ASSESSING THE IMPACT AND CHALLENGES OF MOBILE MONEY: A

CASE STUDY OF UNIVERSITY OF GHANA

BY:

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DECLARATION

I, GEORGINA AMORKOR NORKOR ADDO, do hereby declare that except for references cited, which have been duly acknowledged, this thesis titled "**ASSESSING THE IMPACT AND CHALLENGES OF MOBILE MONEY: A CASE STUDY OF UNIVERSITY OF GHANA**" is the product of my own research work in the Department of Finance, University of Ghana Business School, Legon from August 2017 to July 2019. This thesis is not published or submitted either in part or in whole anywhere for the award of a degree in any other University.

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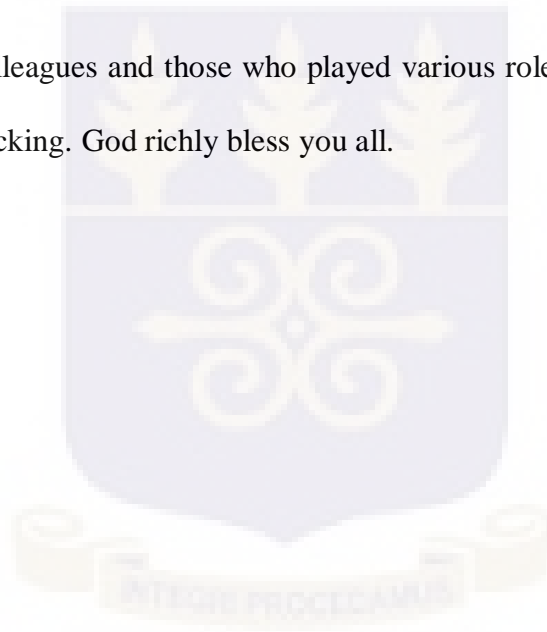This thesis is dedicated to the Almighty God and my supportive family for their overwhelming love.

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LIST OF ABBREVIATIONS

GSMA   Global System Mobile Association

ICT   Information and Communications Technology

MMOs   Mobile Money Operators

POS   Point-Of-Sale

TAM   Technology Acceptance Model

ABSTRACT

The significant role technology plays in boosting societies' development cannot be overlooked. Mobile phone has been recognized as an important technology that has an impact on the lives of its users and the country at large. Mobile money service is one of the innovative products available to users of mobile phones. Accordingly, students find joy in using mobile phones due to its usefulness when it comes to retrieving information, and recently, the usage of mobile money. Against this background, this study analyzed the impact and challenges of mobile money use among students in the University of Ghana. The study obtained data solely from primary sources using questionnaires and semi-structured interviews to capture information from four hundred (400) students. Both descriptive analysis and the Person's Moment Correlation Analysis were carried out to analyze the data. The result revealed that "perceived ease of use" of the mobile money service is the key factor that drives the use of the service among students in the University of Ghana. Thus, saving some money on your mobile money wallet is not only safe, but very convenient as well. Also, it has been shown that all the correlation coefficients on the impact of mobile phone use on savings, expenditure and safety were positive and significant, with savings having the greatest impact. Furthermore, majority of the students think that the main challenge with the mobile money service is the individuals' preference in using cash for the payment of goods and services instead of mobile money. Finally, the findings from this study have managerial implications: network service providers need to sensitize their public education activities on how mobile money technology operates and its usefulness. Also, a system upgrade can ensure that their mobile money system is reliable for subscribers and make using the system convenient.

CHAPTER ONE
INTRODUCTION

1.1 Introduction

The key goal of this section is to present an in-depth introduction to the study and the outline of the contents of the research. It starts by providing an in-depth discussion of the research background and the problem statement. It then presents the objectives, research questions, hypothesis, justification and scope of the study. The last section is the organization of the study.

1.2 Background Information

Over the past decades, several technologies have been introduced in developing countries, which have helped businesses to grow and improve the standard of living of individuals. "Nevertheless, none of these technologies have had as much influence on individual consumers in developing economies as the mobile phone technology" (Jack & Suri, 2010). Communication has been the backbone of human life and cannot be done away with in its everyday life. Communication has progressed from the early days of letter writing to advanced forms of telecommunications using tools such as mobile phones (Jack & Suri, 2010). According to Demombynes and Thegeya (2012), "the transformative nature of the mobile phone has been proven to be an effective tool for development in recent years, especially in the developing world."

Mobile phones have become indispensable. People carry them everywhere they go and sometimes have a feeling of inadequacy whenever they move without them. Aker & Mbiti (2010) opined that "as telecommunication markets mature, mobile phones in Africa are evolving from simple communication tools into service delivery platforms. This has shifted the development paradigm surrounding mobile phones from one that simply reduces communication and coordination costs to one that could transform lives through innovative applications and services."

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Mbiti and Weil (2011) argue that "the significant changes seen in the financial sector can be attributed to competition and also the proliferation of mobile devices that are capable of undertaking transactions." Also, Nyame – Mensah (2013) asserts that "high mobile phone penetration rates, coupled with record economic growth in developing regions like Sub-Saharan Africa have demonstrated that adopting newer, more cost-effective communication technologies such as the mobile phone has the potential to stimulate economic growth, and expand access to communication and financial services."

Consequently, the presence of mobile phones in most parts of the world have made mobile banking very common due to their internet adaptableness characteristics. Mobile money service is one of the innovative products available to users of mobile phones. It comprises an electronic money account which an individual can gain access to when using a mobile phone. Aker and Wilson (2012) assert that, "mobile money provides fast and reliable transaction of financial services such as cash withdrawals, transferring of cash deposits, transferring of bills and transacting other related activities especially in developing countries. It also has the capacity to integrate the poor population with financial transactions." The GSMA (2017) survey report indicates among others that, "there were about 30 million active users of mobile money services globally and that 56.9 million people have opened mobile money accounts in Sub-Saharan Africa."

Generally, mobile money as defined by Mauree (2013), describes mobile money services as using your handset to receive and send money. Also, Jack and Suri (2011) defined mobile money services to include "the provision of financial services through a mobile device and encompasses a range of services such as banking services, peer-to-peer (P2P) transfers and insurance products". Consequently, Tobbin (2011) referred mobile money transfer as "all the various activities (long-distance remittance, micro-payments, and informal air-time battering schemes) that bring financial

services to the unbanked using mobile technology." Amegbe et al. (2017) also provide a different definition of mobile money, they defined mobile money as "the use of telecommunication platforms or networks by mobile phone subscribers to perform banking services". Until recently, "Sub-Saharan Africa had a very low access to basic banking services (16% of the adult population) likened to other developing regions in the world (28% of the adult population)" (Demirguc-Kunt & Klapper, 2012). "The main reason was inaccessibility to banks especially by the rural community. Inaccessibility to banks makes it more difficult to save and build up capital to invest, start a business or guard against unforeseen contingencies" (Karlan et al., 2016). Luckily, mobile money and payment technology has helped the statistics to become increasingly remarkable. In the specific context of Ghana, almost everyone uses a mobile phone irrespective of their financial status or educational level. A report by the Bank of Ghana in June 2018, indicated that the registered number of mobile money accounts stood at 29.99 million. This is an incremental jump from 21.36 million in June 2017. This shows over 40% increase in just one year. Mobile money has significantly played a role in boosting access to financial services and has also financially included the poor and young in Ghana.

1.3 Problem Statement

The significant role technology plays in boosting societies' development cannot be underemphasized. "However, technology on its own cannot influence human societies and bring about the needed developmental changes. Human response (behavior) to technology is one indispensable medium by which the impact of technology is transmitted into the development of human society" (Roberts, 1998). The significance of behavioral changes in the development process elucidates the reason for the World Bank Development Report (2017) stressing on the role of behavior change as a tool in helping the decision making of households, firms and government.

