Maziriri, Eugine Tafadzwa ORCID logoORCID: https://orcid.org/0000-0002-8047-4702, Rukuni, Tarisai Fritz ORCID logoORCID: https://orcid.org/0000-0002-9915-5277, Nyagadza, Brighton ORCID logoORCID: https://orcid.org/0000-0001-7226-0635 and Bepe, Tapiwa ORCID logoORCID: https://orcid.org/0000-0002-1457-2275 (2026) The customer's quest to manage funds digitally: Exploring the factors that influence the intention to use and the ongoing use of mobile banking apps. Computers in Human Behavior Reports, 21. p. 100907.

Downloaded from: https://ray.yorksj.ac.uk/id/eprint/13701/

The version presented here may differ from the published version or version of record. If you intend to cite from the work you are advised to consult the publisher's version: https://doi.org/10.1016/j.chbr.2025.100907

Research at York St John (RaY) is an institutional repository. It supports the principles of open access by making the research outputs of the University available in digital form. Copyright of the items stored in RaY reside with the authors and/or other copyright owners. Users may access full text items free of charge, and may download a copy for private study or non-commercial research. For further reuse terms, see licence terms governing individual outputs. Institutional Repositories Policy Statement

RaY

Research at the University of York St John

For more information please contact RaY at ray@yorksj.ac.uk

Computers in Human Behavior Reports 21 (2026) 100907

Contents lists available at ScienceDirect

Computers in Human Behavior Reports

journal homepage: www.sciencedirect.com/journal/computers-in-human-behavior-reports

The customer's quest to manage funds digitally: Exploring the factors that influence the intention to use and the ongoing use of mobile banking apps

Eugine Tafadzwa Maziriri [a], Tarisai Fritz Rukuni [b], Brighton Nyagadza [c,d,*], Tapiwa Bepe [b]

[a] Department of Management & Entrepreneurship, Faculty of Economic & Management Sciences, University of the Western Cape, Bellville, South Africa
[b] Department of Business Management, Faculty of Economic and Management Sciences, University of the Free State (UFS), South Africa
[c] Department of Business, Management & Health Studies, York St John University, London Campus, City of London, England, United Kingdom
[d] Korea University Business School, Korea University, City of Seoul, South Korea

ARTICLE INFO

JEL classification:
G21
D12
O33
L86
M31

Keywords:
Mobile banking application
Technology acceptance
Continued usage
Digital behaviour
Zimbabwe

ABSTRACT

Despite the widespread use of mobile technologies, the adoption and ongoing use of mobile banking apps in developing countries like Zimbabwe remain limited. This research aims to identify the factors affecting people's intention to adopt and continue to use mobile banking apps, addressing the gap in context-specific studies and the low bank penetration rates, despite high mobile device usage. Using the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behaviour (TPB), and the User Experience (UX) model, the study explored how factors such as effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, trust, and risk influence user behaviour. Data were gathered from 377 mobile banking users in Zimbabwe through a quantitative survey, and Structural Equation Modelling (PLS-SEM) was employed for data analysis. The findings show that effort expectancy, perceived enjoyment, perceived interaction, and perceived risk significantly impact the intention to use mobile banking apps. In contrast, social influence, user experience, and perceived trust do not have a significant effect. Additionally, the intention to use, perceived trust, and perceived risk significantly affect continued usage. Continued use, in its turn, enhances customer loyalty and electronic word of mouth (e-WOM). These findings are useful for mobile app developers and bank managers looking to increase client retention and service quality in contexts characterised by low levels of trust and high levels of risk. The study enhances previous literature by providing an empirically-verified paradigm for understanding digital banking behaviour in underdeveloped economies and emphasises the specific factors impacting mobile financial service uptake in Zimbabwe.

1. Introduction

Information technology (IT) advancements are the driving force behind the rapid growth of mobile banking, also known as *m*-banking (Shankar et al., 2020). This growth aligns with the expectations of the Fourth Industrial Revolution (4IR) (Maziriri et al., 2025; Wasiq et al., 2024). Hanelt et al. (2015) and Crolic et al. (2022) emphasise the importance of this alignment for the ongoing transition into banking and finance digitisation. Customers can use *m*-banking, an innovative electronic channel, to interact with banks using a mobile device, such as a smartphone or personal digital assistant (PDA) (Bashar et al., 2024; Chawla & Joshi, 2017). The banking sector is expanding rapidly due to the internet (Khan & Khan, 2012), propelling industry into a trajectory of significant growth and paving the way for research into mobile banking applications (Maziriri et al., 2025; Nyagadza, 2022). Juniper Research projected that by 2024, there will be two billion *m*-banking customers worldwide (Maynard, 2020). In Zimbabwe, mobile banking apps such as Econet Wireless' Ecocash, NetOne Wireless' OneMoney, CABS' TextaCash, FBC's Mobile Moola, and CBZ Bank's Touch *m*-banking app are promoting the marketing of financial services and fostering financial equality, diversity, and inclusivity. Despite Zimbabwe's current 103 percent mobile penetration and a global mobile

* Corresponding author. Department of Business, Management & Health Studies, York St John University, London Campus, City of London, England, United Kingdom.
E-mail addresses: eemaziriri@uwc.ac.za (E.T. Maziriri), rukunitf@ufs.ac.za (T.F. Rukuni), b.nyagadza@yorksj.ac.uk (B. Nyagadza), tmatyanga@gmail.com (T. Bepe).

https://doi.org/10.1016/j.chbr.2025.100907
Received 3 May 2025; Received in revised form 12 December 2025; Accepted 16 December 2025
Available online 22 December 2025
2451-9588/© 2025 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

penetration rate of 78.2 percent (Tsokota et al., 2022), the acceptance of *m*-banking is still low, with a bancarisation rate of only 9 % (Nyagadza, 2022; Wasiq et al., 2024). In Zimbabwe, both state-owned and private banks are on a strategic path towards digital financial inclusion by developing mobile banking applications, with a view to easing pressure on access to financial services and digital transactions (Reserve Bank of Zimbabwe, 2025). Privately-owned banks are currently more advanced in terms of IT readiness, customer experience (UX), and real-time technological advancements than state-owned ones. This is because state-owned banks typically prioritise basic infrastructure over innovation cycles. As of mid-2024, according to a Reserve Bank of Zimbabwe (RBZ) report, there are eight registered state-owned banks, including AFC Commercial Bank, People's Own Savings Bank (POSB), National Building Society (NBS), and Infrastructure Development Bank of Zimbabwe (IDBZ), among others. There are 19 privately-owned banks, which include, but are not limited to, CBZ Bank, FBC Bank, CABS, ZB Bank, First Capital Bank, NMB Bank, Ecobank, Metbank, BancABC, among others (Reserve Bank of Zimbabwe, 2024).

The growth of mobile banking, or *m*-banking, has been fuelled by the increasing demand for personalised and self-service products and services. Letić has noted that this trend has been seen not only globally, but also locally, in Zimbabwe (2020). This increase is attributed to the proliferation of smart mobile phones and advancements in wireless technologies, which have made mobile banking and financial services marketing operations more prevalent in Zimbabwe. The overall number of *m*-banking members, which increased from 13,191,708.000 in December 2020 to 14,257,590.000 at the end of December 2021, is testimony of this (CEIC, 2021). It is worth noting that the number of active mobile financial service users exceeded 4 million by the end of 2021, demonstrating the expansion of the financial inclusion ecosystem (Reserve Bank of Zimbabwe [RBZ], 2022; Nyagadza, 2022).

In 1991, Zimbabwe's financial sector was liberalised, allowing new players to enter the banking industry and removing regulatory hurdles, thereby increasing competition and efficiency (Sanderson and Pierrle le Roux, 2017). According to Ajisafe and Ajide (2014), banking competition in Zimbabwe promotes stronger economic growth and paves the way for industrial expansion, resulting in a wide range of mobile banking applications. There are approximately 17 million banking applications in Zimbabwe (Dzoma, 2019), but only 6,543,758 active *m*-banking users, despite a 2.7 % growth in active mobile subscribers from 12,853,615 in the third quarter of 2019 to 13,195,902 in the fourth quarter of 2019 (POTRAZ, 2019). However, the number of mobile customers fluctuated between 11 and 15 million by the end of 2022, averaging 14.26 million (Statista, 2023). Based on previous research by Chaouali and Souiden (2019), therefore, immediate adjustments are necessary to support banking players in promoting the ongoing use of their mobile banking applications. The benefits of mobile banking for financial inclusion in Zimbabwe include, but are not limited to, the empowerment of women, youth and informal workers and entrepreneurs by paving the way for financial management freedom, market expansion and innovation for mobile network operators (Nefla & Jellouli, 2025), resilience and tax revenue generation, and policy leverage for the government and the economy (Kumari & Kulkarni, 2025). Government policies are found to be insufficient to support users' literacy, however, and regulations are required to strengthen or protect users' interests. One potential constraint currently affecting users of mobile banking applications is limited digital literacy. Indeed, many users of banking applications in rural areas face numerous problems navigating digital mobile banking applications for lack of skills necessary to do so (Olaoye et al., 2025). In addition, inconsistent internet connectivity in remote areas hinders effective access to mobile financial services, and high transaction costs are prohibitive for low-income users (Valera et al., 2024). There are also trust and security concerns (such as fear of scams, fraud, and data breach), regulatory disruptions, age and gender barriers, with women and elderly people frequently facing serious challenges such as limited access to technology, social norms and low literacy levels. The implications, in terms of financial inclusion, for users include more savings, access to credit and payment services, enhanced financial independence, although there might be risk of exclusion if problematic issues relating to infrastructure (Arnold, 2024) and digital literacy (Nyawo, 2025) are not addressed. For the financial sector, there is room to expand into untapped '*blue oceans*' markets, with digital frugal innovation in financial products (Nyagadza & Bashar, 2025, p. 339). However, challenges could include the move towards investment in cybersecurity, mobile user education, and rural digital infrastructure (Langevin et al., 2025). For the government, promoting the move towards the continued use of mobile banking applications for financial inclusion has positive implications in terms of flexibility to deliver social services digitally, good revenue from taxes, and financial transparency, stimulation of entrepreneurship (Chen & Tran, 2025), savings and investment for the economy (Svotwa et al., 2025). However, if the inequalities persist, this may deepen problems relating to socio-economic divides (Khan et al., 2025). There is need for consumer protection, inclusive financial policies, and digital infrastructural development by the government so as to ensure economic '*prosperity for posterity*'.

This study on the purpose and ongoing use of *m*-banking applications in Zimbabwe is highly relevant. The study objective is to evaluate constructs derived from theoretical models such as the Theory of Planned Behaviour, the Unified Theory of Acceptance and Use of Technology (UTAUT), and the User Experience (UX) model. These constructs include effort expectancy, social influence, user experience, perceived enjoyment, perceived interaction, intention to use, electronic word-of-mouth (e-WOM), and loyalty (Fishbein & Ajzen, 1977; Venkatesh et al., 2003). The theoretical gap exposed – by comparing the current study to previous research that used different frameworks like Innovation Diffusion Theory (IDT), Decomposed Theory of Planned Behaviour (DTPB), among others from Information systems (ISs) and Information and Communications Technology, demonstrates that the theoretical framework adopted in the present study is well aligned with its objectives. This comparison highlights superior relevance, practical applicability, and contextual adequacy of the framework used in this study.

The following were some of the study's empirical goals:

- *To determine the impact of effort expectancy, social influence, perceived enjoyment, user experience and perceived interaction on the intention to use m-banking applications.*
- *The examine impact of continued usage on m-banking applications on e-WOM and loyalty.*

Structurally, this article begins with an introduction, followed by a review of the literature, including theoretical and empirical research, to clarify the relationship between theory and practice. The third section presents background information on research and methodology. The data analysis, discussions, implications, and the conclusion are presented thereafter. The article ends with significant findings, suggestions for further research, and constraints.

2. Research gaps

There is a dearth of research on factors influencing the intention to use mobile banking applications and the impact of continuous usage on customer loyalty in Zimbabwe. Further scholarly investigation in this area is therefore needed. Most existing research has focused on countries such as the UK, Malaysia, Finland, Jordan, and Lebanon. Abu-Taieh et al. (2022), for example, combined different theories and service quality to study the intention to continue using mobile banking in Jordan. Shaikh and Karjaluoto (2016), meanwhile, conducted a study in Finland to examine the impact of mobile banking application usage on customer-bank relationships. In a similar vein, Foroughi et al. (2019) investigated the influence of self-efficacy and channel choice on people's decision to continue using mobile banking in Malaysia. Additionally, Merhi et al. (2019) expanded upon the Unified Theory of Acceptance

and Use of Technology (UTAUT2) to explore the variables of trust, security, and privacy that affect the adoption of mobile banking services in Lebanon and the UK. There is limited evidence from these studies on how factors such as effort expectancy, social influence, perceived enjoyment, user experience, and perceived interaction impact a person's intention to use *m*-banking applications, and how the continuous use of these apps affects word-of-mouth (WOM) and customer loyalty in Zimbabwe. This lack of research extends to developing nations as a whole, including Zimbabwe. Further examination of this under-researched area is therefore warranted.

Zimbabwean scholars have conducted various studies in different areas associated with mobile applications. Makanyeza (2017), for example, studied the factors influencing consumers' intention to adopt mobile banking services in Zimbabwe. However, this study did not focus solely on mobile banking applications. Another survey by Mago and Chitokwindo (2014) focused on the impact of mobile banking on financial inclusion in Zimbabwe, while a study by Mavhiki et al. (2015) examined the effect of mobile banking on traditional banking practices in Zimbabwe. Muzurura et al. (2021), meanwhile, investigated the determinants of mobile learning systems adoption in rural secondary schools in Zimbabwe. Additionally, Tsokota et al. (2022) conducted a study to identify the security, trust, and other factors influencing users' adoption of the CBZ Touch banking application. Based on their findings, they developed a plan to increase users' adoption of the application. From both international and local studies mentioned above, it can be observed that there is indeed a scarcity of research on the effects of effort expectancy, social influence, perceived enjoyment, user experience, and perceived interaction on the intention to use mobile banking applications, as well as the effects of continuous use of these applications on word-of-mouth and customer loyalty in Zimbabwe.

