposed for this study was designed to test structural relationships among unobserved variables that are postulated based on relevant theories and are supported by previous empirical research results. Under these circumstances, SEM is a suitable technique to test the conceptual model. Baumgartner and Homburg (1996:158) noted that SEM makes it possible for researchers to examine a comprehensive theoretical framework in which the effects of constructs are depicted across a layer of multiple variables, with direct, indirect, or bi-directional paths of effect.

The reasons that justify the selection of SEM over other multivariate analysis techniques include the following:

First, SEM is suitable when testing models based on well-developed and sound theoretical models (Little, 2013:111; Schumacker & Lomax, 2013:2). The theories used in the conceptual model propounded for this research are very well-established theories that have been applied in previous innovation research and have been tested using SEM (Teo, Manaf and Choong, 2013:7; Yang,

2012:487; Lai, Lin and Tseng, 2014:7).

Second, according to Hayes (2017), SEM allows for a simultaneous approximation of the paths in separate mediation models such as the TPB and the UTUAT2, DOI and TOCV used in this study. In contrast, the use of regression techniques in instances like this is tedious because separate estimation would have to be conducted for each path of the model.

Third, SEM can represent the unobserved indicators and explain the dimension of error in the assessment procedure (Bowen & Guo, 2012:25). For these reasons, the SEM data analysis technique using AMOS Graphis 21 was considered appropriate for testing this study's conceptual model. As aforementioned, SEM generally comprises two types of models: the measurement model and the structural model (Malhotra, 2010:726).

4.5.5. The Measurement Model

The measurement model requires several fit indices be used to assess the model fit. These are Chi-square, Adjusted Goodness-of-Fit statistic (AGFI), Turkey Lewis index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). These indices are presented in Table 4.3.

Table 4.3: Indices for Model fit for CFA & Path Model

Model Fit Indices	**Threshold**
Chi-square value	(<3).
Comparative fit index (CFI)	(> 0.900)
Goodness of fit index (GFI)	(> 0.900)
Incremental fit index (IFI)	(> 0.900)

Normed fit index (NFI)	(> 0.900)
Tucker Lewis index (TLI)	(> 0.900)
Random measure of standard error approximation (RMSEA)	(< 0.08)
Parsimony Normed Fit Index (PNFI)	(> 0.9)
Closeness of fit (PCLOSE)	(> 0.05)

Source: Hooper, Coughlan and Mullen (2008); Hair et al. (2014).

As presented in Table 4.3, the model fit indices can be classified into absolute fit indices, incremental fit indices and parsimony fit indices. The absolute fit indices measure how well a model fits the observed sample data. Their calculation is premised on how well a measurement model fits as compared to none model at all (Hooper et al., 2008:53; Malhotra, 2010:733). Incremental fit indices do not use Chi-square statistics, but rather assess how well the estimated model fits some alternative null model (i.e. model that supposes that every observed variable is dissociated) (Hair et al., 2014:580). Parsimony fit indices focus on comparing models based on relative fits and complexity (Malhotra, 2010:733). To complete the assessment and validate the model's fit, Hair et al. (2014:589) recommend that at least one fit index of each category should be reported. In this study at least one of the fit indices in each category outlined in Table 4.3 was included in the analysis.

4.5.6. **The structural model**

After validating the measurement model, the structural model is subsequently tested. According to Hair et al. (2014:640), a structural model is a "set of one or more dependent relationships linking the hypothesised constructs". Like the measurement model, the structural model is represented by a diagram. The process of specifying the structural model consists of assigning the relationship

from one construct to another as described in the theory. All hypothesised relationships conferred in the preceding chapter are specified in the structural model. The path diagram, which is a pictorial description of all relationships, is designed to be ran in AMOS 21.

Assessing the validity of the structural model

Once the structural model is sketched out, an evaluation of the validity model fit can be performed. The model fit in the structural model relies on the same fit indices found in the measurement model as presented in Table 4.3. After assessing the fit for the structural model, the hypothesised relationships is tested. Statistical significance ($p < 0.05$) is used to ascertain whether the hypothesized relationships have been supported (Hair et al., 2014). All the research processes are subjected to important ethical considerations as discussed in the next section.

4.6. Ethical Considerations

Ethical matters emerges at various levels of marketing research. This section specifically deals with the issues that may arise in the course of conducting a survey. According to Burns and Bush (2010:90), ethics refers to the field of inquiry which ascertains what behaviours are considered appropriate under certain circumstances as recommended by codes of ethical behaviour prescribed by society. Various codes of ethics are required when conducting market research (Bryman, 2012; Burns and Bush, 2010). Some of the ethical principles applied in this study relate to research integrity, privacy and confidentiality as well as informed consent.

4.6.2. Research Integrity

Research integrity has to do with conducting research that is consistent with accepted standards (Burns & Bush., 2010:93). Researchers can be tempted to falsify data, alter findings or withhold important information. The integrity of the present study was ensured by the involvement of many stakeholders during the data analysis. The academic supervisors monitor the whole process.

4.6.3. Informed Consent

The right to informed consent was held in great esteem when conducting the study. To ensure informed consent, the motives of the study were explained to respondents when dropping off the questionnaires. Furthermore, a cover letter explaining the nature and the objective of the study was attached to the front page of the questionnaire for respondents to read on their own. Respondents were informed that participation in the study was completely voluntary.

4.7. Conclusion

This chapter discussed the methodology followed to test the conceptual model to achieve the research objectives of this study. The study adopted a positivist paradigm and quantitative data were collected in a survey targeted at the University of Ghana Community. Purposive and convenience sampling methods guided the survey. Data collection modes used included drop-off and pick-up of printed questionnaires distributed to lecturers and MBA students. The key statistical technique used to test the hypotheses was the SEM. Lastly, ethical considerations that were taken into consideration during the investigation were presented.

The next chapter presents and discusses the results obtained from the analyses.

CHAPTER FIVE

PRESENTATION OF RESULTS

5.1. Introduction

This chapter presents the results of the statistical analysis of the survey data. It begins with a presentation of the results of the descriptive statistics. In this regard, the descriptive statistics of participants' profiles are presented. Subsequently, the results of the descriptive statistics of the items used for measurement and their matching constructs are presented. After the descriptive statistics, the results of the reliability test using Cronbach's alpha and the validity generated from confirmatory factor analyses (CFA) are presented. The results from testing of the conceptual research model are then presented by starting with the results of the analysis of the measurement model, followed by the results of the structural model. The chapter ends with a summary of the results of the hypotheses tests.

5.2.Descriptive Statistics

The following subsections present the results of the descriptive statistics of respondents' profile. Results presented under this subsection also include the descriptive statistics of the measurement items and their corresponding constructs. This section concludes with the presentation of the Cronbach alpha values obtained for the reliability of the constructs.

5.2.1. Profile of Respondent

The results obtained about participants in terms of gender are presented in Table 5.1.

Table 5.1: Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	227	56.8	56.8	56.8
	Female	173	43.3	43.3	100.0
	Total	**400**	**100.0**	**100.0**	

Table 5.1 out of a total of the 510 questionnaires distributed and received from respondents, 400 were usable. Out of the 400 56.8% were male participants whereas 43.3% were female participants. This may indicate that more males than females have adopted mobile payment in Ghana. In Spain, Kalinić et al. (2019) also found that males adopt mobile payment than females. This result was confirmed by Chong, (2013) in determining the roles of demographic and motivation variables for mobile commerce usage activities it was established that age and educational level have significant relationships with m-commerce usage activities.

Table 5.2: Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-29	191	47.8	47.8	47.8
	30-39	133	33.3	33.3	81.0
	40-49	57	14.3	14.3	95.3
	50-59	14	3.5	3.5	98.8
	60+	5	1.3	1.3	100.0
	Total	**400**	**100.0**	**100.0**	

Figures from Table 5.2 show that 81.1% of the respondents were within 20-39 years old. According to Parment (2013) millennials have been exposed to the internet, digital devices and mobile phones from birth so adopting mobile payment to this consumer cohort is therefore easy. Table 5.2 also shows that 27.8% of the respondents are within the ages of 40-59, which are working class consumers are capable of owning a mobile phone and adopting mobile payment. This finding corroborates the results of Zheng et al., (2013) and Chong et al., (2012) which indicated that differences in age, gender, and educational levels of mobile payment users may affect their usage behaviour.

Table 5.3: Educational Level

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	PhD	30	7.5	7.5	7.5
	Masters	116	29.0	29.0	36.5
	Bachelors	115	28.8	28.8	65.3
	Below Bachelors	139	34.8	34.8	100.0
	Total	**400**	**100.0**	**100.0**	

According to Table 5.3, up to 65.2% of the participants hold university degrees ranging from bachelors to a PhD. These category of participants based on Yang *et al.*, (2014) finding, the mobile technology users are generally young and well educated. This was confirmed by Cao, Yu, Liu, Gong and Adeel (2018) that control variables, such as gender and education, positively impacts on mobile payment continuance intention to use. Those holding below a bachelor were 34.8%. The high percentage of the respondents being well educated is an indication that they would understand the importance of mobile payment and would adopt it.

Table 5.4: Work Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5	202	50.5	50.5	50.5
	6-10	95	23.8	23.8	74.3
	11-15	47	11.8	11.8	86.0
	16-20	56	14.0	14.0	100.0
	Total	**400**	**100.0**	**100.0**	

Table 5.4, pointed out that 50.5% of the participants have 1-5 years' work experience. This implies that young generation workers employ mobile payment technology more in their daily transaction than other workers. This corroborated by earlier studies for example, Gupta and Arora, (2019), that suggested organisations should skew their payment systems towards younger working class. This is because the young ones constitute the future markets since they were given birth to at time of the introduction these new payment systems.

Table 5.5: Work Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Formal sector	293	73.3	73.3	73.3
	Informal sector	107	26.8	26.8	100.0
	Total	**400**	**100.0**	**100.0**	

Table 5.5 73.3% depicts that more formal sector workers embrace mobile payment technology than the informal sector workers. Yang et al., (2012) used 41.6 percent of corporate workers, education workers 8.8 percent, government workers 2.1 percent, students 22.8 percent and others 24.6 percent in mobile payment services adoption across time research.

5.2.2. Peers

Three statements were used to measure the peers influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.6.

Table 5.6: Peers

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
Peers who influence my behaviour think I should use mobile payment.	3.27	1.350	62 15.5%	60 15%	63 15.8%	137 34.3%	78 19.5%	400 100%
My friends think that I should use mobile payment.	3.59	1.248	42 10.5%	41 10.3%	50 12.5%	171 42.8%	96 24%	400 100%
Using mobile payment is considered a status symbol among my friends	3.15	1.30	53 13.3%	86 21.5%	79 19.8%	112 28%	70 17.5%	400 100
Average	**3.43**	**1.299**						

The results on Table 5.6 above shows that respondents supported the view that peers influence mobile payment adoption with a mean of (M=3.43). Afawubo et al. (2017) found that social group membership, ability to read and write and being a customer of a financial institution have significant effect on mobile money adoption. This current result was validated by the empirical study of Thakur (2013) on customer adoption of mobile payment services by professionals across two cities in India established that the constructs of performance expectancy, effort expectancy, social influence (friends) and facilitating conditions constituted the determinants of mobile payment services adoption among the consumers.

5.2.3. Family

Three statements were used to measure the family influence. The descriptive statistics obtained from the analysis are presented in Table 5.7.

Table 5.7: Family

Item	Mean	SD	1	2	3	4	5	Total
The people whose opinions I value in my family would approve of me using the mobile payment to purchase products/services	3.78	1.082	18 4.5%	38 9.5%	64 16%	172 43%	108 27%	400 100%
The people who are close to me in my family would agree with me using the mobile payment to purchase products/services	3.88	1.066	25 6.3%	21 5.3%	40 10%	204 51%	110 27.5 %	400 100%
The thought of adopting mobile payment is/would be an appealing idea for my family.	3.90	0.957	17 4.3%	21 5.3%	38 9.5%	130 57.5 %	94 23.5 %	400 100
Average	**3.83**	**1.074**						

Table 5.7 above, shows that participants agreed that people whose opinion value in the family approved of their mobile payment usage with a mean of (M= 3.83) therefore the implications are that most of the participants agreed to these statements, as a result, the measurement instruments are measuring the family construct. Phonthanukitithaworn et al., 2016 that families are important determinants in formation of attitude and decision making process. The current finding was substantiated by the results of Aslam, Ham and Arif (2017) which indicated that perceived

usefulness, perceived compatibility, and subjective norms (family and friends) are the most influential variables in determining consumer attitude towards mobile payment services.

5.2.4. Social Class

Three statements were used to measure the social class influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.8.

Table 5.8: Social Class

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
The people I interact with socially who use mobile payment have a superior profile	3.09	1.248	54 13.5%	82 20.5%	86 21.5%	128 32%	50 12.5%	400 100%
Using mobile payment is a status symbol in my social environment	3.12	1.276	55 13.8%	82 20.5%	80 20%	126 31.5%	57 14.3%	400 100%
The people I interact with socially that use mobile payment are more prestigious than those who do not use it	2.68	1.28	93 23.3%	99 24.8%	89 22.3%	81 20.3%	38 9.5%	400 100
Average	**2.96**	**1.26**						

Analysis on the table above shows that consumers accepted that social class influences attitudinal change with regards to mobile payment adoption with the mean of (M=2.96), therefore, the measurement instruments are measuring the social class construct and corroborated with findings of Song and Chang, (2016) who reported that social class influence mobile payment attitude in their study. Also Bongomin and Munene (2019) accounted that in the consumption of financial services provided by various mobile money platforms, the influence of social class and other social groups' matters. This finding was validated by de Luna et al., (2019) that subjective norms and perceived usefulness as well as attitude have great influence on the intention to use a new payment

system. Similarly Kalinic et al., (2019) suggested that subjective norms (family, social class) variable is the main antecedent of intention to use peer-to-peer mobile payment

5.2.5. Education

Two statements were used to measure the education influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.9.

Table 5.9. Education

Item	Mean	SD	1	2	3	4	5	Total
The higher the level of my education, the more I used mobile payment	2.94	1.31	69 17.3%	101 25.3%	63 15.8%	117 29.3%	50 12.5%	400 100
As an average mobile payment user, I'm expected to have a higher education level	2.55	1.22	87 21.8%	140 35%	66 16.5%	79 19.8%	28 7%	400 100
Average	2.74	1.26						

Expressions from the table above indicated that participants have refuted the argument that only the elite/well educated class that can use mobile payment technology. Liébana-Cabanillas et al., (2014b) also suggested that gender and education positively affected continuance intention to use mobile payment which is in line with the findings in the current study. Equally, Zheng, Zhao and Stylianou (2013) and Chong et al., (2012) indicated that differences in age, gender, and educational levels of mobile payment users may affect their usage behaviour. This is consistent with the current findings. However, Harjoseputro (2019) found subjective norms to have an indirect effect on the adaptation of mobile payment.

5.2.6 Social value

Three statements were used to measure the social value influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.10.

Table 5.10. Social value

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
I can make friends with people sharing common interests with me in using mobile payment services	3.13	1.20	47 11.8%	84 21%	83 20.8%	142 35.5%	44 11%	400 100
Using this mobile payment service gives me social approval	2.92	1.22	60 15%	102 25.5%	80 20%	123 30.8%	35 8%	400 100
I can expand my social network through participation in mobile payment services	3.37	1.22	37 9.3%	73 18.3%	66 16.5%	153 38.3%	71 17.8%	400 100
Average	3.14	1.21						

The analysis on the table above implied that social value influences mobile payment consumption behaviour. Slade et al., (2015) postulated that social value positively mobile payment. Equally, Wang et al., (2016a) established that social value influence attitude in using smartphones. Social value have been shown to create social pressure that influences consumers' use of new electronic payment services (Arvidsson, 2014). Zhang and Mao (2020), found social norms to influence behavioural change. Nonetheless, Wang and Dai (2020) pointed out that attitude is the most important factor influencing users' intention to adopt offline mobile payment compared to perceived usefulness and social influence. Phonthanukitithaworn et al., (2015) and Slade et al., (2015) found social influences to have a direct effect on intention to adopt mobile payment services. Lin et al., (2020) indicated that perceived value, social norms and social self-image

played crucial roles in the intention to use mobile payment services in Taiwan. Equally, Park et al., (2019) posited that social influence and technology anxiety influence multiple benefits of mobile payment services, while technology anxiety, information security, and economic benefit are not significant.

5.2.7. Functional Value

Three statements were used to measure the functional value influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.11.

Table 5.11: Functional Value

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
The system of mobile payment is reliable and convenient to access	4.10	0.94	20 5%	7 1.8%	18 4.5%	223 55.8%	132 33%	400 100
Mobile payment can be connected instantly to pay for goods/services	4.20	.855	10 2.5%	14 3.5%	11 2.8%	213 53.3%	152 38%	400 100%
Mobile payment takes a short time to respond for payment to be done	4.06	0.958	14 3.5%	19 4.8%	30 7.5%	201 50.3%	136 34%	400 100
It is easy to use mobile payment to do the transactions I want it to do	4.19	0.843	7 1.8%	13 3.3%	30 7.5%	196 49%	154 38.5%	400 100
Average	**4.195**	**0.849**						

The results on table 5.11 above, showed that 53.3 percent agreed with the statement with a mean value of 4.1 implying that, participants agreed with the statements measuring functional value construct. Lin & Lu, 2015 pointed out that customers want value for money in terms of the performance of the expected services. It was evident from the results of Hariguna et al., (2020), that Perceived value was related to the customer's intention to use mobile money application

services and economy-based trust. However, Gonçalves et al., (2016), revealed that functional value is almost always necessary but is not sufficient by itself for predicting consumer attitude towards green buying. Conversely emotional, conditional and social values with the functional value are sufficient. Sun et al., (2020) found functionality and usability relate to customer satisfaction. Similarly, Bailey et al., (2020) found functional value and risk perception to influence attitude toward mobile payment among millennial consumers in US. Wiese and Humbani (2020) found attitude, ease-of-use, and usefulness to influence continuance intention to use mobile payment apps in South Africa. For mobile banking, Prodanova et al. (2019) found functional and epistemic values to be an important drive of reuse intention.

5.2.8. Hedonic Value

Three statements were used to measure the hedonic value influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.12.

Table 5.12: Hedonic value

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
I feel pleased and relaxed in using mobile payment for goods/services	4.10	0.854	9 2.3%	14 3.5%	31 7.8%	218 54.5%	128 32%	400 100%
I gain joy and happiness in using mobile payment for goods/services	3.87	0.949	12 3%	25 6.3%	61 15.3%	205 51.3%	97 24.3%	400 100%
I feel inspired in using mobile payment for goods/services	3.70	0.930	13 3.3%	31 7.8%	78 19.5%	217 54.3%	61 15.3%	400 100
Total	**3.985**	**0.9015**						

The results on Table 5.12 above, indicated that 218 (54.5 per cent) of the participants agreed with the statement with a mean (M=3.98). Considering the average mean and standard deviation values participants agreed with the statements measuring Hedonic value construct. This corroborates Kerviler et al. (2016) that enjoyment is an important factor of mobile payment adoption. Park et al. (2019) posited that convenience, enjoyment, and economic benefits positively influence attitudes, whereas experiential benefit has a negative impact on mobile payment. It has been proven that enjoyment and playfulness are essential determinants in technology adoption (Dhiman et al., 2019). By way of results of Ozturk et al., (2016), hedonic value had a significant positive impact on intention to continue using mobile booking for hotels. Equally, as clothing business is concerned, initial trust toward their adoption is suggestively derived from hedonic motivation (Gu, Wei & Xu, 2016). Furthermore, in situation of acceptance of mobile banking, hedonic motivation appeared to be a compelling factor (Boonsiritomachai &Pitchayadejanant, 2017). Gupta and Arora (2019) reported that social influence and hedonic motivation were weak predictors of mobile payment systems attitude in India. An and Han (2020), found a mediating effect of the hedonic value between customer engagement and shopping memories, and between customer engagement and customer satisfaction and confirmed that there is a mediating effect of shopping memories between the hedonic value and customer satisfaction in South Korea. In Egypt Hamed and El-Deeb (2020) utilitarian and hedonic value were discovered to have a positive effect on purchase intention, toward online purchasing even though perceived risks have a negative one.

5.2.9. Price Value

Three statements were used to measure the price value influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.13.

