

https://dspace.org/

Augmented reality applications and consumers' purchase intentions in the South African e-commerce fashion industry

Molefe, Kgothatso Mishack

2025

University of the Witwatersrand, Johannesburg

https://hdl.handle.net/10539/47884

Molefe, Kgothatso Mishack . (2025). Augmented reality applications and consumers' purchase intentions in the South African e-commerce fashion industry [Master`s dissertation, University of the Witwatersrand, Johannesburg]. WIReDSpace. https://hdl.handle.net/10539/47884

Downloaded from a DSpace repository. https://dspace.org/

Augmented reality applications and consumers' purchase intentions in the South African e-commerce fashion industry

BY

Kgothatso Mishack Molefe

Supervisor: Dr Emmanuel Quaye

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 Strategic Marketing

March 2025

Abstract

Augmented reality (AR) is increasingly being adopted in e-commerce fashion industry; however, limited studies have explored its direct effect on consumers purchase decisions, mainly in the South African market. AR is seen as a solution to common challenges faced by e-commerce fashion retailers, which include high rate of product returns and a lack of sensory shopping experience. Despite many practical benefits offered by AR technology, the extent to which AR applications shape consumers' online buying decisions remains underexplored. This study investigates the influence of AR applications on consumers purchase intentions in the South African e-commerce fashion industry. The study further explores the factors that influence attitudinal behaviour to use the technology by extending the Technology Acceptance Model (TAM) with three predictor variables (inspiration, consumer innovativeness and perceived enjoyment), one moderator (product involvement) and outcome variable (purchase intentions). The data was collected from 324 online shoppers in Gauteng, South Africa, using a survey. To analyse and test the hypothesised relationships, structural equation modelling (SEM) was used. The results reveal that AR applications have significant influence on consumers purchase intentions. Furthermore, consumers attitude toward using AR applications was found to be significantly influenced by perceived enjoyment, perceived usefulness, inspiration and consumer innovativeness. Contrary to the expectations, perceived ease of use was found to have insignificant effect on attitudinal behaviour. Product involvement was also found to be insignificant in moderating attitudes and behavioural intention to use AR applications. The implications of the findings for online retailers, technology developers and marketers were discussed in detail.

Keywords: Augmented reality, purchase intention, e-commerce, fashion, behavioural intention.

Declaration

I, Kgothatso Mishack Molefe, 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, Strategic Marketing at the University of the Witwatersrand, Johannesburg, South Africa. It has not been submitted before for any degree or examination in this or any other university.

Kgothatso Mishack Molefe

Signed at Pretoria on the _____ day of March 2025

Acknowledgements

"It always seems impossible until it's done," - Nelson Mandela

This has been a journey of growth, inspiration and perseverance. I could not have embarked on it alone.

A special thanks to an incredible human being, my supervisor, Dr Emmanuel Quaye. Your guidance, patience and invaluable feedback have been the compass driving this research and I will forever be grateful for your belief in my vision. May you continue to be a great human being to other scholars!

To my mother, WK Molefe, I am deeply grateful. Your sacrifices, love and encouragement have carried me through the toughest days.

To LT Mabinane, thank you for being a constant source of motivation.

To KP Madito, thank you for standing by me and cheering me every step of the way.

Finally, to my peers and participants, your contributions have been the foundation of this study, and I am humbled by your kindness.

Table of Contents

Abstract.....

Declaration.....

Acknowledgements .....

CHAPTER 1. INTRODUCTION.....1

1.1. Background 1

1.2. Problem statement.....2

1.5. Objectives.....5

1.5. Contributions of the study.....6

1.6. Delimitations of the study 7

1.7. Definition of terms 7

1.8. Assumptions.....7

CHAPTER 2. LITERATURE REVIEW.....8

2.1. Introduction 8

2.2. Marketing and Digital Marketing.....8

2.3. E-commerce industry in South Africa.....9

2.4. Augmented reality.....10

2.5. Augmented reality attributes.....11

2.6. Consumer Behaviour and Decision-Making.....12

2.7. Theoretical Groundings.....13

2.8. Conceptual Model and Hypotheses Development.....14

2.8.1. Perceived Enjoyment.....14

2.8.2. Perceived Ease of Use.....15

2.8.3. Perceived Usefulness.....16

2.8.4. Inspiration.....17

2.8.5. Consumer innovativeness.....17

2.8.8. Product involvement 20

2.9. Conceptual model.....21

CHAPTER 3. RESEARCH METHODOLOGY.....22

3.1. Introduction 22

3.2. Research Philosophy 22

3.3. Research design.....23

3.4. Sampling strategy.....23

3.5. Data collection techniques 24
3.8. Limitations of the study 30
3.9. Chapter summary 30
CHAPTER 4: PRESENTATION OF RESULTS 31
4.1. Introduction 31
4.2. Demographic Profile of the Respondents 31
4.3. Measurement Scale: Descriptive statistics 35
4.4. Confirmatory Factor Analysis 44
4.5. Reliability and Validity Measurement 44
4.6. Structural Equation Modelling 49
4.7. Conclusion 53
CHAPTER 5: DISCUSSION OF RESULTS 54
5.1. Introduction 54
5.2. Demographic Profile of Respondents 54
5.3. Hypotheses discussion 56
CHAPTER 6: CONCLUSION AND RECOMMENDATIONS 62
6.1. Introduction 62
6.2. Conclusion of the Study 62
6.3. Implications 64
6.4. Limitations of the study 66
6.5. Direction of future studies 67
REFERENCES 68
APPENDICES 84
Appendix 1: cover letter 84
Appendix 2: Research Instrument 85
Appendix 3: Ethics Clearance Certificate 92

LIST OF TABLES

Table 1: Pilot Testing Reliability Results 28
Table 2: Racial profile of the respondents 32
Table 3: Monthly household income of respondent 34
Table 4: Most used online platforms to buy fashion items by respondent 35
Table 5: Perceived enjoyment (PE) 36
Table 6: Perceived ease of use (PEU) 37
Table 7: Perceived usefulness (PU) 38
Table 8: Inspiration (I) 39
Table 9: Consumer Innovativeness (CI) 40
Table 10: Attitude toward use (ATU) 41
Table 11: Behavioural Intention (BI) 42
Table 12: Product Involvement (PINV) 42
Table 13: Purchase intention (PI) 43
Table 14 Model Fit Results For CFA 44
Table 15: Reliability Results 45
Table 16: Factor Loading, CR and AVE Results 46
Table 17: Heterotrait-Monotrait Ratio (HTMT) 49
Table 18: SEM Model Fit Results 49
Table 19: Hypothesis Testing Results 50
Table 20: Moderation Analysis Results 51

LIST OF FIGURES

Figure 1: Top-ranked e-commerce sectors in South Africa in 2022.....9

Figure 2: Spatial model.....11

Figure 3: Conceptual model for the study.....21

Figure 4: Gender distribution of the respondents 31

Figure 5: Age categories of respondents.....32

Figure 6: Level of education.....33

Figure 7: online shopping behaviour for fashion items 34

Figure 8: CFA Model.....48

Figure 9: Conceptual model results 51

CHAPTER 1. INTRODUCTION

1.1 Background

The speed of technology advancement is very much unprecedented. Presenting marketers with variation of promotional tools to persuasively demonstrate products (Yim et al., 2017). One of such tools is augmented reality (AR), which is swiftly getting attention globally from most companies (McLean & Wilson, 2019; Yim et al., 2017). Tan et al. (2022) defines AR as the technology that provides users with a visual depiction of how virtual objects will look in the real world by overlaying these objects onto real-world environments. AR offers an efficient way to replace physical store visits. This is achieved by providing a virtual replica of a product that could be tried on or displayed at home using features such as virtual try-on (Massa & Ladhari, 2023). A study conducted by Deloitte Digital and Snap Inc. (2021) revealed that providing consumers with AR experience during their purchasing journey has led to a 94% conversion rate. Predictions suggest that by 2025, approximately 75% of the global population and nearly all users of smartphones will constantly interact with AR (Deloitte Digital & Snap Inc., 2021). Notably, the smartphone penetration rate globally has reached approximately 85% in 2024, indicating that about 7 billion people are using smartphone devices (We Are Social & Meltwater, 2024). These developments show a promising future for the integration of AR in the e-commerce industry.