It would be naive to assume that research from countries like the UK, Finland, Malaysia, Jordan, and Lebanon would be directly applicable to Africa. Indeed, research on the impact of factors such as effort expectancy, social influence, perceived enjoyment, user experience, and perceived interaction on the intention to use mobile banking applications, as well as the long-term effects of application usage on word-of-mouth and customer loyalty in an African context may well yield different results from studies conducted in other parts of the world. Therefore, it is necessary to conduct this type of research so as to confirm or refute the findings of earlier studies, with particular reference to Zimbabwe. Studies focusing on the Zimbabwe context are very limited, making this study, which focuses on customers in a developing nation, necessary to fill the gap. The theoretical and practical insights provided by this innovative study will propel future scholarly research in this field.

3. Research context

3.1. Understanding the phenomenon: "the customer's quest to manage funds digitally"

In recent years, customers in Zimbabwe have increasingly turned to digital money management through mobile banking applications (Tsokota et al., 2022). This trend reflects a growing preference for mobile banking apps over traditional banking methods in managing finances and conducting transactions (Manyeruke, 2018). The convenience and accessibility offered by mobile banking applications are key factors driving this shift. Customers no longer need to visit physical bank branches to access their accounts or complete transactions, which is particularly important in Zimbabwe, where many people, especially those residing in rural areas, have limited access to traditional banking services (Manyeruke, 2018).

The popularity of mobile banking apps in Zimbabwe is attributed to their affordability and ease of use (Mago & Chitokwindo, 2014; Mawere et al., 2013). With the abundance of mobile banking apps, people can now manage their accounts more affordably, as these apps facilitate free or low-cost transactions. Additionally, the user-friendly interfaces and simple procedures of mobile banking apps make them more accessible to those unfamiliar with traditional banking systems. The COVID-19 pandemic further contributed to the increased use of mobile banking apps in Zimbabwe, as people were confined to their homes and pandemic measures included avoiding crowded venues such as banks, implementing lockdowns, and enforcing social distancing. As a result, mobile banking apps have become more appealing. Generally speaking, the customer's quest to manage funds digitally in a Zimbabwean context can be attributed to the convenience, accessibility, affordability, user-friendliness, and security offered by mobile banking apps as compared to traditional banking methods.

3.1.1. Theoretical premise

Many theories and models seek to predict and interpret human behaviour. Deploying some of these in this study is essential since the objective is to understand how customershow customers utilise mobile banking applications in a challenging economic environment by integrating various theoretical perspectives on innovation and technology adoption. The study is primarily based on the User Experience (UX) model, the Theory of Planned Behaviour (TPB), and the Unified Theory of Acceptance and Use of Technology (UTAUT) because of their relevance to the constructs and the proposed connections between them. These theories will be discussed in the following sections.

3.2. The Unified Theory of acceptance and use of technology model

This study is grounded in the Unified Theory of Acceptance and Use of Technology (UTAUT) paradigm. The UTAUT model, developed by Venkatesh et al. (2003), explains users' intentions to use an information system and their subsequent behaviour. It demonstrates how social influence and effort expectancy impact behavioural intentions. The extent to which a user perceives technology as beneficial is therefore linked to their intention to use it (Venkatesh & Davis, 2000). Effort expectancy, as defined by Venkatesh et al. (2003), refers to the ease of use of a system, and can be traced back to TAM as perceived ease of use (Abubakar, 2013). In the TRA, TAM, and TPB models, social influence is the belief in the importance of significant individuals' opinions about adopting a new system, also known as subjective norms (Abubakar, 2013; Nyagadza, 2022). This study posits that the intention to use and actual use of *m*-banking applications are influenced by effort expectancy and social influence. Furthermore, e-WOM resulting from an organisation's technology, specifically mobile banking applications, is influenced by customers' perceived interactions and user experiences, as well as their intention to use the technology in the future. See Fig. 1 for the UTAUT diagram. The UTAUT model provides a deeper insight into the impact of effort expectancy and social influence on the intention to use and continued use of mobile banking applications in Zimbabwe. This understanding could be utilised to devise strategies to boost the adoption and usage rates of these applications. For example, bank managers could increase users' willingness to adopt and sustain use of mobile banking applications by simplifying the user experience and highlighting the applications' value through testimonials or endorsements.

3.3. User experience (UX) model

Hassenzahl (2008) discusses the concept of user experience (UX), emphasising the importance of enjoyable social interactions as the driving force behind technology use. He defines user experience as a fleeting, subjective emotion that arises from using a product or service. Additionally, Hassenzahl (2003) suggests that the user experience model accounts for the unique characteristics of each user and the product features that affect the user experience. The theoretical model of user experience examines the product features that contribute to the overall impression of the product. Han et al. (2018) also highlight the importance of designing goods and providing services that deliver positive,

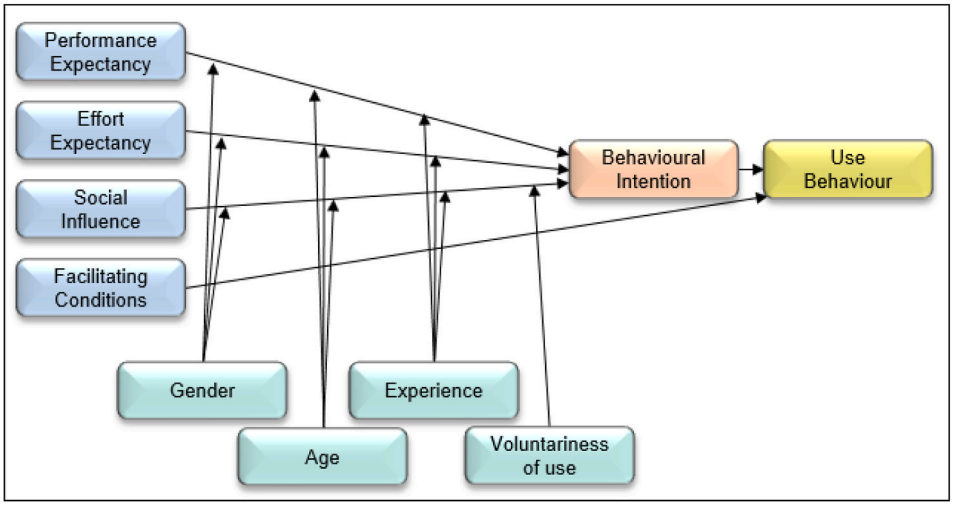

Fig. 1. Unified theory of acceptance and use of technology (UTAUT).
Source(s): Courtesy of Venkatesh et al. (2003).

pleasurable experiences by linking product features to perceptions and experiences.

The user experience model acts as a framework for understanding how user experience affects the intention to adopt and continue using mobile banking applications in Zimbabwe. User-friendly, practical, and positive experiences are more likely to keep users engaged, making user experience a crucial factor in acceptance and usage rates. This model has demonstrated how users' intentions and long-term use of mobile banking apps are shaped by their overall experience. By employing the user experience model, mobile banking applications can be designed and refined to improve user experience and boost adoption and usage rates. See Fig. 2 for the user experience model.

3.4. The Theory of Planned Behaviour (TPB)

Goh et al. (2017) argue that the Theory of Planned Behaviour (TPB), initially proposed by Ajzen (1985), is a rational decision-making model that utilises three key independent variables to predict behavioural intentions. TPB is defined as human behaviour guided by behavioural intentions, attitudes, and control. People's attitudes toward a specific behaviour, their perception of the influence of others, and their sense of behavioural control are examples of these behavioural intentions. According to Raygor (2016), the Theory of Planned Behaviour aims to address various motivational components within unique settings in order to explain the overall execution of a specific behaviour. Furthermore, as noted by Ajzen (2015), the TPB seeks to provide a comprehensive framework for understanding the factors influencing consumer behaviour intentions. Given that some of the variables outlined in Fig. 3 are involved in the development of the hypothesis, the Theory of Planned Behaviour is relevant to the current study, because, for example, it examines whether social factors influence the use of a mobile banking application. Specifically, the inclusion of new predictor variables enhances the utility of the TPB in terms of its predictive power across different domains (Wong et al., 2018). New components have been added to the TPB model in an increasing number of studies (Jang et al., 2015; Maichum et al., 2016; Read et al., 2013).

Dedeoğlu et al. (2022) argue that the TPB is a valuable model for understanding consumer behaviour and could be enhanced by incorporating new components. Ajzen (1985) propose integrating constructs from the Technology Acceptance Model (TAM) to strengthen and improve the TPB, allowing the model to predict consumer behaviour across various information systems and technologies. Previous research has focused on mobile technologies, adding variables such as compatibility, convenience, connectivity, perceived enjoyment, facilitating conditions, perceived risks, and trust so as to enhance predictive power. Studies by Gao et al. (2015), Kim et al. (2015), and others have

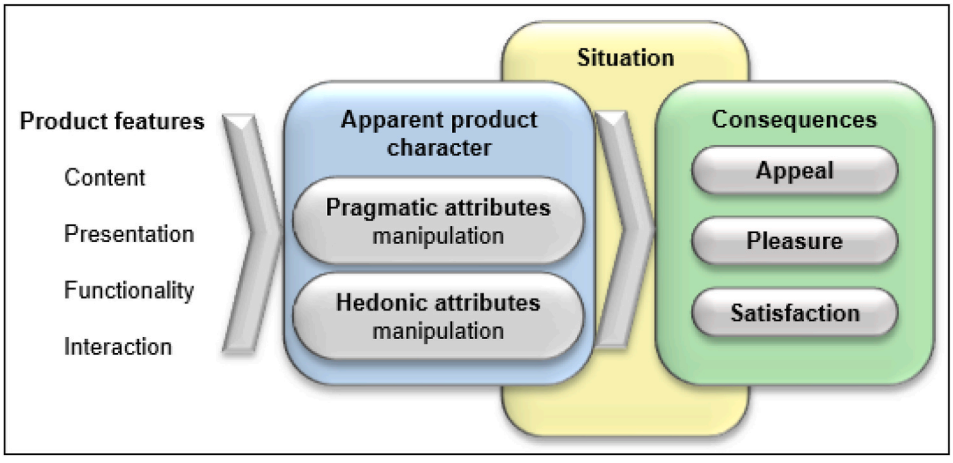

Fig. 2. User experience model.
Source(s): Courtesy of Han et al. (2018).

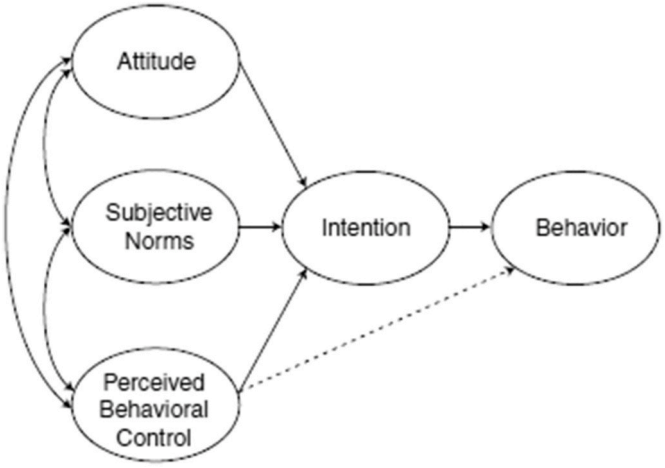

Fig. 3. The theory of planned behaviour.
Source(s): Courtesy of Liao et al. (2007).

incorporated additional variables such as attitudes (ATT), perceived usefulness (PU), and perceived ease of use (PEOU) into both the TAM and TPB models (Ghazali et al., 2018; Yang, 2005). In other cases, the integrated model has been used to examine adoption criteria for mobile commerce and to understand IT acceptability by relevant experts (Mun et al., 2006).

The difference between TAM and TPB stems from the fact that many people react differently when deciding whether to accept new information and communication technologies (ICTs). Their decisions are based on perceived ease of use (PEOU) and perceived usefulness (PU) (Venkatesh et al., 2012). However, these studies have failed to consider the impact of factors such as trust, attitudes (ATT), and subjective norms (SN) (Ghazali et al., 2018). Integrating characteristics like trust and personal innovativeness (PI) with the TAM and TBP models requires the development of a strong predictive model that can effectively measure the adoption of *m*-banking, as demonstrated in the current study. This study extended the Theory of Planned Behaviour (TPB) to measure consumers' intentions to use mobile banking applications. The extended model incorporated variables such as effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, and the traditional TPB construct (i.e., behavioural intention) (Wong et al., 2014). The TPB is illustrated in Fig. 3.

4. Conceptual model and hypotheses formulation

The conceptual model illustrating the pathways and relationships among the constructs under study is shown in Fig. 4. The research hypotheses will be presented in the sections thereafter.

4.1. Effort expectancy and the intention to use a mobile banking application

The term "effort expectancy" refers to the ease of use of a system, and specifically of *m*-banking apps (Venkatesh et al., 2003). Effort expectancy, a component of the UTAUT model, has been used to analyse the acceptance of technology in various industries, including healthcare (Wang et al., 2020). The empirical findings of these studies emphasise how user perceptions and the alignment of the task with the technology impact customer acceptance of it. Therefore, customers' willingness to use a new system is greatly influenced by their perception of it as easy to use and requiring minimal effort (Alalwan et al., 2018). For this reason, examining the relationship between effort expectancy and intention to use a mobile banking application would enhance our understanding of the UTAUT model, providing evidence relating to the significance of effort expectancy in technology adoption. This study aims to test the following hypothesis:

H1. Effort expectancy has a positive and a significant impact on the intention to use mobile banking applications.