Table 5.13: Price Value

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
Compared to the time I need to spend, the use of mobile payment is worthwhile for me	4.16	0.882	13 3.3%	10 2.5%	20 5%	213 53.3%	144 36%	400 100%
Compared to the effort I need to put in, the use of mobile payment is beneficial to me	4.16	0.813	7 1.8%	13 3.3%	24 6%	221 55.3%	135 33.8%	400 100%
Overall, the use of mobile payment delivers me good value	4.03	0.904	12 3%	15 3.8%	40 10%	214 53.5%	119 29.8%	400 100
Average	**4.16**	**0.8475**						

From the results presented in Table 5.13, it can be seen that participants agreed that compering the time they need to spend on other forms of payment to the use of mobile payment is worthwhile with the Mean of (M=4.16) Considering the values of the mean and standard deviation, it is concluded that the participants agreed with statements measuring price value construct. Pal et al., (2020) on Contextual facilitators and barriers influencing the continued use of mobile payment services in a developing country in India, price has not influenced the intention to continue the usage of mobile payment services. Shaw and Kesharwani (2019) found in moderating effect of smartphone addiction on mobile wallet payment adoption that financial cost has a negative influence on intention to use mobile wallet payment as well as the importance of communication to the right consumer through proper channels.

5.2.10. Conditional Value

Three statements were used to measure the conditional value influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.14.

Table 5.14: conditional value

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
Due to lack of time, it is conducive/wise to use mobile payment for transactions	4.18	0.80	4 1%	16 4%	26 6.5%	211 52.8%	143 35.8%	400 100
Due to the unfamiliar location of my suppliers/markets, I use mobile payment for my transaction activities	3.84	0.93	8 2%	29 7.3%	76 19%	192 48%	95 23.8%	400 100
As a result of geographical distance, it is ideal to use mobile payment for my transactions	4.11	0.90	10 2.5%	17 4.3%	32 8%	200 50%	141 35.3%	400 100
Average	4,0	0.87						

The implication from the above is conditional value influenced mobile payment adoption in developing economies. Agag et al., (2020) indicated conditional value was significant in changing consumers' attitude towards the consumption of green products. Wang et al. (2013), revealed that consumption values significantly affect consumer behavioural intention to use mobile Apps. Again Wang et al., (2020), explained that conditional value is more applicable to mobile technologies and individual consumption behaviour.

5.2.11. Behavioural Beliefs

Two statements were used to measure the behavioural beliefs among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.15.

Table 5.15: Behavioural Beliefs

Item	Mean	SD	1	2	3	4	5	Total
I like to experiment with new information technologies	3.94	0.937	12 3%	24 6%	44 11%	216 54%	104 26%	400 100%
If I heard about a new information technology, I would look for ways to experiment with it	3.82	0.948	11 2.8%	37 9.3%	43 10.8 %	228 57%	81 20.3 %	400 100%
Average	**3.88**	**0.942**						

From Table 5.15 above the result indicated that participants agreed that they would like to experiment with new information technologies with a mean (M=3.88). This implies that behavioural beliefs have impacted on attitude. Verkijika, (2020) concluded that emotions such as regret and anxiety have high influence on the intention to adopt mobile payments in South Africa. In Greece, Giovanis et al., (2020), reported that consumers' attitude was the main driver of consumers' intentions followed by normative, control and risk beliefs in mobile payment. Vuong (2020), in Vietnam empirically found that behavioural control and subjective norm were significantly related to customer’s intention to use mobile banking services.

5.2.12. Relative advantage

Three statements were used to measure the relative advantage influence among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.16.

Table 5.16: Relative advantage

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
Mobile Payment enables/would enable me to pay for products/services in a better way	4.00	0.84	6 1.5%	23 5.8%	35 8.8%	235 58.8%	101 25.3%	400 100
Mobile Payment enables/would enable me to get early delivery of products/services in the comfort of my home/office because of prompt payment	4.01	0.91	9 2.3%	23 5.8%	41 10.3%	208 52%	119 29.8%	400 100
Mobile payment assists/would assist me to reduce the risks of holding cash and travelling to pay bills/product purchase in a better way	4.32	0.80	8 2%	8 2%	15 3.8%	184 46%	185 46.3%	400 100
Average	**4.11**	**0.853**						

The table above with the mean (4.11) and standard deviation (0.853) explained that relative advantage compelled them to adopt mobile payment technology. Zhang and Mao (2020) showed that relative advantage affects intention to adopt directly in US. Lin et al., (2020) suggested that perceived relative advantage and service compatibility and costs determined mobile payment users' perceived value. Furthermore, Mensah (2019) in China showed that perceived usefulness, perceived ease of use, perceived service quality, social influence, internet self-efficacy, relative advantage, compatibility, and complexity were significant predictors of the continued use of WECHAT mobile payment services. Findings of Johnson et al., (2019) indicated that consumer confusion impacts usage intention through relative advantage (reducing consumer confusion) and compatibility while relative advantage (saving time) positively impacts compatibility. Trialability and compatibility directly impact Mobile Self-Checkout adoption usage intention. Lu et al., (2011)

concluded that relative advantage, compatibility, and image strongly increase the intention to use mobile payment services. Zhang and Mao (2020) showed that relative advantage affects intention to adopt through the mediating effect of attitude; attitude is found to be the most important factor predicting the behavioural intention of mobile payment. Lin et al. (2020) proposed that relative advantage, service compatibility and costs determined mobile payment users' perceived value. Osei-Assibey, (2015) found relative advantage and the age of susu collectors to be statistically significant in influencing the behavioural intention of mobile money adoption.

5.2.13. Complexity

Three statements were used to measure respondents' perception of mobile payment complexity. The descriptive statistics obtained from the analysis are presented in Table 5.17

Table 5.17: Complexity

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
The use of mobile payment requires/would require a lot of mental effort	2.50	1.163	65 16.3%	192 48%	52 13%	59 14.8%	32 8%	400 100%
The use of mobile payment is/would be frustrating	2.28	1.074	81 20.3%	210 52.5%	48 12%	37 9.3%	24 6%	400 100%
Mobile payment is/would be too complex for my business transaction and payment for domestic activities	2.31	1.156	89 22.3%	203 50.8%	33 8.3%	45 11.3%	30 7.5%	400 100%
Average	**2.36**	**1.131**						

From Table 5.17 above and the mean result, it indicates that generally, the respondents disagree that the use of m-payment is complex with a mean of (M=2.36). On the accounts of Chung (2019) innovativeness of compatibility, complexity and relative advantage directly impact mobile commerce intention in Central Asia while potential adoptee place great emphasis on trialability and security of mobile commerce. Kapoor et al., (2013) identified relative advantage, compatibility, complexity and trialability to play a significant role in predicting the use of interbank mobile payment while observability exhibited a poor impact on behavioural intention. Narteh et al. (2017) discovered that relative advantage and complexity positively predicts customers' behavioural intention in the mobile money.

5.2.14. Cost Perception of the Use of Mobile Payment

Four statements were used to measure the cost among the participants. The descriptive statistics obtained from the analysis are presented in Table 5.18.

Table 5.18: Cost

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
The costs involved in the adoption of mobile payment are/would be far greater than the expected benefits	2.56	1.193	68 17%	171 42.8%	60 15%	68 17%	33 8.3%	400 100%
The cost of buying smart devices and internet data for mobile payment is/would be very high for me	2.53	1.17	66 16.5%	184 46%	52 13%	66 16.5%	32 8%	400 100
The psychological cost involved in switching from carrying cash to mobile payment systems is/would be too high	2.35	1.175	87 21.8%	197 49.3%	37 9.3%	47 11.8%	32 8%	400 100%

There are financial barriers (e.g., having to pay for handset and communication time) to my using mobile payment	2.56	1.18	69 17.3%	170 42.5%	56 14%	76 19%	29 7.3%	400 100
Average	**2.455**	**1.184**						

The mean figure (2.455) in Table 5.18 show that generally the respondents did not agree to the cost including the psychological cost of switching to using m-payment being high or a problem. However, Sobti (2019) found cost to impact on attitudes and behavioural intentions to use mobile payment. Correspondingly, Molina-Castillo et al., (2020), in Spain established that negative effects from learning costs are fully mediated by perceived functional value and facilitating conditions affect the attitudes towards the mobile payment services. Lin et al., (2020) suggested that perceived relative advantage and service compatibility and costs determined mobile payment users' perceived value. In Indonesia cost factors were found to be the main disruptions that cause the low adoption rate on the usage of mobile payment (Andre et al., 2019).

5.2.15. Compatibility on M-payment

Four statements were used to measure the compatibility of m-payment with previous means of payment. The descriptive statistics obtained from the analysis are presented in Table 5.19.

Table 5.19: Compatibility

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
Mobile payment is/would be compatible with my preferred practice of business transactions and home purchases	3.81	0.88	12 3%	26 6.5%	51 12.8%	245 61.3%	66 16.5%	400 100
Mobile Payment is/would be compatible with my current	3.79	0.895	7 1.8%	34 8.5%	66 16.5%	221 55.3%	72 18.0%	400 100%

business transactions/payment activities								
I think that using mobile payment fits well with the way I like to work	3.89	0.903	10 2.5%	26 6.5%	48 12.0%	228 57.0%	88 22.0%	400 100%
Using mobile payment services fits well with my lifestyle	3.89	0.937	14 3.5%	23 5.8%	45 11.3%	226 56.5%	92 23%	400 100
Average	**3.84**	**0.899**						

The results in Table 5.19 indicate that with mean (3.84) and standard deviation (0.899) a conclusion could be drawn that mobile payment technology compatible with consumers' lifestyle in developing economies such as Ghana. Pitari et al., (2020) concluded that the role of relative advantages, compatibility and complexity in consumer intentions to adopt innovation is essential in Indonesia. Similarly, Min et al., (2019) on consumer adoption of the Uber mobile application suggested that relative advantage, compatibility, complexity, observability, and social influence have a significant influence on both perceived usefulness and perceived ease of use, which in turn lead to subsequent consumer attitudes and adoption intentions. Muzurura and Chigora (2019) demonstrated that the likelihood of adopting mobile banking in rural Sub-Saharan Africa regions are influenced by perceived usefulness, compatibility, perceived ease of use and demographic factors. Similarly, Makanyeza (2017) found that perceived usefulness, perceived self-efficacy, social influence, relative advantage and compatibility positively influence behavioural intention to adopt mobile banking services in Zimbabwe. Yen et al. (2019) found that compatibility, mobility and some consumption values impacted reuse intentions of mobile social network services. Empirical evidence from Su et al., (2018) revealed that internet experience increases users' perceived usefulness, ease of use, and compatibility of mobile payment enhances users' intention to adopt mobile payment. Likewise, Cudjoe et al. (2015) concluded that awareness, usefulness,

simplicity, compatibility, self-efficacy and creditability impacted on the adoption of mobile banking service. In the study of Lee et al., (2019) findings suggest that trust, direct network externality, ease of use, and usefulness influence the attitude of the users with regards to compatibility, accessibility, indirect network externality, and perceived ease of use in South Korea.

5.2.16. Communication

Two statements were used to measure the communication construct of m-payment among participants. The descriptive statistics obtained from the analysis are presented in Table 5.20.

Table 5.20: Communication

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
The content or information on mobile payment is useful for buying the products or services that it sells or markets	3.81	.92522	15 3.8%	17 4.3%	75 18.8%	215 53.8%	78 19.5%	400 100
As a consumer, mobile payment campaigns have reached me timely to facilitate decision-making processes	3.83	.93181	10 2.5%	33 8.3%	54 13.5%	221 55.3%	82 20.5%	400 100
Average	3.82	0.928						

The mean figure of (3.82) and the standard deviation of (0.928) on the table above expressed that mobile payment campaign has gotten to the people. It can therefore be concluded that although mobile payment campaign is intensive and getting to the consumers, it probably be negatively skewed which rather scare consumers from using the mobile technology. Shaw and Kesharwani (2019) found in moderating effect of smartphone addiction on mobile wallet payment adoption that financial cost has a negative influence on intention to use mobile wallet payment as well as the importance of communication to the right consumer through proper channels. Sullivana and

Kohb (2019), also indicated that complexity, enjoyment, and communication quality are the main antecedents of social media continuance intention.

5.2.17. Trialability of M-payment

Two statements were used to measure the trialability of m-payment. The descriptive statistics obtained from the analysis are presented in Table 5.21.

Table 5.21: Trialability

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**Total**
Given the opportunity, I will try the mobile payment system services	4.15	0.729	4 1.0%	12 3.0%	20 5.0%	246 61.5%	118 29.5%	400 100%
I will surely try mobile payment system services in future	4.16	0.865	11 2.8%	12 3.0%	20 5.0%	214 53.5%	143 35.8%	400 100%
Average	**4.155**	**.797**						

Looking at the mean figure (M=4.155) in Table 5.21, it can be seen that the respondents generally agreed to the statements measuring triailability. For example, 61.5 per cent of the participants agreed that there was the opportunity they try the mobile payment system. Also. 53.5 per cent of the participants agreed that they did not have a problem to try mobile payment system services. This depict that consumers are willing to try mobile payment technology. Kaur et al., (2020) revealed in their study that relative advantage, compatibility, complexity, and observability were significantly associated with participants' intentions toward mobile-wallets. Conversely, trialability did not influence the participants' intentions to use and recommend mobile-wallets to others in India. Ho et al., (2020) in Taiwan and Vietnam respectively concluded that trialability compatibility, perceived usefulness, and perceived risk have positive impact on attitude towards

adopting mobile banking in both countries. Conversely, Kalinic et al. (2019) concluded that trialability does not have a statistically significant impact on intention to use P2PM-pay. Upadhyay and Jahanyan, (2016), indicated in their study that factors such as perceived monetary value, absorptive capacity and trialability have been found to be insignificant to usage intention of mobile money services. Shankar and Datta (2018), found that trialability has no significant impact on m-payment adoption intention in India.

5.2.18. Attitude towards use of M-payment

Four statements were used to measure the attitude towards the use of m-payment. The descriptive statistics obtained from the analysis are presented in Table 5.22.

Table 5.22: Attitude

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**total**
Using mobile payment is/would be a good idea	4.2625	.69267	3 0.8%	9 2.3%	12 3.0%	232 58%	144 36%	400 100
I have/would have a positive feeling towards mobile payment usage	4.1550	.78582	9 2.3%	6 1.5%	25 6.3%	234 58.5%	126 31.5%	400 100
Using mobile payment services is beneficial	4.23	0.777	7 1.8%	6 1.5%	25 6.3%	211 52.8%	151 37.8%	400 100%
Using mobile payment is/would be worthwhile	4.22	0.788	9 2.3%	6 1.5%	17 4.3%	221 55.3%	147 36.8%	400 100%
Average	**4.22**	**0.782**						

The results in Table 5.22 and the mean of (M = 4.22) indicate that generally, the respondents have a positive attitude towards the use of m-payment. By way of finding the relation between attitude and adoption de Luna et al., (2019) and Liébana-Cabanillas et al. (2017b) empirically indicated that attitude was an essential determinant of intention to use m- payment. A discovery from Hong Kong by Lau, Lam, Cheung and Leung (2019), disclosed that perceived usefulness, ease of use, compatibility, and subjective norm affect customers' attitudes towards intention to use mobile payment. Further, Sinha et al., (2019), revealed that technology adoption readiness absolutely mediates the relationship between technology readiness and attitude towards intention to adopt mobile payments in India. An empirical study by Kumar et al., (2017) trust, security, accessibility, superior service, and user-friendly design emerged as the most important issues influencing consumers to develop either favourable or unfavourable attitudes toward the technology driven service. Lee et al., (2019) suggested that attitude affects the intention to continue to use financial technology in Korea. Chawla and Joshi (2019), explained that ease of use, usefulness, trust, security, facilitating conditions and lifestyle compatibility were significantly impacted on the consumer attitude in Mobile wallets.

5.2.19. Mobile Payment Use/adoption

Three statements were used to measure how happy respondents were in using m-payment, since only those using it were surveyed. The descriptive statistics obtained from the analysis are presented in Table 5.23.

Table 5.23: Mobile Payment Use/adoption

Item	Mean	SD	1	2	3	4	5	Total
I intend to use mobile payment services when the opportunity arises /start using mobile payment	4.100	.7947	8 2%	13 3.3%	21 5.3%	247 61.8%	111 27.8%	400 100
I intend to continue using/ I am willing to use mobile payment services in the near future	4.170	0.814	7 1.8%	12 3%	26 6.5%	216 54%	139 34.8%	400 100%
I will use mobile payment services/ I am likely to use mobile payment services in the near future	4.177	0.729	4 1%	9 2.3%	26 6.5%	234 58.5%	127 31.8%	400 100%
Average	**4.14**	**0.771**						

Overall there was general agreement that the use of m-payment is good and people are willing to adopt it with a mean of (M=4.149). Afshan and Sharif (2016) revealed that consumer intentions to adopt mobile banking significantly depended on task technology fit, initial trust, and facilitating condition. The empirical analysis of Chen and Li (2017) also suggested that mobile payment services user satisfaction has a substantive positive impact on continuous use intention of such services. Cao et al., (2018) indicated that the trust transfer process and satisfaction certainly encourage the persistence intention to use mobile payment in China. The empirical findings provided by Khalilzadeh et al., (2017) demonstrated a strong evidence of the effects of risk, security, and trust on customers' intentions to use mobile payment technology in restaurant

settings. Namahoot and Laohavichien (2018) show that service quality, perceived risk and trust influence behavioural intentions to use internet banking.

5.2.20. Intention to Reuse Mobile Payment

Three statements were used to measure the intention to reuse m-payment. The descriptive statistics obtained from the analysis are presented in Table 5.24.

Table 5.24: Intention to Reuse

Item	**Mean**	**SD**	**1**	**2**	**3**	**4**	**5**	**total**
I make use of mobile payment, very often	4.15	.76	4 1%	15 3.8%	21 5.3%	234 58.5%	126 31.5%	400 100%
I will continue using the mobile payment system	3.93	.92	6 1.5%	33 8.3%	48 12%	207 51.8%	106 26.5%	400 100%
I use mobile payment for most of my transactional activities	3.91	.88	4 1%	34 8.5	48 12%	221 55.3%	93 23.3%	400 100%
I will continue using the mobile payment system in the future	4.23	.7158	3 0.8%	8 2%	24 6%	221 55.3%	144 36%	400 100
Average	**4.00**	**0.853**						

It can therefore be concluded that mobile payment technology has come to stay as people many people have the intention to reuse it with a mean of (4.00) and standard deviation of (0.853). Evidence from Humbani and Wiese (2019) further indicated that satisfaction appeared to be the key predictor of the intention to reuse of mobile payment apps. Also in South Korea, Kang (2019), indicated that performance expectancy was the most influential factor for current users' attitude towards the re-use of mobile payment technology. Singh et al., (2020) found that ease of use,

usefulness, perceived risk, attitude, to have significant effect on user's intention, which further influenced user's perceived satisfaction and recommendation to use mobile wallet services in India. In Malaysia Ariffin & Lim (2020)'s findings show that attitude and perceived behavioural control have a positive and significant relationship toward intention to use mobile payment among young professionals. Notably Ting, Yacob, Liew, Lau (2016) demonstrated that attitude, subjective norm and perceived behavioural control are positively predicted by their respective belief factors, and they also have positive effect on intention to use mobile payment system in a study conducted among young American consumers. Alalwan (2020), empirically established that hedonic motivation has a crucial impact on both e-satisfaction and continued intention whereas price value on e-satisfaction and continued intention to reuse among Jordanian customers.

5.3. Reliability of Measurement Scales

Construct reliability was measured with Cronbach alpha (Table 5.25) and composite reliability (Table 5.25 and Table 5.28). After testing for reliability, some items that did not meet the threshold were deleted from further analyses. The deleted items were Peers (Ps 4), Social class (Sc 4), Educational Level (Edu 3), Conditional Value (CV 4), Behavioural beliefs (BB3, BB4), Relative advantage (RA 4), Compatibility (CO 4), Communication (CX 2), Trialability (TB 3).