Due to its focus on convenience and accessibility, the global ecommerce industry has experienced notable growth in recent years, as a growing number of consumers choose to buy online (Gupta et al., 2023). According to Statista, global e-commerce sales reached US$5.8 trillion in 2023, and predictions indicate a growth rate of 39% in the next few years, with anticipation to exceed US$8 trillion in the year 2027 (Chevalier, 2024). This demonstrates vast opportunities and prospects that this industry provides for businesses. Van Gelder (2024) indicates that the number of consumers buying online is continually growing as the global internet usage and access increase swiftly, with more than 5 billion internet users globally.

South Africa stands out as a key player in the e-commerce industry. The country has witnessed a notable 30% growth in e-commerce spending in 2020 (Agyare-Dwomoh, 2022). This was accompanied by a 12% decline in traditional brick-and-mortar expenditures (Agyare-Dwomoh, 2022). In 2022 alone, South Africa had 27 million people using e-commerce. It is projected that the number will increase to 37.9 million in 2027 (Cowling, 2024). According to Statista

(2024b) fashion items such as apparel and shoes are the most bought items on e-commerce platforms in the country. Despite this being the case, Batool and Mou (2023) indicate that consumers find it difficult to get outfits that match their preference. This is due to the discrepancies between product displays online and their actual appearance (Wang et al., 2022). Consequently, the e-commerce fashion industry encounters a high number of returns for items bought online (Batool & Mou, 2023).

The online limitations such as the inability to touch and feel products has led to e-commerce fashion retailers investing in AR features such as virtual try-on technology to augment product visibility and offer sensory response for virtual buying (Batool & Mou 2023). Using this technology, consumers can try on and look at products virtually using cameras of their smartphones (Alam et al., 2021). Research findings by Wang et al. (2022) indicates that AR can enhance the online shopping experience of consumers and ultimately influence positively their willingness to make a purchase. Notably, a study conducted by PricewaterhouseCoopers (PwC) reveals that experience is a significant factor for consumers when making buying decisions (Hyken, 2018). Thus, AR is seen as a technology that can improve the online shopping experience of consumers (Wang et al., 2022).

Given these potentials, it is anticipated that by 2032, the global AR market will be valued at approximately US$1,188.98 billion (Precedence Research, 2023). The market growth in the forecasted period is expected to be driven by the increase in AR adoption in different industries that include e-commerce and retail (Precedence Research, 2023). For this reason, Alam et al. (2022) indicates that it is pivotal for retailers and scholars to comprehend how consumers respond to new technologies such as AR.

1.2. Problem statement

Despite the increasing adoption of AR in e-commerce and in brick-and-mortar stores globally, there are limited studies exploring the influence of the experience offered by AR on consumers' online buying decisions (Song et al., 2019). Most AR research in the field of marketing has been conducted in developed countries such as the United State of America (USA), United Kingdom (UK) and Australia, leaving a gap in knowledge in developing and emerging markets (Kumar et al., 2022; Rejeb et al., 2021). This indicates a significant need to expand the research in developing countries such as South Africa. Batool and Mou (2023) assert that it is pivotal to take into account national cultural values, social influence and current technological hurdles

when adopting new technology. Thus, considering the diverse cultural groups present and the state of digital transformation in South Africa, it is obvious that conducting this study will offer a unique context that could result in different outcomes.

E-commerce fashion retailers are increasingly viewing AR as a tool to enhance consumer engagement and experience (Massa & Ladhari, 2023). Furthermore, this technology is seen as a solution to common challenges such as high rate of product returns and absence of sensory experience that are faced by e-commerce fashion retailers (Batool & Mou, 2023). Given the interactive nature of AR features like virtual try-on together with the realistic appearance and feel of clothing an online product, this technology could possibly alleviate the drawbacks of online buying and assist consumers make informed decisions (Song et al., 2019). Therefore, AR has the power to completely reshape the e-commerce fashion industry if it is applied properly and intelligently (Batool & Mou, 2023).

A study conducted by Yim et al. (2017) used two fashion products (glasses and watches) to look at the efficacy of AR as a tool in e-commerce, the study claimed that AR offers valuable communication benefits that leads to a favourable attitude toward the tool and purchase intention. Alam et al. (2022) posit that to comprehend and diffuse a technology, a perspective analysis of consumers and retailers must be done. Thus, from consumers' perspective, factors that influence them to adopt AR when buying online are lacking in the retail context (Alam et al., 2022). This assertion is supported by Rejeb et al. (2021) who indicates that despite the increasing significance of research on AR adoption, there are limited studies focusing on consumers' adoption of AR in marketing.

Prior studies on AR in the context of e-commerce have utilised the technology acceptance model (TAM) (Alam et al., 2022; McLean & Wilson, 2019). These studies enhanced the model by adding more variables as recommended by Legris et al. (2003). However, Alam et al. (2022) indicates that the practical application of TAM in previous empirical studies has produced conflicting results while studying factors such as perceived ease of use, perceived usefulness, and behavioural intention. Holdack et al. (2022) further indicates that the models utilised in prior technology acceptance studies are highly inconsistent and disjointed from each other due to various extra constructs that were added in the TAM. Therefore, in line with the assertion by Tarhini et al. (2016) this study enhances the model by including additional constructs that have been overlooked in the literature to improve the prediction of adoption behaviour of

consumers. These constructs include consumer innovativeness, perceived enjoyment, inspiration, and product involvement as a moderator variable.

McLean and Wilson (2019) assert that perceived enjoyment is a variable that is vital in comprehending the acceptance and use of latest technology. On the other hand, Saleem et al. (2021) recommend that to comprehend the direct interaction of consumers with AR technology, more studies should examine this variable further. In addition, understanding how different psychological concepts like creativity and inspiration impact the decisions of consumers and interactions with brands is essential for marketers. Therefore, Jayaswal and Parida (2023) indicate that more AR studies should further explore inspiration to assist marketers to develop AR platforms that stimulate increased levels of inspirations. Furthermore, Whang et al. (2021) posits that consumer innovativeness is an important construct in the realm of interactive marketing, yet there are limited AR studies that examine this construct. Lavoye et al. (2021) also indicates that there are limited AR studies that examined contextual moderators.

Based on the background provided, this study aims to investigate the influence of AR applications on consumers purchase intentions in the South African e-commerce fashion industry. The study further seeks to explore factors that influence consumers to adopt AR and the moderating role of product involvement.

1.4. Research questions

The main research question for this study is presented as follows:

- What effect does AR applications have on consumers' purchase intentions in the South African e-commerce fashion industry?

In addition, this study aims to answer the following questions:

- How does perceived enjoyment influence attitude toward using AR applications in the South African e-commerce fashion industry?
- How does perceived ease of use influence attitude toward using AR applications in the South African e-commerce fashion industry?
- How does perceived usefulness influence attitude toward using AR applications in the South African e-commerce fashion industry?