4.2. Social influence and the intention to use a mobile banking application

The level of belief a person has in the idea that others expect them to use new systems, such as *m*-banking applications, is referred to as social

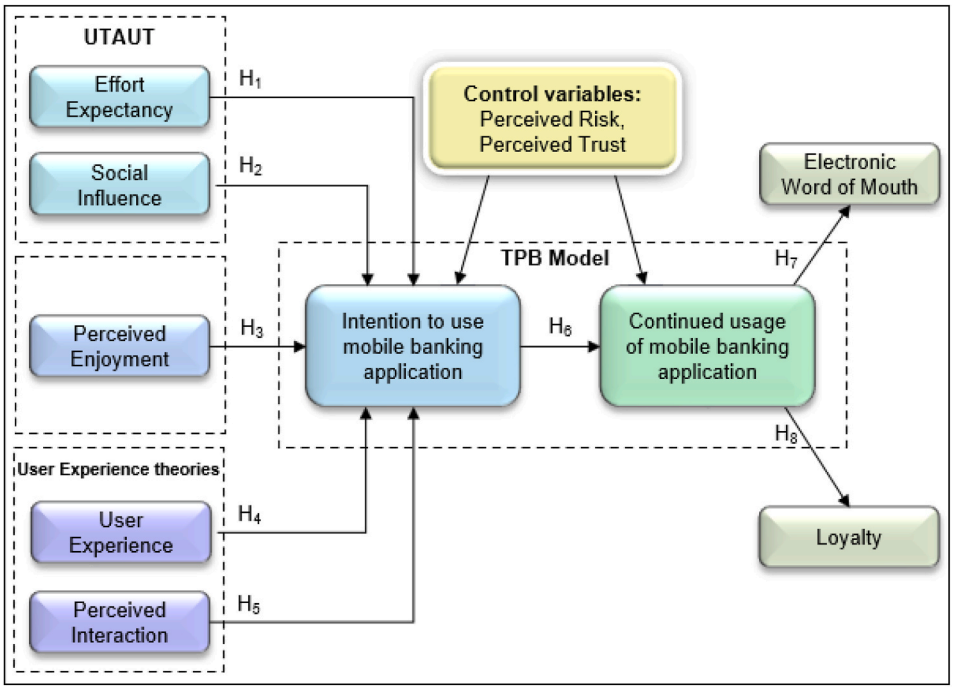

Fig. 4. Conceptual model.
Source(s): Figure developed by authors

influence (Abubakar, 2013). The use of *m*-banking applications by individuals could be influenced by the values instilled by their family, friends, and peers (Mokhtar et al., 2018). Previous research by Mokhtar et al. (2018), Purwanto and Loisa (2020), and Yaseen and El Qirem (2018) has shown a positive correlation between the intention to use *m*-banking and social influence. This study aims to investigate the following hypothesis:

H2. Social influence has a positive and significant impact on the intention to use mobile banking applications.

4.3. Perceived enjoyment and the intention to use a mobile banking application

Perceived enjoyment is the feeling of happiness and satisfaction derived from using a system (Praveena & Thomas, 2014). Research by Ukpabi et al. (2019) shows a positive correlation between behavioural intention and happiness in *m*-banking. Avornyo et al. (2019) also found that perceived enjoyment predicts the intention to continue using *m*-banking. Therefore, this study proposes the following hypothesis:

H3. Perceived enjoyment has a positive and significant impact on the intention to use mobile banking applications.

4.4. User experience and the intention to use a mobile banking application

User experience has garnered significant attention because it is said to encompass every interaction between a user and a product, in this case, mobile banking services (Schrepp et al., 2017). According to Wang and Hsu (2019), consumers' purchase intentions can be influenced by a product's perceived sustainable value and aesthetics, which could also enhance the user experience. They conclude that aesthetics significantly influences users' intentions to use technology. As a result, user experience will play a key role in this study, which aims to determine the ease of use of *m*-banking programmes and how this affects users' intentions to adopt and continue using them in Zimbabwe. Accordingly, the following hypothesis is advanced:

H4. Customers' user experience has a positive and significant impact on the intention to use mobile banking applications

4.5. Perceived interaction and the intention to use a mobile banking application

High levels of system engagement, defined here as *m*-banking application interaction, are often associated with greater information processing, continuous and instantaneous feedback, and smooth and active user participation (Yang & Shen, 2018). Perceived interactivity significantly influences attitudes toward mobile banking, with highly engaged users finding mobile banking applications more helpful and more likely to utilise them for banking services (Shankar et al., 2020). According to Shankar's (2021) empirical research, interactivity significantly affects customer engagement with *m*-banking applications. The purpose of this study is to understand how perceived contact influences consumer user intentions. As a result, the research puts forth the following hypothesis:

H5. Perceived interaction has a positive and significant impact on the intention to use mobile banking applications.

4.6. The intention to use and continue to use mobile banking applications

A key component of the UTAUT model is behavioural intention, which indicates how willing and committed people are to carry out the underlying actions. Consequently, people are more likely to engage in the underlying conduct when their intentions are stronger (Ajzen, 1991). According to Sharma and Sharma (2019), the decision to utilise mobile banking serves as a crucial precondition for actually using the service. In this study, it refers to the purpose and ongoing use of *m*-banking apps. The following hypothesis is put forth in this regard:

H6. Customers' intention to use mobile banking applications has a positive and significant impact on continued use of these applications.

4.7. Continued usage of the mobile banking applications, e-word of mouth and loyalty

Recent years have seen a large amount of research on the impact of *e*-WOM on consumers' perceptions about utilising products and services (Cheung & Thadani, 2012). Research by Farzin et al. (2021) clarifies the relationship between intention to use m-banking and actual use behaviour, and it also mediates how word-of-mouth affects actual use behaviour. According to Shahid, Islam, and Hasan (2022), a substantial correlation was found between customer loyalty and the customer's intention to continue using *m*-banking apps. In this case, ongoing use of *m*-banking increases customer loyalty by improving the convenience, efficiency, and personalisation of banking services (Murray, 2016). Two further hypotheses are developed as follows, taking into account the extra components (loyalty, e-WOM, and ongoing use of *m*-banking applications):

H7. Customers' continued usage of mobile banking applications has a positive and significant impact on electronic Word of Mouth.

H8. Customers' continued usage of mobile banking applications has a positive and significant impact on loyalty.

4.8. Control variables

To mitigate any potential confounding influence on the empirical results, perceived risk and perceived trust were incorporated as control variables (Bernerth et al., 2018). According to Bernerth et al. (2018), the role of control variables is to eliminate error in research, enhance the quality of observed relationships among variables of interest, offer programmatic efforts to elucidate the reasons behind observed results, and facilitate the accurate interpretation of findings. In this study, perceived danger and perceived trust are the two control variables included to account for potential competing reasons for the intention to use and the ongoing use of mobile applications. Previous studies by Zalloum et al. (2019), Thusi et al. (2019), Van et al. (2020), and Malaquias and Hwang (2016) have also included perceived risk and perceived trust as control variables to examine their effects on the intention to continue using mobile banking.

5. Methodology

This study used a quantitative research design and embraced a positivist philosophy. It was possible to collect data on expectations regarding effort, social impact, perceived enjoyment, user experience, intention to use, continued use, perceived danger, perceived trust, e-WOM, and loyalty using the selected design. This method also made it easier to examine the connections between the constructions being studied.

5.1. Sampling procedure and characteristics

The study focused primarily on users of mobile banking apps from Zimbabwean banks across major cities (i.e., Harare, Bulawayo, Mutare, Gweru, Kwekwe, Kadoma, Chinhoyi, and Masvingo) in Zimbabwe. These participants had to fulfil two requirements: be at least 18 years old and have transacted through a mobile banking app from a Zimbabwean bank within the previous 12 months. In this study, a non-probability sampling technique known as convenience sampling was employed. Convenience sampling is the process of choosing a readily available sample (Malhotra, 2019). Because the sample of Zimbabwean mobile

banking app users faced comparable circumstances in a highly competitive industry, this approach was deemed appropriate (Malhotra, 2019). Convenience sampling was also considered to be efficient and reasonably priced. The broad and diversified population of mobile banking app users in Zimbabwe made other non-probability sampling techniques, such as snowball sampling, inappropriate for this study. For the online survey, it was made very clear that the anonymity of the study participants would be maintained and that the study was being conducted solely for academic purposes. It should be noted that there was no official data available at the time of data collection depicting the total number of bank accounts in Zimbabwe. The historical evidence technique was employed, for purposes of comparison, to determine the required sample size (Berg et al., 2004). An average sample size of 377 respondents was therefore estimated, taking into account recent studies on *m*-banking by Hamidi and Safareeyeh (2019), Mehrad and Mohammadi (2017), and Shankar and Rishi (2020). The adequacy of the sample size in PLS-SEM depends significantly on the complexity of the model, and in particular, on the number of latent constructs and the number of structural paths. As recommended by Hair, Hult, Ringle, and Sarstedt (2017), sample size determination in PLS-SEM can follow several guidelines, including the "10-times rule," which suggests that the minimum number of respondents should be at least 10 times the maximum number of structural paths directed at any endogenous construct. In this study, the most complex endogenous construct, continued usage, had four predictors, suggesting a minimum of 40 responses. However, more recent and rigorous approaches, such as power analysis using G*Power (Faul et al., 2009), recommend larger samples to detect small to medium effect sizes at adequate power levels (typically 0.80). Following the aforementioned principles, our final sample of 377 respondents far exceeds the minimum threshold, thereby ensuring the robustness and statistical power of our results. This sample size is also aligned with benchmarks from similar studies on mobile banking using PLS-SEM (e.g., Alalwan et al., 2017; Boonsiritomachai & Pitchayadejanant, 2017). Web-based surveys have become a valuable tool for collecting data in scholarly studies in recent years (Hsu & Lin, 2016). Considering the advantages of cost-effective and efficient data gathering and processing led to the selection of an online questionnaire (Nayak & Narayan, 2019). Regmi et al. (2016) noted, moreover, that using an online survey makes it possible to reach of sizable and widely-distributed populations. Experts view this tool as a time- and money-saving strategy for researchers (Regmi et al., 2016). Users of *m*-banking applications received online questionnaires via email, along with consent documents outlining the study's objectives and participants' rights to participate voluntarily.

5.2. Respondents' demographics

Table 1 presents the demographics of participants, who were users of mobile banking apps from Zimbabwean banks within the past year. A total of 377 participants, aged 18 and above, completed the questionnaire after being informed of the study's objectives and consenting to participate. The results show that 196 (51.99 %) of the respondents were male, 180 (47.75 %) were female, and 1 (0.27 %) preferred not to indicate their gender. The percentage of male respondents was slightly higher than that of female respondents. Additionally, 162 (42.97 %) of the participants were aged between 26 and 35 years, 152 (40.32 %) were between 36 and 45 years of age, and 34 (9.02 %) were aged between 18 and 25. In terms of employment status, 325 (86.21 %) of the participants were employed, 25 (6.63 %) were unemployed, 7 (1.86 %) were retired, and 20 (5.31 %) had other sources of employment.

a. Measurement instrument and questionnaire design

All the 38 items used to measure the variables were adapted from prior studies (see Appendix A). The respondents' beliefs were captured using a five-point Likert-type scale anchored on "strongly disagree" as one (1) and "strongly agree" as five (5). In this study, a five-point Likert scale was employed to enhance clarity for respondents and to facilitate efficient data coding and analysis. The scale was selected due to its user-friendly nature, which reduces respondent fatigue and minimises confusion during questionnaire completion. Furthermore, the five-point Likert scale is widely recognised for its ability to discriminate effectively between varying degrees of respondents' attitudes, perceptions, and levels of agreement with the measured constructs. By providing a balanced range of response options, the scale allows respondents to express nuanced differences in opinion, thereby improving the sensitivity and reliability of the measurement instrument (Monette et al., 2010; Lam & Kolic, 2008; Cooper & Emory, 1995). Since English is the language used for instruction at the institution, the researchers decided to formulate questions in English about the participants' demographic profile and about each research variable under study. Cronbach's Alpha, in this study, ranges from 0.748 to 0.948, indicating strong reliability of the measurement constructs (Hair, Risher, et al., 2019). Hair, Risher, et al. (2019) recommend that Cronbach's Alpha should be at least 0.7 to reflect acceptable construct reliability in a measurement scale. This significantly influences the robustness of the measurement model, as evidenced by the acceptable results reported in the evaluation presented in Table 2.

Table 1
Sample demographic characteristics.

Characteristics	Frequency	%
Gender		
Male	196	51.99
Female	180	47.75
Prefer not to say	1	0.27
Total	**377**	**100**
Age		
18–25 years	34	9.02
26–35 years	162	42.97
36–45 years	152	40.32
46–60 years	23	6.10
61 years and above	6	1.59
Total	**377**	**100**
Employment Status		
Employed	325	86.21
Unemployed	25	6.63
Retired	7	1.86
Other	20	5.31
Total	**377**	**100**

Source(s): Table produced by authors

6. Statistical analysis plan

This study employs Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4.0 software. The choice of PLS-SEM is primarily due to its suitability for studies with relatively small sample sizes, as it requires fewer observations than other methods (Ahimbisibwe et al., 2023). Additionally, SmartPLS enables the simultaneous analysis of complex relationships among multiple constructs, as conceptualised in this research (Hair, Ringle, & Sarstedt, 2011a, 2011b). PLS-SEM integrates principal component analysis with ordinary least squares regression to estimate partial least squares models (Mateos-Aparicio, 2011). It is often preferred over covariance-based SEM (CB-SEM) due to the fewer restrictive assumptions required by PLS-SEM (Hair et al., 2011a, 2011b). This approach is especially suitable for modelling based on composites, as it does not rely on distributional assumptions, offers high statistical power, and is well-suited to smaller samples with numerous constructs and measurement items (Hair, Ringle, & Sarstedt, 2012, Hair, Risher, et al., 2019; 2017b). Moreover, SmartPLS provides robust tools for assessing the reliability and validity of the path model (Hair et al., 2018). PLS-SEM has gained significant traction in the social sciences, with an increasing number of studies utilising this method in recent years (Hair, Hult, et al., 2019). Its popularity stems from its ability to estimate complex models with

Table 2
Measurement accuracy assessment.