Table 5.25: Reliability Analysis using Cronbach's Alpha and Composite Reliability

Constructs	**Number of items**	**Cronbach's alpha value**	**Composite Reliability**
Peers	3	0.747	0.821
Family	3	.831	0.846
Social Class	3	0.827	0.804
Educational Level	2	.700	0.700
Social Value	3	.771	0.772

Functional Value	4	.830	0.818
Price Value	3	.820	0.818
Hedonic Value	3	.832	0.816
Conditional Value	3	.785	0.76
Behavioural Belief	2	.799	0.802
Relative Advantage	3	.771	0.749
Complexity	3	.856	0.859
Cost	4	.856	0.795
Compatibility	4	.834	0.830
Communication	2	.697	0.700
Trialability	2	.760	0.767
Attitude	4	.893	0.833
Adoption	3	.887	0.905
Intention to Reuse	4	.880	0.886

The results presented in Table 5.25 provides the Cronbach's alpha values obtained from the reliability tests of the constructs using SPSS version 21. The values from the table range from .7 to .890. The figures all meet the recommended threshold of 0.7 (Cronbach, 1946:479), meaning there is internal stability among the set of items used to measure the constructs. This denotes that the relationships among the pool of items measuring constructs used in this study were good (Andrew *et al.*, 2011:202). The composite reliability figures in Table 5.25 and Table 5.28 ranged from 0.7 to 0.896. With these figures within the proposed 0.7 threshold, the internal consistency of the items is also confirmed.

5.4. Testing Construct Validity and Measurement Model (Goodness of Model Fit) Using Confirmatory Factor Analysis

5.4.1 Goodness of Fit

The 19 latent constructs and their variables were entered into AMOS Graphics version 21guided by the proposed conceptual model. The measurement model that emerged is in Figure 5.1.

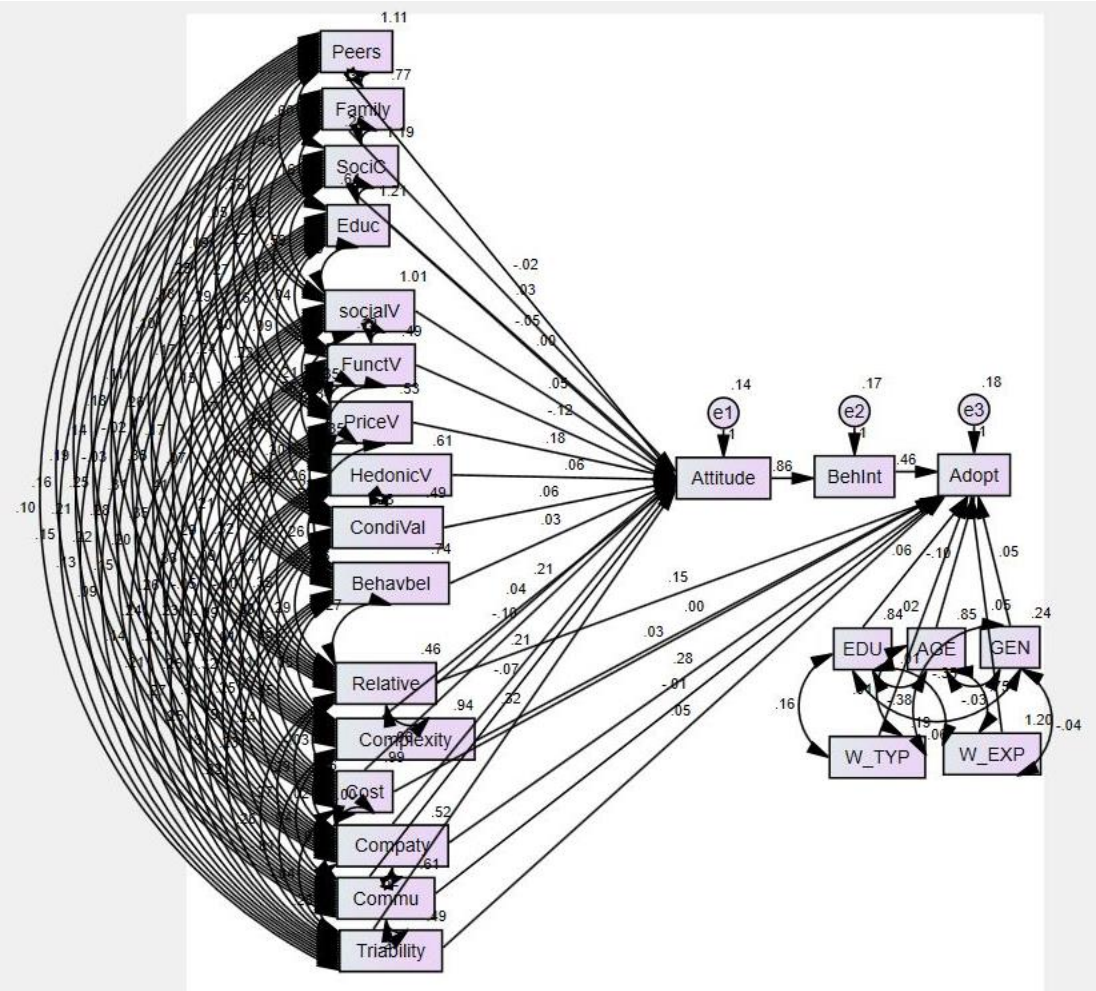

Figure 5.1: Measurement Model for the constructs

The results from the measurement model were χ2/df =2.023, TLI=0.870, CFI=0.888, RMSEA=0.054, NFI=0.804, IFI=0.890. The χ2/df, TLI, CFI, and RMSEA fit indices were used to assess the goodness of fit. For good model fit to be achieved, the recommended figures are: χ2/df

< 5, TLI > 0.9, CFI > 0.9 and RMSEA < 0.08 (Bentler and Bonett, 1980; Gaskin, and Lim, 2016; Hair et al., 2010; Hu and Bentler 1999).

The results of the fit indices of the initial estimation of the CFA of all the observed variables shows that only the chi-square ($\chi 2/df$) =2.023 and RMSEA=0.054 were within the threshold and all others with their indicators were not acceptable. This implies that the values of TLI, CFI, RFI, NFI, and GFI were below the thresholds of an acceptable good fit. A close examination was conducted for error terms among the observed variables used to measure their respective constructs. Some specific measurement instruments were dropped and the measurement model was re-specified. The new research model and re-specified measurement instrument produced the following goodness of fit indices: chi-square ($\chi 2/df$) of 1.971, CFI of 0.957, TLI of 0.941, IFI of 0.958, NFI of 0.919, RMSEA of 0.049. The results of these fit indices are well within the acceptable thresholds of the goodness of fit. Thus the measurement model had a good fit with the observed data.

The result of the initial measurement model and the modified model of fit indices are presented in the Table 5.26.

Table 5.26: Fit Indices of the Measurement Model

Fit Indices	**Initial Model Measurement**	**Modified Model Measurement**
$\chi 2$	2874.339	619.031
df	1421	314
$\chi 2/df$	2.023	1.971
TLI	0.870	0.941
CFI	0.888	0.957
RMSEA	0.054	0.049
IFI	0.890	0.958
NFI	0.804	0.919

5.4.2 Discriminant Validity

The discriminant validity of the measurement model was examined by comparing the square root of AVE for a construct and its correlation with other constructs. Fornell and Larcker (1981) posit that for discriminant validity to be attained, the square root of an AVE for a construct should be greater than its correlation with other constructs. The results are in Table 5.27. Interpretations from the results presented in Table 5.27 below shows that the square root of AVE for **Edu** (**0.729)** was less than its correlations with **Social value (0.733)**, the square root of AVE for **Communication (0.731)** was less than its correlations with **Compatibility** (0.738), the square root of AVE for **Relative advantage (0.708)** was less than its correlations with **Conditional value (0.796), Functional value (0.852), Price value (0.846), and Hedonic value (0.869).** These thus implied that some of the constructs used in this study are not adequately distinct from each other. As a result of these discriminant validity concerns, a modification was made to the proposed research model by dropping the following constructs; educational level from the socio-economic factors, social and conditional values from consumption values factors, finally relative advantage and communication were dropped from product-related factors. After all these deletions, the data was put back into AMOS to run.

Table 5.27: Discriminant Validity Measures before Deletions of Invalid Constructs

	CR	AVE	MSV	MaxR	Ps	Fm	SC	SV	FV	PV	HV	CV	Bb	Ra	Cx	Ct	Co	Cn	Tb	At	Bi	us	Ed
Ps	0.765	0.528	0.291	0.806	0.727																		
FM	0.835	0.630	0.283	0.854	0.409	0.794																	
SC	0.819	0.602	0.469	0.821	0.540	0.316	0.776																
SV	0.772	0.531	0.537	0.777	0.373	0.416	0.668	0.729															
FV	0.820	0.537	0.726	0.848	0.093	0.508	0.182	0.359	0.733														
PV	0.844	0.644	0.715	0.850	0.326	0.483	0.399	0.522	0.777	0.803													
HV	0.838	0.634	0.755	0.846	0.129	0.471	0.241	0.333	0.827	0.727	0.797												
CV	0.760	0.515	0.634	0.769	0.275	0.403	0.380	0.350	0.784	0.649	0.677	0.718											
Bb	0.804	0.673	0.377	0.823	0.129	0.272	0.192	0.232	0.544	0.451	0.438	0.318	0.821										
Ra	0.749	0.502	0.755	0.765	0.179	0.532	0.297	0.382	0.852	0.846	0.869	0.796	0.614	0.708									
Cx	0.856	0.665	0.624	0.860	0.157	-0.031	0.382	0.367	-0.130	-0.038	-0.188	-0.123	0.062	-0.136	0.815								
Ct	0.867	0.621	0.624	0.873	0.110	-0.038	0.332	0.401	-0.055	-0.034	-0.154	-0.020	0.075	-0.073	0.790	0.788							
Co	0.841	0.573	0.574	0.864	0.281	0.446	0.411	0.460	0.567	0.665	0.580	0.619	0.463	0.744	0.007	-0.002	0.757						
Cn	0.700	0.534	0.545	0.699	0.244	0.408	0.344	0.407	0.531	0.651	0.572	0.476	0.462	0.703	0.061	-0.001	0.738	0.731					
Tb	0.781	0.641	0.656	0.781	0.189	0.299	0.231	0.251	0.547	0.559	0.641	0.495	0.444	0.739	-0.028	-0.069	0.648	0.672	0.801				
At	0.891	0.672	0.764	0.893	0.175	0.413	0.227	0.340	0.590	0.665	0.743	0.598	0.453	0.831	-0.112	-0.179	0.743	0.583	0.810	0.820			
BI	0.896	0.744	0.764	0.923	0.195	0.397	0.256	0.272	0.519	0.601	0.605	0.563	0.469	0.766	-0.137	-0.177	0.666	0.501	0.657	0.874	0.863		
RUs	0.860	0.608	0.718	0.877	0.206	0.384	0.322	0.372	0.568	0.726	0.575	0.574	0.452	0.787	-0.059	-0.065	0.758	0.530	0.638	0.847	0.836	0.780	
Ed	0.700	0.531	0.537	0.703	0.438	0.184	0.685	0.733	0.071	0.294	0.114	0.195	0.057	0.093	0.514	0.432	0.291	0.216	0.127	0.134	0.119	0.218	0.729

NB: PS =peers, CO=compatibility, SC=social class, PV=price value, HV=hedonic value, CT=cost, FM=family, BI=adoption, AT=attitude, CX=complexity, TB=trialability, FV=functional value, BB=behavioural beliefs, RU=reuse

Table 5.28: Discriminant Validity after Deletions of Invalid Constructs

	CR	AVE	MSV	MaxR(H)	PS	CO	SC	PV	HV	CT	FM	BI	AT	CX	TB	FV	BB	AU
PS	0.821	0.697	0.150	0.829	**0.835**													
CO	0.830	0.710	0.467	0.834	0.242	**0.843**												
SC	0.804	0.673	0.150	0.807	0.387	0.376	**0.820**											
PV	0.818	0.693	0.632	0.825	0.131	0.546	0.258	**0.832**										
HV	0.816	0.689	0.684	0.826	0.229	0.683	0.308	0.695	**0.830**									
CT	0.795	0.661	0.616	0.807	0.011	-0.075	0.265	-0.233	-0.105	**0.813**								
FM	0.846	0.734	0.214	0.878	0.337	0.429	0.253	0.423	0.457	-0.090	**0.857**							
BI	0.905	0.827	0.702	0.906	0.193	0.623	0.296	0.601	0.597	-0.247	0.335	**0.909**						
AT	0.833	0.714	0.702	0.833	0.159	0.645	0.234	0.752	0.669	-0.307	0.389	0.838	**0.845**					
CX	0.859	0.671	0.616	0.863	0.101	-0.080	0.329	-0.203	-0.117	0.785	-0.045	-0.125	-0.153	**0.819**				
TB	0.767	0.622	0.539	0.767	0.196	0.659	0.254	0.621	0.568	-0.079	0.306	0.665	0.734	-0.044	**0.789**			
FV	0.818	0.692	0.684	0.820	0.089	0.600	0.201	0.795	0.827	-0.087	0.462	0.503	0.564	-0.135	0.565	**0.832**		
BB	0.802	0.670	0.286	0.817	0.132	0.468	0.203	0.433	0.440	0.042	0.245	0.470	0.462	0.070	0.452	0.535	**0.818**	
RU	0.886	0.723	0.493	0.911	0.177	0.654	0.345	0.485	0.651	-0.050	0.302	0.698	0.702	0.027	0.548	0.505	0.425	**0.850**

NB: PS =peer, CO=compatibility, SC=social class, PV=price value, HV=hedonic value, CT=cost, FM=family, BI=adoption, AT=attitude, CX=complexity, TB=trialability, FV=functional value, BB=behavioural beliefs, RU=reuse

5.4.3 Convergent Validity

To establish the convergent validity of the measurement model, the standardised factor loading, and AVE were examined. The results for the AVE are in Table 5.28 and they range between 0.622 and 0.827. Considering that an AVE of .5 or higher is indicative of an adequate convergent validity (Hair et al., 2010:709), it is concluded that a good convergent validity was obtained for the constructs. The results of the standardised factor loadings for all the items were well above the recommended threshold of 0.5 (Hair et al., 2010:709) as seen in Table 5.29. This also confirms convergent validity.

Table 5.29: Factor loadings

Variable	Estimate	Constructs
PS1	.756	Peers
PS2	.638	
FM1	.620	Family
FM2	.848	
SC1	.707	Social class
SC2	.639	
FV1	.660	Functional value
FV2	.724	
HV1	.756	Hedonic value
HV2	.745	
PV1	.640	Price value
PV2	.745	
BB1	.752	Behavioural belief
BB2	.588	
CX1	.639	Complexity
CX2	.736	
CX3	.638	
CT1	.588	Cost
CT2	.733	
CO1	.673	Compatibility
CO2	.748	
TB1	.628	Trialability
TB2	.616	
AT1	.706	Attitude
AT2	.723	

BI1	.840	Adoption
BI2	.813	
REU1	.626	Reuse
REU2	.866	
REU3	.676	

5.5. Structural Equation Modeling (SEM) Analyses

Before testing the hypothesised relationships in the study's conceptual model, SEM was used to evaluate the model fit. The following figures were obtained RMSEA = 0.045, GFI= .933, NFI=.932, TLI=.954, IFI=.968, RFI=.902, CFI = 0.968, PClose = 0.866, $\chi 2/df$ =1.811. These figures imply that the hypothesised research model has attained a good fit with the observed data.

5.5.1. Structural Model

The results of the structural model are in Table 5.30

Table 5.30: Analysis of Hypothesized Structural Paths.

Hypotheses	Standardised Regression Paths	β- Estimates	T-Value	P-Value	Result
H1	Attitude <--- Peer	-.09	1.601	.109	Not supported
H2	Attitude <--- Family	.05	.953	.341	Not supported
H3	Attitude <--- Social Class	-.03	.533	.594	Not supported
H6	Attitude <--- Functional Value	.52	2.974	.003	Supported
H7	Attitude <--- Price value	.51	4.305	.000	Supported
H8	Attitude <--- Hedonic Value	.42	3.097	.002	Supported
H10	Attitude <--- Behavioural Beliefs	.14	2.289	.022	Supported
H12	Attitude <--- Complexity	-.21	2.275	.023	Supported
H13	Attitude <--- Cost	-.32	-3.288	.001	Supported
H14	Attitude <--- Compatibility	.12	1.381	.167	Not supported
H16	Attitude <--- Trialability	.32	3.908	.000	Supported
H19	Reuse Intention <--- Complexity	.19	2.073	.038	Supported
H20	Reuse Intention <--- Cost	-.14	-1.514	.130	Not supported

H21	Reuse Intention <--- Compatibility	.53	6.733	.000	Supported
H23	Reuse Intention <--- Trialability	.17	2.294	.022	Supported
H17	Adoption <--- ATT	.83	16.189	.000	Supported
H24	Reuse Intention <--- Adoption	.78	16.671	.000	Supported
RMSEA = 0.045, GFI= .933, NFI=.932, TLI=.954, IFI=.968, RFI=.902 CFI = 0.968, PClose = 0.866, CMIN/DF=1.811					

5.5.2. Socio-Economic Factors and Attitude

Considering that education was deleted from socio-economic factors because of validity problem, the socio-economic factors tested were peers, family and social class in the following hypotheses.

H1: There is a significant positive relationship between peers and mobile payment attitude

H2: There is a significant positive relationship between family and mobile payment attitude

H3: Social class will positively impact mobile payment attitude

Considering the result presented in Table 5.30, none of the socio-economic factors significantly impacted mobile payment attitude with peers (β=-.09, ns), family (β=.05, ns) and social class (β=-.03, ns). From these results, H1. H2 and H3 were not supported.

5.5.3. Consumption Values and Attitude

After deleting social and conditional values because of poor construct validity, the consumption values tested were functional value, price value, hedonic value and behavioural beliefs which were hypothesized as follows:

H6: There is a positive relationship between functional value and mobile payment attitude

H8: There is a positive relationship between price value and mobile payment attitude

H9: There is a positive relationship between hedonic value and mobile payment attitude

H10: There is a positive relationship between Behavioural beliefs and mobile payment attitude

The results presented in Table 5.30 indicate that functional value (β= .52; ρ<.001), price value (β= .51, ρ< .001), hedonic value (β= .42, ρ<.001) and behavioural beliefs (β= .14, ρ<.05) all positively and significantly impacted attitudes towards mobile payment. Thus, H6, H8, H9 and H10 were all supported.

5.5.4. Product-Related Factors, Mobile Payment Attitude and Reuse Intention

The hypotheses postulated relating to product-related factors were those of complexity, cost, compatibility and trialability after deleting relative advantage and communication because of poor validity. The product-related hypotheses were as follows:

H12: There is a negative relationship between complexity and mobile payment attitude

H13: Cost of using m-payment will have negative impact on attitude

H14: The relationship between compatibility and mobile payment attitude will be positive

H16: There is a positive relationship between trialability and mobile payment attitude

From the analysis of hypothesized structural paths in Table 5.30, the results indicate that there is a negative significant relationship between complexity (β=-.21; ρ<. 05), cost (β=-.32; ρ<.001) and mobile payment attitude. Accordingly, H12 and H13 were supported. Table 5.26 also show that mobile payment was positively and significantly influenced by trialability (β=.32; ρ<.001), but not by compatibility (β=.12; ns). Therefore, H16 and not H14 were supported.

In terms of the extent to which product-related factors influenced the intention to reuse mobile payment, the following hypotheses were formulated:

H19: There is a negative relationship between complexity and the intention to reuse mobile payment

H20: The relationship between perceived cost and intention to reuse mobile payment will be negative.

H21: Compatibility will positively impact the intention to reuse mobile payment

H23: There is a positive relationship between trialability and intention to reuse mobile payment

The results in Table 5.30 reveals that but for cost (β=-.14; ns) that did not significantly impact reuse intention, the other product-related factors such as complexity (β=-.19; ρ<.05), compatibility (β=.53; ρ<.001) and trialability (β=.17; ρ<.05) all significantly impacted the intention to reuse mobile money. Thus, H19, H21 and H23 were supported and not H20.

5.5.5. Attitude towards Mobile Payment Use, Adoption and Reuse Intention

The hypotheses related to the relationships between attitude, adoption and the intention to reuse mobile payment are the following that:

H17: There is a positive relationship between mobile payment attitude and the adoption of mobile payment.

H24: The adoption of mobile payment will positively lead to the intention to reuse it.

From the results of the path analyses in Table 5.30, positive and significant relationships were found between attitude and adoption with (β=.83; ρ<.001) and between adoption and the intention to reuse mobile payment (β=.78; ρ<.001). Thus, H17 and H24 were supported.