- How does inspiration influence attitude toward using AR applications in the South African e-commerce fashion industry?
- How does consumer innovativeness influence attitude toward using AR applications in the South African e-commerce fashion industry?
- What is the relationship between attitude toward using AR applications and behavioural intention to use AR applications in the South African e-commerce fashion industry?
- Does product involvement moderate the relationship between attitude toward using AR applications and behavioural intention to use AR applications in the South African e-commerce fashion industry?

1.5. Objectives

1.4.1. Primary objective

- To investigate the influence of AR applications on consumers' purchase intentions in the South African e-commerce fashion industry.

1.4.2. Secondary objectives

- To explore the influence of perceived enjoyment (PE) on consumers' attitude toward using (ATU) AR applications in the South African e-commerce fashion industry.
- To investigate the influence of perceived ease of use (PEU) on consumers' attitude toward using (ATU) AR applications in the South African e-commerce fashion industry.
- To explore the influence of perceived usefulness (PU) on consumers' attitude toward using (ATU) AR applications in the South African e-commerce fashion industry.
- To explore the influence of inspiration (I) on consumers' attitude toward using (ATU) AR applications in the South African e-commerce fashion industry.
- To explore the influence of consumer innovativeness (CI) on attitude toward using (ATU) AR applications in the South African e-commerce fashion industry.
- To determine the influence of consumers attitude toward use (ATU) on behavioural intention (BI) to use AR applications in the South African e-commerce fashion industry.

- To determine the moderating role of product involvement (PINV) on consumers attitude toward use and consumers behavioural intention to use AR applications in the South African e-commerce fashion industry.

1.5. Contributions of the study

Despite the increasing significance of research on AR applications, there are limited studies exploring the influence of AR applications on consumers' online buying decisions (Song et al., 2019) especially in developing markets like South Africa. By investigating the influence of this technology on consumers purchase intentions in the South African e-commerce fashion industry, this study makes contribution to theory and practice. The study offers some knowledge on the drivers of consumers behaviour by enhancing the TAM by Davis (1989), with additional predictor variables such as inspiration, perceived enjoyment, consumer innovativeness, product involvement as a moderator and purchase intention as an outcome. By adding inspiration and consumer innovativeness in the model, the study addresses the gaps in literature on AR acceptance. This is done by highlighting the creative and emotional dimensions of consumer behaviour. Furthermore, the study tests the moderating effect of product involvement to indicate how consumers level of interest in fashion items influence their interaction with AR applications, contributing to a deeper understanding of AR acceptance in markets where AR is still regarded as an emerging technology.

The study looks into the e-commerce fashion industry in South Africa. This is a context that has been underexplored in AR research, which shows distinct consumer preferences and challenges in a developing market setting. As a result, the study offers insights that may contrast the findings from developed markets thereby addressing a geographical gap and contributing to the body of knowledge. Recommendations are offered to online retailers, marketers, and technology developers. These recommendations are actionable and are focussing on the significance of developing AR experiences that are enjoyable, inspirational and useful. It is recommended that online retailers and marketers should create AR features that appeal to the emotions of users and that enhance practical benefits like reducing product fit and style uncertainty. Furthermore, the study lays a foundation for future studies on the increasing significance of AR in the e-commerce fashion industry.

1.6. Delimitations of the study

- This study targeted online buyers only.
- The study focuses on the e-commerce fashion industry.
- The study concentrates on the online dimension of consumer purchase decision.

1.7. Definition of terms

E-commerce: e-commerce is the selling and buying of products or services using a global computer network or internet (Semerádová & Weinlich, 2022).

Augmented reality: AR is the technology that provides users with a visual depiction of how virtual objects will look in the real world by overlaying these objects onto real-world environments (Tan et al., 2022).

Perceived enjoyment: perceived enjoyment is the element that allows users to feel satisfaction and pleasure while using an application (Oyman et al., 2022).

Perceived ease of use: perceived ease of use is defined as an individual's belief that utilising a technology will not require significant mental effort (Rouibah & Abbas, 2010).

Perceived usefulness: perceived usefulness "is defined as the degree to which the use of new technology can improve an individual's performance" (Chen et al., 2022).

Consumer innovativeness: consumer innovativeness is the propensity to buy and utilise new products or technologies more rapidly than others (Li et al., 2021).

1.8. Assumptions

- The study assumes that participants have reliable and consistent internet connectivity to effectively experience AR features during their online shopping experiences.

- The study assumes that participants have a basic level of familiarity with AR technologies, ensuring that their responses are informed and relevant to the use of such features in the e-commerce fashion retail context.

- Consumers participating in the study have reasonable access to devices capable of supporting AR features, such as smartphones or tablets.

CHAPTER 2. LITERATURE REVIEW

2.1. Introduction

This chapter reviews the existing literature relevant to this study. The review starts with a broad discussion on marketing, moving into digital marketing, and then examining the e-commerce industry in South Africa. Subsequently, a discussion focusing on augmented reality is presented, then consumer behaviour and decision-making. Finally, the theoretical grounding for the study is presented, leading to the development of a conceptual model and hypotheses.

2.2. Marketing and Digital Marketing

2.2.1. Overview of marketing

Kotler et al. (2022) describe marketing as a process of creating, communicating, delivering and exchanging goods or offerings that offer value to customers. It includes different strategies for engaging with customers and ultimately influencing buying decisions. In recent years, marketing has changed from traditional methods to technology-driven approaches. These technology-driven approaches focus on data-driven consumer engagement and decision-making (Chaffey & Ellis-Chadwick, 2022). Rapid technological advancements and shifts in consumer behaviour have led to the evolution of marketing. The literature indicates that earlier marketing theories focused on what is known as the 4Ps (product, price, place, and promotion) as important drivers of market success (Yudelson, 1999). Modern marketing methods integrate digital channels, personalization, and customer experience as key elements (Chaffey & Ellis-Chadwick, 2022).

2.2.2. Digital Marketing

Digital marketing uses online media, data, and technology to connect with consumers and achieve marketing goals (Chaffey & Ellis-Chadwick, 2022). This includes strategies like social media marketing, search engine optimization (SEO), influencer marketing, content marketing, and email marketing. The growth of e-commerce has increased the role of digital marketing in influencing consumer behaviour. Wan (2023) indicates that digital marketing triggers consumer interest and engagement through interactive content. Therefore, brands that build stronger connections and interactions with their target audience are more likely to influence their

purchase decisions (Wan, 2023). The advent of artificial intelligence (AI) and big data analytics has allowed marketers to better understand their customers and customise marketing efforts to a defined target audience (Kotler et al., 2022). Digital marketing strategies are advancing because of technological advancements, with the incorporation of augmented reality (AR) and virtual reality (VR) playing important roles (Hall & Takahashi, 2017).

2.3. E-commerce industry in South Africa

Historically, several factors have hindered e-commerce growth in South Africa. According to Goga et al. (2019), these factors include exorbitant prices, bad quality of the internet, dependability, and the cost of delivery channels. However, in recent years, as internet penetration has grown, mobile phone usage has increased and consumer preference has changed, and the e-commerce industry in South Africa has begun to experience exponential growth (Van Der Merwe, 2024). The value of e-commerce in the country is anticipated to reach R225 billion by 2025, equivalent to a 150% increase (Agyare-Dwomoh, 2022). Van Der Merwe (2024) indicates that within the e-commerce industry, the fashion industry is experiencing notable growth. In 2022, the industry was reported to be the top-ranked e-commerce segment, accounting for 32% of the aggregate value of the e-commerce market (Statista, 2024a). Figure 1 illustrates the top-ranked e-commerce sectors in South Africa as reported by Statista (2024a).

