

Digital literacy, perceived risk, and purchase intention in the South African online retail sector


A research report submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

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DECLARATION

I, Keetse Mokgoko, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

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ABSTRACT

Online purchase behavior, while steadily growing, is not as prevalent in South African as in other, developed countries. Although South Africa has a significant population of internet users and widespread internet access, it has not resulted in a corresponding rise in the adoption of online commerce.

This study aimed to establish whether certain factors, namely digital literacy, perceived risk, ease of use and usefulness, influence consumers' intention to adopt online retail purchasing in South Africa. Data was gathered from 215 participants in South Africa through an online questionnaire survey. Perceived risk and perceived ease of use were found to be positively and significantly correlated with digital literacy. In contrast to earlier studies, the results suggest that digital literacy does not have a significant influence on an individual's perception of the usefulness of technology. The study also found no substantial correlation between perceived ease of use and an individual's online purchasing intentions. Perceived usefulness was found to be a key determinant of consumer's purchase intentions.

The results of this study are highly significant to retailers, government bodies, and other industries, as they emphasise the significance of taking appropriate actions to improve the digital literacy skills of the general public to drive the adoption of e-commerce. The results also, demonstrate the importance of raising awareness regarding risk perception in the context of online shopping. This can be achieved by marketing campaigns that focus on promoting online security awareness.

The conclusions of the study provide new insights about the relationship, both direct and indirect, between South African consumers' intentions to make online purchases and their levels of digital literacy. It also provides researchers with a new perspective for future studies regarding the levels of digital proficiency demonstrated by those who are receptive to online purchasing. It further provides additional evidence that the perception of risk significantly influences customers' purchasing intentions in an online shopping environment.

KEYWORDS

Perceived Ease of Use, Perceived Risk, Perceived Usefulness Purchase Intention, Online shopping, Technology Acceptable Model (TAM).

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TABLE OF CONTENTS

DECLARATION	ii
ABSTRACT	iii
ACKNOWLEDGEMENTS.....	v
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ACRONYMS	xi
CHAPTER 1:	1
INTRODUCTION	1
1.1 Statement of purpose.....	1
1.2 Background	1
1.3 Research problem	3
1.4 Research questions	4
1.5 Significance	5
1.6 Delimitations of the study.....	6
1.7 Definition of terms.....	8
1.8 Assumptions.....	8
1.9 Chapter outline	9
CHAPTER 2:	11
THEORETICAL FRAMEWORK AND EMPIRICAL LITERATURE REVIEW...	11
2.1 Introduction	11
2.2 Theoretical review	11
2.2.1 Models for predicting adoptive behaviour	11
2.3 Empirical literature review.....	14
2.4 Conceptual framework.....	18
2.4.1 Digital literacy.....	19
2.4.2 Perceived risk.....	22
2.4.3 Perceived usefulness.....	23
2.4.4 Perceived ease of use.....	24
2.5 Conclusion of literature review	24
CHAPTER 3:	26
RESEARCH METHODOLOGY.....	26
3.1 Introduction	26
3.2 Research approach	26
3.3 Research design.....	27
3.4 Data collection methods	27
3.5 Population and sample	27
3.5.1 Population.....	27
3.5.2 Sample and sampling method.....	28
3.6 The research instruments.....	29
3.7 Procedure for data collection.....	29
3.8 Data analysis strategies and interpretation	30

3.9	Quality assurance	30
3.9.1	Measurement model evaluation	30
3.10	Possible limitations and challenges of the study.....	31
3.11	Ethical considerations	31
CHAPTER 4: PRESENTATION OF RESULTS		33
4.1	Introduction	33
4.2	Sample characteristics and responses	33
4.3	Digital literacy.....	34
4.4	Perceived risk of online shopping	35
4.5	Perceived ease of use of online shops.....	36
4.6	Perceived usefulness of online shopping.....	38
4.7	Purchase intention	39
4.8	Measurement model evaluation	40
4.9	Structural model.....	47
4.9	Structural equation modelling.....	48
4.9.1	Results pertaining to hypothesis H1a	49
4.9.2	Results pertaining to hypothesis H1b	50
4.9.3	Results pertaining to hypothesis H1c	50
4.9.4	Results pertaining to hypothesis H1d	51
4.9.5	Results pertaining to hypothesis H2	51
4.9.6	Results pertaining to hypothesis H3	52
4.9.7	Results pertaining to hypothesis H4a	53
4.9.8	Results pertaining to hypothesis H4b	53
4.10	Conclusion.....	54
CHAPTER 5:		56
DISCUSSION OF THE RESULTS AND FINDINGS		56
5.1	Introduction	56
5.2	Digital literacy.....	56
5.3	Perceived risk.....	58
5.4	Perceived usefulness.....	58
5.5	Perceived ease of use.....	59
5.6	Conclusion.....	60
CHAPTER 6:		61
CONCLUSION AND RECOMMENDATIONS		61
6.1	Introduction	61
6.2	Conclusions of the study.....	61
6.3	Theoretical implications	64
6.4	Managerial implications.....	65
6.5	Limitations and suggestions for further research.....	66
6.6	Conclusion.....	67

REFERENCES	71
APPENDIX A:	PARTICIPANT INFORMATION SHEET	85
APPENDIX B:	INSTRUMENT	87
APPENDIX C:	ETHICS APPROVAL NOTIFICATION	89

LIST OF TABLES

Table 2.1: Summary of hypotheses	25
Table 4.1: Digital literacy – descriptive statistics.....	35
Table 4.2: Risk perception – descriptive statistics	36
Table 4.3: Perceived ease of use – descriptive statistics.....	37
Table 4.4: Perceived usefulness – descriptive statistics.....	38
Table 4.5: Purchase intentions – descriptive statistics	40
Table 4.6: Final CFA results – construct composition.....	43
Table 4.7: Items pruned during CFA.....	45
Table 4.8: Construct reliability and validity	46
Table 4.9: Fornell-Larcker Criterion Correlations.....	46
Table 4.10: Model fit indices.....	47
Table 4.11: SEM Model – Standardised regression weights	49
Table 4.12: Summary of the results/findings	54
Table 6.1: Consistency table: research questions, hypotheses, data collection and data analysis.....	68

LIST OF FIGURES

Figure 2.1: Conceptual framework	19
Figure 4.1: Sample characteristics and responses	34
Figure 4.2: Validated model.....	42
Figure 4.3: Pruned CFA model.....	48

LIST OF ACRONYMS

AGFI	Adjusted goodness of Fit Index
AU	Actual Use
B2B	Business-to-Business
B2C	Business-to-Consumer
C2C	Consumer-to-Consumer
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CMIN/DF	Chi-square Minimum/ Degree of Freedom
CPMT	Communication Privacy Management Theory
CTIS	Continuance Theory of Information Systems
DL	Digital Literacy
eWOM	Electronic Word-of-Mouth
FC	Facilitating Conditions
GFI	Goodness of Fit Index
ICT	Information and Communications Technology
IDT	Innovation Diffusion Theory
LF	Legal Framework
MCA	Mobile Commerce (m-commerce) Applications
NFI	Normed Fit Index
NNFI(TLI)	Non-Normed Fit Index
PC	Perceived Cost
PE	perceived enjoyment
PEOU	Perceived Ease of Use
PI	Purchase Intention
PMT	Protection Motivation Theory
PR	Perceived Risk
PU	Perceived Usefulness
PV	Price value
RSMEA	Root Mean Square Error of Approximation
SD	Standard deviation
SEM	Structural equation modelling
SEM-PLS	Partial least squares structural equation modelling SRMR
	Standardized Root Mean Residual
TAM	Technology Acceptable Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TTT	Trust Transfer Theory
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER 1:

INTRODUCTION

1.1 Statement of purpose

The aim of this study was to determine the significance of digital literacy on the perceived risk (PR) and purchase intention (PI) determinants, perceived usefulness (PU) and perceived ease of use (PEOU) in the South African online retail sector.

1.2 Background

Online retail, sometimes known as online shopping, is a type of electronic commerce in which customers transact with vendors directly over the internet as opposed to visiting a physical store (Enders & Jelassi, 2000). Online retail has three models: business to business (B2B), business to consumer (B2C) and consumer to consumer (C2C) (Lee, 2001). The context of the study is on online retail B2C in South Africa.

The COVID-19 pandemic has accelerated the adoption of online retail in South Africa and across the world. According to International Trade Administration U.S. Department of Commerce, (2024) South African online retail sales were estimated to have increased by 66% from 2019 to 2020 amounting to R30-billion. Top selling product categories amongst South Africans online shoppers were clothing, footwear, electronics, household products and health products (International Trade Administration U.S. Department of Commerce, 2024). The online retail shopping trend was expected to continue increasing at an annual growth rate of 9% (Schaefer & Bulbulia, 2021).

Prior to the pandemic, according to FNB Merchant Services, spending on travel and lodging made up 35% of the sector while e-commerce accounted for 8% of all card payments made in the retail industry. By the end of 2021, travel and lodging accounted for just 11% of all card payment transactions, while e-commerce accounted for 14% (Businesstech, 2022).

Even though online retail sales have surged, they are still far below the global average of roughly 15% of total retail sales (Steyn & Mawela, 2016). In 2021 total retail sales amounted to R1,05-trillion and of those sales 2.8% was accounted for by online retail sales. This doubled the percentage of online sales for 2018 (Goldstuck, 2021).

Previous research has linked much of the lag to a lack of internet access Makhitha et al. (2019) which is not the case in South Africa. In 2021, approximately 78% of the population were active internet users through mobile devices (Ceci, 2021). Shukla and Sharma (2018) posit that there are other factors other than the use of technology that should be researched to better understand online consumer purchasing intentions.

Digital literacy competency levels have been found to be one of the factors that influence adoption of digital technologies. Individuals with a high level of digital literacy might adapt to digital technology innovations with ease whilst those with low digital skills could resist innovation as they find it too fast and difficult to control (Henfridsson et al., 2014). In a country such as South Africa where situations of a secondary digital divide are present (Mphahlele et al., 2021), digital skills become significant to the rate at which innovation is diffused in a population.

1.3 Research problem

Despite the fact that South Africa has a large number of active internet users, the increased accessibility has not translated into increased adoption of online shopping activity. Online sales represent only 2.8% of overall retail sales in South Africa. This is because the availability and accessibility of digital tools, as well as the quality of digital infrastructure, are prerequisite but insufficient factors to drive people to use technology (Bingimlas, 2009). There are other factors related to an individual's character, such as perceived self-efficacy and attitude, that explain the adoption of technology better than the availability of and access to technological infrastructure (Backfisch et al., 2021). Makhitha and Ngobeni (2021) found that security and privacy risks are the most important factors influencing consumers' decisions to make purchases online in South Africa.

Furthermore, studies suggest that digital literacy is significant in determining the rate at which innovation spreads across a population, and enhancing digital literacy can promote the acceptance of e-commerce (Mphahlele et al., 2021; Nazzal et al., 2021).

An individual's purchase intention is considered a reliable indicator for predicting an online shopping decision (Wagner Mainardes et al., 2019). Behavioural characteristics of consumers have a crucial role in the success of B2C commerce (Barkhi & Wallace, 2007). Therefore, marketers need to understand the influence of consumers' behavioural characteristics on their purchase intention.

The study suggests that digital literacy and perceived risk are factors that can influence consumers' intention towards online shopping technologies through their impact on perceived behavioural control.

The study seeks to examine the significance of digital literacy on both perceived risk (PR) and purchase intention (PI) determinants, perceived ease of use (PEOU) and perceived usefulness (PU). In recent years a number of studies, including Makhitha and Ngobeni (2021) and Pentz et al.(2020), focused on behaviour and factors hindering the adoption of online shopping have been carried out in South Africa . To the best of our knowledge no studies have investigated digital literacy (DL) as an element in the adoption of online retail in South Africa. The study will contribute to the existing body of knowledge by introducing DL as another factor to be considered in the adoption of online retail. DL has also been demonstrated to have a significant impact on customers' purchasing intentions (Nazzal et al., 2021).

1.4 Research questions

The main research questions are:

1. Does digital literacy have a statistically significant influence on South African online retail consumers' perceived risk, usefulness, ease of use and online purchase intentions?
2. Does perceived ease of use, usefulness, and risk have a statistically significant influence on South African consumers' online purchase intentions?

The development of online shopping in South Africa is at an early stage, and it is therefore important to understand other factors besides technology that are limiting the rate at which online retail is being adopted. The study will highlight the significance of digital literacy on constructs associated with consumers' purchase intention as well as perceived risk.

1.5 Significance

South Africa, as a developing country, presents a market with significant growth potential for B2C (Chong et al., 2012). The widespread adoption of smartphones, coupled with extensive internet connectivity, offers significant potential for South African retailers to expand their B2C commerce operations. As a result, marketers need to understand how consumers make decisions and various factors that influence those decisions in order to better understand their purchase behaviours.

Not all customers are digitally competent, and the decision to purchase online is influenced by many factors including the fear of financial loss caused by a lack of the necessary digital skills to avoid cybersecurity risks (Kshetri, 2019; Pentz et al., 2020; Makhitha & Ngobeni, 2021). Technological advancements have revolutionised the way individuals engage in consumption (Finneman et al., 2017), and capturing the interest of consumers across all age groups is a vital component of marketing. Different age groups possess varied levels of digital skills: there are generations that had to adapt to technology and generations that grew up in the digital era with advanced technology being an integral part of their lives. It is therefore critical to investigate the relationships between the consumer decision journey and the level of digital literacy of South African customers, as this may provide guidance to marketing practitioners and entrepreneurs in their pursuit for a competitive advantage.