5.5.6 Variances Explained of the Dependent Constructs (Attitude, Adoption and Reuse Intention)

Variance explained of a dependent construct shows the extent to which the independent constructs have directly and indirectly impacted the dependent constructs. It is assessed with standardized R Square (R^2). The variance explained is one of the most useful tool to ascertain the explanatory power of independent constructs and a conceptual model (Brace, Kemp & Snelgar, 2016). The results are presented in Table 5.31

Table 5.31: Variance Explained of Dependent Constructs

Dependent constructs	**Independent construct contributors**	**R Square (R^2)**
Attitude towards mobile payment	Peer, family, social class, behavioural beliefs, functional value price value, hedonic value, complexity, cost, compatibility, and traibility	**81.2%**
Adoption of mobile payment	Attitude	**69.9%**
Intention to reuse mobile payment	Adoption, complexity, cost, compatibility, and traibility	**43.8%**
Intention to reuse mobile payment	Peer, family, social class, behavioural beliefs, functional value price value, hedonic value, Adoption, complexity, cost, compatibility, and traibility	**67.8%**

Table 5.32 shows that overall the conceptual model of this study explained 67.8% of the variance in the intention to reuse mobile payment. This is a very good explanatory power for consumer behaviour related studies (Brace et al., 2016).

5.2. Conclusion

This chapter has reported on the empirical results obtained from the analysis of the primary data collected. Specifically, it has presented the results of the demographic profile of the participants, in the study, descriptive statistics of the constructs' items, reliability, validity, and CFA results. The SEM results from testing the hypotheses proposed for the study were also presented in this chapter.

Out of the 17 hypotheses tested, 12 were supported, and 5 were not supported. Specifically, the result indicates that peer, family, social class, as well as compatibility, do not influence mobile payment attitude. Similarly, the cost does not directly influence mobile payment use. On the other hand, functional value, price value, hedonic value, behavioural beliefs, complexity, cost, trialability strongly influence mobile payment attitude. The attitude towards mobile payment use has a strong influence on adoption, which with compatibility, trialability, and complexity significantly impacted intention to reuse mobile payment.

CHAPTER SIX

DISCUSSION OF RESULTS

6.1. Introduction

This chapter discusses the findings in achieving the theoretical and empirical objectives. The empirical results presented in chapter six are discussed in relation to previous findings in related studies. The chapter starts recapping the theoretical objectives and discusses the findings. It then recaps the empirical objectives and discusses the results, especially in relationship to the testing of the conceptual model and hypotheses.

6.2. The Theoretical Objectives and their Achievements

The theoretical objectives were the following:

5) To understand the level and dynamics of technology adoption in general and mobile payment in particular in Ghana
6) To review the literature on the various theories and models explaining the adoption of technology for various product categories and countries.
7) To search literature on the possible relationships between consumption values, socio-economic, psychological and product-related factors affecting mobile payment attitude and usage

Theoretical objective 1 was achieved in chapter two. The chapter discussed the nature, trends, benefits and challenges of the use of mobile payment globally and in Ghana. It was found that mobile devices are not used for mobile payment services alone but for other uses such as mobile credit card or mobile wallet (Dahlberg, Guo & Ondrus, 2015). Ghana is one of the fastest-growing mobile money market in Africa, with increasing registered accounts. Mobile payment has benefits to consumers and businesses. For example, it benefits consumers in that the costs for electronic

payments are cheaper (Danmarks Nationalbank, 2011), there is convenience and consumers can conduct transactions no matter where they are, at any time, and with the advantage of on-going interaction with the firm (Ström, Vendal and Bredican, 2014). Business gain from mobile-payment technology includes reduces transaction frictions by shortening transaction time and improved transaction efficiency thereby enjoying a higher marginal benefit in terms of revenue. However the challenges are access and transaction fees, high rate of fraud as well as to setting up and learn to use it

Theoretical objective 2 was addressed in chapter three. The chapter reviewed literature on the theories and models of innovation adoption in order to identify factors that can predict mobile payment adoption. The aim was to propose an integrated conceptual model. After the review of theoretical literature and the various theories and models of technology adoption, it was found that the Theory of Consumption Values (TCV), Unified Theory of Acceptance and Use of Technology (UTAUT), The Theory of Planned Behaviour (TPB) and Diffusion of Innovation Theory (DOI) were useful to understand the use of mobile payment by consumers in Ghana. Since each of these theories have their merits and demerits, useful elements of these theories were integrated to develop this study's conceptual model.

The TCV provides benefits consumers would expect to enjoy in an innovation before they build positive attitudes towards the innovation. The benefits examined in this study were social, functional, hedonic, price and conditional values. UTAUT was used in this study to identify the socio-economic factors useful in developing positive attitudes and ultimate adoption of an innovation. TPB was used to defend the relationships between behavioural beliefs, attitude and

adoption behaviour. The DOI provided the product-related factors in terms of complexity, cost, communication, compatibility and traibility.

Theoretical objective 3 was also achieved in chapter 3 by reviewing empirical literature in order to defend the relationships hypothesised in the conceptual model. Guided by the empirical literature, the conceptual model proposed that socio-economic factors (peer, family, social class, and education), consumption values (social, functional, hedonic, price and conditional values), behavioural beliefs and product-related factors (complexity, cost, communication, compatibility and traibility) would impact attitudes, which is a driver of adoption. Adoption was hypothesised to drive intention to reuse mobile payment, was also hypothesised to be an outcome of the product-related factors. The empirical objectives were aimed at testing these hypotheses.

6.3. Discussion of the Results of Testing the Conceptual Model of this Study

The following subsections provide a discussion of the results obtained from the testing of the hypotheses formulated for the study.

6.3.1. Peers, Family, Social Class and Attitude

It was surprising to find in this study that peers, family and social class had no significant effect on attitude towards mobile payment among Ghanaian consumers. This finding is contrary to prior research that identified peers, family and social class as determinants of attitudes towards innovations (Fishbein &Ajzen, 2010; Phonthanukitithaworn et al., 2016; Song & Chang, 2016; Narteh et al., 2017). The prior researchers found in their studies that the influence of friends, parents, and colleagues should be important determinants in formation of attitudes and making with regards to future adoption of mobile payment services. In the case of early adopters there

would limited information, logically people with no prior experience may of mobile payment services may depend on other people or existing consumers' thoughts to assist the make decisions. Thus, a study conducted by Narteh et al. (2017) in Ghana found that the opinions of peers and family were important in the formation of attitudes. The findings of this study invalidate the influence of these social influence probably because in 2020 mobile payment users in Ghana no longer needed peers and family to give them advice or motivate them to use mobile payment.

6.3.2. Price Value, Functional Value, Hedonic Value, Behavioural Beliefs, and Attitude

Of all of the consumption values studied, the price value, which is subjective measure of what is paid for a product/service compared to the benefits received (Chuah et al., 2014), was found to play the strongest role in influencing attitude toward mobile payment. This result supports the findings of Lin, Wang and Huang, (2018), who found that perceived fee has a direct and positive influence on perceived value and concluded for the fact that mobile payment offers users convenience especially payment processes, users develop positive attitudes and are more willing to pay the transaction fee associated with mobile payments. The finding of the current study also contradicts some of the prior studies (Oliveira, Thomas, Baptista & Campos, 2016; Yang, Lu, Gupta, Cao & Zhang, 2011). These studies revealed that perceived fee or prove value as conceptualised in the current study is no longer significant in determining attitude development. These prior studies were however conducted in the advanced economies. In the developing economies like Ghana where the current study is conducted, price value should be a key determinant of mobile payment attitude because income disparity.

Functional value was also found to strongly influence attitude towards mobile payment among Ghanaian consumers. This implies that Ghanaian consumers do not only want reasonable prices, but want value for money in terms of the performance of the expected services. This result corroborates other existing findings in literature (Lin, Wang, Huang, 2018; Lin & Lu, 2015; Kim, Chan, & Gupta, 2007). With this result, practitioner provide mobile payment functional attributes, like mobile convenience and quality and speed of transaction, and reduce negative attributes, like service fees. These will not only create positive attitude as found in this study, but can also arouse perceived value and strengthen the use and continued usage of mobile payment (Lin, Wang, Huang, 2018; Lin and Lu, 2015).

Hedonic value also played an important role in influencing attitude. This result is in line with Kerviler Demoulin and Ziddda's (2016) study which determined that enjoyment is a key determinant of mobile payment adoption. This current study finding is also in line with another study that highlights the prominence of pleasure for mobile shopping (Agrebi & Jallais, 2015). It seems to make shoppers understand hedonic benefits reward for the technicality of using electronic means to make payments. The result in this current study however disputes the result of Oliveira, Thomas, Baptista and Campos (2016) who found that hedonic value is not a significant predictor of the attitude towards adopting mobile payment in Portugal.

Behavioural beliefs was found in this study to have an impact on attitude. This result suggests that if consumers believe in their ability to use mobile payment and it saves their time from carrying cash to the seller as well as improve the speed of transaction, then their attitude would be positive towards the use of mobile payment. This view was supported by prior studies by Dahlberg and

Öörni (2007) and Verma, Chaurasia and Bhattacharyya (2019). For example, in India, an emerging economy like Ghana, Verma et al. (2019) found that perceived behavioural beliefs or control significantly impacted the mobile payment behavioural intention, which is a direct outcome of attitude.

6.3.3. Cost, Compatibility, Trialability, Complexity, and Attitude

Of the product related factors, cost and trialability were found to make the strongest impact. Cost negatively impacted on attitude, while trialability made a positive impact. This result implies that if perceived cost increases including the psychological cost involved in switching from carrying cash to mobile payment systems become high, the consumers' attitude towards mobile payment usage would be negatively impacted. This result confirms the view of scholars (Lin, and Lu, 2015; Kim, Chan, Gupta, 2007; Sobti, 2019). In India for example, Sobti (2019) found that perceived cost impacted attitudes and behavioural intentions to use mobile payment. Notably, these findings contradict that of Arvidsson (2014) who found costs not to influence attitudes toward adoption.

The trialability impact on attitude is consistent with some previous studies (Hsiao, Chang & Tang, 2016; Kerviler Demoulin & Zidda, 2016). Some researchers (Lai, and Wang, 2015; Hsiao et al., 2016) further reported that the frequent users' trialability is, the less users' attention would be drawn to other existing options. This provides practitioners with essential knowledge and awareness, especially knowing that in terms of mobile-oriented information context, users' trialability would increase their habits of using mobile payment services, especially in cases where such services continue to satisfy their desired values. This result oppose that of some previous empirical works (Al-Jabri & Sohail, 2012; Kolodinsky et al., 2004).

Complexity was also found to influence attitude but negatively. This means that when Ghanaian consumers find the use of mobile money to be complex or difficult, it will negatively impact their attitudes. This result is consistent with some previous works (Jahangir & Begum, 2008; Luarn & Lin 2005). Complexity was noted to have insignificant impact on mobile banking acceptance and use by Al-Jabri and Sohail (2012) which contradict the result of the current study on mobile payment. For mobile payment however Sobti (2019) reports that complexity has been a major impediment for positive attitude formation and ultimate adoption.

Compatibility was not found to significantly impact attitude. This result is consistent with the findings of Arvidsson, (2014) that revealed compatibility was not found to influence attitudes toward adoption in his studies in Sweden. This result however contradicts the result of Phonthanukitithaworn et al. (2016) that found that compatibility is a foundational construct to which an innovation will be consistent with a person's needs and lifestyle in Thailand. Many other studies, for example, the studies conducted by Chen (2008) in the USA and Schierz et al. (2010) in Germany reveal that compatibility tends to produce a strong impact on an individual's intention among non-users or potential users to adopt mobile payment. Al-Jabri and Sohail (2012) also found similar findings of previous studies (Koenig-Lewis 2010; Lin 2011) in Saudi Arabia that compatibility impacts attitude.

6.3.4. Cost, Compatibility, Trialability, Complexity and Intention Reuse Mobile Payment

Out of all of these factors cost was the only factor found to have no significant impact on intention to reuse mobile payment. This finding was in consonant with Phonthanukitithaworn et al.'s (2016)

study which investigated mobile payment services in Thailand and found that cost of adopting mobile payment services has no statistically significant relationship with behavioural intention to adopt mobile payment. In the same vein, Arvidsson, (2014) found that cost does not influence attitude towards mobile payment adoption in Sweden. Therefore, it is logical to say that the actual or assumed cost of mobile payment should have greater influence on their acceptance and use. This particularly so in Ghana given that consumers in Ghana use cash without any difficulty in terms of fee charges or struggle to look for agents to pay money, therefore would have tendency to believe that mobile payment services should not be expensive as posited by Arvidsson (2013).

Compatibility was found to be the strongest positive driver of the intention to continuously use mobile payment. Compatibility is a basic construct to which innovation consistently matches person's needs and lifestyle (Rogers, 2003). This construct is based on the premise that if consumers perceive mobile payment services to be consistent with their needs, lifestyles, values, and past experiences, they are more likely to adopt these services. This finding among Ghanaian consumers relate to prior empirical works on mobile payment technology acceptance in other jurisdictions which also reported compatibility to be significant in mobile payment acceptance. For example, Yang et al. (2012) and Lu et al. (2011) in China, Keramati et al. (2011) in Iran, Schierz et al. (2010) in Germany, and Chen (2008) in USA. Empirical studies carried out by Chen (2008) in the USA and Schierz et al. (2010) in Germany disclosed compatibility to be strongly impacted on individuals' intention among non-users or potential users. Yang et al. (2012) argue that compatibility has robust effect on behavioural intention to accept mobile payment among non-users as compared to adopters.

Trialability was found to have a significant influence on mobile payment continues to use. This result reflects the finding of Hsiao, Chang and Tang, (2016) that habitual trying of a new technology significantly influence users' continuance intention of mobile social Apps. This is consistent with the studies of the IS continuance model (Bhattacherjee, 2001). This is also in line with the study of Kerviler Demoulin, Zidda (2016) which showed that experiencing mobile payment by trying it has a greater influence on intentions to adopt it. Therefore, given that users have formed a strong habit of trying the payment technology, their intention to continue using mobile payments will be enhanced.

Complexity was revealed to have played a significant role in influencing continuous mobile payment use intention. This finding is in line with findings in many studies (Phonthanukitithaworn et al., 2016; Mallat, 2007; Laukkanen & Lauronen, 2005; Laukkanen & Kiviniemi, 2010). These results are an indication that when mobile payment is found to be easy to use, consumers will continuously use the technology. This finding is vital because people's experiences with cash as well as card have been long payments. When they find no significant learning problems to try a new type of payment service, they would plan to continuously use it.

6.3.5. Attitude towards Mobile Payment Use and Adoption

Attitude was found to have a strong and significant positive impact on adoption of mobile payment. This finding agrees with the prior literature that suggest a significant and positive relationship exist between the attitude towards using mobile payment services and the intention to use mobile payment services (Schierz, Schilke, Wirtz, 2009; Lie´bana-Cabanillas, Mun˜oz-Leiva, Sanchez-

Fernandez, 2017). The current study however extends these studies by showing that the attitude impacts on actual adoption, thus confirming the TPB.

6.3.6. Adoption and Intention to Reuse Mobile Payment

It was found in this study that after adopting mobile payment, Ghanaian consumers have the intention to reuse the service. Consequently, Ghanaian consumers' intentions towards mobile payment reuse exhibit positive signs of continuous use. This study supports a study of mobile payment by Mensah (2019) about Chinese consumers, which found that perceived usefulness, ease of use, service quality, internet self-efficacy, social influence, relative advantage, complexity and compatibility would impact WECHAT mobile payment and predict the continued intention to use the payment services. In a hotel context, Sun, Law and Schuckert (2020) found that when Chinese consumers have adopted mobile payment-based hotel reservation and are satisfied with the service, they would develop the intention to continuously use the service.

6.4. Conclusion

This chapter discussed the results obtained in achieving this study's theoretical and empirical objectives. The overall objective was to examine the extent to which socio-economic, consumption values and product-related factors impacted Ghanaian consumers' attitudes toward mobile payment adoption and whether the adoption will lead to the intention to reuse the service. It was found that while socio-economic factors do not make significant impact, consumption values and product-related factors, especially cost and functional value do greatly matter in attitude formation. It was also found that for reuse intention, cost will no longer matter but compatibility and

complexity will be the major consideration. The final chapter will present the conclusions of the study, and outline its theoretical and managerial contributions.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1.Introduction

The main objective of this study was to examine the extent to which socio-economic, consumption values and product-related factors influence Ghanaians attitudes, use/adoption and intention to continuously use mobile payment using an integrated theoretical framework to provide more holistic insights. To this end, data were acquired from executive MBA students of the University of Ghana Business School (UGBS) and to lecturers from UGBS and the School of Continues and Distance Education. Respondents were selected from these institutions using purposive and convenience non-probability sampling methods because the researcher, a lecturer had close access to the respondents and they were considered to have the social class, financial resources and ability to adopt mobile payment. The research was motivated by the research problem summarised in the next section.

7.2.Summary of Research Problem and Main Empirical Objectives of the Study

Research on mobile payment has been conducted in the last couple of years (see for example, Dahlberg et al., 2015; Mensah et al., 2020). However, studies have been fragmented with mostly a single theoretical explanation of the construct. There was therefore a need for a more holistic understanding of mobile payment determinants (Mensah, 2019). Moreover, much of mobile payment research has been dedicated to understanding customer's intention with few studies, such as those of Lin, Wang, Huang, (2018), Chen, Carpenter, Chen, Hung, (2018 examining the actual adoption of mobile payment and customer’s continued use or reuse intention.

The studies have used the theory of reasoned action (TRA), the technology acceptance model (TAM), the theory of planned behaviour (TPB), Unified Theory of Acceptance and Use of Technology (UTAUT) and the extended unified theory of acceptance and use of technology (UTAUT2). These models and theories generally overemphasise the role of psychological determinants but omit the contributions of product-related attributes, the values consumers enjoy from the use of mobile payment as well as socio-economic and socio-demographic variables capable of affecting decisions to adopt or not to adopt the technology (Sonnenberg & Erasmus, 2013).

Therefore, the main objectives of this study was to integrate the TPB (for psychological factors like beliefs and attitudes), UTUAT (for socio-economic factors), DOI (for product-related factors) and TCV (for consumption values factors) theories to develop a conceptual model that delineates how socio-economic, consumption values, product-related and psychological factors impact mobile payment attitudes, adoption and reuse intention in Ghana. The extent to which attitudes, adoption and reuse intention was explained by the testing of the conceptual model are summarised in Table 7.1.

Table 7.1: Summary of how Attitudes, Adoption and Reuse Intention was Explained

Dependent constructs	**Independent construct contributors**	**R Square (R^2)**
Attitude towards mobile payment	Peer **(-.09; ns)**, family **(.05; ns)**, social class **(.03;ns)**, behavioural beliefs (.14*), functional value **(.52**),** price value **(.51**),** hedonic value **(.42**)**,	**81.2%**

	complexity **(-.21*)**, cost **(-.32**),** compatibility **(.12;ns),** and traibility **(.32**)**	
Adoption of mobile payment	Attitude **(.83**)**	**69.9%**
Intention to reuse mobile payment	Adoption **(.78**)**, complexity **(-.19*)**, cost **(-.14;ns)**, compatibility **(.53**)**, and traibility **(.17*)**	**43.8%**
Overall prediction of intention to reuse mobile payment	Peer **(-.09; ns)**, family **(.05; ns)**, social class **(.03;ns)**, behavioural beliefs (.14*), functional value **(.52**),** price value **(.51**),** hedonic value **(.42**)**, complexity **(-.19*)**, cost **(-.14;ns),** compatibility **(.53**),** and traibility **(.17*),** Attitude **(.83**),** Adoption **(.78**).**	**67.8%**

NB: * = P<.05; ** = P<.001; ns = not significant

7.3. Conclusions on which Factors and how much Attitude towards Mobile Payment was Impacted

The conceptual model in Figure 3.8 in chapter three posited that attitudes toward mobile payment by Ghanaians will be driven by socio-economic factors (peers, family, social class and education level), consumption values (social, functional, hedonic, price, conditional values) behavioural beliefs, and product-related factors (complexity, cost, compatibility, communication, traibility and relative advantage). After testing the reliability and validity of the constructs, educational level,

social value, conditional value, communication and relative advantage were deleted for further study because of poor discriminant validity.

In terms of which factors significantly impacted attitude towards mobile payment and according the summary in Table 7.1, none of the socio-economic factors significantly impacted attitudes. In addition to behavioural beliefs, three consumption values (functional value, price value and hedonic value) significantly impacted attitudes towards mobile payment. Of these consumption values, functional and price values made the strongest impact. This means that the Ghanaian consumers will favourable view mobile payment if service performance is very good and at a reasonable price or they would want value for money. Regarding the product-related factors, attitudes will be built from perceived cost, level of complexity and traibility and not compatibility. Of these product related factors, cost and traibility made the strongest impact.