Variables	Factor Loading	Composite Reliability	Average Variance Extracted	VIF (outer) values
Effort Expectancy		0.885	0.658	
EE1	0.792			1.622
EE2	0.830			1.840
EE3	0.826			1.901
EE4	0.795			1.831
Social Influence		0.935	0.879	
SI1	0.937			2.346
SI2	0.938			2.346
Perceived Enjoyment		0.935	0.827	
PE1	0.855			2.068
PE2	0.938			3.190
PE3	0.932			3.183
User Experience		0.881	0.650	
UX1	0.754			1.972
UX2	0.774			2.038
UX3	0.846			2.015
UX4	0.847			2.040
Perceived Interaction		0.857	0.667	
PI1	0.765			1.543
PI2	0.848			2.332
PI3	0.835			2.654
Intention to Use		0.900	0.750	
ITU1	0.868			1.952
ITU2	0.898			2.317
ITU3	0.829			1.762
Continued Usage		0.900	0.694	
CU1	0.811			1.917
CU2	0.909			3.184
CU3	0.863			2.516
CU4	0.739			1.490
Perceived Risk		0.893	0.677	
PR1	0.732			1.531
PR2	0.876			2.336
PR3	0.877			2.589
PR4	0.797			2.345
Perceived Trust		0.927	0.809	
PT1	0.899			2.866
PT2	0.895			2.944
PT3	0.904			2.110
Electronic Word of Mouth		0.955	0.877	
EWOM1	0.946			2.403
EWOM2	0.945			2.815
EWOM3	0.918			3.017
Loyalty		0.881	0.650	
LOY1	0.722			1.809
LOY2	0.763			2.084
LOY3	0.871			2.156
LOY4	0.858			1.805

Source(s): Table produced by authors

multiple constructs, indicators, and paths, without any need whatsoever multivariate normality. Sarstedt, Ringle, and Hair (2017) note that PLS-SEM is a causal–predictive approach, aimed at enhancing the predictive capability of statistical models while offering causal insights. Richter et al. (2016) argue that SEM remains a robust methodology in contemporary research. The composite-based PLS-SEM offers advantages over factor-based CB-SEM in managing complex models and fulfilling the predictive and explanatory demands of soft theory. This study follows the two-step approach proposed by Anderson and Gerbing (1988), beginning with an evaluation of the measurement model (to assess its reliability and validity) and then examining the structural model, which explores the path relationships among the variables.

To enhance the robustness of our model estimation, this study makes a clear distinction between exogenous constructs (effort expectancy, social influence, perceived enjoyment, user experience, perceived interaction, perceived trust, and perceived risk) and endogenous constructs (intention to use, continued usage, electronic word-of-mouth (*e*-WOM), and loyalty). All constructs are operationalised as reflective latent variables and measured using multi-item indicators sourced from validated references, as shown in Table 2. The model was estimated using Partial Least Squares Structural Equation Modelling (PLS-SEM), a composite-based approach that combines principal components analysis and ordinary least squares (OLS) regression. PLS-SEM is well-suited to theory development and prediction in complex models with multiple mediators and small sample sizes (Hair et al., 2011a, 2011b; Sarstedt et al., 2017). Main effects, connecting exogenous to endogenous constructs, were examined using bootstrapping with 5000 resamples in order to calculate bias-corrected confidence intervals for indirect effects (Hair, Hult, et al., 2019). The significance of structural paths was assessed using path coefficients (β), t-statistics, and p-values, while predictive power was evaluated through the R^2 values of the endogenous constructs. Model fit was assessed using the standardised root mean square residual (SRMR) and the global goodness-of-fit (GoF) index, both of which met established thresholds (Hu & Bentler, 1998a,b; Wetzels, Odekerken-Schröder, & Van Oppen, 2009a, 2009b). By grounding the model estimation in established econometric logic and theoretical reasoning, the study ensures that both predictive accuracy and theoretical coherence are maintained.

6.1. Reliability analysis

The measurement model examines the relationships between constructs and indicators, including reliability, convergent validity, and discriminant validity. The first step in the analysis is to assess convergent validity, which measures the extent to which a research instrument accurately measures the intended construct. Convergence is evaluated using standardised factor loading, composite reliability (CR), and average variance extracted (AVE). According to Hamid et al. (2017), factor loadings for each item should exceed 0.7 and be statistically significant for adequate convergent validity. Factor loadings explain the correlation between the item and the construct. Higher factor loadings, meeting or exceeding the 0.7 threshold, indicate that the measured items strongly influence the construct. Additionally, the AVE of latent constructs should exceed 0.50, and composite reliability values should be 0.70, 0.80, or higher. The initial measurement model revealed that the factor loading for social influence (SI3) was below the 0.7 threshold, so the item was removed, and the model was adjusted. The final results of the convergent validity analysis are presented in Table 2 and Fig. 5.

The results presented in Table 3 and Fig. 5 reveal:

- that for all the constructs, the factor loadings are significant at $p < 0.001$ and above 0.70, as highlighted by Hamid et al. (2017).
- that the CR estimates are above the recommended threshold of 0.7, as indicated by Aguirre-Urreta et al. (2013).
- that the AVEs of all the constructs are above the 0.5 threshold, as highlighted by Hair Jr et al. (2014), with 0.650 (user experience and loyalty) as the lowest AVE estimates (see Table 4).

Collectively, these estimates provide strong statistical evidence supporting the convergent validity of the measurement model, indicating that the indicators consistently and adequately measure their respective latent constructs. However, establishing construct validity also requires demonstrating discriminant validity. As noted by Field (2013), discriminant validity refers to the extent to which measurement items capture conceptually distinct constructs rather than overlapping or identical concepts. In this regard, Tables 3 and 5 present the results of the discriminant validity analysis, which assess whether the constructs in the model are empirically distinguishable from one another.

Discriminant validity was assessed using the Hetero-Trait-Monotrait Ratio (HTMT) and the Fornell-Larcker criterion. Following Henseler,

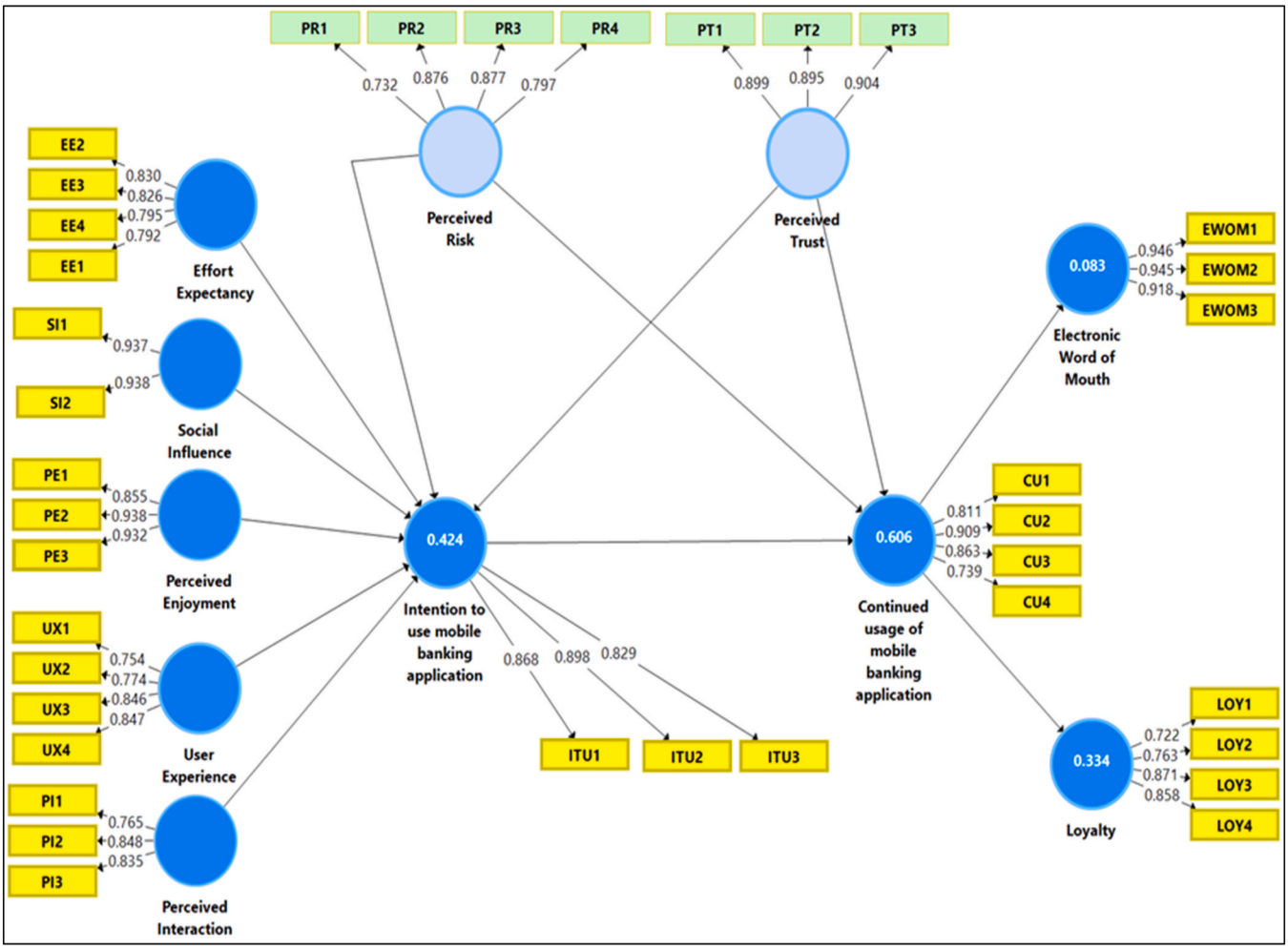

Fig. 5. Measurement model with standardised factor loadings.
Source(s): Figure produced by authors

Table 3
Heterotrait–monotrait ratio (HTMT).

Construct	CU	EE	EWOM	ITU	LOY	PE	PI	PR	PT	SI	UX
CU											
EE	0.626										
EWOM	0.326	0.205									
ITU	0.840	0.587	0.317								
LOY	0.637	0.479	0.873	0.576							
PE	0.518	0.483	0.609	0.490	0.699						
PI	0.721	0.790	0.350	0.699	0.619	0.522					
PR	0.237	0.255	0.142	0.371	0.306	0.163	0.217				
PT	0.500	0.532	0.322	0.475	0.632	0.430	0.566	0.480			
SI	0.317	0.317	0.254	0.296	0.348	0.393	0.397	0.083	0.343		
UX	0.529	0.544	0.580	0.468	0.704	0.833	0.721	0.112	0.406	0.255	

Key: HTMT (heterotrait-monotrait ratio of correlations), EE (Effort Expectancy), SI (Social Influence), PE (Perceived Enjoyment), UX (User Experience), PI (Perceived Interaction), ITU (Intention to Use), CU (Continued Usage), PR (Perceived Risk), PT (Perceived Trust), EWOM (Electronic Word of Mouth), LOY (Loyalty).
Source(s): Table generated by authors

Ringle, and Sarstedt's (2015) guidelines, each HTMT construct value was compared with a threshold of 0.85. The results showed that all values were below 0.85, ranging from 0.496 to 0.833, with the highest value on the facilitating conditions construct (0.833). This indicates that all constructs meet the criteria for discriminant validity. The Fornell and Larcker (1981) technique was also used to assess discriminant validity, which is achieved if the square root of the AVE is greater than the inter-factor correlations among the constructs. The highest inter-factor correlation was 0.762, between intention to use and continued usage, which is lower than the lowest square root AVE (0.806 for Loyalty). This statistical evidence confirms the discriminant validity of the measurement model, suggesting that the measures are suitable for structural model analysis.

Table 4
Fornell-Larcker criterion.

Construct	CU	EE	EWOM	ITU	LOY	PE	PI	PR	PT	SI	UX
CU	0.833										
EE	0.528	**0.811**									
EWOM	0.289	0.175	**0.936**								
ITU	0.762	0.495	0.278	**0.866**							
LOY	0.578	0.436	0.719	0.517	**0.806**						
PE	0.449	0.418	0.559	0.427	0.601	**0.909**					
PI	0.583	0.625	0.290	0.570	0.513	0.424	**0.817**				
PR	−0.201	−0.213	−0.120	−0.316	−0.260	−0.140	−0.181	**0.823**			
PT	0.445	0.463	0.303	0.423	0.575	0.388	0.475	−0.409	**0.899**		
SI	0.271	0.266	0.228	0.253	0.286	0.342	0.322	−0.069	0.304	**0.937**	

Note: bold diagonal values are the square root of the AVEs.
Key: HTMT (heterotrait-monotrait ratio of correlations), EE (Effort Expectancy), SI (Social Influence), PE (Perceived Enjoyment), UX (User Experience), PI (Perceived Interaction), ITU (Intention to Use), CU (Continued Usage), PR (Perceived Risk), PT (Perceived Trust), EWOM (Electronic Word of Mouth), LOY (Loyalty).
Source(s): Table generated by authors

Table 5
Model fit summary.

Estimated model	
SRMR	0.070
d_ULS	1.827
d_G1	0.941
d_G2	0.783
Chi-Square	1918.047
NFI	0.901

Source(s): Table generated by authors

7. Results

7.1. Structural model assessment

The structural model (Fig. 6) was evaluated to assess the relationships among the endogenous and exogenous variables. Path coefficients were calculated using a non-parametric bootstrapping routine (Vinzi et al., 2010), with 261 cases and 5000 samples for the non-return model (two-tailed; 0.05 significance level; no sign changes). The model's fit was assessed using the goodness-of-fit (GoF) and the standardised root mean square residual (SRMR), which will be explained in the following sections.