The study examines the significance of digital literacy on purchase intention (PI), perceived risk (PR), perceived usefulness (PU), and perceived ease of use (PEOU) on online retail in South Africa. The research will provide insights to online retailers to determine which components of their

marketing tactics and actions should be emphasised to influence internet users who do not to engage in online shopping (Pavlou et al., 2007).

1.6 Delimitations of the study

The study focused on the retail sector in South Africa, specifically online operations otherwise known as B2C commerce. Online shopping in South Africa is still in its infancy despite the country having enabling technological infrastructure to support the uptake of online shopping. This sector has the potential to create job opportunities as it reduces barriers of entry levels for small businesses.

The study mainly focused on South African individuals aged 18 to 50 who possess smartphones and have internet connection. This is because of the prevalence of smartphones is increasing, and access to the internet is extensive. According to Ceci (2021), almost 78% of the population used the internet on their mobile devices in 2021. This presents substantial opportunities for South African retailers to further develop their operations into B2C commerce.

The basis of the study was formulated on the Technology Acceptance Model (TAM), a theory commonly used in studies to predict and explain why users accept or reject information technology (Legris et al., 2003). The study extends the TAM model with two variables: digital literacy and perceived risk. Prior research indicated that consumer behavioural traits played an important part in the success of B2C commerce (Barkhi & Wallace, 2007). Therefore, gaining insights on potential consumers becomes important to online retailers in order for them to grow their market share.

The study examined the degree of digital literacy among various age groups and its influence on their intentions to make online purchases. Acquiring these insights would empower marketers to attract the interest of diverse age groups, as purchasing behaviours vary across generations and necessitate the deployment of distinct marketing strategies to gain a competitive advantage. Moreover, the development of digital literacy is crucial for using advanced digital technologies, since it greatly impacts an individual's receptiveness towards adopting new technology (Mac Callum et al., 2014). Digital literacy is categorised into four skill types, one of which is operational skills (van Deursen & van Dijk, 2009; Techataweewan & Prasertsin, 2018). The absence of a consensus over the definition of digital literacy has resulted in the development of different sets of metrics for assessing digital literacy. This study exclusively examined operational abilities, as our primary interest was in operational skills in relation to the adoption of new technologies.

The study did not specifically examine other demographic factors such as gender, as it was determined that gender had no meaningful impact on the association between digital literacy and purchase intention (Nazzal et al., 2021; Semente & Whyte, 2020). A conclusion that can be drawn from this is that males and females have comparable levels of digital literacy. Marketers should understand this concept in order to effectively target various generational cohorts through technical channels such as social media and digital marketing platforms.

According to Malaquias and Hwang (2016), perceived risk was a major barrier to e-commerce growth. The concept of perceived risk is commonly categorised into six different areas: financial risk, product risk and delivery risk, time risk, security risk, and social risk (Masoud, 2013). In this study, perceived risk is defined as the

combination of security risk and financial risk, which had the greatest impact on deterring South African consumers from engaging in online purchases (Pentz et al., 2020; Makhitha & Ngobeni, 2021).

1.7 Definition of terms

Digital literacy pertains to the capability to carry out digital actions successfully in various daily situations, such as employment, learning, leisure, and other elements of daily life (Martin, 2006).

Purchase intention (PI) is stated as a consumer's intention to purchase goods or services through the internet (Close & Kukar-Kinney, 2010).

Perceived ease of use (PEOU) relates the level of difficulty or ease in learning how to operate new technology (Davis, 1989).

Perceived usefulness (PU) is the measure of an individual's subjective belief of the assessment of utility of the new technology (Davis, 1989).

Perceived Risk (PR) is a Consumer's concern of encountering unfavourable and unforeseeable consequences while engaging in online transactions. (Park and Tussyadiah, 2016).

1.8 Assumptions

In terms of sample selection, the study takes the following assumptions:

- I. South Africa's adoption of online shopping platforms is still in its infancy.
- II. All participants possess adequate skills to operate a computer mobile phone, and to navigate the internet.

- III. Individuals with digital literacy are more proficient in using digital systems compared to those without it.
- IV. Perceived risk is an antecedent of trust (Eid, 2011).
- V. Consumers who engage with online purchase behaviour are assumed to have an established positive attitude towards the behaviour.
- VI. Psychological state and experienced challenges shape consumers' behavioural intents and actions, subsequently altering their attitude towards technology (Ajzen et al., 2011)

For the purposes of the study PR refers to security risk and financial risk as these exert the largest influence in deterring the South African consumer in the adoption of online shopping (Pentz et al., 2020; Makhitha & Ngobeni, 2021).

1.9 Chapter outline

Chapter 1 discusses the study's purpose and sets the context within which it is carried out. It defines the research problem and the research questions that direct the study. The chapter addresses the rationale, constraints, key terminologies and underlying assumptions of the study.

Chapter 2 presents the theoretical framework. It provides a theoretical analysis of existing research, including the explanation of important concepts and the formulation of proposed hypotheses. Finally, it describes the research conceptual model.

Chapter 3 presents an summary of the research methods employed, as well as the research design used in the study. Subsequently, the process of collecting data and the methodology for selecting samples is explained. The text provides a comprehensive account of the research instrument employed, and a detailed

explanation of the data analysis and interpretation methods. The chapter also examines the limits of the study and provides ethical considerations associated with it.

The primary purpose of Chapter 4 is to critically assess the measurement tool utilised in the study. Confirmatory factor analysis (CFA) was used to evaluate the instrument's validity and reliability. Finally, the hypotheses are investigated and Structural Equation Model (SEM) analysis conducted.

Chapter 5 presents the study's findings and their relationship to other constructs. The study highlights the differences and parallels found between its findings and the existing literature.

Chapter 6 provides a concise overview of the research results, focusing on the several hypotheses and their overall research objectives. It provides suggestions resulting from the study's findings and highlights the limitations of the research. Lastly, it provides suggestions for future research.

CHAPTER 2:

THEORETICAL FRAMEWORK AND EMPIRICAL LITERATURE REVIEW

2.1 Introduction

This chapter introduces a theoretical framework for the research. It provides a systematic analysis of existing research, including the explanation of important concepts and the formulation of proposed hypotheses. Finally, the research model is developed.

2.2 Theoretical review

2.2.1 Models for predicting adoptive behaviour

The Technology Acceptance Model (TAM) is a theory commonly used in studies to predict and explain why users accept or reject information technology. It is based on the Theory of Reasoned Action (TRA) (Legris et al., 2003). According to TAM the intention to use new information technology is determined by two variables: perceived usefulness (PU) and perceived ease of use (PEOU) (Davis, 1989). Davis (1989) identified these as the most important drivers of a person's attitude toward a certain technology. PU is the measure of an individual's subjective belief of the assessment of utility of the new technology (Davis, 1989). PEOU relates to the level of difficulty or ease in learning how to operate new technology (Davis, 1989). Both TRA and TAM imply that one's intention to use and perception of the utility of a technology may be influenced by subjective norms. Both models hold that attitude has an impact on behavioural intention. Davis also maintained that it was possible to overlook the impact of subjective norms on

behavioural intention to use: as a result, TAM did not take these variables into account.

The TAM was later extended to develop the Unified Theory of Acceptance and Use of Technology (UTAUT). Performance expectancy, effort expectancy, social influence, and conducive conditions were later added to TAM to improve it. Performance expectancy refers to how much a person expects to benefit from using the system in terms of job performance (Venkatesh et al., 2003). Effort expectancy refers to the perceived ease of using a system (Venkatesh et al., 2003). Social influence is the extent to which a person feels that others who matter to them want them to use the system (Venkatesh et al., 2003). The first three are factors that affect behavioural intention, while the facilitation condition directly affects how users behave in terms of their adoption of technology. UTAUT was criticised for not being able to adequately explain behavioural intention in many contexts. Venkatesh and Bala (2008) integrated TAM2 (Venkatesh & Davis, 2000) and the antecedents of perceived ease of use (Venkatesh, 2000) into TAM3, a holistic model of technology acceptance. TAM3 explored how perceived usefulness, computer anxiety, and perceived ease of use affected the behavioral intention to use a system. Venkatesh et al. (2012) further updated the UATAT model and added three constructs: hedonic motivation, price value, and habit, resulting in UATAT2.

Innovation Diffusion Theory (IDT) predicts the rate at which innovation spreads across a population. The main constructs include relative advantage, compatibility, complexity, trialability, and observability. Relative advantage means how much better a new idea is than the old one. People are more likely to use a new idea if it has a high relative advantage. (Rogers, 2003). This variable, relative

advantage, was found to be a reliable predictor of innovation adoption. Compatibility means how well a new idea fits with what people need, know, and want. People are more likely to use a new idea if it is compatible with them (Rogers, 2003). Complexity means how hard a new idea is to understand and use. People are more likely to use a new idea if it is simple and easy (Rogers, 2003). Trialability means how easy it is to try a new idea on a small scale. People are more likely to use a new idea if they can test it first (Lee et al., 2011). Observability means how visible the results of a new idea are to others. People are more likely to use a new idea if they can see its benefits (Ahmad and Ali, 2015). The author argues that the features of a new idea affect how fast people adopt it, no matter what kind of person they are. The theory focuses on technological properties in determining the adoption of innovation (MacVaugh & Schiavone, 2010).

2.2.2 Theoretical framework for the study

According to Davis (1989), the variables that have the greatest impact on a person's attitude towards a particular technology are perceived usefulness (PU) and perceived ease of use (PEOU). The TAM suggests that attitude influences behavioural intentions. There is a positive correlation between the level of psychological reaction and the probability of the behaviour occurring. According to the model, if a technology is designed to be user-friendly, it is more likely to be perceived as valuable by the user. This, in turn, increases the likelihood of the user accepting the technology (Davis, 1989). The perceived usefulness of a variable can directly influence its actual use, highlighting the importance of this variable in predicting behaviour. The study used the

Technology Acceptability Model (TAM), which has achieved substantial theoretical advancements and holds significant practical applications in measuring technology adoption.

2.3 Empirical literature review

Pillay and Mayayise (2021) examined the impact of important variables on online retail consumer purchase intention (PI) in South Africa (SA) during the COVID-19 pandemic. Using the TAM and UTAUT2 models as theoretical frameworks, the study investigated the role of price value (PV), perceived ease of use (PEOU), risk, facilitating conditions (FC), Perceived usefulness (PU) and trust in online retail PI. The study also incorporated COVID-19 as a situational factor that affects online retail PI and moderated the relationships between the other constructs. The study employed a quantitative statistical modelling approach and collected data from 368 South African adults who had previous online buying experience. The results showed that COVID-19 and PEOU were important predictors of online retail PI in SA under the pandemic situation. Additionally, the online shopping experience was a crucial factor that influenced online retail PI. The study also found that COVID-19 had a highest moderating effect on the associations between PU, risk, trust, PEOU, and PV and online retail PI. The study suggested that businesses could leverage favourable conditions created by COVID-19, enhance consumers' PEOU, and promote consumers' online retail experiences to increase their online sales. However, businesses should not neglect the safeguard factors of trust, risk, PU, PV, and FC, which are still essential for online retail PI.

Ngubelanga and Duffett (2021) investigated the determinants of consumer satisfaction motivated by millennial consumers' use of mobile commerce (m-commerce) applications (MCA) in South Africa. The extended TAM provided the conceptual model antecedents. The study used self-administered questionnaires to collect data from millennial MCA users in South Africa. Statistical analysis was done using structural equations and generalized linear modelling on a sample of nearly 5 500 respondents. The findings revealed that PU was positively influenced by trust, social influence, and innovativeness; perceived enjoyment (PE), mobility, and involvement were positively influenced by perceived ease of use; and PU and PEOU were the elements of customer satisfaction. Usage and demographic factors were also discovered to have a positive impact. The study also advises businesses to enhance customer experience and satisfaction through MCA. This study only included millennials, whereas the many other studies did not differentiate between the different age groups. The participants were chosen by non-probability sampling techniques, and the study utilised a quantitative research methodology. The was cross-sectional, while other investigations employed a longitudinal methodology. The sample was restricted to South African participants, although other researchers carried out multinational studies.

In their study, Netshirando et al. (2020) examined the factors that affect the online purchasing frequency of rural customers, such as facilitating conditions, trust, privacy, security, socio-technical concerns, and value for money. TAM, Continuance Theory of Information Systems (CTIS), Communication Privacy Management Theory (CPMT), Trust Transfer Theory (TTT), Protection Motivation Theory (PMT), and the extended UTAUT (UTAUT2) are some of the theories on

which this study is based. The study employed self-administered questionnaires to collect data from 389 participants in Limpopo, South Africa. CFA was carried out using the IBM Amos Structural Equation Modelling (SEM) method in order to evaluate the structural and model-fit of the study model. The study found that privacy concerns were the only factor that did not influence online buying behaviour of new and returning customers. The study also provided new insights for policymakers on how to attract online shoppers in South Africa and other developing countries. The findings also imply that rural residents are unaware of the services offered by digital commerce (d-commerce.) Managers could give users with little technical knowledge simple, multilingual instructions on how to use such systems.