Overall, the socio-economic factors, consumption values and product-related factors explained up to **81.2% of** Ghanaians' consumers' attitude towards mobile payment. This means that integration of UTAUT, TCV, DOI and TPB to explain mobile payment attitude provided a higher explanatory power than the 37.6% Verma et al. (2019) obtained when they used only TPB. Following Hair et al.'s (2011) suggestion that explanatory powers of 25%, 50% and 75% are weak, moderate and substantial respectively, the 81.2% explanation of attitude in this study is substantial.

7.4. Conclusions on which Factors and how much the Adoption and Intention to reuse Mobile Payment was Explained

The conceptual model in Figure 3.8 proposed that attitude towards mobile payment will impact the adoption of the service among Ghanaian consumers. This hypothesis was formulated following the TPB. Table 7.1 shows that attitude explained **69.9%** of the adoption of mobile payment. This is a more than moderate explanatory power according to Hair et al. (2011).

To explain the intention to reuse mobile payment, this study's conceptual model proposed that the product-related factors (complexity, cost, compatibility, communication, traibility and relative advantage) and adoption will be the predictors. The summary in Table 7.1 reveals that the significant factors were complexity, compatibility, traibility, adoption and not cost were the direct drivers of the intention to reuse mobile payment among Ghanaian consumers. Of the product-related factors, compatibility made the strongest impact. This means that if how the consumers use the mobile payment does not change, they would continue to use the payment service. The product-related factors and the adoption of mobile payment moderately explained the intention to reuse the service with an explanatory power of **43.8%.** The explanatory power substantially increased when the entire conceptual model was used to explain intention to reuse mobile payment as discussed in the next section

7.5. Conclusions on the Overall Explanatory Power of this Study's Conceptual Model

This Study's conceptual model proposed that socio-economic factors (peer, family, social class, and education level), consumption values (social, functional, hedonic, price and conditional values), behavioural beliefs and product-related factors (complexity, cost, communication,

compatibility and traibility) would impact attitudes, which is a driver of adoption. Adoption was hypothesised to drive intention to reuse mobile payment, which was also hypothesised to be an outcome of the product-related factors. Table 7.1 shows that the significant contributors to the final dependent construct (intention to reuse mobile payment) were behavioural beliefs, functional value, price value, hedonic value (consumption values), complexity, compatibility and traibility (product-related factors).

The conceptual model explained **67.8%** of the variance in intention to reuse mobile payment among Ghanaian consumers. This explanatory power according to Hair et al. (2011) is more than moderate and can be considered substantial in consumer behaviour studies. The explanatory power emanated from the integration of aspects of four theories – TCV, TPB, DOI and UTAUT. The variance explained exceeds Verma et al.'s (2019) 37.6% when only TPB was used and their 60.7% when two theories were used. It can therefore be concluded that a greater explanatory power can be obtained more than one theories are used to explained a phenomenon.

7.6. Contributions of the Study

In investigating the extent to which socio-economic, consumption values and product-related factors impact attitudes toward the use of mobile payment, adoption and reuse intention, this study makes theoretical and practical contributions. The section below highlights the contributions:

7.6.1. Theoretical Contributions

This study will contribute in the field of consumer behaviour and technology adoption.

Prior studies have called for the need to investigate and socio-economic factors that can either directly affect environmental behaviour or control the linkage between attitude and behaviour intentions (Steg & Vlek, 2009; Niemeyer 2010). This thesis has contributed in filling this gap

Moreover, given that the intention-action gap has been a concern for many researchers (e.g. Kollmuss & Agyeman, 2002; Hassan et al., 2014), this research, by including these two sets of variables as a linkage between attitude and behavioural intention to use mobile payment and to adopt behaviour, contributed to uncovering their influence on behaviour. By so doing, this study has revealed levers that can help to reduce the intention-behaviour gap.

In spite of extensive use of CVT to explain behavioural choices from many disciplines such as economics, sociology, psychology, and marketing, it has been overlooked in mobile payment technology despite the important role it plays in behavioural choices. To fill this gap this study included consumption value theory to determine mobile payment reuse, thus makes great contribution to literature.

Previous studies used various theories in isolation to determine mobile adoption. This study incorporated IDT with the TPB, UTUAT and CVT to develop a conceptual model that can holistically explain attitudes, adoption and re-use of mobile payment. Therefore the study contribute to literature significantly.

This study further contributed to literature by looking at the direct relationship between IDT and reuse intention and indirectly through the moderation of attitude to reuse. Some studies focused on the direct relationship between innovation diffusion theory and adoption intension and others through the moderation of attitude. So findings from this study immensely contributed to literature.

The integrative conceptual model used determining the reuse intention behaviour in Ghana where there is limited studies on mobile payment technology future studies can adopt the model to conduct researches in other West Africa countries.

7.6.2. Practical Contributions

• This study provides a general guide to understanding the antecedents of mobile payment usage and its effect on customer value and reuse intention. This understanding provides key insights for technology companies and mobile payment services providers who are responsible for designing and promoting mobile payment services in Ghanaian contexts.

• Additionally, it will help improve practitioner knowledge on mobile payment thereby helping the practitioners to formulate policies and strategies to improve the mobile payment systems. Also, section 8.4 provided a host of practical recommendations for policy and decision-makers and offered strategies and tactics that innovation developers and marketers can implement to bring about the effective adoption of mobile payment technology. This study can serve as a baseline for promoting mobile marketing, mobile solution to local farmers in Ghana.

• Consumers and society will also be the beneficiary since the predictors of mobile payment users will significantly enhance suppliers understanding of consumer needs better.

Mobile payment comes with financial and technology use burdens so individuals would like to be in control of their decisions as a result social relationships such as family, friends and other social classes may not influence their attitude towards mobile payment, therefore the relationship

between socio-economic factors and consumers' attitudes is insignificant. It is logical to recommend that managers and products developers should skew the promotion of their products to direct benefit/need of consumers.

Thus, despite the potential risks of carrying cash and bearing high psychological costs by been in long queues both at banks and shopping malls that results in dissatisfaction of delivery of goods and services as a result delay in payment for them using the traditional system of payment, it is possible that many consumers avoid compliance in an endeavour to retain control over their dissatisfactions and/ or to protect or reassert valued freedoms. In order to defuse the non-attitudinal change with regards to mobile payment functionality, there should be an increasing consumers' awareness of the risk traditional payment and dissatisfaction pose to valued freedoms, and this may motivate the individuals to change their attitudes and adopt mobile payment system

The findings on price value suggest the demand for mobile payment system is inelastic, showing a growing upward curve even in the face of increases in price, implying consumers are willing and able to pay any price for mobile payment as compared to the risk in the traditional methods. Also new versions should be developed to take care of various income levels.

In terms of costs it was difficult for consumers to switch from carrying cash to mobile payment managers should adopt intensive channel approach for distribution so as to get easy access to it.

With mobile payment consumers would not need to travel far distances to make payment for goods or be in a queue which consumers' time as compared to carrying cash as such managers should encourage consumers based on its relative advantage to cash.

Also communications about mobile payment to the public should skew positively. Although these communications also highlight ways that consumers could use to protect themselves, they are negatively skewed as opposed to being positive. For example, a positive communication means being proactive on building consumer capacity in safety and security in using mobile payment system, as opposed to reacting to the rise in fraudulent activities. This situation heightens their fears in the use of the system. Consumers might conceive the belief that unexpected events may occur and it is the possibility that the mobile payment user might incur financial losses or lose personal information as a result of using mobile transactions.

Managers and policy makers could change attitude of consumers through development of products which have to be compatible with consumers' mode of payment, as compatibility goes up with behaviour change. This implies that if mobile payment is compatible with consumers' payment needs attitudes change positively. This is evident from the analysis.

Finally, companies should endeavour to target the millennials with mobile payment technology, as they are technologically savvy. The evidence from the analysis indicates that older segment of consumers were not enthused with the mobile payment technology hence when the age goes up reuse intention goes down.

7.7. Limitations and Areas for Future Research

This study comes with limitations that provide scope for future studies. These limitations, as well as areas for future study, are discussed below.

First, the data for the study was only drawn from the university community in Accra, Ghana. As a result, the findings of this study may not apply to consumers in other parts of the country since the lecturers and MBA students surveyed may be more knowledgeable about study of this nature and provide desirable answers compared to factual answers. This usually cause the social desirable bias, which can be overcome in future studies by surveying consumers who are not highly educated, but are using mobile payment. Second, the educated elites surveyed only constitute 40 per cent of the population and more Ghanaians may be using mobile payment. Future study should obtain data from more elites out of the university and even from non-elites so that more hindrances in reusing mobile payment can be exposed.

In understanding factors influencing consumer and adoption behaviours, there are more than socio-economic, consumer and product-related factors. There could be also marketing factors that need further studies. Also required for further studies are the factors that may hinder the development of positive attitudes and the actual adoption, which the current study did not fully examine.

Another limitation is related to the fact that the study was cross-sectional. This means that findings reported relate to only a particular point in time. Future research can apply a longitudinal survey and/or observation research focusing on uncovering mobile payment use over a long period. Longitudinal studies can help uncover changes in respondents' behaviours over time.

7.8. Recommendations to Marketing Managers

Based on the findings and conclusions drawn from the study, the following recommendations are put forward to marketing managers. Considering that this study has exposed the factors that drive positive attitude development in relation to mobile payment adoption, marketing managers and

technology adoption advocates can use insights gained from this study to provide relevant product/service benefits that do not only affect positive attitudes, but that will also enhance and increase the adoption rate of mobile payment. Since complexity and compatibility matters for the reuse intention, banks and marketing managers should provide regular education on the use of mobile payment. These, combined with providing value for money as functional value and price also matter, the mobile payment use rate in Ghana will increase.

The study highlighted functional value, price value, hedonic value, complexity, cost, trialability and behavioural beliefs as significant determinants of attitude towards behavioural intention to the adoption of mobile payment. Besides, compatibility, trialability, complexity are direct significant determinants of continuous mobile payment use/adoption. This creates the need for mobile payment innovation developers to increase their efforts to develop mobile payment systems that provide sufficient features that could address the current challenges among users.

It is also important for developers to gain insight into the current technology infrastructure of the country and product-related factor so that they can create mobile payment systems that are compatible with the existing products in the market place. This can create a positive rapid adoption of the payment system among non-adopters in Ghana. If consumers are involved in the design of the mobile payment platform, the system will be better customised to their specific needs, and this will enable them to develop a richer appreciation of the innovation.

Since the drivers of positive attitudes and adoption have been exposed in this study, additionally, marketers of the innovation should now endeavour to exploit suitable communication and

positioning strategies retain current users of the new payment system and to convert carriers of cash for payments.

With regards to the role of complexity and trialability in this study, marketers should endeavour to design the payment system to be simple and easy to use, as well as demonstrate its usage procedures through advertisement on televisions and encourage habitual trials by consumers. With hedonic value found to be one of the significant determinants of attitude towards the use of mobile payment, marketers should strive to develop the innovative systems that could create joy, fun and inspire people when using mobile payment.

7.9. Concluding Remarks

This study was integrated aspects of the TPB, TCV, UTAUT, and DOI to examine the extent to which socio-economic factors (peer, family, social class, and education level), consumption values (social, functional, hedonic, price and conditional values), behavioural beliefs and product-related factors (complexity, cost, communication, compatibility and trialability) impact attitudes, which was propose to be a driver of adoption. Adoption was hypothesised to drive intention to reuse mobile payment, which was also hypothesised to be an outcome of the product-related factors. To achieve these objectives an integrated conceptual model was developed, which was tested with 400 respondents recruited among executive MBA students of the University of Ghana Business School (UGBS) and lecturers from UGBS and the School of Continues and Distance Education.

It was found that for positive attitude development, value for money was most important in terms of required functional value, the price value and cost involved. After consumer adopt mobile

payment, cost loses its impact and compatibility and complexity of further development of the system becomes important for forming intentions to reuse the payment system.

Overall, the developed conceptual model explained a substantial 67.8 % of the intention to reuse variance. This explanatory power highlights the importance of integrating theories to explain a phenomena and to provide a more holistic explanation of constructs. The developed and tested conceptual model is the main theoretical contribution for the explanation of consumer and technology adoption behaviour. The practical contributions emanate for exposing consumption values and product-related factors that builds positive attitude, enables adoption and motivates continuous use of mobile payment among Ghanaian consumers. Marketing managers, technology developers, banks and other financial institutions will find this study useful.

Referencing

Aaker, D.A., Kumar, V., Leone, R.P. and Day, G.S. (2013). Marketing Research. (11th ed.). Hoboken, NJ: John Wiley.

Abrahamse, W., & Steg, L. (2009). How do socio-demographic and psychological factors relate to households' direct and indirect energy use and savings? *Journal of economic psychology*, *30*(5), 711-720.

Abrahamse, W., & Steg, L. (2011). Factors related to household energy use and intention to reduce it: The role of psychological and socio-demographic variables. *Human Ecology Review*, *18*(1), 30-40.

Acheampong, P., Zhiwen, L., Antwi, H. A., Otoo, A. A. A., Mensah, W. G., & Sarpong, P. B. (2017). Hybridizing an extended technology readiness index with technology acceptance model (TAM) to predict e-payment adoption in Ghana. *American Journal of Multidisciplinary Research*, *5*(2), 172-184.

Afshan, S., & Sharif, A. (2016). Acceptance of mobile banking framework in Pakistan. Telematics and Informatics, 33, 370–387. doi: 10.1016/j.tele.2015.09.005

Agag, G., Brown, A., Hassanein, A., & Shaalan, A. (2020). Decoding travellers' willingness to pay more for green travel products: closing the intention–behaviour gap. *Journal of Sustainable Tourism*, 1-25.

Agarwal, R. and Prasad, J. (1999).Are individual differences germane to the acceptance of new information technologies? *Decision Sciences, 30* (2), 361-391

Agarwal, R., & Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. Information systems research, 9(2), 204-215.

Agarwal, S., Qian, W., Yeung, B. Y., & Zou, X. (2019, May). Mobile wallet and entrepreneurial growth. In AEA Papers and Proceedings 109, 48-53.

Agrebi, S., & Jallais, J. (2015). Explain the intention to use smartphones for mobile shopping. *Journal of retailing and consumer services*, 22, 16-23.

Ajzen, I. (1991). The theory of planned behaviour. Organizational Behavior and Human Decision Processes, 50(2), 179-211.

Alalwan, A. A. (2020). Mobile food ordering apps: An empirical study of the factors affecting customer e-satisfaction and continued intention to reuse. *International Journal of Information Management, 50,* 28-44.

Alan, A., Kabadayi, E., Bakis, S., Can, Y., & Sekerin, M. (2017). Generating and Assessing Consumer‘s Innovation Adoption through Consumer Innovativeness, Innovation Characteristics and Perceived Brand Innovativeness. *International Journal of Marketing Studies, 9*(6), 68.

Allam, H., Bliemel, M., Spiteri, L., Blustein, J., & Ali-Hassan, H. (2019). Applying a multi-dimensional hedonic concept of intrinsic motivation on social tagging tools: A theoretical model and empirical validation. *International Journal of Information Management, 45,* 211-222.

Alryalat, M. A. A., Rana, N. P., & Dwivedi, Y. K. (2020). Citizen's adoption of an E-Government system: Validating the extended theory of reasoned action (TRA). In Open Government: Concepts, Methodologies, Tools, and Applications (651-674). IGI Global.

Alshare, K., Mousa, A., (2014). The moderating effect of espoused cultural dimensionson consumer’s intention to use mobile payment devices. In Proceedings of the35th International Conference on Information Systems (ICIS). Auckland, NewZealand.

An, M. A., & Han, S. L. (2020). Effects of experiential motivation and customer engagement on customer value creation: Analysis of psychological process in the experience-based retail environment. *Journal of Business Research*.

Andersson, G. (2016). Internet-delivered psychological treatments. *Annual Review of Clinical Psychology*, *12*, 157-179.

Andre, G. V., Baptista, P. T., & Setiowati, R. (2019). The determinants factors of mobile payment adoption in DKI Jakarta. *Journal of Research in Marketing*, *10*(3), 823-831.

Andrews, V., Tonkin, E., Lancastle, D. and Kirk, M. (2014). Using the diffusion of innovations

theory to understand the uptake of genetics in nursing practice: Identifying the characteristics of genetic nurse adopters. *Journal of advanced nursing*, *70*(4), 878-893.

Ariffin, S. K., & Lim, K. T. (2020). Investigating Factors Affecting Intention to Use Mobile Payment among Young Professionals in Malaysia. In *First ASEAN Business, Environment, and Technology Symposium (ABEATS 2019)* (6-11). Atlantis Press.

Arvidsson, N. (2014). Consumer attitudes on mobile payment services–results from a proof of concept test. *International Journal of Bank Marketing, 32*(2), 150-170.

Ashwin, M. (2011). The proceedings of the 10th European Conference on research methods for business management studies. Caen-France, 20th-21st June, 2011.

Aslam, W., Ham, M., & Arif, I. (2017). Consumer behavioral intentions towards mobile payment services: An empirical analysis in Pakistan. *Market-Tržište, 29*(2), 161-176

Assarut, R., & Eiamkanchanalai, S. (2015). Consumption values, personal characteristics and behavioural intentions in mobile shopping adoption. *Market-Tržište, 27*(1), 21-41.

Bailey A.A., Pentina I., Mishra A.S., Mimoun, M.S. (2017). Mobile payments adoption by US consumers: an extended TAM. *International journal of retail distribution management, 45* (6) 626-640,

Bailey, A. A., Pentina, I., Mishra, A. S., & Ben Mimoun, M. S. (2020). Exploring factors influencing US millennial consumers' use of tap-and-go payment technology. The *International Review of Retail, Distribution and Consumer Research, 30*(2), 143-163.

Bakon, K., & Hassan, Z. (2013). Perceived value of smartphone and its impact on deviant behaviour: An investigation on higher education students in Malaysia. *International Journal of Information System and Engineering (IJISE) Volume, 1*.

Bamba, F., & Barnes, S. J. (2007). SMS advertising, permission and the consumer: a study. Business Process Management Journal, 13(6), 815-829.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191

Baptista, R. (1999). The diffusion of process innovations: A selective review. *International Journal of the Economics of Business, 6*(1), 107-129.

Barkhordari, M., Nourollah, Z., Mashayekhi, H., Mashayekhi, Y., & Ahangar, M. S. (2017). Factors influencing adoption of e-payment systems: an empirical study on Iranian customers. *Information Systems and e-Business Management*, *15*(1), 89-116.

Baumgartner, H. and Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: a review. *International Journal of Research in Marketing, 13*(2), 139-161.

Bayartsaikhan, K., Danielak, P., Dunst, K., Guibert, J., Luxford, L., Romanossian, R. and Seal, K.C. (2007). Market for third screen: A study of market potential of mobile TV and video across the US and selected European countries. *International Journal of Mobile Marketing, 2*(1), 12-27.

Bélanger, F., & Carter, L. (2008). Trust and risk in e-government adoption. *The Journal of Strategic Information Systems, 17*(2), 165-176.

Bergman, B., Guiborg, G. and Segendorf, B. (2007). The costs of paying – private and social costs of cash and card, Working Paper Series No. 212, Sveriges Riksbank, Stockholm.

Bezovski, Z. (2016). The future of the mobile payment as electronic payment system. *European Journal of Business and Management, 8*(8), 127-132.

Bhandari, U., Neben, T., & Chang, K. T. (2015). Mobile App Preferences: What Role Does Aesthetics and Emotions Play? In Information systems and neuroscience 161-165.

Bhattacherjee, A. (2002). Individual trust in online firms: Scale development and initial test. *Journal of Management Information Systems, 19*(1), 211-241

Birudavolu, S., & Nag, B. (2019). Business innovation and Ict strategies. Singapore: Palgrave Macmillan.

Bless, C., & Higson-Smith, C. (1995). Fundamentals of Social Research Methods-an African Perspective, Juta: Cape Town.

Blunch, N. J. (2013). Introduction to Structured Equation Modeling—Using IBM SPSS Statistics and AMOS.

Boucher, H. C. (2020). Social class and self-concept consistency: Implications for subjective well-being and felt authenticity. Self and Identity, 1-17.

Bowen, N.K. & Guo, S. (2012). Structural Equation Modeling. New York, Oxford University Press.

Brace, N., Kemp, R. & Snelgar, R. (2016). SPSS for Psychologists: And Everybody Else, 6th edition, Palgrave, United Kingdom

Bryman, A. (2012). Sampling in qualitative research. *Social research methods*, *4*, 415-429.