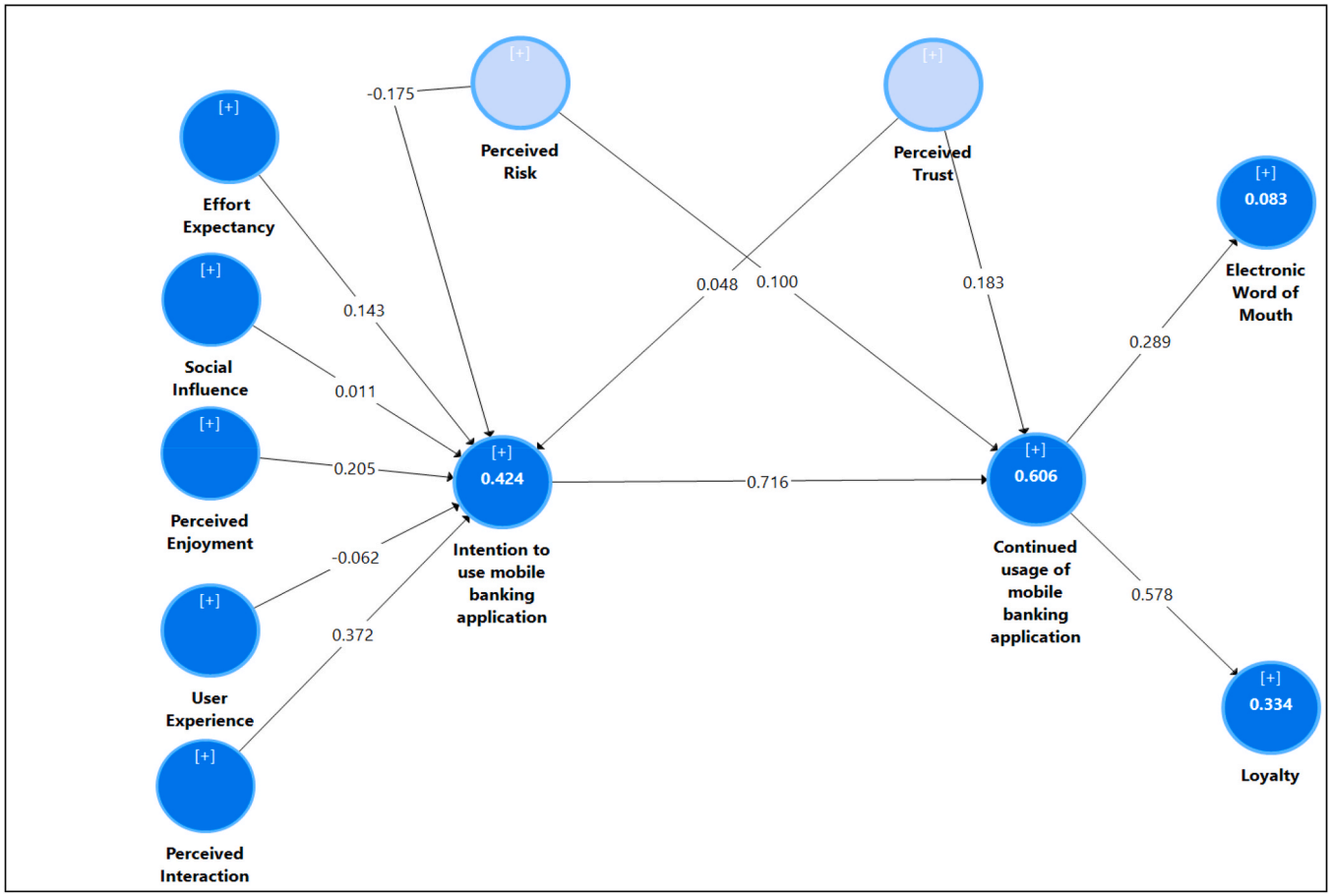

Fig. 6. PLS results of the structural model.
Source(s): Figure generated by authors

7.2. Assessment of the goodness of fit (GoF)

In Fig. 6, the R^2 values for intention to use, continued usage, electronic word of mouth, and loyalty indicate that the research model explains 42.4 %, 60.6 %, 08.3 %, and 33.4 % respectively, of the variance in the endogenous variables. The formula for the global GoF statistic was provided by Tenenhaus et al. (2005) and was used to calculate the statistic for the research model.

$$\text{Goodness of fit} = \sqrt[2]{(\text{average of all AVEs values}^* \text{ average of all } R^2)} = 2\sqrt{0.739^*0.361} = 0.59$$

The variable AVE represents the average of all AVE values for the research variables, while R^2 represents the average of all R^2 values in the complete path model. The calculated global GoF is 0.51, which exceeds the threshold of GoF >0.36 suggested by Wetzels et al. (2009a, 2009b). We can therefore conclude that the research model has a good overall fit.

7.3. Common method bias (CMB)

Common method bias (CMB) in PLS-SEM is detected through a complete collinearity assessment approach (Kock, 2015). VIF values should be below the 3.3 threshold (Hair et al., 2011a, 2011b; Kock, 2015) to indicate that the model is free from multicollinearity. Any value greater than 3.3 means the model is affected by CMB. Therefore, VIF values were computed instead of reporting collinearity issues. The findings in Table 3 showed that all constructs had VIF values below 3.3 (Kock & Lynn, 2012), supporting the notion that CMB is not a problem in the study.

7.4. The standardised root mean square residual (SRMR)

The SRMR is an index of the average standardised residuals between the observed and the hypothesised covariance matrices (Chen, 2007). The SRMR is a measure of estimated model fit. When SRMR <0.08, the study model has a good fit (Hu & Bentler, 1998a,b), with a lower SRMR indicating a better fit. Table 6 shows that the theoretical model's SRMR was 0.07, indicating a good fit, whereas the Chi-Square was 1918.047 and the NFI was 0.901, meeting the recommended threshold for NFI (Afthanorhan, 2013).

7.5. Structural model

A bootstrapping technique was used to examine the statistical significance of the relationships between the constructs. Bootstrapping was used in determining the p-value (two-tailed) and the 95 % bias-corrected confidence interval (Hair, Black, et al., 2019). The results for the tested hypotheses are summarised in Table 3. Effort expectancy ($\beta = 0.143$, $p < 0.05$), perceived enjoyment ($\beta = 0.205$, $p < 0.05$), perceived interaction ($\beta = 0.372$, $p < 0.001$), perceived risk ($\beta = -0.175$, $p < 0.001$) exerts a positive and significant influence on intention to use mobile banking applications, supporting *H1, H3, H5* and H9. Meanwhile, social influence ($\beta = 0.011$, $p > 0.05$), user experience ($\beta = -0.062$, $p > 0.05$), and perceived trust ($\beta = 0.048$, $p > 0.05$) do not exert any a positive and significant influence on the intention to use mobile banking applications. Customer's intention to use mobile banking application ($\beta = 0.716$, $p < 0.001$), perceived risk ($\beta = 0.100$, $p < 0.05$) and perceived trust ($\beta = 0.183$, $p < 0.001$) exert a positive and significant influence on continued usage of mobile banking applications, supporting *H6* and *H10*. Specifically, continued usage exerts a positive and significant influence in predicting electronic word of mouth ($\beta = 0.289$, $p < 0.001$) and loyalty ($\beta = 0.578$, $p < 0.001$), supporting *H7* and *H8*. The model's fitness was assessed using the coefficient of determination (R2) (see Fig. 6). The R^2 values for the endogenous variables – intention to use mobile banking application ($R^2 = 0.424$), continued usage of mobile banking application ($R^2 = 0.606$), loyalty ($R^2 = 0.334$) and electronic word of mouth ($R^2 = 0.083$) – were greater than the recommended criterion benchmark of 0 and 1 (Hair et al., 2012). The results, therefore, suggest that the structural model has sufficient predictive accuracy. Table 6 presents the estimation results from hypothesis testing for this study. Table 6 displays the proposed hypotheses, path coefficients, t-statistics and p-values.

8. Discussion

This study presents robust empirical evidence supporting the theoretical integration of the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behaviour (TPB), and the

Table 6
Summary of PLS-SEM path analysis.

Path	Hypothesis	Path coefficient	t-statistics	p-values
Effort expectancy - > Intention to use mobile banking application	HI	0.143	2.201	0.028*
Social influence - > Intention to use mobile banking application	H2	0.011	0.241	0.809***
Perceived enjoyment - > Intention to use mobile banking application	H3	0.205	2.718	0.007*
User experience - > Intention to use mobile banking application	H4	−0.062	0.825	0.409***
Perceived interaction - > Intention to use mobile banking application	H5	0.372	4.880	0.000**
Intention to use mobile banking application - > Continued usage of mobile banking application	H6	0.716	16.360	0.000**
Continued usage of mobile banking application - > Electronic word of mouth	H7	0.289	5.756	0.000**
Continued usage of mobile banking application - > Loyalty	H8	0.578	14.812	0.000**
Assessment of the control variables				
Perceived risk - > Intention to use mobile banking application	Control	−0.175	1.551	0.000**
Perceived trust - > Intention to use mobile banking application	Control	0.048	0.813	0.417***
Perceived risk - > Continued usage of mobile banking application	Control	0.100	1.485	0.013*
Perceived trust - > Continued usage of mobile banking application	Control	0.183	4.654	0.000**

Notes: *p < 0.05; **p < 0.001; ***p > 0.05.
Source(s): Table generated by authors

User Experience (UX) model in predicting the intention to use and continued use of mobile banking applications in Zimbabwe. The results reveal a significant portion of the variance in key dependent variables, 42.4 % in intention to use, 60.6 % in continued usage, 33.4 % in loyalty, and 8.3 % in electronic word of mouth (e-WOM), demonstrating the model's overall explanatory power and validating its application within a developing country context (Tenenhaus et al., 2005; Wetzels et al., 2009a, 2009b). Specifically, the analysis confirms that effort expectancy ($\beta = 0.143$, $p = 0.028$), perceived enjoyment ($\beta = 0.205$, $p = 0.007$), and perceived interaction ($\beta = 0.372$, $p < 0.001$) significantly influence the intention to use mobile banking applications. This reinforces the UTAUT proposition that technology adoption is shaped by perceived ease of use and interactive quality (Venkatesh et al., 2003; Wang et al., 2020). The importance of effort expectancy is consistent with the findings of Albashrawi et al. (2017), while the role of enjoyment aligns with the findings of Praveena and Thomas (2014) and Avornyo et al. (2019). Notably, the strength of perceived interaction supports assertions by Shankar et al. (2020) that interactive and responsive design enhances user engagement. Conversely, social influence ($\beta = 0.011$, $p = 0.809$) and user experience ($\beta = -0.062$, $p = 0.409$) were found to be insignificant predictors of intention. These findings are consistent with the argument that Zimbabwean users, operating in an environment characterised by high mobile penetration but low bancarisation, make independent adoption decisions, minimally affected by their peers (Purwanto & Loisa, 2020; Thusi & Maduku, 2020). Wohn and Lee (2013) also provide theoretical support for the insignificant role of user experience in the early stages of technology engagement, as expectations are shaped more by observation than by first-hand interaction. The intention to use emerged as the most potent driver of continued usage ($\beta = 0.716$, $p < 0.001$), aligning with the TPB's foundational principle that behavioural intention precedes action (Ajzen, 1991). In addition, both perceived trust ($\beta = 0.183$, $p < 0.001$) and perceived risk ($\beta = 0.100$, $p = 0.013$) significantly predicted continued usage, but not the initial intention. These findings highlight a nuanced distinction in how users appraise technology: they may initially adopt mobile banking for its perceived utility, but affective and cognitive evaluations around trust and risk influence their sustained engagement.

8.1. Discussion of control variables

Control variables played a critical role in clarifying the dynamics between intention and continued usage. Notably, perceived risk exerted a significant adverse effect on intention ($\beta = -0.175$, $p = 0.000$) and a significant positive effect on continued usage ($\beta = 0.100$, $p = 0.013$)**. The former aligns with prior findings (Chitungo & Munongo, 2013; Natarajan et al., 2018), confirming that perceived vulnerability, especially that associated with financial loss, privacy, or fraud, deters potential users. Interestingly, the positive relationship between perceived risk and continued usage may indicate the resolution of cognitive dissonance: users who continue to use *m*-banking despite perceived risks may normalise those concerns over time or find compensatory value in the convenience it provides (Cocosila & Trabelsi, 2016). Perceived trust showed no significant impact on initial intention ($\beta = 0.048$, $p = 0.417$), consistent with findings by Koenig-Lewis et al. (2015), but was a strong predictor of continued usage ($\beta = 0.183$, $p < 0.001$). This divergence suggests that trust functions as a post-adoption reinforcement mechanism rather than a pre-adoption motivator. Once users are engaged, perceived security and institutional reliability become crucial for sustained interaction. This supports the findings of Jamshidi et al. (2018) and Malaquias and Hwang (2016), who argue that trust is an evolving perception, becoming increasingly relevant in ongoing digital engagement. These findings suggest that trust and risk are not merely peripheral but central constructs influencing long-term behavioural outcomes, especially in environments characterised by historical economic instability, regulatory fluctuations, and variability in digital literacy, as is typical of the Zimbabwean context (Muzurura et al., 2021; Tsokota et al., 2022). Their inclusion as control variables not only improved the model's explanatory power but also uncovered meaningful theoretical distinctions between adoption and retention factors. Finally, the impact of continued usage on downstream outcomes, e-WOM ($\beta = 0.289$, $p < 0.001$) and loyalty ($\beta = 0.578$, $p < 0.001$), was confirmed, consistent with the findings of Cheung and Lee (2012) and Baabdullah et al. (2019). The higher β for loyalty suggests that positive long-term user experience fosters repeat behaviour more reliably than it prompts active recommendation behaviour. Cultural norms surrounding financial conservatism may explain this reticence to promote mobile banking publicly, even when loyalty is present. In summary, this study offers a theoretically grounded and empirically robust explanation of mobile banking adoption and retention. It confirms key tenets of UTAUT and TPB, introduces context-specific insights from Zimbabwe, and emphasises the overlooked but critical role of emotional-cognitive evaluations, trust and risk in shaping digital banking behaviour.