Ha (2020) conducted a study on Vietnamese consumers' online shopping intentions using TAM and Theory of Planned Behaviour (TPB). The trust and perceived risk constructs were added to the models. An online questionnaire distributed directly to respondents via the internet was used to collect data from 423 consumers. The findings show that PEOU, PU, and subjective norms all have a significant influence on consumers' online shopping intentions, and consumers' intention to buy online was influenced negatively by their risk perception.

Kuo et al. (2019) used the technology acceptance model (TAM) to investigate users' motivations for downloading a tourism app in Taiwan. According to the results of an online survey with 630 tourists, a variety of elements, including perceived usefulness, perceived simplicity of use, the environment of the e-servicescape, and eWOM, affect users' intentions. The study also demonstrates that attitudes towards the usage of travel apps are positively impacted by perceived usefulness and ease of use. The study also discovered that in addition

to internal determinants, eWOM communication and the environment of the e-servicescape also induce an attitude that significantly influences consumers' intention to buy. The research focuses on how customers use mobile apps in destination selection without taking into account the contributing factors in their use of mobile apps and their travel motivations. Future research should focus on the satisfaction of mobile app users both before and after they use these apps.

Ofori and Appiah-Nimo (2019) used TAM to investigate the factors that influence tertiary students' online buying behaviour in Ghana. In order to establish what factors influenced students' intentions to use online shopping and actual behaviour, the study developed a redesigned TAM that combined perceived cost and perceived risk. A sample of 580 undergraduate students participated in the survey. Partial least squares structural equation (SEM-PLS) modelling was employed. The findings supported TAM's prediction that simplicity of use has a very large impact on usefulness. Although PC was shown to be the independent variable that had the greatest impact on students' actual use (AU) of online shopping, it had no significant impact on actual purchases. AU was not significantly impacted by perceived risk (PR), but purchase intention was significantly impacted (PI). The report advises online retailers to reduce costs and increase efficiency of online purchasing while ensuring the security of both the product and the transactions. The study's limitations in terms of the elements included, despite the fact that they were rather substantial, were also made clear by the framework. The study suggests that additional variables, including product kind, convenience, personal/demographic variables, and even geographic variables, can have an impact on students' online shopping decisions.

Shukla and Sharma (2018) used TAM to investigate how Indian consumers perceive the use of technology in grocery shopping via mobile applications. Data was collected from 346 respondents using self-administered questionnaires. The results of this study confirmed the validity and applicability of the TAM model and its variables and relationships. PU and attitude were discovered to moderate the relationships in part. The study revealed that consumers frequently used mobile apps for general shopping but had a limited role as a tool for purchasing groceries. This implies that there were other factors besides technology that prevent the use of mobile apps for grocery shopping. Some limitations were highlighted in the study, and a number of TAM constructs were excluded in the study. Cross-cultural factors were not considered since the study was conducted in India.

The authors examined the influence of key TAM factors (PU and PEOU) and other relevant constructs (distrust, PR, PE, and LF) on online shopping intentions in Pakistan. They collected data from an online survey with a convenience sample of online university members (students, staff, and alumni) from a large metropolitan university. The results supported the hypothesised model and indicated that all six independent variables (PU, PEOU, PR, PE, distrust, and LF) significantly predicted the intention to shop online (Akhlaq and Ahmed, 2015).

2.4 Conceptual framework

The study employed the TAM model because there was empirical evidence that found its significance in assessing users' adoption of new technology (Upadhyay & Jahanyan, 2016; Yucel et al., 2013). The study extended the TAM with an external variable digital literacy as PEOU might be influenced by external

variables (Ullah et al., 2022). In order to enhance the accuracy of system utilisation prediction, it has been proposed by multiple researchers that external factors be integrated into TAM (Taherdoost and Masrom, 2009; Yucel et al., 2013), and, the significance of perceived risk between digital literacy and online purchase intention was examined. Figure 2.1 presents the conceptual framework used to examine the elements that influence South African consumers in adopting online shopping.

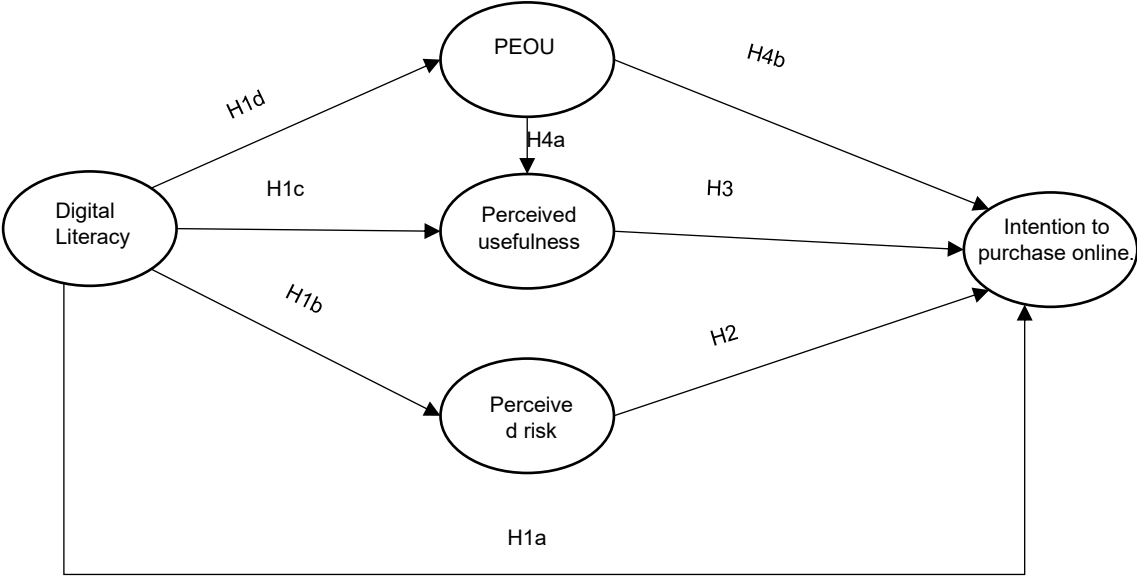


Figure 2.1: Conceptual framework

2.4.1 Digital literacy

In literature digital literacy is also termed as internet skills, and e-skills (Dodel & Mesch, 2018). Digital literacy is a set of practices and knowledge related to the use of digital technologies. It includes elements of information literacy and information and communications technology (ICT) literacy (Martin, 2006). Digital literacy refers to the ability to carry out digital actions successfully in various daily situations, such as employment, learning, leisure, and other elements of daily life (Martin, 2006). Cordell (2013) defined it as the ability to access, assess, generate,

and share information through information and communication technologies, which necessitates both cognitive and technical skill. In assessing the development of digital literacy indicators Techataweewan and Prasertsin (2018) referred to digital literacy as the individuals' level of awareness and set capabilities to use digital information technology and media for searching and assessing as well as communicating. This definition was based on information literacy and ICT literacy. Digital skills are defined as those foundational abilities necessary to use digital systems, as well as the knowledge of the internet and utilisation of its content (Dodel & Mesch, 2018). Two studies suggest different dimensions of digital literacy, which may vary depending on the context and the purpose of the users. Van Deursen and van Dijk (2009) focused on the skills required to use digital technologies effectively and efficiently, while Phuapan et al. (2016) emphasised the abilities to access, manage, integrate, create, and communicate information using digital tools.

Techataweewan and Prasertsin (2017) developed a framework consisting of four domains: awareness, collaboration, operational skills, and thinking skills. There is no consensus on the definition of digital literacy, which has led to various sets of indicators for measuring digital literacy. Because we are concerned with operational-level skill related to new technology adoption, the study focuses primarily on operational skills (Dodel and Mesch, 2018).

Digital literacy is important to learning and using new digital technology as it impacts an individual's attitude towards adoption of new technology (Mac Callum et al., 2014). Ferro et al. (2011) found that digital literacy significantly increases the likelihood of engagement with digital technology. Similarly, Bergdahl et al.

(2020) show that students with higher digital skills are more likely to participate in learning systems that use technology.

In another study Semente and Whyte's (2020) results showed that a consumer's decision making was significantly influenced by the individual's level of digital literacy. Based on previous research, the study assumes that individuals with higher levels of digital literacy perceived less risk and are more confident in adopting new technology. The relationship is hypothesised below:

H1a: Digital literacy has a statistically significant effect on South African consumers' online retail purchase intentions.

Mohammadyari and Singh (2015) showed that higher levels of digital literacy can assist students avoid the negative consequences of their online activities. Similarly, Purnama et al. (2021) confirmed that digital literacy skills positively influence the impact of perceived risk. Based on previous research, it can be assumed that digital skills increase the level of awareness of the negative impacts associated with online shopping. Therefore, consumers with high levels of digital literacy perceive less risk compared to those with lower digital literacy levels.

H1b: South African consumers' digital literacy has a statistically significant positive effect on the perceived risk they associate with online shopping.

Nikou et al.'s (2022) findings show that digital literacy has an impact on perceived ease of use of technology but no effect on the perceived usefulness. Ng (2012) suggests that a person who is digitally literate has the technical and operational capabilities to use technology for a variety of purposes. The usefulness of a technology does not depend on an individual's skill but on whether it performs

well the task that it was intended for. A person with digital skills is familiar with the technology and will have the confidence and skill to adapt to new technology with ease.

H1c: Digital literacy has a statistically significant effect on South African consumers' online retail perceived usefulness.

H1d: Digital literacy has a statistically significant effect on South African consumers' online retail perceived ease of use.

2.4.2 Perceived risk

PR is considered as a main obstacle in the development of e-commerce (Malaquias & Hwang, 2016). PR is generally classified into six factors: financial risk, product risk, delivery risk, time risk, security risk and social risk (Featherman & Wells, 2004). In the context of online marketplace, Han and Kim (2016) examined a multidimensional PR which includes financial, privacy, product, security, social/psychological and time risk. Kamalul Ariffin et al. (2018) found that security risk is the main element that dissuades consumers from purchasing online. Security is defined as a possible loss due to online fraud (Kamalul Ariffin et al., 2018). In the South African context security and privacy risk have been found to be the most prominent factors that influence consumers' online purchasing decisions (Makhitha & Ngobeni, 2021). Another study found that financial risk was the most prevailing factor for inexperienced online shoppers in South Africa (Pentz et al., 2020). For the purposes of this study PR refers to security risk and financial risk as these two are the most influential in deterring the South African consumer in the adoption of online shopping.

PR is the main obstacle in the expansion of e-commerce (Malaquias & Hwang, 2016), security risk being the main element that dissuades consumers from

purchasing online. Eid's (2011) study indicates that when perceived security risk and privacy risk decrease, customers' trust increases. Kim and Lennon (2013) observed that the higher the PR of shopping online, the lower the PI. When consumers perceive the online retailer as trustworthy, they are more likely to make a purchase (Chang & Wu, 2012). The following hypothesis is made:

H2: The lower the perceived risk of purchasing at an online retailer, the higher is the South African consumers' online retail purchase intentions.

2.4.3 Perceived usefulness

PU is the measure of an individual's subjective belief of value derived with the use of the new technology (Davis, 1989). According to Liébana-Cabanillas et al. (2020), the PU of mobile payments is an essential element that influences a user's decision to adopt. The research conducted by Ullah et al. (2022) also suggests that PU is one of the key factors in determining the likelihood of customers adopting mobile payment methods. Moslehpour et al. (2018) demonstrated that PU is a significant determinant of a user's behaviour and online purchase intention.

The current study proposes that PU positively influences a consumer's purchase intention. When an individual perceives an online channel as beneficial, they form a desire to use the technology to derive the benefits associated with use. This relationship is reflected in the hypothesis:

H3: Perceived usefulness has a statistically significant effect on South African consumers' online retail purchase intentions.

2.4.4 Perceived ease of use

According to Davis (1989), if a technology is perceived easy to use, it is more likely to be seen as valuable by the user. Consequently, this enhances the probability of the user embracing the technology (Davis, 1989). If there are more obstacles to online shopping than benefits, potential customers may choose to use more conventional channels for their purchases. Moslehpour et al., (2018) found a positive correlation between ease of use and perceived usefulness. The challenges encountered could diminish the PEOU resulting in a negative attitude among internet users. As a result, internet customers are less inclined to engage in online purchasing. This relationship is reflected in the hypothesis:

H4a: Perceived ease of use has a statistically significant effect on South African consumers' perceived usefulness of online retail.

Moslehpour et al. (2018) demonstrated PEOU had an impact on consumers' intentions to utilise digital payment services. The results of the study indicate that customers will be encouraged to buy online if technologies are perceived to be easy to use (Amin et al., 2014). We propose that an easy-to-use online shopping channel is perceived to be beneficial and positively influences the PU of the consumer. This relationship is reflected in the hypothesis:

H4b: Perceived ease of use has a statistically significant effect on South African consumers' online retail purchase intentions.

2.5 Conclusion of literature review

Digital literacy is vital for discovering and using new digital technology because it determines a person's attitude towards technology acceptance. Perceived risk has also been highlighted as barrier to adopting online shopping. The study adopts the empirically tested TAM model to examine factors that influence the

adoption behaviour of the South African online retail consumer. However, despite its robustness, some authors have considered it lacking by itself to accurately evaluate factors inducing the adoption of new technology, as such the model has been extensively enhanced to include other factors. This study will extend TAM to include two constructs: digital literacy and perceived risk. Table 2.1 gives a summary of the hypotheses used in this study.