Buabeng-Andoh, C., Yaokumah, W., & Tarhini, A. (2019). Investigating students' intentions to use ICT: A comparison of theoretical models. *Education and Information Technologies, 24*(1), 643-660.

Burns, A. and Bush, R. (2010). *Marketing Research*. (6th ed.). Upper Saddle River, NJ: Prentice Hall.

Byrne, B.M. (2012). Structural Equation Modeling with Mplus: Basic Concepts, Applications and Programming. Third Avenue, NY: Routledge.

Cai, W. S., Long, X., Li, L., Liang, H., Wang, Q., & Ding, X. (2019). Determinants of intention and behaviour of low carbon commuting through bicycle-sharing in China. *Journal of cleaner production*, 212, 602-609.

Cao, X., Yu, L., Liu, Z., Gong, M., & Adeel, L. (2018). Understanding mobile payment users' continuance intention: a trust transfer perspective. *Internet Research*.

Cao, Y., Lu, Y., Gupta, S., & Yang, S. (2015). The effects of differences between e-commerce and m-commerce on the consumers' usage transfer from online to the mobile channel. *International Journal of Mobile Communications, 13*(1), 51-70.

Carfora V., Caso D., Conner, M. (2017). Randomised controlled trial of a text messaging intervention for reducing processed meat consumption: the mediating roles of anticipated regret and intention Appetite, 117, 152-160.

Cargan, L. (2007). Doing Social Research. London: Rowman and Littlefield Publishers

Chalomba, N., Duh, H. I., & Gujral, M. (2019). Generation Y's brand satisfaction, continuance

intention and loyalty to branded mobile apps. Management Dynamics: *Journal of the Southern African Institute for Management Scientists, 28*(3), 30-43.

Chan, F.T., Yee-Loong Chong, A. and Zhou, L. (2012). An empirical investigation of factors affecting e-collaboration diffusion in SMEs. *International Journal of Production Economics*, *138*(2), 329-344.

Chandra, S., Srivastava, S. C., & Theng, Y. L. (2010). Evaluating the role of trust in consumer adoption of mobile payment systems: An empirical analysis. *CAIS*, *27*(29), 27.

Chang, H.C. (2010). A new perspective on Twitter hashtag use: Diffusion of innovation theory. *Proceedings of the American Society for Information Science and Technology*, 47(1), 1-4.

Chang, Y. F., Chen, C. S., & Zhou, H. (2009). Smart phone for mobile commerce. *Computer Standards & Interfaces, 31*(4), 740-747.

Chawla, D., & Joshi, H. (2019). Consumer attitude and intention to adopt mobile wallet in India– An empirical study. *International Journal of Bank Marketing*.

Chen, J. J., & Adams, C. (2005, December). User acceptance of mobile payments: a theoretical model for mobile payments. In *Proceedings of the Fifth International Conference on Electronic Business (ICEB), Hong Kong*.

Chen, K. Y., & Chang, M. L. (2013). User acceptance of 'near field communication' mobile phone service: an investigation based on the 'unified theory of acceptance and use of technology 'model. *The Service Industries Journal, 33*(6), 609-623.

Chen, X., & Li, S. (2017). Understanding continuance intention of mobile payment services: an empirical study. *Journal of Computer Information Systems*, 57(4), 287-298.

Chen, X., Carpenter, D., Li, X., Chen, C., & Hung, S. Y. (2018). Why do Individuals Continue Using Mobile Payments-A Qualitative Study in China? In *Proceedings of the 51st Hawaii International Conference on System Sciences*.

Cheng, Y. H., & Huang, T. Y. (2013). High speed rail passengers' mobile ticketing adoption. *Transportation Research Part C: Emerging Technologies, 30*, 143-160.

Chong, A. Y. L. (2013). Mobile commerce usage activities: The roles of demographic and motivation variables. *Technological Forecasting and Social Change, 80*(7), 1350-1359.

Chuah, H.W., Marimuthu, M. & Ramayah, T. (2014). The effect of perceived value on the loyalty of Generation Y mobile internet subscribers: A proposed conceptual framework. *Social and Behavioural Sciences,* 130, 532-541.

Chudry, F., Foxall, G., & Pallister, J. (2011). Exploring attitudes and predicting intentions: Profiling student debtors using an extended theory of planned behaviour. *Journal of applied social psychology*, *41*(1), 119-149.

Chung, K. C. (2019). Mobile (shopping) commerce intention in central Asia. *Asia-Pacific Journal of Business Administration*.

Churchill, G. A., Brown, T, J. & Suter, T, A. 2010. *Basic marketing research*.

Cobla G. M., Osei-Assibey E. (2018). Mobile money adoption and spending behaviour: the case of students in Ghana. *International Journal of Social Economics, 45*(1) 29-42.

Coffie, C. P. K., Zhao, H., & Adjei Mensah, I. (2020). Panel Econometric Analysis on Mobile Payment Transactions and Traditional Banks Effort toward Financial Accessibility in Sub-Sahara Africa. *Sustainability, 12*(3), 895.

Cooper, D. R., & Schindler, P. S. (2011). Qualitative research. *Business research methods*, 160-182.

Cooper, J. C., & Zywicki, T. J. (2017). A Chip Off the Old Block or a New Direction for Payment Cards Security? The Chip & PIN Debate, Apple Pay, and the Law & Economics of Preventing Payment Card Fraud.

Cronin, J. J. Brady M. K., and Hult G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environment. *Journal of Retailing, 76*(2), 193-218.

Cronin, J. J., Brady M. K., Brand R. R., Hightower, R. and Shemwell D. (1997). A cross-sectional test of the effect and conceptualization of service value. *The Journal of Service Marketing, 11* (6), 375-39.

Cudjoe, A. G., Anim, P. A., & Nyanyofio, J. G. N. T. (2015). Determinants of mobile banking adoption in the Ghanaian banking industry: a case of access bank Ghana limited. *Journal of Computer and Communications, 3*(02), 1.

Cudjoe, A.G., Anim, P.A., Nyanyofio, J.G.N.T. (2015) Determinants of Mobile Banking Adoption in the Ghanaian Banking Industry: A Case of Access Bank Ghana Limited. *Journal of Computer and Communications, 3,* 1-19.

Dahlberg T., Guo J., Ondrus J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications 14*, 265–284.

Dahlberg, T., & Oorni, A. (2006). Understanding changes in consumer payment habits-do mobile payments attract consumers. *Presentation at Helsinki Mobility Roundtable, Helsinki, Finland*.

Dahlberg, T., Mallat, N., Ondrus, J., Zmijewska, A., (2008b). Past, present and future of mobile payments research: a literature review. *Electronic Commerce Research and Applications 7* (2), 165–181.

Davis F. D. (1989). Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-340.

Davis, F. D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioural impacts. *International Journal of Man-Machine Studies, 38*(3), 475-487.

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science, 35*(8), 9821003.

De Kerviler, G., Demoulin, N. T., & Zidda, P. (2016). Adoption of in-store mobile payment: Are perceived risk and convenience the only drivers? *Journal of Retailing and Consumer Services*, *31*, 334-344.

de Luna, I. R., Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2019). Mobile payment is not all the same: The adoption of mobile payment systems depending on the technology applied. *Technological Forecasting and Social Change*, *146*, 931-944.

de Reuver, M., & Ondrus, J. (2017). When technological superiority is not enough: The struggle to impose the SIM card as the NFC Secure Element for mobile payment platforms. *Telecommunications Policy, 41*(4), 253-262.

Demirgüç-Kunt, A., & Singer, D. (2017). Financial inclusion and inclusive growth: a review of the recent empirical evidence.

Dewan S.G., Chen, L.-D (2005) Mobile payment adoption in the USA: a cross-industry, cross-platform solution, *Journal of Information Privacy & Security 1* (2) 4–28.

Dhiman, N., Arora, N., Dogra, N., & Gupta, A. (2019). Consumer adoption of smartphone fitness apps: an extended UTAUT2 perspective. Journal of Indian Business Research.

Ding, Y. (2018), Modelling continued use of information systems from a forward-looking perspective: Antecedents and consequences of hope and anticipated regret. *Information Management, 55* (4) 461-471,

Dorsey, J., Henderson, W., Grassadonia, B., & McKelvey, J. (2017). *U.S. Patent No. 9,619,797*. Washington, DC: U.S. Patent and Trademark Office.

Downs, G.W., Jr. and Mohr, L.B. (1976). Conceptual issues in the study of innovation. *Administrative Science Quarterly,* (21), 700–714.

Drury, D.H., and Farhoomand, A. (1999). Innovation diffusion and implementation. International *Journal of Innovation Management, 3(*2), 133-157

Duane, A., O'Reilly, P., & Andreev, P. (2011). Trusting M-Payments–Realising the Potential of Smart Phones for M-Commerce: A Conceptual Model & Survey of Consumers in Ireland.

Dzokoto, V. A., & Appiah, E. (2014). Making sense of mobile money in urban Ghana: Personal, business, social and financial inclusion prospects. Institute for Money, Technology and Financial Inclusion (IMTFI). University of California, Irvine.

Ekwonwune, E. N., & Enyinnaya, V. C. (2020). Design and Implementation of End to End Encrypted Short Message Service (SMS) Using Hybrid Cipher Algorithm. *Journal of Software Engineering and Applications, 13*(03), 25.

Etim, A. S. (2014). Mobile banking and mobile money adoption for financial inclusion. *Research in Business and Economics Journal*, 9, 1.

Fanelli, V., & Maddalena, L. (2012). A time delay model for the diffusion of a new technology. Nonlinear Analysis: *Real World Applications, 13*(2), 643-649.

Feinberg, F., Kinnear, T., & Taylor, J. (2012). *Modern marketing research: Concepts, methods, and cases*. Nelson Education.

Ferro, E., Loukis, E. N., Charalabidis, Y., & Osella, M. (2013). Policymaking 2.0: From theory to practice. *Government Information Quarterly*, *30*(4), 359-368.

Fichman, R. G. and Kemerer, C. F. (2012). Adoption of software engineering process innovations: The case of object-orientation. *Sloan Management Review*, *34*(2), 220-251.

Fichman, R. G., & Carroll, W. E. (2000). The diffusion and assimilation of information technology innovations. RW Zmud, ed. Framing the Domains of IT Management: Projecting the Future Through the Past. *Inc. Cincinnati, OH*.

Fishbein, M., & Ajzen I. (1975). Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research. Reading, MA: Addison-Wesley,

Fishbein, M., & Ajzen, I. (2010). Predicting and changing behaviour: The reasoned action approach, New York, NY: Psychology Press, Taylor & Francis Group

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behaviour: The reasoned action approach*. Psychology press.

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behaviour, Englewood Cliffs, NJ: Prentice-Hall.

Flood, D., West, T., Wheadon, D. (2013). Trends in Mobile payments in developing and advanced economies. Reserve Bank of Australia Bulletin, 71-80.

Fonseca, D., Navarro Delgado, I., Puig Costa, J., 2012. Códigos QR aplicados a la XVCongreso de la Sociedad Iberoamericana de Gráfica Digital (SIGRADI). pp. 548–551.Ciudad de Santa Fe, Retrieved 29 August 2014 from:http://cumincades.scix.net/data/works/att/sigradi2011_060.content.pdf

Frankfort-Nachmias, C., Nachmias, D., & De Waard, J. (2015). Research designs: Experiments. *Research methods in the social sciences*, 81-101.

Gao, T. T., Rohm, A. J., Sultan, F., & Pagani, M. (2013). Consumers un-tethered: A three-market empirical study of consumers' mobile marketing acceptance. *Journal of Business Research*, *66*(12), 2536-2544.

Ghazali, E., Soon, P. C., Mutum, D. S., & Nguyen, B. (2017). Health and cosmetics: Investigating consumers' values for buying organic personal care products. *Journal of Retailing and Consumer Services*, *39*, 154-163.

Giovanis, A., Tsoukatos, E., & Vrontis, D. (2020). Customers' intentions to adopt proximity m-payment services: empirical evidence from Greece. *Global Business and Economics Review, 22*(1-2), 3-26.

Gonçalves, H. M., Lourenço, T. F., & Silva, G. M. (2016). Green buying behaviour and the theory of consumption values: A fuzzy-set approach. *Journal of Business Research, 69*(4), 1484-1491.

GSMA (2016). The mobile economy: Africa, Groupe Spéciale Mobile Association, available at: www.gsma.com/mobileeconomy/africa/ (accessed 13 December 2016).

GSMA. (2017). The Mobile Economy – Sub-Saharan Africa 2017

Gu, Z., Wei, J. and Xu, F. (2016). An empirical study on factors influencing consumers' initial trust in wearable commerce. *Journal of Computer Information Systems, 56*(1), 79-85

Gunasinghe, A., Abd Hamid, J., Khatibi, A., & Azam, S. F. (2019). Academicians' Acceptance of Online Learning Environments: A Review of Information System Theories and Models. *Global Journal of Computer Science and Technology*.

Gupta, K., & Arora, N. (2019). Investigating consumer intention to accept mobile payment systems through unified theory of acceptance model. *South Asian Journal of Business Studies*.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139-152.

Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. (2010). Multivariate data analysis: a global

perspective. (7th ed.). New York, NY: McGraw-Hill.

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2014). *Multivariate data analysis*. (7th ed, new international version). New York, NY: Pearson.

Hair, J.F., Black, W.C., Black, W.C., Babin, B.J., Anderson, R.E., & Tatham, R.L. (2010). Multivariate data analysis. (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Hair, J.F., Celsi, M.W., Money, A.H., Samouel, P., & Page, M.J. (2010). Essentials of Business Research Methods. (2nd ed.). Armonk, NY: ME Sharpe Inc

Hair, J.F., M. Celsi, D.J. Ortinau, D. J., Bush, R. P. (2013). *Essentials of marketing research*. 3rd ed. Irwin, SC: McGraw-Hill.

Hamed, S., & El-Deeb, S. (2020). Cash on Delivery as a Determinant of E-Commerce Growth in Emerging Markets. *Journal of Global Marketing*, 1-24.

Hameed, M. A., Counsell, S., & Swift, S. (2012). A conceptual model for the process of IT innovation adoption in organizations. *Journal of Engineering and Technology Management, 29*(3), 358-390.

Handarkho, Y. D., & Harjoseputro, Y. (2019). Intention to adopt mobile payment in physical stores. *Journal of Enterprise Information Management*.

Hariguna, T., Adiandari, A. M., & Ruangkanjanases, A. (2020). Assessing customer intention use of mobile money application and the antecedent of perceived value, economic trust and service trust. *International Journal of Web Information Systems*.

Hayashi, F. (2012). Mobile payments: What's in it for consumers? Economic Review-Federal Reserve Bank of Kansas City, 35.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Publications.

Hedman, J., & Henningsson, S. (2015). The new normal: Market cooperation in the mobile payments ecosystem. *Electronic Commerce Research and Applications*, *14*(5), 305-318.

Heinonen, K., Campbell, C., & Ferguson, S. L. (2019). Strategies for creating value through individual and collective customer experiences. *Business Horizons, 62*(1), 95-104.

Hennink, M., Hutter, I., & Bailey, A. (2011). In-depth interviews. *Qualitative Research Methods. London: Sage*, 108-134.

Ho, J. C., Wu, C. G., Lee, C. S., & Pham, T. T. (2020). Factors affecting the behavioural intention to adopt mobile banking: An international comparison. *Technology in Society*, 101360.

Holden, W. (2012), *By Now, Pay Mobile*, Juniper Research Limited, Hampshire

Howell, R., van Beers C., Doorn N. (2017).Technological Forecasting & Social Change.

Hsiao C. H., Chang J. J., & Tang, K. Y. (2016). Exploring the influential factors in continuance usage of mobile social APPs: Satisfaction, habit, and customer value perspectives. *Telematics and Informatics, 33*(2), 342-355.

Humbani, M., & Wiese, M. (2018). A cashless society for all: Determining consumers' readiness to adopt mobile payment services. *Journal of African Business, 19*(3), 409-429.

Humbani, M., & Wiese, M. (2019). An integrated framework for the adoption and continuance intention to use mobile payment apps. *International Journal of Bank Marketing*.

Iacobucci, D. and Churchill, G.A. (2010). *Marketing Research: Methodological Foundations*. (10th ed.). Boston, MA: South-Western, Cengage Learning.

Iman, N. (2018). Is mobile payment still relevant in the fintech era?. *Electronic Commerce Research and Applications, 30*, 72-82.

Innopay, (2013). Mobile Payments 2013 – Changing Checkout. Retrieved 06 July2014from:http://www.innopay.com/system/files/private/Mobile%20payments%202013_Innopay_v1.0.pdf.

Jack, W., & Suri, T. (2011). The Risk Sharing Benefits of Mobile Money. *Unpublished manuscript*.

Jackson, J. D., Mun, Y. Y., & Park, J. S. (2013). An empirical test of three mediation models for the relationship between personal innovativeness and user acceptance of the technology. *Information & Management*, *50*(4), 154-161.

Jia, L., Hall, D., & Sun, S. (2014). The effect of technology usage habits on consumers' intention

to continue use mobile payments.

Johnson, V. L., Kiser A., Washington R., Torres R. (2018). Limitations to the rapid adoption of M-payment services: understanding the impact of privacy risk on M-Payment services. Computer Human Behaviour. 79, 111-122

Johnson, V. L., Woolridge, R. W., & Bell, J. R. (2019). The Impact of Consumer Confusion on Mobile Self-Checkout Adoption. *Journal of Computer Information Systems*, 1-11.

Kalinić, Z., Liébana-Cabanillas, F., Muñoz-Leiva, F., Marinković, V. (2019). The moderating impact of gender on the acceptance of peer-to-peer mobile payment systems. *International Journal of Bank Marketing, 38*(1), 138-158.

Kalinic, Z., Marinkovic, V., Molinillo, S., & Liébana-Cabanillas, F. (2019). A multi-analytical approach to peer-to-peer mobile payment acceptance prediction. *Journal of Retailing and Consumer Services, 49*, 143-153.

Kang, Y. S. (2019). Factors Determining the Intention to Use Mobile Payment Services: The Perspectives of Non-Users and Users. *International Information Institute (Tokyo). Information, 22*(1), 5-22.

Kannan, P. K., Li H. (2017). Digital marketing: A framework, review and research agenda. *International Journal of Research in Marketing* 34, 22–45

Kanojia, P., & Lal, M. (2020). Impact of Trust on Customer Adoption of Digital Payment Systems. In Impact of Mobile Payment Applications and Transfers on Business 16-42.

Kapoor, K., Dwivedi, Y. K., & Williams, M. D. (2013, June). Role of innovation attributes in explaining the adoption intention for the interbank mobile payment service in an Indian context. In *International Working Conference on Transfer and Diffusion of IT* (203-220). Springer, Berlin, Heidelberg.

Kaur, P., Dhir, A., Bodhi, R., Singh, T., & Almotairi, M. (2020). Why do people use and recommend m-wallets? *Journal of Retailing and Consumer Services, 56*, 102091.

Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behaviour*, *70*, 460-474.

Khan, A. H., Qadeer, M. A., Ansari, J. A., & Waheed, S. (2009, April). 4G as a next generation wireless network. In *2009 International Conference on Future Computer and Communication* (334-338). IEEE.

Khraim, H. S., Al Shoubaki, Y. E., & Khraim, A. S. (2011). Factors affecting Jordanian consumers' adoption of mobile banking services. *International Journal of Business and Social Science*, *2*(20).

Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behaviour, 26*, 310–322.

Kim, G., Shin, B., & Lee, H. G. (2009). Understanding dynamics between initial trustand usage intentions of mobile banking. *Information Systems Journal, 19*(3), 283–311.

Kim, H. W., Chan, H. C., & Gupta, S. (2007). Value-based adoption of mobile internet: an empirical investigation. *Decision support systems*, *43*(1), 111-126.

Ko, E., Kim, E., & Lee, E. (2009). Modelling consumer adoption of mobile shopping for fashion products in Korea. *Psychology & Marketing, 26*, 669–687.

Kodó, K., & Hahn, I. (2017). Mobile payment analysed from the aspects of Kano model.

Koenig-Lewis, N., Marquet, M., Palmer, A., & Zhao, A. L. (2015). Enjoyment and social influence: predicting mobile payment adoption. *The Service Industries Journal*, *35*(10), 537-554.

Koenig-Lewis, N., Palmer, A., & Moll, A. (2010). Predicting young consumers' take-up of mobile banking services. *International journal of bank marketing*, *28*(5), 410-432.

Köster, A., Matt, C., & Hess, T. (2016). Carefully choose your (payment) partner: How payment provider reputation influences m-commerce transactions. *Electronic Commerce Research and Applications, 15*, 26-37.