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The extant literature have dealt extensively on the adoption of technology for economic and non-economic activities (see Ha Sejin & Stoel, 2009; Vijayasarathy, 2004). In Ghana, mobile phone usage has substantially increased and available data shows that the number of users of mobile phones are more than bank accounts holders. Accordingly, students in Ghana are one group of individuals who find joy in using mobile phones due to its usefulness when it comes to retrieving information. Also, the easy information access by students influences their adoption to the technology and the applications that come with it. Consequently, mobile money system is mostly used among them. Access to funds consistently through the mobile money technology has the tendency of impacting on their spending and saving behavior as well as their well-being.

Despite the vast studies on mobile money (see for instance, Richard & Mandari, 2018; Nyame – Mensah, 2013; Aker & Wilson, 2012; Kimenyi & Ndung'u, 2009) none have conducted a study on the impact and challenges related to mobile money use among students in Ghana. Due to the intricacy of mobile money technology, studies that investigate this phenomenon thoroughly among students in the University are much needed to provide a novel understanding into the adoption of this technology. Against this background, this research contributes to the extant literature by assessing the impact and challenges of mobile money use among students in the University of Ghana.

1.4 Research Objectives

1.4.1 General Objective

This research has a main goal of carrying out an in-depth evaluation of the impact and challenges of mobile money use among students in the University of Ghana.

1.4.2 Specific Objectives

The specific objectives of this study are:

I.   To identify the various factors that influence individuals' mobile money usage in the University of Ghana.

II. To examine the impact of mobile money usage on individuals in the University of Ghana.

III. To identify the various challenges of mobile money use by individuals within the University of Ghana.

1.5 Research Questions

1.5.1 General Research Question

What are the impacts and challenges of mobile money use among University of Ghana students?

1.5.2 Specific Research Questions

I.   What factors influence the usage of mobile money in the University of Ghana?

II. What is the impact of mobile money usage on individuals within the University of Ghana?

III. What are the challenges faced by mobile money subscribers within the University of Ghana?

1.6 Justification of the Study

In most developing countries, the number of bank account owners is fewer than mobile phone subscribers (Nandhi, 2012). This situation is not different for Ghana, a large number of Ghanaians do not possess bank accounts but are able to carry out some financial transactions by virtue of mobile money services. The use of mobile money services has increased financial inclusion in Ghana. Mobile money service is utilized for various reasons by Ghanaians to send and receive

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funds from friends and loved ones, payment of fees, remittances, and payment of merchants to aid critical business processes (Kofigah, 2010).

The study seeks to make substantial contributions to the existing research on mobile money services. With the view that mobile money technology is mostly adopted by students and it aids financial access at any given time, its adoption by students could have an impact on their lives. But no strong evidence can be drawn in this respect until it has been proven empirically by this study. Also, due to the sheer volume of transactions and the amount involved, any failure in mobile money services and transactions will have deep economic repercussions for subscribers and the economy at large, thus the successful completion of this study will be useful to policymakers, regulatory authorities, mobile network operators, and other mobile money stakeholders and assist them in making sound decisions on mobile money services.

1.7 Scope of the Study

This study is limited to assessing the impact and challenges of mobile money use among University of Ghana students. The study is limited to four hundred (400) students from the University. Quantitative data from primary data sources is obtained from these respondents.

1.8 Organization of the Study

The first chapter focuses on the introduction, which delves into the study's background, statement of problem, objectives, research questions, justification and scope of the study. This chapter ends with the organization of the study. The second chapter focuses on the theoretical framework and the empirical studies that are relevant for the study. Chapter three explains the methodology employed for the study with a clear focus on the model specification, data source, statistical instruments, and the techniques used in analyzing the data. Chapter four focuses on the empirical

estimation results and the discussion of the research findings. Chapter five deals with the summary, conclusion of the study, policy recommendations with regards to the empirical findings and delimitations of the research.

1.9 Conclusion

This chapter endeavors to make sure that readers apprehend the large picture of the research and provides the researchers a flawless direction to carry out the study by providing an in-depth background of the research topic. After getting a detailed understanding of the topic, the succeeding chapter deliberates on pertinent theoretical models and the literature review.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The chapter focuses on the relevant literature to this study. The chapter also reviews theoretical and empirical works for this study on mobile money use in Ghana. Specifically, this chapter looks at other literature works around mobile money service, adoption and usage done by other researchers.

2.2 Overview of Mobile Money

Aker and Mbiti (2010) state that "from virtually unconnected in the 1990s, over 60 percent of Africans now have mobile phone coverage, and there are now over ten times as many mobile phones as landline phones in use." The proliferation of mobile devices in Africa has opened a wide door of endless possibilities.

According to Ardic et al. (2011), "access to basic financial services is expressed as the ability of households, firms and individuals to have bank deposits accounts which ensures easy payments and savings". Pickens (2009) asserts that "9 out of 10 peoples in several developing countries neither have access to basic financial services nor a bank account". Demirgüç-Kunt et al. (2015) also explained that "lot of people are financially unbanked due to strict documentation requirements by banks, long queue at access points, inappropriate marketing, and long distances to financial institution". The above are impediments people encounter in transacting business at financial institutions. Koku (2015) maintains that "banks will increase their reach if products are designed at modest prices, targeted at the low-end customers and small scale businesses."

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For Rutten and Mwangi (2012) "mobile telecommunication devices have been transformed from a communication tool to an enabling device that support and allow it features to be used for financial services". Aker and Mbiti (2010) confirm that "since 2005, mobile financial applications (known as m-money or m-banking) have emerged in a variety of developing countries. The systems usually involve a set of applications that facilitate a variety of financial transactions via mobile phone, including transmitting airtime, paying bills, and transferring money between individuals. There are also currently a few m-money systems in developing countries that allow international money transfers." One of the innovations that the usage of mobile phones provide is mobile money. Mobile money, according to Donovan (2012) "offers financial services such as payments, transfers, insurance and banking services through a mobile device."

GSMA (2017) explains mobile money as "a transformational service that uses ICT and non-bank retail channels to extend the delivery of financial services to clients who cannot easily be reached profitably with traditional branch-based financial services." On the other hand, Aker and Mbiti (2010) definition of mobile money is "a product that allows clients to use text messages to store value in an account that is accessible by the handset, with the ability to convert cash in and out of the account, and transfer money between users." They continue that "it is the provision of financial services without a physical presence of a financial institution but an enabled means of carrying out financial transaction business through mobile phones and other handheld mobile devices."

GSMA (2017) also states "Sub-Saharan Africa has long been the epicenter of mobile money, and growth in this region shows no sign of slowing. Yet, as the mobile money industry has matured, it has taken hold in other parts of the world, too. In 2017, for the first time, most industry growth came from outside Africa. South Asia saw the highest year-on-year growth in accounts of many region (47 per cent) and now represents 34 per cent of registered accounts globally. The spread of

mobile money beyond traditional footholds is also happening within Sub-Saharan Africa. In 2017, Western and Middle Africa were the fastest growing areas of Sub-Saharan Africa, led by tremendous growth in registered accounts in countries like Ghana, Côte d'Ivoire and Cameroon."

2.3.1 Mobile Money Service in Ghana

The introduction of mobile money service in Ghana is seen as a solution to diverse problems and challenges. One of such problems was the sending of money domestically. Though formal transfer system such as post offices and private institutions like Western Union were being used, they were very expensive (Nyame-Mensah, 2013). Bank of Ghana (2017) demonstrates that "mobile money is gradually becoming a major means of payment for the unbanked and the underserved in Ghana. The rapid growth in mobile money usage in Ghana is partly on account of increasing penetration and application of mobile phones particularly in the rural areas. The widespread proliferation of mobile money among the unbanked and underserved is premised on recent advances in handset functionality, chip and mobile network technologies, and upgrade in Point-Of-Sale (POS) infrastructure. Mobile money is issued by Mobile Money operators (MMOs) who keep the electronic account on the SIM in the mobile phone for the users of mobile money."