Table 2.1: Summary of hypotheses

Hypothesis	Description
H1a	Digital literacy has a statistically significant effect on South African consumers' online retail purchase intentions.
H1b	Digital literacy has a statistically significance effect on South African consumers' online retail perceived risk.
H1c	Digital literacy has a statistically significant effect on the South African consumers' online retail perceived usefulness
H1d	Digital literacy has a statistically significant effect on South African consumers' online retail perceived ease of use
H2	The lower the perceived risk of purchasing at an online retailer, the higher is the South African consumers' online retail purchase intentions.
H3	Perceived usefulness has a statistically significant effect on South African consumers' online retail purchase intentions
H4a	Perceived ease of use has a statistically significant effect on South African consumers' perceived ease of usefulness of online retail
H4b	Perceived ease of use has a statistically significant effect on South African consumers' online retail purchase intentions.

CHAPTER 3:

RESEARCH METHODOLOGY

3.1 Introduction

The main objective of this chapter is to discuss the methodology to be applied during the research. This chapter contains the following sections: research approach, research design, data collection methods, population and sample, research instruments, procedure for data collection, data analysis strategies and interpretation, quality assurance, possible limitations and challenges of the study, and ethical considerations.

3.2 Research approach

The study aimed at examining the effects of digital literacy on the adoption of online shopping in South Africa. As a result, a quantitative research method was used. A quantitative method is appropriate if the problem involves determining factors that influence an outcome or determining the best predictors of outcomes (Creswell, 2018).

The benefit of this technique is that it does not introduce any subjective bias in analysing and explaining data. It enables large sample sizes, as well quick turnaround time for data collection. The limitation of quantitative data is that it does not provide detailed insight into the experiences, which limits understanding of the variables being studied (Choy, 2014), while qualitative surveys are valuable for collecting descriptive information (De Vaus & de Vaus, 2013). However, the deductive rationality of the quantitative approach enables utility of theories in literature for conclusions as well as generalisation of data (Creswell, 2018).

3.3 Research design

The study employed a cross-sectional design, enabling efficient data collection within a limited timeframe. In addition, this method is cost-effective, easy to administer and develop, and not restricted by geographical limitations (Creswell, 2018).

3.4 Data collection methods

The study employed a questionnaire, which is a widely used tool to obtain data in survey research (Leavy, 2022). The questionnaire was distributed online using the Qualtrics survey platform. The distribution occurred through the WhatsApp platform (Leavy, 2022). A primary drawback of quantitative survey research is its lack of flexibility in accommodating new findings during the data collection process, which could impact the data's validity (Creswell, 2018).

3.5 Population and sample

3.5.1 Population

The specific target audience includes individuals between the ages of 18 and 50 who are residents of South Africa. In order to take part in the study, individuals must have a smartphone with internet connectivity. In 2021, 30% of South African internet users who accessed the internet via their cellphones were between the ages of 25 and 34. The next largest age group was 15-25 years old, accounting

for 25% of users. Users aged 35-44 made up 23% of the total, while those aged 45-64 accounted for 18%. Lastly, those aged 65 and beyond made up 3% of the users (Cowling, 2023). The widespread adoption of technology has profoundly transformed how people participate in consumption (Finneman et al., 2017). Therefore, it is important to understand the relationship between the consumer decision journey and the level of digital literacy among customers in South Africa. As different age groups display varying degrees of digital competence.

3.5.2 Sample and sampling method

An online A-priori sample size calculator for structural equation modelling (SEM) was utilised to calculate the necessary sample size to test the hypothesised model and measure its effect. According to Memon et al., (2020), A-priori sample size calculator is regarded as better than other online sample size calculators due to its ability to generate a study-specific minimum sample size. It can be considered for any research design, regardless of whether the data is collected using a probability or non-probability sampling technique. The model comprises five latent constructs and thirty observable variables, with an expected effect size of 0.3, a desired probability of 0.05, and statistical power levels of 0.8. The calculator suggested a minimum sample size of 150 to detect the effect and a minimum sample size of 200 for the model structure. The most suitable sample size is 200. This study applied convenience sampling, a non-probability sampling technique.

3.6 The research instruments

The questionnaire was based on previous studies (Chauhan et al., 2019; Chiu et al., 2009; Davis 1989; Jarvenpaa et al., 2006; Lim and Ting, 2012; Nguyen and Barrett, 2006; Ramayah et al., 2009; Nazzal et al., 2021; Subramania, 2022.). TAM is a well-validated assessment method for predicting technology acceptance (Upadhyay & Jahanyan, 2016 and Venkatesh et al., 2012). An instrument that has already been verified and has been pre-developed saves time and integrates the research study with past work that has used the same measurement tool (Tuckman & Harper, 2012). The survey included age and construct questions, as well as questions about digital literacy, perceived ease of use, perceived usefulness, perceived risk, and purchase intention. Respondents were asked to rate their level of agreement on a 5-point Likert scale, with 1 being “not at all true of me”, 2 being “not very true of me”, 3 being “neither true nor untrue of me”, 4 being “mostly true of me”, and 5 being “very true of me”. Appendix A contains the Participant Information Sheet that was sent to all participants. The study instrument was designed to ensure data completeness. Participants were not permitted to go to the next question if the previous question was incomplete. A copy of the instrument is included in Appendix B. Finally, before gathering data, the researcher obtained approval from the Wits Business School Ethics Committee, and it is included on Appendix C.

3.7 Procedure for data collection

The study used an online administered questionnaire to collect data which is the most common data gathering instrument in survey research (Leavy, 2022). It was

conducted online through the Qualtrics survey platform and distributed via the researcher's WhatsApp contact list.

3.8 Data analysis strategies and interpretation

Data was prepared to ensure the accuracy and validity of the data. The data quality check process included screening the data for completeness, errors, coding, and reversed questions (see Section 4.8). Confirmatory Factor Analysis (CFA) using SEM, have been used to test the validity and reliability of the instruments. Data was imported from Qualtrics into the statistical package for social scientists (SPSS) which has been identified as an appropriate statistical software to perform statistical analysis. The software package offered a user friendly interface and did not require specialised knowledge and the results were reasonably simple to interpret (Field, 2018).

3.9 Quality assurance

3.9.1 Measurement model evaluation

Structural Equation Modelling (SEM) was used to estimate the structural model. SEM is a statistical method that combines regression analysis with path analysis to analyse relationships among multiple variables. SEM data analysis was used to assess the validity of research and examine the relationship between different factors in order to explain cause and effect. Several criteria tests were applied to evaluate the quality of the items (indicator reliability), reliability of each latent variable, internal consistency using Cronbach alpha and composite reliability, construct validity using loading and cross-loading, convergent validity using average variance extracted and AVE, lastly, the discriminant validity (using the Fornell-Larcker criterion and cross-loading) (Hair et al., 2017; Stage et al., 2004).

3.10 Possible limitations and challenges of the study

- The sample was not selected via random sampling, this limitation restricted the ability to make generalisations from the sample data to the larger population of interest.
- The construct of digital literacy was evaluated through self-assessment questions. Assessing digital skills in this manner could have introduced biased responses (Palczyńska & Rynko, 2020).
- In order to assess the measuring tool, SEM required a minimum of 200 responses. Acquiring a sample size that exceeds the recommended amount presented a difficulty in evaluating the accuracy of goodness of fit measures in a structural equation model. This is because absolute measures (GFI and AGFI) are significantly influenced by sample size, even after adjusting the model (Hair et al. 2010).
-

3.11 Ethical considerations

To maintain the ethical integrity of this study, the questionnaire did not collect any personal information, and respondents were required to provide consent before to participating in the questionnaire. In order to verify the participants' eligibility based on age, a stringent age questionnaire was used. If the respondent's age was found to be below the legal requirement, the questionnaire was terminated. The participation page informed the participants about with their privileges as well as their obligations as research participants. and provided them with a brief overview of the study's objectives and the intended usage of the

findings. Participants were not required to provide their personal information, and no confidential data was collected. The respondents were not provided with any incentives to encourage their participation in the questionnaire. Finally, the researcher personally completed the research without the involvement of any professional research organisation, and the researcher diligently cited all the sources used in the research process.

CHAPTER 4:

PRESENTATION OF RESULTS

4.1 Introduction

The main goal of the chapter is to present the results of the study. To achieve this, sample characteristics and corresponding responses were analysed, confirmatory factor analysis (CFA) was performed to assess the validity and reliability of the instrument, the hypotheses were examined, and a SEM analysis was conducted.

4.2 Sample characteristics and responses

The total number of responses received was 221, and the study sample was limited to respondents aged 18 to 50. However, six of the responses were discarded since the information they supplied was incomplete. After executing all the necessary screening and cleaning procedures, the researcher was able to proceed with the study with a sample size of 215 responses. Of these, 92 respondents (42%) were between the ages of 18 and 35, 71 (33%) were between the ages of 35 and 44, and 52 (24%) were over the age of 45. Figure 4.1 is a graphical representation of sample characteristics and responses.

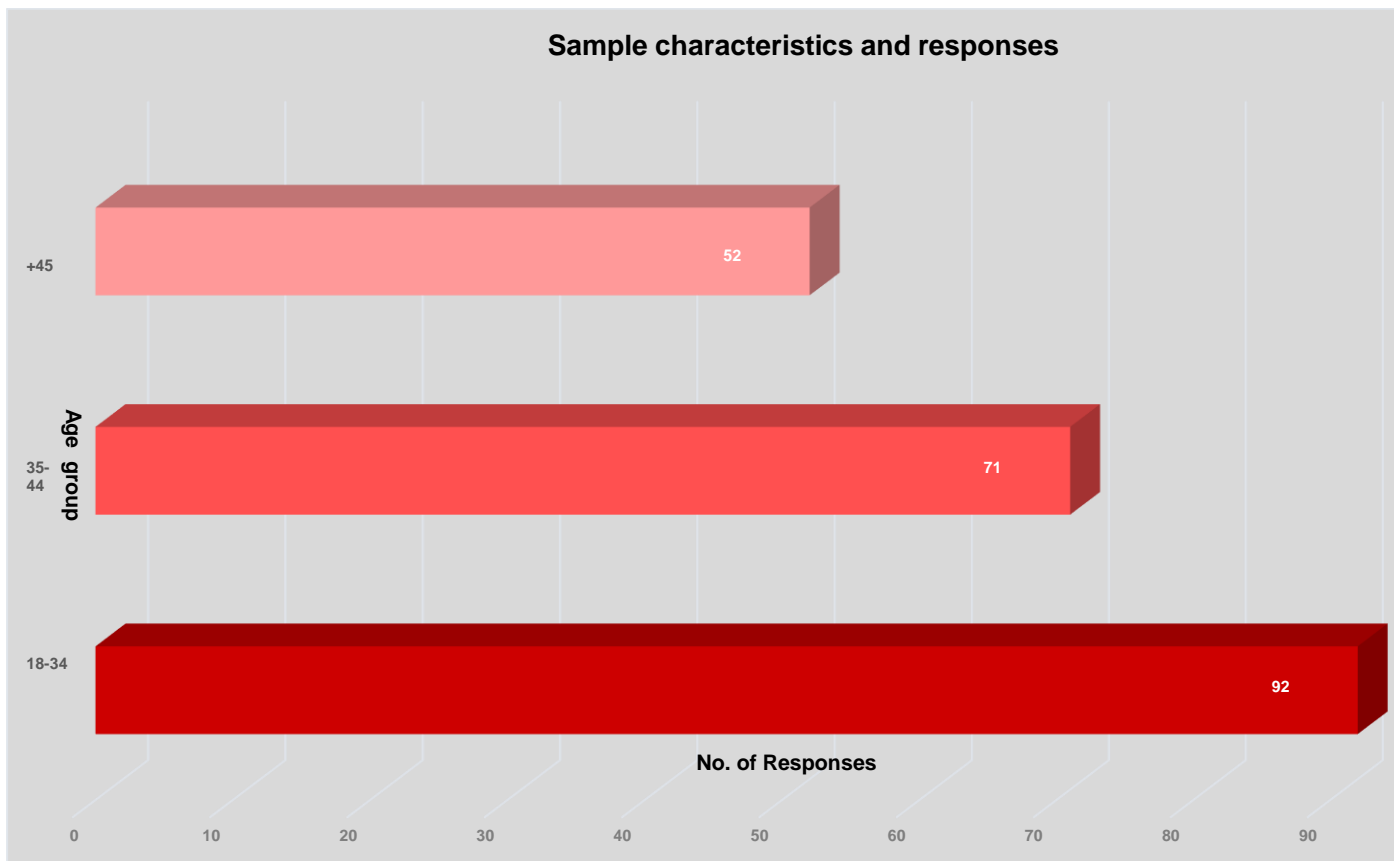


Figure 4.1: Sample characteristics and responses

4.3 Digital literacy

Most respondents were comfortable with basic internet tasks such as opening a new tab in their browser (DL1, mean=4.67), bookmarking (DL2, mean=3.71), going to a different webpage (DL3, mean=3.78), and completing online forms (DL4, mean=4.18). These tasks had the highest mean scores, indicating that they are “Mostly true” or “Very true” for the majority of respondents.

A significant portion of participants find website navigation (DL8, DL9, DL10) confusing, which is reflected in the lower mean scores of these items. Respondents were less confident about more advanced tasks such as adjusting privacy settings (DL5, mean=2.91) and determining whether a website is safe to use (DL11, Mean=1.621). These tasks had the lowest mean scores, indicating

that they are less true for respondents on average. There is a significant amount of variation in how true each statement is for different respondents, as indicated by the standard deviation (SD). The SD is highest for DL5 (SD=1.680), indicating that respondents' ability to determine whether a website is safe to use varies widely. DL4 (SD=01.383) has the lowest SD, indicating that respondents are more uniform in their ability to complete online forms.