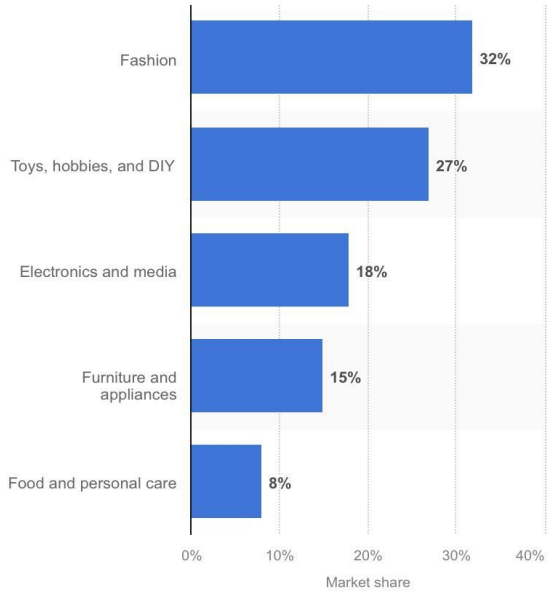


Figure 1: Top-ranked e-commerce sectors in South Africa in 2022

Source: Statista (2024a)

The key driver for this growth is the digitisation of major clothing retailers and continuous investment in e-commerce channels to boost the experience of the users (Van Der Merwe, 2024). Many consumers utilise their smartphones to buy online, making mobile penetration a key driver of the e-commerce market. The survey conducted by Statista indicates that 77% of the participants utilised their smartphones to make online purchases (Statista, 2024b). A study conducted by World Wide Worx in 2023 indicates that in South Africa, 41% of men buy online compared to 36% of women (Swanepoel, 2023).

The rise in online shopping has not only transformed consumer behaviour but has also intensified competition. The big players include Takealot, Superbalist, Makro, and Bash (Illidge, 2023). Illidge (2023) indicates that these e-commerce retailers face tough competition from global players such as Shein and Amazon. Davids (2024) suggests that e-commerce has enabled global players and small businesses to connect with consumers without a significant capital investment in store expansion or physical retail spaces. This dynamic environment demonstrates the ongoing evolution of the e-commerce sector in South Africa, shaping a landscape where adaptability plays a pivotal role in the success of businesses.

2.4. Augmented reality

According to Schmalsteig and Höllerer (2016), the inception of AR can be traced back to the 1960s, when the first integration of the physical world with computer-generated information happened. Over the last few decades, AR has evolved from conceptual frameworks to practical implementation. The first AR applications were predominantly in industrial settings (Schmalsteig & Höllerer, 2016); however, the technology has now spread throughout the consumer market. AR is defined as a technology that overlays virtual objects onto real-world environments, providing users with a visual representation of how these virtual objects would appear in real life (Tan et al., 2021). The primary focus of AR is to render three-dimensional (3D) images of virtual objects (Caboni & Hagberg, 2019; Saleem et al., 2021). This visualisation assists consumers in conceptualising products in their intended usage scenarios and potentially reduces product fit uncertainties (Tan et al., 2021).

Although AR and Virtual Reality (VR) are often mentioned together, they differ significantly in terms of function and user experience (Tan et al., 2021). AR seamlessly integrates virtual elements into the real world. On the other hand, VR constructs an entirely digital environment, disconnecting users from their immediate surroundings (Rejeb et al., 2021; Tan et al., 2021).

Schmalsteig and Höllerer (2016) indicated that a far-reaching AR system involves at least three components: tracking, registration, and visualization. Furthermore, a fourth component is necessary: a spatial model that stores information about both the real and virtual world.

Figure 2 illustrates the spatial model in which AR employs a continuous interaction loop. The user observes and manipulates the AR display, while the system monitors the user's viewpoint, aligns it with real-world positions, and delivers contextual visualisations (Schmalsteig & Höllerer, 2016).

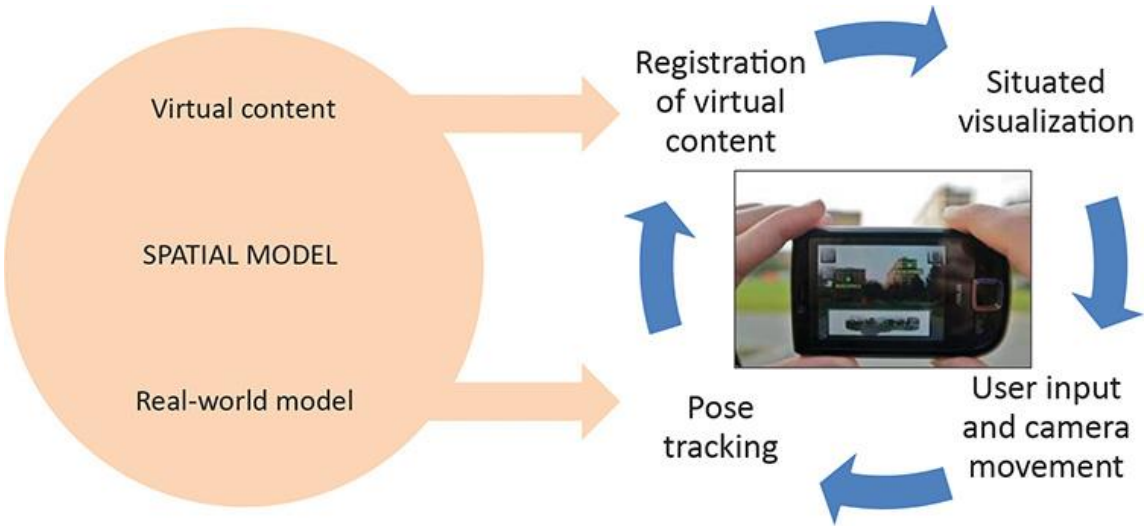


Figure 2: Spatial model

Source: Schmalsteig and Höllerer (2016)

AR will be pivotal for both how people consume content and how companies market their products in the future, especially with new developments. Consumers will regularly experience a blend of the real and virtual worlds. This will push marketers to find ways to incorporate virtual experiences into their plans (Rauschnabel et al., 2019). Therefore, this progression presents an opportunity to investigate the influence of AR applications on consumers' purchase intentions.

2.5. Augmented reality attributes

2.5.1. Interactivity

McLean and Wilson (2019) indicate that interactivity can only arise when consumers are amenable to engage with the technology. Yim et al. (2017) presents two interdependent

perspectives on interactivity which are, as technological outcome and as user perception. These perspectives assist to offer a detailed definition that offers understanding on the function of interactivity in AR. An essential aspect of AR is the capability to manipulate what the user sees by merging the real and virtual world (McLean & Wilson, 2019). Therefore, a key feature of AR technology is interactivity (Wang et al., 2021). However, Yim et al. (2017) asserts that regardless of the advanced technology with the capacity to generate high interactivity, users might not experience it without motivation to engage. Therefore, the perception of interactivity is better realised by creating an effective technological delivery technique that stimulates user participation.

2.5.2. Vividness

AR vividness refers to a crystal-clear depiction of an image, mostly superimposed in three dimensions (3-D), blending the elements of the real and virtual worlds (McLean & Wilson, 2019). The vividness factor assists consumers in forming a visual representation of a product they have experienced (Saleem et al., 2021). Kim et al. (2022) indicates that sensory vividness is mostly created by products that have images with high-resolution together with multidimensional sound. It has been discovered that interactive technologies that offer clearer product visualisation relate to a higher positive emotional experience (Yim et al., 2017).