➢ **MTN Mobile Money**

MTN mobile money, launched in July 2009, has been the first mobile money transfer service operated by MTN Ghana. According to MTN Ghana (2013), "MTN mobile money is a cash management service available on the mobile phone or internet. It is mainly about facilitating money transfer for the Ghanaian market. The service can also be used for reloading of MTN airtime units and for payment of, utility bills, goods & services. The service is available to both mobile and non-mobile users. MTN mobile money is provided by MTN in partnership with banks.

Mobile money will also operate through authorized merchants who will facilitate the service on behalf of the partner banks."

> **AirtelTigo Cash**

The then Tigo (Millicom) Ghana Limited also introduced Tigo Cash, "a mobile money transfer service. The service was launched in October 2010. Tigo Cash was a mobile financial service product that allowed the use of mobile phone as a mobile bank account. Tigo Cash provided an easy, instant and convenient way of sending cash at anytime, anywhere, to customers on any network."

ZAP (now Airtel Money) "was introduced by Airtel Ghana to provide customers with fast, safe and convenient means of sending and receiving money via their mobile phones in 2010. In 2011, Airtel telecommunications announced a change from ZAP to Airtel Money, an advanced form of mobile banking that would provide immediate access to banking services through mobile phones. A unique feature of the Airtel Money proposition compared to other mobile money services, is the ability to link one's bank account directly to one's electronic wallet enabling simple and secure transfer of money across accounts. Airtel partnered with banks to enable the use of their Automated Teller Machines (ATM's) as cash out agents without the need for an account with the Bank or an ATM card."

> **Vodafone Cash**

"After staying out of the mobile money space for a number of years, Vodafone Ghana started its own mobile money service dubbed Vodafone Cash in 2015. Vodafone Cash is therefore modelled strictly on the original world acclaimed mobile money service, M-Pesa, which was started in

Kenya by Safaricom, a Vodafone company in that country. Vodafone Cash currently offers the basic mobile money services such as money transfer, prepaid airtime top-up and the payment of Vodafone bills, namely mobile postpaid, fixed line and broadband bills."

2.5 Theoretical Review

2.5.1 "Theory of Reasoned Action" (TRA)

The "theory of reasoned action" (TRA) was propounded by Fishbein and Ajzen in 1975. It was developed as a result of the need to make predictions and understand the factors that motivates an individual to engage in any human behavior such as choosing and using a payment system, adopting and using a new technology, buying a new car or even casting a vote which is under the person's control.

According to Fishbein and Ajzen (1975), "the most significant factor influencing the performance of behavior is the intention to perform the behavior which is a combination of attitude and subjective norms. They assume that human beings are rational and therefore make efficient use of information available to them to assess the outcome of behavior in order to decide whether or not to engage in that behavior. Based on their assumptions, they further postulated that individuals' attitude is formed by behavioral beliefs which may be positive or negative based on their evaluation of the consequences (benefit or cost) of the outcome of that behavior."

2.5.2 "Technology Acceptance Model" (TAM)

"This model is an information systems theory that models how users come to accept and use a technology" (Taylor & Todd, 1995). This model was proposed by Fred Davies in his Doctoral thesis in 1989. "The Theory of Reasoned Action" (TRA) "which was developed in 1975 by

Fishbein and Ajzen formed the basis for the development of the Technology Acceptance Model"
(Davis, 1989).

The model proposes the notion that when individuals are given a new technology, several factors
affect their decision, such as:

- "Perceived usefulness" (PU) – According to Davis (1989), "this is the degree to which a
  person believes that using a particular system would enhance his or her job performance."
- "Perceived ease-of-use" (PEOU) – Davis (1989) referred to this as "the degree to which a
  person believes that using a particular system would be free from effort."

2.5.3 "Theory of Planned Behavior" (TPB)

This theory was propounded by Icek Ajzen in 1991 to improve the predictive ability of the "Theory
of Reasoned Action" (Fishbein & Ajzen, 1975). According to Ajzen (1991), "attitude and
subjective norms as determinants of performance of behavior are not enough to explain the link
between beliefs and behavior of people. The theory of planned behavior is a theory that links one's
beliefs and behavior. The theory states that attitude toward behavior, subjective norms, and
perceived behavioral control, together shape an individual's behavioral intentions and behaviors.
The TPB is comprised of six constructs that collectively represent a person's actual control over
the behavior."

2.5.4 Theory of Diffusion of Innovation

This theory was propounded by Everett Rogers in 1962. The theory shows why, how and at what
rate new ideas and technology spread. It explains the attitude of individuals towards the use of new
technology. Valente and Davis (1999) defined innovation as "an idea, practice or object that is
perceived as new by an individual or another unit of adoption. He also defined diffusion as the

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process by which an innovation is communicated through certain channels over time among the members of a social system."

2.6 Empirical Evidence

Over the years, vast empirical works have been carried out which are associated to this study on mobile money and impact on students behavior. Vast of these studies that are significant and link closely to the research objectives are deliberated in this part of the research. Empirically, a lot of proofs attest to the fact that mobile money technology has impacted on the lives and behaviors of individuals who use the service.

For instance, Kimenyi and Ndung'u (2009) "assessed the expansion of the Kenyan financial services and investigate the lessons that can be learned from mobile phone banking in Kenya. The work revealed that mobile money transfers facilitate payment of services for which labour is no exception. Per the study, prompt payment of weekly labour in remote parts of Kenya has led to a transformation of lives in Kenya, particularly in rural regions. This transformation is said to be in the right direction and suggests that the people of rural areas can now readily afford to pay for their needs on time and can increase their spending on goods and services."

Morawczynski (2009) also "examined the adoption, usage and the outcomes of mobile money in Kenya. The study employed the socio-technical systems framework. The work reports that some users now have more time to work (save travel time to send money home). The study concludes that availability of mobile money agents in rural regions has also influenced the lives of mobile money users positively. To some degree therefore, easy access to funds via mobile money increases spending among mobile money users."

Aker and Wilson (2012) "investigated whether and how mobile money can promote financial inclusion of the poor, particularly those living in rural areas of northern Ghana. The survey is in two stages: a data collection and a follow-up. It uses four different interventions (each one) designed to partially address some key barriers to mobile money adoption. Per their findings, rural populations are much interested in adopting m-money. In 2 and a half months after the initial intervention, 26 percent more households started to use mobile money with 86 percent of users receiving money transfers via the medium. Moreover, 70 percent of users save on their mobile phones (on the mobile money platform)."

Demombynes and Thegeya (2012) "examined the mobile savings phenomenon in Kenya and find that, the mobile technology creates a platform for the young and poor, who could not open, manage and save in formal bank accounts to do so. Data collected over a sample of 6,083 individuals was used. The study employed Filmer and Pritchett (2001) approach to create a wealth index. Probit and OLS were used to arrive at the estimates."

In addition, Thulani et al (2014) "investigated the level of financial inclusion among Zimbabweans. The study used both qualitative and quantitative methods to arrive at the results. A sample of 37 households is drawn from eight districts in the Midlands Province. Questionnaires and focus groups discussion were employed to collect the data. Exploratory factor analysis, principal component analysis, Varimax rotation and Kaiser Normalization were conducted. The work depicted very high mobile money usage among the unbanked rural inhabitants for transferring money. Yet, it further revealed that, high usage of mobile money service does not change their saving habits. They still adhere to their primitive means of saving."