Table 4.1 shows descriptive statistics for digital literacy.

Table 4.1: Digital literacy – descriptive statistics

Digital Literacy	Count	Not at all true of me	Not very true of me	Neither true nor untrue of me	Mostly true of me	Very true of me	Mean	SD
DL1. I know how to open a new tab in my browser	215	11%	16%	2%	16%	56%	3.90	1.474
DL2. I know how to bookmark a website	215	10%	21%	4%	16%	48%	3.71	1.492
DL3. I know where to click to go to a different webpage	215	16%	12%	2%	20%	50%	3.76	1.545
DL4. I know how to complete online forms	215	12%	6%	1%	16%	65%	4.18	1.383
DL5. I know how to adjust privacy settings	215	32%	21%	2%	15%	30%	2.91	1.680
DL6. I find it hard to decide what the best keywords are to use for online searches	215	34%	22%	8%	20%	16%	2.60	1.509
DL7. I find it hard to find a website I visited before	215	40%	19%	7%	20%	15%	2.52	1.537
DL8. Sometimes I end up on websites without knowing how I got there	215	40%	17%	10%	19%	14%	2.52	1.516
DL9. I find the way in which many websites are designed confusing	215	41%	23%	8%	17%	11%	2.34	1.435
DL10. All the different website layouts make working with the internet difficult for me	215	51%	16%	9%	13%	12%	2.18	1.456
DL11. I know what to look for, to make sure the website is safe to use	215	30%	13%	6%	26%	26%	3.06	1.621

4.4 Perceived risk of online shopping

RP1 (credit card details protection) and RP2 (on-time delivery) have moderate mean scores (3.46 and 3.36 respectively), indicating a general but cautious trust

in the security and reliability of online transactions. RP4 shows a higher level of trust in well-known brands (mean score of 3.91), suggesting that brand reputation significantly influences trust in online shopping. RP3, related to the difficulty of judging product/service quality online, has a lower mean score (3.06), indicating that respondents generally find it challenging to assess quality through the internet. With a mean of 3.46, RP1 shows that while there is a reasonable level of confidence in the security of online transactions, a notable proportion of respondents (30%) express distrust. For RP2, the mean of 3.36 suggests that while most people tend to trust in timely delivery, there is still a significant level of scepticism. The relatively lower mean score for RP3 reflects the inherent challenge consumers face in evaluating products/services online. RP4 indicates a strong trust in well-known brands, as almost half of the respondents (47%) strongly agree with the statement. Table 4.2 presents descriptive statistics on risk perception (RP).

Table 4.2: Risk perception – descriptive statistics

Risk perception	Count	Not at all true of me	Not very true of me	Neither true nor untrue of me	Mostly true of me	Very true of me	Mean	SD
RP1. I trust that my credit card details will be protected when I shop on the internet	215	12%	18%	8%	36%	26%	3.46	1.363
RP2. I trust that the product will be delivered on time as promised by the company selling on the internet	215	11%	19%	10%	42%	18%	3.36	1.281
RP3. It is difficult to judge quality of a product/service on the internet	215	20%	27%	7%	20%	27%	3.06	1.526
RP4. I trust well-known brands for online shopping they are considered reputable	215	10%	9%	9%	25%	47%	3.91	1.342

4.5 Perceived ease of use of online shops

The mean scores for all items are above 3.5, indicating that generally, respondents find online shopping websites easy to use. PEOU_1 has the highest

mean score (3.83), suggesting that most respondents find online shopping websites user friendly and for locating desired items. PEOU_3 has the lowest mean score (3.55) but still indicates a moderately positive perception of the ease of comparing products online. PEOU_2, related to moving around on websites, shows a good level of ease (mean 3.73) but with a noticeable percentage of respondents (25%) expressing some difficulty. PEOU_5, about learning to use shopping websites, has a mean score of 3.64, suggesting that most users find these websites user-friendly. PEOU_4 reflects a general agreement (mean 3.61) that most online shopping sites are easy to use. The majority of respondents seem to adapt well to most online shopping platforms, as indicated by the relatively high mean scores. The standard deviations, being above 1.4 for all items, suggest a range of user experiences and perceptions, indicating that while many find these websites easy to use, a significant portion of the population still faces some challenges. The majority of respondents seem to adapt well to most online shopping platforms, as indicated by the relatively high mean scores.

The standard deviations, being above 1.4 for all items, suggest a range of user experiences and perceptions, indicating that while many find these websites easy to use, a significant portion of the population still faces some challenges. Table 4.3 shows descriptive statistics for perceived ease of use (PEOU).

Table 4.3: Perceived ease of use – descriptive statistics

Perceived ease of use	Count	Not at all true of me	Not very true of me	Neither true nor untrue of me	Mostly true of me	Very true of me	Mean	SD
PEOU_1. I find it easy to use most online shopping websites to find what I want	215	9%	15%	8%	20%	48%	3.83	1.405
PEOU_2. I am able to move around online shopping websites with ease	215	12%	13%	8%	25%	42%	3.73	1.417
PEOU_3. I find it easier to compare products when shopping at online	215	15%	16%	5%	27%	37%	3.55	1.484

PEOU_4. I feel that most online shopping websites are easy to use	215	16%	12%	5%	29%	38%	3.61	1.483
PEOU_5. I find it easy learning to use most online shopping websites	215	16%	10%	7%	27%	40%	3.64	1.491

4.6 Perceived usefulness of online shopping

The mean scores range from 2.80 to 3.35, indicating mixed feelings about the efficiency and effectiveness of online shopping. PU_1, PU_3, and PU_4, which focus on shopping quickly, increasing productivity, and effectiveness, have mean scores above 3.3, suggesting a moderate perception that online shopping enhances these aspects.

PU_2 and PU_5 have lower mean scores (2.97 and 2.80 respectively), indicating less agreement that online shopping improves overall shopping performance or satisfies needs better than other forms of shopping. PU_1 has a moderate mean score (3.35), but 35% of respondents disagree that online shopping helps accomplish shopping goals more quickly. PU_2 shows the lowest mean score (2.97), suggesting notable scepticism about online shopping's ability to save time or money.

PU_3 has a mean of 3.32, indicating a moderate belief in increased shopping productivity through online means. PU_4's mean score of 3.34 reflects a moderate perception of increased shopping effectiveness online. PU_5, with the lowest mean score (2.80), suggests significant doubt about online shopping's ability to better satisfy user needs. Table 4.4 presents descriptive statistics on perceived usefulness (PU).

Table 4.4: Perceived usefulness – descriptive statistics

Perceived usefulness	Count	Not at all true of me	Not very true of me	Neither true nor untrue of me	Mostly true of me	Very true of me	Mean	SD
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PU_1. I am able to accomplish my shopping goals more quickly when I shop online (e.g. search for any buy).	215	18%	17%	8%	25%	32%	3.35	1.518
PU_2. I am able to improve my shopping performance when I shop online (e.g. save time or money).	215	27%	16%	9%	27%	20%	2.97	1.536
PU_3. I am able to increase my shopping productivity when I shop online (e.g. make purchase decisions or find product information within the shortest time frame)	215	25%	8%	5%	33%	29%	3.32	1.574
PU_4. I am able to increase my shopping effectiveness when I shop online (e.g. get the best deal or find the most information about a product)	215	26%	7%	3%	33%	30%	3.34	1.598
PU_5. Shopping from online retailers makes it easier for me to satisfy my needs	215	37%	11%	6%	27%	19%	2.80	1.609

4.7 Purchase intention

The mean scores for PI_1 and PI_2 are high (3.81 and 3.89 respectively), indicating strong intentions to make future purchases from online shopping websites and to search for products online. PI_3 and PI_4 have lower mean scores (3.58 and 3.27 respectively), suggesting a moderate likelihood of repeat purchases and recommending online shopping to others. PI_5, with the lowest mean score (2.82), shows significant reservations about providing personal information to online shopping websites. A large proportion of respondents (68%) agree or strongly agree (PI_1) that they plan to purchase products from online store in the future. For PI_2, a majority (73%), indicate they would actively search for products on online shopping websites. Despite some reservations (21% not at all true), nearly half (47%) of the respondents in PI_3 believe there is a high likelihood that they would purchase similar goods from an online retail platform. PI_4 shows a tendency towards recommending online shopping, but a notable 26% of respondents disagree. A significant 33% strongly disagree with providing

personal information online (PI_5), highlighting privacy and data security concerns. Table 4.5 presents descriptive statistics on online purchase intentions.

Table 4.5: Purchase intentions – descriptive statistics

Purchase intention	Count	Not at all true of me	Not very true of me	Neither true nor untrue of me	Mostly true of me	Very true of me	Mean	SD
PI_1. I intend to purchase products from online shopping websites in the future	215	12%	14%	6%	17%	51%	3.81	1.471
PI_2. When I need to buy a particular product, I would search for an online shopping website that has the product	215	12%	12%	4%	20%	53%	3.89	1.454
PI_3. There is a great chance that I would buy the same product from an online shopping website	215	21%	10%	4%	18%	47%	3.58	1.636
PI_4. I am likely to recommend online shopping to my friends	215	26%	10%	7%	26%	31%	3.27	1.603
PI_5. I am very likely to provide the online shopping websites with my personal information it needs to better serve my needs	215	33%	14%	8%	28%	17%	2.82	1.547

4.8 Measurement model evaluation

Confirmatory factor analysis (CFA) was conducted using IBM Amos version 25 to assess the validity and reliability of the constructs on Table 4.6. The items “DL 6. I find it hard to decide what the best keywords are to use for online searches”, “DL 7. I find it hard to find a website I visited before”, “DL 8. Sometimes I end up on websites without knowing how I got there”, “DL 9. I find the way in which many websites are designed confusing”, “DL 10. The items marked with an “R” (DL6, DL7, DL8 and DL9) are reverse-scored, meaning that a higher score indicates less digital literacy. For example, for DL6_R (“I find it hard to decide what the best keywords are to use for online searches”), a high score means that the respondent finds it difficult to choose keywords for online searches. The mean

scores for these items are generally lower than for the non-reverse-scored items, indicating that respondents tend to disagree with these statements. Overall, this survey suggests that while most respondents are comfortable with basic internet tasks, there is room for improvement in areas such as adjusting privacy settings and determining website safety. All the different website layouts make working with the internet difficult for me” and “RP3. It is difficult to judge quality of a product/service on the internet” had a reversed scale (1=5, 2=4, 3=3, 4=2, 5=1) before CFA was conducted, because they were negatively worded. The hypothesised model is presented in Figure 4.2.

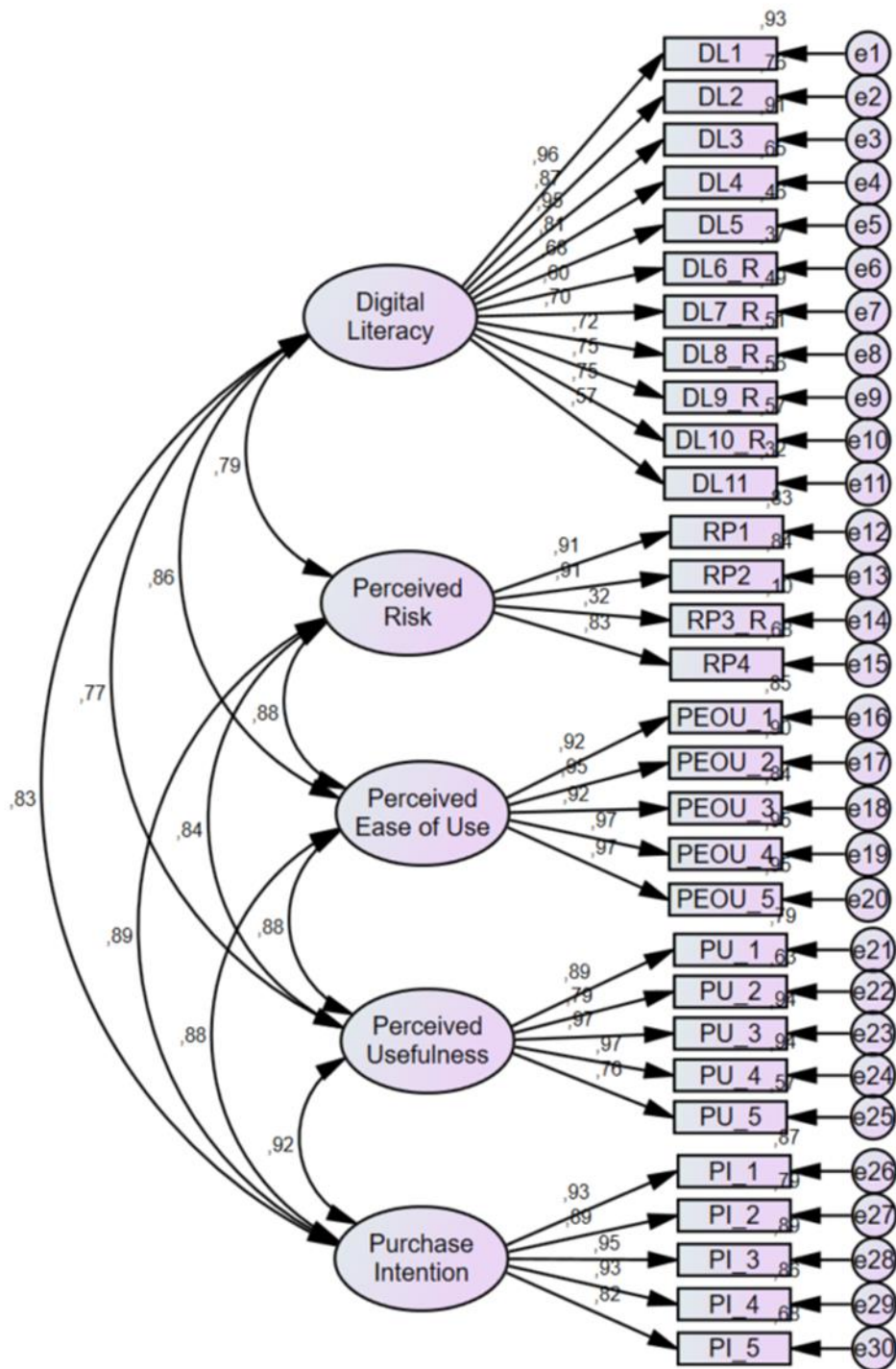


Figure 4.2: Validated model

To assess the measurement model, the indicator reliability, internal consistency reliability, convergent validity, and discriminant validity of the constructs were examined according to Hair et al. (2017). Table 4.6 and Figure 4.2 show the results of the individual indicator reliability analysis. Hair et al. (2010) defined

indicator reliability as the extent to which specific indicators accurately capture the core topic of interest in a research study. The reliability of indicators is measured using outer loadings, which show how well they reflect their latent variables. Hair et al. (2017) suggests that indicators with loadings above 0.5 are reliable enough.