9. Theoretical implications

This study makes several important theoretical contributions by integrating and empirically validating constructs from the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behaviour (TPB), and the User Experience (UX) model to explain mobile banking adoption and continued usage in Zimbabwe. First, the study strengthens UTAUT by confirming the significant roles of effort expectancy, perceived enjoyment, and, in particular, perceived interaction in predicting intention to use mobile banking applications. While effort expectancy and enjoyment are established antecedents of technology adoption (Venkatesh et al., 2003), the prominent influence of perceived interaction offers a novel insight. It highlights that interactive system design, including real-time responsiveness and clarity in navigation, is not just a UX factor but a significant behavioural driver. This finding reinforces the argument by Shankar et al. (2020) that interactivity enhances perceived utility and cognitive engagement, warranting its elevation as a core construct within future UTAUT applications in digital banking research.

Second, the study contributes to TPB by reaffirming that intention remains the most significant antecedent of actual behaviour (Ajzen, 1991). However, our findings also extend TPB by clarifying the differentiated roles of trust and risk. Although these constructs had no significant effect on intention, they significantly influenced continued usage. This distinction reveals that TPB's predictive strength is enhanced when post-adoption perceptions, such as perceived risk mitigation and the evolution of trust, are incorporated (Jamshidi et al., 2018; Natarajan et al., 2018). This research, therefore, supports calls to expand TPB frameworks by including cognitive-emotional constructs that evolve across the technology lifecycle. Third, although the UX model has gained traction in IS literature (Hassenzahl, 2008), this study suggests that not all UX elements exert the same influence. The general user experience was statistically insignificant at the intention stage, whereas micro-level interactivity proved impactful. This implies that broad UX constructs may mask more specific experiential touchpoints that matter in developing country contexts. Consequently, the study refines the UX model by encouraging greater granularity in defining and operationalising experience-related variables in future adoption models. This research also offers a theoretical contextualisation by demonstrating that the relationships among intention, continued usage, trust, and risk are not universal but are influenced by local economic, technological, and socio-cultural factors. In Zimbabwe, where mobile penetration is high but trust in financial institutions may be fragmented, user behaviour diverges from traditional Western or Asian-based models. The lack of significance in social influence further challenges universal assumptions in UTAUT and TPB, illustrating that in environments where self-service technologies emerge out of necessity rather than social pressure, normative influence may be minimal. In sum, this study contributes theoretically by:

- Extending UTAUT to emphasise perceived interaction as a critical adoption driver;
- Enhancing TPB through the post-adoption roles of trust and perceived risk;
- Refining the UX model by highlighting interactivity over holistic experience in driving intention;
- Offering a context-sensitive adaptation of established theories for better applicability in under-researched, developing markets.

These contributions collectively lay the groundwork for a more nuanced, lifecycle-oriented, and context-aware understanding of mobile banking behaviour, particularly in the Global South.

10. Practical implications

The study is of great importance to the Zimbabwean banking industry, consumers, the economy, and the existing literature on mobile banking application usage. It found that factors such as effort expectancy, perceived enjoyment, and perceived interaction significantly influence the intention to use *m*-banking applications. Policymakers and bank managers should, therefore, consider these factors when developing and promoting such applications. Since effort expectancy relates to the ease and convenience of using the application, perceived enjoyment to the pleasure derived from using it, and perceived interaction to the extent of social interactions facilitated by the application, efforts should be made to develop *m*-banking applications that are user-friendly, enjoyable to use, and encourage social interactions. The study found that the ongoing use of mobile banking (m-banking) applications could positively impact electronic word-of-mouth (e-WOM) and customer loyalty. Accordingly, policymakers and bank managers should encourage customers to continue using these applications by offering incentives such as discounts or rewards. This should increase customer loyalty and generate positive word-of-mouth, ultimately leading to a higher adoption rate of *m*-banking applications. Policymakers and bank managers could utilise the findings of this study to develop and implement strategies that enhance these factors and increase the likelihood of customers adopting mobile banking applications. Perceived risk, another variable, significantly affected the intention to use mobile banking applications. The types of perceived risks associated with mobile banking applications include security risk (fear of identity theft, hacking or unauthorised access), privacy risk (concerns about personal and financial data), financial risk (fear of losing money due to fraud, transaction failures or system errors), performance risk (doubts as to efficiency of functionality, speed and reliability), social risk (fear of negative perception), and time risk (process slowness, app crashes or learning curves) (Langevin et al., 2025). The primary concern with mobile banking is, therefore, protecting private consumer data. To this end, banks could, for example, offer user-friendly interfaces and features that enhance the overall user experience, streamline banking processes, and mitigate perceived risk.

The implications of perceived risks associated with mobile banking applications for the government and regulators are a policy issue to be addressed through the creation of data protection laws and regulations for financial inclusion, as well as public awareness campaigns to build customer trust and digital literacy. The banking sector in Zimbabwe may face increased challenges in customer retention as customers switch to secure, trustworthy user experiences (UX), more customer complaints and switching costs, and higher costs related to greater investment in user education, application reliability, and cybersecurity. The country's economy may face serious problems, such as slower financial inclusion of the unbanked population and reduced digital transformation, hampering efforts toward a cashless society (Olaoye et al., 2025). Strategies to reduce associated risks could include the implementation of multi-enhanced security features (two-factor authentication or biometrics), fraud mitigation and transparent privacy policies, user education (awareness campaigns and digital literacy), and optimising mobile banking applications (regular checks to improve performance and reliability).

The practical implications of this study are crucial for ensuring the continued use of m-banking applications, which currently have a low usage rate. Additionally, these findings could help banks customise their *m*-banking applications to meet the diverse needs of their customers. This study contributes to the development of a profile of m-banking users in the Zimbabwean context. The results of this study provide valuable guidelines for marketers targeting this demographic, offering strategic insights to benefit the banking sector in Zimbabwe. Specifically, these findings enhance banking firms' understanding of the impact of factors such as effort expectancy, perceived enjoyment, and perceived interaction on the likelihood of using mobile banking applications. Additionally, the study explores the effects of continued use of applications on electronic word-of-mouth (e-WOM) and loyalty. By utilising these insights, banking establishments could develop targeted marketing approaches that resonate with users of mobile banking applications, effectively addressing the challenge of low adoption rates. The success of mobile banking applications in Zimbabwe not only contributes to economic advancement but also promotes financial inclusion amongst unbanked individuals, low-income earners, and marginalised communities (Mago & Chitokwindo, 2014).

11. Conclusion, limitations and directions for future research

By way of conclusion, the main objectives of this study were to determine the impact of effort expectancy, social influence, perceived enjoyment, user experience and perceived interaction on the intention to use *m*-banking applications, and to investigate the impact of continued usage on *m*-banking applications on e-WOM and loyalty. Social influence was found to have no significant impact on the intent to use mobile banking applications. A plausible reason might be that social influence is not significantly associated with behavioural intention (Thusi & Maduku, 2020). This study also provided empirical evidence that customer user experience has an insignificant impact on the intention to use mobile banking applications. A likely reason is that people develop expected outcomes primarily by observing others. However, once an individual decides to use the medium, their personal experience with it feeds back to reshape those expectations (Bashar et al., 2025; Wohn & Lee, 2013). Perceived trust was found to have no significant impact on the intention to use mobile banking applications, suggesting that trust does not directly influence this intention (Koenig-Lewis et al., 2015). Perceived risk, on the other hand, was found to significantly influence the intention to use mobile banking applications, indicating that it negatively affects this intention (Natarajan et al., 2018). Additionally, perceived risk was found to significantly affect continued use of mobile banking applications, suggesting a negative correlation between perceived risk and continued use (Chitungo & Munongo, 2013). The study also revealed that respondents intend to use mobile banking applications in the near future. Further scholarly research should therefore be conducted to identify other determinants influencing the intention to continue using these applications. These findings could serve as valuable marketing strategy guidelines for marketers targeting this segment, benefiting the Zimbabwean banking industry.

Continued use of mobile banking applications significantly impacts *e*-WOM and loyalty. This is because, when mobile banking application users consistently engage with the service (after discovering reliability, security, and convenience), they tend to develop a positive perception of how the digital experience might lead to their loyalty to the associated banking brand (Nyagadza & Bashar, 2025, p. 339). This level of satisfaction provides a strong foundation for loyalty and positive advocacy (e-WOM). Satisfied customers are therefore more likely to recommend mobile banking applications to friends, relatives, and colleagues on social media platforms, thereby building high levels of trust and credibility (Olaoye et al., 2025). Customers may increase positive online reviews

and ratings on digital app stores and virtual forums. Some of them may extend their advocacy to serve as informal brand ambassadors, thereby attracting other customers to adopt. This, in turn, results in organic promotion and digital brand visibility for the associated banking institutions that own the mobile banking application through trusted peer networks. Loyalty levels incrementally lead to emotional connection, switching costs, and personalisation, resulting in high customer retention, repeat usage, and long-term engagement. While this study provides valuable insights, it is important to acknowledge several limitations that could guide future research. Firstly, the study was limited to mobile banking application users in Harare, Zimbabwe, which may limit the generalisability of the findings to other provinces. Future research should therefore aim to include participants from a broader geographic area, encompassing additional provinces in Zimbabwe, to test the validity and applicability of the conceptual model across diverse regional contexts. Secondly, the study only included participants aged 18 and above. To enhance insights relating to market segmentation and contribute to more inclusive financial service strategies, future research should consider including younger users, such as adolescents, alongside older adults. This broader age range will provide a more comprehensive understanding of mobile banking adoption and usage across different demographics, aligning with the goals of financial inclusion. Thirdly, the study focused solely on mobile banking applications. Future research should expand the investigation to include other digital financial service categories, such as mobile wallets, SMS banking, Unstructured Supplementary Service Data (USSD), telephone banking, and Internet banking. A comparative analysis across these channels could reveal nuanced differences in user intentions, satisfaction, and continued usage behaviour, leading to a more holistic understanding of digital financial service adoption. These limitations identified in the study serve as a basis for further research to deepen theoretical and practical insights into digital banking behaviour in Zimbabwe and similar contexts, without diminishing the value of the current study's contributions.

CRediT authorship contribution statement

Eugine Tafadzwa Maziriri: Visualization, Funding acquisition, Formal analysis. **Tarisai Fritz Rukuni:** Software, Resources, Project administration. **Brighton Nyagadza:** Project administration, Formal analysis, Data curation, Conceptualization. **Tapiwa Bepe:** Formal analysis, Data curation, Conceptualization.

Ethics approval and consent to participate

This study received approval from the Ethics Committee at the University of the Free State, South Africa. All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

Availability of data and materials

Not applicable.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The researchers express unwavering gratitude to the respondents who provided responses during the surveys. Their invaluable efforts cannot be ignored.

Appendix 1. Measurement Scales (Mobile Banking Study)

All items were measured using a five-point Likert scale ranging from **1 = Strongly disagree** to **5 = Strongly agree**.

Effort Expectancy (EE)

(Venkatesh et al., 2012)
Cronbach's Alpha = **0.939**.
EE1 – I find mobile banking application X easy to use.
EE2 – Learning how to use mobile banking application X is easy for me.
EE3 – It is easy to log in to mobile banking application X.
EE4 – It is easy for me to become skilful at using mobile banking application X.

Social Influence (SI)

(Baptista & Oliveira, 2015)
Cronbach's Alpha = **0.845**.
SI1 – People who are important to me think that I should use mobile banking application X.
SI2 – People who influence my behaviour think that I should use mobile banking application X.
SI3 – Using mobile banking application X is regarded as a status symbol in my environment.

Perceived Enjoyment (PE)

(Koenig-Lewis et al., 2015)
Cronbach's Alpha = **0.790**.
PE1 – Using mobile banking application X is pleasant.
PE2 – The mobile banking process is enjoyable.
PE3 – I find using mobile banking application X enjoyable.

User Experience (UX)

(Zhou & Liu, 2014)
Cronbach's Alpha = **0.830**.
UX1 – My experience of using mobile banking application X is better than I expected.
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.

Perceived Interaction (PI)

(Baptista & Oliveira, 2015)
Cronbach's Alpha = **0.939**.
PI1 – My interaction with mobile banking application X is clear and understandable.
PI2 – Interacting with mobile banking application X is easy for me.
PI3 – Using mobile banking application X does not require much

mental effort.

Intention to Use (ITU)

(Venkatesh & Zhang, 2010)
Cronbach's Alpha = **0.940**.
ITU1 – I intend to use mobile banking application X for my banking needs.
ITU2 – I am likely to use mobile banking application X in the near future.
ITU3 – I intend to use mobile banking application X within the next 30 days.

Continued Usage (CU)

(Zhou, 2013)
Cronbach's Alpha = **0.811**.
CU1 – I intend to continue using mobile banking application X over the next 12 months.
CU2 – I plan to use mobile banking application X frequently in the future.
CU3 – I will continue using mobile banking application X on a regular basis.
CU4 – I intend to continue using mobile banking application X rather than alternative applications.

Perceived Risk (PR)

(Poromatikul et al., 2019)
Cronbach's Alpha = **0.842**.
PR1 – Information related to my transactions when using mobile banking application X could be tampered with by others.
PR2 – I believe that mobile banking applications put my confidential personal information at risk.
PR3 – I believe that using mobile banking application X is risky.
PR4 – I believe that mobile banking application X is riskier than other banking options.

Perceived Trust (PT)

(Alalwan et al., 2018)
Cronbach's Alpha = **0.948**.
PT1 – I believe that mobile banking application X is trustworthy.
PT2 – Transactions conducted using mobile banking application X are safe.
PT3 – Transactions conducted using mobile banking application X are reliable.

Electronic Word of Mouth (eWOM)

(Cheung & Lee, 2012)
Cronbach's Alpha = **0.877**.
EWOM1 – I will talk about the strengths of mobile banking application X to my social network.
EWOM2 – I will speak positively about mobile banking application X to others.
EWOM3 – I intend to share my experiences of using mobile banking application X with other people.

Loyalty (LOY)

(Mokhtar et al., 2018)
Cronbach's Alpha = **0.748**.
LOY1 – I will recommend mobile banking application X to other people.
LOY2 – I often say positive things about my bank to others.
LOY3 – I am satisfied with the services provided by mobile banking application X.
LOY4 – I intend to continue using mobile banking application X for my banking needs.

Data availability

No data was used for the research described in the article.