Sheikh Ali (2015) "conveniently sampled 406 American college students for a self-report survey. This was done to investigate the role of attitudes and beliefs about money (money attitudes) and credit card use play in compulsive buying, A modified version of Yamauchi and Templer's (1982) twenty-nine item money attitude scale (MAS) and a causal modeling were used to measure respondents' money attitudes. The findings suggest that the money attitudes power prestige, distrust, and anxiety closely relate to compulsive buying."

Norvilitis and MacLean (2016) "investigated the role parents play in the financial behaviors and attitudes of college students. A sample of 173 college students in a United States university is used. Estimation of the factors was done with maximum likelihood whereas the varimax rotation method was used to facilitate the interpretation of the outcomes. Alternative methods were used to test the robustness of their outcomes. Their findings suggest that children who have minimum credit card problems in college have parents who teach them how to manage allowances and bank accounts."

Pirog III and Roberts (2017) "found introverts and emotionally unstable as more likely to have high expenditure patterns and misuse mobile money. This is discovered in their study to ascertain the role personality plays in students' mobile money use." Also, Ahmed and Ali (2017) "examined the factors influencing users' continuous intention to use mobile money transfer (MMT) technology by employing an integrated model. Using self-administered questionnaire, the study's data was collected from a total of 398 consumers in all seventeen districts of Banadir region, Somalia. Structural Equation Modeling approach was employed to test the hypothesized integrated model. The results suggested that perceived usefulness, trust, subjective norms and satisfaction have significantly contributed to MMT consumers' continuous intention."

Finally, Richard and Mandari (2018) "examined the key factors that influence the usage of mobile banking services in Tanzania using TAM and transaction theory. A sample of 120 mobile phone users collected through a structured questionnaire was used. Descriptive, Pearson correlation and multiple regressions were employed for analysis. The study found that customers' awareness and perceived ease of use have a significant positive influence while perceived risk and transaction cost had a significant negative influence on the usage of mobile banking services. Customers' awareness and perceived ease of use had relatively greater influence on the usage of mobile banking services than perceived risk and transaction costs."

2.4 Conclusion

It has been well established from the reviewed literature that various studies that explored the role of mobile money services arrived at mixed conclusions. Based on the complexity of the impact of the mobile money technology on the lives of individuals, studies focusing on developing economies where the patronage of the mobile money technology is seen to be very high should be encourage. This has motivated the research of these relationships in a developing country (Ghana).

CHAPTER THREE
METHODOLOGY

3.1 Introduction

The chapter gives a detailed explanation of the methodology employed in the study and deliberates how the study would be conducted to achieve the stated objectives in the introductory chapter. The chapter explains how the research objectives and hypothesis were accomplished through a methodological framework used for the study.

3.2 Research Design

The Research design is referred to as an approach used to carry out a specific research work. Based on the fact that there are several strategies accessible to the researcher, every study must have a suitable strategy used. Thus, this research used the case study research design strategy. A case study is a research approach and an empirical examination of a situation within its real-life setting. Case studies are based on a thorough exploration of a single individual, group or event to investigate the causes of underlying principles. The case study strategy is mainly used in psychology, social science, ecology and anthropology. This approach is used for testing theoretical models that involves real world situations.

In addition, a case study is a thorough study of a specific situation somewhat an extensive statistical survey. It is an approach "that narrows down a very broad field of research into one easily researchable topic. Even though it will not answer a question completely, but it gives some suggestions and allows the researcher further analysis and hypothesis creation on the topic." Also, it is mostly used in exploratory and descriptive research since it provides the researcher with some information obtained from small number of individuals within the area of a study.

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Consequently, this study is planned to cover significant portion of students in the University of Ghana. Therefore, the researcher employed the case study strategy for this study as there was the need to collect enough data on the prevalence of mobile money services, its impact and challenges among the students of University of Ghana. It also allows the researcher to adopt theory-based expectations on how and why variables should be linked.

3.3 Target Population and Sample

A population is referred to as the total collection of units that enables us to make some valuable inferences. The difference between a population and a sample is that, the former deals with a collection of all possible observations of a specific representation of interest whilst the latter deals with a collection of observations demonstrating only a segment of the population. The population employed in this study is mainly concerned with the students of University of Ghana, who use mobile phones. The estimated target population area of the study is 40,000.

The sampling selection used was the non-probability sampling technique. This chosen sampling technique is referred to as a sampling approach where individual elements of the sample are chosen with regards to the researcher's own judgment. The sample size can be derived from the formula;

$$n = \frac{N}{1+N(e)^2}$$

Where;

"n" = Sample Size

"N" = Target Population

"e" = Margin of error

The margin of error for this study is taken to be five percent (5% or 0.05).

$$n = \frac{40,000}{1 + 40,000(0.05)^2} = \frac{40,000}{1 + 40,000(0.0025)} = \frac{40,000}{101}$$

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n= 396.0396 ≈ 400

From the formula, the size of the sample is four hundred (400). Hence, the study focused on four hundred (400) students of the University who could provide the required information for the study.

3.4 Sources of Data

The main source of the data employed for the purpose of conducting this research involved solely from primary sources. Questionnaires and semi-structured interviews were designed to capture information on the impact and challenges of mobile money within the University of Ghana by the researcher. The questions for this study included open-ended and closed-ended questions which could be easily analyzed statistically. Both self-administered and face-to-face interviews were employed in the data collection. The study employs a face-to face interaction with the respondents to obtain the appropriate responses needed. This method is advantageous as it helps in obtaining pertinent information from the respondents which would not have been captured in the questionnaire administered. These two approaches were used to minimize biasedness of results.

3.5 Data Analysis and Presentation

The data gathered was subjected to a process of cleaning to remove unnecessary or any overlaps data. The data used for the study were scrutinised with the help of the STATA statistical software. These comprises total scores, frequencies, means and percentages. Spreadsheets was used to generate suitable charts and tables for data presentation; thus, inferences were made based on the data collection analysis. The Pearson's correlation was run to analyse whether there was a significant correlation between the various factors and mobile money usage.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction

This section of study presents and discusses issues concerning the data. The study used primary data to perform the analysis in this section. University of Ghana was selected as the area of study and the data was sourced from questionnaires and interviews. The study used STATA statistical software package and Microsoft excel for the analysis. The analysis starts with a descriptive analysis of the variables used in the study. Then proceeded to correlation analysis.

4.2. Demographic and Socio-Economic Characteristics of Respondents

In this section, the demographic and socio-economic features of the respondents used in the study are presented. The key demographic and socio-economic features analyzed from the questionnaires include gender, age, marital status, educational levels, and the economic status of respondents' parents.

4.2.1 The Gender, Age and Marital Status of Respondents

The study administered and collected 400 questionnaires. From these, 46.75% were females and 53.25% were males. Majority of respondents (68.75%) were aged from 16 to 25 years, 24.75% of them were aged from 26 to 35 years. Only a total of 26 (representing 6.5%) of the respondents fell within the age group of 36-45 years. None was beyond 45 years of age. For the marital status of the respondents of the study, the results showed that 88% of students were not married. This represented three hundred and fifty-two (352) respondents. The study showed that 12% (48) of the respondents were married. Table 4.1 illustrates the gender, age and marital status of the respondents.