2.5.3. Novelty

McLean and Wilson (2019) indicate that AR offers consumers repeatedly distinct experiences. Every use presents individuals with fresh stimuli because manipulation is possible between the real and virtual worlds. Therefore, novelty is not related to AR's newness, but rather to the distinct, personalised content experienced through the AR display on every occasion.

2.6. Consumer Behaviour and Decision-Making

Consumers have changed from depending only on traditional buying methods to actively participating in digital marketing environments. Therefore, marketers need to understand consumer behaviour to formulate effective strategies. Theodorakopoulos and Theodoropoulou (2024) describe consumer behaviour as the choices and behaviour of individuals when they select a product or service to buy and how to use them. Several factors that influence consumer behaviour have been identified in the literature, some of which include social influence, environmental stimuli, and characteristics of individual and cultural norms (Rusdian et al.,

2024). The consumer decision-making process consists of various stages, and AR plays a pivotal role in these stages by improving product visualization and reducing product fit uncertainty (Tan et al., 2021). Previous studies have shown that AR can enhance consumers' online shopping experiences and ultimately positively influence purchase decisions (Wang et al., 2022). However, most of these studies were conducted in developed markets, leaving a knowledge gap in emerging markets (Kumar et al., 2022; Rejeb et al., 2021).

2.7. Theoretical Groundings

2.7.1. Technology Acceptance Model

TAM is a popular and extensively studied theory in the field of information systems. It was initially proposed in 1985 by the well-known researcher, Davis. The theory draws inspiration from the Theory of Reasoned Action (TRA). TRA is used to predict and comprehend attitudes that underpin behaviour in various contexts (Marikyan & Papagiannidis, 2023). Intention is the key construct of this theory (Hagger, 2019). However, TRA has proven to be unsuccessful in measuring technology-specific variables and addressing the drawbacks (Marikyan & Papagiannidis, 2023), prompting the introduction of TAM. TAM introduced two new constructs, perceived usefulness and perceived ease of use, to predict the attitudinal behaviour of individuals to accept the technology (Chen et al., 2011). While TAM offers a foundation for understanding technology acceptance, Tarhini et al. (2016) assert that the model must be extended with additional constructs to improve the prediction of the technology adoption behaviour of consumers. Previous studies have applied TAM to examine the intentions of consumers to adopt AR (Alam et al., 2021; Oyman et al., 2022; Saleem et al., 2021). These studies enhanced the model by introducing constructs relevant to the AR context. In this study, TAM serves as a valuable and foundational theoretical framework for investigating the adoption of AR applications in the South African e-commerce fashion industry. The addition of constructs in the model aims to offer a detailed understanding of how AR applications influence consumer attitudes, behavioural intentions, and purchase intentions.

2.7.2. Uses and Gratifications Theory

The Uses and Gratifications (U&G) theory states that individuals are not merely passive recipients of media content. Instead, they actively engage with and choose media to satisfy their personal needs and wants (Vinney, 2022). The U&G theory emphasises the heterogeneity of media consumption. It stresses that different users may obtain different gratification from

the same media tool depending on their distinct preferences (Shao, 2009). This assertion is relevant in the context of AR as users can interact with immersive content offered by the technology to satisfy their unique needs. A study by Smink et al. (2021) identified eleven dimensions of gratifications, which include enjoyment, stimulation, identification, practical use, topicality, efficiency, social interaction, empowerment, innovation, and desired enhancement of reality. These dimensions can be classified as hedonic, utilitarian, social, or technology-related gratification. Previous studies overlooked hedonic gratifications, instead, they mainly focused on utilitarian gratifications (Rauschnabel, 2018). This study focuses on the hedonic gratification dimension and examines perceived enjoyment related to AR. The ability of AR applications to satisfy different gratifications makes it a powerful tool for the e-commerce fashion industry. According to Vinney (2022) in the era where media technologies continue to increase rapidly, studies on U&G theory are significant to comprehend individuals' motivations for selecting media and the gratification received from it. This is critical for creating AR experiences that resonate with consumers.

2.8. Conceptual Model and Hypotheses Development

2.8.1. Perceived Enjoyment

Perceived enjoyment plays a vital role in understanding the behavioural intention toward technological innovations (Faqih, 2022). According to Oyman et al. (2022), perceived enjoyment allows users to feel satisfaction and pleasure while using an application. It is a hedonic value that explains how enjoyable the user finds the new technology (Holdack et al., 2022). Saleem et al. (2021) indicate that the main purpose of perceived enjoyment is to predict how well users will perform when using a new system or engaging in a new activity. Research suggests that users not only use new technologies to improve performance but also to experience enjoyment (To & Trinh, 2021). A study conducted by To and Trinh (2021) found that increased levels of perceived enjoyment can result in lower levels of anxiety or concern. This indicates that enjoyment can influence the use of technological innovations (McLean & Wilson, 2019).

In their study, Yim et al. (2017) posit that a positive attitude toward AR is formed when consumers perceive more enjoyment. Given that AR permits consumers to modify and potentially customise the experience, consumers may find enjoyment in the novel visualisation experience it offers (McLean & Wilson, 2019). The study by Holdack et al. (2022) confirmed

that perceived enjoyment has a positive impact on attitude and behavioural intention, indicating that the more consumers find AR technology enjoyable, the more their attitude toward the technology improves. Based on the above discussion, the below hypothesis is formulated:

> ***H1:*** *Perceived enjoyment will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry.*

2.8.2. Perceived Ease of Use

The concept of perceived ease of use relates to an individual's belief that utilising technology will not require significant mental effort (Rouibah & Abbas, 2010). This is considered a crucial factor when evaluating and determining the level of user acceptance of a specific technology (Amin et al., 2014). According to Alam et al. (2021), users consider technology easy to use when they realise that it can be utilised effortlessly. It is widely recognised that the characteristics of technology, such as its ease of use, play an important role in acceptance and usage processes, particularly for emerging and new technologies and innovations (Faqih, 2022).

According to Davis et al. (1989) perceived ease of use significantly influences users' attitudes and behavioural intentions toward a technology. In recent years, researchers have studied perceived ease of use in the context of AR. Saleem et al. (2021) studied consumers' behavioural intention to utilise AR applications. The study revealed that perceived ease of use of AR applications has a direct effect on attitude and behavioural intention to use. A study by Wu et al. (2020) explored the influence of perceived ease of use on users' attitudes toward AR in a tourism context. The findings indicate a positive relationship, suggesting that users who perceive AR systems as easy to use are more likely to adopt them for tourism-related activities. Similarly, Papakostas et al. (2023) conducted a study on AR-based educational applications and found a significant positive link between perceived ease of use and user acceptance. The results suggest that when users perceive an AR educational system to be easy to use, they are more inclined to adopt it for learning purposes. Alam et al. (2022) investigated the impact of perceived ease of use on AR acceptance in the context of online shopping and found a positive relationship. For fashion products that require physical trying before purchase, AR features such as virtual try-ons are viable options. Thus, in a study conducted by Pantano et al. (2017), consumers have demonstrated a favourable attitude toward the use of virtual try-ons to try fashion products. Based on the above discussion, the below hypotheses are formulated:

***H2a**: Perceived ease of use will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry.*

***H2b:** Perceived ease of use will significantly influence consumers behavioural intention to use AR applications in the South African e-commerce fashion industry.*

2.8.3. Perceived Usefulness

Perceived usefulness, as discussed in the literature, is often conceptualised within the framework of technology acceptance and adoption models, such as the TAM (Venkatesh & Davis, 2000). According to Masrom (2007), perceived usefulness refers to an individual's subjective belief that utilising a particular technology or system would boost their performance or make their tasks easier to accomplish. Studies in this area highlight that individuals are most likely to adopt a technology if they perceive it to be useful in improving their productivity, efficiency, or overall performance (Venkatesh & Davis, 2000).