The factor composition after pruning the model is summarised in Table 4.6. It shows all the items that had a factor loading above 0.5 on their respective constructs, thus signifying sufficient levels of indicator reliability. Table 4.6 also shows the internal consistency reliability which assesses the consistency of findings among items within the same test. It assesses the degree of similarity in scores among items that measure a concept, specifically focusing on the magnitude of correlations between the items (Hair et al., 2017).

Examining composite reliability and Cronbach's alpha values is essential for assessing internal consistency reliability. A composite reliability value of 0.70 is deemed satisfactory, while values under 0.60 indicate a lack of internal consistency reliability (Ismail et al., 2018; Tavakol & Dennick, 2011). The data in Table 4.6 show that all constructs have high levels of internal consistency reliability, with composite reliability of 0.7 and Cronbach's alpha of 0.6.

Table 4.6: Final CFA results – construct composition

Item	Description	Factor Loading	CR	α
Digital Literacy/ Skills (DL)			0.916	0.925
DL1	I know how to open a new tab in my browser	.929		

DL2	I know how to bookmark a website	.854		
DL4	I know how to complete online forms	.785		
DL5	I know how to adjust privacy settings	.654		
DL6_R	*I find it hard to decide what the best keywords are to use for online searches	.602		
DL7_R	*I find it hard to find a website I visited before	.707		
DL8_R	*Sometimes I end up on websites without knowing how I got there	.747		
DL9_R	*I find the way in which many websites are designed confusing	.761		
Risk perception (RP)			0.917	0.912
RP1	I trust that my credit card details will be protected when I shop on the internet	.915		
RP2	I trust that the product will be delivered on time as promised by the company selling on the internet	.914		
RP4	I trust well-known brands for online shopping they are considered reputable	.828		
Perceived ease of use (PEOU)			0.977	0.977
PEOU_1	I find it easy to use most online shopping websites to find what I want	.920		
PEOU_2	I am able to move around online shopping websites with ease	.947		
PEOU_3	I find it easier to compare products when shopping at online	.916		
PEOU_4	I feel that most online shopping websites are easy to use	.974		
PEOU_5	I find it easy learning to use most online shopping websites	.974		
Perceived usefulness (PU)			0.942	0.949
PU_1	I am able to accomplish my shopping goals more quickly when I shop online (e.g. search for any buy)	.884		
PU_2	I am able to improve my shopping performance when I shop online (e.g. save time or money)	.782		
PU_3	I am able to increase my shopping productivity when I shop online (e.g. make purchase decisions or find product information within the shortest time frame)	.973		
PU_4	I am able to increase my shopping effectiveness when I shop online (e.g. get the best deal or find the most information about a product)	.971		
PU_5	Shopping from online retailers makes it easier for me to satisfy my needs	.743		
Purchase Intention (PI)			0.957	0.956
			0.955	

PI_1	I intend to purchase products from online shopping websites in the future.	.936		
PI_2	When I need to buy a particular product, I would search for an online shopping website that has the product.	.898		
PI_3	There is a great chance that I would buy the same product from an online shopping website.	.947		
PI_4	I am likely to recommend online shopping to my friends.	.915		
PI_5	I am very likely to provide the online shopping websites with my personal information it needs to better serve my needs.	.802		

Indicators with low factor loadings or cross-loadings on multiple factors were removed from the analysis due to not satisfying the reliability criteria. An indicator with an outer loading below 0.5 must be excluded to avoid misstatement of results during structural model estimation (Abboh et al., 2022). These were eliminated during CFA and are presented in Table 4.7.

Table 4.7: Items pruned during CFA

Item	Description
RP3_R	* It is difficult to judge quality of a product/service on the internet
DL3	I know where to click to go to a different webpage
DL10_R	* All the different website layouts make working with the internet difficult for me
DL11	I know what to look for, to make sure the website is safe to use

The results in Table 4.8 show that the CR values were all above the minimum required value of at least 0.7 indicating that there was reliability for all the constructs. For there to be convergent validity the AVE should be at least 0.5. The results revealed that there was convergent validity for all the constructs. This was not pruned further since it was close to the cut-off point and pruning the model further did not improve the model fit. According to Hooper et al. (2008), a model

is considered excellent when Composite Reliability (CR) exceeds 0.7, Average Variance Extracted (AVE) is > 0.5 and MaxR(H) (Maximal Reliability) is > 0.7.

Table 4.8: Construct reliability and validity

	CR	AVE	MaxR(H)
Risk perception (RP)	0.917	0.786	0.925
Perceived ease of use (PEOU)	0.977	0.896	0.983
Perceived usefulness (PU)	0.942	0.767	0.976
Purchase Intention (PI)	0.956	0.812	0.964
Digital Literacy/ Skills (DL)	0.916	0.579	0.940

The study employed the Fornell-Larcker criterion to assess the discriminant validity of constructs, which mandates that the square root of the Average Variance Extracted (AVE) for each construct should exceed the correlation coefficients with other constructs. This demonstrates how the construct differs categorically from the others. The results are summarised in Table 4.9. The majority of the diagonal elements in the Fornell-Larcker Criterion Correlations indicated greater values compared to the off-diagonal elements (Hair et al., 2017). There is minimal disagreement over the constructs RP-PI, RP-PI, and PU-PI. However, the conflicts are negligible, with values of 0.005, 0.003, and 0.034 respectively, and can be disregarded (Rahim and Magner, 1995). This means that the constructs do not overlap with each other and measure different aspects of the conceptual model, as evidenced by the measuring model's discriminant validity.

Table 4.9: Fornell-Larcker Criterion Correlations

	CR	AVE	RP	PEOU	PU	PI	DL
Risk perception (RP)	0.917	0.786	0.887				
Perceived ease of use (PEOU)	0.977	0.896	0.882	0.947			

Perceived usefulness (PU)	0.942	0,767	0.840	0.879	0.876		
Purchase Intention (PI)	0.956	0.812	0.890	0.880	0.910	0.901	
Digital Literacy/Skills (DL)	0.916	0.579	0.813	0.887	0.792	0.855	0.761

4.9 Structural model

The model fit indices presented in Table 4.10 indicate that RSMEA (0.080), NFI (0.914), TLI (0.914), CFI (0.949), and CMIN/DF (2.364) were all within the within the acceptable ranges. Indices GFI (0.804) and AGFI (0.755) were slightly outside the acceptable range. These absolute fit indices were affected by sample size. The sample size was larger than the recommended sample size of 200 (Sharma et al., 2005; Awang et al., 2015). Further pruning the model did not improve the indices because of the low to medium factor loadings irrespective sample size (Hair et al. 2010). However; the following fitness fit indices for the model were within acceptable ranges; Comparative Fit Index (CFI) is above 0.95 and Root Mean Square Error of Approximation (RMSEA) is lower than 0.06. According to Hooper et al. (2008), the model has an excellent fit when these ranges have been achieved.

Table 4.10: Model fit indices

Absolute Fit Indices	Acceptable Value	Value	Outcome
GFI	>0.9	0.804	Slightly below acceptable range
AGFI	>0.9	0.755	Slightly below acceptable range
RSMEA	<0.08	0.080	Acceptable
NFI	>0.9	0.916	Acceptable
NNFI (TLI)	>0.9	0.914	Acceptable
CFI	>0.9	0.949	Acceptable
CMIN/DF	< 5	2.364	Acceptable

4.9 Structural equation modelling

The components that remained in the CFA model after pruning were fitted into a SEM model and including direct relationship arrows for hypothesis testing. The results are presented in Figure 4.3 and Table 4.11.

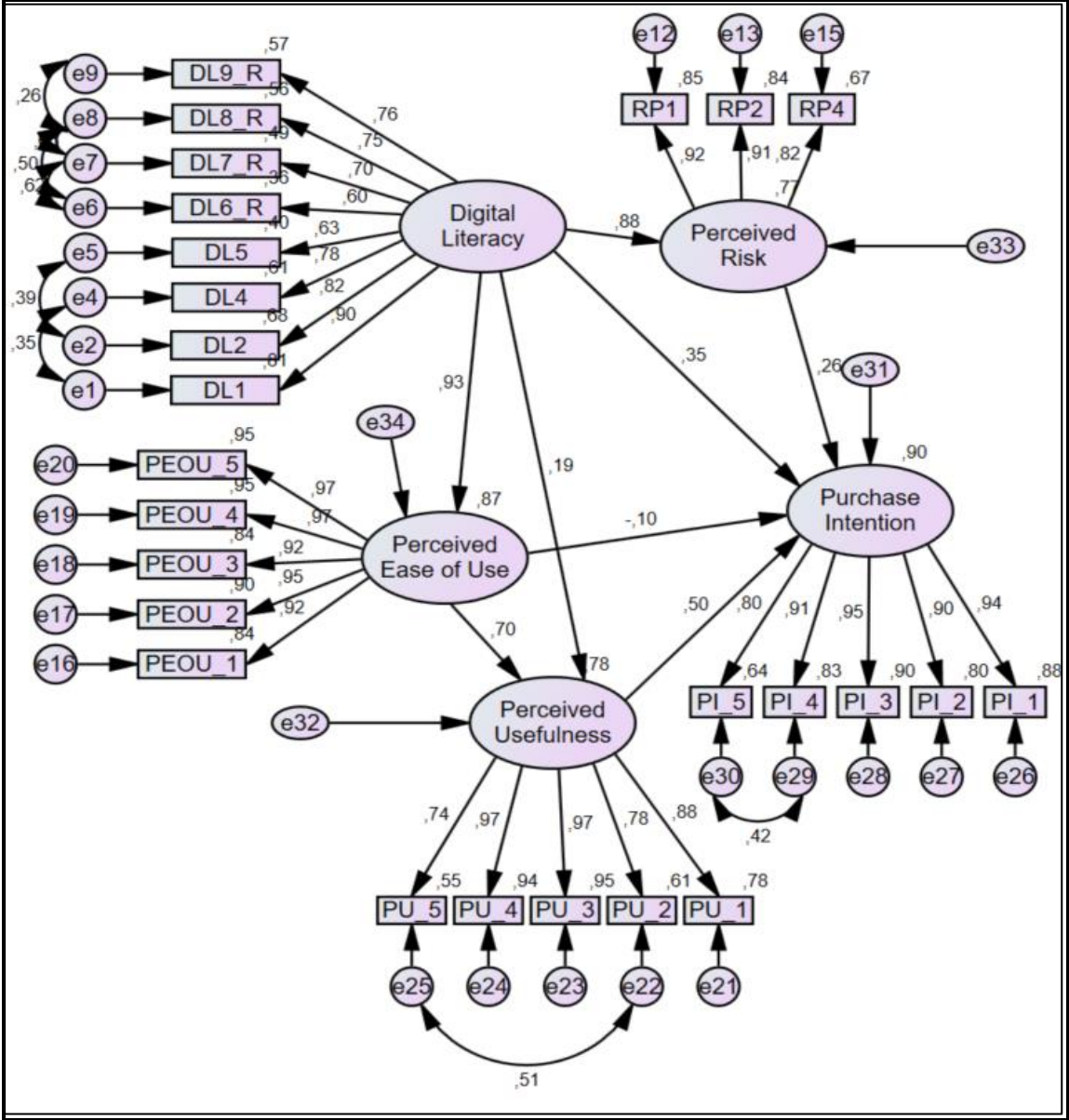


Figure 4.3: Pruned CFA model

Table 4.11: SEM Model – Standardised regression weights

Hypotheses / Path Analysis	Standardized Estimates	T-value	P-Value	R-Square
Digital literacy → Perceived ease of use	.931	18.462	***	.866
Digital literacy → Risk perception	.878	16.376	***	.770
Digital literacy → Perceived usefulness	.190	1.498	.134	.777
Perceived ease of use → Perceived usefulness	.702	5.490	***	
Digital literacy → Purchase intentions	.346	2.393	.017	.899
Perceived ease of use → Purchase intentions	-.104	-.918	.359	
Perceived usefulness → Purchase intentions	.502	7.474	***	
Risk perception → Purchase intentions	.265	3.503	***	
SEM Fit Indices:				
$\chi^2 = (718.591)$; $\chi^2/df = 2.539$; RMSEA = .085; CFI = .943, TLI = .934; AGFI = .748;				
GFI = .797; NFI = .909				
***P < 0.001				

4.9.1 Results pertaining to hypothesis H1a

H0: There is no significant relationship between digital literacy and the South African consumers' online retail purchase intentions.