References

Abu-Taieh, E. M., AlHadid, I., Abu-Tayeh, S., Masa'deh, R., Alkwawaldeh, R. S., Khwalden, S., & Alrowwad, A. (2022). Continued intention to use *m*-banking in Jordan by integrating UTAUT, TPB, TAM and service quality with ML. *Journal of Open Innovation: Technology, Market, and Complexity, 8*(3), 1–29.

Abubakar, F. M. (2013). The moderating effect of technology awareness on the relationship between UTAUT constructs and behavioural intention to use technology. *Australian Journal of Business and Management Research, 3*(2), 14–23.

Afthanorhan, W. M. A. B. W. (2013). A comparison of partial least square structural equation modeling (PLS-SEM) and covariance based structural equation modeling (CB-SEM) for confirmatory factor analysis. *International Journal of Engineering Science and Innovative Technology, 2*(5), 198–205.

Aguirre-Urreta, M. I., Marakas, G. M., & Ellis, M. E. (2013). Measurement of composite reliability in research using partial least squares: Some issues and an alternative approach. *ACM SIGMIS - Data Base: The Database for Advances in Information Systems, 44*(4), 11–43.

Ahimbisibwe, G. M., Ngoma, M., Nabatanzi-Muyimba, A. K., & Kabagambe, L. B. (2023). Entrepreneurial mindset and SME internationalization in Uganda: The mediating role of international networking. *Review of International Business and Strategy, 33*(4), 669–690. https://doi.org/10.1108/RIBS-07-2022-0128

Ajisafe, R. A., & Ajide, F. M. (2014). Bank competition and economic growth: Evidence from Nigeria. *Journal of Emerging Trends in Economics and Management Sciences, 5*(5), 419–425.

Ajzen, I. (1985). From intention to actions: A theory of planned behaviour. In J. Kuhl, & J. Beckmann (Eds.), *Action-control: From cognition to behaviour, Berlin, heidelberg* (pp. 11–39).

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

Ajzen, I. (2015). Consumer attitudes and behavior: The theory of planned behavior applied to food consumption decisions. *Italian Review of Agricultural Economics, 70*(2), 121–138.

Alalwan, A. A., Baabdullah, A. M., Rana, N. P., Tamilmani, K., & Dwivedi, Y. K. (2018). Examining adoption of Mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust. *Technology in Society, 55*, 100–110.

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99–110.

Albashrawi, M., Kartal, H., Oztekin, A., & Motiwalla, L. (2017). The impact of subjective and objective experience on mobile banking usage: An analytical approach. In *Paper presented at the 50th Hawaii International conference on system sciences, 04 January, Hawaii*. https://doi.org/10.24251/HICSS.2017.137. . (Accessed 6 December 2020)

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Arnold, S. (2024). Africa's roads to digital development: Paving the way for Chinese structural power in the ICT sector? *Review of International Political Economy, 31*(4), 1148–1172. https://doi.org/10.1080/09692290.2023.2297363

Avornyo, P., Fang, J., Odai, R., Vondee, J., & Nartey, M. (2019). Factors affecting continuous usage intention of Mobile banking in tema and kumasi. *International Journal of Business and Social Science, 10*(3), 114–130.

Baabdullah, A. M., Alalwan, A. A., Rana, N. P., Kizgin, H., & Patil, P. (2019). Consumer use of mobile banking (m-banking) in Saudi Arabia: Towards an integrated model. *International Journal of Information Management, 44*, 38–52.

Baptista, G., & Oliveira, T. (2015). Understanding mobile banking: The unified theory of acceptance and use of technology combined with cultural moderators. *Computers in Human Behaviour, 50*, 418–430.

Bashar, A., Alkadash, T., Nyagadza, B., & Muposhi, A. (2025). Sustainable digital marketing (SDM): Review, taxonomy, conceptualization and future research avenues mapping. *Quality and Quantity*. https://doi.org/10.1007/s11135-025-02438-7

Bashar, A., Wasiq, M., Nyagadza, B., & Maziriri, E. T. (2024). Emerging trends in social media marketing: A retrospective review using data mining and bibliometric analysis. *Future Business Journal (FBJ), Springer Nature (DHET/WoS), United Kingdom (UK)*. https://fbj.springeropen.com/articles/10.1186/s43093-024-00308-6.

Berg, B. L., Lune, H., & Lune, H. (2004). *Qualitative research methods for the social sciences*. MA: Pearson Boston.

Bernerth, J. B., Cole, M. S., Taylor, E. C., & Walker, H. J. (2018). Control variables in leadership research: A qualitative and quantitative review. *Journal of Management, 44*(1), 131–160.

Boonsiritomachai, W., & Pitchayadejanant, K. (2017). Determinants affecting mobile banking adoption by generation Y based on the unified theory of acceptance and use of technology model modified by the technology acceptance model concept. *Kasetsart Journal of Social Sciences, 40*(2), 349–358.

CEIC. (2021). Zimbabwe number of subscriber mobile. available at: https://www.ceicdata.com/en/indicator/zimbabwe/number-of-subscriber-mobile. (Accessed 1 April 2023).
Chaouali, W., & Souiden, N. (2019). The role of cognitive age in explaining mobile banking resistance among elderly people. *Journal of Retailing and Consumer Services, 50*, 342–350.
Chawla, D., & Joshi, H. (2017). Consumer perspectives about mobile banking adoption in India-a cluster analysis. *International Journal of Bank Marketing, 35*(4), 616–636.
Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 14*(3), 464–504.
Chen, P. F., & Tran, M. L. (2025). Assessing the impact of payment technology, financial inclusion and institutions on entrepreneurship: Evidence from middle-income Asian economies. *Applied Economics*, 1–20. https://doi.org/10.1080/00036846.2025.2502174
Cheung, C. M., & Lee, M. K. (2012). What drives consumers to spread electronic word of mouth in online consumer-opinion platforms. *Decision Support Systems, 53*(1), 218–225.
Cheung, C. M., & Thadani, D. R. (2012). The impact of electronic word-of-mouth communication: A literature analysis and integrative model. *Decision Support Systems, 54*(1), 461–470.
Chitungo, S. K., & Munongo, S. (2013). Extending the technology acceptance model to mobile banking adoption in rural Zimbabwe. *Journal of Business Administration and Education, 3*(1), 51–79.
Cocosila, M., & Trabelsi, H. (2016). An integrated value-risk investigation of contactless mobile payments adoption. *Electronic Commerce Research and Applications, 20*(1), 159–170.
Cooper, D. R., & Emory, C. W. (1995). *Business research methods, Chicago, Irwin RD*.
Crolic, C., Thomaz, F., Hadi, R., & Stephen, A. T. (2022). Blame the bot: Anthropomorphism and anger in customer–chatbot interactions. *Journal of Marketing, 86*(1), 132–148.
Dedeoğlu, S. B., Eren, D., Percin, N. S., & Aydin, S. (2022). Do tourists' responsible behaviors shape their local food consumption intentions? An examination via the theory of planned behaviour. *International Journal of Contemporary Hospitality Management, 34*(12), 4539–4561.
Dzoma, G. (2019). CBZ touch is by far the most popular banking app in Zimbabwe. but just how many people use these anyway. available at: https://www.techzim.co.zw/2019/01/cbz-touch-is-by-far-the-most-popular-banking-app-in-zimbabwe-but-just-how-many-people-use-these-anyway/. (Accessed 27 June 2021).
Farzin, M., Sadeghi, M., Kharkeshi, F. Y., Ruholahpur, H., & Fattahi, M. (2021). Extending UTAUT2 in m-banking adoption and actual use behavior: Does WOM communication matter. *Asian Journal of Economics and Banking, 5*(2), 136–157.
Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using GPower 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*(4), 1149–1160.
Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage.
Fishbein, M., & Ajzen, I. (1977). Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy and Rhetoric, 10*(2), 130–132.
Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.
Foroughi, B., Iranmanesh, M., & Hyun, S. S. (2019). Understanding the determinants of mobile banking continuance usage intention. *Journal of Enterprise Information Management, 32*(6), 1015–1033.
Gao, Y., Li, H., & Luo, Y. (2015). An empirical study of wearable technology acceptance in healthcare. *Industrial Management & Data Systems, 115*(9), 1704–1723.
Ghazali, E. M., Mutum, D. S., Chong, J. H., & Nguyen, B. (2018). Do consumers want mobile commerce? A closer look at *M*-shopping and technology adoption in Malaysia. *Asia Pacific Journal of Marketing and Logistics, 30*(4), 1064–1086.
Goh, E., Ritchie, B., & Wang, J. (2017). Non-compliance in national parks: An extension of the theory of planned behaviour model with pro-environmental values. *Tourism Management, 59*, 123–127.
Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis*. Hampshire, UK: Cengage Learning.
Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage.
Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2019). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage Publications.
Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: A comparative evaluation of composite-based structural equation modeling methods. *Journal of the Academy of Marketing Science, 45*(5), 616–632. https://doi.org/10.1007/s11747-017-0517-x
Hair Jr, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review, 26*(2), 106–121.
Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011a). PLS-SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152. https://doi.org/10.2753/MTP1069-6679190202
Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011b). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152.
Hair, J., Ringle, C., & Sarstedt, M. (2011c). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–151.
Hair, J. F., Ringle, C. M., & Sarstedt, M. (2012a). *Partial least squares: Theoretical foundations, methods, and applications*. Cambridge University Press.
Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203
Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2018). *Advanced issues in partial least squares structural equation modeling (PLS-SEM)*. Sage Publications.
Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012b). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science, 40*(3), 414–433. https://doi.org/10.1007/s11747-011-0261-6
Hamid, M. R., Sami, W., & Sidek, M. M. (2017). Discriminant validity assessment: Use of Fornell & larcker criterion versus HTMT criterion. *Journal of Physics: Conference Series, 890*(1), 1–5.
Hamidi, H., & Safareeyeh, M. (2019). A model to analyze the effect of mobile banking adoption on customer interaction and satisfaction: A case study of m-banking in Iran. *Telematics and Informatics, 38*, 166–181.
Han, D. I., tom Dieck, M. C., & Jung, T. (2018). User experience model for augmented reality applications in urban heritage tourism. *Journal of Heritage Tourism, 13*(1), 46–61.
Hanelt, A., Piccinini, E., Gregory, R. W., Hildebrandt, B., & Kolbe, L. M. (2015). Digital transformation of primarily physical industries - Exploring the impact of digital trends on business models of automobile manufacturers. *Paper presented at the 12th international conference on wirtschaftsinformatik, 4-6 March, Osnabrück, Germany*. available at: https://aisel.aisnet.org/wi2015/88/. (Accessed 4 November 2022).
Hassenzahl, M. (2003). From usability to enjoyment. In M. Blythe, K. Overbeeke, A. F. Monk, & P. C. Wright (Eds.), *Funology-from usability to enjoyment* (pp. 31–42). Dordrecht: Kluwer Academic Publishers.
Hassenzahl, M. (2008). User experience (UX) towards an experiential perspective on product quality. In *Paper presented at the 20th conference on l'Interaction homme-machine, 02 September*. available at: https://dl.acm.org/doi/abs/10.1145/1512714.1512717. (Accessed 8 May 2021).
Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modelling. *Journal of the Academy of Marketing Science, 43*(1), 115–135.
Hsu, C. L., & Lin, J. C. C. (2016). Effect of perceived value and social influences on Mobile app stickiness and in-app purchase intention. *Technological Forecasting and Social Change, 108*, 42–53.
Hu, L. T., & Bentler, P. M. (1998a). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*(4), 424–453.
Hu, L. T., & Bentler, P. M. (1998b). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods, 3*(4), 424–453.
Jamshidi, D., Keshavarz, Y., Kazemi, F., & Mohammadian, M. (2018). Mobile banking behavior and flow experience. *International Journal of Social Economics, 45*(1), 57–81.
Jang, S. Y., Chung, J. Y., & Kim, Y. G. (2015). Effects of environmentally friendly perceptions on customers' intentions to visit environmentally friendly restaurants: An extended theory of planned behaviour. *Asia Pacific Journal of Tourism Research, 20*(6), 599–618.
Khan, A. A., Hidthir, M. H. B., Mansur, M., & Ahmad, Z. (2025). Role of financial inclusion in enhancing the effect of remittance on economic growth in developing countries. *Cogent Economics & Finance, 13*(1). https://doi.org/10.1080/23322039.2025.2476093
Khan, M. Z. A., & Khan, S. (2012). Internet versus mobile banking: A study of peshawar city (Pakistan). *Journal of Internet Banking and Commerce, 17*(3), 1–13.
Kim, W. G., Lim, H., & Brymer, R. A. (2015). The effectiveness of managing social media on hotel performance. *International Journal of Hospitality Management, 44*, 165–171.
Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration, 11*(4), 1–10.
Kock, N., & Lynn, G. S. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for Information Systems, 13*(7), 1–40.
Koenig-Lewis, N., Marquet, M., Palmer, A., & Zhao, A. L. (2015). Enjoyment and social influence: Predicting mobile payment adoption. *Service Industries Journal, 35*(10), 537–554.
Kumari, R., & Kulkarni, M. (2025). Enhancing financial citizenship through financial technology: A systematic literature review. *Cogent Economics & Finance, 13*(1). https://doi.org/10.1080/23322039.2025.2511883
Lam, C. T., & Kolic, M. (2008). Effects of semantic incompatibility on rating response. *Applied Psychological Measurement, 32*(3), 248–260.
Langevin, M., L'Heureux, V., & Cardinal, P. A. (2025). The creation of digital financial infrastructures in Africa and the philanthrocapitalism of the MCF. *Globalizations*, 1–23. https://doi.org/10.1080/14747731.2025.2513189
Liao, C., Chen, J. L., & Yen, D. C. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior, 23*(6), 2804–2822.
Mago, S., & Chitokwindo, S. (2014). The impact of mobile banking on financial inclusion in Zimbabwe: A case for Masvingo province. *Mediterranean Journal of Social Sciences, 5*(9), 221.
Maichum, K., Parichatnon, S., & Peng, K. C. (2016). Application of the extended theory of planned behavior model to investigate purchase intention of green products among Thai consumers. *Sustainability, 8*(10), 1077.
Makanyeza, C. (2017). Determinants of consumers' intention to adopt mobile banking services in Zimbabwe. *International Journal of Bank Marketing, 35*(6), 997–1017.
Malaquias, F. F., & Hwang, Y. (2016). Trust in mobile banking under conditions of information asymmetry: Empirical evidence from Brazil. *Information Development, 32*(5), 1600–1612.
Malhotra, N. K. (2019). *Marketing research: An applied orientation*. Upper Saddle River, New Jersey: Pearson.

Manyeruke, J. (2018). Customer satisfaction with the electronic banking services in Zimbabwe: A case of Mashonaland West Province, Zimbabwe. available at: https://ukzn-dspace.ukzn.ac.za/handle/10413/17876. (Accessed 10 May 2023).

Mateos-Aparicio, G. (2011). Partial least squares (PLS) methods: Origins, evolution, and application to social sciences. *Communications in Statistics - Theory and Methods, 40* (13), 2305–2317. https://doi.org/10.1080/03610921003778225

Mavhiki, S., Nyamwanza, T., & Shumba, L. (2015). Impact of mobile banking on traditional banking practices in Zimbabwe. *International Journal of Economics, Commerce and Management, 3*(1), 1–13.

Mawere, T., Denhere, P. T., Giyane, M., & Mupfiga, P. (2013). An analysis of mobile banking adoption in Zimbabwe. *Journal of International Academic Research for Multidisciplinary, 1*(1), 423–432.

Maynard, N. (2020). Digital banking: Banking-as-a-service, open banking & digital transformation 2020-2024. available at: https://www.juniperresearch.com/research store/fintech-payments/digital-banking-trends-report. (Accessed 20 August 2021).

Maziriri, E. T., Mabuyana, B., & Nyagadza, B. (2025). Navigating the technopreneurial odyssey: Determining how technopreneurial self-efficacy, technopreneurial education and technological optimism cultivate tech-driven entrepreneurial intentions. *Management & Sustainability: An Arab Review*. https://doi.org/10.1108/MSAR-08-2024-0086

Mehrad, D., & Mohammadi, S. (2017). Word of mouth impact on the adoption of mobile banking in Iran. *Telematics and Informatics, 34*(7), 1351–1363.

Merhi, M., Hone, K., & Tarhini, A. (2019). A cross-cultural study of the intention to use mobile banking between Lebanese and British consumers: Extending UTAUT2 with security, privacy, and trust. *Technology in Society, 59*, 1–12.

Mokhtar, S. A., Katan, H., & Hidayat-ur-Rehman, I. (2018). Mobile banking adoption: The impacts of social influence, ubiquitous finance control and perceived trust on customer loyalty. *Science International-Lahore, 29*(4), 829–836.

Monette, D., Sullivan, T., & DeJong, C. (2010). *Applied social research: A tool for the human services*. Belmont, CA: Cengage Learning.

Mun, Y. Y., Jackson, J. D., Park, J. S., & Probst, J. C. (2006). Understanding information technology acceptance by individual professionals: Toward an integrative view. *Information & Management, 43*(3), 350–363.

Murray, D. R. (2016). The behavioral immune system: Implications for social cognition, social interaction, and social influence. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in Experimental Social Psychology* (pp. 75–129). Elsevier Academic Press.

Muzurura, J., Chigora, F., Mutambara, E., Zvavahera, P., & Ndlovu, J. (2021). Determinants of mobile learning systems adoption in Zimbabwe rural secondary schools. *International Journal of Education and Practice, 9*(1), 201–219.

Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2018). The moderating role of device type and age of users on the intention to use mobile shopping applications. *Technology in Society, 53*, 1–13.

Nayak, M. S. D. P., & Narayan, K. A. (2019). Strengths and Weaknesses of Online Surveys. *IOSR Journal of Humanities and Social Sciences, 24*, 31–38.

Nefla, D., & Jellouli, S. (2025). Emerging technologies in finance: Challenges for a sustainable finance. *Cogent Business & Management, 12*(1). https://doi.org/10.1080/23311975.2025.2495191

Nyagadza, B. (2022). Sustainable digital transformation for ambidextrous digital firms: Systematic literature review, meta-analysis and agenda for future research directions. *Sustainable Technology and Entrepreneurship, 1*(3), Article 100020.

Nyagadza, B., & Bashar, A. (2025). *Disruptive frugal digital innovation in Africa* (1st ed.). Emerald Insight, Northspring, Leeds (United Kingdom). eISBN: 978-1-83549-568-1. (SCOPUS) https://www.emerald.com/insight/publication/doi/10.1108/9781835495681.

Nyawo, T. (2025). Nexus of FinTech, financial inclusion. *Zimbabwe Independent*, 10/06/25 https://www.newsday.co.zw/theindependent/opinion/article/200038616/nexus-of-fintech-financial-inclusion.

Olaoye, O., Zerihun, M., & Tabash, M. I. (2025). Does Mobile technology help to deepen financial inclusion? Evidence from South Africa. *Journal of African Business*, 1–15. https://doi.org/10.1080/15228916.2024.2387391

Poromatikul, C., De Maeyer, P., Leelapanyalert, K., & Zaby, S. (2019). Drivers of continuance intention with Mobile banking apps. *International Journal of Bank Marketing, 38*(1), 242–262.

POTRAZ. (2019). Abridged postal and telecommunications sector performance report: Fourth quarter 2019. available at: http://www.potraz.gov.zw/?page_id=527. (Accessed 25 May 2021).

Praveena, K., & Thomas, S. (2014). Continuance intention to use Facebook: A study of perceived enjoyment and TAM. *Bonfring International Journal of Industrial Engineering and Management Science, 4*(1), 24–29.

Purwanto, E., & Loisa, J. (2020). The intention and use behaviour of the mobile banking system in Indonesia: UTAUT model. *Technology Reports of Kansai University, 62*(6), 2757–2767.

Raygor, A. D. (2016). The theory of planned behavior: Understanding consumer intentions to purchase local food in Iowa. available at: https://www.proquest.com/openview/dccffece7789c30038a62ad22d1945b1/1?pq-origsite=gscholar&cbl=18750. (Accessed 11 June 2022).

RBZ. (2022). Zimbabwe finScope consumer survey report December 2022. available at: https://www.rbz.co.zw/documents/BLSS/2022/Zimbabwe_FinScope_Consumer_2022_Survey_Report.pdf. (Accessed 27 January 2023).

Read, D. L., Brown, R. F., Thorsteinsson, E. B., Morgan, M., & Price, I. (2013). The theory of planned behaviour as a model for predicting public opposition to wind farm developments. *Journal of Environmental Psychology, 36*, 70–76.

Regmi, P. R., Waithaka, E., Paudyal, A., Simkhada, P., & Van Teijlingen, E. (2016). Guide to the design and application of online questionnaire surveys. *Nepal Journal of Epidemiology, 6*(4), 640.

Reserve Bank of Zimbabwe. (2024). *Consolidated Banking Institutions' Information as at 30 June 2024*.

Reserve Bank of Zimbabwe. (2025). Monetary Policy statement. https://www.rbz.co.zw/documents/mps/2025/MPS_February_06_2025_1.pdf.

Richter, N. F., Sinkovics, R. R., Ringle, C. M., & Schlaegel, C. (2016). A critical look at the use of SEM in international business research. *International Marketing Review, 33*(3), 376–404. https://doi.org/10.1108/IMR-04-2014-0148

Sanderson, A., & Pierre, le R. (2017). Evaluating market power in the Zimbabwean banking sector. *Journal of Economic and Financial Sciences, 10*(2), 274–291.

Sarstedt, M., Ringle, C. M., & Hair, J. F. (2017). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann, & A. Vomberg (Eds.), *Handbook of market research* (pp. 1–40). Springer. https://doi.org/10.1007/978-3-319-05542-8_15-1.

Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair, J. F. (2017). Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy, 8*(2), 105–115.

Schrepp, M., Hinderks, A., & Thomaschewski, J. (2017). Design and evaluation of a short version of the user experience questionnaire (UEQ-S). *International Journal of Interactive Multimedia and Artificial Intelligence, 4*(6), 103–108.

Shahid, S., Islam, J. U., Malik, S., & Hasan, U. (2022). Examining consumer experience in using m-banking apps: A study of its antecedents and outcomes. *Journal of Retailing and Consumer Services, 65*.

Shaikh, A. A., & Karjaluoto, H. (2016). The effects of mobile banking application user satisfaction and system usage on bank-customer relationships. In *Paper presented at the 20th international academic mindtrek conference, 17 October*. https://doi.org/10.1145/2994310.2994330. . (Accessed 22 November 2022)

Shankar, A. (2021). Impact of mobile banking application interactivity on consumer engagement: An experiment-based investigation. *Journal of Global Information Management, 30*(5), 1–18.

Shankar, A., Jebarajakirthy, C., & Ashaduzzaman, M. (2020). How do electronic word of mouth practices contribute to mobile banking adoption. *Journal of Retailing and Consumer Services, 52*, 101–920.

Shankar, A., & Rishi, B. (2020). Convenience matter in mobile banking adoption intention. *Australasian Marketing Journal, 28*(4), 273–285.

Sharma, S. K., & Sharma, M. (2019). Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation. *International Journal of Information Management, 44*, 65–75.

Statista. (2023). Zimbabwe mobile cellular subscriptions 2000-2021. available at: https://www.statista.com/statistics/501175/number-of-mobile-cellular-subscriptions-in-zimbabwe/. (Accessed 4 August 2023).

Svotwa, T. D., Mswaka, W., & Phera, P. (2025). Understanding the nature of social enterprise in Africa: Insights from Zimbabwe. *Journal of Small Business and Entrepreneurship*, 1–22. https://doi.org/10.1080/08276331.2025.2503120

Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., & Lauro, C. (2005). PLS path modelling. *Computational Statistics & Data Analysis, 48*(1), 159–205.

Thusi, P., & Maduku, D. K. (2020). South African millennials' acceptance and use of retail mobile banking apps: An integrated perspective. *Computers in Human Behavior, 111*, 1–10.

Thusi, P., Red, K., & Maduku, D. K. (2019). Dimensions of perceived risk of mobile banking apps: An empirical investigation of South African retail banking customers. *Kalpa Publications in Computing, 12*, 342–356.

Tsokota, T., Musungwini, S., & Mutembedza, A. (2022). A strategy to enhance consumer trust in the adoption of mobile banking applications. *African Journal of Science, Technology, Innovation and Development, 14*(1), 256–271. https://doi.org/10.1080/20421338.2020.1829352.

Ukpabi, D. C., Karjaluoto, H., Olaleye, S. A., & Abass, S. M. (2019). Factors influencing mobile banking continuous use in Sub-sahara Africa. *Marketing and Mobile financial services: A global perspective on digital banking consumer behaviour*.

Valera, M. L. G., Lei, Z., & Fong, J. H. (2024). Determinants of financial inclusion in southeast Asia. *Applied Economics, 57*(20), 2533–2550. https://doi.org/10.1080/00036846.2024.2326529

Van, H. N., Pham, L., Williamson, S., Huong, V. T., Hoa, P. X., & Trang, P. L. H. (2020). Impact of perceived risk on mobile banking usage intentions: Trust as a mediator and a moderator. *International Journal of Business and Emerging Markets, 12*(1), 94–118.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186–204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly, 36*(1), 157–178.

Venkatesh, V., & Zhang, X. (2010). Unified theory of acceptance and use of technology: US vs. China. *Journal of Global Information Technology Management, 13*(1), 5–27.

Vinzi, V. E., Trinchera, L., & Amato, S. (2010). PLS path modeling: From foundations to recent developments and open issues for model assessment and improvement. In V. E. Vinzi, W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares, springer handbooks of computational statistics* (pp. 47–82). Berlin, Heidelberg: Springer.

Wang, J., & Hsu, Y. (2019). Does sustainable perceived value play a key role in the purchase intention driven by product aesthetics? Taking smartwatch as an example. *Sustainability, 11*(23), 1–24.

Wang, H., Tao, D., Yu, N., & Qu, X. (2020). Understanding consumer acceptance of healthcare wearable devices: An integrated model of UTAUT and TTF. *International Journal of Medical Informatics, 139*, 1–10.

Wasiq, M., Bashar, A., Nyagadza, B., & Johri, A. (2024). Deciphering the evolution of metaverse - A techno-functional perspective in digital marketing. In *International*

journal of information management data insights (Vol. 4)Elsevier. https://doi.org/10.1016/j.jjimei.2024.100296.
Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009a). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly, 33*(1), 177–195.
Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009b). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly, 33*(1), 177–195.
Wohn, D. Y., & Lee, Y. H. (2013). Players of Facebook games and how they play. *Entertainment Computing, 4*(3), 171–178.
Wong, S. L., Hsu, C. C., & Chen, H. S. (2018). To buy or not to buy? Consumer attitudes and purchase intentions for suboptimal food. *International Journal of Environmental Research and Public Health, 15*(1), 1.
Wong, C. H., Wei-Han Tan, G., Loke, S. P., & Ooi, K. B. (2014). Mobile TV: A new form of entertainment? *Industrial Management & Data Systems, 114*(7), 1050–1067.
Yang, K. C. (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics, 22*(3), 257–277.
Yang, F., & Shen, F. (2018). Effects of web interactivity: A meta-analysis. *Communication Research, 45*(5), 635–658.
Yaseen, S. G., & El Qirem, I. A. (2018). Intention to use e-banking services in the Jordanian commercial banks. *International Journal of Bank Marketing, 36*(3), 557–571.
Zalloum, L., Alghadeer, H., & Nusairat, N. (2019). The effect of using mobile banking services applications on electronic word of mouth: The mediating role of perceived trust. *International Business Research, 12*(9), 62–80.
Zhou, T. (2013). An empirical examination of continuance intention of mobile payment services. *Decision Support Systems, 54*(2), 1085–1091.
Zhou, T., & Liu, Y. (2014). Examining continuance usage of mobile banking from the perspectives of ECT and flow. *International Journal of Services Technology and Management, 20*(4–6), 199–214.