Kovács, L., & David, S. (2016). Fraud risk in electronic payment transactions. *Journal of Money Laundering Control*, *19*(2), 148-157.

Kshetri, N. and Acharya, S. (2012). Mobile payments in emerging markets. IEEE IT Professional, 14(4), 9-14.

Kumar, V., Kumar, U., & Shareef, M. A. (2017). Mobile banking: a trade-off between mobile technology and service for consumer behavioural intentions. *Transnational Corporations Review*, *9*(4), 319-330.

Lai, P. M., & Chuah, K. B. (2010, October). Developing an analytical framework for mobile payments adoption in retailing: a supply-side perspective. In *Management of e-Commerce and e-Government (ICMeCG), 2010 Fourth International Conference on* (356-361). IEEE.

Latusek, D., & Gerbasi, A. (2010). *Trust and technology in a ubiquitous modern environment: Theoretical and methodological perspectives*. Information Science Reference.

Lau, M. M., Lam, A. Y., Cheung, R., & Leung, T. F. (2019). Understanding determinants of customer behavioural intention in using mobile payment at convenience stores. In Proceedings of the 10th International Conference on E-Education, E-Business, E-Management and E-Learning 357-362.

Lazuras, L., Barkoukis,V., Mallia L. (2017). More than a feeling: the role of anticipated regret in predicting doping intentions in adolescent athletes. *Journal of Sport Exercise Psychology, 30*, 196-204,

Lee, J., Ryu, M. H., & Lee, D. (2019). A study on the reciprocal relationship between user perception and retailer perception on platform-based mobile payment service. *Journal of Retailing and Consumer Services, 48*, 7-15.

Lee, Y. K., Park, J. H., Chung, N., & Blakeney, A. (2012). A unified perspective on the factors influencing usage intention toward mobile financial services. *Journal of Business Research, 65*(11), 1590-1599.

Leong, L. Y., Hew, T. S., Tan, G. W. H., & Ooi, K. B. (2013). Predicting the determinants of the

NFC-enabled mobile credit card acceptance: A neural networks approach. *Expert Systems with Applications*, *40*(14), 5604-5620.

Li, J., Liu, J. L., & Ji, H. Y. (2014). An empirical study of influence factors of adaption intention of mobile payment based on TAM model in China. *International Journal of u-and e-Service, Science and Technology*, *7*(1), 119-132.

Li, Y., Duan, Y., Fu, Z., & Alford, P. (2012). An empirical study on behavioural intention to reuse e-learning systems in rural China. *British Journal of Educational Technology*, *43*(6), 933-948.

Liao, C., Chen, J. L., & Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in human behaviour*, *23*(6), 2804-2822.

Liebana, F., Kalinic-Cabanillas, Z., Luna, I. R. de, & Rodríguez-Ardura Inma. (2020). Impact of mobile services on business development and e-commerce. Hershey, PA: Business Science Reference.

Liébana-Cabanillas F., Lara-Rubio J. (2017). Predictive and explanatory modelling regarding adoption of mobile payment systems. *Technological Forecasting & Social Change 120*, 32-40.

Liébana-Cabanillas, F. J., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Role of gender on acceptance of mobile payment. *Industrial Management & Data Systems*.

Liébana-Cabanillas, F., Muñoz-Leiva, F., & Sánchez-Fernández, J. (2018). A global approach to the analysis of user behaviour in mobile payment systems in the new electronic environment. *Service Business*, *12*(1), 25-64.

Liébana-Cabanillas, F., Ramos de Luna, I., & Montoro-Ríos, F. (2017). Intention to use new mobile payment systems: a comparative analysis of SMS and NFC payments. *Economic research-Ekonomska istraživanja*, *30*(1), 892-910.

Liébana-Cabanillas, F., Sánchez-Fernández, J., & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behaviour*, *35*, 464-478.

Lin K. Y., and Lu, H. P. (2015). Predicting mobile social network acceptance based on mobile value and social influence. *Internet Research, 25*(1), 107-130.

Lin, K. Y., Wang, Y. T., & Huang, T. K. (2018, January). What drives continued intention for mobile payment?-an expectation cost benefit theory with habit. In *Proceedings of the 51st Hawaii International Conference on System Sciences*.

Lin, K. Y., Wang, Y. T., & Huang, T. K. (2020). Exploring the antecedents of mobile payment service usage. *Online Information Review*.

Little, T. D. (2013). *Longitudinal structural equation modelling*. Guilford press.

Liu, Y., Wang, M., Huang, D., Huang, Q., Yang, H., & Li, Z. (2019). The impact of mobility, risk, and cost on the users' intention to adopt mobile payments. *Information Systems and e-Business Management*, *17*(2), 319-342.

Long, X., Chen, Y., Du, J., Oh, K., & Han, I. (2017a). Environmental innovation and its impact on economic and environmental performance: evidence from Korean-owned firms in China. *Energy Policy*, 107, 131-137.

Lowry, C. (2016). What's in Your Mobile Wallet: An Analysis of Trends in Mobile Payments and Regulation. *Fed. Comm. LJ*, *68*, 353.

Lu, C., Huang, S. & Lo, P. (2010). An empirical study of online tax filing acceptance model: Integrating TAM and TPB. *African Journal of Business Management, 4*(5), 800-810.

Lu, Y., Yang, S., Chau, P. Y., & Cao, Y. (2011). Dynamics between the trust transfer process and intention to use mobile payment services: A cross-environment perspective. *Information & Management*, *48*(8), 393-403.

Madan, K., & Yadav, R. (2016). Behavioural intention to adopt mobile wallet: a developing country perspective. *Journal of Indian Business Research*, *8*(3), 227-244.

Makanyeza, C. (2017). Determinants of consumers' intention to adopt mobile banking services in Zimbabwe. *International Journal of Bank Marketing*.

Makina, D. (2017). Introduction to the financial services in Africa special issue. *African Journal of Economic and Management Studies, 8*(1), 2-7

Malcolm, H. (2015). Cyber Monday clocks record sales as mobile sales surge. USA Today Dec 2. Accessed from http://www.usatoday.com/story/money/2015/12/01/cyber-monday-sales-results/76602534/

Malhotra, N. K. (2010). Marketing research: An applied orientation 834.

Mallat, N., Rossi, M., Tuunainen, V. K., & Öörni, A. (2009). The impact of use context on mobile services acceptance: The case of mobile ticketing. *Information & management*, *46*(3), 190-195.

Manacorda, M., & Tesei, A. (2020). Liberation technology: mobile phones and political mobilization in Africa. *Econometrica, 88*(2), 533-567.

Maurer, B. (2012). Mobile money: communication, consumption and change in the payments space. *Journal of Development Studies, 48*(5), 589-604

McMaster, T., & Wastell, D. (2005). Diffusion or delusion? Challenging an IS research tradition. *Information Technology & People, 18*, 383–404.

Mensah, I. K. (2019). Predictors of the Continued Adoption of WECHAT Mobile Payment. *International Journal of E-Business Research (IJEBR), 15*(4), 1-23.

Mensah, I. K., Chuanyong, L., & Zeng, G. (2020). Factors Determining the Continued Intention to Use Mobile Money Transfer Services (MMTS) Among University Students in Ghana. *International Journal of Mobile Human Computer Interaction (IJMHCI), 12*(1), 1-21.

Mertens, D. M. (2014). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Sage publications.

Mihailescu, Mihailescu and Carlsson, 2013. Mihailescu, M., Mihailescu, D., & Carlsson, S. (2013). The Conditions of Complex Innovation Adoption Occurrence-A Critical Realist Perspective. *Electronic Journal of Information Systems Evaluation, 16*(3), 221.

Min, S., So, K. K. F., & Jeong, M. (2019). Consumer adoption of the Uber mobile application: Insights from diffusion of innovation theory and technology acceptance model. *Journal of Travel & Tourism Marketing, 36*(7), 770-783.

Molina-Castillo, F. J., Lopez-Nicolas, C., & de Reuver, M. (2020). Mobile Payment: The Hiding Impact of Learning Costs on User Intentions. Journal of theoretical and applied electronic commerce research, 15(1), 0-0.

Molina-Castillo, F. J., Lopez-Nicolas, C., & de Reuver, M. (2020). Mobile payment: The hiding impact of learning costs on user intentions. *Journal of theoretical and applied electronic commerce research*, *15*(1), 0-0.

Moon, K., Blackman, D. A., Adams, V. M., Colvin, R. M., Davila, F., Evans, M. C., & Sherren, K. (2019). Expanding the role of social science in conservation through an engagement with philosophy, methodology, and methods. *Methods in Ecology and Evolution*, *10*(3), 294-302.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information systems research*, *2*(3), 192-222.

Mora M., Gelman O., Steenkamp A., Raisinghani M.**S.** (2012). *Research methodologies, innovations and philosophies in software systems engineering and information systems*.

Morosan, C. (2016). An empirical examination of US travellers' intentions to use biometric e-gates in airports. *Journal of Air Transport Management*, *55*, 120-128.

Morosan, C., & De Franco, A. (2016). It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. *International Journal of Hospitality Management*, *53*, 17-29.

Murendo, C., Wollni, M., De Brauw, A., & Mugabi, N. (2018). Social Network Effects on Mobile Money Adoption in Uganda. *The Journal of Development Studies*, *54*(2) 327-342.

Muzurura, J., & Chigora, F. (2019). Consumers' Behavioural Intention to Adopt Mobile Banking in Rural Sub-Saharan Africa Using an Extension of Technology Acceptance Model: Lessons from Zimbabwe. *International Journal of Business, Economics and Management*, *6*(6), 316-334.

Nair, P.K., Ali, F. and Leong, L.C. (2015). Factors affecting acceptance & use of ReWIND: validating the extended unified theory of acceptance and use of technology. *Interactive Technology and Smart Education, 12*(3)183-201

Namahoot, K. S., & Laohavichien, T. (2018). Assessing the intentions to use internet banking. *International Journal of Bank Marketing*.

Narteh, B., Mahmoud, M. A., & Amoh, S. (2017). Customer behavioural intentions towards mobile money services adoption in Ghana. *The Service Industries Journal, 37*(7-8), 426-447.

Nielsen, A. (2014). Mobile millennials: Over 85% of Generation Y owns smartphones. *Nielsen*.

Arvidsson, N. (2014). Consumer attitudes on mobile payment services–results from a proof of concept test. *International Journal of Bank Marketing*.

Oliveira T., Thomas M., Baptista G., Campos F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in Human Behaviour, 61,* 404-414.

Oliveira, T., & Martins, M. F. (2011). Literature review of information technology adoption models at firm level. *Electronic Journal of Information Systems Evaluation*, *14*(1), 110.

Oliveira, T., Thomas, M., & Espadanal, M. (2014). Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information & Management*, *51*(5), 497-510.

Osei-Assibey, E. (2015). What drives behavioural intention of mobile money adoption? The case of ancient susu saving operations in Ghana. *International Journal of Social Economics*.

Othman, M. F. I., Chan, T., Foo, E., Nelson, K. J., & Timbrell, G. T. (2011, August). Barriers to information technology governance adoption: a preliminary empirical investigation. In *Proceedings of 15th International Business Information Management Association Conference* (1771-1787).

Ozturk, A.B., Nusair, K., Okumus, F., Hua, N. (2016). The role of utilitarian and hedonic values on users' continued usage intention in a mobile hotel booking environment. *International Journal of Hospitality Management, 57,* 106-115

Pal, A., Herath, T., De', R., & Rao, H. R. (2020). Contextual facilitators and barriers influencing the continued use of mobile payment services in a developing country: insights from adopters in India. *Information Technology for Development*, *26*(2), 394-420.

Park, J., Ahn, J., Thavisay, T., & Ren, T. (2019). Examining the role of anxiety and social influence in multi-benefits of mobile payment service. *Journal of Retailing and Consumer Services, 47,* 140-149.

Park, M., Jun, J., & Park, H. (2017). Understanding Mobile Payment Service Continuous Use Intention: An Expectation-Confirmation Model and Inertia. *Quality Innovation Prosperity*, *21*(3), 78.

Parment, A. (2013). Generation Y vs. Baby Boomers: Shopping behaviour, buyer involvement and implications for retailing. *Journal of Retailing and Consumer Services, 20*(2), 189–199.

Patil, C.S., Karhe, R.R. and Aher, M.A. (2012). Development of mobile technology: A survey. *International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, 1*(5), 374-379.

Persaud, A., & Schillo, S. R. (2017). Purchasing organic products: role of social context and consumer innovativeness. *Marketing Intelligence & Planning*.

Phillips, E. (2015). Retailers scale up online sales distribution networks. The Wall Street Journal November 17, 2015Accessed from http://www.wsj.com/articles/retailers-scale-up-online-sales-distribution-networks-1447792869

Phonthanukitithaworn, C., Sellitto, C., & Fong, M. W. (2016). An investigation of mobile payment (m-payment) services in Thailand. *Asia-Pacific Journal of Business Administration*.

Pihlstrom, M., & Brush, G. J. (2008). Comparing the perceived value of information and entertainment mobile services. *Psychology and Marketing, 25*(8), 732-755.

Pitari, D. F., Gayatri, G., Furinto, A., & Assauri, S. (2020). Integration of intention and resistance in adopting Near Field Communication-Based Mobile Payment innovation. *International Journal of Scientific and Technology Research*, *9*(4), 857-866.

Polančič, G., Heričko, M., & Rozman, I. (2010). An empirical examination of application

frameworks success based on technology acceptance model. *Journal of systems and software*, *83*(4), 574-584.

Prasad, R. K., & Jha, M. K. (2014). Consumer buying decisions models: A descriptive study. *International Journal of Innovation and Applied Studies*, *6*(3), 335.

Premkumar, G. (2003). A meta-analysis of research on information technology implementation in small business. *Journal of organizational computing and electronic commerce*, *13*(2), 91-121.

Prodanova, J., Ciunova-Shuleska, A., & Palamidovska-Sterjadovska, N. (2019). Enriching m-banking perceived value to achieve reuse intention. *Marketing Intelligence & Planning*.

PWC. (2016). Ghana banking survey: How to win in era of mobile money. Retrieved April 13, 2017, from https://www.pwc.com/gh/en/assets/pdf/2016-banking-survey-report.pdf

Qin, Z., Sun, J., Wahaballa, A., Zheng, W., Xiong, H., & Qin, Z. (2017). A secure and privacy-preserving mobile wallet with outsourced verification in cloud computing. *Computer Standards & Interfaces*, *54*, 55-60.

Rackley III, B. L., Porter, W. D., Rickman, G. M., & Cochran, K. L. (2018). *U.S. Patent No. 9,911,114*. Washington, DC: U.S. Patent and Trademark Office.

Ramayah, T. (2020). Students' choice intention of a higher learning institution: An application of the theory of reasoned action (TRA). *Malaysian Management Journal*, *7*(1), 47-62.

Rao, L. (2015). Online shoppers spent a record $4.45 billion on Black Friday and Thanksgiving. Fortune Nov 28, accessed from http://fortune.cm/2017/11/28/blackfriday-sales-2/

Ridley, D. (2012). The Literature Review: A Step-by-Step Guide for Students. (2nd ed.). London: Sage

Roche, M., Duffield, C., & White, E. (2011). Factors in the practice environment of nurses working in inpatient mental health: A partial least squares path modelling approach. *International Journal of Nursing Studies*, *48*(12), 1475-1486.

Rogers E. M. (1995). *Diffusion of innovations*. New York: The Free Press

Rogers, E.M. (1962). *Diffusion of Innovations. (1st ed.*). Glencoe: Free Press

Rogers, E.M. (1995). *Diffusion of Innovations*. New York: Free Press.

Rogers, E.M. (2003). *Diffusion of Innovations (5th ed.,* New York: Free Press.

Rogers, E.M. (2010). *Diffusion of Innovations.* New York: Free Press

Salo, J., Sinisalo, J., & Karjaluoto, H. (2008). Intentionally developed business network for mobile marketing: A case study from Finland. *Journal of Business and Industrial Marketing, 23* (7), 497-506.

Saunders, M., Lewis, P., & Thornhill, A. (2012). Research Methods for Business Students, 6th edn, sn.

Saunders, M.N., Saunders, M., Lewis, P. &Thornhill, A. (2011). Research Methods for Business Students. (5th ed.). New Delhi: Pearson Education.

Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic commerce research and applications*, *9*(3), 209-216.

Schumacker, R.E. & Lomax, R.G. (2013). A Beginner's Guide to Structural Equation Modelling. (3rd ed.). Third Avenue, NY: Routledge.

Sekaran, U., & Bougie, R. (2013). *Research Methods for Business*. (6th ed.). West Sussex: John Wiley & Sons Ltd.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.

Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and informatics*, *32*(1), 129-142.

Shankar, A., & Datta, B. (2018). Factors affecting mobile payment adoption intention: An Indian perspective. *Global Business Review*, *19*(3), S72-S89.

Shao, Z., Zhang, L., Li, X., & Guo, Y. (2019). Antecedents of trust and continuance intention in mobile payment platforms: The moderating effect of gender. *Electronic Commerce Research and Applications*, *33*, 100823.

Shaw, B., & Kesharwani, A. (2019). Moderating Effect of Smartphone Addiction on Mobile Wallet Payment Adoption. *Journal of Internet Commerce, 18*(3), 291-309.

Shaw, N. (2014). The mediating influence of trust in the adoption of mobile wallet. *Journal of Retailing & Consumer Services, 21*, 449–459.

Shaw, N., & Sergueeva, K. (2019). The non-monetary benefits of mobile commerce: Extending UTAUT2 with perceived value. *International Journal of Information Management, 45*, 44-55.

Shen, Y. C., Huang, C. Y., Chu, C. H., & Hsu, C. T. (2010). A benefit-cost perspective of the consumer adoption of the mobile banking system. *Behaviour & Information Technology*, *29*(5), 497-511.

Shim, J.P., Park, S. and Shim, J.M. (2008). Mobile TV phone: Current usage, issues, and strategic implications. *Industrial Management & Data Systems, 108*(9), 1269-1282.

Shin, D. H. (2010). Modeling the interaction of users and mobile payment system: Conceptual framework. *International Journal of Human-Computer Interaction*, *26*(10), 917-940.

Shroff, R. H., Deneen, C. C., & Ng, E. M. (2011). Analysis of the technology acceptance model in examining students' behavioural intention to use an e-portfolio system. *Australasian Journal of Educational Technology, 27*(4).

Sichone, J., Milano, R., & Kimea, A. (2018). The influence of facilitating conditions perceived benefits, and perceived risk on intention to adopt e-filing in Tanzania. *Business Management Review, 20*(2), 50-59.

Singh, N., Sinha, N., & Liébana-Cabanillas, F. J. (2020). Determining factors in the adoption and recommendation of mobile wallet services in India: Analysis of the effect of innovativeness, stress to use and social influence. *International Journal of Information Management, 50*, 191-205.

Sinha, M., Majra, H., Hutchins, J., & Saxena, R. (2019). Mobile payments in India: the privacy factor. *International Journal of Bank Marketing*.

Slade, E. L., Dwivedi, Y. K., Piercy, N. C., & Williams, M. D. (2015). Modelling consumers' adoption intentions of remote mobile payments in the United Kingdom: extending UTAUT with innovativeness, risk, and trust. *Psychology & Marketing, 32*(8), 860-873.

Slade, E. L., Williams, M. D., & Dwivedi, Y. (2013). Extending UTAUT2 to Explore Consumer Adoption of Mobile Payments. *UKAIS, 36*.

Slade, E., Williams, M., Dwivedi, Y., & Piercy, N. (2015). Exploring consumer adoption of proximity mobile payments. *Journal of Strategic Marketing, 23*(3), 209-223.

Smutkupt, P., Krairit, D. and Esichaikul, V. (2010). Mobile marketing: implications for marketing strategies. *International Journal of Mobile Marketing, 5*(2), 126-139.

Sobti, N. (2019). Impact of demonetization on diffusion of mobile payment service in India: Antecedents of behavioural intention and adoption using extended UTAUT model. *Journal of Advances in Management Research, 16*(4), 472-497.

Song, L., & Chang, T. Y. (2012). Do resources of network members help in help seeking? Social capital and health information search. *Social Networks, 34*(4), 658-669.

Sonnenberg, N. C., Erasmus, A. C., & Schreuder, A. (2014). Consumers' preferences for eco-friendly appliances in an emerging market context. *International journal of consumer studies*, *38*(5), 559-569.

Statistica (2018). Global mobile payment revenue 2015–2019, available at: www.statista.com/statistics/226530/mobile-payment-transaction-volume-forecast/ (accessed 18 January 2018).