H1a: Digital literacy has a statistically significant effect on South African consumers' online retail purchase intentions.

The data in Table 4.11 indicates that Digital literacy had a statistically significant positive impact on purchase intention, with a beta coefficient of 0.346, a t-value of 2.393, and a p-value of 0.017. The association was positive as indicated by the coefficient of digital literacy ($\beta = 0.346$) being larger than zero and statistically significant with a p-value below 0.05. This implies that the null hypothesis was rejected in favour of the alternative hypothesis. This means that digital literacy will have positive effect on purchase intention.

4.9.2 Results pertaining to hypothesis H1b

H0: There is no significant relationship between digital literacy and the South African consumers' online retail perceived risk.

H1b: Digital literacy has a statistically significance effect on South African consumers' online retail perceived risk.

The data in Table 4.11 indicates that digital literacy had a statistically significant positive impact on perceived risk, with a beta coefficient of 0.878, a t-value of 16.376, and a p-value of less than 0.001. The association was considered favourable as the coefficient of digital literacy ($\beta = 0.878$) was statistically significant with a p-value below 0.05. This indicates that the null hypothesis was disproved in support of the alternative hypothesis. This means that digital literacy will have positive effect on perceived risk.

4.9.3 Results pertaining to hypothesis H1c

H0: There is no significant relationship between digital literacy and the South African consumers' online retail perceived usefulness.

H1c: Digital literacy has a statistically significant effect on the South African consumers' online retail perceived usefulness.

The data in Table 4.11 indicates that digital literacy has a beta coefficient of 0.190, a t-value of 1.498, and a p-value of 0.134. has an insignificant effect on perceived usefulness. The relationship was insignificant because the p-value was greater than 0.05. This implies that the null hypothesis could not be rejected, and it is

concluded that there is no sufficient evidence at the 5% significance level to suggest that digital literacy has an effect on perceived usefulness.

4.9.4 Results pertaining to hypothesis H1d

H0: There is no significant relationship between digital literacy and a South African consumers' online retail perceived ease of use.

H1d: Digital literacy has a statistically significant effect on South African consumers' online retail perceived ease of use.

The data in Table 4.11 indicates that digital literacy had a statistically significant positive impact on perceived ease of use, with a beta coefficient of 0.931, a t-value of 18.462, and a p-value of less than 0.001. The association was positive as indicated by the coefficient of digital literacy ($\beta = 0.931$) being larger than zero and statistically significant with a p-value below 0.05. This indicates that the null hypothesis was disproved in support of the alternative hypothesis. This means digital literacy positively impacts perceived ease of use.

4.9.5 Results pertaining to hypothesis H2

H0: There is no significant relationship between perceived risk of purchasing at an online retailer, and the South African consumers' online retail purchase intentions.

H2: The lower the perceived risk of purchasing at an online retailer, the higher is the South African consumers' online retail purchase intentions.

The results presented in Table 4.11 show that perceived risk of purchasing at an online retailer, with a beta coefficient of 0.265, a t-value of 3.503 and p-value less than 0.001 had a positive and significant effect on purchase intention. The association was positive as indicated by the significant beta coefficient ($\beta = 0.265$)

for purchasing from an online shop, with a p-value below 0.05. This indicates that the null hypothesis was disproved in support of the alternative hypothesis. The risk was measured in such a way that an agreement with the statements implied that there is low risk, for example, "I trust that my credit card details will be protected when I shop on the internet". Therefore, the stronger the buying intention, the smaller the perceived risk of making a purchase from an online shop.

4.9.6 Results pertaining to hypothesis H3

H0: There is no significant relationship between perceived usefulness and South African consumers' online retail purchase intentions. H3: Perceived usefulness has a statistically significant effect on South African consumers' online retail purchase intentions.

The results presented in Table 4.11 show that perceived usefulness ($\beta = 0.502$, $t\text{-value} = 7.474$, $p\text{-value} < 0.001$) had a positive and significant effect on South African consumers' online retail purchase intentions.. The association was favourable as indicated by the coefficient of perceived usefulness ($\beta = 0.502$) being more than zero and statistically significant with a p-value below 0.05. This indicates that the null hypothesis was disproved in support of the alternative hypothesis. This means that perceived usefulness is significantly related to purchase intention.

4.9.7 Results pertaining to hypothesis H4a

H0: There is no significant relationship between perceived ease of use and Perceived ease of use has a statistically significant effect on South African consumers' perceived ease of usefulness of online retail.

H4a. Perceived ease of use has a statistically significant effect on South African consumers' perceived ease of usefulness of online retail.

The results presented in Table 4.11 show that perceived usefulness ($\beta = 0.702$, $t\text{-value} = 5.490$, $p\text{-value} < 0.001$) had a positive and significant effect on perceived usefulness of South African consumers' perceived ease of usefulness of online retail. The association was considered favourable as the coefficient of perceived ease of use ($\beta = 0.702$) was both greater than zero and statistically significant with a $p\text{-value}$ below 0.05. This indicates that the null hypothesis was disproved in support of the alternative hypothesis. Perceived ease of use of use positively impacts the perceived usefulness of online retail channels.

4.9.8 Results pertaining to hypothesis H4b

H0: There is no significant relationship between Perceived ease of use South African consumers' online retail purchase intentions H4b. Perceived ease of use has a statistically significant effect on South African consumers' online retail purchase intentions.

The results presented in Table 4.11 show that perceived ease of use ($\beta = -0.104$, $t\text{-value} = -0.918$, $p\text{-value} = 0.359$) had an insignificant effect on purchase intention. The association is not statistically significant as the $p\text{-value}$ exceeded 0.05. This implies that the null hypothesis could not be rejected. This means that there was no sufficient evidence at 5% significance level to suggest that perceived ease of use has a positive effect on online purchase intention.

4.10 Conclusion

The primary objective of this chapter was to initially present the sample characteristics and corresponding responses. The findings indicated that 42% of the participants belonged to the age group 18-34, 34% fell within the age range of 35-44, and 24% of the replies were from individuals aged 45 years and above. The measurement instrument was analysed after pruning of the factor composition satisfied the indicator reliability. The findings indicated that there was convergent reliability observed for all constructs. The study also verified the discriminant validity of all constructs. The entire structural model exhibited a good fit with the collected data. Finally, the hypotheses were subjected to testing, and a summary of the outcomes are shown in Table 4.12.

Table 4.12: Summary of the results/findings

Hypothesis	Description	Results
H1a	Digital literacy has a statistically significant effect on South African consumers' online retail purchase intentions.	Supported
H1b	Digital literacy has a statistically significance effect on South African consumers' online retail perceived risk.	Supported
H1c	Digital literacy has a statistically significant effect on South African consumers' online retail perceived usefulness.	Not supported
H1d	Digital literacy has a statistically significant effect on South African consumers' perceived ease of use of online retail.	Supported
H2	The lower the perceived risk of purchasing at an online retailer, the higher is the South African consumers' online retail purchase intentions.	Supported
H3	Perceived usefulness has a statistically significant effect on the online retail purchase intentions of South African consumers	Supported
H4a	The perceived ease of use has a statistically significant influence on South African consumers perceived usefulness of online retail purchase	Supported

Hypothesis	Description	Results
H4b	The perceived ease of use has a statistically significant influence on online retail purchase intentions of South African customers.	Not supported

CHAPTER 5:

DISCUSSION OF THE RESULTS AND FINDINGS

5.1 Introduction

The study's results are covered in this chapter along with their implications for the different constructs. It emphasises the parallels and contrasts discovered between the findings of this study and the literature that already exists.

5.2 Digital literacy

The study assumes that individuals with higher levels of digital literacy are more confident in adopting new technology. In the context of this study digital literacy is referred to as an individual's capacity to successfully carry out digital actions in many daily activities. The results showed that there is a significant relationship between digital literacy and online purchase intention. This confirms previous research findings which have found empirical evidence on the significance of digital literacy on consumers' purchase decisions (Nazzal et al., 2021; Semente & Whyte, 2020).

However, more recent studies do not support the findings of this study: these studies suggest that having higher levels of digital competence is not a good measure of intention to use technology. The level of digital competence is rather an indicator of how well an individual will adapt to the new technology (Sudaryanto et al., 2023; Bergdahl et al., 2019).

This study showed that digital literacy was positively associated with risk perception of online purchase intention. People who had higher levels of digital

literacy tended to perceive more risk in online activities, as per this study. This finding corroborates prior studies examining the correlation between digital literacy and online behaviour. A recent study conducted by Wang et al. (2022) found that individuals with a higher degree of digital literacy had greater engagement in online risky asset investments. Purnama et al. (2021) conducted an investigation which showed a positive association between digital literacy skills and the influence of perceived risk. These findings indicate that digital literacy is essential for guiding individuals in safely exploring and utilising technology.

The hypothesised path between digital literacy and perceived usefulness of online retail was statistically insignificant, which suggests that there is no evidence that digital literacy has an effect on how an individual perceives the usefulness of technology. This finding is similar to the findings of Nikou et al. (2022) which demonstrated that digital literacy did not have any effect on how beneficial people thought technology was.

This is contrary to other studies Nikou et al. (2022) and Ng (2012) which found a positive and strong relationship between digital literacy and perceived usefulness. According to Yu et al. (2017), individuals who have limited digital literacy levels demonstrated a lower degree of perceived usefulness than individuals with higher digital literacy levels.

The study supports prior research by confirming a positive and significant correlation between digital literacy and perceived ease of use in relation to individuals' intention to use technology. Castilla et al. (2018), Nazzal et al. (2021) and Antonietti et al. (2022) found that highly digitally-skilled individuals perceived technology easy to use. This suggests that when an individual is digitally

competent, they consider technology easy to use compared to individuals with limited digital competency levels.

5.3 Perceived risk

The study assumed that that purchase intention would increase with decreasing perceived risk of making a purchase from an online shop. The results also support the hypothesis as perceived risk of purchasing at an online retailer had a positive and significant effect on purchase intention. This implies that individuals who experience a sense of discomfort with regard to the security of their transactions and the potential loss of funds would not purchase online. The findings of this study support the conclusions drawn by Pentz et al. (2020) and Mathur and Gangwani (2021) that perceived risk positively influences purchase intention. This is however contrary to prior findings studying the adoption of online pharmacy. The study found consumers' purchase intention is not significantly impacted by perceived risk (Alsadoun et al., 2023)

5.4 Perceived usefulness

The study's findings indicate that online retail adoption is positively and significantly influenced by the perceived usefulness of the online platform. This is in agreement with the findings of the investigations carried out by Moslehpour et al. (2018) and Van Doorn et al. (2010) which found that perceived usefulness is one of the factors that motivate consumers' purchase intention. The results imply that individuals who perceived benefit from use of the online retail channels are more incline to use or explore online retail (Andriani et al., 2021).

5.5 Perceived ease of use

The results of the study show that perceived usefulness is significantly influenced by perceived ease of use. Consumers tend to value an online platform that do not require much effort to operate. This study provides further confirmation of the findings of prior empirical investigations, which found a positive correlation between reported ease of use and perceived usefulness (Moslehpour et al. 2018). According to the TAM, the perceived ease of use has two kinds of impacts on customers' intentions to purchase online: direct and indirect. The perceived usefulness of a technology has an indirect effect on adoption intentions because the more user-friendly a technology is, the more useful it may be (Venkatesh, 2000).

The hypothesised path between perceived ease of use and purchase intention was found to be statistically insignificant. This finding is consistent with Nazzal et al. (2021) who demonstrated that perceived ease of use does not influence an individual's behavioural intention to adopt online shopping technology. It is however contrary with the studies of Moslehpour et al. (2018) and Abdullah et al. (2022) which found that the ease with which an online consumer navigates the online retail channel to complete an order is an important success factor in online retail..

5.6 Conclusion

This study examines the association between digital literacy and perceived risk in relation to the intention to adopt online shop retailing in South Africa, drawing upon the characteristics of the Technology Acceptance Model constructs. The findings of the study suggest that perceived risk serves as complete mediator in the association between digital literacy and online purchase intention. Contrary to previous studies, the results of this study indicate that digital literacy does not have a significant influence on an individual's perception of the usefulness of technology. The study found no substantial correlation between perceived ease of use and an individual's online purchasing intentions. Perceived usefulness is a significant antecedent of purchase intention.

CHAPTER 6:

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents a summary of the research findings in relation to the various hypotheses and their overarching research aims. It offers recommendations based on these findings and highlights the limitations of the study. Finally, it offers recommendations for further investigations.

6.2 Conclusions of the study

The first objective of this research was to assess the significance of digital literacy in relation to perceived risk and TAM variables, specifically the factors of perceived ease of use (PEOU) and perceived usefulness (PU). Secondly, it examined the impact of TAM variables and perceived risk on purchase intention within the online retail industry in South Africa.