Table 4. 1: Demographic Characteristic of Respondents (Gender and Age)

Characteristic	Classification	Frequency	Percentage
Gender	Male	213	53.25
	Female	187	46.75
Age	16-25	275	68.75
	26-35	99	24.75
	36-45	26	6.5
	>45	0	0
Marital Status	Married	48	12
	Not Married	352	88

4.2.2 The Level of Education of Respondents

The survey results revealed a comparatively fair distribution of respondents among the various levels of study. "The proportions of first year and second year students (respondents) were equivalent to 23% and 28% respectively of the total number of respondents. Exactly 24% and 9% of them were third and final year undergraduate students respectively. Another 13% represented the proportion of graduate students' responses, 2% represented visiting students as well as students on exchange programs and other missions in the University and 1% represented non-degree students." Figure 4.1 illustrates the educational level of the respondents.
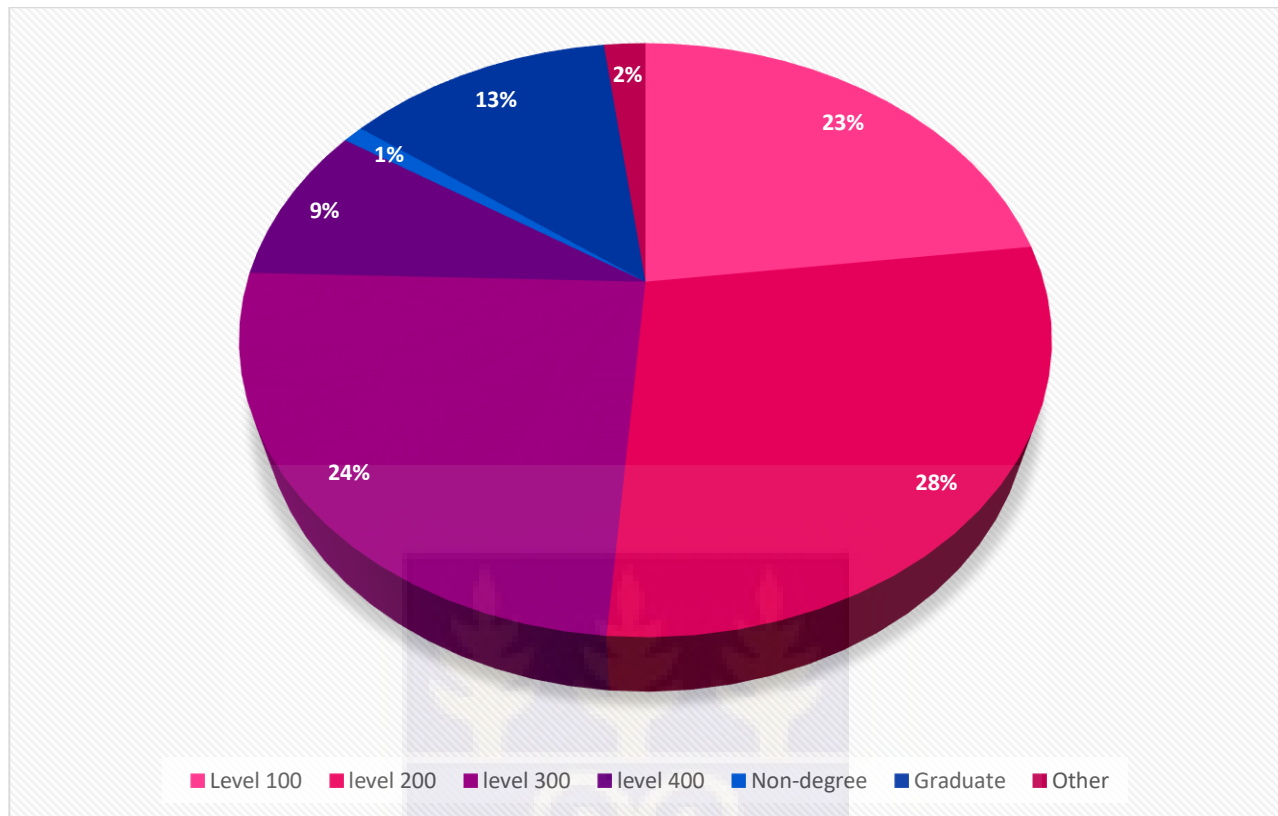
Figure 4.1 Educational level of the respondents

4.2.3 Family Economic Status of Respondents

The research rated the economic status of respondents, and 69% "claimed to come from average or middle income families whereas 17% reported coming from rich homes. Only 14% claimed to have poor family backgrounds. Families' incomes varied largely. While some reported an average family monthly income of as low as 500 Ghana Cedis, others reported their average family monthly incomes at as high as 10,000 Ghana Cedis. The mean average family income was however about 3,276 Ghana Cedis" Figure 4.2 illustrates the economic status of the respondents' family.

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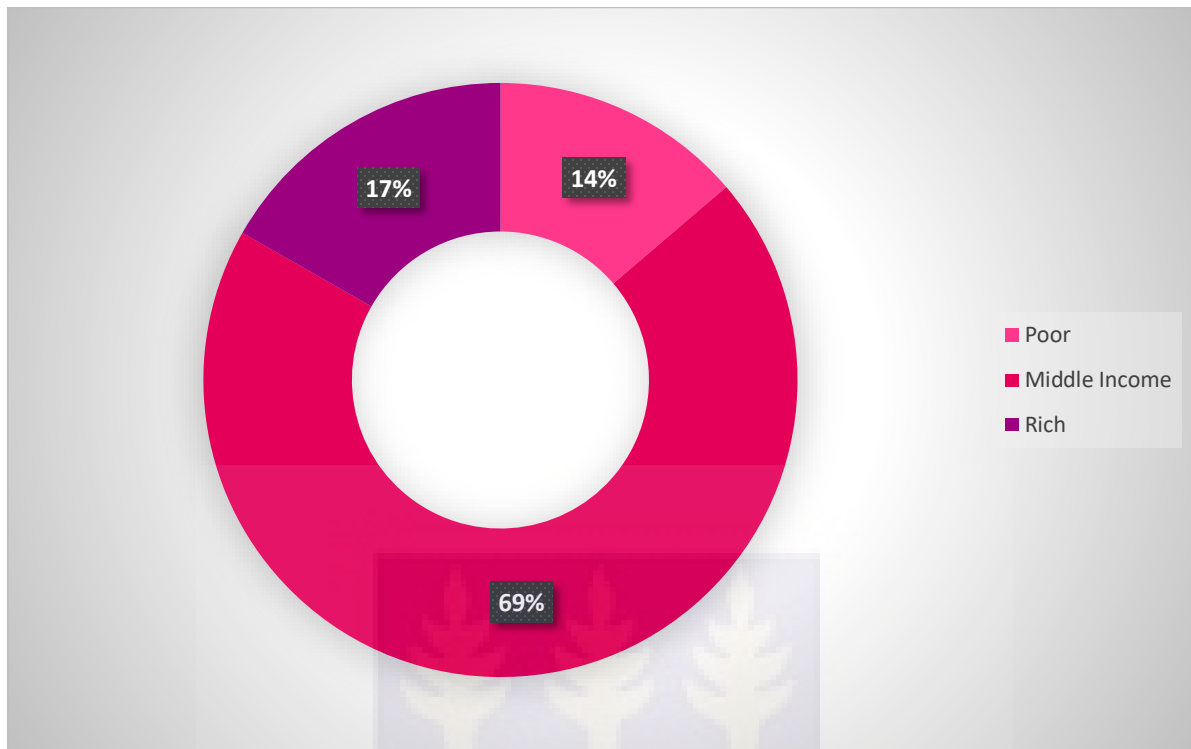
Figure 4.2 Economic status of the family of respondents

4.2.4 Mobile Money Subscription by Respondents

From the survey, several students from the University of Ghana campus have subscribed to the mobile money service. As it has been revealed, 93.8% (375) of respondents found to have subscribed and adopted the mobile money service whereas only 6.2% of individuals do not use the service. Based on the sample size of four hundred (400), only twenty (25) had not subscribed for the mobile money service. This therefore suggests a widespread adoption of the service among students at the University of Ghana. Figure 4.3 illustrates mobile money use by students of University of Ghana.
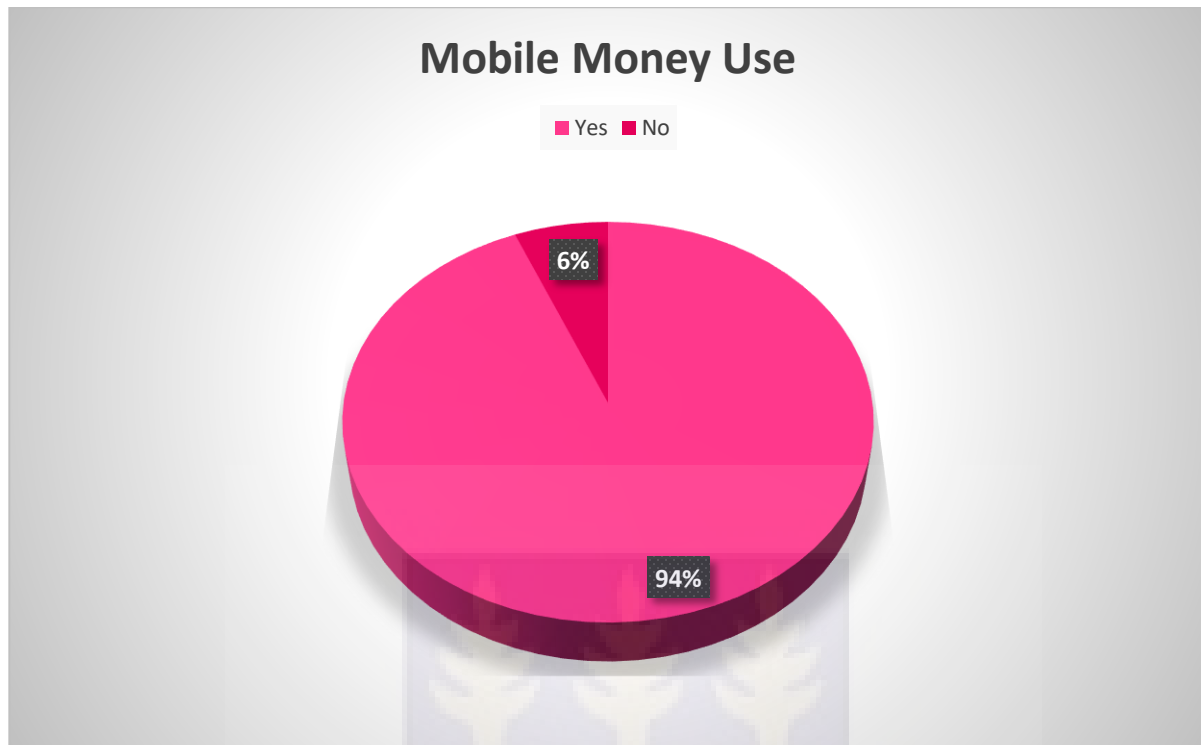
Figure 4.3: Mobile money use by students at University of Ghana

4.2.5 Active Use of Mobile Money Service by Respondents

Based on the active use of mobile money, it is shown that about 93.8% are holding a mobile money account, while about 58.5% received money through mobile money service. Also, about 66.3% ever sent money through the mobile money platform and 59% are still receiving money through the service. Regarding the number of students who still send money via the service, 57% still send money via the platform. Table 4.2 illustrates mobile money use among students of University of Ghana.

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Table 4.2: Mobile Money Service Active Use by Respondents

Mobile Money Use	Yes	No
Mobile Money Account Holding	93.8	6.2
Ever Received via Mobile Money	58.5	41.5
Ever Sent via Mobile Money	66.3	33.8
Still Receive via Mobile Money	59.0	41.0
Still Send via Mobile Money	57.0	43.0

4.3 Factors that Influence Mobile Money Use by Individuals

The main factors identified by the study that are likely to influence mobile money usage by students include, "perceived ease of use", "perceived usefulness", satisfaction and social influence.

> **Perceived Ease of Use**

From the result, out of the 93.8% (375) of the respondents who have a mobile money account, 63.5% (191) of the respondents attest to the fact that the most imperative reason for opening and maintaining a mobile money account was to send and receive money conveniently and to have access to their monies at all times (Perceived ease of use). This is actually ideal for respondents likened to carrying out transactions at banks and other financial institutions. Long distances to financial institutions, Long queues at banking halls and other challenges.
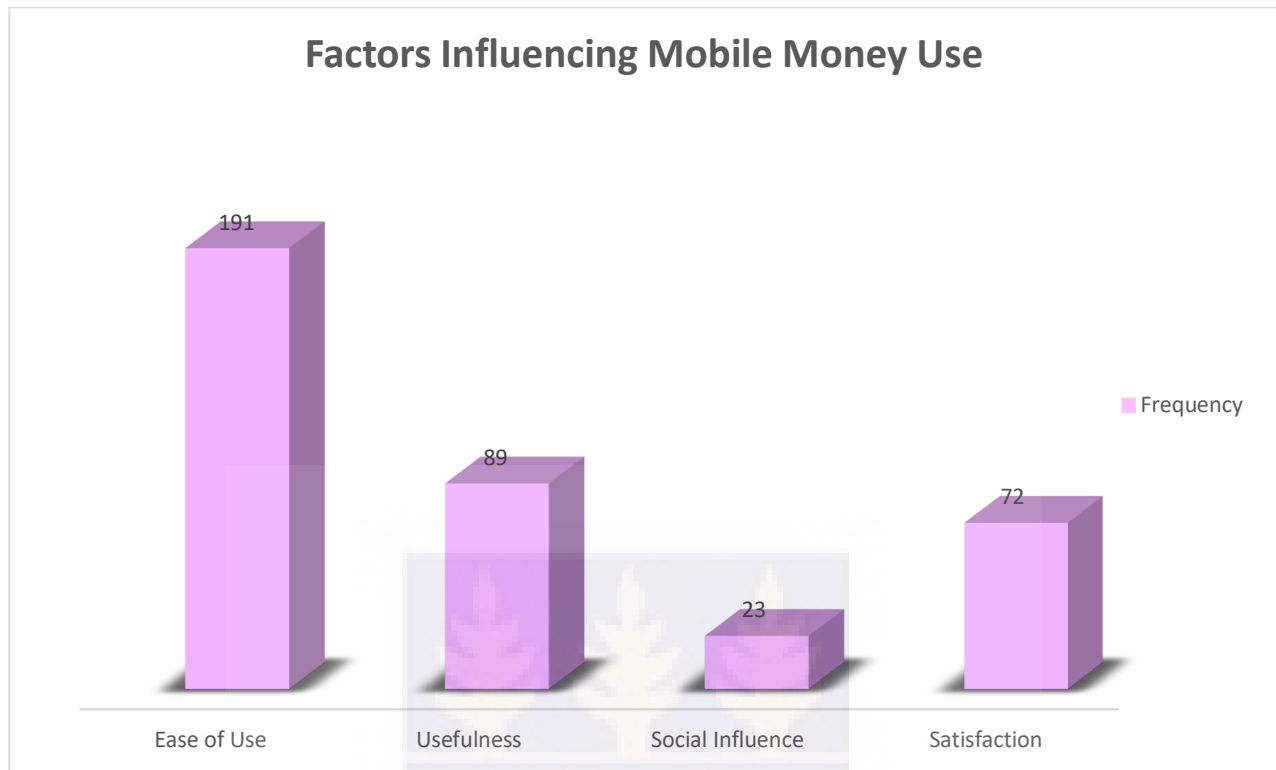
> **Perceived Usefulness**

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From the perceived usefulness front, about 29.6% (86) of students reported that they opened and maintained a mobile money account since it fits to their needs, tasks and lifestyles (Perceived usefulness). In Ghana at the moment, mobile money can be used to pay for a lot of transactions such as food, transportation, bills and so much more. The general acceptance of mobile money stimulates the use of the service by individuals.

> **Satisfaction**

Based on the satisfaction, exactly 23.9% (72) were found to maintain their mobile money accounts due to the satisfaction they get from the service in terms of service and system quality. Their continued use of the mobile money service relies on their satisfaction. In case they become dissatisfied with the service, they will discontinue using the service.

> **Social Influence**

From the survey, 7.6% (23) kept their accounts because of its recommendation by friends and family who are already subscribers (Social influence). Social influence can have an impact on the users' likelihood to adopt a new technology in different contexts. It can be in the form of perceived social pressure from family and friends to perform or not to perform, to use or not to use the technology. Out of the four factors, family and friends' influence ranked the lowest." This shows that students' use of mobile money is not largely influenced by the fact that other relatives and friends use the service. Figure 4.3 illustrates the factors that influence mobile money use among students of University of Ghana.

Factors Influencing Mobile Money Use

191

89

23

72

Frequency

Ease of Use   Usefulness   Social Influence   Satisfaction

Figure 4.4 Factors that influence mobile money use

From the result, it is clear that "perceived ease of use" of the mobile money service is the key factor that drives the use of the service among students in the University of Ghana. This finding is confirmed in Tanzania by Mandari (2018), who states that "customers' awareness and perceived ease of use have a significant positive influence on the usage of mobile banking services." Also, Ahmed and Ali (2017) assert that, "perceived usefulness, trust, subjective norms and satisfaction have significantly contributed to mobile money users' continuous intention. The study concludes that, keeping some money on the wallet of your mobile money is not only safe, but also very convenient. Long queues at banks are avoided when making withdrawals or deposits, and an individual is able to withdraw at any time within the 24 hours in a day."

4.4 Analysis of the Impact of Mobile Money (MM) use on the Lives of Users

The key factors considered in the study on the impact of mobile money usage on individuals' lives include, savings, expenditure and safety. The Pearson's correlation analysis was employed to test for the relationships between the study's variables. Table 4.3 shows the correlation between these variables and mobile money (MM) use. From the result, the link between mobile money use, savings, expenditure and safety met the expectation of this study. It has been shown that all the correlation coefficients on the influence of mobile phone use on savings, expenditure and safety were positive and significant. This implies that mobile money have a significant impact on these variables, with the greatest significant effect (0.771) on savings. Convenience in the use of the service could be a reason why saving increases with usage of the mobile money service.

Table 4.3: Pearson's Moment Correlation Coefficients

		MM use	Saving	Expenditure	Safety
MM Use	Person's Correlation	1			
	Sig. (2-Tailed)				
Saving	Person's Correlation	0.771***	1		
	Sig. (2-Tailed)				
Expenditure	Person's Correlation	0.562***	-0.329*	1	
	Sig. (2-Tailed)				
Safety	Person's Correlation	0.454**	0.245**	0.456	1
	Sig. (2-Tailed)				

*** $p<0.01$, ** $p<0.05$, * $p<0.1$. Correlation is significant (2-tailed).

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According to Table 4.3, it is evident that the correlation coefficients confirmed the expectations of the study. The correlation between mobile money use and saving reported the greatest significant effect (0.771). The mobile money use and expenditure (spending level) of students (0.562) was greater than the correlation coefficient between mobile money use and the safety of carrying large amounts of money on the students (0.454). This is finding is confirmed in Kenya by Morawczynski (2009), who argues that, "the availability of mobile money agents in rural regions has influenced the lives of mobile money users positively and to some degree, easy access to funds via mobile money increases spending among mobile money users." This implies that any interventions targeted at encouraging the saving and spending behavior of students should focus on the mobile money service.

4.5 Challenges in Mobile Money Use

The specific factors considered in the study on the main challenges in mobile money usage include preference for cash, lack of trust, poor service and system quality, and fraud.

➤ **Preference for Cash**

From the survey, 50% claim that they prefer dealing with cash than dealing with the mobile money service. It is clear from the result that a high number of University of Ghana students still adhere to the old way of doing transactions, i.e. handling cash in the purchase of goods and services rather than using mobile money.

➤ **Lack of Trust**

From the survey, 21% expressed lack of trust in the service of the mobile money to be the main crucial factor hampering the use of mobile money by students. "This indicates that an individual

is more likely to trust an institution if there are assurances regarding compensation in case of any error and mistakes or protection of his/her data as well as the reputation of the service provider in terms of service and system quality" (Ahmed & Ali, 2017).

➢ **Poor Service and System Quality**

From the survey, 20% claim service and system quality. The students stressed poor mobile network connections as major barrier to the use of the service. They also assert that it is sometimes hectic to access their funds on the platform of the mobile money which discourages their use of the service.

➢ **Fraud**

From the result, 9% reported the loss of money through fraud could be a major factor hindering the usage of mobile money by University of Ghana students. This indicates that the network providers need to secure the wallets of users to prevent fraudsters from accessing them. Figure 4.4 illustrates the challenges in mobile money usage in University of Ghana.

Challenges in Mobile Money Use

Fraud
9%

Service and
System Quality
20%

Lack of Trust
21%

Preference for Cash
50%
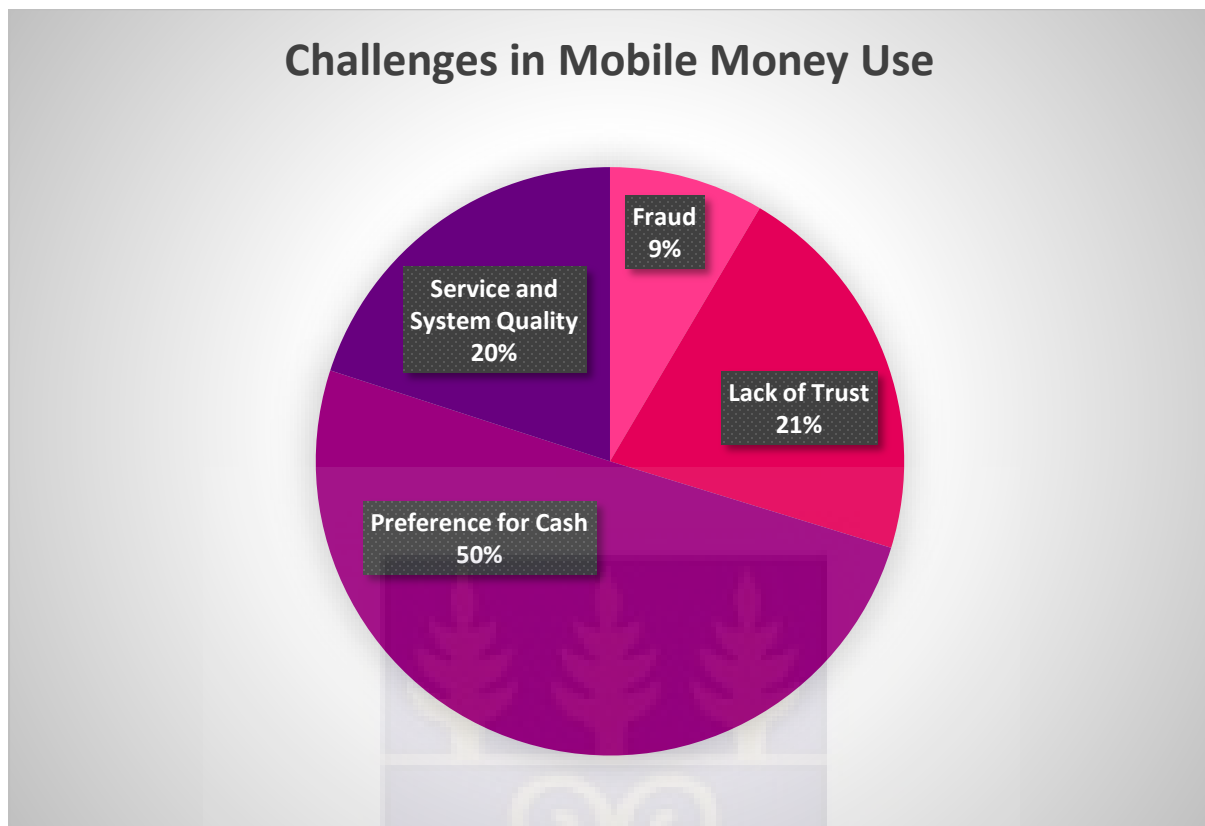
Figure 4.5 Challenges in mobile money use

From the Figure 4.5, it is evident that the preference for cash by respondents is the major challenge in mobile money use among students in the University of Ghana. This finding is confirmed in Tanzania by Ahmed and Ali (2017), who states that "even though mobile money has become common in this modern era, individuals still adhere to the old ways of doing transactions, i.e. handling cash for the payment of goods and services rather than using the mobile money service."

CHAPTER FIVE

CONCLUSIONS, POLICY RECOMMENDATIONS AND LIMITATIONS

5.1 Introduction

In this section of the study presents the summary, conclusion and recommendation as well as some limitations, based on the outcome of the research.

5.2 Summary and Conclusion

The mobile money service has been one of the innovative products available to users of mobile phones. It comprises electronic money accounts that an individual can gain access to using a mobile phone. "This service provides fast and reliable transaction of financial services such as the cash withdrawal, transferring of cash deposit, transferring of bills, transacting other related activities especially in the developing countries, and it has the capacity to integrate the poor population with the financial transaction" (Aker & Mbiti, 2010). Students in developing countries find joy in using mobile phones based on the fact that it is useful when retrieving information, and recently, the mobile money usage among them has been common. Access to funds at any time through the mobile money technology has the tendency of impacting on their spending and saving behavior as well as their well-being.

Against this background, this study therefore focused on the impact and challenges of mobile money use among students in the University of Ghana. The three specific objectives explored include; to identify the various factors that influence individuals' mobile money usage in the University of Ghana, to explore the impact of mobile money usage on individuals in the University of Ghana, and to identify the various challenges faced by individuals who use the mobile money service within the University of Ghana. The study obtained data solely from primary sources to achieve these three objectives. Questionnaires and semi-structured interviews were designed to

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capture information from four hundred (400) students. STATA statistical software package and Microsoft Excel were used to perform the descriptive analysis and correlation analysis to examine the relationships. For the purposes of clarity of presentation, the findings are presented based on each of the specific objectives.

Firstly, the findings from the analysis suggest that, among the four factors examine ("perceived ease of use", "perceived usefulness", social influence and satisfaction) that might have an influence on mobile money use, "perceived ease of use" of the mobile money service is the key factor that drives the use of the service among students in the University of Ghana. Thus, "keeping some money on the wallet of your mobile money is not only safe, but also very convenient. Long queues at banks are avoided when making withdrawals or deposits, and an individual is able to withdraw at any time within the 24 hours in a day."

Secondly, the findings from the analysis revealed that, for all the three factors (savings, expenditure and safety) explored that mobile money use can have an impact on, it has been shown that all the correlation coefficients on the impact of mobile phone use on savings, expenditure and safety were positive and significant, with savings having the greatest impact. When the respondents were asked to point why saving increases with mobile money use, they stated that convenience in the use of the service could be a reason.

Lastly, based on the analysis of the challenges on the use of the mobile money service, factors such as; preference for cash, lack of trust, fraud and service and system quality, were used. The results shows that majority of the students think that handling cash for the payment of goods and services is better than using mobile money. It was followed by those who expressed lack of trust

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in the service. This indicates that the network providers need to sensitize their public education activities on how mobile money operates and its usefulness.

5.3 Policy Recommendations

Following the results obtained from the study, some policy recommendations are suggested as follows:

To begin with, the growth in technology should not be overlooked as it comes with a lot of benefits to users across the world. Therefore, based on the influence of technology on individuals' lives, the study recommends that students should be careful with how frequent they embrace technology in order to exploit the positive impacts (expand productivity) and lessen the negative impacts (excessive expenditure) technology has on their lives.

Secondly, the study recommends that network service providers need to sensitize their public education activities on how mobile money technology operates and its usefulness rather than focusing on improving access to it. The study also commends that mobile network operators make more investments to improve the service rendered to their subscribers. Some subscribers indicated that from time to time they face network challenges which prevents them from accessing their money and using the mobile money service. This presents a great inconvenience to them. A system upgrade would ensure that their mobile money system is reliable for subscribers and make using the system convenient. Through this approach, many people will be financially included.

Lastly, in the macroeconomic level front, "electronic (money) credit generated by the mobile money technology should not be overlooked by policy makers when making monetary policies as it also influences individual user's spending. It is about time policy makers strategize on how to manage economic shocks that could emanate from the use of the technology."

5.4 limitation of the Study

This study concentrates on the mobile money technology using a specific University (University of Ghana). For further studies, it would be much more interesting to explore this relationship focusing on all Universities in Ghana. This will make it possible to generalize the findings to include all Universities in Ghana.

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APPENDIX

SURVEY QUESTIONNAIRE

Dear Respondent,

I am an MBA student from University of Ghana undertaking a research on the topic 'Assessing the Impact and Challenges of Mobile Money. A Case Study of University of Ghana' This information will be used strictly for research purposes and will also be treated with confidentiality (names are not required). The researcher will be grateful if you contribute to this study by completing the questionnaire as honestly as possible.

	Question	**Answer**
Q1	Gender	1. Male 2. Female
Q2	Age	1. 16-25 2. 26-35 3. 36-45 4. 46 and above
Q3	Which year/level are you in?	1. 100 2. 200 3. 300 4. 400 5. Graduate student 6. Other (please specify)…..………

	Are you married?	1. Yes 2. No
	What is your family's average income?	
	How do you rate your family background?	1. Poor 2. Middle Income 3. Rich

Q4	Do you have MTN mobile money account?	1. Yes 2. No
Q5	Have you ever sent money via mobile money?	1. Yes 2. No
Q6	Do you still send money via mobile money?	1. Yes 2. No
Q7	Have you ever received remittance from your parents/guardians through mobile money?	1. Yes 2. No
Q8	Do you still receive money from your parents/guardians via mobile money?	1. Yes 2. No

Q9	Which **one** of the following is the most important reason you have for opening and maintaining a mobile money account?	1. Mobile money helps me to receive remittances and transfer payments conveniently (Perceived ease of use) 2. Mobile money fits my needs, tasks and lifestyles (Perceived Usefulness) 3. I am satisfied with the service and system quality (Satisfaction) 4. It is recommended by my friends and family (Social Influence)

Q10	Do you have a budget for spending?	1. Yes 2. No
Q11	When you exceed your budget, what do you do?	1. Borrow from friends 2. Buy on credit 3. Call home for money 4. Other (please specify) ……..
Q12	Have you ever borrowed to spend?	1. Yes 2. No
Q13	Do you save?	1. Yes 2. No
Q14	Where do you save?	1. In my room 2. With friends 3. At the bank 4. On my mobile money account 5. Other (please specify)…..

Q15	Do you feel safe carrying large amounts of money in your mobile money wallet?	1. Yes 2. No
Q16	Which one of the following is the most important challenge in mobile money usage?	1. Preference for cash 2. Lack of trust 3. Poor service and system quality 4. Fraud