The integration of AR into various industries has prompted researchers to explore the factors influencing its adoption. One such critical factor identified in the literature is perceived usefulness. Rese et al. (2017) posit that perceived usefulness can directly impact behavioural intentions without necessitating the formation of an attitude toward innovation. Previous studies on AR technology have consistently revealed that individuals are drawn to the technology due to its perceived usefulness (Arghashi & Yüksel, 2022). The attributes of perceived usefulness play a pivotal role in online shopping experiences facilitated by AR applications. A study conducted by Saleem et al. (2021) revealed that these attributes support consumers in evaluating online products and making informed purchasing decisions. Rese et al. (2017) assert that perceived usefulness does not only influence attitudes toward innovation but also directly impacts behavioural intentions by enhancing user performance. As a result, the recognition of a technology's usefulness causes a positive perception among users (Arghashi & Yüksel, 2022). Based on the above discussion, the below hypotheses are formulated:

***H3a:** Perceived usefulness will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry.*

***H3b:** Perceived usefulness will significantly influence consumers behavioural intention to use AR applications in the South African e-commerce fashion industry.*

2.8.4. Inspiration

Thrash et al. (2014) indicate that inspiration has two key components which are stimulus objects. One is related to the series of actions of being inspired by an inducement object related with being inspired to. It is a construct that encourages individuals to direct attention externally and prevents an innate tendency to concentrate on the self (Hinsch et al., 2020). According to Böttger et al. (2017), inspiration is a sort of intrinsic inducement that is marked by an epistemic factor that is stronger. Hinsch et al. (2020) assert that technological innovations such as AR can offer experiences that can inspire consumers. In their study, Rauschnabel et al. (2019) assert that it is inherently imaginable that inspiration has a favourable effect on attitudes. However, it can be contested that a once-off exposure to a trigger such as an AR application might not be influential enough to significantly alter attitudes.

A study conducted by Thrash et al. (2014) empirically demonstrated that inspiration can distinctly project marketing goals like exploration and behaviour. Hinsch et al. (2020) indicate that consumers' inspirations and marketing goals can be improved using AR. A study conducted by Rauschnabel et al. (2019) revealed that the inspiration obtained from the application transfers the gains of utilising AR to the overall brand attitude, despite that there is no influence on attitude mainly toward the application. It might be challenging to create inspiration without enough level of realism as consumers may not regard the AR application as appropriate for their consumption aims (Hinsch et al., 2020). In this study, inspiration is regarded as a predictor of attitude toward the use of AR applications. Inspiration is an intrinsic influential construct with the ability to shift consumers towards behavioural outcomes (Nikhashemi et al., 2021; Rauschnabel et al., 2019). Based on the above discussion, the below hypothesis is formulated:

> ***H4:*** *Inspiration will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry.*

2.8.5. Consumer innovativeness

In the marketing literature, consumer innovativeness is utilised to segment consumers (Thakur et al., 2016). Roehrich (2004) indicates that consumer innovativeness is a factor that drives innovative behaviour and has been frequently explored in studies on the diffusion of innovation. It is a precursor of early adoption (Frank et al., 2015). More often, as a construct,

consumer innovativeness has been utilised to predict the consumers' adoption of goods and services than to predict the adoption of new inventions (Truong, 2013). A study conducted by Kasilingam (2020) utilised personal innovativeness to evaluate the "intention of consumers to use chatbots on smartphones for shopping." The study revealed a significant relationship between personal innovativeness and attitude toward the use of chatbots. Alam et al. (2022) assert that when consumers have greater innovativeness, they are more likely to accept new technology. In the AR context, a study conducted by Rauschnabel and Ro (2016) supports this assertion by revealing that consumers with high levels of innovativeness were more likely to adopt AR smart glasses. In this study, consumer innovativeness as a construct is appropriate for these reasons, firstly, AR is regarded as a novel technology that is still in its introductory stage of adoption and implementation (Alam et al., 2022). Secondly, consumer innovativeness is a significant variable to examine since it has the potential to influence attitudes and intentions to utilise novel technologies such as AR (Kasilingam, 2020. Based on the above discussion, the below hypothesis is formulated:

> ***H5:*** *consumer innovativeness will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry.*

2.8.6. Attitude toward use of augmented reality

According to the TAM, attitude toward use is a mediator variable that is impacted by perceived ease of use and perceived usefulness. In turn, this has an impact on consumers' behavioural intentions (Oyman et al., 2022). Chen et al. (2022) indicate that attitude toward use can be defined as the attitude that a user develops about a technological innovation whether favourable or unfavourable. It is reliant on the user's perception that utilising technology is beneficial and adds value (Holdack et al., 2022). Saleem et al. (2021) assert that attitude toward use is the best indicator of whether an individual will utilise new technology. A study conducted by Alam et al. (2022) explored the relationship between attitudes toward utilising AR and consumers' behavioural intention to adopt AR technology. The study revealed that users' behavioural intention to adopt AR increases as their attitude toward use increases. Saleem et al. (2021) emphasise that retailers must note that consumers perceive AR as useful and easy to use. This in turn influences their attitude and intention to use AR positively. Based on the above discussion, the below hypothesis is formulated:

H6: *Attitude toward use will significantly influence consumers behavioural intention to use AR applications in the South African e-commerce fashion industry*

2.8.7. Purchase intention

Purchase intention is a key concern for marketing researchers, as many companies' decisions come from the projection of consumer behaviour (Sohn & Kim, 2020). Wu et al. (2011) indicate that purchase intention refers to the likelihood or willingness of consumers to plan or engage in future purchases of specific products or services. It serves as a crucial attitudinal gauge indicating potential future contributions to a brand (Kim & Ko, 2012). Athapaththu and Kulathunga (2018) indicate that several factors influence consumer attitudes during the purchase intention process. These factors include the cost of products, brand trust by consumers, perception of consumers, and branded product quality (Yu, 2023). Watson et al. (2018), suggest that favourable affective conditions that include arousal, satisfaction, favourable emotion, and mood can increase purchase intentions. With its ability to stimulate consumer exploratory behaviour, AR technology has been found to directly influence purchase intention (Wang et al., 2021). Whang et al. (2021) posit that consumers who are not exposed to AR experiences during their purchasing journey tend to demonstrate weaker purchase intentions. Therefore, Li et al. (2002) indicate that purchase intention is a useful measure that is commonly utilised to anticipate a behavioural response from consumers. Additionally, Kim and Ko (2012) state that it measures the interest of consumers in and the likelihood of purchasing a product that is being sold.

Park and Kim (2021) explored the effect of AR try-on experiences on consumers' purchase intentions for fashion products in the retail sector. The findings suggest a positive relationship, indicating that consumers who engaged with AR try-on features were more likely to express an intention to purchase showcased products. Similarly, Ibrahim et al. (2023) studied the effect of AR technology on purchase intention. The results revealed that the use of AR as a marketing tool positively influences consumers' intention to purchase. Based on the above discussion, the below hypothesis is formulated:

H7: *Consumers behavioural intention to use AR applications will significantly influence consumers purchase intentions in the South African e-commerce fashion industry.*

2.8.8. Product involvement

Involvement refers to the extent of consumer interest, exploration, or intricate decision-making directed toward a particular item (Zaichkowsky, 2009). In the literature, this concept has been linked to different aspects, such as advertising involvement, purchase involvement, and product involvement (Trivedi et al., 2022). Several researchers have studied product involvement from different perspectives. Zaichkowsky (1985) introduced the concept of product involvement as a psychological state that reflects the perceived personal relevance of a product based on inherent needs, values, and interests. Mittal and Lee (1989) expanded this by defining product involvement as an individual's connection or significance attached to a product. Their proposition suggests that heightened product involvement triggers increased attention, information processing, and consumers' decision-making efforts.

Product involvement has been extensively explored in consumer behaviour research. It offers valuable insights into the characteristics and behavioural tendencies of different consumer groups (Kim, 2005). According to Hong (2015), the level of product involvement can be assessed based on product category. This level of involvement plays a pivotal role in shaping advertising and promotional strategies (Kim, 2005), as consumers with high product involvement tend to engage in more thorough information processing and decision-making (Hwang et al., 2020). However, existing studies have mainly focused on the direct effects of product involvement rather than the moderating influences (Serravalle et al., 2023).

Previous studies suggest that consumers with high product involvement often show an increased likelihood of making a purchase (Strubel & Petrie, 2016 as cited in Singh et al., 2021). However, consumers with low involvement are not interested in assessing the value of a product (Nagar, 2015). They may depend more on external cues such as the features offered by AR. However, few AR studies have examined contextual moderators (Lavoye et al., 2021), mainly in the e-commerce fashion industry in South Africa. By examining the moderating role of product involvement in AR application adoption in this context, this study contributes to bridging this gap in the literature.

Serravalle et al. (2023) indicate that recognising the significance of product involvement is essential for marketers, as it has a direct impact on the choices and actions of consumers. In this study, it is expected that consumers who are highly involved will demonstrate a stronger

behavioural response to stimuli (AR) than consumers who are less involved (Trivedi et al., 2022). Wahab et al. (2023) assert that novel fashion-savvy consumers are most likely to be highly involved in fashion. This is mainly because they are constantly looking for fresh styles, new colours, and brands. Thus, this study examines product involvement as a moderator. Based on the above discussion, the below hypothesis is formulated:

> ***H8:*** *Product involvement moderates the relationship between consumers attitude toward use and their behavioural intention to use AR applications in the South African e-commerce fashion industry.*

2.9. Conceptual model

Figure 3 presents the conceptual model. It is made up of nine constructs which include five predictor variables (perceived enjoyment, perceived ease of use, inspiration, customer innovativeness, and perceived usefulness), two mediators (attitude toward the use of AR applications and behavioural intention to use AR applications) an outcome (purchase intention) and a moderator (product involvement).

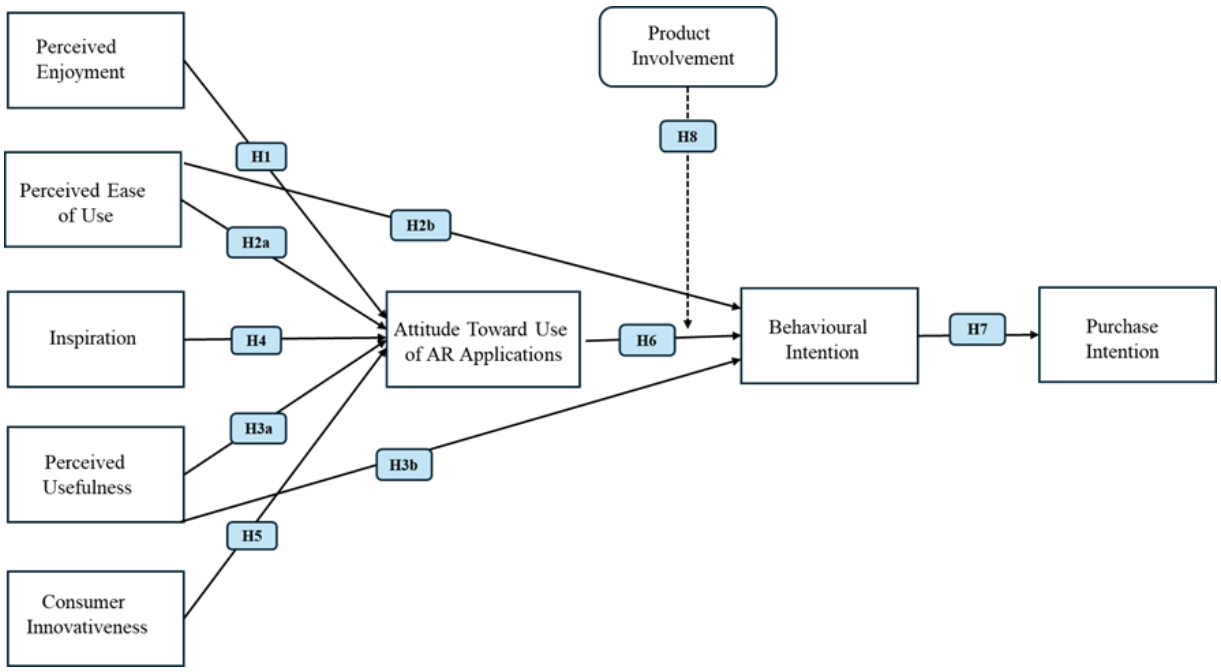


Figure 3: Conceptual model for the study

CHAPTER 3. RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents the approach used for gathering, analysing, and interpreting the data collected to ensure that the research aims are addressed. The aim is to offer a detailed explanation of how this study was conducted.

3.2. Research Philosophy

The research philosophy serves as an important foundation, delineating the core beliefs and assumptions that guide the entire research process (Tamminen & Poucher, 2020). It plays a pivotal role in shaping the overall approach, methodology, and interpretation of findings (Saunders et al., 2009). The literature indicates that there are three prominent research philosophies suggested by Saunders et al. (2007) which include positivism, interpretivism and pragmatism.

This study is guided by positivism research philosophy, aiming to identify, measure, and assess phenomena by providing logical explanations (Tariq, 2017). Positivism focuses on observable and measurable phenomena to derive knowledge. This approach allows for the use of statistical methods to analyse relationships between variables in the study (Saunders et al., 2007). Positivism is relevant to this study, as it aligns with the aim of investigating and measuring the relationships between the identified variables in this study. This is a widely recognised paradigm in quantitative research, which encourages the formulation of testable hypotheses and the use of empirical methods to either validate or invalidate these hypotheses (Saunders et al., 2009).

A quantitative-deductive-based analytical approach was employed in this study. Within this framework, a quantitative research approach was employed to quantify responses obtained from the questionnaire (Kothari, 2004). Simultaneously, deductive reasoning was used to collect, analyse, and interpret data, including the formulation of hypotheses to address specific research objectives (Streefkerk, 2023). This methodological choice ensures a systematic and structured inquiry into the subject matter, aligning with the positivist underpinnings of the research philosophy.

3.3. Research design

The research design outlines the systematic approach used to thoroughly investigate the research problem at hand (Kumar, 2014). In quantitative research, various types of designs exist, including descriptive, correlational, causal, and experimental designs (McCombes, 2023). Descriptive research, as indicated by Leedy and Ormrod (2015), involves analysing a situation without modifying it and does not aim to establish cause-and-effect relationships. Therefore, this study adopted a descriptive research design. This research design was selected because of its ability to provide a detailed and precise depiction of the features and actions of a specific population or subject. Through the observation and collection of data on a specific subject, descriptive research aids researchers in acquiring a better understanding of a specific problem. In addition, it offers useful perspectives that can guide future studies (Sirisilla, 2023).