Research question 1: *Does digital literacy have a statistically significant influence on South African online retail consumers' perceived risk, usefulness, ease of use and online purchase intentions?* The research concluded that there is a positive and significant relationship between digital literacy and perceived risk, perceived ease of use and purchase intention, the most substantial effect being on perceived ease of use. These findings are consistent with prior research conducted by Antonietti et al. (2022) and Nikou et al. (2022). The findings of the study indicate that persons who possess high digital competence are more likely to regard technology as being user-friendly or easy to use.

The next highest impact was on perceived risk, which is also significantly impacted by digital literacy. Purnama et al. (2021) found evidence supporting a positive correlation between digital literacy competence and the impact of perceived risk. This also highlights the importance of digital skills and information literacy in the adoption of technology (Yu et al., 2017) as having strong digital competency skills improves cyber security awareness (Machimbarrena et al., 2018).

Digital literacy was also found to have a positive and significant relationship with purchase intention, confirming prior studies of Nazzal et al. (2021) and Semente and Whyte (2020). Individuals possessing digital skills have a high degree of adaptability when presented with new technological innovations, and this enables them to successfully use such innovations.

However, the study revealed that there was no significant statistical association between digital literacy and perceived usefulness. This result aligns with prior research indicating that the level of digital competence does not have any influence on the perceived usefulness of digital technologies (Nikou et al., 2022). This study suggests that digital competency skills play no role in the assessment of the usefulness of technology.

Research question 2: *Does perceived ease of use, usefulness, and risk have a statistically significant influence on South African consumers' online purchase intentions?*

The study shows that perceived usefulness and perceived ease of use, components of the Technology Acceptance Model (TAM), significantly influence

the relationship between digital literacy and purchase intention, both directly and indirectly.

The findings of this research do not fully align with prior research studies conducted on TAM constructs. The study suggests that perceived ease of use does not have a direct impact on consumers' purchase intentions to make online purchases. The current finding contradicts previous research conducted on the adoption of online purchase (Moslehpour et al., 2018; Abdullah et al., 2022). One possible explanation could be other external variables not studied in this research. However, the significant and positive relationship between perceived ease of use and perceived usefulness is also worth considering in predicting consumers' online purchase intention. When consumers perceive technology as easy to use, they also perceive it as more useful, which explains why perceived ease of use has an indirect effect on adoption intentions (Venkatesh, 2000).

The study confirms previous studies conducted on perceived usefulness and behavioural intention. Perceived usefulness is a key and significant determinant in predicting consumers' purchase intention (Antonietti et al., 2022; Andriani et al., 2021). The findings suggest that people who believe that online retail channels would benefit them are more likely to use or experiment with online shopping. Technology that is very practical will probably be well received by the target market.

Lastly, perceived risk also has a significant relationship with consumers' online purchase intention. The present study's results are consistent with the conclusions posited by Pentz et al. (2020) and Mathur and Gangwani (2021),

which suggest that the perception of risk plays a substantial role in influencing an individual's intentions to make a purchase.

6.3 Theoretical implications

The study introduces an extension of the Technology Acceptance Model (TAM) to incorporate emerging variables that could potentially influence a consumer's intention to make a purchase online, within the context of South Africa. The results of the study prove the applicability of the model in determining factors other than the use of technology which influence online consumer purchasing intentions (Bingimlas, 2009; Shukla & Sharma, 2018; Backfisch et al., 2021).

According to Taherdoost and Masrom (2009) and Yucel et al. (2013) external factors can influence the variables of the Technology Acceptance Model, perceived ease of use, and perceived usefulness, which subsequently affect the intention to adopt that technology. The study findings offer valuable insights into the direct and indirect correlation between the digital literacy levels of South African consumers and their purchase intention. It also offers a new perspective for future researchers on the degrees of digital competency exhibited by those who are open to online shopping. And provides additional evidence that the perception of risk has a substantial impact on customers' intentions to make a purchase in an online shopping environment.

These characteristics hold significant importance to researchers, as the decision of an individual to adopt the online retail channel is predicated on the extent of change observed within these variables.

6.4 Managerial implications

The study demonstrated that customers' level of digital literacy greatly influences their perceptions of ease of use and security of online shopping channels. The research revealed that individuals who possess a high degree of self-efficacy in digital abilities demonstrate a tendency to perceive technology as user-friendly. The level of digital literacy a consumer possesses influences their perception of risk when it comes to online shopping. The findings of this study hold significant importance for retailers, government entities, and other industries, as they highlight the need to undertake necessary measures in enhancing the digital literacy abilities of the public across different platforms, whether online or offline. Leveraging social media for the purpose of enhancing online purchase intention through learning and training-oriented advertisements has the potential to improve the adoption of online shopping (Lancelot Miltgen et al., 2013).

The study's findings suggest that there is a managerial implication for online businesses to enhance consumers' perception of risk in an online shopping environment. Marketing initiatives should prioritise the promotion of online security awareness, specifically emphasising safety characteristics of online shopping channels and the prevention of social engineering frauds. It is important for marketers to generate awareness regarding the techniques implemented to safeguard consumers' data, as the acceptance of new technology is influenced by information literacy (Yu et al., 2017).

The study provides additional evidence supporting the influence of TAM components on an individual's purchase intention. Consequently, it is recommended that retailers develop online shopping platforms that are beneficial to the needs of their target market and accessible to individuals with varying

levels of digital proficiency. The likelihood of consumers' purchase intention improving is higher when they perceive value in the product and find it easy to use.

6.5 Limitations and suggestions for further research

The use of a non-probability sample has limited the generalisability of the findings (Hair et al., 2017); consequently, future studies could use a random sample of the general population to solve this limitation issue.

To ensure the model's capacity to identify the effect, *a priori* sample size for the SEM online calculator recommended to have a minimum sample size of 200. A total of 221 responses were gathered, however, only 215 of them were considered appropriate for the analysis of the study. This had a consequential impact on the absolute fit indices of the model as it was larger than the recommended sample size.

In this study, digital literacy was assessed by self-evaluation data. The usage of an indirect assessment method for evaluating digital competency yields a somewhat limited degree of self-evaluation of these skills. This includes the degree to which the respondents' honesty and the accuracy of their judgements may be relied upon, as well as the possibility of biased response (Palczyńska & Rynko, 2020). Therefore, future studies may incorporate a combination of both direct and indirect measurement tools in their research methodologies – direct measurements that accurately capture immediate levels of involvement.

According to the findings of this study, digital competency abilities do not play any particular role in the evaluation of the usefulness of technology. However, digital literacy significantly influences perceived ease of use of technology. This finding

highlights the need for additional research to comprehensively examine the measurements of digital literacy and other external factors that influence the Technology Acceptance Model in the context of South Africa.

6.6 Conclusion

In general, this study suggests incorporating additional variables such as digital literacy and perceived risk to the original TAM model to determine factors impacting the adoption of online shopping in South Africa. The study suggests that digital literacy has a significant and positive relationship with perceived ease of use and perceived risk. TAM constructs perceived usefulness and perceived ease of use play a significant role in the relationship between digital literacy and purchase intention. Digital literacy significantly impacts both perceived ease of use and perceived risk but has no impact on the perceived usefulness of the online retail channel. The perception of risk and perceived usefulness significantly influence an individual's purchase intentions. Perceived ease of use only has an indirect influence on purchase intention through perceived usefulness.

Table 6.1: Consistency table: research questions, hypotheses, data collection and data analysis

RQ #	Research Question	Hypothesis #	Hypothesis	Data collection detail	Data analysis method
1.	Does digital literacy have a statistically significant influence on South African online retail consumers' perceived risk, usefulness, ease of use and online purchase intentions?	1a.	Digital literacy has a statistically significant effect on South African consumers' online retail purchase intentions.	Questionnaire Likert statement DL1, DL2, DL3, DL4	Structural equation modelling (SEM)
		1b.	Digital literacy has a statistically significance effect on South African consumers' online retail perceived risk.	Questionnaire Likert statement DL11, DL5	Structural equation modelling (SEM)
		1c.	Digital literacy has a statistically significant effect on South African consumers' online retail perceived usefulness.	Questionnaire Likert statement DL3, DL4	Structural equation modelling (SEM)
		1d.	Digital literacy has a statistically significant effect on South African consumers' perceived	Questionnaire Likert statement DL9, DL10	Structural equation modelling (SEM)

RQ #	Research Question	Hypothesis #	Hypothesis	Data collection detail	Data analysis method
			ease of use of online retail.		

2.	Does perceived ease of use, usefulness, and risk have a statistically significant influence on South African consumers' online purchase intentions?	2.	The lower the perceived risk of purchasing at an online retailer, the higher is the South African consumers' online retail purchase intentions.	Questionnaire Likert statement RP1, RP2, RP3	Structural equation modelling (SEM)
		3	Perceived usefulness has a statistically significant effect on the online retail purchase intentions of South African consumers	Questionnaire Likert statement PU1, PU2	Structural equation modelling (SEM)
		4a.	The perceived ease of use has a statistically significant influence on South African consumers perceived usefulness of online retail purchase	Questionnaire Likert statement PI1, PI2, PI3	Structural equation modelling (SEM)
		4b.	The perceived ease of use has a statistically significant influence on online retail purchase intentions of South African customers.	Questionnaire Likert statement PEOU1, PEOU2	Structural equation modelling (SEM)

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APPENDIX A: PARTICIPANT INFORMATION SHEET

Dear Sir / Madam

My name is Keetse Mokgoko, and I am a master's student Wits Business at the University of the Witwatersrand, Johannesburg. As part of my studies, I must undertake a research project, and I am investigating the influence of digital literacy on perceived risk and factors that influence online purchase intention in South Africa under the supervision of Prof. Thomas Anning Dorson. The aim of this research project is to find out whether digital literacy has an influence on the risk perceived and adoption of online shopping in South Africa.

As part of this project, I would like to invite you to take part in an answering a questionnaire. This activity will involve questions on digital literacy and online shopping and will take around 10 minutes. The survey will not collect any personal information. Please note by continuing with survey you are consenting to participate in the project.

There will be no personal costs to you if you participate in this project, you will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to.

If you have any questions during or afterwards about this research, feel free to contact me on the details listed below. This study will be written up as a research report which will be available online through the university library website. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za

Yours sincerely,

Keetse Mokgoko

Researcher:

Keetse Mokgoko, 2520687@students.wits.ac.za, 076 472 5824

Supervisor:

Prof. Thomas Anning Dorson., thomas.anning.dorson@wits.ac.za, 011 717 3951

APPENDIX B: INSTRUMENT

Construct	Indicator	Adapted from
Digital Literacy (DL)	DL1. I know how to open a new tab in my browser DL2. I know how to bookmark a website DL3. I know where to click to go to a different webpage DL4. I know how to complete online forms DL5. I know how to adjust privacy settings DL6. I find it hard to decide what the best keywords are to use for online searches DL7. I find it hard to find a website I visited before DL8. Sometimes I end up on websites without knowing how I got there DL9. I find the way in which many websites are designed confusing DL10. All the different website layouts make working with the internet difficult for me DL11. I know what to look for, to make sure the website is safe to use	Nguyen and Barrett (2006) Subramania (2022)
Risk Perception (RP)	RP1. I trust that my credit card details will be protected when I shop on the internet RP2. I trust that the product will be delivered on time as promised by the company selling on the internet RP3_R. It is difficult to judge quality of a product/service on the internet RP4. I trust well-known brands for online shopping they are considered reputable	Jarvenpaa et al. (2000)

Construct	Indicator	Adapted from
Perceived ease of use (PEOU)	<p>PEOU_1. I find it easy to use most online shopping websites to find what I want</p> <p>PEOU_2. I am able to move around online shopping websites with ease</p> <p>PEOU_3. I find it easier to compare products when shopping at online</p> <p>PEOU_4. I feel that most online shopping websites are easy to use</p> <p>PEOU_5. I find it easy learning to use most online shopping websites</p>	<p>Ramayah (2009); Lim and Ting, (2012);Nazzal et al., (2021)</p>
Perceived Usefulness (PU)	<p>PU_1 I am able to accomplish my shopping goals more quickly when I shop online (e.g. search for any buy)</p> <p>PU_2 I am able to improve my shopping performance when I shop online (e.g. save time or money)</p> <p>PU_3 I am able to increase my shopping productivity when I shop online (e.g. make purchase decisions or find product information within the shortest time frame</p> <p>PU_4 I am able to increase my shopping effectiveness when I shop online (e.g. get the best deal or find the most information about a product)</p> <p>PU_5 Shopping from online retailers makes it easier for me to satisfy my needs</p>	<p>Ramayah (2009); Davis (1989); Nazzal et al.,(2021); Amirtha and Sivakumar (2018)</p>
Purchase Intention (PI) via online shop	<p>PI_1. I intend to purchase products from online shopping websites in the future.</p> <p>PI_2. When I need to buy a particular product, I would search for an online shopping website that has the product.</p> <p>PI_3. There is a great chance that I would buy the same product from an online shopping website.</p> <p>PI_4. I am likely to recommend online shopping to my friends.</p> <p>PI_5. I am very likely to provide the online shopping websites with my personal information it needs to better serve my needs.</p>	<p>Nazzal et al., (2021)</p>

APPENDIX C: ETHICS APPROVAL NOTIFICATION

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg



Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB2520687/347

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Digital literacy, perceived risk, and purchase intention in the South African online retail sector
Investigator / Researcher	Ms Keetse Mokgoko
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2022-09-02
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 ☎ +27 82 880 4531 ✉ anthony.stacey@wits.ac.za



Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.



Signature

26/09/2022
Date: