THE INTENTION AND CONTINUED USAGE OF MOBILE BANKING APPLICATIONS IN ZIMBABWE

By

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A DISSERTATION

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DECLARATION

I, **Tapiwa Bepe,** do hereby conscientiously declare that this dissertation with the title: The intention and continued usage of mobile banking applications in Zimbabwe, submitted in fulfilment of the requirements for the degree Master of Commerce in (Business Management) at University of the Free State, is solely my authentic work and that the adopted sources to realise the study have been indicated and consequently acknowledged using complete APA referencing style, and that this masters dissertation has not been previously submitted in partial or full fulfilment as deemed mandatory for the attainment of a higher education qualification or equivalent at any other educational institution.

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DEDICATION

This dissertation is dedicated to my support system – my family. My daughter, Maitaishe and my supportive husband, Nyashadzashe. I am forever indebted to you for your overwhelming support.

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ABSTRACT

The increase in competition has led to the growth of the Zimbabwean banking sector through the introduction of mobile banking applications by Zimbabwean banks. Despite the growth, the rate of continued usage of mobile banking applications has been slow. The study sought to predict the intention and continued usage of mobile banking applications in Zimbabwe especially with the increase in usage of the internet as customers seek convenience and paperless banking. Such a study is critical in determining the drivers of continued usage of m-banking applications within the banking industry. Practical implications from the study assist banks to tailor make the m-banking applications to suit the different needs of their customers. The study was grounded on the unified theory of acceptance and use of technology model, the technology acceptance model, the theory of planned behaviour model and the user experience model. Part of the empirical objectives of the study was to determine the impact of effort expectancy, social Influence, perceived enjoyment, user experience and perceived interaction on the intention to use mobile banking applications in Zimbabwe and to assess the impact of perceived risk and perceived trust on the intention to use and continued usage of mobile banking applications in Zimbabwe. Data were collected from 377 users that had used any mobile banking applications from any Zimbabwean bank in the past year. The Statistical Package for Social Science (SPSS) was used to analyse the results and SmartPLS was used to test and assess the validity of the hypothesised relationships in the model. The study sought to test twelve hypotheses, and of the twelve hypotheses tested, nine were significant. Of the constructs tested, effort expectancy and perceived interaction had the most influence on the intention to use m-banking applications, whilst loyalty as an outcome variable was the most significant compared to electronic word-of-mouth. The results indicated that effort expectancy, perceived enjoyment and perceived interaction were empirically supported, whilst social Influence and user experience were not statistically supported. Furthermore, the results showed that customers' continued usage of mobile banking applications on electronic word-of-mouth and loyalty were statistically significant. Perceived risk on the intention and continued usage of mobile baking applications was empirically supported. Whilst, perceived trust on the continued usage of mobile banking applications was empirically supported. However, perceived trust on the intention to use mobile banking applications was not empirically supported.

Key words: *mobile banking application, intention to use, continued usage, Zimbabwe, banks*

GLOSSARY OF STUDY TERMS

Apps:	Applications
ATM:	Automated teller machine
AVE:	Average variance extracted
BCI:	Bias-corrected confidence interval
CABS:	Central Africa Building Society
CAGR:	Compound annual growth rate
CFA:	Confirmatory factor analysis
CJM:	Customer journey mapping
CR:	Composite reliability
C-TAM-TPB:	Combined-TAM-TPB
DTPB:	Decomposed theory of planned behaviour
ECM:	Expectation-confirmation model
EFT:	Electronic funds transfer system
e-WOM:	Electronic word-of-mouth
HTMT:	Heterotrait-Monotrait ratio
ICT:	Information communication technology
IT:	Information technology
PC:	Personal computer
PDA:	Personal digital assistant
PLS:	Partial Least Square
POSB:	People's Own Savings Bank
m-banking:	Mobile banking
m-commerce:	Mobile commerce
MM:	Motivational model
MPCU:	Model of personal computer utilisation
MNO:	Mobile network operator
NBS:	National Building Society
POS:	Point of sale
RBZ:	Reserve Bank of Zimbabwe
SD:	Standard deviation
SEM:	Structural equation modelling

SMS:	Short message service
SPSS:	Statistical Package for the Social Sciences
TAM:	Technology acceptance model
TPBM:	Theory of planned behaviour model
TRA:	Theory of reasoned action
UFS:	University of the Free State
USSD:	Unstructured supplementary service data
UTAUT:	Unified theory of acceptance and use of technology
UX:	User experience
VIF:	Variance inflation factor
WAP:	Wireless application protocol
WOM:	Word-of-mouth

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

1. INTRODUCTION

The rapid development of information technology (IT) has brought remarkable growth across the world in mobile banking (m-banking) especially in the past few years (Shankar, Jebarajakirthy & Ashaduzzaman, 2020). Chawla and Joshi (2017) describe m-banking as an innovative e channel whereby the customer interacts with a bank via a mobile device such as a smartphone or a personal digital assistant (PDA). The Internet has taken the banking industry on a remarkable and tremendous growth trajectory (Khan & Khan, 2012), paving the way for research in m-banking applications. It is estimated that the number of mobile banking users will reach two billion worldwide by 2022, according to a forecast from Juniper Research (Maynard, 2020). The usage of m-banking can also be attributed to the technological developments, easy access to mobile devices and the fact that the Internet has become cheaper and more acceptable (Financial Conduct Authority, 2014).

The increase in demand for self-service and the personalisation of products and services has fuelled the growth of the mobile banking market (Letić, 2020) and Zimbabwe is no exception. Resultantly, improvements in wireless technologies and increased uptake of advanced mobile handsets have led to a growing trend in m-banking activities in Zimbabwe. This is evidenced as the total mobile banking subscribers stood at 6, 543,758 in the fourth quarter of 2019, a 3.46% increase compared to the third quarter of 2019 (Reserve Bank of Zimbabwe [RBZ], 2019). The liberalisation of the Zimbabwean financial sector in 1991 fostered competition and efficiency, as regulatory barriers were lifted and new entrants were allowed into the banking sector (Sanderson & Pierrle le Roux, 2017). Ajisafe and Ajide (2014) point out that banking competition helps to foster higher economic growth, paving way for the growth of the Zimbabwean banking sector, which now consists of many m-banking applications.

The Zimbabwean banking sector has an estimate of 17 m-banking applications (Dzoma, 2019). Despite an increase in active mobile subscribers of 2.7% from 12,853,615 in the third quarter of 2019 to 13,195,902 in the fourth quarter of 2019 (POTRAZ, 2019), there are only 6,543,758 active m-banking subscribers. These statistics indicate a low usage rate of m-banking services in Zimbabwe. Observations by Dzoma (2019) indicate that some people install m-banking applications but do not continue to use them. Mobile banking was rolled out in 2011 in Zimbabwe (Mbengo & Phiri, 2015) but to date, the rate of continued usage has been slow as evidenced by low statistics of 6,543,748 m-

banking subscribers compared to active mobile subscriptions of 13,195,902. Thus, this situation requires urgent attention to assist the banking players with the continued usage of their m-banking applications following previous investigations by Chaouali and Souiden (2019). It was, therefore, opportune for this study to research the intention and continued usage of m-banking applications in Zimbabwe.

This study included the assessment of constructs (effort expectancy, social influence, user experience, perceived enjoyment, perceived interaction, intention to use, electronic word-of-mouth (e-WOM) and loyalty) drawn from different theoretical models that include the unified theory of acceptance and use of technology (UTAUT), technology acceptance model (TAM), user experience (UX) model and the theory of planned behaviour model (TPBM) (Fishbein & Ajzen, 1977; Venkatesh, Morris, Davis & Davis, 2003) discussed in Section 1.6. Several scholars (Hassenzahl, 2003; Nguyen, 2015) define the constructs of this study and these definitions will be used in the context of this study and are discussed in Section 1.7.

A study by Abu-Taieh, AlHadid, Abu-Tayeh, Masa'deh, Alkhawaldeh, Khwaldeh and Alrowwad (2022) found that effort expectancy has a positive impact on the behavioural intention to use m-banking services similar to Bhatiasevi (2016). The usage of m-banking is premised on making the service easy through enhancing the application interface. Identifying factors that impact the level of actual use of a technology is essential and studies by Baptista and Oliveira (2015) in m-banking examine variables that might impact the usage of m-banking. However, failure of sufficient use of m-banking applications will likely result in losses associated with the costs of initiating m-banking services (Kiura, Doline & Solomon, 2014). It is upon this background that the study is premised on the intention and continued usage of m-banking applications and how it can lead to e-WOM and loyalty. This study provided insights on the influencing factors that increase the rate of continued usage of m-banking applications in Zimbabwe.

Apart from the need to comprehend the usage of m-banking and the factors that influence the intention to use m-banking (Kabir, 2013), there exist several gaps in the body of knowledge that affect customer satisfaction when using mobile banking that have yet to be identified, as noted by Aldiabat, Al-Gasaymeh & Rashid (2019). A previous study by Mehrad and Mohammadi (2017) consider different constructs such as perceived usefulness, perceived ease of use, word-of-mouth and social norm on the intention to use m-banking based on TAM. Consequently, the approach taken by Bhatiasevi (2016) and Mehrad and Mohammadi, (2017) falls short due to its failure to include outcome constructs such as loyalty, satisfaction and word of mouth that are critical in producing insightful findings.

This study sought to address this existing gap in the literature through the inclusion of outcome constructs that include e-WOM and loyalty in the continued usage of m-banking applications to get insightful research findings. While several studies (Raza, Shah and Ali, 2019; Sarfaraz, 2017) ground their conceptual frameworks based on a singular theoretical model. This study focuses on combining the following constructs of the UTAUT model (effort expectancy and social influence), extended TAM model (perceived enjoyment), user experience model (user experience and perceived interaction) and TPBM model (intention and continued usage). In addition, very little work has been done on effort expectancy to understand its role as an important driver of technology acceptance in order to create favourable perceptions and thus foster user usage (Venkatesh, 2000). This is also applicable to the extended TAM model, as previous studies (Bidar, 2018; Raza, Umer & Shah, 2019) mainly focuses on perceived usefulness. It is for these reasons that the study focuses on the above-mentioned constructs of the UTAUT and TAM model that apply to the context of this study.

It is also worth noting that studies on the intention and usage of m-banking are highly concentrated in regions such as Asia (Bhatiasevi, 2016). In Thailand, it was found that the relationship that posited the strongest influence was between perceived convenience and behavioural intention to use mobile banking (Bhatiasevi, 2016). Aldiabat *et al.* (2019) found that the ease of use of mobile banking services by users influence other customers to use the m-banking applications in Jordan. As much as studies have been conducted in other regions, the existing literature shows scarcity of studies on the usage of m-banking applications within the African context, especially addressing the Zimbabwean environment. There is need for studies that address the continued usage of m-banking applications in Africa, a developing continent. Previous studies by Albashrawi & Motiwalla (2019) identify gaps of frequent and continued usage of mobile banking services and examined existing gaps on the factors that influence customers' continuance intention. Hence, this study was positioned to address the intention and continued usage of m-banking applications in the African context through Zimbabwe and was appropriate in addressing the existing gaps in the above-mentioned areas.

Another gap identified was the limited studies that have been carried out to understand the rate of continued usage of m-banking applications using both the UTAUT and TAM model in the Zimbabwean context. Previous studies that have used both the UTAUT and TAM model in different sectors include No and Kim (2014) in the tourism industry and Tak and Panwar (2017) in the retail industry. The next section further provides evidence of an existing problem.

1.2 PROBLEM STATEMENT

The Zimbabwean banking sector has experienced phenomenal growth in the aftermath of the deregulation of the sector with the advent of the Economical Structural Program (ESAP) reforms since 1991 (Sakarombe, 2018). According to Sanderson and Pierrle le Roux (2017), the liberalisation of the Zimbabwean financial sector led to the lifting of the regulatory barriers, allowing new entrants into the banking sector and licensing of indigenous banks. The growth of the industry over time has brought in new players, increasing competition within the industry. The banking industry comprises of 13 commercial banks, five building societies and one savings bank (Deposit Protection Corporation, 2020). Over the years, the Zimbabwean banking sector has seen a growth in the m-banking applications, with an estimate of 17 mobile banking applications (Dzoma, 2019). Despite the growth, there were only 6,543,758 active mobile banking subscribers (Reserve Bank of Zimbabwe [RBZ], 2019) compared to 13,195,902 active mobile subscribers in 2019. With a high mobile penetration rate of 90.6% as of the fourth quarter of 2019, (POTRAZ, 2019) the above statistics indicated low continued usage of m-banking in Zimbabwe. Consequently, Dzoma (2019) observes that some people installed m-banking applications but did not continue to use the applications. Therefore, the focus of the study was to determine the intention and continued usage of m-banking applications. Previous studies by Ramdhony and Munien (2013) examine the acceptance and usage of m-banking services whilst Alsamydai, Yassen, Alnaimi, Dajani and Al-Qiren. (2014) studied the factors influencing customer usage of mobile banking services. The existing literature also indicates the existence of several gaps in the body of knowledge, as noted by Aldiabat *et al.* (2019). The first gap involves how the TAM model does not highlight the barriers to the usage of a technology. Ajibade (2018) assert the inadequacies of TAM to address the nexus between technology and the actual adoption and use of technology. Therefore the use of TAM solely does not sufficiently explain people's decision to use a technology and argue that TAM should rather be used as a base model, which should be extended with additional variables based on the technology being studied. The study sought to address the problem by welcoming the inclusion of outcome constructs that include electronic Word Of Mouth (e-WOM) and loyalty to produce insightful research results on continued usage of m-banking applications (Mehrad & Mohammadi, 2017). Previous studies by Raza, Shah and Ali (2019) and Sarfaraz, (2017) researches the variables and drivers affecting the intention to continue using m-banking and were grounded on a single theoretical model, which does not produce a robust conceptual framework. The study was grounded on four theoretical models that included UTAUT, TAM, User Experience model and TPBM to address the existing gaps in the body of knowledge. The next section contextualises the study.

1.3 CONTEXTUALISATION OF THE STUDY

Banking is a subset of the financial services sector and this industry has grown tremendously in the past few years. Banking is seen as an avenue for one to manage their finances. The most prevalent trends in the banking industry include the shift to digital transformation, specifically mobile and online banking (Meola, 2019), the emergence of FinTech companies and re-thinking the concept of money. Sanderson (2019) asserts that banks significantly contribute to the development of an economy through facilitation of business. The contributing role of banks has seen the expansion of international banks into emerging economies, leading to a highly competitive structure within this industry. The various types of mobile banking services that users can use to access mobile banking include the short message service (SMS), unstructured supplementary service data (USSD) and downloaded applications (apps) (Nicoletti, 2014; Tome, 2019). The study focused on mobile banking application since m-banking applications have the potential to replace online banking altogether and serve as the customer's primary access to the financial institutions, as Nicoletti (2014) notes. In addition, Munoz-Leiva *et al.* (2017) posit m-banking apps to be an innovation that could become one of m-commerce's value-added applications.

Zimbabwe is also experiencing a rise in banking, especially digital banking, with international banks like Stanbic, Standard Chartered and Ecobank possessing m-banking applications that are also competing with local m-banking applications like CBZ, Steward Bank and POSB, to mention a few (Gambanga, 2016; Mudzingwa, 2019). The banks that have developed m-applications have to ensure the continued use of the m-banking applications through personalisation, simplicity, high availability and differentiation to achieve a competitive advantage (Dalhunova, 2017). The next section presents the objectives of the study as well as its significance.

1.4 PRIMARY RESEARCH OBJECTIVE

The primary research objective is to predict the intention and continued usage of mobile banking applications in Zimbabwe. The secondary research objectives are provided as follows:

1.4.1 SECONDARY OBJECTIVES

1. 4.1.1 Theoretical objectives

To address the primary objective of the study, the theoretical objectives aimed to review the literature on:

- The unified theory of acceptance and use of technology (UTAUT) model

- The technology acceptance (TAM) model
- Theory of planned behaviour (TPB) model
- User experience (UX) model
- Effort expectancy
- Social influence
- Perceived enjoyment
- User experience
- Perceived interaction
- Intention to use mobile banking application
- Continued use of mobile banking application
- Electronic word-of-mouth (e-WOM)
- Loyalty
- Perceived risk
- Perceived trust

1.4.1.2 Empirical objectives

In line with the primary and theoretical objectives of the study, the following empirical objectives were formulated:

i. To assess customers' perceptions of effort expectancy, social Influence, perceived enjoyment, user experience and perceived interaction with mobile banking in Zimbabwe

ii. To determine the impact of effort expectancy, social Influence, perceived enjoyment, user experience and perceived interaction on the intention to use mobile banking applications in Zimbabwe.

iii. To establish if the intention to use mobile banking application has an impact on the continued usage of mobile banking applications in Zimbabwe.

iv. To assess the impact of perceived risk and perceived trust on the intention to use and continued usage of mobile banking applications in Zimbabwe.

v. To determine the impact of continued usage of mobile banking applications in Zimbabwe on electronic word-of-mouth (e-WOM) and loyalty.

1.5 SIGNIFICANCE OF THE STUDY

The body of knowledge indicates that m-banking has undergone rapid growth and research on it is on the increase. Mawere, Denhere, Giyane and Tinomuda (2013) point out that m-banking has registered

great success as a convenient and cost-effective way to transact in developing nations. The study is, therefore, of great significance to the Zimbabwean banking industry, consumers, economy and the literature on the continued usage of m-banking applications. The study will help in examining the user experience and perceived interaction constructs in determining the intention and continued usage of m-banking applications within Zimbabwe and assessing e-WOM and loyalty as outcome constructs. Such a study is critical in determining the drivers of continued usage of m-banking applications within the banking industry. Practical implications from the study, therefore, will assist in ensuring the continued usage of m-banking applications, which are currently facing a low usage rate and assist banks to tailor make the m-banking applications to suit the different needs of their customers.

The success of m-banking applications in Zimbabwe translates to economic growth and financial inclusion (Mago & Chitokwindo, 2014). As more m-banking applications are established, new opportunities arise for the unbanked population, low income earners and vulnerable groups to access financial services. The study will contribute to the broader literature on consumer behaviour with particular interest on the user experience, perceived interaction and e-WOM of m-banking applications. Consequently, the study is expected to bridge the gap of low usage rate by determining the intention and usage drivers of m-banking applications in Zimbabwe. The next section presents the literature review of the study.

1.6 THEORETICAL GROUNDING

Diverse theories and models exist for seeking to predict and explain human behaviour. The study was grounded on the unified theory of acceptance and use of technology model, the technology acceptance model, the theory of planned behaviour model and the user experience model, as they all related to the constructs as well as the relationships that have been proposed between the constructs. These theories are discussed in the sections to follow.

1.6.1 The unified theory of acceptance and use of technology model

The study was grounded on the unified theory of acceptance and use of technology (UTAUT) model. The UTAUT model was propounded by Venkatesh Morris, Davis and Davis (2003) who explain user intentions to use an information system and subsequent usage behaviour. Therefore, the intention to use technology explains the extent to which the user regards technology as beneficial (Venkatesh & Davis, 2000).

Effort expectancy denotes the degree of ease associated with the use of the system (Venkatesh, Morris, Davis & Davis, 2003) and origins of the construct can be traced in TAM as perceived ease of

use (Abubakar, 2013). Social Influence is defined as the degree to which an individual perceives that important others believe he/she should use the new system and is synonymous to subjective norms in TRA, TAM and TPB models (Abubakar, 2013). At the same time, effort expectancy and social influence are believed to have an impact on the intention and usage of m-banking applications as conceptualised in the study.

1.6.2 The technology acceptance model

The popularity of mobile devices and the successful commercialisation of mobile communications networks have led to the emergence of mobile commerce becoming more and more prevalent (Turban, Whiteside, King & Outland, 2017). Mobile commerce, also commonly known as m-commerce, involves mobile services, mobile technologies and business models. However, Moulds (2015) asserts that the adoption of mobile services has been slower than expected due to security concerns. As a result, significant progress has been made over the last decade in explaining and predicting user acceptance of information technology through the use of models that include the Technology acceptance model TAM propounded by Davis (1989a). The extended TAM model was adapted to also include perceived enjoyment (Davis, Bagozzi & Warshaw, 1992) as an extrinsic motivation, which plays an important role in user technology acceptance.

The TAM construct that was applicable in the context of this study was perceived enjoyment. Perceived enjoyment directly and significantly influences continuance intention (Nguyen, 2015). This theory enabled the researcher to study the perceived enjoyment as a determinant of the intention to use and continued usage of m-banking applications.

1.6.3 Theory of planned behaviour model

The TPB was developed by Ajzen (1985) as an extension from the theory of reasoned action (TRA) by Fishbein and Ajzen (1977), which is one of the most fundamental and influential theories of human behaviour (Venkatesh *et al.,* 2003). This model has three variables to predict behavioural intentions, which include attitude toward a specific behaviour, subjective norms (others' perceptions or judgments to engage or not engage in the behaviour) and perceived behavioural control (perception of the ease or difficulty of performing the behaviour) (Ajzen, 1991).

This theory enabled the researcher to predict behavioural intentions with a high degree of accuracy (Ajzen, 1991). The TPB model, in relation to the study, expressed more of behavioural intention and actual behaviour. This was in line with the purpose of the study as it tried to examine the behavioural intention and continued usage of m-banking applications.

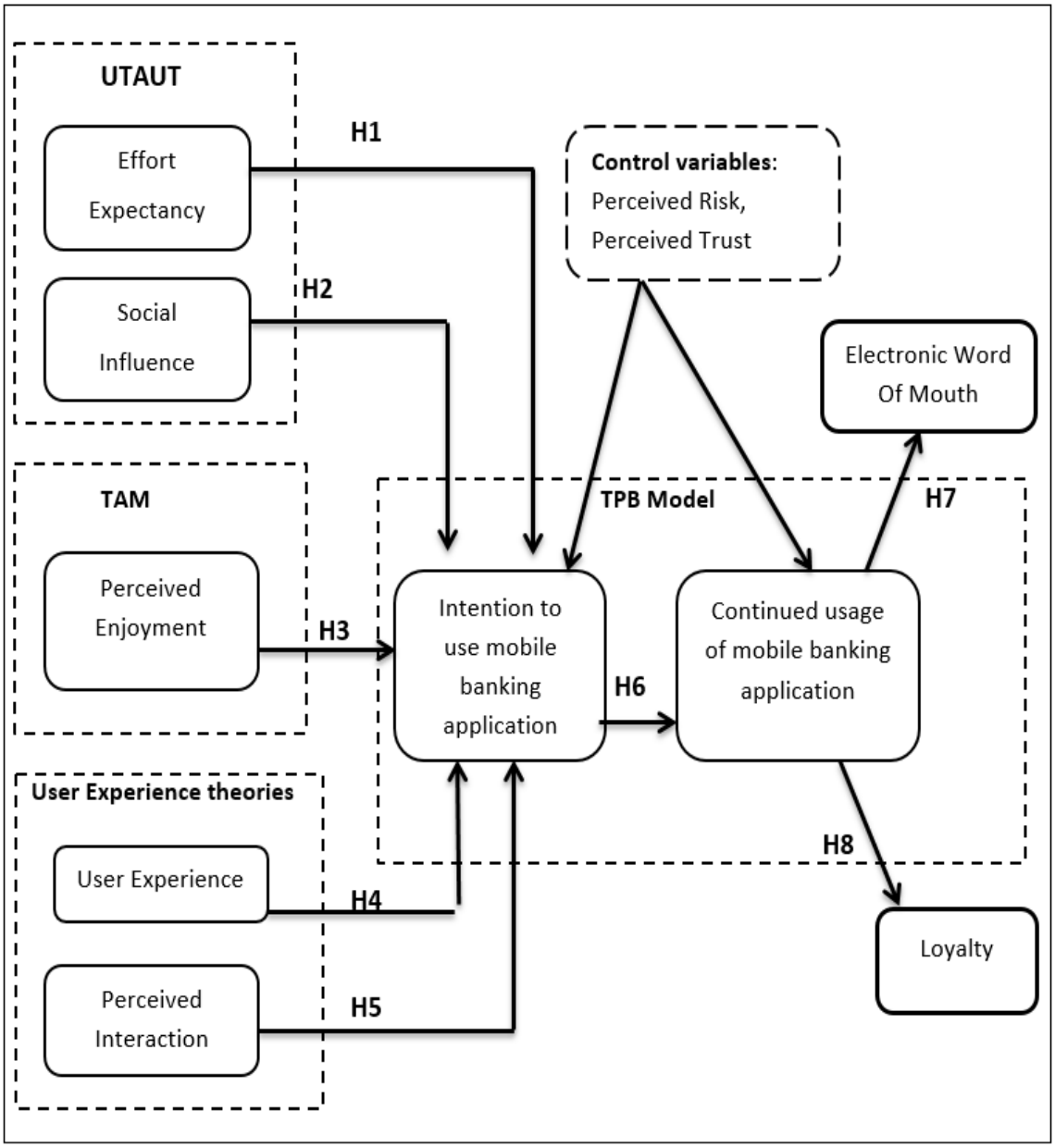
1.6.4 User experience model

Discussions by Hassenzahl (2008) raised the point that pleasurable, stimulating social exchanges are the true underlying motives for technology use and many of these notions are subsumed under the umbrella of user experience (UX). User experience, as defined by Hassenzahl (2008), is a momentary, primarily evaluative feeling (good-bad) while interacting with a product or service. In the user experience model, Hassenzahl (2003) proposes that user experience is influenced by a combination of product features and individual user differences. The theoretical model of user experience investigates product features that result in apparent product perceptions. Thus, it is imperative to design products and offer services that create good, delightful experiences as this can result in positive word-of-mouth (Pop, 2021).

1.7 THE CONCEPTUAL FRAMEWORK

The conceptual theoretical framework provided in Figure 1.1 was grounded on four theories that included the Unified theory of acceptance and use of technology (UTAUT), Technology acceptance model (TAM), user experience model and Theory of planned behaviour model (TPBM). Based on these four theories, Figure 5 illustrated the conceptual framework reflecting the distinct paths and connections between the constructs under investigation. The subsequent sections provide the formulation of the hypotheses for the present research.

Figure 1.1: Conceptual framework



Source: Author's own work

1.7.1 Effort expectancy and the intention to use a mobile banking application

Effort expectancy denotes the degree of ease associated with the use of the system, or in this case, m-banking applications (Venkatesh *et al.,* 2003). Effort expectancy, as a construct of the UTAUT model, has been used in different sectors including health care (Wang,Tao, Yu & Qu, 2020) to investigate technology acceptance. Empirical findings of these studies highlighted that consumer acceptance was affected by both user perceptions and the task-technology fit. Thus, the extent to which customers

perceive using a new system as being simple and not requiring too much effort usually shapes their willingness to use such a system (Alalwan, Baabdullah, Rana, Tamilmani & Dwivedi, 2018). The study aimed at identifying factors that impact effort expectancy resulting in the intention to use m-banking applications. The following hypothesis was subjected to testing in the study:

H_1. *Effort expectancy has a positive and a significant impact on the intention to use mobile banking applications.*

1.7.2 Social influence and the intention to use a mobile banking application

Social influence is defined as the degree to which an individual perceives that important others believe he/she should use the new system, which was m-banking applications in the context of the study (Abubakar, 2013). People take influence from the value given by peers or family members and this may influence the individual trend towards use of m-banking applications (Mokhtar, HIdayat-ur-Rehman & Katan, 2018). Researchers such as Abu-Taieh, AlHadid, Abu-Tayeh, Masa'deh, Alkhawaldeh, Khwaldeh and Alrowwad (2022) confirms the positive impacts of social influence on individual intention to use m-banking. The following hypothesis was subjected to testing in the study:

H_2: *Social Influence has a positive and a significant impact on the intention to use mobile banking applications.*

1.7.3 Perceived enjoyment and the intention to use a mobile banking application

Perceived enjoyment is explained as the usage process that reflects the pleasure and enjoyment associated with using a system (Praveena & Thomas, 2014). It is interesting to note that the literature shows perceived enjoyment always has a significant impact on ease of use for utilitarian systems, which renders it an important construct in the study (Xiang, Jing, Lee & Choi, 2014). The study, therefore, proposed the following hypothesis:

H_3: *Perceived enjoyment has a positive and a significant impact on the intention to use mobile banking applications.*

1.7.4 User experience and the intention to use a mobile banking application

While user experience has received a lot of attention, it was argued to generally reflect any interaction between a user and a product, which was m-banking services in the context of the study (Hoober, 2014). Wang and Hsu (2019) identifies that product aesthetics and sustainable perceived value can trigger the purchase intention for consumers and improve user experience, concluding that aesthetics plays an important role for the users' intention to use technology. Consequently, user experience was going to be instrumental in the study that aimed at determining ease of use of m-banking applications

as well as its impact on intention and continued usage of m-banking within Zimbabwe. Against this background, the following hypothesis was formulated:

H_4: Customers' user experience has a positive and a significant impact on the intention to use mobile banking applications

1.7.5 Perceived interaction and the intention to use a mobile banking application

The perceived interaction construct refers to system interactivity (which was m-banking application interaction in the context of the study) experienced by the users (Niu, Willoughby, Coups & Stapleton, 2021). High interactivity generally leads to continuous and immediate feedback and thus allows users to actively and seamlessly participate on systems (Yang & Shen, 2018). In the context of the study, interaction is explained as the behaviour of communicating with two or more objects affecting each other and further divided into personal interaction between user and system (Niu, Willoughby, Coups & Stapleton, 2021). The study sought to understand the effect of perceived interaction on customer user intentions. The study, therefore, proposed the following hypotheses:

H_5: Perceived Interaction has a positive and a significant impact on the intention to use mobile banking applications.

1.7.6 The intention to use mobile banking applications and the continued usage of mobile banking applications

Behavioural intention is an integral part of the UTAUT model, which represents the extent of individuals' willingness and effort to perform the underlying behaviour. Therefore, the stronger the intentions of individuals, the higher the chances of performing the underlying behaviour (Ajzen, 1991). In the context of the study, it was the intention and continued usage of m-banking applications. Against this background, the following hypothesis was formulated:

H_6: Customers' intention to use mobile banking applications have a positive and a significant impact on the continued usage of the mobile banking applications.

1.7.7 Continued usage of the mobile banking applications, Word of Mouth and loyalty

The effectiveness of e-WOM on consumers' perceptions of using products/services has been studied extensively in recent years (Cheung & Thadani, 2012). The usage of technology, in this context, continued usage of m-banking, plays a role of enhancing customer loyalty by making banking services more convenient, time-saving and personalised (Murrey, 2016). Based on the additional constructs that were described as continued usage of m-banking applications, e-WOM and loyalty, two more hypotheses were formulated as follows:

H_7: Customers' continued usage of mobile banking applications have a positive and a significant impact on electronic word-of-mouth (e-WOM).

H_8: Customers' continued usage of mobile banking applications have a positive and a significant impact on loyalty.

1.7.8 Control variables, intention to use mobile banking applications and continued usage of mobile banking applications

To reduce the confounding effect on the empirical findings, perceived risk and perceived trust were included as control variables. According to Bernerth, Cole, Taylor and Walker (2018), the purpose of control variables is to purify observed relationships among variables of interest, reduce error research terms, provide programmatic efforts to explain the reasons for observed results and more or less enable accurate interpretation of results. The study included two control variables (perceived risk and perceived trust) in order to control the alternative explanations on intention to use and continued usage of mobile applications. Previous studies by Malaquias and Hwang (2016); Thusi, Red and Maduku, (2019); Van, Pham, Williamson, Huong, Hoa and Tran, (2020); Zalloum, Alghadeer and Nusairat, (2019) include perceived risk and perceived trust as control variables to determine their influence on the continued intention to use mobile banking. Therefore, the study proposed that perceived risk and perceived trust would have a direct influence on intention to use and continued usage of m-banking applications; thus, being the control variables in this study.

1.8 RESEARCH METHODOLOGY AND DESIGN

1.8.1 Research design

The study adopted a positivist research paradigm and a quantitative descriptive research design. The positivist paradigm was appropriate for the study because it allowed information to be gathered through measurements that were in line with the requirements of quantitative descriptive research design (Burns, Veeck & Bush, 2017). The quantitative descriptive research design was preferred for its objectivity since the role of the researcher was limited to data collection and interpretation of results (Sekaran & Bougie, 2016).

1.8.2 Population and sample

The target population of the study were users from Zimbabwean banks with m-banking applications that used any m-banking applications in the past year. The participants of the study were selected randomly through the banks and digital platforms. The historical evidence method was used as a

comparative analysis, as noted by Berg, Lune and Lune (2004), to determine the required sample size. Table 1.1 shows previous studies centred on m-banking and the sample sizes that they used.

Table 1.1: Sample size

Source	Sample Size
Alalwan, Dwivedi and Rana, (2017)	343
Boonsiritomachai and Pitchayadejanant (2017)	480
Mehrad and Mohammadi (2017)	384
Hamidi and Safareeyeh (2019)	243
Shankar and Rishi (2020)	432
Average	**377**

Source: Author's own compilation

Deducing from table 1.1, a sample size of 377 was deemed adequate.

1.8.3 Sample and sampling technique

Non-probability sampling, using a convenience sampling technique, was applied. The convenience sampling method envisaged was deemed not to compromise the quality of research because the sample was comprised of users from Zimbabwean banks with m-banking applications facing similar conditions in a competitive market environment (Malhotra, 2019). The convenience sampling strategy was deemed appropriate due to its cost-effectiveness and timeous impact.

1.8.4 Procedures for data collection

Data were collected using a five-point Likert scale online questionnaire. The items were adapted from Venkatesh *et al.* (2003) with a screening question to permit only users of m-banking applications who were customers of a bank that offers m-banking services to participate. The questionnaire was accessed online via Google Forms and carried constructs and items on demographics, effort expectancy, user experience, customer user intentions and continued usage (Venkatesh *et al.,* 2003). Potential respondents were informed of the study through electronic mail (e-mail) of the questionnaire. The questionnaire was accompanied by an informed consent that explained the purpose of the study and the rights of respondents to participate willingly. The personal data were collected and used in accordance with the Data Protection legislation (Information Commissioner's Office [ICO], 2020).

1.8.5 Statistical techniques for data analysis

The research used the Statistical Package for Social Science (SPSS) version 27 to evaluate the data pertaining to the geographical profile of the respondents, the latest software version of SMART-PLS 3.2.7 was used to measure the effect of user experience, perceived interaction on customer intentions and continued usage of m-banking applications and assessing e-WOM as an outcome construct. Structural equation modelling (SEM) was used to test the eight formulated hypotheses and the fitness of the conceptual model. Rigdon (2014) highlights that because PLS-SEM is not constrained by identification and other technical aspects it is possible to test complex models with many different constructs. The statistical analysis that was performed in the study included measures such as: (1) Measurement model – testing of reliability analysis and validity analysis and (2) Structural model analysis – examining the path coefficients between observed coefficients.

1.8.6 Measurement model assessment

The reliability and validity of the measurement instrument in the study were ensured through a pilot study, reliability and validity test (Ghazali, 2016). A pilot study was carried out from 10 current users of any m-banking applications in Zimbabwe to ensure that the data collection tool was free from spelling and grammatical mistakes (Saunders, Philip & Thornhill, 2015). For the purpose of the study, a Cronbach alpha minimum threshold of 0.7 was accepted for constructs to be regarded as reliable (Field, 2013) and a minimum threshold of 0.8 for composite reliability (Sujati & Akhyar, 2020).

Construct validity can be confirmed through evidence of convergent validity and discriminant validity. Carlson and Herdman (2012) posits that convergent validity reflects the extent to which two measures capture a common construct. For the purpose of the study, convergent validity was assessed by item to total correlation value and factor loadings and these were above 0.7 and the average variance extracted values (AVE) of the constructs exceeded 0.5 (Hamid, Sami & Sidek, 2017).

The goal of discriminant validity assessment is to ensure that a reflective construct has the strongest relationship with its own indicators in comparison for example to other constructs. Discriminant validity was assessed using the heterotrait-monotrait ratio of correlations (HTMT) as recommended in Hamid, Sami and Sidek (2017). The exact threshold level of HTMT (0.85 or 0.90) has created a bit of a debate and the study by Henseler, Ringle and Sarstedt, (2015) suggest an HTMT threshold value of 0.90 if constructs are conceptually very similar and 0.85 if the constructs are conceptually more distinct. For the purpose of the study, the threshold of 0.9 was used to determine the discriminant

validity of the PLS-SEM model, since the threshold of 0.9 always has higher specificity rate than the threshold of 0.85 as Henseler Ringle and Sarstedt (2015) highlights.

1.8.7 Structural model assessment

Inner model structural model was assessed to test the relationship between the endogenous and exogenous variables. To test the hypothesis for each direct effect in the conceptual model, the standardised value of each path coefficient was interpreted, along with the p-value (two-tailed) equal to 0.05 or lower based on Hair, Hult, Ringle and Sarstedt (2017).

1.9. ETHICAL CONSIDERATIONS

Research authorities such as Dudovskiy (2018) strongly warn against overlooking ethical issues in quantitative research. Permission to conduct this study was obtained from the participating m-banking firms and ethical clearance from the University of the Free State (UFS) Ethics Committee. The researcher ensured that informed consent was obtained from the participating respondents through online requests and physical forms. Respondents were provided with the right to withdraw from participating without being questioned. Anonymity and confidentiality of both the research respondents and the participating banking firms with m-banking applications were respected. All the information regarding the trade secrets of the banking firms with m-banking applications were protected and secured through the use of password-protected files.

1.10 CHAPTER OUTLINE

The proposed study consisted of six core chapters as outlined in Table 1.2.

Table 1.2: Outline of the study

Chapter	Contents
Chapter 1: Introduction and background of the study	This provided an overview of the study.
Chapter 2: Literature review	This encompassed relevant literature pertaining to the theoretical and empirical objectives and conceptual framework
Chapter 3: Conceptual Model and Hypotheses Development	This outlined the proposed relationships in the conceptual model
Chapter 4: Research Methodology and design	This covered the research methodology and design
Chapter 5: Data Analyses and Discussion of Results	This presented the results of the data analysis
Chapter 6: Overview, Recommendations, Limitations and Conclusion	This provided recommendations, limitations and conclusions

Source: Author's own compilation

1.11 CHAPTER SUMMARY

This chapter provided an introduction and background of the study in addressing the intention and continued usage of mobile banking applications in Zimbabwe. This was achieved through the assessment of constructs of the study drawn from different theoretical models. The constructs of the study include effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, intention to use, continued usage, perceived risk and perceived trust as control variables and e-WOM and loyalty as outcome variables. Chapter 1 also highlighted the primary research objective, which was to predict the intention and continued usage of mobile banking applications in Zimbabwe. The study briefly explained the theories and models used in the study. They include the Unified theory of acceptance and use of technology (UTAUT), the Technology acceptance model TAM, the Theory of planned behaviour model TPB and the user experience model and were further elaborated on in Chapter 2. A comprehensive methodology and research design were briefly described in Chapter 1 and further elaborated on in Chapter 3 to test the validity and applicability of the suggested conceptual model. The chapter indicated that the study was made up of six chapters and

explained the ethical considerations of the study. In the next chapter, the literature review is presented.

CHAPTER 2

LITERATURE REVIEW

2. INTRODUCTION

Chapter 1 outlined the purpose of the dissertation and this current chapter (Chapter 2) delineates the research context. This chapter discusses the research context by providing background into the history of banking, global banking landscape, banking in Africa, South Africa and Zimbabwe, the history of mobile banking and the benefits, inhibitors and enhancers of mobile banking. In addition, this current chapter presents a detailed theoretical framework. The theoretical literature of this study is anchored in the framework of the UTAUT model, TAM, the TPB and user UX model. These theories and models were used to serve as underpinnings to ground the study, including supporting theories, TRA, Decomposed Theory of Planned Behaviour (DTPB), Diffusion of Innovation Theory (DOI) and Expectation Confirmation Theory (ECT). They are the pivotal theories in this research because they explain fundamental concepts used by the study and provide a central point of reference for arguments generated in the research. This current research chapter also presented the definitions of the constructs of the study.

2.1 RESEARCH CONTEXT

2.1.1 History of banking

Banking remains an essential part of the financial system and previous authors Harnay and Scialom (2016) and Monnet and Velde (2021) review the literature of banking and financial crises with similar findings as Calomiris and Haber (2015) and Goodhart (2013). Colvin (2016) broadens the definition of banking history to include a more comprehensive set of subject matters and epistemological through a qualitative study of 247 banking history articles whilst Bikker and Spierdijk (2017) further explains the key developments in the history of the banking industry as deregulation, technological progress, consolidation and internalisation. In contrast, Decker, Kipping and Wadhwani (2015) warn that the business history ought not to uncritically adopt the epistemological approach of the new economic history, but rather advocate for a plurality in research methods. However from a historiographical context, Turner (2014) elucidates how banking and financial history are usually taken together as a single field of study.