Sthapit, E., & Björk, P. (2020). Towards a better understanding of interactive value formation: Three value outcomes perspective. *Current Issues in Tourism, 23*(6), 693-706.

Ström, R., Vendel, M., & Bredican, J. (2014). Mobile marketing: A literature review on its value for consumers and retailers. *Journal of Retailing and Consumer Services, 21*(6), 1001-1012.

Su, P., Wang, L., & Yan, J. (2018). How users' Internet experience affects the adoption of mobile payment: a mediation model. *Technology Analysis & Strategic Management*, *30*(2), 186-197.

Sullivan, Y. W., & Koh, C. E. (2019). Social media enablers and inhibitors: Understanding their relationships in a social networking site context. *International Journal of Information Management, 49,* 170-189.

Sun, J., & Chi, T. (2019). Investigating the adoption of apparel m-commerce in the US market. *International Journal of Clothing Science and Technology.*

Sun, S., Law, R., & Schuckert, M. (2020). Mediating effects of attitude, subjective norms and perceived behavioural control for mobile payment-based hotel reservations. *International Journal of Hospitality Management, 84,* 102331.

Swanson, R. A., & Chermack, T. J. (2013). *Theory building in applied disciplines*. Berrett-Koehler Publishers.

Taherdoost, H. (2016). Sampling methods in research methodology; how to choose a sampling technique for research. *How to Choose a Sampling Technique for Research (April 10, 2016).*

Tan, G. W. H., Ooi, K. B., Chong, S. C., & Hew, T. S. (2014). NFC mobile credit card: the next frontier of mobile payment? *Telematics and Informatics*, *31*(2), 292-307.

Tan, K.S., Chong, S.C., Lin, B. and Eze, U.C. (2009). Internet-based ICT adoption: Evidence from Malaysian SMEs. *Industrial Management & Data Systems*, *109*(2), 224-244.

Teo, A. C., Tan, G. W. H., Ooi, K. B., Hew, T. S., & Yew, K. T. (2015). The effects of convenience and speed in m-payment. *Industrial Management & Data Systems, 115*(2), 311-331.

Teo, T., & Zhou, M. (2017). The influence of teachers' conceptions of teaching and learning on their technology acceptance. *Interactive Learning Environments, 25*(4), 513-527.

Teo, W. L., Manaf, A. A., & Choong, P. L. F. (2013). Practitioner Factors in Information Technology Governance. *Journal of Administrative Sciences and Technology, 1*.

Thakur, R. (2013). Customer adoption of mobile payment services by professionals across two cities in India: An empirical study using modified technology acceptance model. *Business Perspectives and Research*, *1*(2), 17-30.

Thakur, R., & Srivastava, M. (2014). Adoption readiness, personal innovativeness, perceived risk and usage intention across customer groups for mobile payment services in India. *Internet Research*, *24*(3), 369-392.

Thye Goh, T., Mohd Suki, N., & Fam, K. (2014). Exploring a consumption value model for Islamic mobile banking adoption. *Journal of Islamic Marketing*, *5*(3), 344-365.

Ting, H., Yacob, Y., Liew, L., & Lau, W. M. (2016). Intention to use mobile payment system: A case of developing market by ethnicity. *Procedia-Social and Behavioural Sciences*, *224*(6), 368-375.

Tobbin, P., & Kowornu, J. K. M. (2011). Adoption of mobile money transfer technology: Structural equation modelling approach. *European Journal of Business and Management*, *3*(7), 59–77.

Triandis, H. C. (1979). Values, attitudes, and interpersonal behaviour. In *Nebraska symposium on motivation*. University of Nebraska Press.

Tsai, M.C., Lai, K.H., Hsu, W.C. (2013). A study of the institutional forces influencing the adoption intention of RFID by suppliers. *Information & Management*, *50*(1), 59-65.

Turel, O., Serenko, A., & Bontis, N. (2010). User acceptance of hedonic digital artefacts: A theory of consumption values perspective. *Information & Management*, *47*(1), 53-59.

Turowski, K., & Pousttchi, K. (2013). *Mobile commerce: Grundlagen und Technik*. Springer-Verlag.

Upadhyay, P., & Jahanyan, S. (2016). Analyzing user perspective on the factors affecting use intention of mobile based transfer payment. *Internet Research*.

Urban, J. (2016). Mobile Payments: Consumer Benefits & New Privacy Concerns.

Van der Heijden, H. (2003). Factors influencing the usage of websites: the case of a generic portal in The Netherlands. *Information & management*, *40*(6), 541-549.

Venkatesh, V. and Davis, F.D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Hall, M., Davis, G. B., Davis, F. D., &Walton, S. M. (2003). User acceptance of information technology: toward a unified view. *MIS Quarterly, 27*(3), 425-478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157-178.

Verkijika, S. F. (2020). An effective response model for understanding the acceptance of mobile payment systems. *Electronic Commerce Research and Applications, 39*, 100905.

Verma, S., Chaurasia, S., & Bhattacharyya, S. (2019). The effect of government regulations on continuance intention of in-store proximity mobile payment services. *International Journal of Bank Marketing, 38*(1) 34-62.

Vuong, B. N. (2020). An empirical analysis of mobile banking adoption in Vietnam. *Gestão E Sociedade*, *14*(37), 3365-3393.

Wang, D., Xiang, Z., & Fesenmaier, D. R. (2016). Smartphone use in everyday life and travel. *Journal of travel research, 55*(1), 52-63.

Wang, F., Shan, G. B., Chen, Y., Zheng, X., Wang, H., Mingwei, S., & Haihua, L. (2020). Identity Authentication Security Management in Mobile Payment Systems. *Journal of Global Information Management (JGIM), 28*(1), 189-203.

Wang, H. Y., Liao, C., & Yang, L. H. (2013). What affects mobile application use? The roles of consumption values. *International Journal of Marketing Studies*, *5*(2), 11.

Wang, L., & Dai, X. (2020). Exploring factors affecting the adoption of mobile payment at physical stores. *International Journal of Mobile Communications, 18*(1), 67-82.

Wang, L., & Yi, Y. (2012). The impact of use context on mobile payment acceptance: An empirical study in China. In *Advances in computer science and education* (293-299). Springer,

Berlin, Heidelberg.

Wang, Z., Wang, X., & Guo, D. (2017). Policy implications of the purchasing intentions towards energy-efficient appliances among China's urban residents: Do subsidies work? *Energy Policy, 102*, 430-439.

Wei, R., Xiaoming, H., & Pan, J. (2010). Examining user behavioural response to SMS ads: Implications for the evolution of the mobile phone as a bona-fide medium. *Telematics and Informatics, 27*(1), 32-41.

Wendy Ming-Yen Teoh, Siong Choy Chong, Binshan Lin, Jiat Wei Chua, (2013) Factors affecting consumers' perception of electronic payment: an empirical analysis. *Internet Research, 23*(4), 465-485

Wiese, M., & Humbani, M. (2020). Exploring technology readiness for mobile payment app users. *The International Review of Retail, Distribution and Consumer Research, 30*(2), 123-142.

Williams, M., Rana, N., Dwivedi, Y., & Lal, B. (2011). Is UTAUT really used or just cited for the sake of it? A systematic review of citations of UTAUT's originating article.

Williams, M.D., Dwivedi, Y.K., Lal, B. and Schwarz, A. (2009). Contemporary trends and issues in IT adoption and diffusion research. *Journal of Information Technology, 24*(1), 1-10.

Wilson, A. (2012). *Marketing Research: An Integrated Approach*. (3rd ed.). Essex: Pearson Education.

Winit-Watjana, W. (2016). Research philosophy in pharmacy practice: necessity and relevance. *International Journal of Pharmacy Practice, 24*(6), 428-436.

Wong, C.H., Tan, G.W.H., Loke, S.P., Ooi, K.B. (2015). Adoption of mobile social networking sites for learning? *Online Information Review, 39*(6), 762-778.

Wu J., Liu L., Huang L. (2017). Consumer acceptance of mobile payment across time: Antecedents and the moderating role of diffusion stages. *Industrial Management & Data Systems*, *117* (8)1761-1776.

Wu, C. C., Huang, Y., & Hsu, C. L. (2014). Benevolence trust: a key determinant of user

continuance use of online social networks. *Information Systems and e-Business Management*, *12*(2), 189-211.

Xin, H., Techatassanasoontorn, A. A., & Tan, F. B. (2015). Antecedents of consumer trust in mobile payment adoption. Journal of Computer Information Systems, 55(4), 1-10.

Xu, H., Sharma, S.K. and Hackney, R. (2005). Web services innovation research: Towards a dual-core model. *International Journal of Information Management, 25*(4), 321-334.

Yan, S., Xu, D., Yang, Q., Zhang, L., Tang, X., & Zhang, H. J. (2006). Multilinear discriminant analysis for face recognition. *IEEE Transactions on Image Processing, 16*(1), 212-220.

Yang S., Lu Y., Gupta S., Cao Y., Zhang R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioural beliefs, social influences, and personal traits. *Computers in Human Behaviour* 28, 129–142

Yang, H., Yu, J., Zo, H., & Choi, M. (2016). User acceptance of wearable devices: An extended perspective of perceived value. *Telematics and Informatics*, *33*(2), 256-269.

Yang, K. (2012). Consumer technology traits in determining mobile shopping adoption: An application of the extended theory of planned behaviour. *Journal of Retailing & Consumer Services, 19*, 484–491

Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioural beliefs, social influences, and personal traits. *Computers in Human Behaviour*, *28*(1), 129-142.

Yang, S., Wang, Y. and Wei, J. (2014). Integration and consistency between web and mobile services. *Industrial Management & Data Systems, 114* (8), 1246-1269.

Yang, Y., Liu, Y., Li, H., & Yu, B. (2015). Understanding perceived risks in mobile payment acceptance. *Industrial Management & Data Systems*, *115*(2), 253-269.

Yang, Z., & Peterson, R. T. (2004). Customer perceived value, satisfaction, and loyalty: The role of switching costs. *Psychology & Marketing*, *21*(10), 799-822.

Yang, H. D., & Yoo, Y. (2004). It's all about attitude: revisiting the technology acceptance model. *Decision support systems*, *38*(1), 19-31.

Yi, M.Y. Jackson, J.D. Park, J.S. Probst J.C. (2006). Understanding information technology acceptance by individual professionals: toward an integrative view. *Information & Management, 43* (3), 350-363.

Yongqing Yang, Yong Liu, Hongxiu Li, Benhai Yu, (2015) Understanding perceived risks in mobile payment acceptance. *Industrial Management & Data Systems, 115*(2), 253-269

Yousafzai, S., Pallister, J., & Foxall, G. (2009). Multi-dimensional role of trust in Internet banking adoption. *The Service Industries Journal*, *29*(5), 591-605.

Yu, C. S., & Tao, Y. H. (2009). Understanding business-level innovation technology adoption. *Technovation*, *29*(2), 92-109.

Zeithaml, V.A. (1988). Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence. *Journal of Marketing*, 52 (3), 2-22.

Zhang, J., & Mao, E. (2008). Understanding the acceptance of mobile SMS advertising among young Chinese consumers. *Psychology & Marketing*, *25*(8), 787-805.

Zhang, J., & Mao, E. (2020). Cash, credit, or phone? An empirical study on the adoption of mobile payments in the United States. *Psychology & Marketing, 37*(1), 87-98.

Zhang, M. Y., & Dodgson, M. (2007). A roasted duck can still fly away: A case study of technology, nationality, culture and the rapid and early internationalization of the firm. *Journal of World Business*, *42*(3), 336-349.

Zhang, Y., Lin, N., & Li, T. (2012). Markets or networks: Households' choice of financial intermediary in Western China. *Social Networks, 34*(4), 670-681.

Zhao, J., & de Pablos, P. O. (2011). Regional knowledge management: the perspective of management theory. *Behaviour & Information Technology*, *30*(1), 39-49.

Zheng, Y., Zhao, K., & Stylianou, A. (2013). The impacts of information quality and system quality on users' continuance intention in information-exchange virtual communities: An empirical investigation. *Decision Support Systems*, *56*, 513-524.

Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems, 54*, 1085–1091.

Zhou, T. (2014). An empirical examination of initial trust in mobile payment. *Wireless Personal Communications, 77*, 1519–1531.

Zikmund, W, G. (2 003). *Business Research Methods*. (7th ed.), Mason: South-Western

Zikmund, W.G. & Babin, B.J. (2010). Essentials of Marketing Research. 4th ed. Natorp Boulevard, United states of America (USA): South-Western CENGAGE Learning.

APPENDICE

Appendix 1: Questionnaire

BACKGROUND AND INSTRUCTIONS

Mobile payments are made with mobile devices for goods, services, and personal transfers. It is carried out with a mobile payment instrument such as a mobile credit card or a mobile wallet. It is broadly categorised into payments for daily buying, and paying bills.

For most questions simply indicate with a cross (x) in the space provided or on the number that corresponds to the response closest to your experience.

Section A: Personal Data

Please indicate with (x) in the box that corresponds to the answer.

PD1	Gender	Male	
		Female	
PD2	Age	20-29	
		30-39	
		40-49	
		50-59	
		60+	
PD3	Educational Level	PhD	
		masters	
		Bachelors	
		Below Bachelors	
PD4	Work Experience	1-5	
		6-10	
		11-15	

		16-20	
PD5	Work type	Formal sector	
		Informal sector	

Section B: Perception towards Adoption and Use of Mobile Payment

Below is a list of statements measuring your perception towards mobile payment? Please answer each of these statements either if you have already adopted or used mobile or if you have not yet adopted or used mobile payment. Please indicate the extent to which you agree or disagree with each of the statements listed below by crossing (x) on the number that corresponds to your answer. (Please note that 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree)

Peers		**SD**	**D**	**NA/D**	**A**	**SA**
PS1	Peers who influence my behaviour think I should use mobile payment.	1	2	3	4	5
PS2	My friends think that I should use mobile payment.	1	2	3	4	5
PS3	Among my peers, the use of mobile payment has a high profile	1	2	3	4	5
PS4	Using mobile payment is considered a status symbol among my friends	1	2	3	4	5
Family						
FM1	The people whose opinions I value in my family would approve of me using the mobile payment to purchase products/services	1	2	3	4	5
FM2	The people who are close to me in my family would agree with me using the mobile payment to purchase products/services	1	2	3	4	5
FM3	The thought of adopting mobile payment is/would be an appealing idea for my family.	1	2	3	4	5

Social class						
SC1	The people I interact with socially think I should use mobile payment	1	2	3	4	5
SC2	The people I interact with socially who use mobile payment have a superior profile	1	2	3	4	5
SC3	Using mobile payment is a status symbol in my social environment	1	2	3	4	5
SC4	The people I interact with socially that use mobile payment are more prestigious than those who do not use it	1	2	3	4	5
Education						
ED1	The higher the level of my education, the more I used mobile payment	1	2	3	4	5
ED2	Because of my familiarity with mobile devices through educational and job-related situations the greater the use of mobile payment.	1	2	3	4	5
ED3	As an average mobile payment user, I'm expected to have a higher education level	1	2	3	4	5
Social value						
SV1	I can make friends with people sharing common interests with me in using mobile payment services	1	2	3	4	5
SV2	Using this mobile payment service gives me social approval	1	2	3	4	5
SV3	I can expand my social network through participation in mobile payment services	1	2	3	4	5
Functional value						
FV1	The system of mobile payment is reliable and convenient to access	1	2	3	4	5
FV2	Mobile payment can be connected instantly to pay for goods/services	1	2	3	4	5

FV3	Mobile payment takes a short time to respond for payment to be done	1	2	3	4	5
FV4	It is easy to get Mobile payment to do what I want it to do	1	2	3	4	5
Hedonic value						
HV1	I feel pleased and relaxed in using mobile payment for goods/services.	1	2	3	4	5
HV2	I gain joy and happiness in using mobile payment for goods/services	1	2	3	4	5
HV3	I feel inspired in using mobile payment for goods/services	1	2	3	4	5
Price Value						
PV1	Compared to the fee I need to pay, the use of mobile payment offers good value for money.	1	2	3	4	5
PV2	Compared to the time I need to spend, the use of mobile payment is worthwhile for me	1	2	3	4	5
PV3	Compared to the effort I need to put in, the use of mobile payment is beneficial to me	1	2	3	4	5
PV4	Overall, the use of mobile payment delivers me good value	1	2	3	4	5
Conditional Value						
CV1	Due to lack of time, it is conducive/wise to use mobile payment for transactions	1	2	3	4	5
CV2	Due to the unfamiliar location of my suppliers/markets, I use mobile payment for my transaction activities.	1	2	3	4	5
CV3	As a result of geographical distance, it is ideal to use mobile payment for my transactions	1	2	3	4	5
CV4	As a result of the lack of alternative methods of payment, I often use mobile payment for transactions	1	2	3	4	5

Behavioural Beliefs						
BB1	I like to experiment with new information technologies.	1	2	3	4	5
BB2	In general, I am hesitant to try out new information technologies	1	2	3	4	5
BB3	If I heard about a new information technology, I would look for ways to experiment with it.	1	2	3	4	5
BB4	It is easy for me to use mobile payment technology	1	2	3	4	5
Relative advantage						
RA1	Mobile Payment enables/would enable me to pay for products/services in a better way	1	2	3	4	5
RA2	Mobile Payment enables/would enable me to get early delivery of products/services in the comfort of my home/office because of prompt payment	1	2	3	4	5
RA3	Mobile payment assists/would assist me to reduce the risks of holding cash and travelling to pay bills/product purchase in a better way	1	2	3	4	5
RM4	Mobile payment has more advantages than internet or off-line payment because services are not limited by location	1	2	3	4	5
Complexity						
CX1	The use of mobile payment requires/would require a lot of mental effort	1	2	3	4	5
CX2	The use of mobile payment is/would be frustrating	1	2	3	4	5
CX3	Mobile payment is/would be too complex for my business transaction and payment for domestic activities	1	2	3	4	5
Cost						
CT1	The costs involved in the adoption of mobile payment are/would be far greater than the expected benefits	1	2	3	4	5

CT2	The cost of buying smart devices and internet data for mobile payment is/would be very high for me	1	2	3	4	5
CT3	The psychological cost involved in switching from carrying cash to mobile payment systems is/would be too high	1	2	3	4	5
CT4	There are financial barriers (e.g., having to pay for handset and communication time) to my using mobile payment	1	2	3	4	5
Compatibility						
COM1	Mobile payment creates/would create changes that are compatible with my payment for both business transaction and domestic activities.	1	2	3	4	5
COM2	Mobile payment is/would be compatible with my preferred practice of business transactions and home purchases	1	2	3	4	5
COM3	Mobile Payment is/would be compatible with my current business transactions/payment activities Using mobile payment is compatible with all aspects of my work	1	2	3	4	5
COM4	I think that using mobile payment fits well with the way I like to work	1	2	3	4	5
COM5	Using mobile payment services fits well with my lifestyle	1	2	3	4	5
Communication						
CN1	The content or information on mobile payment is useful for buying the products or services that it sells or markets.	1	2	3	4	5
CN2	As a consumer, mobile payment campaigns have reached me timely to facilitate decision-making processes.	1	2	3	4	5

CN3	Information provided regarding mobile payment is not enough for me to use the technology for payment when purchasing	1	2	3	4	5
Trialability						
TB1	I have the opportunity to try mobile payment system services.	1	2	3	4	5
TB2	Given the opportunity, I will try the mobile payment system services	1	2	3	4	5
TB3	I will surely try mobile payment system services in future	1	2	3	4	5
Attitude towards						
AT1	Using mobile payment is/would be a good idea	1	2	3	4	5
AT2	I have/would have a positive feeling towards mobile payment usage	1	2	3	4	5
AT3	Using mobile payment services is beneficial	1	2	3	4	5
AT4	Using mobile payment is/would be worthwhile	1	2	3	4	5
Adoption						
BI1	I intend to use mobile payment services when the opportunity arises /start using mobile payment	1	2	3	4	5
BI2	I intend to continue using/ I am willing to use mobile payment services in the near future	1	2	3	4	5
BI3	I will use mobile payment services/ I am likely to use mobile payment services in the near future	1	2	3	4	5
Reuse						
RU1	I make use of mobile payment, very often and I will continue using the mobile payment system.	1	2	3	4	5

RU2	I make use of mobile payment at all times for both business transaction and domestic activities	1	2	3	4	5
RU3	I use mobile payment for most of my transactional activities	1	2	3	4	5
U4	I will continue using the mobile payment system in the future	1	2	3	4	5