The banking history is fascinating and reflects an evolution in trade and commerce. Beattie (2019) and Cusack (2019) reveal how banking has been in existence since the first currencies were minted and perhaps even before that, banking was in some form or another. Chaudhari (2017) outlines how there

was no such word as banking before 1640, although the practice of safe-keeping and savings flourished in the temple of Babylon as early as 2000 BC. The first bank, called the Bank of Venice was established in Venice, Italy in 1157 to finance the monarch in wars, but modern banking began with the English goldsmiths only after 1640, as Chand (2013), Chaudhari (2017) and Verma (2012) publish.

The evolution in trade and commerce and the history of banking is reflected in the study by Chaudhari (2017) who further articulates how the forms of money have evolved from coin to paper currency notes to credit cards, as Colvin (2016) reinforce. With the commercial transaction having increased in content and quantity from simple banker to speculative international trading arose the need for a third party to assist the smooth banding of transactions and most importantly, to mediate between the seller and buyer, hold custody of money and goods. Such mediating agencies gave birth to the concept of banks and banking (Chaudhari, 2017).

Over the past few decades, the banking landscape has experienced numerous changes (Bikker & Spierdijk, 2017). Following the rapid advances in technology over the past several decades, the intrusion of digital technology into the sphere of banking has brought about a paradigm shift in banking, creating what is now referred to as digital banking, which comprises of online, electronic and mobile banking (Sardana & Singhania, 2018).

2.1.2 Global banking landscape

The great transformation undergone by the banking sector in the last 20 to 30 years has led to the formation of large multinational banks and some global players fuelled by several factors, amongst which are technological progress, deregulation and geopolitical events (Bikker & Spierdijk, 2017). The study by Bikker and Spierdijk (2017) discuss the evolution in banking competition measures and reviews empirical evidence on competitiveness across countries and regions. Conversely, Buch, Koch and Koetter (2013) show that while having subsidiaries abroad can enhance market power at home, being active in too many countries can hamper this power and conclude that managing a global conglomerate efficiently is beyond the reach of most banks. Despite the views of Buch, Koch and Koetter (2013), the study by Bikker and Spierdijk (2017) is supported by Amidu and Wilson (2014) and Amidu and Wolfe (2013).

Owing to data availability and other historical reasons, the banking markets in North America, mainly the United States and Canada, are amongst the earliest and most often studied regarding competition (Bikker & Spierdijk, 2017). Whilst great differences are shown regarding bank competition in the Middle East and North Africa, Arab countries exhibit monopolistic or even perfect competition and mainly monopolistic conditions are found in North Africa as Bikker and Spierdijk (2017) highlights. The

core findings of Amidu and Wilson (2014) point out how competition increases stability as diversification across and within both interest- and non-interest income-generating activities of banks also increases.

Explaining the role of regulation in banking, Calomiris and Haber (2015) outline how politics have shaped the banking systems. On the contrary, Monnet and Velde (2021) state that outside North America, bank regulation and supervision rarely existed before the Great Depression. According to Wonglimpiyarat (2014), the banking environment in Thailand is closely linked with the Information, Communication and Technology (ICT) industry since the functionalities of mobile banking innovations hinge on the strategic alliances between banks and mobile phone companies. Nevertheless, Gupta (2013) points out that due to significant country-specific differences in banking regulations, customer needs and mobile usage, the revolution is likely to be intricate as multitudes will likely jostle for a competitive positioning.

2.1.3 Banking in Africa

Banking in Africa has also undergone dramatic changes over the past years. Beck, Fuchs, Singer and Witte (2014) articulate how most African countries had banking systems dominated by foreign-owned banks at the time of independence. In most countries, foreign-owned banks were the only commercial banks. In the 1960s and 1970s, the governments of the newly independent states undertook a first series of financial sector reforms. By the 1980s, several African economies were experiencing economic crises due to a combination of external shocks and failing domestic policies as Abor, Gyeke-Dako, Fiador, Agbloyor, Amidu and Mensah (2019) cite. Many state-owned banks became insolvent due to political pressure to make unsustainable loans, lack of technical expertise and poor management.

On the other hand, in the countries where government intervention was less heavy-handed, this resulted in relatively less distorted credit markets. In Kenya, Ethiopia and Zimbabwe, state-owned banks remained functional (Beck, Fuchs, Singer & Witte, 2014). However, the African financial landscape has changed, largely due to financial liberalisation, reforms, institutional upgrades and regulatory capacity as expressed by Abor, Gyeke-Dako, Fiador, Agbloyor, Amidu and Mensah (2019), Beck *et al.* (2014) and Rouse (2017). On the systemic level, Laeven and Valencia (2012) and Barth, Caprio and Levine (2013) outline how Africa has suffered few banking crises since the bout of systemic fragility in the 1980s and 90s. Abor *et al.* (2019) further articulate how the African banking system managed to overcome the turmoil of the global financial crisis despite the indirect pressures through international trade linkages.

Comparing the banking systems in Africa, Abor *et al.* (2019) reveal that it is relatively easy for new banks to enter the banking industry in West Africa compared to South and North Africa, where regulation regarding entry is rigid. Furthermore, the banking systems in Southern African and North African countries tend to be fairly more developed compared to those in West, East and Central Africa. More specifically, North African banking systems are much deeper, well penetrated and more efficient than other parts of Africa (Abor *et al.,* 2019).

The level of financial development in Africa differs from country to country. South Africa and Mauritius have well-developed banking systems (Beck & Cull, 2013). On the other hand, Beck and Cull (2013) highlights how smaller and poorer countries, such as the Central African Republic or South Sudan, have shallow banking systems that offer only the most rudimentary financial services. Previous studies by Abor *et al.* (2019), Beck and Cull (2013) and Rouse (2017) report on the state and developments of the banking system from the African context. However, Allen, Carletti, Cull, Qian and Valenzuela (2012) reveal a substantial gap between predicted and actual levels of African financial development and further explain how the determinants of banking development in Africa differ from the rest of the world.

2.1.4 Banking in South Africa

South Africa is one of the few countries in Africa with a developed and regulated banking system that compares favourably with those in developed countries, as outlined in Research and Markets (2021) and The Banking Association of South Africa (2012). On a global basis, South Africa was ranked 19th as a financial hub by the World Economic Forum's (WEF) and was recognised as a country with a well-established and effective regulated banking system (Reuters, 2020). It has also been observed by Van Deventer (2019) how retail banks that operate in emerging economies such as South Africa can benefit from low-cost digital distribution channels, including mobile banking. With one of the most sophisticated telecommunication infrastructures of all the emerging markets, mobile banking is one of the many innovative new services South Africa has witnessed (Joubert & Van Belle, 2013).

A quantitative method focusing on South African retail banking clients' towards mobile banking usage was adopted in previous studies by Balabanoff (2014) and Maduku (2014). Conversely, a review of the extant South African literature shows that retail banks face a monumental challenge in persuading clients to bank online (Maduku, 2013). Mobile banking has become a disruptive and innovative force changing the traditional transactional banking landscape (Muzurura & Chigora, 2019) and transforming the South African banking systems.

2.1.5 Banking in Zimbabwe

In recent years, many local banks in Zimbabwe have made substantial investments in their online banking infrastructure, particularly in the early 2000s (Makosana, 2014). The first visible form of electronic innovation in the banking industry in Zimbabwe was in the early 1990s when Standard Chartered Bank and Central Africa Building Society (CABS) installed automated teller machines (ATMs) (Makosana, 2014; Mavaza, 2019).

Other forms of electronic innovations that have found their way into Zimbabwean banks are electronic funds transfer systems (EFTs), telephone banking, personal computer (PC) banking, Internet banking (Makosana, 2014; Mavaza, 2019) and, recently, mobile banking. Over the years, EFT has been used as a direct money transfer without the physical exchange of money, whereas PC and Internet banking act as forms of online banking that allow customers to conduct any financial transactions on a secure website operated by a retail bank (Mavaza, 2019).

The vast majority of people in the developing world are financially excluded (Alexandre & Almazán, 2012; Barboni, Cassar & Demont, 2017). In Zimbabwe, Chikoko and Mangwendeza (2012) believe that the geographical representation of bank branches has been primarily concentrated in major cities and towns. Over the years, the electronic innovations witnessed in Zimbabwe have released banks from the constraints of time and geographical location and allowed banks to cut costs on transactions, improve their service delivery and respond better to the market's demands (Makosana, 2014).

The banking industry in Zimbabwe has moved from the conventional face-to-face transacting, embracing new technologies that has brought enjoyment, safe and reliable banking solutions to consumers (World Finance, 2015). Zimbabwe's banking sector comprises 13 commercial banks, five building societies and one savings bank. There are 19 operating banks that are functional in Zimbabwe (Bankers Association of Zimbabwe, 2019; Deposit Protection Corporation, 2021) as outlined in Table 2.1.

Table 2.1: Operating banks in Zimbabwe

Category	List
Commercial Banks	1. AFC Commercial Bank 2. Banc ABC 3. CBZ Bank Limited 4. Ecobank 5. FBC Bank Limited 6. First Capital Bank Limited 7. MetBank 8. Nedbank Zimbabwe Limited 9. NMB Bank Limited 10. Stanbic Bank Zimbabwe Limited 11. Standard Charted Bank Zimbabwe Limited 12. Steward Bank 13. ZB Bank Limited
Building Societies	1. CBZ Building Society 2. Central Africa Building Society (CABS) 3. FBC Building Society 4. National Building Society Limited 5. ZB Building Society
Savings Bank	1. People's Own Savings Bank (POSB)

Source: Deposit Protection Corporation (2021)

2.1.6 Definition of mobile banking (m-banking)

The literature of mobile banking (m-banking) definitions was identified in a previous study by Quirici (2020) and the study also noticed the lack of consensus in the reports and role of m-banking in developed and developing countries. This is also supported by Goyal, Pandey and Batra (2012) and Shaikh and Karjaluoto (2015). In industrialised (or developed) countries, m-banking refers to an extension of banking and financial services provided on mobile phones by financial institutions (Agenyi, 2013; Nguena, 2019). By contrast, in developing countries, m-banking is a broader form of banking that includes, for example, payment services (m-payments), transfer of funds and deposits as Fall, Orozco and Akim (2020) and Jack and Suri (2014) outlines.

Some authors qualify the type of device used under m-banking such as Shaikh and Karjaluoto (2015), in contrast to Oliveira, Faria, Thomas and Popovič (2014), the reasoning being that accessing banking services from a laptop should not be considered as m-banking since the interface is similar to a desktop PC, which is not a mobile device (Shaikh & Karjaluoto, 2015). Table 2.2 outlines the diverse definitions

of m-banking, pointing out that the evolution of several definitions that changed throughout the last decade (Tam & Oliveira, 2017).

Table 2.2: Mobile banking definitions

Author	Definition
Hoehle, Scornavacca and Huff (2012), Aldiabat, Al-Gasaymeh and Rashid (2019)	….is a channel through which customers interact with a bank through non-voice applications such as text- or Wireless Application Protocol (WAP)-based banking services using a mobile device, such as a mobile phone or personal digital assistant (PDA).
Al-Jabri and Sohail (2012), Chandran (2014)	….is an application of m-commerce delivered by financial institutions or banks that permits its users to perform financial transactions remotely by adopting a mobile device like Personal Digital Assistants (PDA), mobile phone or smartphone.
Chong (2013)	….is defined as banking activities which are conducted by using mobile Internet technologies
Oliveira, Faria, Thomas and Popovic (2014) and Mohammadi (2015)	… is an instance of a mobile commerce (m-commerce) application in which financial institutions enable their customer to carry out banking activities via mobile devices.
Nicoletti (2014), Nicosia, Oulasvirta and Kristensson (2014)	…is the provision and use of banking and financial services with the help of mobile telecommunication devices.
Lee, Harindranath, Oh and Kim (2015)	…is an extension of banking and financial services onto mobile networks and devices
Shaikh and Karjaluoto (2015)	…is any product or service offered by a bank or a microfinance institute (bank-led model) or MNO (non-bank led model) for conducting financial and non-financial transactions using a mobile device, namely a mobile phone, smartphone, or tablet.
Laukkanen (2016; Moser (2015)	…enables customers to perform all banking transactions through the mobile platform.
Koksal (2016), Akturan and Tezcan (2012)	…is any form of banking transaction that is carried out through a mobile device, such as a mobile phone or a personal digital assistant.
Alafeef, Singh and Ahmad (2012)	….is an application of m-commerce, that enables customers to access bank accounts through mobile devices to conduct transactions, such as

	checking account status, transferring money, making payments, or selling stocks
Nel, Raleting and Boshoff (2012)	…. is a digital banking channel that mainly involves performing financial transactions remotely using an application downloaded onto a mobile device such as an iPad or tablet, or smartphone.
Shankar and Kumari (2016), Chitungo and Munongo (2013)	….is a kind of m-commerce in which bank customer interact with bank through mobile and enjoying all facilities and services provided by banks via mobile applications.
Tam and Oliveira (2017)	...is a service or product offered by financial institutions that makes use of portable technologies.
Munoz-Leiva, Climent-Climent and Liébana-Cabanillas, (2017)	…is a remote service (via mobile phone, PDAs, tablets, etc.) offered by financial entities to meet the needs of their customers.
Owusu Kwateng, Osei Atiemo and Appiah (2019)	….is a service offered by a bank or any other financial institution that allows the customers of such establishments to carry out a variety of banking operations via a mobile device, such as a mobile phone, tablet or personal digital assistant.
Picoto and Pinto (2021)	…..is a wireless service through which customers interact with the bank by using an application.

Source: Author's own compilation

Research has put forth various definitions of m-banking that attempt to capture its scope, nature and design (Shaikh & Karjaluoto, 2015). There are similarities in the definition of mobile banking with several authors explaining it as an application of m-commerce (Alafeef et al., 2012; Al-Jabri & Sohail, 2012a; Chong, 2013; Shankar & Kumari, 2016) compared to other authors who explain it as an extension of banking and financial services (Lee et al., 2015; Nicoletti, 2014; Nicosia et al., 2014). Some of the definitions further explain m-banking in the context of the device used, which include mobile device and personal digital assistant (Akturan & Tezcan, 2012; Koksal, 2016; Owusu Kwateng et al., 2019; Shaikh & Karjaluoto, 2015).

The various definitions of m-banking have a common rendition and considering the advancement and technological changes over time, a more broadly inclusive definition of m-banking for the purpose of this study is proposed as *"m-banking is a service offered by a bank or any other financial institution*

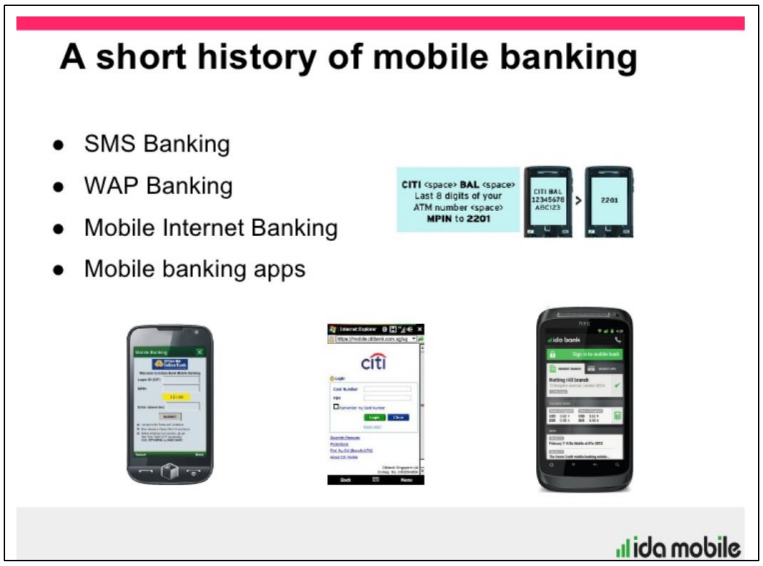
that allows customers to carry out a variety of banking transactions remotely by using an application downloaded onto a mobile device such as an iPad, tablet, smartphone or personal digital assistant."

2.1.7 History of mobile banking

Mobile banking (m-banking) was first introduced in the late 90s-early 2000s when the Internet began to gain popularity (Cleveland, 2016; Moser, 2015). Previous studies by Chang, Ma, Liu & Lin 2020 and Cleveland (2016) explore mobile banking, its history and evolution. Luo, Lee, Mattila and Liu (2012) outline how m-banking services began in 1999 in European and Asian countries and have gained popularity through the significant market penetration of mobile phones. The 'always-on' connectivity demand by customers, coupled with the fact that the Internet had evolved from fixed wired through wireless to mobile connection, meant that financial institutions had to pursue alternative channels to provide their services to meet customers' expectations (Ramdhony & Munien, 2013). Therefore, a few select banks like Wachovia and Wells Fargo began to offer simplified services on their bank websites such as viewing account balances and finding the nearest ATM. Yet, they did not offer interactive services (Cleveland, 2016). Smartphones were far from a concept back then, as they are now widely used, which has proven to be a driver of mobile banking growth.

The earliest m-banking services were offered through Short Messaging Service (SMS), a service known as SMS banking as smartphones were not in use then (Shaikh & Karjaluoto, 2015), in developed and developing countries. Through the introduction of smartphones with Wireless Application Protocol (WAP) support enabling the use of the mobile web in 1999, the first European banks started to offer mobile banking to their customers (Chandran, 2014; Rahman, 2012; Shaikh & Karjaluoto, 2015; Zhou, 2012). Banks use different information technologies for mobile banking, which include mobile banking applications (m-banking applications), contactless payments, SMS banking, USSD, debit and credit card, mobile money wallets (virtual wallets), telephone banking and wireless Point of Sale (POS) (Chitungo & Munongo, 2013; Nicoletti, 2014; Shaikh & Karjaluoto, 2015; Tome, 2019). Figure 2.1 depicts the phases of mobile banking.

Figure 2.1: Phases of mobile banking



Source: Cleveland (2016)

Over the past decade, research explains just how the proliferation of mobile technologies such as mobile phones, PDAs and smartphones have encouraged banks to provide m-banking applications (Hoehle, Scornavacca & Huff, 2012; Ukpabi, Karjaluoto, Olaleye & Abass, 2019). M-banking in its infancy did not thrive in the early days. As the technologies improved in data transmission and application development, m-banking made a comeback around 2009 and has seen steady increases over the years in banking institutions offering m-banking services (Aldiabat, Al-Gasaymeh & Rashid, 2019; Cleveland, 2016; Mokhtar, Katan & Hidayat-ur-Rehman, 2018). Today, m-banking involves several other more sophisticated technologies, such as downloadable mobile applications and the use of a mobile browser (Shaikh & Karjaluoto, 2015).

2.1.7.1 Mobile banking applications

The emergence of m-banking applications has been brought about by developers having to innovate due to a global landscape of increased crime, fraud, technological advancement and pressure from banks to cut costs for both the consumer and the business, as pointed out by Balabanoff (2014). This has also led to some banks developing their apps from scratch, which is now the more common trend (Cleveland, 2016). With m-banking applications, clients download the application developed by the bank for utilising the m-banking services (Devadevan, 2013) and is downloaded through a secure and authenticated mobile device process (Nicoletti, 2014). The application is installed directly on the device and the apps must be specifically designed for each hardware operating system such as IOS

and android (Johnson, Plummer, Bregman, Clark & Clarck, 2013). Once downloaded, the m-banking application provides an optimal user experience for the customer.

2.1.7.2 Overview of Mobile Banking Statistics

The Internet has taken the banking industry on a remarkable and tremendous growth trajectory (Khan & Khan, 2012; Nazaritehrani & Mashali, 2020), paving the way for research in m-banking applications. According to a 2020 Juniper research, the total number of digital banking users will exceed 3.6 billion by 2024, up from 2.4 billion in 2020, a 54% increase (Maynard, 2020). This growth will be driven by digital-only banks' rise and the ongoing focus on digital transformation by established bank brands. According to the 2019 Allied Market Research report, the global m-banking market was estimated at $715.3million in 2018 and is estimated to reach $1.82 billion by 2026, registering a Compound Annual Growth Rate (CAGR) of 12.2% from 2019 to 2026 (Manjrekar & Sumant, 2020). The development in technology, rise in consumer acceptance and smartphone usage fuel the global m-banking market's growth.

Africa's current banking market is approximately $86 billion in revenues before risk cost according to a 2018 Mckinsey's report. The projected growth for Africa's banking revenue pools of 8.5% a year between 2017 and 2022 will bring the continent's total banking revenues to $129 billion (Chironga , Cunha, De Grandis & Mayowa, 2018). Africa today has the second-fastest-growing banking market and it is predicted by Chironga, Cunha, De Grandis and Mayowa (2018) that the African banking market will remain a growth leader.

2.1.7.3 Mobile banking within the European context

Before the introduction and enablement of mobile web services in 1999, mobile banking was completed primarily through text or SMS, commonly known as SMS banking (CFI, 2020). The banks in Europe were on the frontier of mobile banking service offering, using the mobile web via WAP support. According to Arafat (2019), the mobile banking initiatives were mostly taken by European countries such as Germany, Austria, Sweden, Spain, France and the United Kingdom. With the development of smartphones with IOS or android operating systems, mobile banking applications began to evolve. A report from ITU (2019) indicates that Europeans had the highest Internet usage and mobile phone ownership rates. The report states that approximately 97% of the world's population lives within reach of a mobile cellular signal. Resultantly, the people in Europe have easy access to basic requirements to use mobile banking, such as a mobile phone and the Internet as alluded to by Çera, Khan and Solenički (2021).

2.1.7.4 Mobile banking within the American context

Mobile banking was first introduced in the late 1990s–early 2000s when the Internet began to gain popularity in America. This service was offered by a few selected large banks such as Wachovia and Wells Fargo who started to offer simple services on their bank websites such as viewing, checking account balances and finding the nearest ATM, although they did not offer interactive services (Cleveland, 2016). The evolution of several technologies further pushed mobile banking into the mainstream use. To date, Latin America has seen fast adoption of mobile banking services, with Mexico, Brazil and Chile showing the highest penetration to date (KPMG, 2015). With the advancement of wire and wireless technologies, banks were then forced to adapt quickly (Shoutem, 2021). When mobile banking was first rolled out, the wireless application protocol (WAP) browsers were used. Over time, some banks started making their own mobile banking applications from scratch, which is now the more common trend (Cleveland, 2016).

2.1.7.5 Mobile banking within the Asian context

Asia has rapidly adopted switching to digital banking, particularly in countries such as China and Singapore, which use mobile phones for all its financial activities. Currently, 70% of global customers make use of digital payment methods, with China as a primary global digital payment user as Mansur (2020) highlights. Many governments within Asia are pushing for better technology advancements in order to grow their economies and increase transparency. As a result, many banks are currently investing into mobile banking through keeping their traditional bank, but offering a second digital bank to attract a different customer base (Mansur, 2020). The Asia Pacific banks are now placing more effort on mobile banking, such as improving security and convenience of their applications to enhance the user experience and drive engagement (Weng, 2017).

2.1.7.6 Mobile banking within the African context

There has been successful mobile banking penetration in developing economies which has taken place in Africa. According to Rouse (2017), Kenya is especially known for mobile banking innovation leadership in Africa. The digital revolution in Africa began with the introduction of mobile banking by telecom operators such as Safaricom in Kenya, a subsidiary of the British group Vodafone, via its M-Pesa system (Laghmari, 2020). Cellulant then became the first company to connect M-pesa to a bank and this simple solution revolutionised banking across Africa (Abindabizemu, 2020). The enthusiasm for digital banking solutions in sub-Saharan Africa is actually making the region a source of inspiration to the rest of the world. The development of 3G and the explosion in the number of smartphones

users in Africa are opening new opportunities and democratising access to mobile banking services as Laghmari (2020) highlights.

2.1.7.7 Mobile banking within the Zimbabwean context

Kenya was among the first countries in Africa to have adopted m-banking as Shaikh and Karjaluoto (2015) highlights**.** In Zimbabwe, m-banking services were first introduced in 2011 were the major players of m-banking were the three Mobile Network Operators (MNO's) which are Econet Wireless Zimbabwe (Ecocash), Telecel (Telecash) and Netone (OneMoney) (Chitungo & Munongo, 2013). Many retail banks have exploited the opportunities provided by m-banking apps by investing significantly in providing enhanced mobile-based banking services that streamline their processes, reduce operating cost and improve customers experience (Erl, Gee, Normann, Kress & Chelliah, 2014). Over time, the majority of the banks in Zimbabwe have adopted the use of m-banking applications, making use of the service to reach and serve clients. Table 2.3 presents the banks with m-banking applications in Zimbabwe.

Table 2.3: Zimbabwean banks with mobile banking applications

Name of Bank	Mobile banking application
Agricultural Development Bank of Zimbabwe (Agribank)	Agribank mobile banking application (Agribank, 2020)
BancABC Bank Limited	A360 Mobile App (Mhlanga, 2020)
CABS	CABS Mobile Banking App (CABS, 2020)
CBZ Bank Limited	CBZ Touch (CBZ, 2016)
Ecobank Zimbabwe Limited	Ecobank Mobile app (Ecobank, 2020)
FBC Bank Limited	FBC Mobile App (FBC, 2020)
First Capital Bank Limited	First Capital Bank Mobile App (First Capital Bank, 2020)
Metbank Limited	Metbank Mobile App (Metbank, 2020)
MyCash	MyCash Mobile banking (MyCash, 2018)
National Building Society (NBS)	Transactor NBS Mobile App (National Building Society, 2020)
Nedbank Zimbabwe Limited	Nedbank Zimbabwe Mobile App (Nedbank, 2019)
NMB Bank Limited	NMBConnect App (NMBZ, 2020)
People's Own Savings Bank (POSB)	POSB Mobile app (POSB, 2020)
Steward Bank Limited	Square 2.0 mobile app (Steward Bank, 2020)
Stanbic Bank Limited	Stanbic bank mobile app (Stanbic, 2020)
Standard Chartered Bank Limited	SC Mobile (Standard Chartered, 2018)
ZB Bank Limited	ZB Mobile banking App (ZB, 2019)

Source: Author's own compilation

2.1.8 Benefits of mobile banking

The convenience of m-banking has opened the avenue for banks to provide customers with the ability to virtual bank from anywhere and at any time and retain them, as Baptista and Oliveira (2015), Nicoletti (2014) and Nicosia, Oulasvirta and Kristensson (2014) highlights. M-banking not only provides benefits to end-users (customers) but also provides value to service providers (banks), as stated by Luo, Lee, Mattila and Liu (2012), Farzin, Sadeghi, Kharkeshi, Ruholahpur and Fattahi (2021) and Komulainen and Saraniemi (2019). M-banking provides a ubiquity advantage when compared to the traditional banking channels (Albashrawi, Kartal, Oztekin & Motiwalla, 2017) such as an ATM and non-mobile banking services (Chitungo & Munongo, 2013). With m-banking, customers have access to

quick and interactive banking services at any time and from anywhere or any place (Jouda, Abu Jarad, Obaid, Abu Mdallalah & Awaja, 2020; Munoz-Leiva, Climent-Climent & Liébana-Cabanillas, 2017; Nicosia *et al.,* 2014; Sardana & Singhania, 2018; Savic & Vasić, 2019; Singh & Srivastava, 2018; Tam & Oliveira, 2017). This means that transactions can take place independent of the user's location. Studies by Baabdullah, Alalwan, Rana, Kizgin and Patil (2019) and Ramdhony and Munien (2013) outline how ubiquitous access, convenience and mobility are also some of the main benefits m-banking confers to customers.

Being inherently independent of time and place, m-banking customers no longer need to use scarce time and resources to travel to bank branches, allowing customers to save time by reducing the time and effort invested in banking (Erdem, Pala, Özkan & Sevim, 2019; Mahad, Mohtar & Othman, 2015; Malaquias & Hwang, 2016; Nicoletti, 2014; Ramdhony & Munien, 2013). Owusu Kwateng, Osei Atiemo and Appiah (2019) emphasise how the convenience of m-banking has opened the avenues for banks to offer convenient, simple, secure and speed for customers together with their cost savings. This has been supported by previous studies (Moser, 2015; Sreejesh, Anusree & Mitra, 2016). In contrast, Chandran (2014) outlines that m-banking users are at a risk of receiving fake SMS messages and prone to scams. The loss of a person's mobile device often means that criminals can access one's pin and sensitive information. However, other benefits of m-banking, according to Chen (2013), Yuan, Liu, Yao and Liu (2016), Gumussoy (2016) and Nicoletti (2014) include immediacy, convenience and affordability to customers. The benefits such as coverage, flexibility, interactivity and greater accessibility make m-banking superior to conventional banking channels (Chingoka, 2015; Reji Kumar & Ravindran, 2012).

M-banking offers customers accurate account information on account and transaction history, enabling customers to plan their financial needs, as Siyal, Donghong, Umrani, Siyal and Bhand (2019) highlights. With m-banking, customers can conduct various transactions 24 hours a day and seven days in a week, not being limited to the bank's operating hours (Chandran, 2014; Chang, Ma, Liu & Lin, 2020; Thusi, Red & Maduku, 2019). In dispute, Chandran (2014) claims that most m-banking apps require an Internet connection to operate, therefore, if a customer experiences problems with the Internet connection, one cannot access the service. Nonetheless, being a form of self-service, m-banking offers customers a customised and personalised service, which is cost-efficient, resulting in a reduction in the wait time and convenient service (Aldiabat *et al.,* 2019; Sreejesh, Anusree & Mitra, 2016). M-banking customers can access a wide array of banking services, including balance check, money transfer and mobile deposit, as alluded by Albashrawi, Kartal, Oztekin and Motiwalla (2017).

2.1.8.1 Benefits of mobile banking to banks

M-banking allows banks to be free of restrictions to specific geographical areas, with opportunities to operate in new market places, expand delivery options, improve performance, increase customers' loyalty and reduce cost of operations, as pointed out by Aldiabat *et al.* (2019). Sreejesh *et al.* (2016) elucidate how m-banking enhances the banks' services' effectiveness compared to other electronic mediums in the same category. In addition, m-banking allows banks to reduce costs since it helps the banking institutions become lean and digitised, as Nicoletti (2014) and Nicosia *et al.* (2014) highlights.

M-banking affords banks additional benefits such as cost savings, attracting new customers and retaining old ones, as Hoehle and Huff (2012), Aldiabat, Al-Gasaymeh and Rashid (2019) and Owusu Kwateng, Osei Atiemo and Appiah (2019) reveal. This channel allows the bank to cross-sell and up-sell their other complex banking products and services (Aithal, 2016). In addition, Tam and Oliveira (2017) appraise how the m-banking channel helps banks improve operational service efficiency, customer satisfaction and cost-effectiveness. Accordingly, Malaquias and Hwang (2016) express that m-banking technology holds the potential to possibly enhance customers' quality of life while bringing efficiency to banks. M-banking has a wider outreach coverage than the conventional bank network and thus could be used for increasing bank penetration in areas that are inaccessible and remote (Muzurura & Chigora, 2019). Most importantly, m-banking provides value through relationship building with the customer.

2.1.9 Inhibitors of mobile banking

Despite the various benefits derived from m-banking, the extent to which consumers use mobile banking services is not as high as expected in both developed and developing countries, including Zimbabwe (Shaikh & Karjaluoto, 2015). Nonetheless, the success of m-banking largely depends on how customers accept mobile banking services offered by banks (Makanyeza, 2017). Luo, Lee, Mattila and Liu (2012) and Koghut and Al-Tabbaa (2021) outline how inhibitors and enablers are not merely opposite constructs but dual-factored ones; inhibitors are only meaningful at the negative end and where inhibitors explain rejection of technology.

Inhibitors of m-banking from a consumer's perspective have been reviewed by Gupta, Yun, Xu and Kim (2017), whilst findings from Bamoriya and Singh (2012) suggest that customers' security concern is the major barrier in adopting m-banking services. In contrast, Shaikh and Karjaluoto (2015) indicate that m-banking drivers and inhibitors are fragmented and commonly based on TAM and its extensions. In their study, Gupta, Yun, Xu and Kim (2017) summarise the inhibitors of m-banking to include lack of ease of use and usefulness of services (traditional banking services), inconvenience of devices, security

and privacy concerns (perceived risk), affordability (high price), lack of personalisation, lack of knowledge (awareness). Gupta *et al.* (2017) include additional barriers, which are physical (whether mobile phones are accessible), cognitive (effort is required to master the use of mobile banking), affective (attitudes and motivation concerning the use of systems, such as confidence, efficacy and trust), economic (benefits and cost), social (cultural norms) and political (relating to power and knowledge gaps).

Perceived risk is a major barrier to m-banking usage intention as customers tend to have more significant concerns, especially with privacy and security risk when using m-banking applications (Shankar & Kumari, 2016). To reduce perceived risk, Shankar, Jebarajakirthy and Ashaduzzaman (2020) posit that when customers review significant positive reviews on the m-banking application, they tend to consider the application creditworthy, thus motivating them to use it. While m-banking offers customers several benefits such as convenience and efficiency (Aldiabat *et al.,* 2019; Tam & Oliveira, 2017) it remains cybernetic and is associated with a certain degree of uncertainty and is perceived as risky (Mahad, Mohtar & Othman 2015; Van Deventer, 2019).

M-banking is dependent on customers using a handset, therefore, challenges such as mobile handset compatibility, operability, standardising, software downloading, privacy and security (Devadevan, 2013; Moser, 2015) are usage inhibitors. Nicosia *et al.* (2014) further explain how the keyboard, the display of the devices and the handset's screen size (Albashrawi, Kartal, Oztekin & Motiwalla, 2017; Nicoletti, 2014) are inhibitors to the use of m-banking. The lack of trust in m-banking is an inhibitor of usage (Thusi & Maduku, 2020; Van Deventer, 2019) due to the privacy and secrecy concerns (Mehrad & Mohammadi, 2017) as customers need to be able to trust m-banking services before usage (Koenaite, Chuchu & Venter de Villiers, 2019).

Other deterrents to m-banking usage were related to the technology's perceived ease of use and effectiveness, the skills necessary for its use and security risks associated with this novel technology (Raza, Umer & Shah, 2017; Yousafzai & Yani-de-Soriano, 2012). Some customers are still sceptical about the security and integrity of m-banking (Mavhiki, Nyamwanza & Shumba, 2015). Several studies also show that security concerns such as fraud, account misuse, hacking are the greatest barrier to m-banking adoption (Bamoriya & Singh, 2012; Chandran, 2014; Mishra & Bisht, 2013). However, Aithal (2016) argues that the primary concern of m-banking application usage is due to mobile devices' limited size and poor user interface than the security. Cleveland (2016) articulates that security concerns is the number one reason for customers' lack of usage. Some challenges faced with m-banking such as mobile network failures, lack of a clear regulatory framework, system failures and lack

of trust, if not adequately managed by banks, become inhibitors of usage (Mavhiki, Nyamwanza & Shumba, 2015). Therefore, banks need to address the inhibitors to ensure continued usage of their m-banking services.

2.1.10 Enhancers of mobile banking

Enablers are psychologically meaningful at either end of a positive–negative spectrum (Luo, Lee, Mattila & Liu, 2012). Technology is an enabling factor that has permitted m-banking to emerge (Munoz-Leiva, Climent-Climent & Liébana-Cabanillas, 2017; Ramnath, 2018). The introductions of the iPhone and other smartphones with similar platforms have been a steady factor in the growth of m-banking, as Rahman (2012) states. Gupta, Yun, Xu and Kim (2017) further affirm the factors that enhance the usage of m-banking as the general widespread acceptance of m-banking and the increasing use of mobile phones and lifestyle. From a technology perspective, the advances in mobile technology that include the handsets and network components are also enablers of m-banking (Gupta *et al.,* 2017).

Perceived risk is a major hurdle in m-banking, as Shankar, Jebarajakirthy and Ashaduzzaman (2020) outlines therefore, the positive usage experiences shared by other users on different platforms plays a crucial role as an enabler of m-banking. The user experience of a m-banking application which includes an intuitive and user friendly interface, customisation and flexibility of the m-banking application enhance the usage of the services (Nicosia *et al.,* 2014). Security issues pose a challenge when using m-banking. Users' awareness on the security mechanisms within the m-banking applications (Devadevan, 2013) will enhance the usage of m-banking.

The main factors that enhance m-banking usage were identified as convenience, time and effort savings, privacy, ubiquitous access to banking services, compatibility with lifestyle and banking needs by Ramdhony and Munien (2013). In contrast, Crosman (2012) claims that not everyone is interested in having a bank branch in their pocket and asserts that m-banking users do not know what it means to bank anytime and anywhere. However, service quality, such as ease of use, visual appeal and information relevancy, are enablers of m-banking, as outlined by Erdem, Pala, Özkan and Sevim (2019). Therefore, banks need to ensure that they pay attention to customers' needs and improve service quality to increase the usage of m-banking.

2.2 THEORETICAL GROUNDING

Previous researchers have examined m-banking as an emerging Information Communication Technology (ICT) artefact from the perspective of intention and continued usage of Information

Technology (IT). Furthermore, a considerable number of studies in different contexts have focused on the factors that impact the use of m-banking such as; Afshan and Sharif (2016) in Pakistan; Alsheikh and Bojei (2014) and Baabdullah, Alalwan, Rana, Kizgin and Patil (2019) in Saudi Arabia; Erdem *et al.* (2019) and Gumussoy (2016) in Turkey; Singh and Srivastava (2018) and Reji Kumar and Ravindran (2012) in India; Alalwan, Dwivedi and Rana (2017) and Aldiabat *et al.* (2019) in Jordan; Mohammadi (2015) in Iran; Sharma, Govindaluri, Al-Muharrami and Tarhini (2017); Bhatiasevi (2016) in Thailand; Avornyo, Fang, Odai, Vondee and Nartey (2019) in China; Koksal (2016) in Lebanon.

Moreover, to examine the factors that impact the intention and continued usage of m-banking, TAM's propensity in examining factors that influence m-banking continuous or post usage has been realised in past studies including that of Albashrawi and Motiwalla (2017), Amin, Supinah, Aris and Baba (2012), Reji Kumar and Sudharani (2012) and Yuan, Liu, Yao and Liu (2016). Previous researchers that include Jeong and Yoon (2013), Chitungo and Munongo (2013), Al-Husein and Sadi (2015) and Munoz-Leiva *et al.* (2017) managed to implement an extended TAM whilst Koloseni and Mandari (2017) use the TPB and Jouda, Abu Jarad, Obaid, Abu Mdallalah and Awaja (2020) and Khasawneh and Irshaidat (2017) implements the Decomposed Theory of Planned Behaviour (DTPB). Previous studies by Al-Jabri and Sohail (2012) and Ramdhony and Munien (2013) embraces Diffusion of Innovation Theory (DIT) whereas Baptista and Oliveira (2015), Oliveira, Faria, Thomas and Popovič (2014) and Yu (2012) employs the UTAUT model, whilst Alalwan, Dwivedi and Rana (2017) and Baptista and Oliveira (2015) adopt UTAUT2 and Merhi, Hone and Tarhini (2019) implements an extended UTAUT2 and TAM.

Despite the increased accessibility of m-banking and technological progress, the number of users does not match expectations, which warrants investigations into its reasons (Hanafizadeh, Behboudi, Koshksaray & Tabar, 2014; Mohammadi, 2015). Given that m-banking applications are a recent phenomenon and research on it is on the increase, with most of the research conducted in developed countries (Thusi & Maduku, 2020). There is still a need to explore m-banking continuous usage, especially in the context of developing countries. Admittedly, marketing strategy research has long emphasised the need to investigate the factors that affect m-banking continued usage (Chen, 2012), considering the significance of retaining users as compared to the cost of acquiring new ones (Bhattacherjee, 2001; Gumussoy, 2016; Zhou, 2013). This will help banking firms to formulate better marketing strategies to increase m-banking usage in the future (Chen, 2012; Jouda, Abu Jarad, Obaid, Abu Mdallalah & Awaja, 2020).

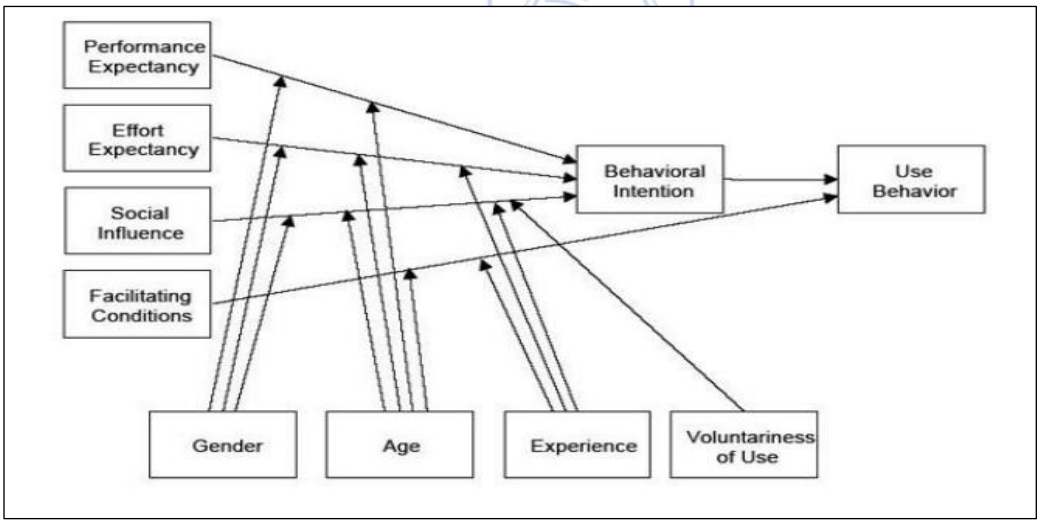
Deducing from the theories mentioned above that have been used by past authors, it can be stated that diverse theories and models exist for seeking to predict and explain human behaviour. This study

is grounded in the UTAUT model, TAM, TPB and the user experience model as they relate to the suggested constructs and interactions that have been proposed between the constructs. The following sections discuss the UTAUT, TAM, TPB and User Experience models.

2.2.1 The unified theory of acceptance and use of technology model (UTAUT)

Using the foundations of research study from the previous models and theories, Venkatesh, Morris, Davis and Davis (2003) propounded the UTAUT model. Albashrawi, Kartal, Oztekin & Motiwalla (2017), Samudra and Phadtare (2012), Chingoka (2015) and Baptista and Oliveira (2015) state how the UTAUT model was created as a result of the integration of eight models used in previous research to explain information systems usage behaviour, which include the TRA by Fishbein and Ajzen (1977), the TAM by Davis (1989a), the Motivational Model (MM) created by Davis, Bagozzi and Warshaw (1992), the TPB by Ajzen (1985), the combined TPB/TAM by Taylor and Todd (1995), the Model of Personal Computer Utilization created by Thompson, Higgins and Howell (1991), the Diffusion of Innovation Theory by Rogers (1983) and Social Cognitive Theory by Bandura (1986). The theoretical framework of UTAUT is shown in Figure 2.2

Figure 2.2 The Unified theory of acceptance and use of technology (UTAUT) model



Source: Adapted from Venkatesh, Morris, Davis and Davis (2003)

UTAUT has four key constructs; performance expectancy, effort expectancy, social influence and facilitating conditions that influence behavioural intention to use a technology (Venkatesh, Thong & Xu, 2012). A previous study by Hazen, Kung, Cegielski and Jones-Farmer (2014) looks at the role of performance expectancy and its determinants however very little research is available on effort expectancy to understand its role as an important driver of technology acceptance to create

favourable perceptions and thus foster user usage (Venkatesh, 2000). To this end, this study only focuses on two constructs of the UTUAT model; effort expectancy and social influence.

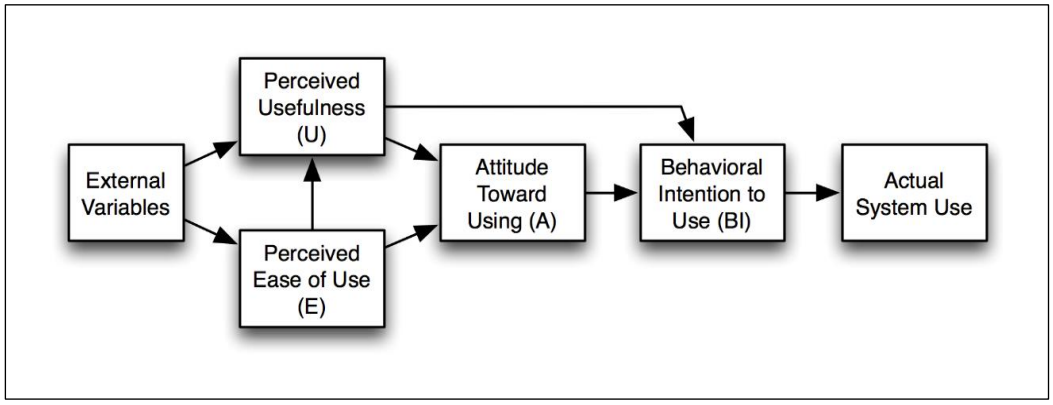
The UTAUT model has been hailed as a more robust theory for predicting the acceptance of technology, due to its ability to explain about 70 percent and 50 per cent of the variance in behaviour intention and usage behaviour, respectively (Thusi & Maduku, 2020) than other models including TAM and TPB (Nguyen, 2015). A review of the literature shows that the UTAUT model is strong, since it was formulated after the careful review and synthesis of the limitations of the eight past theories of technology (Abubakar, 2013). In disagreement, Albashrawi *et al.* (2017) contend that although UTAUT demonstrates good generalisability and high explanatory power in information system (IS) research, it has been rarely associated with a data mining tool that can enhance the nomological validity in the context of m-banking. Kang (2014) further explains how UTAUT faces challenges due to its parsimony and the model presents the problem of construct validity that then needs to be compensated with additional concepts.

Besides the above-mentioned challenges, the UTAUT model proposes behavioural intention and actual use as dependent variables, making it appropriate for research. UTAUT has distilled the critical factors and contingencies related to predicting behavioural intention to use a technology and technology used primarily in organisational contexts (Venkatesh, Thong & Xu, 2012). The UTAUT model thus provides a useful tool in understanding the possibility of success for new technology introductions (Bhatiasevi, 2016). It also helps to understand the drivers of acceptance, especially among users who are less likely to use new technology (Venkatesh *et al.,* 2003). The UTAUT explains a customer's intention to utilise an IS such as m-banking and their usage behaviour as Chingoka (2015) outlines. However, Samudra and Phadtare (2012) express that very few studies have looked at the UTAUT model concerning m-banking. UTUAT was, therefore, chosen as the underlying theoretical model for this study, focusing on two constructs effort expectancy and social influence to examine a user's intention and continued usage of m-banking application.

2.2.2 The technology acceptance model (TAM)

TAM (Davis, 1989a; Davis, Bagozzi & Warshaw, 1989) is derived from TRA (Fishbein & Ajzen, 1977) and offers a powerful explanation for user acceptance and usage behaviour of IT (Sharma, 2019). TAM posits that Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) and attitude share a causal relationship with intention and usage behaviour (Praveena & Thomas,2014). Its theoretical framework is shown in Figure 2.3. Chingoka (2015) asserts that TAM has been widely used and accepted to guess both users' intentions to use IT and the actual usage of an IS since its introduction.

Figure 2.3: Technology acceptance model



Source: Adapted from Davis (1989a)

TAM is a robust and parsimonious model that predicts users' acceptance of technology as claimed by Venkatesh (2000) as well as Maziriri, Gapa and Chuchu (2020). The parsimony and simplicity of TAM over other models have paved the way for it to be widely used in several studies on IS (Arahita & Hatammimi, 2015; Farah, Hasni & Abbas, 2018; Mha, 2015; Tam & Oliveira, 2017). Past studies have also used TAM framework to understand the characteristics of m-banking in varying regional and cultural contexts such as Akturan and Tezcan (2012), Hoehle, Scornavacca and Huff (2012) and Thakur (2014). In a similar notion, Shaikh and Karjaluoto (2015) compares the studies that were conducted from 2005 – 2015; resultantly TAM was the most popular research theory used to explain the customer attitudes and behavioural intention towards the use of m-banking services.

However, despite the accolades given to TAM for its predictive ability of behavioural intention to use technology, TAM by itself has sometimes been criticised as being over studied (Chong, 2013). Taherdoost (2018) argues that TAM has limitations in being applied beyond the workplace since it ignores the social influence on technology adoption. In addition, some significant variables as external factors need to be added to TAM to provide a more consistent prediction of system use. This has resulted in researchers' extending the TAM by including other additional constructs to better describe and predict the usage behaviour of users through TAM2 (Venkatesh & Davis, 2000). Accordingly, the extended TAM model suggests that, next to PU and PEOU, Perceived Enjoyment (PE) is a critical determinant for technology acceptance, as Holdack, Lurie-Stoyanov and Fromme (2020) cite.

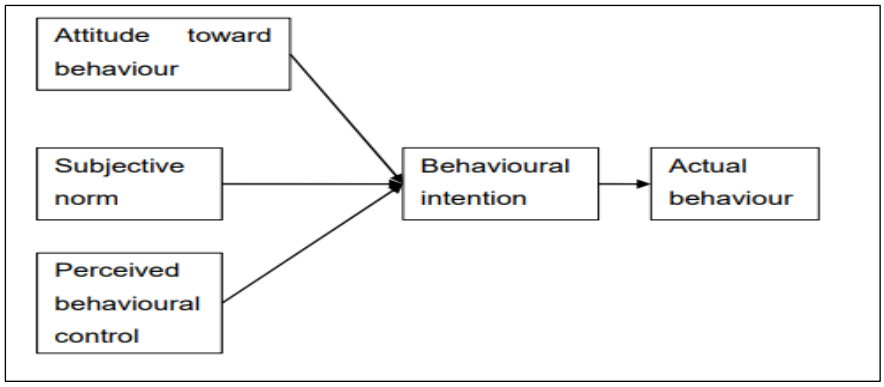
Over the years, some studies have found perceived enjoyment to be a robust construct that is associated with the core constructs of the TAM and has a positive influence in the intention and continuous usage of technology (Alalwan, Baabdullah, Rana, Tamilmani & Dwivedi, 2018; Avornyo,

Fang, Odai, Vondee & Nartey, 2019; Kim, Ahn & Chung, 2013; Lai & Ahmad, 2015). The extended TAM model has been adapted in this study to also include perceived enjoyment (Davis, Bagozzi & Warshaw, 1992) as an extrinsic motivation, which plays an essential role in user technology acceptance. Therefore, the TAM constructs that are applicable in the context of this study is perceived enjoyment.

2.2.3 Theory of planned behaviour model (TPB)

In order to improve the predictive power about individual behaviour, TPB was developed by Ajzen (1985) as an extension from TRA (Ajzen, 1991; Balabanoff, 2014; Nguyen, 2015; Zheng, Li & Jiang, 2012). The TPB postulates that a person's intention to perform (or not to perform) a behaviour is the immediate determinant of that action (Ajzen, 1985).The TPB constructs comprises of attitude towards the behaviour, subjective norm and an additional construct perceived behavioural control, based on Bandura's (1977) concept of self-efficacy. The TPB model is depicted in Figure 2.4.

Figure 2.4: Theory of planned behaviour



Source: Ajzen (1991)

Explaining the sufficiency of TPB, Ajzen (1991) elucidates how the TPB model distinguishes between three types of beliefs; behavioural, normative and control and between the related constructs of attitude, subjective norm and perceived behavioural control. The impact of the three constructs of TPB; attitude, subjective norm and perceived behavioural control on customers' behavioural intention to use technology-based self-services to perform their banking transactions is empirically validated in previous relevant studies (Deb & Lomo-David, 2014; Tobias-Mamina, Maziriri, & Chiliya, 2021; Govender, Maziriri & Chuchu 2021; Maziriri, Mapuranga, Mushwana & Madinga, 2020; Tobias-Mamina, & Maziriri, 2020 Giovanis, Athanasopoulou, Assimakopoulos & Sarmaniotis, 2019; Khasawneh & Irshaidat, 2017).

For all its popularity, or perhaps because of it, the TPB model has been the target of much criticism and debate. The TPB theory has been criticised for its exclusive focus on rational reasoning, excluding unconscious influences on behaviour by Sheeran, Gollwitzer and Bargh (2013). Conner, Gaston, Sheeran and Germain (2013) further outline the shortfalls of TPB as only focusing on cognitive influences at the expense of affective influences despite there being a long-established distinction between cognitive and affective attitudes. Sniehotta *et al.* (2014) questions the balance between parsimony and validity, considering that TPB as a theory of all volitional behaviour is based on only four explanatory concepts. Moreover, the static explanatory nature of the TPB does not help to understand the evidenced effects of behaviour on cognitions and future behaviour (Sniehotta *et al.,* 2014). Morgan and Bachrach (2011) propose the theory of conjunctural action as an alternative to the TPB.

Regardless of the shortcomings of TPB, the TPB model has become one of the most frequently cited and influential models for predicting human social behaviour. Nguyen (2015) asserts the TPB model as valuable for considering the social influences in users' intention and behaviour. The TPB theory enables researchers to predict behavioural intentions with a high accuracy (Ajzen, 1991). The TPB model has been applied to a wide range of behaviours in order to better understand which individuals behave in which way. It is one of the best supported social psychological theories with respect to predicting human behaviour (Matthew & Kan, 2017). Regarding the explanatory performance of the other three models, TAM, TPB, DTPB; the TPB and DTPB outperform the TAM, justifying the necessity to consider the effect of subjective norm and perceived behavioural control when m-banking service usage is investigated (Giovanis, Athanasopoulou, Assimakopoulous & Sarmaniotis, 2019). It becomes clear that the TPB model is a well-founded, sound theory able to explain considerable proportions of intention and behaviour (Matthew & Kan, 2017; Sabah, 2016).

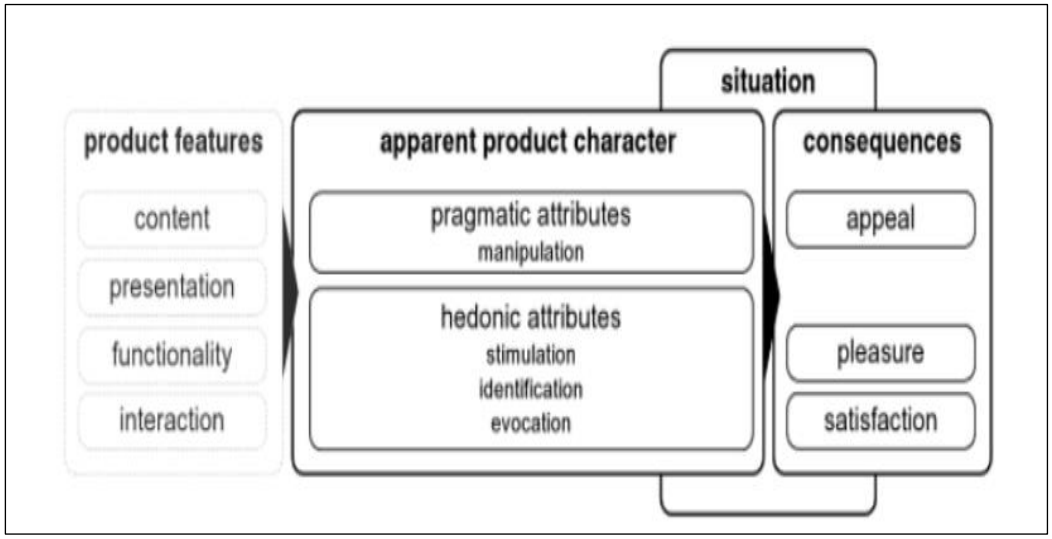
2.2.4 User experience (UX) model

The user experience (UX) concept has been extensively used about the study, design and evaluation of experiences people have through the use of (or the encounter with) a system (Feng & Wei, 2019; Konstantakis, Michalakis, Aliprantis, Kalatha & Caridakis (2017). Over time, the UX has included subjective aspects such as emotions, perceptions and meanings. These aspects offer a broader perspective of functionality and usability, focusing on creating experiences of value perceived by the user as noted by Hinderks, Winter, Schrepp and Thomaschewski (2020) and Ross (2014). While several previous models have since been proposed to illustrate the user experience (Forlizzi & Battarbee,

2004; Jordan, 2000), Hassenzahl (2003) indicates a discrepancy in the primarily work-related applicability of the existing user experience models and proposed a user experience model.

A model that defines essential elements of user experience and their functional relations, such as the subjective nature of knowledge, perception of a product and emotional responses to developments in varying situations, was proposed by Hassenzahl (2003). In agreement, Han, Tom Dieck and Jung (2018) outline how user experience is formed by correlation of product features and the perceptions and experiences. In contrast, Ariza and Maya (2014) argue how the user experience models were made based on self-reflections or insights of the author, lacking empirical research. Conversely, the user experience model by Hassenzahl (2003) stood out and was selected to provide the theoretical background for this study due to its initial investigation of product features that assist in determining the continued usage in m-banking. The model is presented in Figure 2.5

Figure 2.5: User experience model



Source: Adapted from Han, tom Dieck and Jung (2018)

Pleasurable stimulation and social exchange are the true underlying motives for technology use as raised in the discussions by Hassenzahl (2008). Many of these notions are subsumed under the umbrella of UX. Han, Tom Dieck and Jung (2018) further explain how it is crucial to understand how and which features affect the overall user experience. Han, Tom Dieck and Jung (2018) explicate the increasing importance of studying user experience change over time. Whilst, Hassenzahl (2003) stresses the importance of individual situations and concluded that the entire process of user experiences is based on the individual's goals for using the product.

The model relies on the basic idea that product characteristics and features affect the consequences (Hassenzahl, 2003). Overall, Hassenzahl (2003) further proposes that user experience is influenced by a combination of product features and individual user differences. Furthermore, pragmatic attributes (manipulation), such as ease of use or usefulness, were also argued to potentially change with the increased experience and diminishing novelty (Han *et al.,* 2018). Hassenzahl (2003) proposes validating the user experience model for future research to continuously expand user experience, its determinants and situational and personal factors. The theoretical model of UX investigates product features that result in apparent product perceptions.

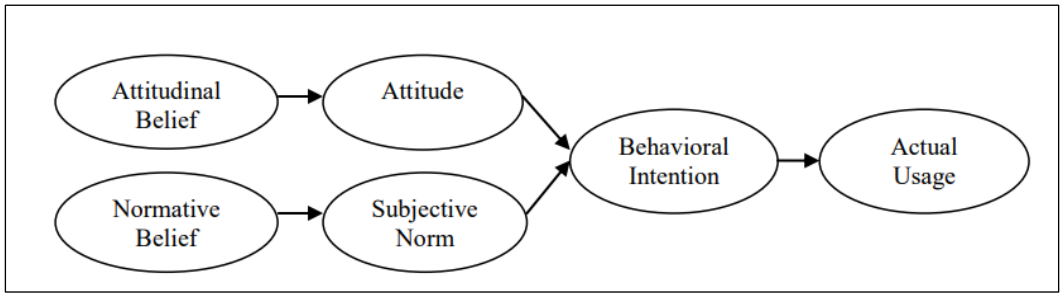
2.2.5 Supporting theories

Even though this study is grounded in the UTAUT, TAM, TPB and User Experience model, there are strong supporting theories with constructs related to this study. The supporting theories include TRA, DTPB, DOI and ECT.

2.2.5.1 Theory of reasoned action (TRA)

TRA and its extensions Fishbein and Ajzen (1977) specify that human behaviour is preceded by intentions, which are formed based on an individual's attitude towards the behaviour and perceived subjective norms (Ghalandari, 2012; Shaikh, Glavee-Geo & Karjaluoto, 2018; Singh & Srivastava, 2018; Taherdoost, 2018). Consistent with its focus on volitional behaviours', TRA postulates that a person's intention to perform (or not to perform) a behaviour is the immediate determinant of that action as Ajzen (1985) explains. TRA has become a foundation to investigate individuals' IT usage behaviour (Kuo, Roldan-Bau & Lowinger, 2015). The theory is presented in Figure 2.6

Figure 2.6 Theory of reasoned action



Source: Kazemi, Nilipour, Kabiry and Hoseini (2013)

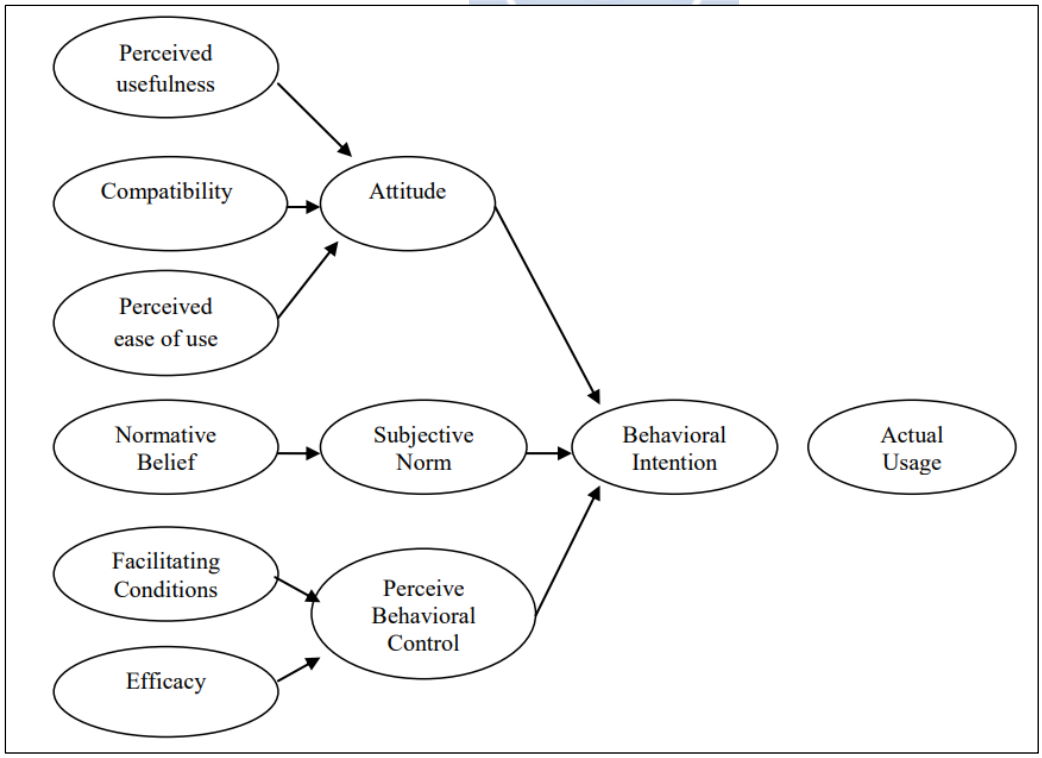
The TRA has been criticised by Ajzen (1985) due to its limitations with the transition from verbal responses to actual behaviour. The relations of beliefs, attitudes and subjective norms to intentions are more clearly delineated than the factors determining whether the behavioural intention will be

carried out. Taherdoost (2018) outlines the disadvantages of TRA as the lack of addressing the role of habit, cognitive, deliberation, misunderstanding through a survey (attitudes, subjective norms and intention of the respondents) and the moral factors. However, TRA as a supporting theory in this study helps to explain and predict an individual's behaviour through three main cognitive components; attitudes, social norms and intentions (Taherdoost, 2018; Venkatesh *et al.,* 2003), therefore, assisting to forecast the factors that influence the intention and continued usage of m-banking.

2.2.5.2 Decomposed theory of planned behaviour (DTPB)

The DTPB was proposed by Taylor and Todd (1995), extending TPB and draws upon constructs from the innovations characteristics literature and more completely explores the dimensions of subjective norm (i.e. social influence) and perceived behavioural control by decomposing them into specific belief dimensions. The DTPB model provides a stable set of beliefs that can be applied across various settings, overcoming some of the shortcomings in operationalisation that has been eminent with respect to the traditional intention models (Mathieson, 1991). DTPB was selected as a supporting theory because it can identify specific salient beliefs that can influence IT usage. The DTPB model is depicted in Figure 2.7

Figure 2.7 Decomposed theory of planned behaviour



Source: Kazemi, Nilipour, Kabiry and Hoseini (2013)

Since DTPB incorporates additional factors such as the influence of significant others, perceived ability and control that are not present in TAM, but have been shown to be important determinants of behaviour (Ajzen, 1991), it should provide a more complete understanding of usage. However, in contrast Boden (1973), argues that behavioural intention is a reflection of an individual's internal schema of beliefs, it does not represent the external factors that can influence the performance of a behaviour. It has been noted that DTPB has almost the same predictive ability of behavioural intention with TPB, but performs better than the TPB and TAM in explaining attitude toward using m-banking (Giovanis, Athanasopoulou, Assimakopoulous & Sarmaniotis, 2019), which is the reason of it being used as a supporting theory in this study.

2.2.5.3 Diffusion of innovation theory (DOI)

The DOI postulated by Rogers (1983) explains how, why and at what rate new ideas and technology spread through cultures. DOI model examines a diversity of innovations by introducing four factors which are the time, channels' communication, innovation or social system which influence the spread of a new idea (Taherdoost, 2018). With subjective norms being one of the constructs of this study, DOI assists in explaining the role of cultures when it comes to the intention and continued usage of m-banking.

The diffusion of innovations is a basic and fundamental explanation of human behaviour change and Taherdoost (2018) further explains how DOI is a supporting theory since it focuses more on the system characteristics, organisational attributes and environmental aspects with less power in explanatory and less practical in prediction of outcomes compared to other adoption models. However, Damanpour (1996) provides a valid point of how it is extremely difficult, if not impossible, to measure what exactly causes adoption of an innovation. However, due to the relevance of the DOI theory within information systems, Moore and Benbasat (1991) adapted the characteristics of innovations presented in Rogers (1983) and refined a set of constructs that could be used to study individual technology acceptance. For that reason, DOI is a relevant supporting theory for studying the intention and continued usage of m-banking.

2.2.5.4 Expectation confirmation theory

The expectation confirmation theory (ECT) by Bhattacherjee (2001) holds that consumers' intention to repurchase a product or continue service use is determined primarily by their satisfaction with prior use of that product or service. A satisfied consumer forms a repurchase intention, while dissatisfied users discontinue its subsequent use. Bhattacherjee (2001) explains how lower expectation and or higher performance lead to greater confirmation, which in turn positively influence customer

satisfaction and continuance intention. The reverse causes disconfirmation, dissatisfaction and discontinuance intention. The continuance model has some similarities to TAM in that it employs individual cognitive factors for predicting (continued) IS use and reflects the belief-affect-intention causality characteristic of most IS use theories.

Unfortunately, ECT has been criticised for ignoring the potential changes in consumer's expectations following their consumption experience and the impact of these changes on subsequent cognitive processes. However, ECT is seen as a theoretically richer model by its inclusion of unique post-acceptance variables (satisfaction, confirmation) (Bhattacherjee, 2001). Overall, ECT posits that users' IS continuance intention is determined primarily by their satisfaction with prior IS use. This makes ECT a critical supporting theory for studying the intentions and continued usage of m-banking.

2.2.6 Definition of constructs

The research constructs of interest for this study include effort expectancy, social influence (UTAUT) perceived enjoyment (TAM), user experience, perceived interaction (User Experience Theories), intention to use the m-banking application, continued use of the m-banking application (TPB), Perceived risk, perceived trust, e-WOM and loyalty. Table 2.4 outlines the definitions of the above-mentioned constructs in the context of this study.

Table 2.4: Definitions of research constructs in the context of Mobile Banking

Variable	Definition
Effort expectancy	Effort expectancy is the degree of ease associated with consumers' use of technology (Venkatesh *et al.,* 2012), with a positive effect on intentional behaviour to use this technology (Venkatesh et al, 2003). Ghalandari (2012) and Owusu Kwateng, Osei Atiemo and Appiah (2019) explain effort expectancy as the convenience of using a system. Effort expectancy is the degree of ease that is associated with the use of mobile banking (Chingoka, 2015). Thusi and Maduku (2020) expound effort expectancy in the context of mobile banking apps as the degree to which users believe that mobile banking apps are easy to learn and require less effort to use.
Social influence	Social Influence is the degree to which an individual perceives that important others (for example family and friends) believe he or she should use the technology (Venkatesh et al, 2003).

Variable	Definition
	Marinkovic and Kalinic (2017) explain how social influence concerns people's influence from the individual's immediate surroundings (family, friends, superiors) on the perceptions and behaviour related to a particular activity. Owusu Kwateng, Osei Atiemo and Appiah (2019) ain social influence as the importance users attach to the perception of close relations that they should use a particular technology. Social Influence is the degree to which an individual perceives others must believe they should use mobile banking with the persuasion of others who are important to them (Chingoka, 2015).
Perceived enjoyment	Perceived enjoyment is defined as the degree to which the activity of using technology is perceived to be enjoyable in its own right apart from any performance consequences that may be anticipated (Davis, Bagozzi & Warshaw, 1992). Perceived Enjoyment is the extent to which individuals experience pleasure or joy as they interact with information technology (Avornyo *et al.,* 2019). Perceived enjoyment relates to the hedonic value of new technology and describes how pleasant a subject experiences its application (Holdack, Lurie-Stoyanov & Fromme, 2020). Venkatesh *et al.* (2012) elucidate perceived enjoyment as the amusement, cheerfulness or pleasure acquired from using a technology.
User experience	User experience is a momentary, primarily evaluative feeling (good-bad) while interacting with a technology service (Hassenzahl, 2008). Ariza and Maya (2014) posits user experience as the design and evaluation of experiences people have through (or the encounter with) a system. User experience includes how easy it is to use, how pleasant and satisfying the experience is, whether it is useful or not and how well it meets the person's needs (Ross, 2014)
Perceived interaction	Perceived Interaction is the system interactivity experienced by users *(Niu et al*., 2021) Li and Li (2014) defines perceived interaction as the extent to which users can participate in the real-time modification of the form and content of a mediated environment.
Intention to use m-banking application	Intentions to use is explained as the chances of a person to utilise a technology (Raza, Umer & Shah, 2017).

Variable	Definition
	Behavioural intention in Information system (IS) research is defined as the degree to which a person has formulated conscious plans to perform or not perform some specified future behaviour (Venkatesh, Brown, Maruping & Bala, 2008).
Continued usage of m-banking application	Continued usage is the intent to continue using mobile banking after the initial adoption phase (Albashrawi & Motiwalla, 2017). Continued usage intention refers to users' decisions to continue using an information technology (IT) over the long run (Gumussoy, 2016; Praveena & Thomas, 2014).
Perceived risk	Perceived risk is a perception about implicit risk in using the open Internet infrastructure to exchange private information (Chen, 2013). Arslan, Geçti and Zengin (2013) explains perceived risk as a consumer's doubt about the result of their decisions. In the context of mobile banking, risk is viewed as a user's expectation of suffering a loss when using mobile banking to perform banking transactions (Cocosila & Trabelsi, 2016; Mha, 2015).
Perceived trust	Perceived trust is the accumulation of customer beliefs of integrity, benevolence and ability that could enhance customer willingness to depend on mobile banking to attain the financial transactions (Alalwan *et al.,* 2017). Singh and Sinha (2020) defines perceived trust as an emotional state that encourages one to trust another based on the other's satisfactory behaviour. Perceived trust entails individual readiness to take on certain behaviours without having any past experience or information about the endeavour (Jouda *et al.,* 2020).
Electronic Word of Mouth	Electronic word of mouth refers to a customer expression in the past, present or future, highlighting favourable or unfavourable characteristics of products and services through an online community (Almana & Mirza, 2013). Ishida, Slevitch and Siamionava (2016) explains electronic word of mouth as sharing one's opinion, feelings and attitudes with groups of people on any subject matter through the Internet. Electronic word of mouth is defined as any positive or negative statement made by potential, actual or former customers about a product or company that is made available to a multitude of people and institutions via the Internet (Shankar *et al.,* 2020).

Variable	Definition
Loyalty	Loyalty refers to customers holding favourable attitudes towards their bank of choice, which is reflected in their recommendation (Bondeson & Lindbom, 2018). Loyalty is a pattern of users' behaviour, where they become committed to the brands they use and repetitively use the same service technology without switching to another like service as time passes (Oppong, Adjei & Poku, 2014).

Source: Author's own compilation

2.3 CHAPTER SUMMARY

This chapter started with an introduction; it provided an overview of the research context, by providing background into the history of banking and m-banking, global banking landscape, the benefits, inhibitors and enhancers of m-banking. This chapter also covered a literature review on the underlying theories and models, which are UTAUT model, TAM, TPB as well as user experience model. It is imperative to note that the theoretical literature assisted in elucidating the theories that were used in grounding the study. In the next chapter, the conceptual model and hypotheses development are presented.

CHAPTER 3

CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

3. INTRODUCTION

Chapter 2 outlined the research context and this current chapter (Chapter 3) outlines the conceptual model. The empirical literature presented in Chapter 2 was centred on a discussion of the underlying theories and models grounding the study such as UTAUT, TAM, TPB, user experience, TRA, DTPB, DOI and expectation confirmation theory. This chapter focuses on the study's empirical objectives: the relationship between the variables within the conceptual research model, and a discussion of the empirical literature underlying the theoretical constructs of the study such as effort expectancy, social influence, perceived enjoyment, perceived interaction, intention and continued usage of mobile banking (m-banking) applications, perceived risk, perceived trust, e-WOM and loyalty. Chapter 3 amalgamates all the constructs into a broad conceptual model and develops hypotheses to be tested later during the data analysis. This chapter aims to study the proposed relationships in the conceptual model in depth. Analysis is done on what information other researchers have found on the relationship and in what context (i.e. what previous work has been done on the relationship between the variables) and on what the proposed relationship implies for this study.

3.1 CONCEPTUAL MODEL

A conceptual model describes the relationship between variables investigated in a study (Kivunja, 2018). In addition, a conceptual model describes the relationship between variables investigated in the study (Maziriri, Mapuranga & Madinga, 2019). Furthermore, Lois (2021) concurs that the conceptual model is a model that describes the cause-effect relationship (causal orientation) between variables to explain a problem. Maziriri, Mapuranga and Madinga (2019) agree with Van der Waldt, (2020) on how a schematic diagram of the conceptual model helps the reader to visualise the

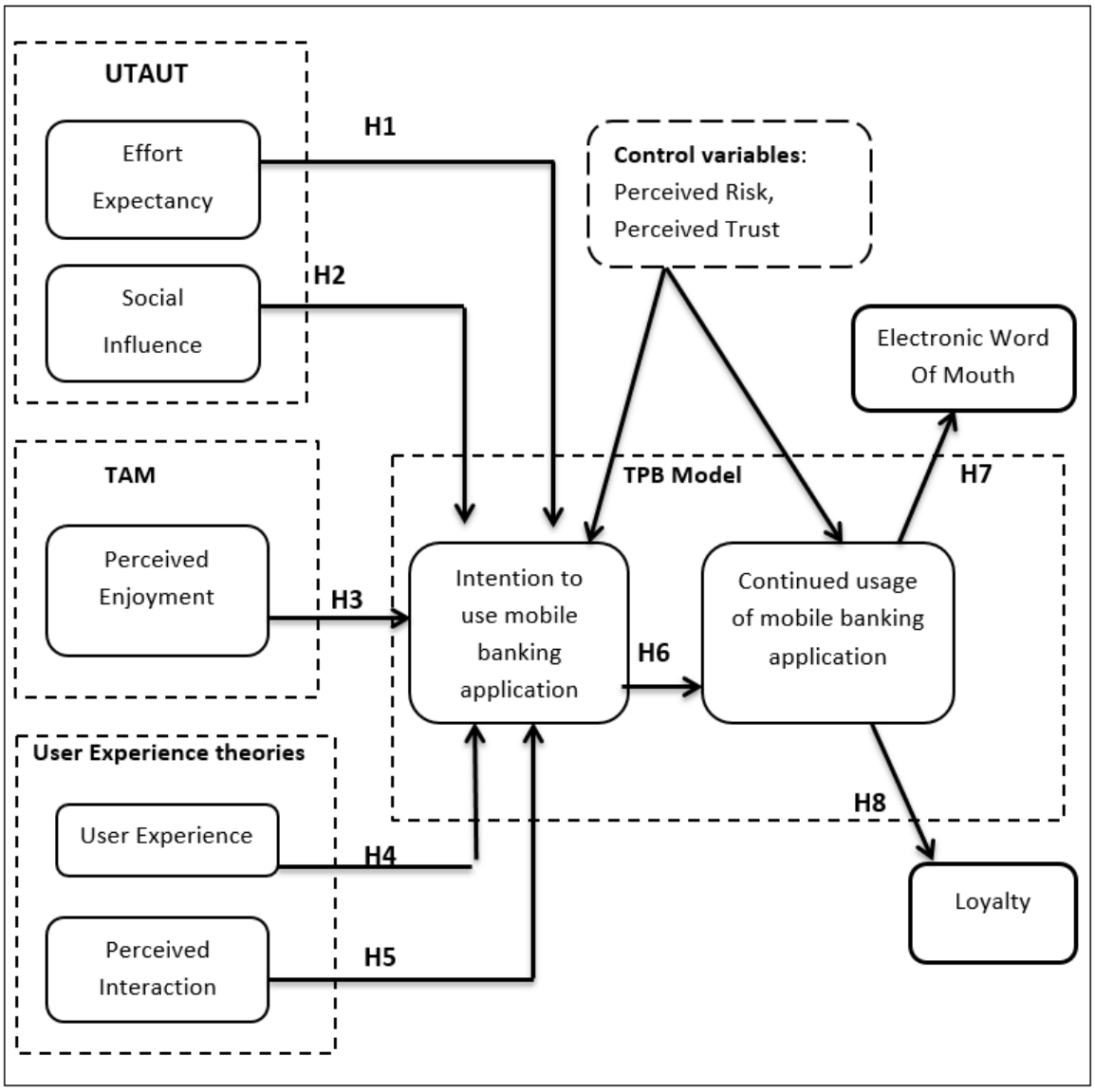
theorised relationships between the variables in the model and thus to obtain a quick idea about how you think that the management problem can be solved.

In this study, the conceptual model suggests that the independent or predictor variables are effort expectancy, social influence, perceived enjoyment, user experience and perceived interaction. The term predictor refers to a variable that can predict another variable, that is, the magnitude of the predictor (independent variable) can predict the magnitude of another variable (dependent variable) as Maziriri *et al.* (2019) and Pokhariyal (2019) outline. Frost (2021) agrees that an independent or predictor variable refers to a variable that determines the values of dependent variables. Figure 3.1 presents the conceptual model for the study, which contains the five predictor variables.

Mediating variable refers to a variable or set of variables in a chain of causation in which the mediating variable is the causal link between the independent and dependent variable of interest (Maziriri *et al.,* 2019; Pokhariyal, 2019). The aim of mediating variables is to uncover causal pathways between variables that are often overlooked in the assessments of non-linear models (Bhandari, 2021; Celli, 2022). The purpose of control variables is to purify observed relationships among variables of interest, reduce error research terms, provide programmatic efforts to explain the reasons for observed results and more or less enable accurate interpretation of results (Bernerth, Cole, Taylor & Walker, 2018; Mueller & Hancock, 2019; York, 2018) The study includes perceived risk and perceived trust as the control variables, as depicted in Figure 3.1.

Moreover, the dependent or outcome variables for the current study model are e-WOM and loyalty, as shown in Figure 3.1. A dependent or outcome variable is the variable under investigation and is depicted by the letter γ, as Maziriri *et al.* (2019) postulate. An outcome variable is continuously the predicted or the estimated variable as Maziriri *et al.* (2019) outline. The conceptual theoretical framework provided in Figure 3.1 is grounded on four theories that include UTAUT, TAM, user experience model and TPB. Based on these four theories, Figure 3.1 illustrates the conceptual framework reflecting the distinct paths and connections between the constructs under investigation. The subsequent sections will provide the formulation of the hypotheses for the present research.

Figure 3.1 Conceptual model



Source: Author's own work

3.2 EMPIRICAL LITERATURE

This study is positioned to address the intention and continued usage of m-banking applications within the context of Zimbabwe. This is done by combining constructs from different models such as UTAUT, TAM, User Experience and TPB. This section focuses on the empirical literature of m-banking, the models and constructs of the UTAUT model (effort expectancy and social influence), extended TAM model (perceived enjoyment), User Experience theories (user experience and perceived interaction) and TPB model (Intention and continued usage) and includes perceived risk and perceived trust as control variables as shown in Figure 3.1.

3.2.1 Constructs of mobile banking usage

Previous studies have provided empirical findings on the factors that have influenced the intention and usage of m-banking in the past years. Some of the influencing factors are the constructs of this study. The study by Yuan, Liu, Yao and Liu, (2016) reveals that satisfaction, perceived usefulness, perceived task-technology fit and perceived risk are the main predictors of continuance intention towards m-banking and is similar to the findings by Chitungo and Munongo (2013) and Hanafizadeh, Behboudi, Koshksaray and Tabar (2014). Differing from these findings, Aboelmaged and Gebba (2013) indicates that there was no significant impact of perceived usefulness on the intention to use m-banking, whilst Ramdhony and Munien (2013) found that awareness is not a major barrier to m-banking adoption. Findings from a quantitative study conducted by Tam and Oliveira (2017) with a sample size of 354 participants, show that use and user satisfaction lead to the m-banking individual performance and the system, information and service quality affect user's satisfaction positively, similar to the results from Hollmann, Lee, Zo and Ciganek (2013). On the other hand, Laukkanen (2016) suggests that research should focus more on actual usage behaviour instead of only intentions.

Constructs such as trust, perceived usefulness, compatibility and social influence were found to be significant in m-banking adoption and usage by Sharma, Govindaluri, Al-Muharrami and Tarhini (2017) and this position is similar to Chong, Ooi, Lin and Bao (2012) and Hanafizadeh *et al.* (2014). Perceived usefulness was found to have no influence on the intention to use by Karma, Ibrahim and Ali (2014) whilst Elhajjar and Ouaida (2019) asserts that compatibility shows no significant impact on adoption. Through a quantitative study with a sample of 300, Owusu Kwateng *et al.* (2019) found that the main motivations for m-banking services adoption and use are habit, price, value and trust and are in agreement with studies by Baabdullah *et al.* (2019) and Merhi, Hone and Tarhini (2019). In dispute, Baptista and Oliveira (2015) and Yang, Lu, Gupta, Cao and Zhang (2012) found that price value is not significant over behavioural intention and Kabra, Ramesh, Akhtar and Dash (2017) found no significant association between trust and behavioural intention. The empirical findings of this study's constructs will be discussed in the sections to follow.

3.2.2 Models

In light of the importance of m-banking to several stakeholders, researchers have been examining the factors affecting m-banking continuance intention and its usage. Some of the mostly common used models include TAM (Aboelmaged & Gebba, 2013; Kalinic, Marinkovic, Molinillo & Liébana-Cabanillas, 2019), TPB (Giovanis *et al.,* 2019; Ho, Wu, Lee & Pham, 2020) and UTAUT (Alalwan, Baabdullah, Rana, Tamilmani & Dwivedi, 2018; Yu, 2012) as underpinning models to explore m-banking usage intention

(Shankar *et al.,* 2020). Some authors have gone further to conduct studies in both developed and developing countries in attempting to understand the adoption and usage of m-banking. The studies implement well known models such as TAM (Jeong & Yoon, 2013; Kumar, Lall & Mane, 2017; Mortimer, Neale, Hasan & Dunphy, 2015), TPB and DTPB (Aboelmaged & Gebba, 2013; Giovanis *et al.,* 2019), UTAUT and UTAUT 2 (Alalwan *et al.,* 2017; Baptista & Oliveira, 2015; Thusi & Maduku, 2020; Yu, 2012).

Previous discussions by Giovanis *et al.* (2019) provide empirical findings of models and highlight that the TPB, DTPB and TAM are better models that explain potential customers' behavioural intention to use m-banking services than the UTAUT. This finding agrees with those of previous studies by Giovanis and Athanasopoulou (2017) and Mohammadi (2015). It is further explained that the TPB and DTPB models outperform TAM, but then DTPB has almost the same predictive ability of behavioural intention with TPB but performs better than the TPB and TAM in explaining attitude towards using m-banking (Giovanis *et al.,* 2019). In contrast, in the studies by Davis, Bagozzi and Warshaw (1989) and Mathieson (1991), TRA and TPB models did not perform as well as TAM in predicting behavioural intention. In both cases TAM outperformed TPB in predicting behavioural intention. Taherdoost (2018) outlines just how TRA and TPB have proven their effectiveness in predicting and explaining a variety of human behaviours in differing contexts.

UTAUT does not work exactly the same in China as it does in the USA as identified by Venkatesh and Zhang (2010). The effect of social influence in China is different from what was observed in the USA, indicating culture is an important contingency factor in the study of technology usage. UTAUT remains a strong predictive model and the success of the application of the UTAUT model has been confirmed in plenty of empirical research (Alkhunaizan & Love, 2012; Baptista & Oliveira, 2015; Venkatesh *et al.,* 2003; Venkatesh & Zhang, 2010; Yu, 2012).

3.2.3 Unified theory of acceptance and use of technology variables

Very little work has been done on effort expectancy to understand its role as an important driver of technology acceptance in order to create favourable perceptions and thus foster user usage (Venkatesh, 2000). Prior research did not find any impact on intention to use m-banking with the other constructs of UTAUT, performance expectancy (Chao, 2019; Owusu Kwateng *et al.,* 2019), social influence (Lu, 2014; Thusi & Maduku, 2020), facilitating conditions (Baptista & Oliveira, 2015). This study, therefore, only focused on two constructs of the UTUAT model, which include effort expectancy and social influence. The empirical findings of the two constructs are outlined in the sections to follow.

3.2.3.1 Effort expectancy

The origins of the effort expectancy construct can be traced in TAM and TAM2 as perceived ease of use (Abubakar, 2013) which is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989b). Similar constructs in other models and theories from semantic viewpoints are complexity in the PC utilisation model and ease of use in innovation diffusion theory (Ghalandari, 2012; San Martín & Herrero, 2012b; Yu, 2012). Previous studies by Ghalandari (2012) and Albashrawi *et al.* (2017) found that effort expectancy has a positive and significant effect on users' behavioural intention to use m-banking services. Venkatesh *et al.* (2003) found that effort expectancy was more significant even when users had limited exposure to the technology, the effort decreased with experience.

However, effort expectancy is not a salient factor influencing the intention to adopt m-banking as empirically concluded by Yu (2012), conversely Sarfaraz (2017), found that the amount of effort required i.e. perceived ease of use of the system does play a significant role in consumer's usage intention. Merhi *et al.* (2019) conducted a study within the Lebanese sample and the findings shows that effort expectancy was not a significant predictor but was slightly significant in the English sample. These findings were inconsistency with previous studies by Raza *et al.* (2017) and Maruping, Bala, Venkatesh and Brown (2017). In their research, Farah, Hasni and Abbas (2018), exploring the antecedents of m-banking in Pakistan, found that effort expectancy is an important factor of m-banking usage. Bhatiasevi (2016) came to the same conclusion in the research conducted to identify the factors leading to the adoption and usage of m-banking in Thailand, as did Albashrawi *et al.* (2017) by observing a sample of U.S. bank clients.

A study on millennials' by Thusi and Maduku (2020) with a sample of 352 presented effort expectancy as not a statistically significant predictor of millennials' behavioural intention to adopt and use m-banking apps, which is inconsistent with findings in UTAUT2. Oliveira, Faria, Thomas and Popovič (2014) confirm that the intention to use an information system is determined by effort expectancy, whilst the significant and positive association between effort expectancy and ease of use was also confirmed by Munoz-Leiva *et al.* (2017). This findings show that the easier it is to use m-banking, the greater the likelihood that consumers' will continue to use it to conduct their banking transactions (Savic & Vasić, 2019).

3.2.3.2 Social influence

Social influence is a direct determinant of behavioural intention and in their research, Venkatesh *et al.* (2003) indicates that social influence is characterised as subjective norm in TRA,TAM, TPB/DTPB

and Combined-TAM-TPB (C-TAM-TPB), social factors in MPCU and image in DOI (Abubakar, 2013). Previous studies (Bhatiasevi, 2015; Tan & Lau, 2016; Ukpabi, Karjaluoto, Olaleye & Abass, 2019) confirm that social influence is directly related to the intention of an individual to use m-banking services. Moreover, in their research Venkatesh and Zhang (2010) and Yu (2012) single out social influence as the most significant when it comes to the intention of using m-banking.

A quantitative study by Ukpabi *et al.* (2019) in Nigeria with a sample of 245 postulates the effect of social influence (such as the opinions of user's friends, relatives and superiors) on continuous usage and also shows a strong and significant relationship, indicating that the variable is a critical determinant of m-banking application continuous use. Similar findings found by Hanafizadeh *et al.* (2014) in the context of Iran and the findings further explains that social influence is more strongly among female respondents than males, likened to findings by Erdem *et al.* (2019). The positive role of social influence in the usage of m-banking has affirmation from Al-Husein and Sadi (2015) within the context of Saudi Arabia.

Social influence is very critical at the initial stage of adoption as Lu (2014) highlights, however, its effects wane as the user gains more experience with the platform, thus, corroborating (Venkatesh, Thong, Chan, Hu & Brown, 2011), who did not find a positive relationship between social influence and continuous usage. Likewise, the findings from Thusi and Maduku (2020) indicate that social influence is not significantly associated with behavioural intention. Purwanto and Loisa (2020) state that one's intention to use m-banking is driven by self-interest rather than the influence of the social environment. The study by Sarfaraz (2017) did not find any significant influence for social influence. Social influence has a positive effect on the use of mobile technology as the individuals think that using the advanced technology will improve their image and status in the society and also improve performance (Nassar, Othman & Nizah, 2019). As people meet socially, they also influence the value given to the experience of m-banking provided by peers, which then influence the individual trend towards usage of m-banking (Mokhtar, Katan & Hidayat-ur-Rehman, 2018).

3.2.4 Technology acceptance model variables

The extended TAM model has been adapted to also include perceived enjoyment (Davis, Bagozzi & Warshaw, 1992) as an extrinsic motivation. Perceived enjoyment plays an important role in user technology acceptance and in the context of this study as the intention and continued usage of m-banking. Therefore, the TAM construct that is applicable in the context of this study is perceived enjoyment.

3.2.4.1 Perceived enjoyment

The significant influence of perceived enjoyment on customer intention has been proven in previous studies (Park, Baek, Ohm & Chang, 2014; Praveena & Thomas, 2014). Perceived enjoyment was also attested to be the strongest predictor of customers' intention to use new systems and applications in the studies by Alalwan *et al.* (2018), Venkatesh (2000) and Venkatesh *et al.* (2012). Moreover, the effect of perceived enjoyment on system use was confirmed in previous studies by Chang, Hajiyev and Su (2017); Sánchez-Prieto, Olmos-Migueláñez and García-Peñalvo (2016), Cheema, Rizwan, Jalal, Durrani and Sohail (2013), Zhang, Tan, Xu and Tan (2012), Kim, Ahn and Chung (2013) and Shen (2012) found that perceived enjoyment has a significant and direct relationship with intention to use a system.

All the intrinsic motivation factors alter users' continuance intention indirectly via users' perceived enjoyment according to a study by Jusuf, Utami, Hidayanto and Shihab (2017). The study also describes how a users' familiarity in using m-banking leads to their perceived enjoyment. This therefore means that the longer a user uses an m-banking application then the more they enjoy using the application. As a result, familiarity impacts on users' continuance intention. This is in line with findings by Avornyo *et al.,* (2019) who postulate that perceived enjoyment predict continuous usage intention in m-banking.

Despite some researchers such as Koenig-Lewis *et al.* (2015), stating that perceived enjoyment does not have a direct significant link with intention to use, this in contrast to Nguyen (2015) who produced a different result that continuous use intention is directly and significantly driven by perceived enjoyment. Whereas the direct link between enjoyment and usage behaviours has also been found through empirical studies by Turel and Serenko (2012) outlining that perceived enjoyment may possibly lead users to form habit as well as high engagement in social networking sites. Over the years, researchers have integrated perceived enjoyment in different models, including TAM (Ifinedo, 2017) and expectation-confirmation model (ECM) (Jusuf, Utami Hidayanto & Shihab, 2017) and found a significant positive relationship between perceived enjoyment and continuous usage intention.

3.2.5 User experience

Based on the previous research by Han *et al.* (2018), user experience is formed by the correlation of product features, the perceptions and experiences. Hassenzahl (2018) expresses just how experiencing a product with a certain character will have emotional consequences such as satisfaction or pleasure. Harrison, Flood and Duce (2013), further highlights how product attributes have resulted in dissatisfied customers due to the misalignment of features to the usability. However, Han *et al.*

(2018) explains how solely relying on product features such as ease of use has been acknowledged to be insufficient. Therefore, making it crucial to understand how and which features affect the overall user experience. In agreement, O'Sullivan and Grigoras (2013) states that studying and designing for experiences instead of products is a promising approach since the mobile user experience is a result of functions striving to optimise the user's overall experience. To optimize the overall user experience, banks can track the pain and contact points in different stages of the customer's journey map (CJM) (Jandaghi, Esfidani, Mohsenin, Yazdani & Keimasi, 2020). According to Marquez, Downey and Clement (2015), CJMs assist in visualizing the user's journey in order to help organisations better understand and optimize the user's experience. In addition, the customer's journey plan can help the organization increase its knowledge of how to provide specific services that enhance the user experience of m-banking application users (Jandaghi, Esfidani, Mohsenin, Yazdani & Keimasi, 2020).

In reference to m-banking, the research findings show that many factors can increase complexity, such as navigation problems, a small screen size and transaction issues. If the m-banking service is easy to learn and use, it positively influences the customer's use (Singh & Srivastava, 2018). The findings from Zhou and Liu (2014) outlines just how the constraints of mobile devices such as small screens and inconvenient input increases the difficulty of users in operating m-banking, which negatively affect users' experience. In the context of mobile applications, Chang, Kaasinen and Kaipainen (2012) conducted an online survey with 68 participants and found that consumers often mention user interface and interface design as among the key reasons affecting their usage decisions. An argument by O'Sullivan and Grigoras (2013) states how the mobile user experience is increasingly related to the user's immediate environment. A pleasant user experience, satisfies customers and increase their loyalty (Ross, 2014; Safa & Von Solms, 2016).

3.2.6 Perceived interaction

Based on prior research, high Interactivity with systems generally leads to continuous and immediate feedback and better processing of information and thus allows users to actively and seamlessly participate on systems (Yang & Shen, 2018; Yoo, Kim & Sanders, 2015). Findings by Krishanan *et al.* (2016) show that there is a significant impact of perceived interactivity on attitude towards using m-banking indicating perceived interactivity is a significant predictor. Furthermore Hanafizadeh *et al.* (2014) outline how interactivity as a construct successfully explain the adoption and use of m-banking. Similarly, Krishanan, Khin, Teng and Chinna (2016) reveal that consumers' attitude towards using m-banking is significantly influenced by perceived interactivity. Taking into consideration the significance

of perceived interaction, Bergstrom-Lehtovirta and Oulasvirta (2014) went on to design a model to ensure that a user interface is suitable for interaction.

How interaction with mobile devices influences intention to use and continued usage is becoming increasingly important, as smartphones become more complex and support more diverse services and applications. Hussain, Abubakar and Hashim (2014) in their research, reiterate the importance of user to have the ability to use an application even with a small device effectively with good interaction as one of the critical success factors of using mobile applications. Shin, Choi, Kim and Lee (2016) outline how the actual interactive features of mobile applications are fundamental and how perceived interactivity plays a critical role in the usage of m-banking applications by mediating, enhancing and facilitating user experience. It is however important for users' to feel that they know how to use and control the mobile application, resultantly making the perceived interaction construct an important variable for the study.

3.2.7 Behavioural intention to use mobile banking applications

Behavioural intention or intention to use is considered either acceptance or continuous in the studies on m-banking as Avornyo *et al.* (2019) points out. In prior literature, behavioural intention has been strongly supported as a decisive driver of the actual usage behaviour by Martins *et al.* (2014). In a similar way, Abubakar (2013) posits behavioural intention as the most important determinant of actual behaviour. Prior literature by Yu (2012) and Oliveira *et al.* (2014) found that behavioural intention has a positive relationship with usage behaviour in studies exploring the usage of m-banking. Prior studies by Venkatesh *et al.* (2003) also found that behavioural intention has a positive influence on usage behaviour. In the UTAUT2, behavioural intention is a significant and positive predictor of technology use behaviour (Venkatesh *et al.,* 2012). In contrast, a quantitative study by Baptista and Oliveira (2015), with a sample of 252 participants, found that the effect of behavioural intention on usage behaviour was not significant, contradicting earlier research (Venkatesh *et al.,* 2003, 2012) indicating that new constructs, such as trust or risk, should be added to the model.

Behavioural intention has a positive effect on the usage of mobile banking services, among urban and millennial generation in Indonesia starting from their intention to use, m-banking will continue to become a habit of continued usage as Purwanto and Loisa (2020) outlines. A study by Thusi and Maduku (2020) sampling millennials' in South Africa confirms a strong and a positive association between behavioural intention and usage behaviour which is consistent with the findings of the UTAUT2. This therefore suggests that, if users have positive intentions towards m-banking apps, they will use them. Focusing on the empirical findings of this study's constructs with the relationship with

behavioural intention, a positive relationship was found in prior research between effort expectancy and behavioural intention by Thusi and Maduku (2020), which is consistent with findings of Venkatesh *et al.* (2003), Casey and Wilson-Evered (2012), Escobar-Rodríguez and Carvajal-Trujillo (2014) and Tosuntaş, Karadağ and Orhan (2015). Jaradat and Al Rababaa (2013) further elucidate that effort expectancy has a more significant direct impact on behavioural intention compared to performance expectancy.

From the perspective of Zimbabwean participants, a study by Makanyeza (2017) and Chingoka (2015) found that social influence has a significant and positive effect on behavioural intention to adopt and use mobile banking services in Zimbabwe. Consistent with findings of Venkatesh *et al.* (2003), Yu (2012) and Escobar-Rodríguez and Carvajal-Trujillo (2014), the study by Warsame and Ireri (2018) in the context of Kenyan participants also found a positive relationship between social influence and behavioural intention. Moreover, the research by Venkatesh and Zhang (2010) and Yu (2012), singles out social influence as the most significant factor when it comes to the intention of using m-banking.

Whilst in prior literature, a large number of studies supports the role of behavioural intention on the actual use behaviour (Alkhunaizan & Love, 2013; Gao & Deng, 2012; Zheng, Li & Jiang, 2012). The factors related to hedonic motivation (perceived enjoyment, playfulness, entertainment and fun) has been widely recognised as some of the most influential factors predicting the customers' intention to use by Riffai, Grant and Edgar (2012) and Alalwan *et al.* (2018) . Whilst perceived risk was found to negatively influence behavioural intention to use m-banking services in Zimbabwe by Makanyeza (2017). Therefore, perceived risk is an important factor affecting customers' intention to use m-banking (Chen, 2013). Previous studies (Alalwan *et al.,* 2017; Hanafizadeh *et al.,* 2014; Malaquias & Hwang, 2016) show a direct significant effect of trust on usage intention. Furthermore, findings from Oliveira *et al.* (2014) outline that initial trust has a more significant effect on the behavioural intention to use m-banking compared to effort expectancy and social influence. Kang, Lee and Lee (2012) demonstrate that when existing users of m-banking perceive the service to be valuable to them, they will continue using it leading to loyalty.

However, contradicting results by Oliveira *et al.* (2014) show that effort expectancy and social influence are not statistically significant in explaining the behavioural intention. Singh and Srivastava (2018) within the Indian context found that trust and social influence do not play a salient role in predicting the intention to use m-banking. Similarly, Koksal (2016), within the Lebanese context, also found that trust does not play a major role in the intention to use m-banking. The trust construct may appear insignificant as customers tend to consider banks to be amongst the trustworthy institutions.

The results by Wu and Du (2012) furnish substantial evidence that behavioural intention is not a good surrogate for usage and how major research attention should be given to usage rather than behavioural intention, indicating that to obtain valuable and profound research findings, scholars should consider and examine both actual usage and assessed usage in every single study that they conduct. However, Baptista and Oliveira (2015) explain how psychological theories argue that individuals' behavioural intention is linked to the actual use. Thus, individuals with a high intention to use a m-banking system will break the ceiling and start using it.

3.2.8 Continued usage of mobile banking application

Although user acceptance or pre-adoption of m-banking services is a necessary condition for the effective implementation of m-banking technology (Teo, Tan, Cheah, Ooi & Yew, 2012) research by Zhou (2012) cites its continued usage (or post-adoption usage) as a pre-condition for its successful implementation. Considering the significance of retaining users, it is necessary to identify the factors affecting continuance usage (Zhou, 2013). The study by Kang (2014) outlines that effort expectancy is the key variable to continued usage since users consider easiness as the top priority in the use of mobile apps, therefore traits of mobile app that are easy to access, download and use are the key elements of continued usage. This finding is similar to the studies by Gharaibeh, Arshad and Gharaibh (2018), Savic and Vasić (2019) and Reji Kumar and Ravindran (2012). Differing from this are Yuan, Liu, Yao and Liu (2016) and Chen (2012) with findings reflecting that users will not continually use m-banking just because it is easy to use.

Behavioural intention has a positive effect on the usage of m-banking services within the Zimbabwean context as outlined in prior studies by Makanyeza (2017) and Chingoka (2015), implying that the intention to use m-banking services lead to the actual use of the services (Cheung & Vogel, 2013). Similarly, this finding fortifies prior body of literature on this subject (Bustami, Situngkir, Yacob and Octavia, 2021; Sharma & Sharma, 2019; Venkatesh *et al.,* 2003). The role of perceived risk was found to be the strongest driver with serious influence on continued usage by Poromatikul, De Maeyer, Leelapanyalert and Zaby (2019) and Reji Kumar and Ravindran (2012). Conversely, the study by Tan, Ooi, Chong and Hew (2014) and Wong, Lee, Lim, Chua, Chai and Tan (2012) observes that perceived risk did not have a significant impact on intention to use. This may be because the perceived risk factor is customer dependent and may be unique to each and every customer.

The effect of social influence on continuous use also shows a strong and significant relationship, indicating that the variable is a critical determinant of m-banking app continuous use (Ukpabi, Karjaluoto, Olaleye & Abass, 2019). This result is contrary to Kang (2014), Lu (2014) and Venkatesh *et*

al. (2011) who did not find support for a direct positive relationship between social influence and continuous use, however, added that the effect of social influence on continuance intention decreases as the user gains experience and knowledge in the use of the technology. Lin (2013), however, points out that when customers obtain reliable and trustworthy services, they are more likely to continue using m-banking.

Moreover, an enjoyable experience motivate users to continue usage of technological-based services as Salimon, Yusoff and Mokhtar (2017) asserts. Similarly, it was found that convenience, enjoyment and sharing experience have a direct influence on continued usage based on the findings of Gallego, Bueno and Noyes (2016) and Baek, Cho and Kim (2014). Mehrad and Mohammadi (2017) argue how word of mouth has been proven to significantly impact customers' attitudes, which in turn influences the actual use behaviour. Susanto, Chang, Zo and Park (2012) conclude that perceived security and satisfaction are strong determinants of consumers' decisions to re-use m-banking services, whilst Chen (2012) states that trust, along with satisfaction has a positive effect on continued use. Consequently, marketing strategy research has long emphasised the need to investigate the m-banking continuous usage context (Chen, 2012). It is, therefore, vital to understand factors affecting users' decision to continue using m-banking because maintaining existing customers is more cost-effective than acquiring new ones (Bhattacherjee, 2001).

3.2.9 Control variables

This study included two control variables, perceived risk and perceived trust, in order to control for alternative explanations in intention to use and continued usage of m-banking applications.

3.2.9.1 Perceived risk

Perceived risk is an essential aspect in the continued usage of m-banking systems. Jacoby and Kaplan (1972) inferred from Raymond Bauer's theory of perceived risk in 1960 and seminal work on overall measure of perceived risk, point to several types of risk that consumers perceive can be considered; functional risk, physical risk, financial risk, social risk and psychological risk. Despite the long standing nature of Jacoby and Kaplan's (1972) risk model, over time some researchers have studied perceived risk as a unidimensional construct, an approach adopted for this study. An argument by Stone and Grønhaug (1993) highlights how if the dimensions of the risk constructs were true, they need not necessarily be independent since the dimensions capture some aspects of the overall risk perceived by a user, which is contrary to what is suggested by Jacoby and Kaplan (1972). Therefore, all dimensions of perceived risk will be correlated in this study through the adoption of a unidimensional approach of investigating perceived risk.

The unidimensional approach of investigating perceived risk has been applied in previous studies to test the role of risk in consumer decision-making (Cheng & Huang, 2013; Chiu, Wang, Fang & Huang, 2014; Yang, Pang, Liu, Yen & Tarn, 2015). Whilst, prior research by Alalwan *et al.* (2018), de Sena Abrahão, Moriguchi and Andrade (2016) and Tan & Lau (2016) also integrated perceived risk as a unidimensional construct in their findings.

There is a fairly strong negative correlation between perceived risk and m-banking usage as outlined in the empirical findings by Chitungo and Munongo (2013) and Cocosila and Trabelsi (2016). This implies that if individuals perceived higher risks and uncertainty such as issues of loss and theft of financial information due to system hacking, this would discourage use of m-banking. This finding is alike to studies by Natarajan, Balasubramanian and Kasilingam (2018) and Chingoka (2015). However, Chen (2012) reports that perceived risk had no significant impact on the relationship quality of m-banking and Kang, Lee and Lee (2012) found that perceived risk shows no significant effect on perceived value of m-banking. On the contrary, the results for perceived risk are inconclusive, for instance Yuan, Liu, Yao and Liu (2016) found perceived risk to be the strongest (negative) driver on continuance intention, but Chen (2012) found no statistically significant effect. Therefore, banks need to keep in mind that the lower the perceived risk, the higher the perceived trust, customer satisfaction and loyalty (Hossain, 2019).

3.2.9.2 Perceived trust

Owing to the virtuality and lack of control, m-banking involves substantial uncertainties and risks (Mahad, Mohtar & Othman, 2015) associated with using a system. Therefore, for one to intend to use a system, a user needs to build trust to use m-banking. Findings by Akhlaq and Ahmed (2013) and Mahad *et al.* (2015) reveal that trust as a construct has been widely regarded as a crucial determinant of customers' intentions to use m-banking. Trust is observed to be the second strongest factor in predicting the behavioural intention to use. Similarly, previous studies (Alalwan, Dwivedi, Rana, Lal & Williams, 2015; Hanafizadeh *et al.,* 2014; Malaquias & Hwang, 2016; Sharma, 2019; Yadav, Sharma and Tarhini, 2016) also found trust to be a crucial influencer of behavioural intention to use a technology and this is due to its inverse association with risk.

There is a significant relationship between trust and structural assurance as outlined in prior research by Van Deventer and (2019) and Zhou (2012b). Mobile users expect banks to provide structural assurance as a mechanism to mitigate the perceived risk of m-banking, therefore implying that trust and risk have a significant negative relationship. As a result, customers may not easily accept m-banking without confidence in the security measures implemented by banks regardless of the

convenience of the service (Chang, Ma, Liu & Lin, 2020). Empirical findings from different contexts found perceived trust to be majorly significant in both Lebanon and England (Merhi *et al.,* 2019). These results are similar to previous findings, Hanafizadeh *et al.* (2014), Alalwan, Dwivedi, Rana, Lal and Williams (2015) and Yadav, Sharma and Tarhini (2016), where trust was found to be a key influencer of behavioural intention to use technology. Moreover, Alalwan *et al.* (2017) in Jordan and Malaquias and Hwang (2016) in Brazil support the role of trust in customer's intention to use m-banking. A study by Maduku (2014) in South Africa shows a positive relationship between clients' trust of the m-banking system and their attitude towards m-banking usage.

Based on prior research, trust influences intention to use (Duane, O'Reilly & Andreev, 2014; Shaw, 2014) and there is a relationship between trust and intention to continue use of m-banking (Jamshidi, Keshavarz, Kazemi and Mohammadian, 2018), whilst building trust is key to bringing about positive change in the loyalty and continued use intention (Nadeem, Andreini, Salo & Laukkanen, 2015). The findings of the study by Shaikh and Karjaluoto (2015) reveal that users trust m-banking services and similarly Shaikh, Karjaluoto and Chinje (2015) further reveal that trust plays a significant role in promoting usage of m-banking. However, in other studies, findings by Kabra, Ramesh, Akhtar and Dash (2017) and Zarmpou, Saprikis, Markos and Vlachopoulou (2012) found no significant association between trust and behavioural intention. These result echo those of Koenig-Lewis *et al.* (2015) who found that trust had no direct influence on usage intention to use m-banking. However, the significant impact and influence of trust on behavioural intention in m-banking were proven in prior literature (Afshan & Sharif, 2016; Masrek & Razali, 2013). Therefore, trust plays a catalyst role in the relationship between the customer and bank. If there is no trust between the customer and the m-banking system, it will result in lack of usage (Zhou, 2012a).

3.2.10 Outcome variables

The study included outcome constructs, e-WOM and loyalty, in the continued usage of m-banking applications to get insightful research findings.

3.2.10.1 Electronic word of mouth

Electronic word-of-mouth (eWOM) has emerged with the advent of IT (Cheung & Lee, 2012) and positive e-WOM triggers can play an important role in enhancing the intention to use m-banking. Previous analysis shows that consumers' e-WOM intention is significantly related to three antecedents, reputation (marginal significance), sense of belonging and enjoyment of helping. The study by Cheung and Lee (2012) shows that enjoyment of helping others is crucial in affecting consumers' e-WOM intention, whilst reputation is a marginally significant factor affecting consumers'

e-WOM intention, whereas sense of belonging had relatively the most impact on consumers' e-WOM intention. According to Mehrad and Mohammadi (2017), word of mouth has been proven to have a significant impact on customers' attitudes which, in turn, influence the actual use behaviour.

Previous studies recognise that positive e-WOM communication is an effective promotional tool (Kwon, Bae & Blum, 2013; Nuseir, 2019; Sa'ait *et al.,* 2016). Compared to information provided by marketers, consumers have more trust in the information shared by other consumers (Kim, Lim & Brymer, 2015). Results by Kim, Lim and Brymer (2015) show that e-WOM plays a crucial role in shaping the consumer adoption behaviour of technology-related products and services, whilst Cheung and Lee (2012) highlight that other users' positive usage experience on different platforms also plays a crucial role in m-banking continued usage. In contrast, Ishida, Slevitch and Siamionava (2016) argue that traditional WOM has a greater influence compared to e-WOM. Findings by Klaus and Maklan (2012) found that service experience has a significant impact on customer satisfaction, loyalty and word-of-mouth intentions. It was demonstrated that customer experience quality could be a better predictor of loyalty and word of mouth. Samad (2014) demonstrates that there is a significant positive relationship between perceived services quality, repurchase intention and word of mouth.

Argument quality, valence, consistency and volume were found as the main e-WOM triggers by Cheung and Thadani (2012) . The quality of the reviews has been considered the crucial central route trigger. These result echoes findings by Shankar *et al.* (2020) that show that except for volume, the three triggers of e-WOM (argument quality, valence and consistency) significantly drive the intention to use m-banking. Therefore, up-to-date, accurate and complete reviews enhance customer intention to use m-banking. Similarly, positive mixed reviews (the valence of positive eWOM) enhance user intentions. This implies that when customers find positive comments and reviews in online platforms that also contain some negative comments in them or highlight the weaknesses of m-banking, their m-banking usage intentions increase (Cheung & Thadani, 2012; Shankar *et al.,* 2020; Zhou, 2012). However, research findings from Shaikh and Karjaluoto (2015) indicate that even in the presence of supportive m-banking services, respondents are likely not to be interested in endorsing services to others, with emphasises that m-banking is too personal or, conversely, too common a subject to be discussed with other people. Despite this notion, Shankar and Kumari (2016), highlight that a sizeable number of positive reviews can reduce consumers' perceived risk and help them form positive attitude towards m-banking usage.

3.2.10.2 Loyalty

The concept of customer loyalty can be approached from two perspectives, attitudinal and behavioural, or one of them (Tho, Lai & Yan, 2017). Behavioural loyalty is conceptualised as willingness of current users of a particular m-banking service to continue using it (continuous usage intention) (Al-Ghazali, Rasli, Yusoff and Mutahar, 2015), whilst attitudinal loyalty is a level of commitment of m-banking users toward a particular bank and can be recognised through word-of-mouth as customers are willing to create a positive image of a business to others (Purwanto, Deviny & Mutahar, 2020; Watson IV, Beck, Henderson & Palmatier, 2013). A report by KPMG (2013) demonstrates that m-banking affords a unique opportunity to build customer loyalty, unravel cross-selling propositions and create a more efficient and effective interface for processing transactions. Moreover, Kang *et al.* (2012) demonstrate that when existing users of m-banking perceive that the service is valuable to them, they will continue using it, which leads to loyalty. Therefore, behavioural intention precedes use, while loyalty comes after use (Baabdullah *et al.,* 2019).

A significant relationship between customer satisfaction and customer loyalty has been indicated in prior research by Aktepe, Ersöz and Toklu (2015). Findings show that customer satisfaction has a positive impact on customer loyalty (Poromatikul, De Maeyer, Leelapanyalert & Zaby, 2019; Ram & Wu, 2016) and future usage intention (Hossain, Hossain & Jahan, 2018). This implies that the perceived risk plays a driving role in building customer trust that determines the satisfaction and loyalty level. Hossain (2019) argues that perceived trust has a strong antecedent on customer satisfaction and customer satisfaction is the pre-condition for customer loyalty. In contrast, Kumar, Dalla Pozza and Ganesh (2013) claim that customer satisfaction does not completely determine customer loyalty. Previous findings by Hossain (2019) shows that the lower the perceived risk, the higher the perceived trust, customer satisfaction and loyalty. However, contrary to the expectations of Hossain (2019) a non-significant relationship was found between perceived risk and customer loyalty.

The social interactions of customers with their friends, relatives and co-workers influences the loyalty of customers to any service (Oppong, Adjei & Poku, 2014). These findings is similar to the study by Mokhtar *et al.* (2018). Sampaio, Ladeira and Santini (2017) also added that those customers who are pleased with their experience in using m-banking are more likely to be loyal toward their banks for providing such innovative channels. Klaus and Maklan (2012) also found that service experience has a significant impact on customer satisfaction, loyalty and word-of-mouth intentions. The prior literature by Bowen and McCain (2015) recognises customer loyalty as critical to the success of any business.

Accordingly, loyal customers will have the intention of purchasing again and again and would be willing to recommend to others about the products or services they have experienced (Tho, Lai & Yan, 2017).

3.3 HYPOTHESIS DEVELOPMENT

After the finalisation of the research problem, a researcher can make certain assumptions about the solution to the problem. These tentative solutions or answers to the problem are known as hypotheses according to Shelke (2019). Shukla (2018) further explains hypothesis as an assumption that is still not proved but shows the probable solution of the problem or predicts the relationship between two or more variables. A research hypothesis is the statement created by researchers when they speculate upon the outcome of a research or experiment (Chigbu, 2019; Jhangiani, Chiang, Cuttler & Leighton, 2019). Hypothesis testing remains an important activity of evidence-based research. The hypothesised relationships between the research variables are discussed hereafter.

3.3.1 Effort expectancy and the intention to use a mobile banking application

Empirical evidence demonstrates effort expectancy as one of the antecedents to the intention to use a system (Alghamdi, Elbeltagi, Elsetouhi & Yacine Haddoud, 2018; Chao, 2019; Purwanto & Loisa, 2020; Savic & Vasić, 2019). Effort expectancy denotes the degree of ease associated with the use of the system (Venkatesh, Morris, Davis & Davis, 2003). Savic and Vasić (2019) posit that the easier the m-banking application is to use, the greater the likelihood that customers will use it to conduct their banking transactions. As the complexity decreases, the use is likely to increase and users tend to prefer a simplicity driven technology with maximised efficiency (Davis, Bagozzi & Warshaw, 1989).

The study by Farah, Hasni and Abbas (2018) and Raza, Shah and Ali (2019) explore the antecedents of m-banking in Pakistan and prove that effort expectancy is an important factor of m-banking usage. Also Gupta and Arora (2019) found effort expectancy as a significant predictor of the behaviour intention of m-banking services in India. Whilst, Gharaibeh, Arshad and Gharaibh (2018) assert the important role of effort expectancy on the level of usage among users and established that when customers find mobile banking easy to use, they become more willing to use it to conduct banking transactions. The easy accessibility of a technology tends to motivate users, making them highly inclined to use the technology (Dwivedi, Rana, Jeyaraj, Clement & Williams, 2019). Based on prior research by Venkatesh, Morris, Davis and Davis (2003), effort expectancy has a positive influence on intention. Thus, the extent to which customers perceive using a new system as being simple and not requiring too much effort usually shapes their willingness to use such a system (Alalwan, Baabdullah,

Rana, Tamilmani & Dwivedi, 2018). This study, therefore, builds a hypothesis that draws on effort expectancy and the intention to use a m-banking application.

Given the above discussion, there is a good reason to propose that:

H_1. Effort expectancy has a positive and a significant impact on the intention to use mobile banking applications.

3.3.2 Social Influence and the intention to use a mobile banking application

People take influence from the value given by peers or family members, which may influence the individual trend towards m-banking applications (Gharaibeh, Arshad & Gharaibh, 2018). In addition, customers want to know the experience of existing users to gain a better knowledge of features, utilities and performance of m-banking (Isaac, Abdullah, Aldholay & Ameen, 2019). Savic and Vasić (2019) assert that social influence concerns the influence of people from the individual's immediate surroundings (family, friends, superiors) on his or her perceptions and behaviour related to a certain activity.

Empirical research by Venkatesh and Zhang (2010) single out social influence as the most significant when it comes to the intention of using m-banking. As people meet socially, they also influence the value given to the experience of m-banking influenced by peers which ultimately influence the individual's intention to use m-banking services as Farzin *et al.* (2021) postulate. When individuals think that using a technology will improve their image and status in the society and performance, this shows the positive effect of social influence (Nassar, Othman & Nizah, 2019). Prior studies by Mokhtar, Katan and Hidayat-ur-Rehman (2018), Purwanto & Loisa, (2020) and Yaseen & El Qirem, (2018) affirm a positive relationship between social influence and intention to use m-banking. Therefore, this demonstrates that user's attitude towards m-banking usage is influenced by the people who are important to them.

Based on the above discussion, the following is hypothesised:

H_2: Social Influence has a positive and a significant impact on the intention to use mobile banking applications.

3.3.3 Perceived enjoyment and the intention to use a mobile banking application

In the prior information system and technology acceptance literature, it has been largely argued that intrinsic motivation (i.e. enjoyment, fun, entertainment and playfulness) is important with regard to customer intention to use new systems and applications (Venkatesh, 2000; Venkatesh *et al.,* 2012).

Individuals who experience pleasure or joy from using a technology are more likely to use the technology as enjoyment represents an affective and intrinsic benefit (Alalwan, Baabdullah, Rana, Tamilmani & Dwivedi, 2018). Avornyo, Fang, Odai, Vondee and Nartey (2019) explain perceived enjoyment as an intrinsic motivation and a major determining factor in predicting information usage intention. Chao (2019) found that perceived enjoyment is a key factor that significantly influences usage intentions toward an Information system.

Previous research by Alalwan, Baabdullah, Rana, Tamilmani and Dwivedi (2018) and Natarajan, Balasubramanian and Kasilingam (2018) show the positive effect of perceived enjoyment on the intention to use technologies. Additionally, findings by Ukpabi, Karjaluoto, Olaleye and Abass (2019) postulate a positive relationship between perceived enjoyment and behavioural intention on m-banking. The empirical results from Holdack, Lurie-Stoyanov and Fromme (2020) show that perceived enjoyment largely mediates the influence on usage intention. A study by Alalwan, Baabdullah, Rana, Tamilmani and Dwivedi (2018) prove that the role of intrinsic utilities (perceived enjoyment) is a strong predictor of customers' intention. Moreover, Avornyo, Fang, Odai, Vondee and Nartey (2019) postulate that perceived enjoyment predict continuous usage intention in m-banking.

Deducing from the above-mentioned discussion, this study, proposes the following hypothesis:

H_3: Perceived enjoyment has a positive and a significant impact on the intention to use mobile banking applications.

3.3.4 User experience and the intention to use a mobile banking application

A user experience is mostly formed by the correlation of product features, the perceptions and experiences (Han, Tom Dieck & Jung, 2018), whilst product experience with a certain character has emotional consequences such as satisfaction or pleasure (Hassenzahl, 2018). Han, Tom Dieck and Jung (2018) further expand the importance of understanding how and which features affect the overall user experience. Han, Tom Dieck and Jung (2018) further explain how the mobile user experience results from functions striving to optimise the user's overall experience, as mobile applications are increasingly related to the user's immediate environment. Wang and Hsu (2019) also identify that product aesthetics and sustainable perceived value can trigger the intention for consumers and improve user experience, concluding that aesthetics plays an important role for the users' intention to use technology.

Research findings show that many factors can increase complexity, such as navigation problems, a small screen size and transaction issues. If the m-banking service is easy to learn and use, it positively

influences the customer's use (Singh & Srivastava, 2018). Constraints of mobile devices such as small screens and inconvenient input increase users' difficulty in operating m-banking, which negatively affect users' experience (Benyon, 2019; Pinchot, 2020). Therefore, a pleasant user experience, satisfies customers and increases their loyalty (Feng & Wei, 2019). Deducing from the aforementioned explications, it is imperative to incorporate the relationship between user experience and intention to use m-banking application in the present study. Accordingly, it can be predicted that:

H_4: Customers' user experience has a positive and a significant impact on the intention to use mobile banking applications

3.3.5 Perceived interaction and the intention to use a mobile banking application

High interactivity with systems generally leads to continuous and immediate feedback and better processing of information and thus allows users to actively and seamlessly participate on systems (Yang & Shen, 2018). There is a significant impact of perceived interactivity on attitude towards using m-banking as highly engaged consumers find m-banking applications more useful and tend to use them more frequently for banking services (Shankar, Jebarajakirthy & Ashaduzzaman, 2020). Empirical findings from Shankar (2021) indicate that interactivity significantly affects consumer engagement towards the m-banking application. The findings were consistent with previous literature from (Islam, Jebarajakirthy & Shankar, 2021). Foroughi, Iranmanesh and Hyun (2019) outline how interactivity can benefit customers using m-banking services. In the same way, Interactive m-banking applications also enhance initial trust toward service providers and enhance consumer engagement (Shankar, Jebarajakirthy & Ashaduzzaman, 2020).

As smartphones become more complex and support more diverse services and applications, how interaction with mobile devices influences intention to use and continued usage of m-banking applications is becoming increasingly important. The importance of a user to have the ability to use an application effectively even with a small device, with good interaction and user interface Is one of the critical success factors of using mobile applications (Pandey, Litoriya & Pandey, 2019). Accordingly, Shankar, Tiwari and Gupta (2021) outline how perceived interaction plays a critical role in the usage of m-banking applications by mediating, enhancing and facilitating user experience.

Based on the above discussion, the following is hypothesised:

H_5: Perceived Interaction has a positive and a significant impact on the intention to use mobile banking applications.

3.3.6 The intention to use mobile banking applications and the continued usage of mobile banking applications

Intentions are assumed to capture the motivational factors that influence a behaviour; they indicate how hard people are willing to try, or how much of an effort they are planning to exert, to perform the behaviour (Ajzen, 1991). Behavioural intention has been strongly supported as a decisive driver of the actual usage behaviour by Alalwan, Dwivedi, Rana, Algharabat (2018). In a similar way, Bustami, Situngkir, Yacob and Octavia (2021) posit that the intention to act positively impacts a person's behaviour. A study by Thusi and Maduku (2020) confirms a strong and positive association between behavioural intention and usage behaviour suggesting that when users have positive intentions towards m-banking apps they will use them. Sharma and Sharma (2019) postulate that intention to use m-banking stand as an important precedent of the actual usage of m-banking.

Previous research by Purwanto and Loisa (2020), found that behavioural intention has a positive effect on the usage of mobile banking services, starting from their intention to use, m-banking will continue to become a habit of using m-banking. Bustami, Situngkir, Yacob and Octavia (2021) found that the intention to act positively impacts a person's behaviour in their study exploring customers' behavioural intention on m-banking services. Previous findings by Bustami *et al.* (2021), Sharma & Sharma (2019) and Venkatesh *et al.* (2003) show the positive relationship between behavioural intention and usage behaviour. This positive finding clearly indicates continuous usage of m-banking.

Prior research by Alalwan, Dwivedi, Rana, Algharabat (2018) strongly supports behavioural intention as a decisive driver of the actual usage behaviour, similar to the study by Vărzaru, Bocean, Rotea and Budică-Iacob (2021). A study conducted by Farzin, Sadeghi, Kharkeshi, Ruholahpur and Fattahi (2021) postulates that behavioural intention positively affects actual user behaviour. The research by Thusi and Maduku (2020) on South African millennials' acceptance and use of retail m-banking apps also confirms a strong and positive association between behavioural intention and use behaviour, consistent with the findings of UTAUT2 (Venkatesh, Thong & Xu, 2012). This suggests that, if users have positive intentions towards m-banking applications, they will use them. As a result, the stronger the intentions of individuals, the higher the chances of performing the underlying behaviour (Ajzen, 1991). Thus, the following hypothesis is presented.

H_6: Customers' intention to use mobile banking applications have a positive and a significant impact on the continued usage of the mobile banking applications.

3.3.7 Continued usage of the mobile banking applications, Word of Mouth and loyalty

For mobile banking providers, retaining existing users is a crucial source of competitive advantage, whilst the cost of maintaining existing loyal customers is lesser than that of attracting new customers (Aldaihani & Ali, 2019), accordingly the continued usage of a customer is very important for a business. Continued usage of m-banking applications are impacted by e-WOM and loyalty. Research by Farzin *et al.* (2021), elucidate how word of mouth influences actual use behaviour and mediated the relationship between m-banking intention and actual use behaviour. Whereas, Shahid, Islam, Malik and Hasan (2022) reveal that customer loyalty and customer intention to continue using m-banking apps were significant outcome variables. Furthermore, up-to-date, accurate and complete reviews enhance customer intention to continue usage of m-banking, as Shankar *et al.* (2020) states.

The previous literature from Ghobakhloo and Fathi (2019) recognises customer loyalty as critical to the success of any business. In agreement, Shahid, Islam, Malik and Hasan (2022) demonstrate how a delightful experience by a customer strongly influence customer loyalty and consumer's continuous usage intention. Through increasing the level of usage, customers will get used to the given service and this in turn will develop unintentional motivation to be loyal to the service, as Baabdullah, Alalwan, Rana, Kizgin and Patil (2019) state. As a result, loyal customers will have the intention to continue using m-banking and be willing to recommend to others about the service they have experienced (Aldaihani & Ali, 2019).

Based on the above discussion, the following is hypothesised;

H_7: *Customers' continued usage of mobile banking applications have a positive and a significant impact on electronic Word of Mouth.*

H_8: *Customers' continued usage of mobile banking applications have a positive and a significant impact on loyalty.*

3.3.8 Control variables, intention to use mobile banking applications and continued usage of mobile banking applications

It is important to study the influence of perceived risk and perceived trust as variables mediating the relationship between intention to use and continued usage of m-banking applications. In order to reduce the confounding effect on the empirical findings, perceived risk and perceived trust were included as control variables in the study to control for alternative explanations in intention to use and continued usage of m-banking applications. Due to the nature of m-banking, it involves substantial uncertainties and risks (Nguyen & Nguyen, 2020) associated with using a system. Previous studies by

Thusi, Red and Maduku (2019); Van, Pham, Williamson, Huong, Hoa and Tran (2020) include perceived risk and perceived trust as control variables to determine their influence on the continued intention to use m-banking.

Empirical findings by Erdem, Pala, Özkan and Sevim (2019) highlight that the intention to use mobile banking has a strong relationship with perceived benefit and perceived risk, which can cause actual use of mobile banking. This, therefore, implies that if a user perceives some level of uncertainty and high risk owing to system hacking, a user would be discouraged to use m-banking. For one to intend to use a system, a user needs to build trust to use m-banking. Trust is perceived to be the second strongest factor in predicting the behavioural intention to use and a crucial influencer of behavioural intention to use a technology due to its inverse association with risk (Hossain, 2019; Sharma, 2019).

For the above-mentioned reasons, it is considered appropriate to propose the following hypotheses;

H_9: *Perceived risk and perceived trust will have a direct influence on intention to use mobile banking applications*

H_{10}: *Perceived risk and perceived trust will have a direct influence on continued usage of mobile banking applications*

3.4 CHAPTER SUMMARY

This chapter deliberated the empirical literature review of the conceptualised model for the research study that constitutes the dissertation. The review aimed to draw relevant insights for the development of a conceptual model of the study. It presented the relationships among variables that have been hypothesised in the conceptual model of the study. Previous researches were examined and from their conclusions, hypotheses were developed using the predictor, the mediator, control and the outcome variable. Given the above insights and key conclusions included by the research gap identified from the review of the literature in Chapter 1, the next chapter elaborates on the research design and methodology.

CHAPTER 4

RESEARCH METHODOLOGY AND DESIGN

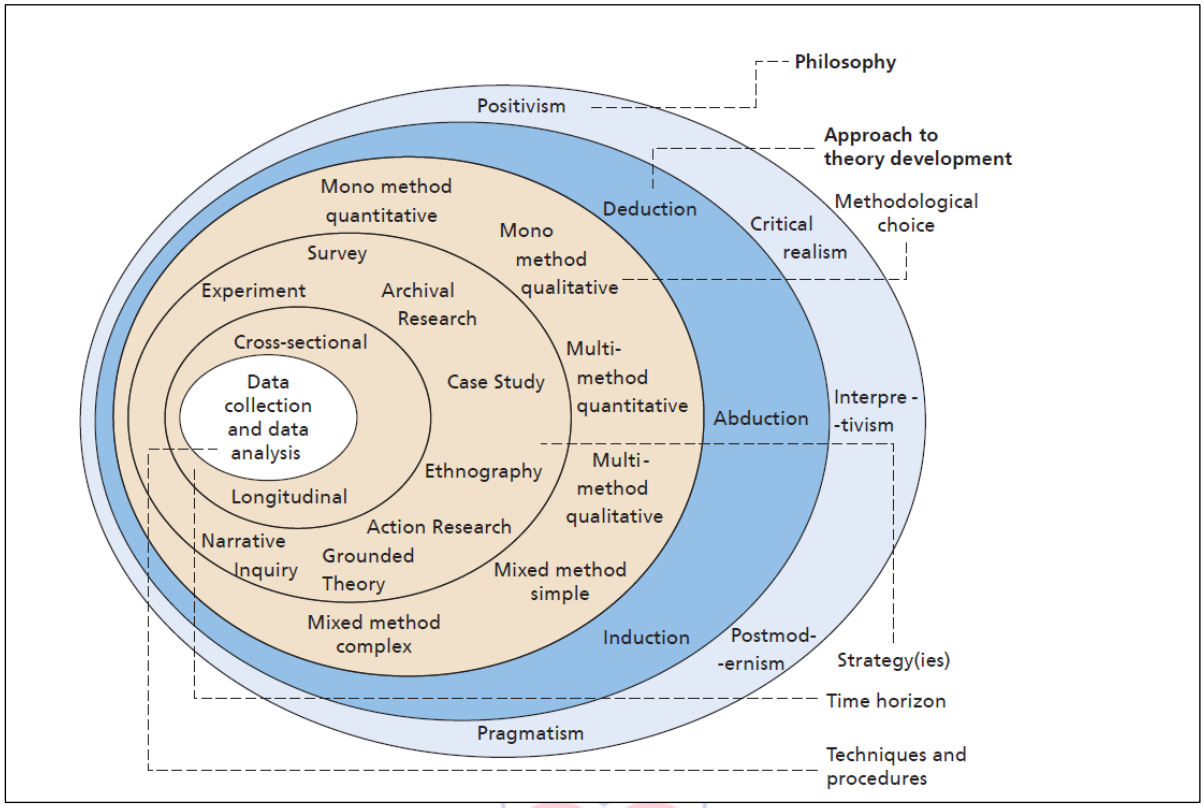
4. INTRODUCTION

Chapter 4 discusses the research methodology and design application adopted for the study. Research methodology has been developed over years and represents a systematic procedure of collecting information, guided by a philosophical approach consisting of techniques and procedures for collecting, analysing and concluding data collected. In this chapter, an overview of the research methodology adopted to realise the primary objective of the study is presented. Chapter 4 outlines the research philosophy, research design, population and sample, sampling technique, data collection and analysis, reliability and validity testing, path modelling and ethical considerations.

4.1 RESEARCH METHODOLOGY

Methodology is defined as a method used in conducting an investigation by Antwi and Hamza (2015). The fundamental question related to methodology is "How does one go about acquiring knowledge? (Lincoln & Guba, 2013). To structure the discussion, the use of the research onion principle is espoused in this chapter. The research onion principle was developed by Saunders, Lewis and Thornhill (2012) and provides an illustrative overview of the stages that are to be undertaken by a researcher when conducting a research process. Figure 4.1 provides an outline of the research onion principle.

Figure 4.1: Research onion principle



Source: Saunders, Lewis and Thornhill (2012)

In the following sections, the research philosophy, design and strategy adopted for the study are discussed. Moreover, the target population, sampling, data collection and analyses are also discussed.

4.2 RESEARCH PHILOSOPHY

The term research philosophy refers to a system of beliefs and assumptions about the development of knowledge (Saunders, Lewis & Thornhill, 2019). There are several philosophies available for researchers, namely interpretivism, realism, objectivism and positivism. Kivunja and Kuyini (2017) posits how research philosophy exists from the paradigm that a set of rules and procedures are followed in order to develop an outcome which evaluates intellect claims. Furthermore, Antila (2013), explains research philosophy as a conviction around how information about a phenomenon ought to be accumulated, analysed and utilised. Saunders, Lewis and Thornhill (2019) explain how the research philosophy adopted by a researcher contains important assumptions about the way in which a researcher views the world. From the several philosophies available for researchers, a positivist philosophical standpoint was deemed appropriate for this research.

4.2.1 Positivism

Positivism is rationally concerned with the achievement of learning, procured by acknowledged methodology, about noticeable phenomena as Johnston (2016) highlights. Petty, Thomson and Stew (2012), explain positivism from an observational writing perspective as a relentless reality that can be evaluated and seen in an exhaustive and deliberate approach to create target information. Lincoln and Guba (2013), express how with positivism, there is a solitary substantial reality out there fragmentable into autonomous factors and procedures, any of which can be considered independently of the others. The significance of adopting the positivist philosophical paradigm for this study is in line with the research aim, which is to quantitatively or statistically test the proposed conceptual model. In addition, the constructs of interests in the study can be objectively measured using scales adapted from previous and well-established studies.

Further justification for the adoption of a positivism paradigm includes that knowledge is gained through measurements and its trustworthiness. In addition, it is suitable for quantitative studies, appropriate where statistical analysis is involved and does not allow the expression of the researcher's feelings (Saunders *et al.,* 2012) making the research more objective than subjective. Most importantly adopting a positivism paradigm ensures that a researcher remains neutral and detached from the research and data, avoiding influencing the findings (Saunders *et al.,* 2019) and ensuring that the research is undertaken, as far as possible, in a value-free way. The positivist paradigm is appropriate for this study because it allows information to be gathered through measurements that are in line with the requirements of quantitative descriptive research design (Burns, Veeck & Bush, 2017).

4.2.2 Deductive approach

There are three types of approaches to research, namely deductive, inductive and abduction (Saunders *et al.,* 2019). The deductive approach is built from the positivism paradigm (Lincoln & Guba, 2013) which is similarly sought after in the present investigation. According to Saunders *et al.* (2019), a deductive approach involves the development of a theory that is then subjected to a rigorous test through a series of propositions. Lee *et al.* (2014) also posit how deductive methodologies include the utilisation of theories into practice. A deductive approach supports objectives for empirical testing relationships between variables, as hypothesised in the conceptual model for the study, seeking to explain the causal relationships between concepts and variables (Saunders *et al.,* 2019), which inductive approach does not accommodate. For the purpose of this study, a deductive research approach was adopted.

4.2.3 Quantitative research

The positivist paradigm and deductive approach are related to quantitative research (Saunders *et al.,* 2019). Quantitative research examines relationships between variables, which are measured numerically and analysed using a range of statistical and graphical techniques, as Saunders *et al.* (2019) state. Furthermore, Westerman (2014) elucidates how quantitative research utilises strategies that join solid determinations of a specific phenomenon being researched. It is an approach that utilise methods and procedures to gather data and does this under controlled conditions using objectivity through statistical examination (Polit & Hungler, 2014).

A quantitative method includes variables such as respondents, figures and quantities (Babbie, 2013). Babin and Zikmund (2016) also posit that results obtained through a positivist research paradigm are quantifiable which informs this research to espouse a quantitative descriptive research approach. Consequentially, the choice of a quantitative descriptive research approach is preferred for its objectivity since the role of the researcher is limited to data collection and interpretation of results (Sekaran & Bougie, 2016). The study investigates the relationship between predictor, mediator and the outcome variables therefore determining the causal relationship between variables. Quantitative methodologies allow the researcher to analyse data with the aim of validating or rejecting the relationship between the predictor, mediator and outcome variables. In addition a quantitative research approach enhances the accuracy of results through statistical analysis and avoids the elements of subjectivity associated with the qualitative approach.

4.3 RESEARCH DESIGN

The main purpose of research design is to ensure that accurate information is obtained, information is usable, interpretable and objective. According to Bryman (2012), research design is a thorough plan used to outline the methods and procedures that are followed when collecting and analysing information. Saunders *et al.* (2016) further expands the research design as the general plan that answers the research question(s). The research plan also includes the type of research approach to be followed, the sampling process and the data analysis. The above-mentioned factors influence on the validity of the study. In their study, Krommenhoek and Galpin (2013), highlight that the methodology in research design needs to be suitable for the study in question in order to draw constructive conclusions. It is therefore important for a research design to answer the following questions;

- How data will be collected?
- What data collection instrument will be used?

- How the collection instrument will be utilised?
- How the data will be analysed?

4.3.1 Sampling design

Sampling design looks at aspects such as clear explanation of the target population, selecting the sample frame, choosing a sampling technique, determining the sample size, collecting the data and assessing the response rate (Taherdoost, 2016). According to Jawale (2012), a sample design is a definite plan to determine any data is actually collected for obtaining sample from a given population by a researcher. Sampling design is a systematic procedure of who and where the respondents will be drawn from and an important tool as well as a flexible method of data collection. In this study, the sampling design is centred on target population, sample size and sampling method.

4.3.2 Sampling design process

A researcher can face different constraints during the research process. Therefore, researchers cannot collect data from every member of the population, due to a number of constraints which include funds and sufficient time to cover large populations (Krommenhoek & Galpin, 2013). The research under study followed a positivist paradigm, therefore, justifying why a sample size from the larger population can be used to draw conclusions and recommendations.

4.3.3 Sampling method

There are two main types of sample designs used in research, namely probability and non-probability sampling (Zeeman, 2013). With probability sampling, every individual has an equal chance of participating in the research whilst non-probability sampling is the exact opposite, where the sample is not chosen by means of random selection (Neuman, 2014). Saunders et al. (2019), highlights how non-probability sampling provides a range of alternative techniques to select samples, the majority of which include an element of subjective judgement. Non-probability sampling has its strength in the area of convenience (Malhotra, 2019). The methods of non-probability sampling are convenience samples, judgement samples, quota samples and snowball sampling (Zikmund, Babin, Carr & Griffin, 2013).

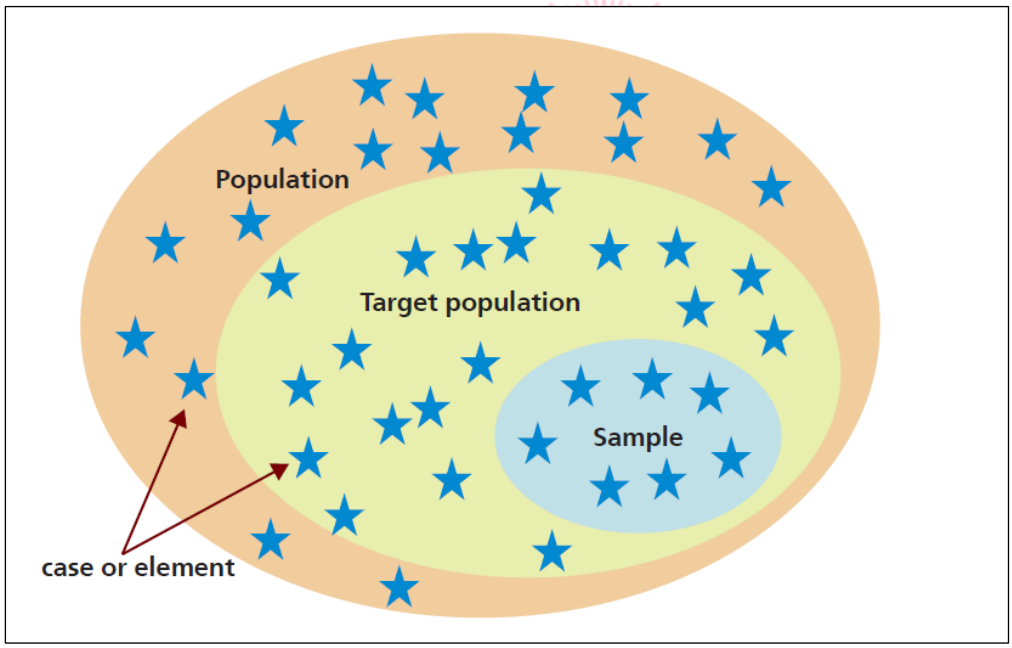
Convenience sampling is a technique that allows the collection of data from the first available data source (Saunders *et al.,* 2016). For the purpose of this study, convenience sampling, which is a non-probability sampling technique, was applied as it deemed not to compromise the quality of research since the sample is facing similar conditions in a competitive market environment (Malhotra, 2019). In addition, convenience sampling is deemed appropriate due to its cost-effectiveness and timeous

impact. The reason for leaving out some non-probability sampling methods such as snowball sampling, for example, is because m-banking application users are not a small, specialised target population in Zimbabwe. Therefore, snowball sampling and others were not appropriate sampling techniques for this study.

4.3.4 Target population

A population is the full set of cases or elements from which a sample is taken (Saunders *et al.,* 2019). A researcher can then redefine the population as something more manageable, which is often a subset of the population and is called the target population (Saunders *et al.,* 2019). Bryman and Bell (2011) describe a target population as a fragment from which a sample has been chosen, representative of the area of study, as well as designated specifications. The relationship between the population, target population and sample is depicted in Figure 4.2.

Figure 4.2: Population, target population, sample



Source: Saunders, Lewis and Thornhill (2019)

The target population for this study was restricted to m-banking application users from Zimbabwean banks. The study was also restricted to participants over the age of 18 years.

4.3.5 Sample frame

Once the target population has been defined, it is important for a researcher to establish the sample frame. According to Taherdoost (2016), a sampling frame is a list of the actual cases from which sample will be drawn similar to Zikmund, Babin, Carr and Griffin (2013). The sample frame for the study consisted of users from Zimbabwean banks with m-banking applications and that have used any m-banking applications over the past year. The participants of the study were selected randomly through the banks and digital platforms.

4.3.6 Sample size

Sample size is defined as the number of individuals represented in the sample (Neuman, 2014). The sample size is a significant feature of any empirical study in which the goal is to make inferences about a population from a sample (Taherdoost, 2017). Therefore, In order to generalise from a random sample and avoid sampling errors or biases, a random sample needs to be of adequate size. The historical evidence method was used as a comparative analysis as Berg, Lune and Lune (2004) notes to determine the required sample size. Table 4.1 outlines previous studies centred on m-banking and the sample sizes used.

Table 4.1: Sample size

Source	Year	Sample Size
Alalwan, Dwivedi and Rana	2017	343
Boonsiritomachai and Pitchayadejanant	2017	480
Mehrad and Mohammadi	2017	384
Hamidi and Safareeyeh	2019	243
Shankar and Rishi	2020	432
Average		**377**

Source: Author's compilation

Therefore, deducing from the above table, the historical evidence approach was used to determine the sample size for this research (Zikmund *et al.,* 2013). The sample size of 377 was deemed adequate as an average of the above previous studies of m-banking. The sample also considered time constraints and the duration an individual participant would take to complete the questionnaire.

4.4 QUESTIONNAIRE DESIGN

The survey approach was implemented for this study. A survey is defined by Zikmund *et al.* (2013) as a method of collecting primary data based on communication with a representative sample of individuals. Surveys provide a quick, inexpensive, efficient and accurate means of assessing information about a population as Zikmund *et al.* (2013) highlight. A questionnaire is a form of survey and one of the most widely used data collection methods within the survey strategy (Saunders *et al.,* 2019). A questionnaire is defined as a method of data collection in which each person is asked to respond to the same set of questions in a predetermined order (De Vaus, 2014). For this study, an online questionnaire, designed in an ethical manner, was used. The questionnaire was structured, based on a five-point Likert scale, using a combination of closed ended questions to get a quick, honest response from the participants. The participant's identity remained anonymous and the benefits of using a questionnaire were that it was inexpensive, did not consume a lot of time and was sufficient for the study.

4.4.1 Respondents profile information

The questionnaire was divided into three sections. Section A consisted of the general, profile and demographic information of the participants. This included gender, age within a given range and employment status. Section B focused on questions relating to the mobile banking application beliefs. Section C focused on questions related to the research variables. The research variables, effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, intention to use, continued usage, perceived risk, perceived trust, e-WOM) and loyalty were evaluated.

4.4.2 Research variables measurement instrument, scale and source

The questionnaire design process can be expedited by searching for questionnaires and target questions that were used by other researchers to collect data (Wong, Ong & Kuek, 2012). Previous research from Saunders *et al.* (2019) posits three ways in which researchers' can design target questions; adopt questions used in other established questionnaires, adapt questions used in other questionnaires or design new questions. This study adopted scales from previous empirical studies and adapted them to fit the context of the study based on their sound effectiveness and quality (Al Kindy *et al.,* 2016; Korb, 2012). The adaptation of scale items assist researchers to save time and energy necessary to develop a new instrument since the instrument has already been validated (Mat, 2017) and further make reliability comparisons by operationalising variables and Cronbach alpha that have been tested in previous empirical research (Mohajan, 2017; Taber, 2018). Table 4.2 presents the

study's constructs or variables of interest, the development of scale items in the context of this study and Cronbach alpha from adapted measurement scales.

Table 4.2: Development of measurement scales

Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Effort Expectancy (EE) (4 items)				
EE1	I find mobile banking application X easy to use	Adapted	Baptista and Oliveira (2015) Venkatesh *et al.* (2012) Oliveira *et al.* (2014)	0.939
EE2	Learning how to use mobile banking application X is easy for me			
EE3	It is easy to login in the mobile banking application X			
EE4	It is easy for me to become skilful at using mobile banking application X			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Social Influence (SI) (3 items)				
SI1	People who are important to me think that I should use mobile banking application X	Adapted	Baptista and Oliveira (2015) Venkatesh *et al.* (2012)	0.845
SI2	People who influence my behaviour think that I should use mobile banking application X			
SI3	The use of Mobile banking application X is a status symbol in my environment			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Perceived Enjoyment (PE) (3 items)				
PE1	Using mobile banking application X is rather pleasant	Adapted	Koenig-Lewis *et al.* (2015) Alalwan *et al.* (2018)	0.79
PE2	The mobile banking procedure is rather enjoyable			
PE3	Using mobile banking application X is enjoyable			

Construct, scale item		Origin	Literature reference	Cronbach's alpha
User Experience (UX) (4 items)				
UX1	My experience with using mobile banking application X is better than I expected.	Adapted	Zhou and Liu (2014) Zhou (2012)	**0.83**
UX2	The service level provided by mobile banking is better than I expected			
UX3	Mobile banking application X is user friendly			
UX4	Mobile banking application X is easy to navigate			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Perceived Interaction (PI) (3 items)				
PI1	My interaction with Mobile banking application X is understandable	Adapted	Baptista & Oliveira (2015) Sarfaraz (2017) Mohammadi (2015)	0.939
PI2	Interaction with mobile banking application X is easy for me			
PI3	Interaction with mobile banking application X does not require a lot of mental effort			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Intention to use (ITU) (3 items)				
ITU1	I will use mobile banking application X for my banking needs	Adapted	Mohammadi (2015) Venkatesh and Zhang (2010)	0.940
ITU2	I am likely to use mobile banking application X in the near future			
ITU3	I intend to use mobile banking application X in the next 30 days			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Continued usage (CU) (4 items)				
CU1	I intend to keep using mobile banking application X in the next 12 months	Adapted	Maduku (2014) Zhou (2013)	0.811
CU2	I plan to continue using mobile banking application X frequently			
CU3	I will use mobile banking application X regularly in the future			

CU4	My intentions are to continue using mobile banking X than use any alternative means			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Perceived Risk (PR) (4 Items)				
PR1	Information concerning my transactions whilst using the mobile banking application X can be tampered with by others	Adapted	Poromatikul *et al.* (2019)	0.842
PR2	I think mobile banking applications put personal details at risk for confidentiality			
PR3	I think using mobile banking application X is risky			
PR4	I think mobile banking application X is more risker than other banking options			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Perceived Trust (PT) (3 items)				
PT1	I believe that mobile banking application X is trustworthy	Adapted	Sharma (2019) Alalwan *et al.* (2018)	0.948
PT2	The transactions of Mobile banking application X are safe			
PT3	The transactions of Mobile banking application X are reliable			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Electronic Word of Mouth (EWOM) (3 Items)				
EWOM1	I will talk about the strengths of mobile application X to my network	Adapted	Mehrad and Mohammadi (2017) Cheung and Lee (2012)	0.877
EWOM2	I will talk about the positive attributes of mobile banking application X			
EWOM3	I intend to share my mobile banking application experiences with other people			
Construct, scale item		**Origin**	**Literature reference**	**Cronbach's alpha**
Loyalty (LOY) (4 Items)				

LOY1	I will recommend using mobile banking application X to other people		Mokhtar *et al.* (2018)	0.748
LOY2	I often tell positive things about my bank to other people			
LOY3	I am satisfied with the service of mobile banking application X			
LOY4	I shall continue to do more banking with my mobile banking application X			

Source: Developed by the researcher (2022)

4.4.3 Questionnaire distribution and collection method

The online questionnaire was distributed and collected electronically. Potential respondents were informed of the study through electronic mail (e-mail). The questionnaire was accompanied by an informed consent that explained the purpose of the study and the rights of respondents to participate willingly. Customers were instructed to sign informed consent if they were willing to participate in the study. The researcher received assistance from the sampling frame of banking firms with m-banking applications on the questionnaire distribution to customers. The personal data were collected and used in accordance with the Data Protection legislation (Information Commissioner's Office [ICO], 2020).

4. 5 DATA COLLECTION

4.5.1 Data collection techniques

When carrying out a research, it is important that all information collection techniques especially from the least difficult to the most complex be dealt with balance and respect. According to Babbie (2013), data collection data can be collected numerically (quantitative) or by means of words or pictures (qualitative). There are three common methods of data collection relating to quantitative research namely; interviewing, observation and self-completed questionnaires (Bryman, 2012). The study focused on quantitative research, by means of a questionnaire. This technique is also commonly classified as a survey. Neuman (2014) elucidates that a survey refers to asking many respondents to answer chronological questions to measure several variables and test hypotheses. For this study, an online questionnaire was used.

4.6 DATA ANALYSIS

The study makes use of two types of software for data analysis. First, the latest version of Statistical Package for Social Sciences (SPSS) version 28 was used for descriptive statistics. Secondly, the testing

of the conceptual model was conducted using the variance-based structural equation modelling software SmartPLS version 3.2.9.

4.6.1 Descriptive statistics

Descriptive statistics comprise statistical procedures used to summarise data in an organised manner by describing the relationship between variables in a sample or population as defined by Cooksey (2020) and Kaur, Stoltzfus and Yellapu (2018). Descriptive statistics for research purposes include variation measures (standard deviation, range), portions (percentages), counts (numbers, frequencies) and central tendency (median, mean and mode) (Conner & Johnson, 2017; Mishra, Pandey, Singh, Gupta, Sahu & Keshri, 2019). For this study, means, frequency distributions, cross-tabulations and standard deviations were generated from the data collected and further analysed in Chapter 5. The frequency distributions were used to obtain the number of responses associated with different values of the variables in the data set. Accordingly, Conner and Johnson (2017) highlights that the mean and standard deviation as the most commonly used descriptive statistical measures for continuance data in empirical studies. This study adopted the mean to provide the arithmetic averages of the sample responses for open-ended questions capturing continuous data. The mean is calculated using the formula indicated in Figure 4.3:

Figure 4.3 Mean formula

$$\text{Mean, } \bar{x} = \frac{\sum x}{n}$$

Source: Ali and Bhaskar (2016)

Where:

x = each observation

n = number of observations

In contrast, standard deviation (SD) measures the average distance of each data point from the mean of the data set as Conner and Johnson (2017) outline. The majority of studies collect data from a small sample to represent the whole population. Due to this, different sets of values could be the outcome

with slightly different means, hence essential to test for SD. Cooksey (2020) elucidates SD as the most commonly used measure of variability. Mishra, Pandey, Singh, Gupta, Sahu and Keshri (2019) state that the standard deviation takes a standard value (mean) to measures the dispersion. Researchers use the sample mean to estimate the mean for the whole population since studies can therefore generalise the data outcome to that of the entire population (Conner & Johnson, 2017; Cooksey, 2020; Kaur *et al.,* 2018). Cooksey (2020) enunciates how SD is a very important measure, not only for data description, but also for hypothesis testing and the establishment of relationships as well. The calculation of SD is demonstrated in Figure 4.4:

Figure 4.4 Standard deviation formula

$$s = \sqrt{\frac{\sum_{i=1}^{n} (x_i - \overline{x})^2}{n-1}}$$

Source: Mishra, Pandey, Singh, Gupta, Sahu and Keshri (2019)

Where:

x takes each value in the set;

$\bar{X}$ = the average of the set of values;

n = the number of values.

The next sub-section presents a discussion on the measurement of the model.

4.6.2 Assessment of the measurement model testing of the main effects

The study made use of variance-based PLS-SEM as the software to test the main effect hypotheses and the mediation hypotheses. According to Hair, Hult, Ringle, Sarstedt, Danks and Ray (2021) PLS-SEM is a two-stage process, first, the outer model is assessed and then the inner model. The inner model specifies the relationships between the independent and dependent latent variables, whereas the outer model specifies the relationships between the latent variables and their observed indicators (Wong, 2013). The justification of using PLS-SEM is because researchers recommend it in studies that involve predictive circumstances and when cause-effect-relationship models that are complex exist (Sarstedt, Ringle & Hair, 2017). In addition, PLS-SEM is also deemed appropriate in instances in which data is not normally distributed (Wong, 2013). Furthermore, it is less restrictive than other software

in terms of sample size, distributional assumption and model complexity (Ravand & Baghaei, 2016), it was thus justified to make use of PLS-SEM. In this study, the SmartPLS version 3.2.9 is adopted for use.

4.6.3 Assessment of the measurement model (outer model)

The construct validity was assessed by examining the measurement model for internal reliability consistency, convergent validity and discriminant validity. Sürücü and Maslakçı (2020) define construct validity as "the degree to which the instrument measures the concept, behaviour, idea or quality that is, a theoretical construct that it purports to measure." Whilst, Heale and Twycross (2015) explain construct validity as the extent to which a research instrument (or tool) measures the intended construct. Construct validity is widely used in research and is based on the logical relationships between variables (Sürücü & Maslakçı, 2020). Construct validity can be assessed by evaluating the internal consistency reliability of the set of items measuring each construct (Brown, 2015) and the convergent and discriminant validity of the measurement model by conducting a confirmatory factor analysis (CFA) (Sujati & Akhyar, 2020). CFA depicts the pattern of observed variables for those latent construct hypothesised model (Abrahim, Mir, Suhara, Mohamed & Sato, 2019; Tentama & Anindita, 2020).

4.6.4 Testing for internal reliability consistency of the measurement model

Reliability is defined by Lakshmi and Mohideen (2013) as the extent to which data collection techniques or analysis procedures yield consistent findings. In agreement, Sürücü and Maslakçı (2020) emphasise that reliability indicates the internal consistency of a measuring instrument when applied at different times. The main purpose of establishing reliability in research is to provide consistent results, ensure that data is sound and replicable and minimise errors and bias (Mohajan, 2017). The evidence for internal consistency reliability is when the Cronbach's alpha and the composite reliability (CR) value for each construct is higher than 0.7 (Heale & Twycross, 2015; Taherdoost, 2016b; Tentama & Anindita, 2020).

4.6.5 Cronbach's alpha reliability test

The Cronbach's alpha coefficient (α), was developed in 1951 by Lee Cronbach (1951) to offer a measure of the internal consistency of a test or scale (Sürücü & Maslakçı, 2020). It is expressed as a number between 0 and 1. Cronbach alpha is mostly used when there are multiple Likert questions in a questionnaire from a scale and when the researcher needs to determine whether that scale is reliable (Taherdoost, 2016a). Table 4.3 presents commonly used guidelines in assessing the reliability of constructs. The actual results of the reliability tests in this study are shown in the results chapter (see Chapter 5).

Table 4.3: Cronbach's alpha (α) interpretation and values

Cronbach's alpha coefficient	Internal consistency "reliability"
$\alpha \geq 0.9$	**Excellent**
$0.9 > \alpha \geq 0.8$	**Good**
$0.8 > \alpha \geq 0.7$	**Acceptable**
$0.7 > \alpha \geq 0.6$	**Questionable**
$0.6 > \alpha \geq 0.5$	**Poor**
$0.5 > \alpha$	**Unacceptable**

Source: Sharma (2016)

An important property of the co-efficient alpha is that its value tends to increase with an increase in the number of scale items in the research instrument (Taber, 2018). Based on Table 4.3, it can be deduced that a large alpha value indicates a high-reliability score, whereas scores close to zero would indicate that the instrument's reliability is relatively low (Taherdoost, 2016b) and in some instances, unacceptable.

4.6.6 Composite reliability (CR) test

Composite reliability (CR) test is a metric that assists researchers in assessing the internal consistency reliability of the constructs proposed in a research instrument (Hair *et al.,* 2021). Composite reliability provides a robust measure of reliability by taking into account the contribution of each latent factor to each item and each item's error as Tentama and Anindita (2020) explain. Similar, to Cronbach's alpha, the CR test ranges from 0 to 1, where high values (from 0.80 to 0.90) indicate higher reliability (Sujati & Akhyar, 2020). In empirical studies, CR values of 0.60 to 0.70 are acceptable (Hamid *et al.,* 2017). In more advanced stages of research, values between the range of 0.70 and 0.90 can be accepted and deemed satisfactory. In contrast, values above 0.90 are not to be acceptable because they mean that the indicator variables are most likely measuring the same phenomenon and thus lack validity in the measurement of the construct (Hamid *et al.,* 2017).

In comparison to Cronbach's alpha, CR is considered a more accurate approach in assessing reliability in SEM because it takes separate reliabilities for individual items into account, indicating that all the items included in the calculation are weighted equally (Hair *et al.,* 2014; Peterson & Kim, 2013). Henceforth, due to the limitations posed by only depending on the use of Cronbach alpha, internal consistency reliability is better measured using CR (Hair *et al.,* 2014). Ringle, Sarstedt, Mitchell and Gudergan (2020) further explain that the minimum accepted CR values should be 0.70. True reliability

lies between Cronbach's alpha and CR (Hair *et al.,*2014; Hamid *et al.,* 2017). The formula adopted in measuring CR is illustrated in Figure 4.5:

Figure 4.5 Composite reliability formula

$$CR = \frac{\left(\sum_{i=1}^{k} \lambda_i\right)^2}{\left(\sum_{i=1}^{k} \lambda_i\right)^2 + \sum_{i=1}^{k} - \lambda_i^2}$$

Source: Sürücü and Maslakçı (2020)

Where:

K= number of observed variables

λ_i = represents the factor loading of item *i* onto a single common factor.

4.6.7 Assessing the validity of the measurement model

Validity refers to whether the measuring instrument measures the behaviour or quality it is intended to measure and is a measure of how well the measuring instrument performs its function (Sürücü & Maslakçı, 2020). There are various general forms or classes of validity estimates; for example, the average variance extracted (AVE) tests and convergent and discriminant validity. Construct validity can thus be confirmed by presenting evidence of convergent validity and discriminant validity, in addition to internal consistency reliability (Taherdoost, 2016a). Convergent and discriminant validity are common techniques adopted to evaluate the outer model. Convergent validity and discriminant validity are discussed further in the next sub-sections.

4.6.8 Assessment of the convergent validity of the measurement model

Convergent validity is defined by Hair *et al.* (2019) as the extent to which the formative construct correlates positively with an alternative measure (reflective, single or multi-item) of the same construct. Heale and Twycross (2015) elucidates that convergent validity shows how an instrument is highly correlated with instruments measuring similar variables. Whilst, Mohajan (2017) and Sujati and Akhyar (2020) postulate that convergent validity is used as an indication that the instruments used for a particular construct in a study are at least moderately correlated among themselves, to the point that poor convergent validity may imply that there is a need for the conceptual model to make use of

more constructs. Therefore, for adequate convergent validity to test the measurement model for discriminant validity, (1) the outer loading for each item should exceed 0.7 and be statistically significant and (2) the Average Variance Extracted (AVE) of the constructs should exceed 0.5 (Hamid *et al.,* 2017).

The average variance extracted (AVE) test is also used to measure the validity and consistency of data in research. The AVE test was used to confirm convergent validity. Hair *et al.* (2021) define the AVE as the grand mean value of the squared loadings of the indicators associated with the construct (i.e., the sum of the squared loadings divided by the number of indicators). Shrestha (2021) points out that AVE is a measure of the amount of variance that is taken by a construct in relation to the amount of variance due to measurement error. Therefore, it is measured by dividing the sum of the squared loadings by the number of indicators (Shrestha, 2021; Sürücü & Maslakçı, 2020). The formula used in measuring AVE is presented in Figure 4.6:

Figure 4.6 Average variance extracted formula

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

Source: Shrestha (2021)

Where:

λ_i = standardised outer loading of the indicator variable

n = the number of items

An AVE of 0.50 or higher indicates that the construct explains more than half the variance of the indicators, while an AVE that reveals less than 0.50 indicates that more variances exist in the error of the items than in the variance explained by the construct (Hair *et al.,* 2021; Shrestha, 2021; Sujati & Akhyar, 2020).

4.6.9 Assessment of the discriminant validity of the measurement model

Discriminant validity is established when, two variables are predicted to be uncorrelated and the scores obtained by measuring them are indeed empirically found to be so, that is, to differentiate one group from another (Mohajan, 2017). Discriminant validity was assessed using the heterotrait-

monotrait ratio (HTMT ratio) as Hamid *et al.* (2017) and Hair *et al.* (2021) recommend. Evidence of discriminant validity is when there is a ratio of less than and not more than 0.85 (Henseler *et al.,* 2015; Sujati & Akhyar, 2020). The formula for HTMT is represented in Figure 4.7:

Figure 4.7 Heterotrait-monotrait ratio formula

$$\mathrm{HTMT}_{ij} = \frac{\overline{\sigma_{ij}}}{\sqrt{\overline{\sigma_i}\,\overline{\sigma_j}}}$$

Source: Rönkkö and Cho (2022)

Where:

$\overline{\sigma_i}$ and $\overline{\sigma_j}$ denote the average within scale item correlation

$\overline{\sigma_{ij}}$ denotes the average between scale item correlation for two scales i and j.

The next sub-section provides a discussion on the assessment of the structural model (inner model).

4.6.10 Assessment of the structural model (Inner model)

Once the outer model assessment shows acceptable construct validity, it allows for testing the hypotheses under study. This study makes use of the PLS-SEM, also known as variance-based SEM in testing the inner model. By testing the inner model, it can be ascertained whether to accept or reject the proposed hypotheses for the main effects and the mediation effects.

The inner part of the structural model is made up of relationships that include exogenous and endogenous variables. According to Sarstedt, Ringle and Hair (2017), when a latent variable only serves as an independent variable, it is called an exogenous latent variable. The independent variable(s) influence the model without being affected by it. In this study, the exogenous variables are effort expectancy, social influence, perceived enjoyment, user experience, perceived Interaction and perceived risk and perceived trust as control variables. These variables influence the endogenous variables, which are the dependent variables in a model under study (Sarstedt, Ringle and Hair, 2017). In this study, the endogenous or dependant variables are intention to use, continued usage, e-WOM and loyalty.

Tests were performed to check for the existence of multicollinearity issues. It is necessary to test for multicollinearity in all constructs under study to ensure that the results meet the prescribed thresholds. The establishment of whether there are multicollinearity problems will be done by

evaluating the variance inflation factor (VIF). The VIF values that exceed the value of 5.0 indicate the presence of multicollinearity (Hair *et al.,* 2019; Hamid *et al.,* 2017). Thus, collinearity could threaten the empirical results of the study if they exceed 5.0.

R-squared is a goodness-of-fit measure for linear regression models (Mahendru, 2019). R-squared is a statistical measure of how close the data are to the fitted regression line as defined by Rieuf (2017). R-squared is also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression. This statistic indicates the percentage of the variance in the dependent variable that the independent variables explain collectively. In this study, R-squared measures the strength of the inner model relationships that exist between the antecedents in the conceptual model and the dependent variable on a convenient 0 – 100% scale (Rieuf, 2017). Figure 4.8 depicts how R-squared measures are obtained.

Figure 4.8 R-squared formula

$$R^2 = \text{Explained variation/Total variation}$$

Source: Rieuf (2017)

Where: R^2 is always between the value of 0 and 100%

- 0% represents a model that does not explain any of the variation in the response variable around its mean (Rieuf, 2017). The mean of the dependent variable predicts the dependent variable as well as the regression model.
- 100% represents a model that explains all the variation in the response variable around its mean (Rieuf, 2017).
- Hair *et al.* (2014) proposed a rule of thumb for acceptable R^2 with 0.75, 0.50 and 0.25 described as substantial, moderate and weak respectively.

Given that the hypotheses in this study are directional relationships – in other words, the influence of an independent variable on a dependent variable is stated as positive or negative, the statistical significance of the inner loadings in the inner model was interpreted at $\alpha = 0.05$ (two-tailed test) (Hair *et al.,* 2017). In instances where $p \leq 0.05$, the alternative hypothesis was accepted, but if $p > 0.05$, then the hypothesis was rejected. When making use of PLS-SEM, the p-value is generated using a bootstrapping procedure. Hair *et al.* (2021) postulates how the method of bootstrapping is

nonparametric, which allows for testing the statistical significance of various PLS-SEM results, including path coefficients. Bootstrapping was used in determining the p-value (two-tailed) and the 95% bias-corrected confidence interval. To this end, Hair *et al.* (2019) provide guidelines in which an alternative hypothesis is accepted based on the following criteria:

- p-value ≤ 0.05, two-tailed,
- path coefficient must be in the right direction towards the given hypothesis and
- 95% bias-corrected confidence interval (BCI) must not include '0'. Although the BCI confidence interval is reported for each direct relationship, the BCCI was only used to confirm that statistical significance of the relationship existed if the p-value was close to 0.05

4.7 ETHICAL CONSIDERATIONS

Ethical issues that pertain to research are a major concern for academics and research institutions in general. To address these issues, a policy on ethics is to be followed and implemented to uphold ethical research conduct. Resnik (2020) defines ethics as **"**norms for conduct" that distinguish between acceptable and unacceptable behaviour, greatly determining how the researcher conducts the research activities. Therefore, the researcher obtained ethical clearance to uphold ethical conduct in undertaking the research. Ethical clearance in research aims to guarantee that during the research activities, the researcher does not undertake activities that may harm any party that is involved in the research process – both intentionally and unintentionally (Adhikari, 2020).

The UFS has devised a 'Research Ethics Policy' and Research Ethics Committee, which aims at creating and promoting good ethical practice of conduct in academic research. This has been considered with completing a student's ethical clearance application for research approval, to comply with UFS policies. The application process was conducted over a surmountable timeframe with required documentation submitted to the Research Ethics Committee to review for approval (see Appendix D) In adhering to the ethical conduct prescribed by UFS, all the respondents were well informed of the nature and background of the study and their rights in terms of participation or non-participation.

The university assigned UFS-HSD2022/0491/22 as an ethics clearance number for verification purposes that this study has applied and followed all the due processes for ethical clearance to be granted. The process of obtaining ethical clearance involves the researcher applying for clearance through the respective department and/or faculty. The ethics application form requires general information regarding the study (see Chapter 1*).* The form also focuses on the methodology part of

the study and any interaction between the respondents. The application form is then sent back to the relevant faculty with the following attachments:

- The researcher's proposal (approved by department and faculty),
- ethical risk assessment form,
- research study information leaflet and informed consent form,
- the study questionnaire (see Appendix A*)* and,
- a short CV of all research contributors and/or assistants.

Although there were no issues relating to confidentiality, as respondents' names and identities were not sought, the researcher still made sure that the study followed the requirements stipulated by UFS guidelines. The respondents were reassured of confidentiality in the questionnaire leaflet to alleviate the concerns of those who might not realise that confidentiality threats are absent from the study. Furthermore, due to the respondents' understanding not being checked first-hand, some respondents may partake in the questionnaire that possibly does not fit the targeted group. To ensure that respondents remained within the targeted group, the following procedures were set in place, namely questionnaires were only handed out to the intended m-banking application users, identified through a screening question at the beginning of the online survey and all questionnaires were checked to represent respondents aged 18 and above as the age group does not require consent. The next and final section provides the summary discussion of Chapter 4.

4.8 CHAPTER SUMMARY

This chapter presented the research design and methodology outline. An associated research design was accredited to ensure the goal and objectives of the study were achieved. The statistical technique used was the structural equation modelling (SEM) – where partial least squares software was used to assess both validity and reliability. The account on how thresholds were met, coupled with their ultimate interpretations of the data, were all thoroughly explained. Further to the chapter, data collection, data analysis, model fit and ethical considerations were discussed. In the next chapter, Chapter 5, the findings of the analysed empirical data are described in detail to provide the empirical research result.

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CHAPTER 5

DATA ANALYSES AND DISCUSSION OF RESULTS

5. INTRODUCTION

This chapter provides an overview of the procedures for the data analyses and the results of the analyses. The sample constituted of 377 respondents and data were analysed using Statistical Package for Social Sciences (SPSS) software for descriptive statistics and a partial least squares structural equation modelling for the measurement and structural model analyses.

This chapter is divided into four sections. First, the findings of the descriptive data analyses of the demographic profiles of the respondents are presented. The main results presented in this section include the results of the gender and employment status of the sample. The first section also presents findings about the experience in years and the usage frequency of mobile banking app. Frequencies and percentages are used to present these in tables, pie charts and bar graphs.

Secondly, the chapter presents the descriptive analysis of the study's research constructs: effort expectancy, social influence, perceived enjoyment, user experience, interaction, intention to use, continued usage, perceived risk, perceived trust, e-WOM and loyalty. The percentages and the measures of central tendency (mean) and variability (standard deviation) are used to analyse the distribution of the responses on the measurement scales assessing the instruments.

The third and fourth sections of Chapter 5 present the analyses and the results of the structural equation modelling. These sections present the results of the psychometric properties of the scales in terms of convergent and discriminant validities. Finally, the structural model testing results to assess the hypotheses are presented. The structural equation modelling was based on the partial least squares technique, using SmartPLS version 3.6.

5.1 DESCRIPTIVE STATISTICS OF SAMPLE CHARACTERISTICS AND MEASURES OF THE CONSTRUCTS

The sections below outline the descriptive statistics of the sample and the measures of the constructs employed in the study.

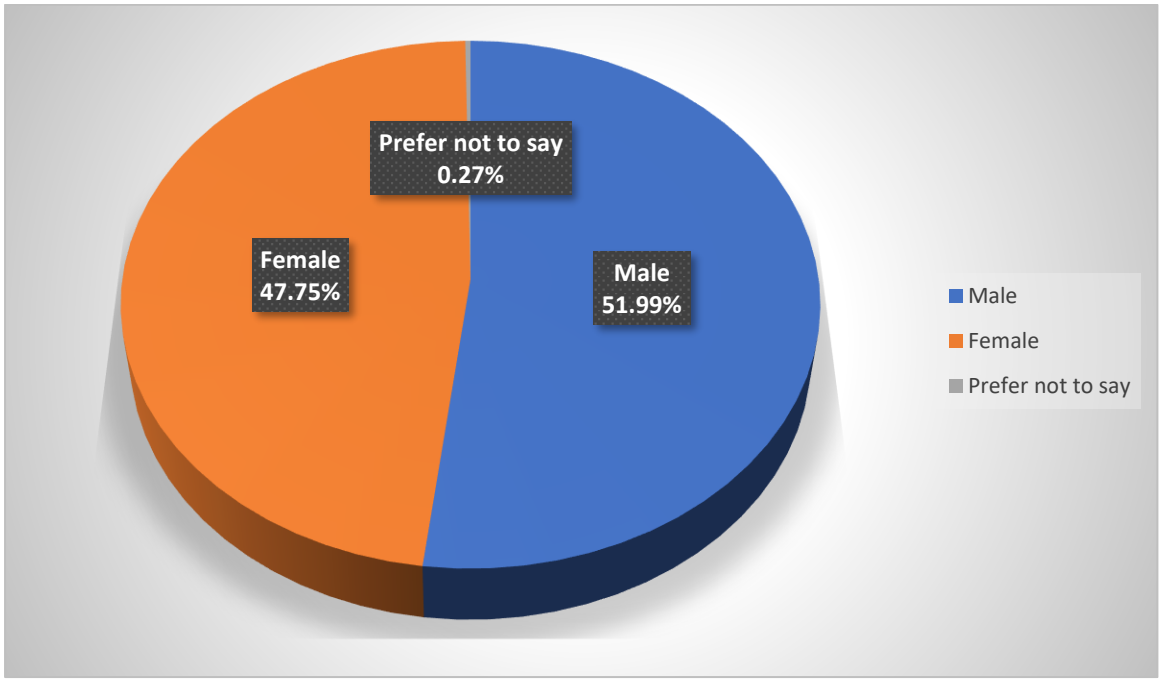
5.1.1 Descriptive statistics of the sample

The sample's descriptive statistics are presented using pie charts and bar graphs. The results are in the sections for gender, age and employment status.

5.1.1.1 Gender

The gender distribution of the sample is illustrated in Figure 5.1. The results indicate that, of 377 respondents, 196 (51.99%) were males, 180 (47.75%) were females and 1 (0.27%) preferred not to indicate their gender. These results, therefore, show that the percentage of male respondents who took part in this survey was slightly higher than that of female respondents.

Figure 5.1 Gender distribution of the sample

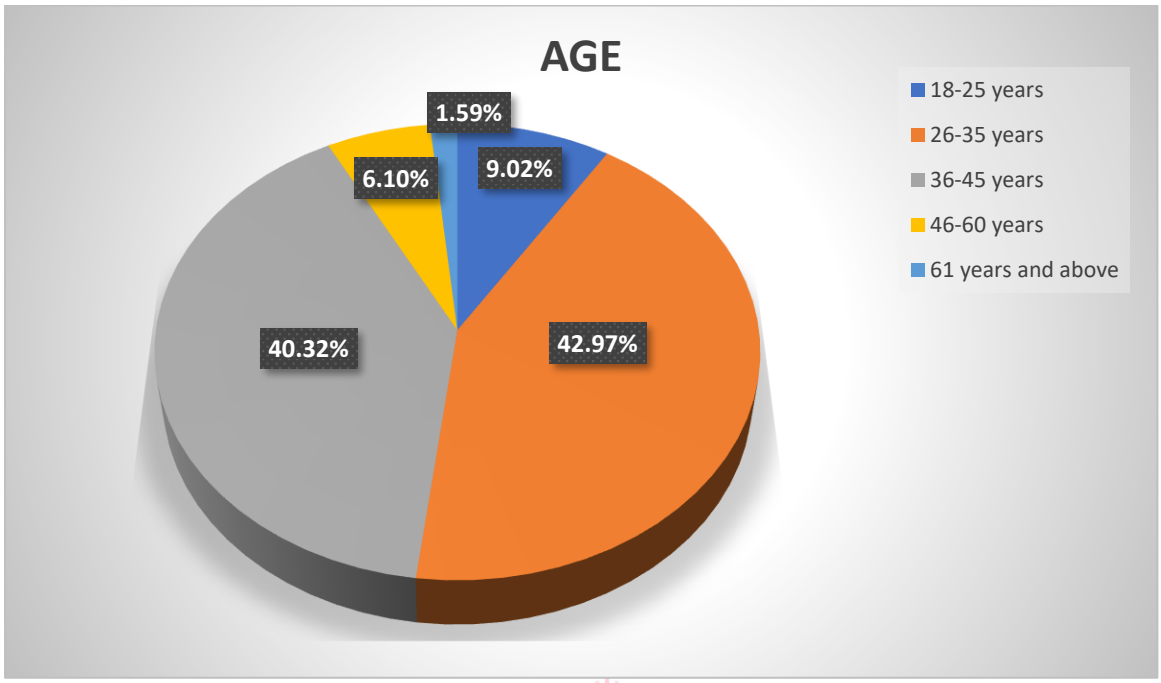


Source: Calculated from survey results

5.1.1.2 Age

The age distribution of the participants is illustrated in Figure 5.2. According to the results, 162 (42.97%) of the participants are aged between 26 and 35 years. The results also show that 152 (40.32%) of the participants are between the ages of 36 and 45 years and 34 (9.02%) are between the ages of 18 and 25 years.

Figure 5.2: Age distribution

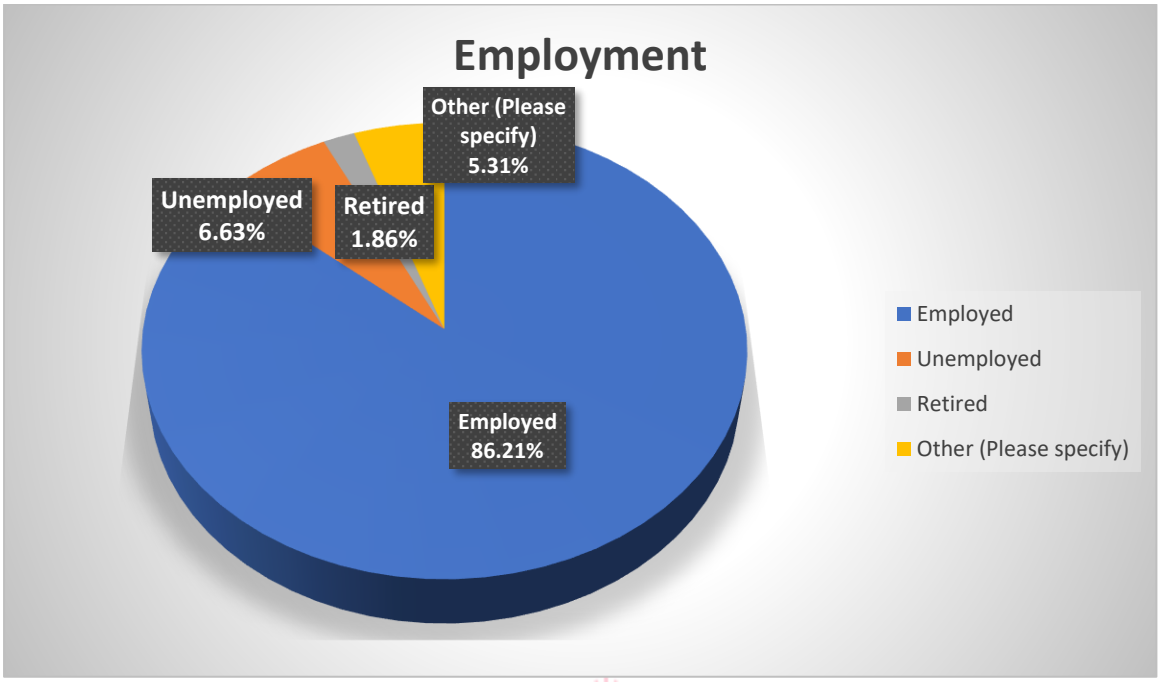


Source: Calculated from survey results

5.1.1.3 Employment status

The employment status of the participants is illustrated in Figure 5.3. According to the results, 325 (86.21%) of the participants are employed. The results also show that 25 (6.63%) of the participants are unemployed, 7 (1.86%) are retired and 20 (5.31%) have other sources of employment.

Figure 5.3 Employment status



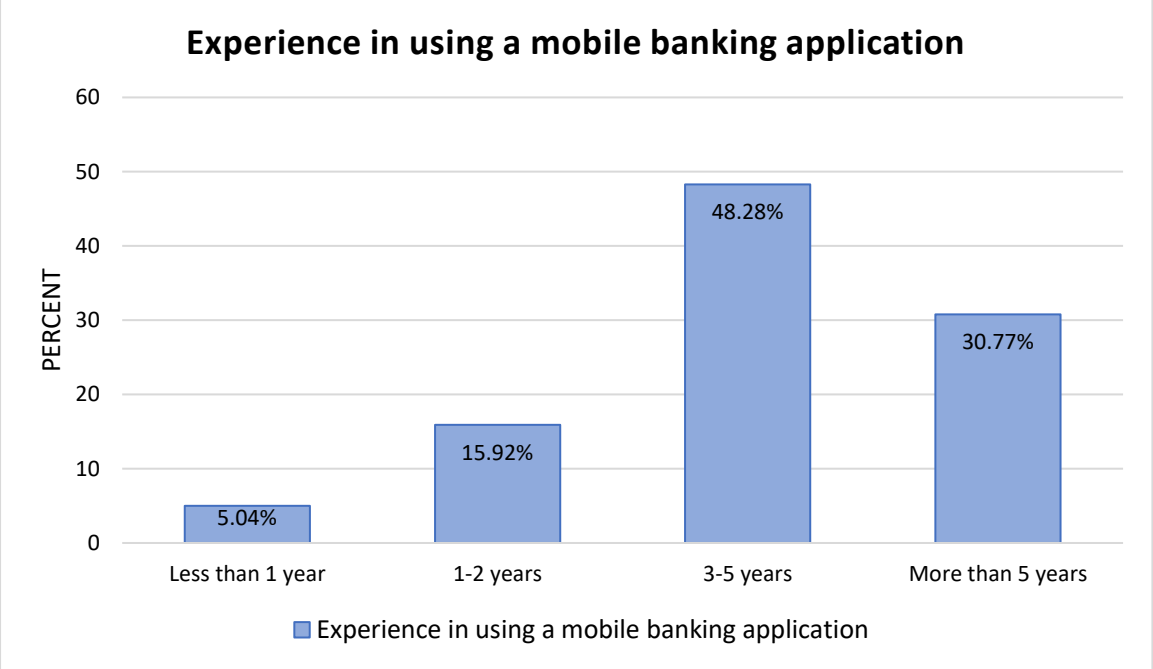
Source: Calculated from survey results

5.1.2 Mobile banking application usage patterns

5.1.2.1 Experience in using mobile banking application

Participants were requested to indicate their experience in using mobile banking application. The results of the analysis are presented in Figure 5.4.

Figure 5.4 Experience in using mobile banking application

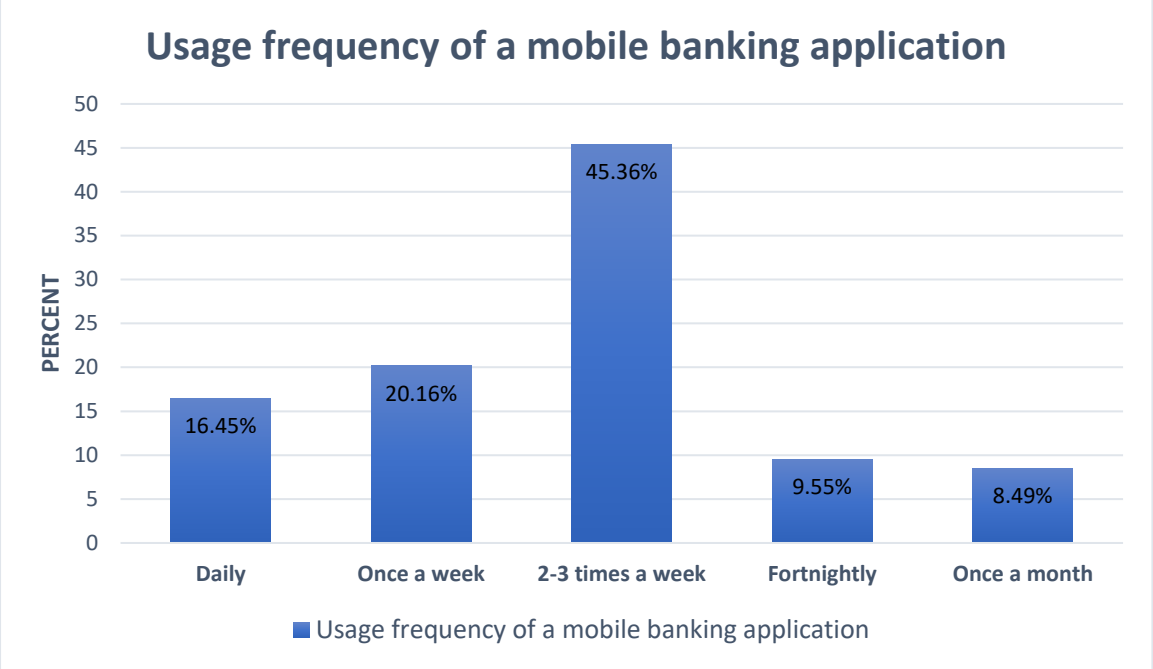


Source: Calculated from survey results

5.1.2.2 Usage frequency of mobile banking application

Participants were also required to specify their frequency of using the mobile banking application. The analysis results are presented in Figure 5.5, showing that most of the participants, 171 (45.4%), use a mobile banking application 2-3 times a week. They were followed by the respondents who stated that they use a mobile banking application once a week – a total of 76 (20.2%); 62 (16.4%) of the respondents said they use a mobile banking application daily, whilst 36 (9.5%) use a mobile banking application fortnightly and 32 (8.5%) use a mobile banking application once a month.

Figure 5.5 Usage frequency of mobile banking application



Source: Calculated from survey results

5.2 DESCRIPTIVE ANALYSIS OF THE MEASURE OF CONSTRUCT

This section discusses the descriptive analysis of the measures of the constructs used in the study. These constructs were effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, intention to use, continued usage, perceived risk, perceived trust, e-WOM and loyalty. The analysis determined the level of respondent's agreement or disagreement for each construct. Tables 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10 and 5.11 report on the basic descriptive statistics comprising the means and standard deviations of the predetermined constructs.

Mean values were computed as the measures of central tendency for this study. The tables 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10 and 5.11 presented below reveal that the mean value for all the items ranges between two and four, indicating that the majority of the respondents had either a disagree standpoint ('2' on the Likert scale) or they agreed ('4' on the Likert scale) with the statements provided. Standard deviation values were computed to measure the variance of responses on each variable. Lee *et al.* (2015) posits that SD is the dispersion of data in a normal distribution and indicates how accurately the mean represents sample data. The relationship between the mean and the standard deviation is that a small estimated standard deviation (SD) denotes that respondents' responses were consistent and that the response distributions lay close to the mean (Lee *et al.,* 2015). Conversely, a large standard deviation indicates that the responses vary, making the response

distribution values fall away from the mean of the distribution data (Hair *et al.,* 2019). Furthermore, the standard deviation value "should be less than 1 but it is recommended to at least include a value of less than 2 to ensure that there is no issue of outliers" (Chuchu & Maziriri, 2020; Merza & Mohammed, 2021).

5.2.1 Effort expectancy

This construct measures the extent to which consumers believe mobile banking applications are easy to learn and require less effort. The results of the descriptive analysis using mean and standard deviation are shown in Table 5.1.

Table 5.1: Descriptive statistical analysis of effort expectancy

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
EE1 (I find mobile banking application X easy to use)	377	4.477	1	5	0.714
EE2 (Learning how to use mobile banking application X is easy for me)	377	4.586	1	5	0.658
EE3 (It is easy to login in the mobile banking application X)	377	4.496	1	5	0.768
EE4 (It is easy for me to become skilful at using mobile banking application X)	377	4.541	1	5	0.659

Source: Calculated from survey results

Effort expectancy, which constituted Section C of the questionnaire, had the highest mean score of 4.586 (Item EE2) and the lowest mean score was 4.477 (Item EE1) giving a range of 0.109. The lowest mean 4.477 (item EE1) indicated that respondents find the mobile banking application easy to use, while results from Section B of the questionnaire highlighted the fact that the highest mean score was 4.586 (Item EE2). Most of the respondents found it easy to use the mobile banking application. Table 5.1 reveals that Item EE3 (it is easy to login in the mobile banking application X) had the highest standard deviation value reported at 0.768 and the lowest standard deviation value was 0.658 (Item EE2). This information indicates that the data points are clustered around the mean. The SD values are below two as Chuchu and Maziriri (2020) and Merza and Mohammed (2021) indicate, indicating that there is no presence of outliers.

5.1.3 Social influence

This construct measures the point to which an individual perceives others must believe they should use mobile banking with the persuasion of others who are important to them. The findings of the descriptive analysis using mean and standard deviation are presented in Table 5.2.

Table 5.2: Descriptive statistical analysis of social influence

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
SI1 (People who are important to me think that I should use mobile banking application X)	377	3.859	1	5	1.05
SI2 (People who influence my behaviour think that I should use mobile banking application X)	377	3.897	1	5	1.039
SI3 (The use of Mobile banking application X is a status symbol in my environment)	377	2.939	1	5	1.323

Source: Calculated from survey results

Social Influence had the highest mean score of 3.897 (Item SI2) and the lowest mean score was 2.939 (Item SI3) giving a range of 0.958. The lowest mean 2.939 (SI3) indicated that respondents disagree that the use of the mobile banking application is a status symbol, while results from the section social influence of the questionnaire highlighted the fact that the highest mean score was 3.897 (Item SI2). Most of the respondents revealed that they agree that people who influence their behaviour think they should the mobile banking application.

Table 5.2 reveals that the social influence scale had the highest standard deviation value reported at 1.323 (Item SI3) and the lowest standard deviation value was 1.039 (Item SI2). This information indicates that the data points are clustered around the mean. The standard deviations were less than 2, indicating that the mean values are a correct reflection of the majority of average perceptions (Chuchu & Maziriri, 2020; Merza & Mohammed, 2021).

5.2.3 Perceived enjoyment

In this study, perceived enjoyment denotes the degree to which the activity of using mobile banking applications is perceived to be enjoyable in its own right apart from any performance consequences

that may be anticipated. The results of the descriptive analysis using mean and standard deviation are presented in Table 5.3.

Table 5.3: Descriptive statistical analysis of perceived enjoyment

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
PE1 (Using mobile banking application X is rather pleasant)	377	4.151	1	5	0.847
PE2 (The mobile banking procedure is rather enjoyable)	377	4.109	1	5	0.812
PE3 (Using mobile banking application X is enjoyable)	377	4.122	1	5	0.805

Source: Calculated from survey results

Perceived enjoyment, which constituted a construct under Section C of the questionnaire, had the highest mean score of 4.151 (Item PE1) and the lowest mean score was 4.109 (Item PE2), giving a range of 0.042. The lowest mean 4.109 (Item PE2) showed that the respondents agreed that the mobile banking procedure is rather enjoyable, while results from the questionnaire for the construct perceived enjoyment highlighted the highest mean score of 4.151 (Item PE1). Most of the respondents admitted that using mobile banking is pleasant and enjoyable. Table 5.3 reveals that perceived enjoyment scale had the highest standard deviation value reported at 0.847 (Item PE1) and the lowest standard deviation value was 0.805 (Item PE3). This information indicates that the data points are clustered around the mean. The standard deviations were less than 2, indicating that the mean values are a correct reflection of the majority of average perceptions, as Maziriri *et al.* (2019) and Merza and Mohammed (2021) outline.

5.2.4 User experience

In this study, user experience is described as how easy it is to use mobile banking application, how pleasant and satisfying the experience is, whether it is useful or not and how well it meets the person's needs. The mean and the standard deviation for the items used to measure the construct are presented in Table 5.4.

Table 5.4: Descriptive statistical analysis of user experience

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
UX1 (My experience with using mobile banking application X is better than I expected)	377	4.05	1	5	0.818
UX2 (The service level provided by mobile banking is better than I expected)	377	3.955	2	5	0.874
UX3 (Mobile banking application X is user friendly)	377	4.279	2	5	0.742
UX4 (Mobile banking application X is easy to navigate)	377	4.313	2	5	0.734

Source: Calculated from survey results

User experience, which constituted as a construct under Section C of the questionnaire, had the highest mean score of 4.313 (Item UX4) and the lowest mean score was 3.955 (Item UX2) giving a range of 0.358. The lowest mean, 3.955 (Item UX2), showed that the respondents agreed that the service level provided by mobile banking is better than they expected, while results from user experience of the questionnaire highlighted the fact that the highest mean score was 4.313 (Item UX4). Most of the respondents agreed that the mobile banking application is user friendly and easy to navigate and the service and experience of using the mobile banking application is better than expected. Table 5.4 reveals that the user experience scale had the highest standard deviation value reported at 0.874 (Item UX2) and the lowest standard deviation value was 0.734 (Item UX4). This information indicates that the data points are clustered around the mean. The standard deviations were less than 2, indicating that the mean values are a correct reflection of the majority of average perceptions (Merza & Mohammed, 2021).

5.2.5 Perceived interaction

This construct measures the system interactivity of the mobile banking application experienced by users. The results of the descriptive analysis using mean and standard deviation are illustrated in Table 5.5.

Table 5.5: Descriptive statistics of measures of perceived interaction

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
PI1 (My interaction with Mobile banking application X is understandable)	377	4.361	2	5	0.681
PI2 (Interaction with mobile banking application X is easy for me)	377	4.472	2	5	0.671
PI3 (Interaction with mobile banking application X does not require a lot of mental effort)	377	4.34	1	5	0.775

Source: Calculated from survey results

Perceived interaction, constituted a construct under Section C of the questionnaire, had the highest mean score of 4.472 (Item PI2) and the lowest mean score was 4.34 (Item PI3), giving a range of 0.132. Specifically, the lowest mean 4.34 (Item PI3) showed that the respondents agreed that interaction with mobile banking application does not require a lot of mental effort, while the results from the Perceived Interaction construct of the questionnaire highlighted that the highest mean score was 4.472 (Item PI2). Most respondents admitted that interaction with the mobile banking application is easy and understandable for them and does not require much mental effort. Table 5.5 reveals that the perceived interaction scale had the highest standard deviation value reported at 0.775 (Item PI3) and the lowest standard deviation value was 0.671 (Item PI2). This information indicates that the data points are clustered around the mean. The SD values are below two, hence an indication that there are no issues of outliers.

5.2.6 Intention to use

Intention to use refers to the chances of a person to utilise a mobile banking application. This construct measured the respondents' future behaviour to use or not use the mobile banking applications. The results of the descriptive analysis using mean and standard deviation are presented in Table 5.6.

Table 5.6: Descriptive statistics of measures of intention to use

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
ITU1 (I will use mobile banking application X for my banking needs)	377	4.584	2	5	0.609
ITU2 (I am likely to use mobile banking application X in the near future)	377	4.66	2	5	0.597
ITU3 (I intend to use mobile banking application X in the next 30 days)	377	4.676	1	5	0.718

Source: Calculated from survey results

Intention to use, had the highest mean score of 4.676 (Item ITU3) and the lowest mean score was 4.584 (Item ITU1) giving a range of 0.092.The lowest mean 4.584 (Item ITU1) showed that the respondents agreed that they will use the mobile banking application for their banking needs, while results from the Intention to use construct within the questionnaire highlighted the fact that the highest mean score was 4.676 (Item ITU3). Most of the respondents admitted that they intend to use the mobile banking application in the near future. Table 5.6 reveals that the intention to use scale had the highest standard deviation value reported at 0.718 (Item ITU3) and the lowest standard deviation value was 0.597 (Item ITU2). This information indicates that the data points are clustered around the mean. The SD values were less than 2, indicating that the mean values are a correct reflection of the majority of average perceptions, as Chuchu and Maziriri (2020) and Merza and Mohammed (2021) outline.

5.2.7 Continued usage

The participants were requested to specify the extent to which they intend to continue using mobile banking application over the long run. The results of the descriptive analysis using mean and standard deviation are presented in Table 5.7.

Table 5.7: Descriptive statistics of measures of continued usage

Item	Mean	Minimum	Maximum	Standard deviation
CU1 (I intend to keep using mobile banking application X in the next 12 months)	4.724	1	5	0.634
CU2 (I plan to continue using mobile banking application X frequently)	4.645	1	5	0.648
CU3 (I will use mobile banking application X regularly in the future)	4.592	1	5	0.678
CU4 (My intentions are to continue using mobile banking X than use any alternative means)	4.422	1	5	0.735

Source: Calculated from survey results

Continued usage, which constituted a construct under Section C of the questionnaire, had the highest mean score of 4.724 (Item CU1) and the lowest mean score was 4.422 (Item CU4), giving a range of 0.302. The lowest mean, 4.422 (Item CU4), showed that the respondents agreed that they have intentions to continue using the mobile banking application than any alternative means, while results from the continued usage construct within the questionnaire highlighted the fact that the highest mean score was 4.724 (Item CU1). Most of the respondents admitted that they intend to continue using the mobile banking application frequently in the future. Table 5.7 reveals that the continued usage scale had the highest standard deviation value reported at 0.735 (Item CU4) and the lowest standard deviation value was 0.634 (item CU1). This information indicates that the data points are clustered around the mean. The standard deviations were less than 2, indicative that the mean values are a correct reflection of the majority average.

5.2.8 Perceived risk

Perceived risk had the highest mean score of 2.687 (Item PR2) and the lowest mean score was 2.361 (Item PR3 and PR4) giving a range of 0.326. The lowest mean 2.361 (Item PR3 and PR4) showed that the respondents disagree that using the mobile banking application is risker than other banking options, while results from the perceived risk construct within the questionnaire highlighted the fact that the highest mean score was 2.687 (Item PR2). Most of the respondents disagreed that mobile banking applications put personal details at risk for confidentiality. Table 5.8 reveals that the perceived risk scale had the highest standard deviation value reported at 1.246 (Item PR1) and the lowest

standard deviation value was 1.184 (PR3). This information indicates that the data points are clustered around the mean. The standard deviations are below two, indicating that the mean values are a correct reflection of the majority average.

Table 5.8: Descriptive statistics of measures of perceived risk

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
PR1 (Information concerning my transactions whilst using the mobile banking application X can be tampered with by others)	377	2.554	1	5	1.246
PR2 (I think mobile banking applications put personal details at risk for confidentiality)	377	2.687	1	5	1.229
PR3 (I think using mobile banking application X is risky)	377	2.361	1	5	1.184
PR4 (I think mobile banking application X is more risker than other banking options)	377	2.361	1	5	1.196

Source: Calculated from survey results

5.2.9 Perceived trust

Perceived trust refers to the accumulation of customer beliefs of integrity, benevolence and ability that could enhance customer willingness to depend on mobile banking applications to attain financial transactions. The results of the descriptive analysis using mean and standard deviation are presented in Table 5.9.

Table 5.9: Descriptive statistics of measures of perceived trust

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
PT1 (I believe that mobile banking application X is trustworthy)	377	3.976	2	5	0.829
PT2 (The transactions of Mobile banking application X are safe)	377	4.061	2	5	0.852
PT3 (The transactions of Mobile banking application X are reliable)	377	4.109	2	5	0.805

Source: Calculated from survey results

Perceived trust, which constituted as a construct under Section C of the questionnaire, had the highest mean score of 4.109 (Item PT3) and the lowest mean score was 3.976 (Item PT1) giving a range of 0.133. The lowest mean, 3.976 (Item PT1), indicated that the respondents believed that the mobile banking application is trust worthy, while results from perceived trust construct of the questionnaire highlighted the fact that the highest mean score was 4.109 (Item PT3). Most of the respondents admitted that the transactions of the mobile banking application are reliable and safe. Table 5.9 reveals that the perceived trust scale had the highest standard deviation value reported at 0.852 (Item PT2) and the lowest standard deviation value was 0.805 (Item PT3). This information indicates that the data points are clustered around the mean. The SD values are below two, hence, an indication that there are no issues of outliers.

5.2.10 Electronic word of mouth

In this study, e-WOM is described as a customer expression in the past, present or future, highlighting favourable or unfavourable characteristics of mobile banking applications through an online community. The mean and the standard deviation for the items used to measure the construct are presented in Table 5.10.

Table 5.10: Descriptive statistics of measures of electronic word of mouth

Item	Valid N	Mean	Minimum	Maximum	Standard deviation
EWOM1 (I will talk about the strengths of mobile application X to my network)	377	3.851	1	5	1.009
EWOM2 (I will talk about the positive attributes of mobile banking application X)	377	3.958	1	5	0.965
EWOM3 (I intend to share my mobile banking application experiences with other people)	377	3.833	1	5	1.066

Source: Calculated from survey results

Electronic word-of-mouth (e-WOM) had the highest mean score of 3.958 (Item EWOM2) and the lowest mean score was 3.833 (EWOM3) giving a range of 0.125. The lowest mean, 3.833 (EWOM3) indicated that the respondents intend to share their mobile banking application experiences with other people, while results from the e-WOM construct within the questionnaire highlighted the fact that the highest mean score was 3.958 (item EWOM2). Most of the respondents admitted that they will talk about the positive attributes of the mobile banking application. Table 5.10 reveals that the e-WOM scale had the highest standard deviation value reported at 1.066 (EWOM3) and the lowest standard deviation value was 0.965 (EWOM2). This information indicates that the data points are clustered around the mean. The standard deviations were less than 2, indicating that the mean values are a correct reflection of the majority of average perceptions (Merza & Mohammed, 2021).

5.2.11 Loyalty

Table 5.11 presents the descriptive statistics relating to loyalty. In mobile banking, loyalty refers to customers holding favourable attitudes towards their mobile banking application of choice, which is reflected in their recommendation. The results of the descriptive analysis using mean and standard deviation are presented in Table 5.11

Table 5.11: Descriptive statistics of measures of loyalty

Measures of construct: Loyalty	Valid N	Mean	Minimum	Maximum	Standard deviation
LOY 1 (I will recommend using mobile banking application X to other people)	377	4.191	1	5	0.889
LOY2 (I often tell positive things about my bank to other people)	377	3.889	1	5	1.055
LOY3 (I am satisfied with the service of mobile banking application X)	377	4.042	1	5	0.851
LOY4 (I shall continue to do more banking with my mobile banking application X)	377	4.361	1	5	0.726

Source: Calculated from survey results

Loyalty, which constituted as a construct under Section C of the questionnaire, had the highest mean score of 4.361 (Item LOY4) and the lowest mean score was 3.889 (Item LOY2), giving a range of 0.472. The lowest mean, 3.889 (Item LOY2), showed that the respondents often tell positive things about their bank to other people, while results from loyalty, a construct within the questionnaire, highlighted that the highest mean score was 4.361 (Item LOY4). Most respondents admitted that they should continue to do more banking with their mobile banking application. Table 5.11 reveals that the loyalty scale had the highest standard deviation value reported at 1.055 (Item LOY2) and the lowest standard deviation value was 0.726 (Item LOY4). This information indicates that the data points are clustered around the mean. The SD values are less than two (2), indicating that the mean values are a correct reflection of the majority average.

5.3 RELIABILITY ANALYSIS

A measuring instrument is considered reliable when it is stable and consistent (Heale & Twycross, 2015; Mohamad, Sulaiman, Sern & Salleh, 2015). For that reason, reliability explains the stability of a measure (Taherdoost, 2016b). The internal-consistency reliability has two main measurements, split-half reliability and the Cronbach's alpha coefficient (Warrens, 2015). Cronbach's alpha is the most popular technique for measuring internal reliability (Heale & Twycross, 2015). This study, therefore, used Cronbach's alpha to measure the consistency of the measuring tool (Sürücü & Maslakçı, 2020; Taherdoost, 2016b). The rate of Cronbach's alpha ranges from zero, denoting no relationship between the scale items, to one, demonstrating a good association among the scale items (Taherdoost, 2016b).

A Cronbach alpha value of 0.70 or higher is suggested as a good measure of internal consistency (Shuttleworth, 2015). On the other hand, a value of 0.5 symbolises satisfactory reliability and a value below 0.5 usually denotes poor internal consistency reliability (Sharma, 2016). The Cronbach's alpha estimates for scales employed in this study are presented in Table 5.12.

Table 5.12: Internal reliability using Cronbach's alpha

	Number of Items	Cronbach's alpha
Effort Expectancy	4	0.827
Social Influence	3	0.862
Perceived Enjoyment	3	0.895
User Experience	4	0.824
Perceived Interaction	3	0.754
Intention to Use	3	0.833
Continued Usage	4	0.850
Perceived Risk	4	0.839
Perceived Trust	3	0.884
Electronic Word of Mouth	3	0.930
Loyalty	4	0.829

Source: Calculated from survey results

The results show that the Cronbach's alpha for each of the constructs ranged between 0.754 for perceived interaction and 0.930 for e-WOM. Given that these estimates are above the 0.7 threshold of good internal reliability (Taherdoost, 2016b; Tentama & Anindita, 2020) it is concluded that the scales of measuring the various constructs employed in the study demonstrate good internal reliability and thus, are appropriate for this study.

5.4 STRUCTURAL EQUATION MODELLING (SEM) DATA ANALYSIS

This study adopted structural equation modelling (SEM) as the central technique for data analysis. SEM enables researchers to simultaneously model and estimate complex relationships among multiple dependent and independent variables (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). A partial least squares (PLS) SEM technique was used, because this study aimed to examine how a given set of independent variables (effort expectancy, social influence, perceived enjoyment, user experience and perceived Interaction) predict dependent variables (e-WOM and loyalty). In addition PLS SEM shows how mediating variables are the causal link between the independent and dependent

variables. As well the effect of the control variables (perceived risk and perceived trust) on the mediating variables.

In studies that involve predictive circumstances and when cause-effect relationship models are complex, PLS is the suitable approach to use (Sarstedt, Ringle & Hair, 2017). In conducting an SEM, Hair, Hult, Ringle, Sarstedt, Danks and Ray (2021) proposed a two-stage process; first assessment of the outer model and then the inner model. According to Wong (2013), the inner model specifies the relationship between the independent and dependent latent variables. In contrast, the outer model specifies the relationships between the latent variables and their observed indicators.

5.4.1 Measurement model analysis

The measurement model points out the associations among the constructs and the indicators: reliability, convergent validity and discriminant validity.

5.4.1.1 Convergent validity

The first procedure applied in the measurement model analysis is the examination of convergent validity. Construct validity is the extent to which a research instrument (or tool) measures the intended construct (Heale & Twycross, 2015). Convergence is examined using standardised factor loading, composite reliability (CR) and average variance extracted (AVE). According to Hamid *et al.* (2017) for adequate convergent validity to test the measurement model for discriminant validity, the factor loading for each item should exceed 0.7 and be statistically significant. Furthermore, the AVE of latent constructs should exceed 0.50 (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014) and the accepted composite reliability values for each latent construct should be 0.70, 0.80 or above (Aguirre-Urreta *et al.,* 2013).

The initial specification of the measurement model shows that social influence (SI3) was below the 0.7 factor loading threshold. As a result, that item was dropped and the model was re-specified. The final results of the convergent validity analyses are presented in Table 5.13 and Figure 5.6.

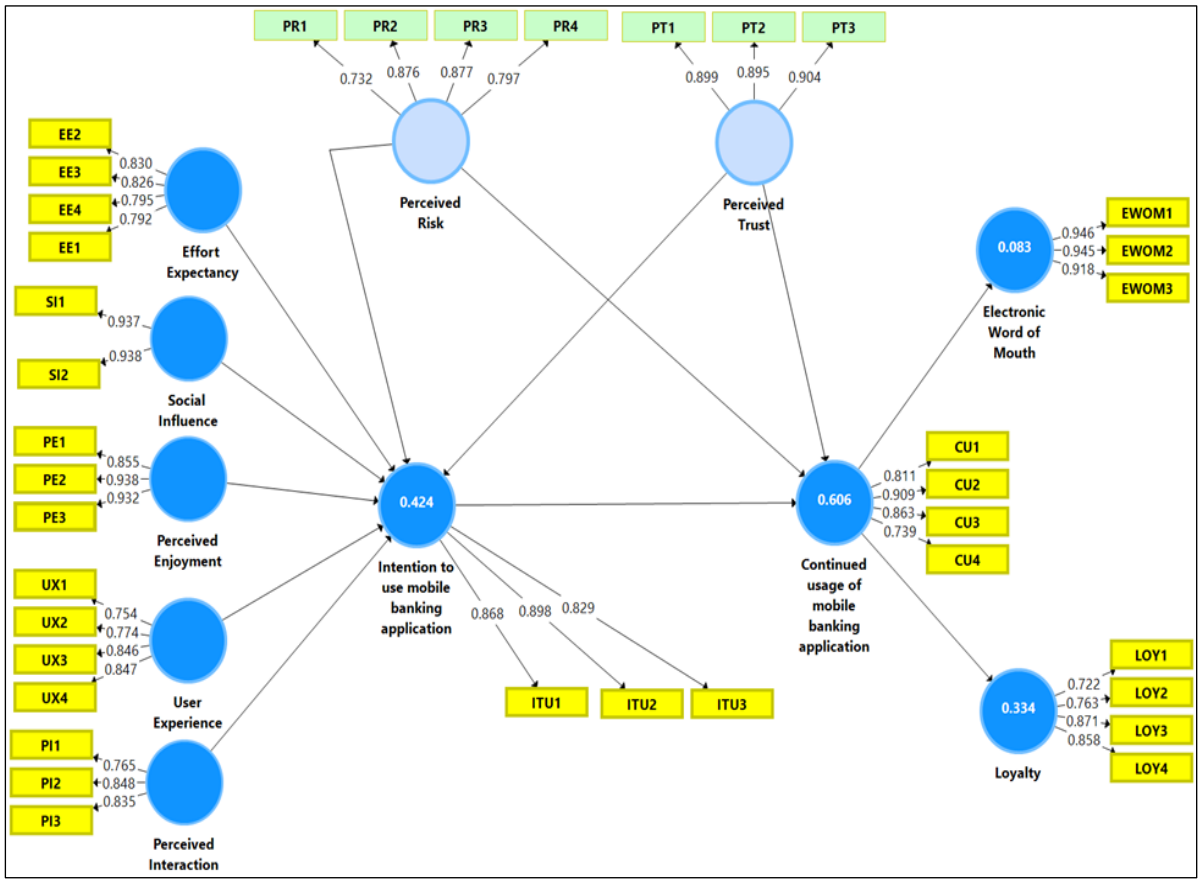
Table 5.13: Convergent validity of the measurement model

	Factor Loading	Composite Reliability	Average Variance Extracted
Effort Expectancy		0.885	0.658
EE1	0.792		
EE2	0.830		
EE3	0.826		
EE4	0.795		
Social Influence		0.935	0.879
SI1	0.937		
SI2	0.938		
Perceived Enjoyment		0.935	0.827
PE1	0.855		
PE2	0.938		
PE3	0.932		
User Experience		0.881	0.650
UX1	0.754		
UX2	0.774		
UX3	0.846		
UX4	0.847		
Perceived Interaction		0.857	0.667
PI1	0.765		
PI2	0.848		
PI3	0.835		
Intention to Use		0.900	0.750
ITU1	0.868		
ITU2	0.898		
ITU3	0.829		
Continued Usage		0.900	0.694
CU1	0.811		
CU2	0.909		
CU3	0.863		
CU4	0.739		
Perceived Risk		0.893	0.677
PR1	0.732		
PR2	0.876		
PR3	0.877		
PR4	0.797		
Perceived Trust		0.927	0.809
PT1	0.899		
PT2	0.895		
PT3	0.904		
Electronic Word of Mouth		0.955	0.877
EWOM1	0.946		
EWOM2	0.945		
EWOM3	0.918		

Loyalty		0.881	0.650
LOY1	0.722		
LOY2	0.763		
LOY3	0.871		
LOY4	0.858		

Source: Calculated from survey results

Figure 5.6 Measurement model with standardised factor loadings



Source: Calculated from survey results

The results presented in Table 5.13 and Figure 5.1 show the following:

- That for all the constructs, the factor loadings, are significant at $p < 0.001$ and above 0.70, as Hamid *et al.* (2017) highlight.
- The CR estimates are above the recommended threshold of 0.7, as Aguirre-Urreta *et al.* (2013) state.
- The AVEs of all the constructs are above the 0.5 threshold, as Hair Jr *et al.* (2014) highlight, with 0.650 (user experience and loyalty) as the lowest AVE estimates.

Taken together, these estimates provide strong statistical evidence to confirm the convergent validity of the measurement.

5.4.1.2 Discriminant validity

The second part of the measurement model analysis is discriminant validity assessment. Discriminant validity refers to the extent to which a construct differs from one another empirically (Hamid *et al.,* 2017). In assessing discriminant validity, the Fornell-Larcker technique (Fornell & Larcker, 1981) cross-loading and the heterotrait-monotrait ratio (HTMT) (Hair *et al.,* 2021) techniques were used.

5.4.1.2.1 Fornell-Larcker technique for testing discriminant validity

Discriminant validity is achieved when the square root of the AVEs is higher than the inter-factor correlations, as Hair *et al.* (2014) states. The results of the Fornell-Larcker technique for discriminant analyses are represented in Table 5.14. According to those results, the square root of each construct's AVE is greater than its relationship with another construct. The table shows that the lowest square root of the AVEs (bold diagonal values) is 0.806. This estimate is greater than the highest bivariate correlation of 0.719, between loyalty and e-WOM, thus confirming discriminant validity.

5.4.1.2.2 Cross-loading technique to confirming discriminant validity

According to the cross-loading technique, discriminant validity is attained when the indicators of a latent variable load much greater on the latent variables they measure than on other latent variables (Hair Jr *et al.,* 2014). For this study, discriminant validity, using this criterion, was evaluated by assessing the cross-loadings of each item in the constructs, assessing the cross-loadings between indicators and testing other latent variables. Table 5.15 presents the results of this analysis, which indicate that all the indicators load greater on the latent variables they measure than on other latent variables. Consequently, for this study, the measurement model has also confirmed discriminant validity using the cross-loading technique.

5.4.1.2.3 Heterotrait-monotrait ratio (HTMT) technique to confirm discriminant validity

The heterotrait-monotrait (HTMT) ratio of correlations is one of the latest methods used for examining discriminant validity in partial least squares structural equation modelling, as Henseler *et al.* (2015) states. The various simulation tests by Henseler *et al.* (2015) confirm that the HTMT criterion evidently performs better than the common approaches to discriminant validity assessment such as the Fornell-Larcker criterion and (partial) cross-loadings, as these techniques are sometimes not capable of spotting a lack of discriminant validity.

The HTMT technique uses either of two methods to evaluate discriminant validity: (a) as a criterion or (b) as a statistical test (Yusoff *et al.,* 2020). Assessing HTMT as a criterion includes comparing it with a stated threshold. If the value of the HTMT is above this threshold, it can be said that there is a lack of discriminant validity (Henseler *et al.,* 2015). Following the guidelines of Henseler *et al.* (2015), each of the HTMT construct values were compared with a threshold of 0.85 (correlation value) (Sujati & Akhyar, 2020).

The results of the HTMT criteria for discriminant analysis are presented in Table 5.16. These results show that the values were below 0.85, ranging from 0.496 to 0.833. The maximum value was achieved on the construct facilitating conditions (0.833).

Table 5.14 Discriminant validity using the Fornell-Larcker criterion

	Continued usage of mobile banking application	Effort expectancy	Electronic word of mouth	Intention to use mobile banking application	Loyalty	Perceived enjoyment	Perceived interaction	Perceived risk	Perceived trust	Social influence	User experience
Continued usage of mobile banking application	**0.833**										
Effort expectancy	0.528	**0.811**									
Electronic word of mouth	0.289	0.175	**0.936**								
Intention to use mobile banking application	0.762	0.495	0.278	**0.866**							
Loyalty	0.578	0.436	0.719	0.517	**0.806**						
Perceived enjoyment	0.449	0.418	0.559	0.427	0.601	**0.909**					
Perceived interaction	0.583	0.625	0.290	0.570	0.513	0.424	**0.817**				
Perceived risk	-0.201	-0.213	-0.120	-0.316	-0.260	-0.140	-0.181	**0.823**			
Perceived trust	0.445	0.463	0.303	0.423	0.575	0.388	0.475	-0.409	**0.899**		
Social influence	0.271	0.266	0.228	0.253	0.286	0.342	0.322	-0.069	0.304	**0.937**	
User experience	0.444	0.466	0.484	0.400	0.584	0.696	0.585	-0.089	0.355	0.208	**0.806**

Bold diagonal values are the square roots of the AVEs

Table 5.15 Cross-loadings

	Continued usage of mobile banking application	Effort expectancy	Electronic word of mouth	Intention to use mobile banking application	Loyalty	Perceived enjoyment	Perceived interaction	Perceived risk	Perceived trust	Social influence	User experience
EE1	0.510	0.792	0.246	0.425	0.479	0.466	0.541	-0.083	0.362	0.191	0.503
EE2	0.392	0.830	0.164	0.437	0.301	0.299	0.514	-0.237	0.414	0.238	0.321
EE3	0.417	0.826	0.151	0.384	0.392	0.299	0.489	-0.247	0.414	0.190	0.338
EE4	0.387	0.795	-0.025	0.347	0.225	0.278	0.476	-0.121	0.299	0.248	0.340
SI1	0.304	0.282	0.248	0.236	0.305	0.345	0.350	-0.057	0.303	0.937	0.257
SI2	0.205	0.218	0.180	0.239	0.232	0.297	0.254	-0.072	0.267	0.938	0.134
PE1	0.391	0.387	0.460	0.337	0.478	0.855	0.381	-0.081	0.341	0.341	0.603
PE2	0.399	0.362	0.562	0.429	0.577	0.938	0.368	-0.162	0.395	0.312	0.607
PE3	0.437	0.397	0.494	0.391	0.577	0.932	0.412	-0.130	0.319	0.286	0.693
UX1	0.352	0.333	0.532	0.256	0.562	0.656	0.327	-0.055	0.316	0.159	0.754
UX2	0.305	0.245	0.478	0.266	0.486	0.628	0.334	-0.039	0.237	0.243	0.774
UX3	0.370	0.443	0.309	0.377	0.444	0.523	0.560	-0.125	0.327	0.143	0.846
UX4	0.397	0.440	0.320	0.364	0.435	0.501	0.594	-0.055	0.267	0.148	0.847
PI1	0.423	0.484	0.269	0.381	0.456	0.360	0.765	-0.118	0.362	0.240	0.521
PI2	0.479	0.561	0.238	0.445	0.419	0.363	0.848	-0.113	0.426	0.267	0.489
PI3	0.515	0.493	0.217	0.546	0.397	0.326	0.835	-0.199	0.378	0.278	0.443
ITU1	0.646	0.490	0.240	0.868	0.490	0.388	0.582	-0.315	0.422	0.246	0.398
ITU2	0.670	0.446	0.201	0.898	0.434	0.389	0.498	-0.292	0.398	0.252	0.356
ITU3	0.665	0.341	0.288	0.829	0.417	0.327	0.389	-0.207	0.270	0.153	0.279
CU1	0.811	0.445	0.234	0.682	0.423	0.344	0.529	-0.211	0.347	0.208	0.327
CU2	0.909	0.482	0.237	0.732	0.503	0.391	0.496	-0.203	0.395	0.249	0.373
CU3	0.863	0.460	0.202	0.619	0.499	0.378	0.516	-0.140	0.373	0.236	0.391
CU4	0.739	0.364	0.294	0.487	0.502	0.385	0.395	-0.110	0.367	0.208	0.391

PR1	-0.162	-0.150	-0.184	-0.204	-0.260	-0.196	-0.118	0.732	-0.291	-0.073	-0.117
PR2	-0.179	-0.158	-0.103	-0.307	-0.234	-0.122	-0.177	0.876	-0.374	-0.123	-0.114
PR3	-0.162	-0.188	-0.082	-0.241	-0.220	-0.091	-0.123	0.877	-0.389	-0.007	-0.055
PR4	-0.159	-0.207	-0.040	-0.275	-0.151	-0.065	-0.168	0.797	-0.287	-0.014	-0.010
PT1	0.357	0.362	0.254	0.357	0.477	0.305	0.386	-0.403	0.899	0.220	0.279
PT2	0.329	0.428	0.208	0.304	0.456	0.346	0.365	-0.387	0.895	0.279	0.281
PT3	0.482	0.450	0.330	0.452	0.591	0.384	0.501	-0.328	0.904	0.311	0.377
EWOM1	0.292	0.201	0.946	0.291	0.672	0.557	0.305	-0.082	0.319	0.238	0.451
EWOM2	0.245	0.173	0.945	0.230	0.692	0.535	0.262	-0.104	0.285	0.222	0.482
EWOM3	0.270	0.115	0.918	0.255	0.658	0.474	0.245	-0.154	0.244	0.179	0.428
LOY1	0.320	0.166	0.781	0.317	0.722	0.482	0.311	-0.232	0.399	0.263	0.391
LOY2	0.292	0.227	0.679	0.239	0.763	0.483	0.298	-0.132	0.340	0.254	0.407
LOY3	0.509	0.468	0.533	0.463	0.871	0.512	0.468	-0.217	0.550	0.195	0.537
LOY4	0.612	0.428	0.497	0.538	0.858	0.488	0.498	-0.240	0.509	0.244	0.511

Source: Calculated from survey results

Table 5.16 Heterotrait-monotrait (HTMT) ratio

	Continued usage of mobile banking application	Effort expectancy	Electronic word of mouth	Intention to use mobile banking application	Loyalty	Perceived enjoyment	Perceived interaction	Perceived risk	Perceived trust	Social influence	User Experience
Continued usage of mobile banking application											
Effort expectancy	**0.626**										
Electronic word of mouth	0.326	**0.205**									
Intention to use mobile banking application	0.840	0.587	**0.317**								
Loyalty	0.637	0.479	0.873	**0.576**							
Perceived enjoyment	0.518	0.483	0.609	0.490	**0.699**						
Perceived interaction	0.721	0.790	0.350	0.699	0.619	**0.522**					
Perceived risk	0.237	0.255	0.142	0.371	0.306	0.163	**0.217**				
Perceived trust	0.500	0.532	0.322	0.475	0.632	0.430	0.566	**0.480**			
Social influence	0.317	0.317	0.254	0.296	0.348	0.393	0.397	0.083	**0.343**		
User experience	0.529	0.544	0.580	0.468	0.704	0.833	0.721	0.112	0.406	**0.255**	

Source: Calculated from survey results. *Note: *Bold diagonal values are the square root of the AVEs. The values beneath are the interfactor correlations.*

5.4.2 Structural model analysis

5.4.2.1 Collinearity diagnostics

The structural model analysis starts with collinearity diagnostics. Collinearity is defined as the circumstance in which more than two independent variables in a statistical model are linearly related (this is sometimes referred to as multicollinearity) (Salmerón Gómez *et al.,* 2016). If collinearity exists, regression estimates are unstable and have high standard errors. A variance inflation factor (VIF) value that exceeds the value of 5.0 indicates multicollinearity (Hair *et al.,* 2019; Hamid *et al.,* 2017). Thus, collinearity could threaten the study's empirical results if they exceed 5.0. In this study, collinearity diagnostics using the VIF were done to measure the extent of the threat of collinearity between the independent variables. The results of the collinearity diagnostics are presented in Table 5.17 and Table 5.18.

Table 5.17 Collinearity test: Inner VIF values

	VIF Values			
	Continued usage	**Electronic Word of mouth**	**Intention to use**	**Loyalty**
Continued usage		1.000		1.000
Effort Expectancy			1.803	
Electronic Word of mouth				
Intention to use	1.256			
Loyalty				
Perceived Enjoyment			2.203	
Perceived Interaction			2.184	
Perceived Risk	1.238		1.217	
Perceived Trust	1.357		1.660	
Social Influence			1.241	
User Experience			2.509	

Source: Calculated from survey results

The collinearity assessment for the present study shows that the inner VIF values for the independent variables predicting continued usage of mobile banking applications range from 1.238 (perceived risk) to 1.357 (perceived trust). The VIF estimates range between 1.217 (perceived risk) and 2.509 (user

experience) for the independent predictors of intention to use. These show that the VIF estimates of the independent predictors of continued usage and intention to use are less than the critical VIF threshold of 5, suggesting that collinearity does not present a critical threat to the independent variables in the structural model.

Table 5.18 Outer VIF values

Item	VIF Value
EE1	1.622
EE2	1.840
EE3	1.901
EE4	1.831
SI1	2.346
SI2	2.346
PE1	2.068
PE2	3.690
PE3	3.680
UX1	1.972
UX2	2.038
UX3	2.015
UX4	2.040
PT1	2.866
PT2	2.944
PT3	2.110
ITU1	1.952
ITU2	2.317
ITU3	1.762
CU1	1.917
CU2	3.184
CU3	2.516
CU4	1.490
PR1	1.531
PR2	2.336
PR3	2.589
PT1	2.866

PT2	2.944
PT3	2.110
EWOM1	4.403
EWOM2	4.815
EWOM3	3.017
LOY1	1.809
LOY2	2.084
LOY3	2.156
LOY4	1.805

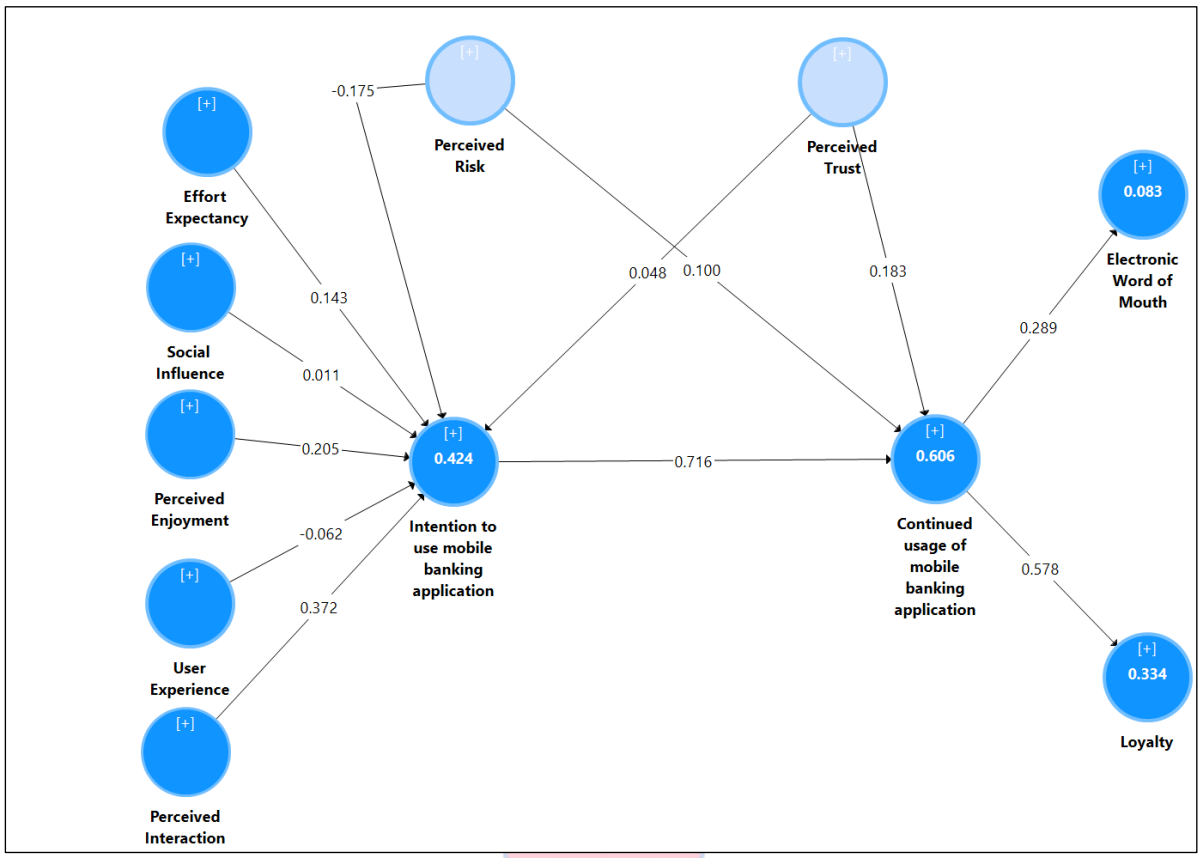
Source: Calculated from survey results

The collinearity assessment for the present study shows that the outer VIF values range from 1.531 (item PR1) to 4.815 (item EWOM2). These show that the inner VIF estimates of the scale items are less than the critical VIF threshold of 5, signifying that the collinearity between the independent variables is not a concern in the structural model analysis.

5.4.3 Hypothesis testing

The analysis of the structural model was also accomplished using the partial least squares structural equation modelling technique using SmartPLS 3. The results of the PLS-SEM of the structural model analysis are presented in Table 5.19 and depicted in Figure 5.7

Figure 5.7 Structural model analysis with path coefficients and R^2 estimates



Source: Calculated from survey results

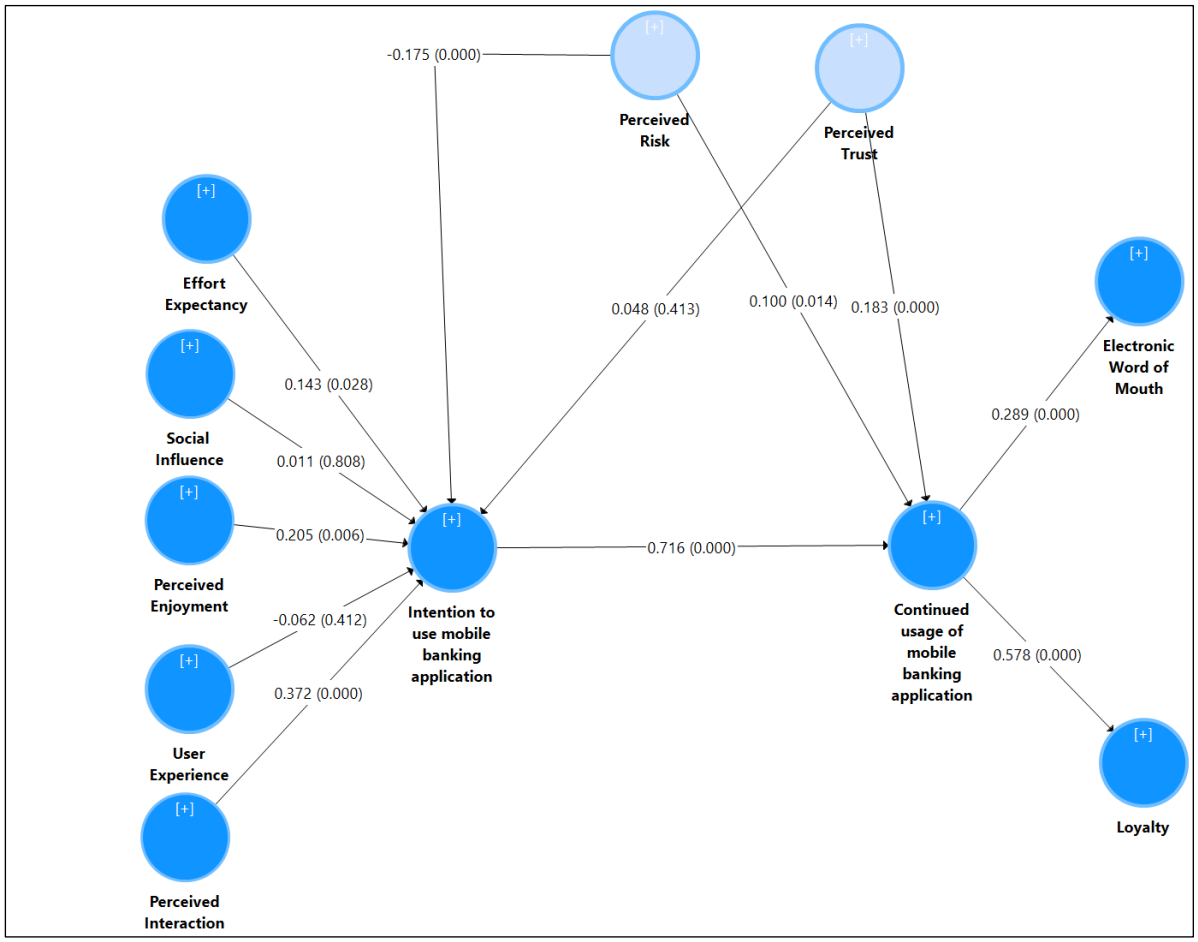
As indicated in Figure 5.7, the outcomes of the structural model analysis with the path coefficients and the coefficients of determination (R^2) are presented. The coefficient of determination (R^2) is used to assess the structural model and measures the model's accuracy. According to Hair *et al.* (2014), coefficient of determination, R^2 is a measure of the model's predictive accuracy and represents the exogenous variable's combined effect on the endogenous variable(s). The value of R^2 varies between 0 and 1, while higher values denote a higher level of prediction.

The results show that the significant factors influencing intention to use mobile banking applications explain 42.4 percent of the variance in intention to use mobile banking applications. Moreover, the results suggest that the continued usage of mobile banking applications explains 60.6 percent, whilst loyalty explains 33.4 percent and e-WOM explains 8.3 percent of the inconsistency in the use of mobile banking applications.

A bootstrapping technique was used to examine the statistical significance of the relationships between the constructs. The significance level was set at $p < 0.05$. The path coefficients with $p > 0.05$

suggest that there is no statistically significant relationship between the constructs. The results of the bootstrapping for path significance are presented in Figure 5.8

Figure 5.8 Structural model with path coefficients with p-values



Source: Calculated from survey results

5.4.3.1 Discussion of the results of the hypothesis testing

The results generated in this study led to several crucial findings. These findings are thoroughly discussed in the next sections.

5.4.3.1.1 Effort expectancy and the intention to use a mobile banking application

The analysis of the results revealed that effort expectancy has a positive and a significant impact on the intention to use mobile banking applications. (β = 0.143, *p < 0.05*); therefore, H1 is empirically supported. These results were like those reported by Albashrawi *et al.* (2017) who validate that effort expectancy is positively related to individual intention to use mobile banking. Similarly a study by Ghalandari (2012) found that effort expectancy has a positive and significant effect on users' behavioural intention to use mobile banking services. Conversely, Yu (2012) empirically conclude that

effort expectancy was not a salient factor, whilst the study by Merhi *et al.* (2019) within the Lebanese sample show that effort expectancy was not a significant predictor but was slightly significant in the English sample. On the other hand, Oliveira, Faria, Thomas and Popovič (2014) confirm that the intention to use an information system is determined by effort expectancy.

5.4.3.1.2 Social influence and the intention to use a mobile banking application

The statistical analysis exposed that that social Influence has an insignificant impact on the intention to use mobile banking applications (β= 0.011, *p > 0.05*). Therefore, H2 is not statistically supported. These results corroborate findings of a study by Thusi and Maduku (2020) that provide evidence that social influence is not significantly associated with behavioural intention. Purwanto and Loisa (2020) highlight that one's intention to use mobile banking is driven by self-interest rather than the influence of the social environment. This is inconsistent with Al-Husein and Sadi, 2015 and Yu (2012) who single out social influence as the most significant when it comes to the intention of using mobile banking. The previous study by Lu (2014) posits that social influence is very critical at the initial stage of adoption, however, its effects wane as the user gains more experience with the platform. This corroborates the study by Venkatesh, Thong, Chan, Hu and Brown (2011) who did not find a positive relationship between social influence and intention to use.

5.4.3.1.3 Perceived enjoyment and the intention to use a mobile banking application

This study's findings also authenticate that perceived enjoyment has a positive and significant impact on the intention to use mobile banking applications. Therefore, H3 is accepted (β = 0.205, p < 0.05). These results are in line with the works of Nguyen (2015) who found that continuous use intention is directly and significantly driven by perceived enjoyment. Similarly, familiarity impacts on users' continuance intention. This is in line with the study by Avornyo *et al.* (2019) who postulate that perceived enjoyment predict continuous usage intention in mobile banking. In contrast, Koenig-Lewis *et al.* (2015) state that perceived enjoyment does not have a direct significant link with intention to use. However, perceived enjoyment was attested to be the strongest predictor of customers' intention to use new systems and applications in previous studies by Alalwan *et al.* (2018) and Venkatesh *et al.* (2012).

5.4.3.1.4 User experience and the intention to use a mobile banking application

Empirical evidence was also found in this research that customers' user experience has an insignificant impact on the intention to use mobile banking applications (β = -0.062, p > 0.05). Therefore, H4 is not statistically supported. This is in line with the findings by Wohn and Lee (2013) who state that people develop expected outcomes primarily from observing other people, but after an individual decides to use the medium, their personal usage experience feeds back to reshape their expected outcomes. This

is however contrary to the findings by Han *et al.* (2018) who argue that the user experience is formed by the correlation of product features and perceptions and experiences, whilst Kang (2014) shows that a key factor influencing the continuance intention of mobile application usage is easiness. The insignificance of user experience on intention to use mobile banking may be attributed to the fact that a user experience is different from one user to another based on different motivations, expectations, experience, or perception. Previous experiences are always present and they create expectations of how things work and produce results as Bii *et al.* (2013) highlights.

5.4.3.1.5 Perceived interaction and the intention to use a mobile banking application

This study also discovered that perceived Interaction has a positive and significant impact on the intention to use mobile banking applications. Therefore, H5 is accepted ($\beta = 0.372$, $p < 0.001$). This is line with the study by Krishanan *et al.* (2016) who show a significant impact of perceived interactivity on attitude towards using mobile banking indicating perceived interactivity as a significant predictor. Moreover, Hanafizadeh *et al.* (2014) outline how interactivity as a construct successfully explains mobile banking use. This suggests that interaction between individual and technology has a dominant influence on continual usage intention (Sitorus *et al.,* 2017). The significance of perceived interaction and the intention to use mobile banking application is reiterated by Hussain, Abubakar and Hashim (2014) in their research, as it is important for a user to have the ability to use an application even with a small device effectively with good interaction as one of the critical success factors of intention to use.

5.4.3.1.6 The intention to use mobile banking applications and the continued usage of mobile banking applications.

The statistical analysis also exposed that customers' intention to use mobile banking applications has a positive and significant impact on the continued usage of the mobile banking applications. Therefore, H6 is accepted ($\beta = 0.716$, $p < 0.001$). These results are in line with the prior literature by Martins *et al.* (2014) who strongly support behavioural intention as a decisive driver of the actual usage behaviour. In agreement, Abubakar (2013) posits behavioural intention as the most important determinant of actual behaviour. The prior literature by Yu (2012) and Oliveira *et al.* (2014) found that behavioural intention has a positive relationship with usage behaviour in studies exploring mobile banking usage. A quantitative study by Baptista and Oliveira (2015) found that the effect of behavioural intention on usage behaviour was not significant, contradicting earlier research (Venkatesh *et al.,* 2003, 2012). However, a study by Thusi and Maduku (2020) confirm a strong and positive association between behavioural intention and usage behaviour, suggesting that if users have positive intentions towards mobile banking applications, they will use them.

5.4.3.1.7 Continued usage of the mobile banking applications and Word of Mouth

It was found that customers' continued usage of mobile banking applications has a positive and a significant impact on e-WOM ($\beta = 0.289$, $p < 0.001$). These results provide support for H7. These results corroborate findings of a study by Cheung and Lee (2012), that support the notion that other users' positive usage experience on different platforms also plays a crucial role in mobile banking continued usage. This is so, since compared to information provided by marketers, consumers trust the information shared by other consumers (Kim, Lim & Brymer, 2015). In contradiction, research findings from Shaikh and Karjaluoto (2015) indicate that even in the presence of supportive mobile banking services, respondents are likely not to be interested in endorsing services to others, with emphasises that mobile banking is too personal or, conversely, too common a subject to be discussed with other people. Despite this notion, Mehrad and Mohammadi (2017) state how word of mouth has been proven to significantly impact customers' attitudes, which, in turn, influence the actual use behaviour.

5.4.3.1.8 Continued usage of the mobile banking applications and loyalty

The analysis results suggest that significant relationships can be found between customers' continued usage of mobile banking applications and loyalty ($\beta = 0.578$, $p < 0.001$).Therefore, H8 is supported. These results were like those by Kang *et al.* (2012) who demonstrate that when existing users of mobile banking perceive that the service is valuable to them, they will continue using it, which leads to loyalty. Therefore, behavioural intention precedes use, while loyalty comes after use (Baabdullah *et al.,* 2019). Prior findings show that customer satisfaction positively impacts customer loyalty (Poromatikul De Maeyer, Leelapanyalert & Zaby, 2019; Ram & Wu, 2016) and future usage intention (Hossain Hossain & Jahan, 2018). In construct, study by Kumar *et al.* (2013) show that customer satisfaction does not completely determine customer loyalty. Despite this notion, Tho, Lai and Yan (2017) show how loyal customers have the intention of repeatedly purchasing and are willing to recommend to others about the products or services they have experienced.

5.4.3.2.1 Control variables

5.4.3.2.1 Perceived trust and intention to use mobile banking application

It was discovered that perceived trust has an insignificant impact on the intention to use mobile banking applications ($\beta = 0.048$, $p > 0.05$). A plausible reason might be that trust has no direct influence on intention to use mobile banking. This is line with findings by Koenig-Lewis *et al.* (2015). Similarly, Kabra, Ramesh, Akhtar and Dash (2017) and Zarmpou, Saprikis, Markos and Vlachopoulou (2012) found no significant association between trust and behavioural intention. This is contrary to studies by Duane, O'Reilly and Andreev (2014) and Shaw (2014) who echo that trust influences intention to use (Jamshidi, Keshavarz, Kazemi & Mohammadian, 2018). However, a study by Kumar and Yukita

(2021) found that a users' behavioural intention to use mobile banking is not influenced by trust. This is so, considering that mobile applications' security threat has overgrown and has become a challenge for users and innovators. Thus, the security offered and proven in the mobile application is essential for user to trust using the system (Purwanto & Loisa, 2020).

5.4.3.2.2 Perceived trust and continued usage of mobile banking application

The statistical analysis exposed that perceived trust has a positive and a significant impact on the continued usage of mobile banking applications ($\beta = 0.183$, $p < 0.001$). This could be as a result of the fact that for users to continue using the mobile banking application, they first need to build trust. These results mirror the works of Jamshidi, Keshavarz, Kazemi and Mohammadian (2018) who mention a relationship between trust and intention to continue use of mobile banking. Similarly, Chen (2012) echo that trust, along with satisfaction has a positive effect on continued use of mobile banking. However, in other studies, Kabra *et al.* (2017) found no significant association between trust and continued intention usage. Contrary to those findings, Shaikh Karjaluoto and Chinje (2015) reveal that trust plays a significant role in promoting usage of m-banking. As a result, trust plays a catalyst role in the relationship between the customer and bank. If there is no trust between the customer and the mobile banking system, it will result in lack of usage (Zhou, 2012a).

5.4.3.2.3 Perceived risk and Intention to use mobile banking application.

It was discovered that perceived risk has a significant impact on the intention to use mobile banking applications ($\beta = -0.175$, $p < 0.001$). A plausible reason might be that as perceived risk increases, the intention to use mobile banking applications reduces. This is line with Krishanan *et al., (*2016) that show a significant impact of perceived risk on attitude towards using mobile banking indicating perceived risk is a significant predictor. Conversely, previous studies by Tan, Ooi, Chong and Hew (2014) and Wong, Lee, Lim, Chua, Chai and Tan (2012) observe that perceived risk did not significantly impact intention to use. This may be since the perceived risk factor is customer dependent and may be unique to each and every customer. Contrary, perceived risk was found to negatively influence behavioural intention to use mobile banking services by Makanyeza (2017), which is in line with Natarajan *et al.* (2018).

5.4.3.2.4 Perceived risk and continued usage of mobile banking application

It was discovered that perceived risk has a significant impact on the continued usage of mobile banking application ($\beta = 0.100$, $p < 0.05$) A plausible reason might be that as perceived risk increases, continued usage of mobile application decreases. This is in line with the empirical findings of Poromatikul, De Maeyer, Leelapanyalert and Zaby (2019) and Reji Kumar and Ravindran (2012) that found the role of perceived risk to be the strongest driver with serious influence on continued usage. This, therefore,

implies that if individuals perceived higher risks and uncertainty such as issues of loss and theft of financial information due to system hacking, this would discourage the continued use of mobile banking applications. Despite these findings, Chen (2012) found no statistically significant effect of perceived risk. Contrary, Chitungo and Munongo (2013) and Cocosila and Trabelsi (2016) found a negative correlation between perceived risk and continued mobile banking usage. Therefore, banks need to remember that the lower the perceived risk, the higher the perceived trust, customer satisfaction and loyalty (Hossain, 2019).

An overview of the results of the hypotheses testing with the path coefficients, P-values and T-values is presented in Table 5.19.

Table 5.19: Summary of the results of the hypotheses testing.

	Hypotheses	Path coefficient	T Statistics	P Values	Hypotheses decision (accepted/rejected)
H1	Effort expectancy -> Intention to use mobile banking application	0.143	2.201	0.028	Accepted
H2	Social influence -> Intention to use mobile banking application	0.011	0.241	0.809	Rejected
H3	Perceived enjoyment -> Intention to use mobile banking application	0.205	2.718	0.007	Accepted
H4	User experience -> Intention to use mobile banking application	-0.062	0.825	0.409	Rejected
H5	Perceived interaction -> Intention to use mobile banking application	0.372	4.880	0.000	Accepted
H6	Intention to use mobile banking application -> Continued usage of mobile banking application	0.716	16.36	0.000	Accepted
H7	Continued usage of mobile banking application -> Electronic word of mouth	0.289	5.756	0.000	Accepted
H8	Continued usage of mobile banking application -> Loyalty	0.578	14.812	0.000	Accepted
Assessment of the control variables					
	Perceived risk -> Intention to use mobile banking application	-0.175	1.551	0.000	Accepted
	Perceived trust -> Intention to use mobile banking application	0.048	0.813	0.417	Rejected
	Perceived risk -> Continued usage of mobile banking application	0.100	1.485	0.013	Accepted
	Perceived trust -> Continued usage of mobile banking application	0.183	4.654	0.000	Accepted

Source: Calculated from survey results. Note the arrows signify the relationship between each construct to indicate the proposed hypothesis.

5.5 CHAPTER SUMMARY

This chapter aimed to report on the results of this study. The first part of this chapter presented the demographic results and mobile banking applications' background information. This was followed by the section that focused on the descriptive data, including the mean and standard deviation, which were computed to summarise the data concerning the intention and continued usage of mobile

banking applications. The SEM and PLS analysis steps of establishing a model of better fit were followed by considering relevant model fit assessment indices (convergent validity and discriminant validity). Only results considered significant in responding to the research questions and reaching the research targets were included. Furthermore, a collinearity test using the variance inflation factor (VIF) was done to measure the level of collinearity threat between the independent variables. This chapter then analysed the structural model results. Hypotheses were tested for significance. Nine of the 12 proposed relationships were accepted. The ensuing chapter will provide the main conclusion, recommendations and implications of the study.

CHAPTER 6

OVERVIEW, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

6. INTRODUCTION

The previous chapter provided the empirical findings' analysis, discussions, and interpretations. The stages for data collection and analysis were identified and described. The information was analysed and summarised using descriptive analysis, correlation analysis exploratory factor analysis, reliability and validity analysis and structural equation model (SEM). This chapter provides a general overview of the study by placing the theoretical and empirical objectives into context. The study aimed to predict the intention and continued usage of mobile banking applications in Zimbabwe. Arising out of the theory and the empirical study, recommendations are made for the banking firms. It concludes with the benefits, limitations, and implications for future research.

6.1 OVERVIEW OF THE STUDY

In order to draw the relevant recommendations and conclusion on this study, it is imperative to use the inputs obtained over the previous five chapters in the study. The primary objective of this study, as stated in Chapter 1, is revisited in Section 6.3.1, followed by the theoretical objectives reviewed in Section 6.3.2 and the empirical objectives in Section 6.3.3.

The main purpose of Chapter 1 was to lay out the background of the study, problem statement, formulate research objectives and outline research methods. The proposed research model and hypotheses development were also presented in Chapter 1 under Section 1.7. Chapter 1 presented the statistical analysis techniques employed and then ethical principles adhered to in this study. The theoretical objectives formulated in Chapter 1 under Section 1.4.1.1 were used in structuring Chapter 2 (the literature review).

Chapter 2 began with an introduction, followed by the history of banking, covering the global banking landscape (Section 2.1.2), history of mobile banking (m-banking) (Section 2.1.7), mobile banking within the Zimbabwean context (Section 2.1.7.3) and the inhibitors and enhancers of mobile banking (sections 2.1.9 and 2.1.10) to understand the dynamics of m-banking. The theoretical grounding comprised of the UTAUT, TAM, TPB and user experience models and supporting theories (TRA, DTPB, DOI and ECT) used in relating to the constructs of the study (Section 2.2.1 to Section 2.2.5.4).

Chapter 3 focused on the conceptual model, empirical literature and hypotheses development of the study. All the constructs were amalgamated into a broad conceptual model (Section 3.1). The empirical literature dictated the discussions on the models (Section 3.2) and constructs of the study

(effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, behavioural intention to use mobile banking, continued usage of mobile banking, perceived risk, perceived trust, e-WOM and loyalty) (sections 3.2.1 to 3.2.10.2). Hypotheses relationships between the research variables were developed (sections 3.3.1 to 3.3.8) to be tested during the data analysis.

Chapter 4 comprised a description of the research methodology followed in the study. The study adopted a positivism paradigm (Section 4.2.1), deductive research approach (Section 4.2.2) and used a quantitative descriptive research design (Section 4.2.3). The target population for the study was restricted to mobile banking application users from Zimbabwean banks and participants over the age of 18 years. The sampling frame for this study consisted of users from Zimbabwean banks with mobile banking applications and that had used any mobile banking applications over the past year. Thereafter, a non-probability, convenience sample of 377 mobile banking users, as defined by the target population, was taken (sections 4.3.4 and 4.3.6). A structured questionnaire that included a five-point Likert scale was used to gather the required data (Section 4.4). Section 4.6 discussed the various techniques used to interpret and report on the collected data for the statistical analysis in Chapter 5. This included the descriptive analysis (Section 4.6.1), internal reliability analysis (Section 4.6.3), factor analysis (Section 4.6.4), discriminate analysis (Section 4.6.9) and the structural equation modelling (SEM) (Section 4.6.10).

Chapter 5 reported on the data analysis and discussion of the results. The chapter presented the descriptive analysis of the study's research constructs (Section 5.2), the findings of the reliability analysis (Section 5.3). The data analysis for the structural equation modelling was presented (Section 5.4). Section 5.4.2 discussed the structural model analysis, including the analysis on hypothesis testing and the discussion of the results of the hypothesis testing (Section 5.4.3.1).

6.2 THE EVALUATION OF THE OBJECTIVES OF THE STUDY

All research objectives had to be addressed based on the generated data from the study to ensure that the intended purposes of the study were achieved. The theoretical and empirical objectives are revisited in the next section to demonstrate the attainment of the objectives within the framework of the study.

6.2.1 Primary objective

The study aimed to predict the intention and continued usage of mobile banking applications in Zimbabwe. Each of the objectives, as identified in Chapter 1, are stated, after which the research results are summarised.

6.2.2 Theoretical objectives

The theoretical objectives as set out in Chapter 1 under Section 1.4.1.1 are outlined and reviewed. For the banking firms and researchers to make informed decisions and derive value from this study, all research objectives were addressed based on the survey's data to ensure that the initial purposes of the study were achieved.

- **To review the unified theory of acceptance and use of technology (UTAUT) model**

The UTAUT model was reviewed in Section 2.2.1 of Chapter 2 in order to comprehensively predict a customer's intention to utilise m-banking applications and the customers' usage behaviour. The UTUAT model, which focuses on how behavioural intention influences the use of a m-banking application and assists in understanding the drivers of acceptance, was also reviewed to influence and examine a user's intention and continued usage of m-banking applications. The UTAUT model is specifically useful in predicting the acceptance of technology as it also explains the variance in behaviour intention and usage behaviour as one of the objectives of the study.

- **To carry out a literature review on the technology acceptance model**

In the accomplishment of theoretical objective 2, an extensive literature review was undertaken to comprehensively understand the user acceptance and usage behaviour of m-banking applications by means of the TAM in Section 2.2.2 of Chapter 2. TAM offers a powerful explanation in relation to customer attitudes and user's intentions to use technology and the actual usage. A combination of academic journal articles, textbooks and other literature sources were useful to the researcher when merging information on the intention and continued use of m-banking applications. TAM and its constructs were discussed in Section 2.2.2.

- **To conduct a literature review on the theory of planned behaviour model**

This objective is achieved under Section 2.2.3 of Chapter 2. This section provided an overall understanding of the model when used to predict a person's intention to perform (or not to perform) a behaviour. The TPB model is influential in predicting human behaviour and valuable when considering the social influences in users' intention and behaviour. The model enables researchers to accurately predict behavioural intentions of using m-banking applications.

- **To review the user experience model**

The user experience model was reviewed in Section 2.2.4 of Chapter 2 to broadly understand how product characteristics and features of m-banking applications assist in determining the continued usage of m-banking. User experience is also formed by correlation of product features and the perceptions and experiences of users. The user experience model assisted the researcher to

extensively determine, which features affect the overall user experience on the intention and continued usage of m-banking applications.

- **To carry out a literature review on effort expectancy**

This objective was covered under Section 3.2.3.1 of Chapter 3. The section explained the concept of effort expectancy, the similar constructs in other models and theories and its effect on users' behavioural intention to use m-banking applications. Effort expectancy as an important factor of m-banking usage, acts as a predictor of users' behavioural intention to use m-banking services. This therefore demonstrates that the easier it is to use m-banking, the greater the likelihood that consumers will continue to use the service.

- **To carry out a literature review on social influence**

This theoretical objective was dealt with under Section 3.2.3.2 of Chapter 3. The section explained what is meant by social influence and it also focused on its effect on the intention and continued usage of m-banking applications. The effects of social influence (such as the opinions of users' friends, relatives, and superiors) on the continuous usage was also analysed to determine if it was a critical determinant of m-banking application continued usage.

- **To conduct a literature review on perceived enjoyment**

This objective is achieved under Section 3.2.4.1 of Chapter 3. This section provided an overall understanding of the concept of perceived enjoyment and its influence and relationship with intention to use and continued usage of m-banking applications. The effects of perceived enjoyment on system usage as well the impact of familiarity on users' continuance intention was analysed. As a result, the longer a user uses an m-banking application, the more they enjoy using the application.

- **To carry out a literature review on user experience**

This theoretical objective was dealt with under Section 3.2.5 of Chapter 3. The section explained what is meant by user experience, its attributes and it also focused on the product features and characteristics that affect the overall user experience when using m-banking applications. It is crucial to understand how, and which product features also affect the overall user experience. The customer journey map was analysed and how it can be optimised to improve the overall user experience.

- **To carry out a literature review on perceived interaction**

This objective was covered under Section 3.2.6 of Chapter 3. The section explained the concept of perceived interaction and its impact on the intention and continued usage of m-banking applications.

It was analysed how high interactivity with systems can lead to continuous and immediate feedback, and its impact on attitude towards using m-banking applications. The influence of perceived interaction with mobile devices is now becoming increasingly important as smartphones become more complex.

- **To carry out a literature review on intention to use mobile banking applications.**

This theoretical objective was dealt with under Section 3.2.7 of Chapter 3. The section explained what is meant by behavioural intention or intention to use. It also focused on the relationship and its impact on effort expectancy, social influence, enjoyment, user experience, perceived interaction and the influence of perceived risk and perceived trust on the intention to use m-banking. It was examined how behavioural intention can be a decisive driver of the actual usage behaviour.

- **To carry out a literature review on continued usage of mobile banking applications**

This objective was covered under Section 3.2.8 of Chapter 3. The section explained the concept of continued usage, the relationship with intention to use, perceived risk and perceived trust on the continued usage of m-banking applications and its impact on e-WOM and loyalty. Research was done on the factors that ultimately affect continuous usage (or post-adoption usage) of m-banking applications. This assists in maintaining existing customers, considering that it is more cost effective to retain customers than to acquire new ones.

- **To conduct a literature review on perceived risk**

This objective is achieved under Section 3.2.9.1 of Chapter 3. This section provided an overall understanding of the concept of perceived risk and its influence and relationship with intention to use and continued usage of m-banking applications. The impact of perceived risk on continued m-banking usage was outlined and the factors linked to perceived risk which has an influence on actual usage were examined. Therefore, the lower the perceived risk, the higher the perceived trust when using the m-banking application.

- **To carry out a literature review on perceived trust**

This objective was covered under Section 3.2.9.2 of Chapter 3. The section explained the concept of perceived trust, its influence and impact with intention to use and continued usage of m-banking applications. It was evaluated how trust is a crucial determinant of customers' intention to use m-banking, its link with risk and its catalyst role between the customer and bank. The presence of trust between the customer and the m-banking system will result in usage of m-banking applications.

- **To carry out a literature review on electronic word of mouth**

This theoretical objective was dealt with under Section 3.2.10.1 of Chapter 3. The section explained what is meant by electronic word of mouth and its antecedents and its relationship and influence on the continued usage m-banking applications. An examination on the positive e-WOM triggers and its role in enhancing the intention to use m-banking was examined. The impact of positive reviews can also reduce consumers' perceived risk and assist in forming positive attitudes towards m-banking usage.

- **To conduct a literature review on loyalty**

This objective is achieved under Section 3.2.10.2 of Chapter 3. This section provided an overall understanding of the concept of loyalty and its influence and relationship on the continued usage of m-banking applications. The relationship between behavioural intention, usage and loyalty was examined. Resultantly, when existing users of m-banking perceive the service to be valuable to them, they tend to continue using it, which leads to loyalty.

6.2.3 Empirical objectives

The empirical objectives, as set out in Chapter 1 (Section 1.4.1.2) of this study, are revisited in the next sections.

i. **To assess customers' perceptions of effort expectancy, social Influence, perceived enjoyment, user experience and perceived interaction with mobile banking in Zimbabwe**

The first empirical objective in Chapter 1 was to assess the customers' perceptions of effort expectancy, social Influence, enjoyment, user experience and interaction on mobile banking. The relationship was confirmed using a partial least squares (PLS) SEM technique. Results of the SEM analysis revealed that effort expectancy (β = 0.143, $p < 0.05$), perceived enjoyment (β = 0.205, $p < 0.05$) and perceived interaction (β = 0.372, $p < 0.001$) have a significant positive influence with m-banking. The top three significant factors, according to the customers' perception, with m-banking are perceived interaction (37.2%) followed by perceived enjoyment (20.5%) and effort expectancy (14.3%) from 42.4 percent of the variance in intention to use m-banking (refer to figure 5.2). Social influence (β= 0.011, $p > 0.05$) and user experience (β = -0.062, $p > 0.05$) have an insignificant impact with m-banking.

ii. **To determine the impact of effort expectancy, social Influence, perceived enjoyment, user experience and perceived interaction on the intention to use mobile banking applications in Zimbabwe.**

The second empirical objective formulated in Chapter 1 was to determine whether effort expectancy, social Influence, perceived enjoyment, user experience and perceived interaction have an impact on the intention to use m-banking applications in Zimbabwe. A partial least squares (PLS) SEM technique was undertaken to address this objective. According to the results reported in Table 5.19 (Chapter 5), a significant correlation was revealed with effort expectancy (β = 0.143, $p < 0.05$), perceived enjoyment (β = 0.205, p < 0.05) and perceived interaction (β = 0.372, p < 0.001) on the intention to use m-banking applications in Zimbabwe, indicating that there is a significant relationship between effort expectancy, perceived enjoyment and perceived interaction and intention to use m-banking applications. The results further revealed that social influence (β= 0.011, $p > 0.05$) and user experience (β = -0.062, p > 0.05) have an insignificant impact on the intention to use mobile banking applications. This reveals that social influence and user experience have an insignificant impact on the intention to use m-banking applications.

iii. To establish if the intention to use mobile banking application has an impact on the continued usage of mobile banking applications in Zimbabwe.

With reference to the above empirical objective, conclusions were drawn based on the statistical findings in Section 5.4.3.1 of this study. The results demonstrate that customers' intention to use m-banking applications has a positive and a significant impact on the continued usage of the m-banking applications (refer to Table 5.19). This means that the hypothesis is significant and supported.

iv. To assess the impact of perceived risk and perceived trust on the intention to use and continued usage of mobile banking applications in Zimbabwe.

The empirical objective set out in Chapter 1 was to assess the impact of perceived risk and perceived trust on the intention to use and continued usage of m-banking applications. The results, as outlined in Table 5.19, revealed that perceived risk (β = -0.175, p < 0.001) has a significant impact on the intention to use m-banking applications whilst perceived trust (β = 0.048, p > 0.05) has an insignificant impact on the intention to use m-banking applications. This indicates that perceived risk has a significant impact on the intention to use m-banking applications, whilst perceived trust has an insignificant impact on the intention to use m-banking applications. SEM was also used to assess whether perceived risk and perceived trust impact continued usage of m-banking applications (refer to Table 5.19). According to the results, perceived risk (β = 0.100, p < 0.05) and perceived trust (β = 0.183, p < 0.001) have positive and a significant impact on the continued usage of m-banking applications. The results of structural equation model analysis revealed that perceived risk and perceived trust positively influences continued usage of m-banking applications.

v. To determine the impact of continued usage of mobile banking applications in Zimbabwe on electronic Word of Mouth and loyalty.

This objective was achieved empirically in Section 5.4.3.1 of Chapter 5. The results revealed that customers' continued usage of mobile banking applications has a positive and a significant impact on e-WOM ($\beta = 0.289$, $p < 0.001$) and loyalty ($\beta = 0.578$, $p < 0.001$). As indicated in Table 5.19, a relationship between the constructs exists. Therefore, Chapter 5 presented the empirical findings of the study.

6.3 RECOMMENDATIONS

Based on the analysis of the literature and more specifically, in the light of the findings of the empirical research, the following recommendations are offered:

Banking firms should ensure that the customer journey map (CJM) on the m-banking application is easy and understandable. The aim of providing a customer journey map is for the banks to offer a smooth and pleasant experience for the customer on the m-banking application (Endmann & Keßner, 2016). Analysing the customer journey on the m-banking application can assist banks in discovering problems in existing services and find opportunities for improvement (Moon *et al.,* 2016). Alves, Lim, Niforatos, Chen, Karapanos and Nunes (2012) also point out how the customer journey map can visualise all possible points of contact (touch point) between a customer and any combination of products and services. The customer journey map can also illustrate the attitude and feelings of the customer at each touch point (Samsel, 2013), enabling banks to understand their customers and their needs better.

Banks should maximise using a customer journey map as a strategic management tool for product and service innovation. By clearly understanding the customer touch points, the management of banks can work with cross-functional team members to employ tactics that foster service innovation as shown by NBS (2022). These tactics aim to enhance customer service provider interactions by improving the customer experience associated with each touch point (Rosenbaum, Otalora and Ramírez (2017).

Additionally, results of the study show the positive impact of effort expectancy, perceived enjoyment and perceived interaction on the intention and continued usage of m-banking applications. Therefore, banks need to develop their marketing and m-banking strategies based on these constructs to gain competitive advantage. Banks should portray m-banking applications as a service that is easy to use, enjoyable and compatible with customers' values, lifestyles and needs (Makanyeza, 2017). This can be achieved by using opinion leaders who can encourage other customers to use the service. Existing

banks that have adopted this strategy include Banc ABC Zimbabwe (2022), Nedbank Zimbabwe (2021) and ZB Financial Holdings (2022). In this digital era, where smartphones are becoming complex, banks need to ensure that their m-banking strategies cater to their customers' various mobile devices. As the banks develop the strategies, it is important to consider how the actual interactive features of mobile applications are fundamental in the continued usage of the m-banking applications (Shin *et al.,* 2016). Furthermore, the marketing strategies should target existing and potential customers (Shaikh *et al.,* 2015). Banks should also develop tactics to ensure that customers experience a user-friendly process when downloading and authenticating the m-banking applications as this can greatly help drive usage and even attract new customers as illustrated by POSB (2022).

It is imperative for banks to continuously build trust with customers, since trust plays a significant role in promoting the usage of m-banking applications (Shaikh *et al*., 2015). Banks must provide structural assurance as a mechanism to mitigate the perceived risk of m-banking (Van Deventer, 2019). Banks can reduce perceived risk through dissemination of information. Banks need to provide sufficient information for a customer to feel comfortable in using the m-banking application. Demonstrations and how to tutorials can provide customers with the information they require to use the m-banking banking application. Banks such as CABS, NMB Bank and CBZ Holdings use social media platforms to disseminate safety tips to their customers when transacting through their m-banking applications (CABS, 2022; CBZ Holdings, 2022; NMB Bank Zimbabwe, 2022). This in return, reduces perceived risk since the customer will be well informed about the m-banking application.

Furthermore, banks need to constantly ensure that security measures are put in place to safeguard m-banking transactions from any cyber threats (Makanyeza, 2017) by investing in state-of-the-art safety measures that mitigate this risk. Thusi and Maduku (2020) recommend that banks introduce or reinforce security tools such as secure socket layer (SSL) certificates or encryption and permissions-based access control, emergent security technologies such as face detection should be considered to reinforce customer's perception of security in using the m-banking applications. Banks need also to build awareness and educate customers on existing security features and forms of protection of their systems (Shaikh *et al.,* 2015). For example, CBZ Holdings (2022) and Steward Bank (2022) communicate the security features available on their m-banking applications to their clients. This will likely increase the confidence that customers have in using the m-banking applications. Trust plays a catalyst role in the relationship between the customer and the bank (Zhou, 2012a), therefore, it is the role of the bank to ensure that they constantly alleviate any fears faced by the customers.

Additionally, banks must know which risk-reduction strategy is important to customers who use the m-banking applications to reduce their concerns more specifically. Providing an information

navigation process based on such risk reduction strategies such as the desired m-banking application features (POSB, 2022; Steward Bank, 2022) and the desirable user experience, decreases the consumer's perceived risk as well as increases their usage. Depending on the age range of the consumers, the young to middle-aged consumers are the most risk-takers compared to the older generation. Therefore, their confidence in the usage of m-banking applications will be increased, which leads to less consumers within that age range experiencing perceived risk. It is imperative for banks to be aware of where their customers seek information. Customers rely on objective data and seek sources, for example, mostly from tech websites and tech bloggers that will yield discrimination information to minimise the uncertainty of using a high-risk m-banking application.

Given the explosive growth of social media, banks should treat the e-WOM as an opportunity. As customers become increasingly overwhelmed by several applications, positive (e-WOM can help stimulate continued usage (Shaikh *et al.*, 2015). Previous studies by Kwon, Bae and Blum (2013); Nuseir (2019) and Sa'ait, Kanyan and Nazrin (2016) recognise positive e-WOM as an effective promotional tool. Consumers tend to trust the information shared by other consumers (Kim, Lim and Brymer 2015), which can lead to loyalty. Banks can adopt the strategy of showcasing testimonials to promote continued usage of the m-banking applications as demonstrated by CABS (2022). A sizeable number of positive reviews can reduce consumers' perceived risk and help them form positive attitudes towards m-banking usage (Shankar & Kumari, 2016).

6.4 LIMITATIONS AND FUTURE RESEARCH OPPORTUNITIES

In assessing the findings of the study, it should be noted that it has its own limitations, which open avenues for further research. The most obvious one is that the study population was small as it included only m-banking application users within Harare, one province in Zimbabwe. This limits the possibility to generalise the results to include other provinces in Zimbabwe. Perhaps the research findings might be more insightful if data collection is expanded to include the m-banking users of Zimbabwe's other provinces. In addition, extending the research to other provinces in Zimbabwe and testing the conceptual model might be a valuable future research direction.

This study could be used by other consumer behaviour, banking and finance management and marketing students as a point of departure for future research on m-banking applications. It will be in the interest of the Zimbabwean banking industry to gain knowledge on the concept of intention and continued usage of m-banking applications of users in all provinces, considering the growth of the banking market, the development in technology, rise in consumer acceptance and smartphone usage. Furthermore, the findings of this study are limited to participants over the age of 18 years. As such, future research should also accommodate other age ranges, such as 14 to 17 years, so that valuable

information may be obtained to segment markets and develop appropriate financial inclusion initiatives. Additionally, all stakeholders in the banking and finance industry could benefit from an understanding of the m-banking users' behaviour.

In addition, the findings of this study are restricted to the mobile banking users, focusing only on the service category of mobile banking. Therefore, this presents an impetus for researchers to extend their future studies to other service categories. It would be necessary for future researchers to have a comparative analysis in this regard among other service categories (such as mobile wallets, SMS, USSD, telephone and Internet banking). This may help to understand further the differences in intention and continued usage that may prevail across various product categories.

Another limitation concerns the use of a single method of data collection. This study employed a quantitative research approach. Future research may consider adopting a quantitative and qualitative research design using triangulation methodology, where a qualitative design could generate rich ideas and explanations. It will be valuable to exploit both qualitative and quantitative paradigms to supplement each other. A qualitative design may assist in making follow-ups to the responses provided in the quantitative design. Subsequently, the quantitative responses are validated by these follow-ups.

A further limitation is that a non-probability convenience sampling technique was employed in the study. As a result, even though several demographic questions were used in an effort to determine how representative the sample was of the defined target population, one should be cautious when generalising about the results of this study over the entire population. Finally, it is imperative to note that the above-mentioned limitations do not necessarily refute the contributions of this study but open further avenues for future research.

6.5 CONTRIBUTION OF THE STUDY

The framework developed in this study can make a positive contribution to the body of knowledge and the growing literature on intention and continued usage of m-banking applications. In addition, this study contributes in developing a profile on the behaviour of m-banking application users within the Zimbabwean context. Therefore, the findings of this study will contribute as marketing strategy guidelines for marketers seeking to reach this segment and will be of value to the Zimbabwean banking industry.

More precisely, the findings may add value to the banking firms by assisting them to understand better, how effort expectancy, perceived enjoyment and perceived interaction influence the intention to use m-banking applications as well as the impact of continued usage on m-banking applications on e-WOM and loyalty. Consequently, banking firms may be able to develop marketing strategies that appeal to the m-banking application users to bridge the gap of the low usage rate. Lastly, the recommendations from the current study could help the banking firms anticipate, manage and satisfy m-banking consumer's needs and wants.

6.6 CONCLUSION

The banking industry has grown tremendously in the past few years. The most prevalent trends in the banking industry include the shift to digital transformation, specifically mobile and online banking. With m-banking applications posed to be an innovation that could become one of m-commerce's value-added applications, the m-banking applications have the potential to replace online banking altogether and serve as the customer's primary access to the financial institutions. As a result, it is important that banking firms embark on research activities to review strategies towards the intention to use, sustaining the continued usage of the m-banking applications and remaining competitive. Furthermore, the banking firms need to familiarise themselves with the users of the m-banking applications and continue to identify influential intention to use and continued usage factors that users perceive as imperative when using the m-banking applications.

Understanding the drivers and variables affecting the intention to use and continue using m-banking ensures that users continue to use the m-banking applications and is critical to bridging the low usage rate and the overall success of the banking firms. Therefore, the banking firms must cultivate a thorough understanding of factors that drive the intention and continued usage of m-banking applications.

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APPENDIX A: STUDY QUESTIONNAIRE

RESEARCH STUDY ON THE INTENTION AND CONTINUED USAGE OF MOBILE-BANKING APPLICATIONS IN ZIMBABWE

2022

Dear respondent

You are invited to participate in this research project. The study investigates the intention and continued usage of mobile banking applications (m-banking applications) in Zimbabwe (for example CBZ Touch, A360, Square 2.0 mobile app or Stanbic mobile app). Should you have any questions or concerns about the study, you can contact Mrs Tapiwa Bepe (the principal investigator) at +263719140261 or tmatyanga@gmail.com/ 2020060592@ufs4life.ac.za. The findings of the study will be disseminated for a Master in Business Management study and in academic journals.

To participate in the study, you must meet the following criteria:

- You must be 18 years of age or older.
- You must have transacted in the last twelve months using a mobile banking application of a Zimbabwean bank.

The main aspects relating to the study are the following:

- The purpose of the study is to investigate the factors that lead to the intention and continued usage of m-banking applications.
- Your participation only requires of you to complete the online questionnaire that follows if you consent to participate in the study. It will take not more than 20 minutes to complete the questionnaire.
- Participants can complete the online questionnaire at a time that does not lead to loss of work time.
- Participation in the study is voluntary and you are under no obligation to consent to participation. You are free to withdraw at any time and without giving a reason during the completion of the questionnaire.
- The questionnaire does not include any question that provides information that can be used to identify a respondent. Also, no personal information of respondents will be shared by the principal investigator to any external parties.
- The electronic captured data from the completed online questionnaires will be stored on a password protected computer.
- The findings of the study will only be used for the disclosed purposes that is the dissemination of the findings only for academic purposes.

Thank you in advance for your willingness to participate in the research study.

Sincerely,

Researcher
Tapiwa Bepe
Mobile: +263719140261
Email: tmatyanga@gmail.com

Supervisor
Dr Eugine Tafadzwa Maziriri
Business Management
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PO Box 339, Bloemfontein 9300,
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CONSENT TO PARTICIPATE IN THIS STUDY

I confirm that the person asking my consent to take part in this research has informed me about the nature, procedure, potential benefits, and anticipated inconvenience of participation.

I have read and understood the study as explained on the previous page. I had the opportunity to ask questions and I am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty. I am aware that the findings of this study will be anonymously processed for only academic purposes.

☐ Please check the following box to indicate that you consent to participate in the study and that you are 18 years of age or older.

A brief description of "mobile banking application."

Mobile banking application: *Is an application developed by the bank for utilizing the mobile banking services and is downloaded through a secure and authenticated mobile device process.*

Do you make use of any mobile banking application to make any banking transactions?

Yes	1
No	2

A 'No' response would lead to the exit of the survey.

Have you used a mobile banking application to make banking transactions in the last twelve months?

Yes	1
No	2

A 'No' response would lead to the exit of the survey.

SECTION A – Background Questions

1. Please indicate your gender

Male	1
Female	2
Prefer not to say	3
Other	4

2. Please indicate your age in years

18-25	1
26 – 35	2
36 – 45	3
46 -60	4
61 years and above	5

3. Please indicate your employment status

Employed	1
Unemployed	2
Retired	3
Other (Please specify)	4

SECTION B – Mobile banking application beliefs

To indicate your agreement with each of the statements in this section you must think of the mobile banking application you have used in the past twelve months**.** In each of the statements that follow, mobile banking application X refers to this mobile banking application that you use.

1. What is your experience in using mobile banking application X?

Less than 1 year	1
1-2 years	2
3-5 years	3
More than 5 years	4

2. What is your usage frequency of mobile banking application X?

Daily	1
Once a week	2
2-3 times a week	3
Fortnightly	4
Once a month	5

Section C: Evaluation of Mobile banking constructs

In this section, please indicate the extent to which you agree or disagree with each of the following statements. You may indicate your answer by placing a cross (x) in your selected response, using the scale: **(1) = Strongly Disagree; (2) = Disagree; (3) = Neutral; (4) = Agree; (5) = Strongly Agree**

Effort Expectancy

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
EE1	I find mobile banking application X easy to use	1	2	3	4	5
EE2	Learning how to use mobile banking application X is easy for me	1	2	3	4	5
EE3	It is easy to login in the mobile banking application X	1	2	3	4	5
EE4	It is easy for me to become skilful at using mobile banking application X	1	2	3	4	5

Social Influence

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
SI1	People who are important to me think that I should use mobile banking application X	1	2	3	4	5
SI2	People who influence my behaviour think that I should use mobile banking application X	1	2	3	4	5
SI3	The use of Mobile banking application X is a status symbol in my environment	1	2	3	4	5

Perceived Enjoyment

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
PE1	Using mobile banking application X is rather pleasant	1	2	3	4	5
PE2	The mobile banking procedure is rather enjoyable	1	2	3	4	5
PE3	Using mobile banking application X is enjoyable	1	2	3	4	5

User Experience

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
UX1	My experience with using mobile banking application X is better than I expected	1	2	3	4	5
UX2	The service level provided by mobile banking is better than I expected	1	2	3	4	5
UX3	Mobile banking application X is user friendly	1	2	3	4	5
UX4	Mobile banking application X is easy to navigate	1	2	3	4	5

Perceived Interaction

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
PI1	My interaction with Mobile banking application X is understandable	1	2	3	4	5
PI2	Interaction with mobile banking application X is easy for me	1	2	3	4	5
PI3	Interaction with mobile banking application X does not require a lot of mental effort	1	2	3	4	5

Intention to Use

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
ITU1	I will use mobile banking application X for my banking needs	1	2	3	4	5
ITU2	I am likely to use mobile banking application X in the near future	1	2	3	4	5
ITU3	I intend to use mobile banking application X in the next 30 days	1	2	3	4	5

Continued usage

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
CU1	I intend to keep using mobile banking application X in the next 12 months	1	2	3	4	5
CU2	I plan to continue using mobile banking application X frequently	1	2	3	4	5
CU3	I will use mobile banking application X regularly in the future	1	2	3	4	5
CU4	My intentions are to continue using mobile banking X than use any alternative means	1	2	3	4	5

Perceived Risk

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
PR1	Information concerning my transactions whilst using the mobile banking application X can be tampered with by others	1	2	3	4	5
PR2	I think mobile banking applications put personal details at risk for confidentiality	1	2	3	4	5
PR3	I think using mobile banking application X is risky	1	2	3	4	5
PR4	I think mobile banking application X is more risker than other banking options	1	2	3	4	5

Perceived Trust

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
PT1	I believe that mobile banking application X is trustworthy	1	2	3	4	5
PT2	The transactions of Mobile banking application X are safe	1	2	3	4	5
PT3	The transactions of Mobile banking application X are reliable	1	2	3	4	5

Electronic Word of Mouth

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
EWOM1	I will talk about the strengths of mobile application X to my network	1	2	3	4	5
EWOM2	I will talk about the positive attributes of mobile banking application X	1	2	3	4	5
EWOM3	I intend to share my mobile banking application experiences with other people	1	2	3	4	5

Loyalty

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	**2**	**3**	**4**	**5**
LOY1	I will recommend using mobile banking application X to other people	1	2	3	4	5
LOY2	I often tell positive things about my bank to other people	1	2	3	4	5
LOY3	I am satisfied with the service of mobile banking application X	1	2	3	4	5
LOY4	I shall continue to do more banking with my mobile banking application X	1	2	3	4	5

Thank you for taking time to complete this survey.

APPENDIX B: REQUEST FOR PERMISSION TO CONDUCT RESEARCH STUDY FROM CABS CLIENTS

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS

Bloemfontein Campus
University of the Free State
205 Nelson Mandela Drive
Park West
Bloemfontein
South Africa

24 September 2021

Central African Building Society (CABS)
Northend Close
Northridge Park
Highlands,
Harare

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH STUDY FROM CABS CLIENTS

My name is Tapiwa Bepe and I am a student at the University of the Free State (UFS), currently enrolled for a Master of Commerce with specialisation in Business Management programme. I am kindly seeking permission from CABS to be one of the participating banks for my research project titled ***"The intention and continued usage of mobile-banking applications in Zimbabwe".***

This will entail seeking approval from CABS clients to participate in the study by completing out a research questionnaire and sharing their personal details with me for use in my study. The approach to be taken will ensure that I do not infringe any violations of the personal data of your clients, and obtain their consent for participation. The data obtained from this research study will be strictly for academic purpose and will be treated with utmost confidentiality.

Upon completion of my study, I will share with you the findings of my research.

Yours Sincerely

Tapiwa Bepe
Student Number: 2020060592

APPENDIX C: PERMISSION LETTER/GATE KEEPER'S LETTER

CABS

A Member of the OLDMUTUAL Group

Head Office, Northend Close,
Northridge Park, Highlands
P.O. Box 2798, Harare, Zimbabwe

Telephone: +263 (024) 2883823,
Fax: +263 (024) 2883804
E-mail: management@cabs.co.zw

University of the Free State
Bloemfontein Campus
205 Nelson Mandela Drive
Park West
Bloemfontein
South Africa

10 February 2022

Dear Tapiwa Bepe

RE: PERMISSION TO CONDUCT RESEARCH STUDY WITH CENTRAL AFRICAN BUILDING SOCIETY (CABS)

The above subject matter refers.

This letter serves to confirm that you have been granted permission from CABS to be one of the participating banks for your research project titled ***"The intention and continued usage of mobile banking applications in Zimbabwe"*** *in fulfilment of your* Master of Commerce with specialisation in Business Management programme with the University of the Free State.

As you conduct your study, ensure that you do not infringe any violations of the personal data of our clients and obtain their consent for participation in your research.

On completion of your study, you will be required to share with CABS the findings of your research.

I wish you the best and success in this research.

Yours Faithfully,

For and on behalf of Central African Building Society

Charity Zvokuomba

Head of Branch Sales and Distribution

APPENDIX D: ETHICAL CLEARANCE

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

04-Jul-2022

Dear Mrs Tapiwa Bepe

Application Approved

Research Project Title:
The intention and continued usage of mobile banking applications in Zimbabwe

Ethical Clearance number:
UFS-HSD2022/0491/22

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

Dr Adri du Plessis
Digitally signed by Dr Adri du Plessis
Date: 2022.07.04 10:43:01 +02'00'

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APPENDIX E: LETTER OF EDITING

Linda Scott
Editing Services

Masters (Linguistics: Intercultural Communication); BA (Hons) Lang Prac; ACE; NPDE
Reg. Member of SATI and SACE

English language editing
SATI membership number: 1002595
Tel: 083 654 4156
E-mail: lindascott1984@gmail.com

17 August 2022

To whom it may concern

This is to confirm that I, the undersigned, have language edited the **dissertation** of

Tapiwa Bepe

for the degree

Master of Commerce in Business Management

entitled:

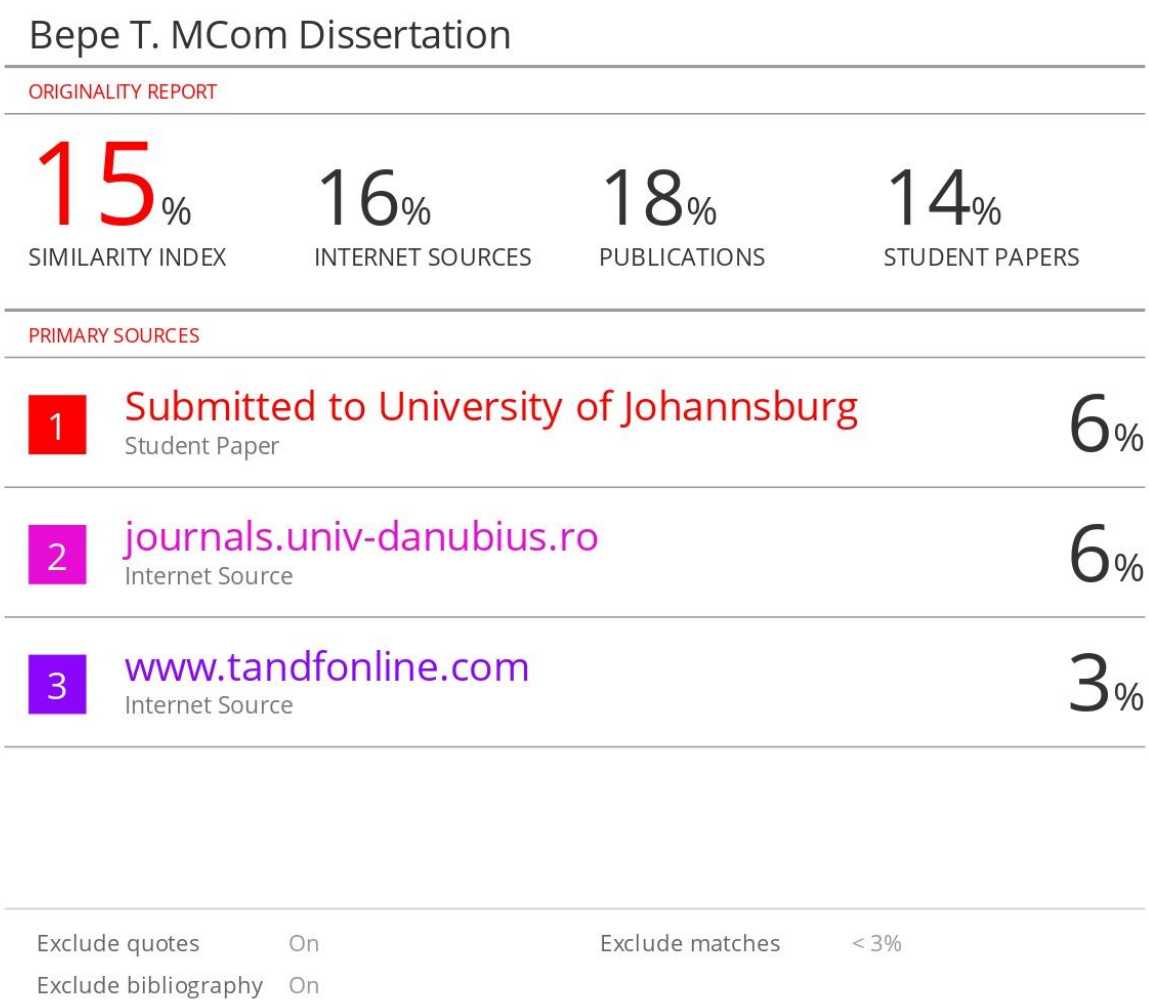
The intention and continued usage of mobile banking applications in Zimbabwe

The responsibility of implementing the recommended language changes rests with the author of the document.

Yours truly,

Linda Scott

APPENDIX F: TURN IT IN REPORT



Bepe T. MCom Dissertation

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