3.4. Sampling strategy

This section outlines the population, target population and the strategies used in this study to attain a representative sample.

3.4.1. Population and Target Population

Population means the entirety of individuals or elements unified by a shared characteristic or trait (Willie, 2023). South Africa has a diverse population with a combination of residents in rural and urban areas. In this study, the population of interest were all consumers in South Africa who shops online. They are typically tech-savvy, prefer the convenience of online shopping, are fashionable and value the different option available online. This population represents the broader group across different age categories and socio-economic backgrounds. According to Barnsbee et al. (2018), the term "target population" refers to the refined subset of the general population selected to align with aims of the study. In this study, the target population consisted of South African online shoppers in Gauteng aged 18 years and older who shop online very often.

3.4.2. Sampling Method

This study adopted a non-probability sampling approach and used a convenience samples. This approach allows for the efficient collection of data from the respondents who are readily

available and meet the set criteria in the study for the target population (Cooper & Schindler, 2014). Although this method may present shortcomings such as sampling bias and limitation of generalizability of the research findings, it was considered to be the relevant method due to the specific requirements of the study. This method allowed easy access to a sample base that met the criteria. In addition, it is cost-effective and required less time than the alternative methods.

3.4.3. Sample Size

Garg et al. (2024) assert that the size of the sample used in the study affects the accuracy and generalizability of findings. This influences the level of confidence in the conclusions that can be made and may lead to biased results. Therefore, this study achieved a sample size of 324 respondents. This was enough for performing statistical analyses like hypotheses testing and multiple regression. Additionally, this sample size aligns with that of previous studies by reputable researchers. Furthermore, it is within the range of 265-343 participants obtained in similar previous studies, like those conducted by Alam et al. (2021) and Trivedi et al. (2022).

3.5. Data collection techniques

3.5.1. The Research Instrument

A structured online questionnaire was developed using Qualtrics. This was the main instrument for data collection that consisted of a defined set of closed-ended questions. The development of the research instrument involved a systematic process. The aim was to ensure validity, reliability, and relevance to the research objectives. Initially, a comprehensive review of existing literature was conducted to identify key constructs pertinent to the research study. This literature review served as the foundation for designing the research instrument. The instrument aimed at assessing predictor variables like, perceived enjoyment, perceived usefulness, perceived ease of use, inspiration, consumer innovativeness, attitude toward use and behavioural intention to use AR applications. A moderator variable, product involvement and outcome purchase intention. Items to measure these key variables were adapted from prior studies to enhance validity and allow comparability across findings in related studies. To target the specific aspect of the research model, the research instrument consisted of three (3) sections. Section 1 consisted of screening questions. Section 2 collected demographic details of respondents. Finally, Section 3 measured the key variables of this study.

3.5.1.1. Screening

A set of screening questions were included at the start of the research instrument. This was mainly to filter the participants who meets target population criteria. The criteria had four questions, and the participants had to meet all the requirements to continue to participate in the study. This assisted in ensuring that the data collected was relevant and in line with the objectives of the study.

3.5.1.2. Demographics

The respondents' demographic details such as age, household income, education, gender and online shopping behaviour were collected. This data assisted in gaining insights on the characteristics of the sample population. The results are presented in the next chapter.

3.5.1.3. Constructs Measures

The items used in this study were measured using a five-point Likert scale. This provided the respondents with five potential responses to each question on the research instrument. The approach aligns with previous studies in the field of technology adoption and consumer behaviour. Each construct, their sources and the number of items used are discussed below.

3.5.1.3.1. Perceived enjoyment (PE)

The items for this construct were adapted from a study by Alam et al. (2022) on consumers intentions to use AR in the context of online shopping. Three items were used to measure the degree to which perceived enjoyment influence consumer attitude toward use.

3.5.1.3.2. Perceived ease of use (PEU)

For this construct, four items were used to measure the perceived ease of use of AR applications. These items were adapted from Saleem et al. (2021) study on consumers behavioural intention to use AR applications.

3.5.1.3.3. Inspiration (I)

The items for this construct were adapted from previous studies that focused on motivational influence of technology on the buying decisions of consumers. These studies included a study

by Böttger et al. (2017) and Rauschnabel et al. (2019) and the construct was measured using four items.

3.5.1.3.4. Perceived usefulness (PU)

The items for this construct were adapted from the study by McLean and Wilson (2019). As such, five items were used to measure the level to which AR enhances task efficiency and the overall value in online fashion buying.

3.5.1.3.5. Consumer innovativeness (CI)

Consumer Innovativeness measured the degree of which the respondents are prepared to try new technologies such as AR as a new shopping tool. This construct was measured using five item scale adapted from previous studies (Goldsmith and Hofacker, 1991; Citrin et al., 2000 as cited in; Manzano et al., 2009).

3.5.1.3.6. Attitude toward use (ATU)

The items for this construct were also derived from the study by Saleem et al. (2021). Four items were used to measure the respondents' views toward use of AR application in online shopping.

3.5.3.7. Behavioural Intention (BI)

Behavioural intention to use AR was measured using four items adapted from previous studies on AR technology acceptance (Rauschnabel & Ro, 2016; Saleem et al., 2021). This was mainly to assess the likelihood of respondents adopting AR in future when shopping for fashion items online.

3.5.1.3.8. Purchase intention (PI)

Purchase intention was measured with four items adapted from previous studies (Hwang et al., 2020; Mainardes et al., 2019; Pappas et al., 2017). This was to measure the chances of respondents completing a purchase after using AR in online shopping.

3.5.1.3.9. Product involvement (PINV)

This construct was a moderator in this study, and it measured the personal importance of fashion items to respondents. Four items were adapted from previous studies (Kim, 2005; Trivedi et al., 2022).

3.5.2. Pilot Testing

Kothari (2004) recommends that the research instrument must be tested by conducting a pilot study. A pilot study is normally conducted before the main study, using few respondents to look at the practicality of the proposed research design (Leedy & Ormrod, 2015). To avoid instituting a big scale study in the absence of adequate understanding of the proposed methodology, a pilot study was carried out to determine the validity and reliability of the proposed research instrument (Leedy & Ormrod, 2015). A convenience sample of 51 respondents made up of friends and colleagues was recruited. Respondents were requested to complete the survey and provide feedback. The survey link created using Qualtrics was shared with respondents using QR Code and instant messaging platform (WhatsApp). Although, the pilot study attracted 52 respondents, 11 respondents did not meet the criteria as a result they got disqualified during the screening phase, and 10 respondents did not fully complete the survey. Therefore, only 31 responses were considered to test the reliability of the research instrument.

3.5.2.1. Pilot Testing Feedback

The feedback from most of the respondents were positive with some of them indicating few areas of improvements in the instrument. This included minor grammatical issues on some questions. As a result, minor grammatical errors were rectified to improve clarity of the questions prior to conducting the main study. Only few respondents highlighted that the instrument was long to complete. However, the length of the instrument was not revised. It was necessary to keep it as it was, to ensure that research objectives of the study are met.

3.5.2.2. Reliability and validity results of pilot study

The pilot study allowed computation of preliminary Cronbach's alpha values for each scale. Cronbach's alpha is indicated as a numerical value between 0 and 1. It is a used to demonstrate internal consistency of a test or scale (Tavakol & Dennick, 2011). To test the reliability,

Cronbach alpha values were computed using SPSS. Table 1 indicates that the alpha values of all constructs were within the acceptable range of 0.70 to 0.95 (Tavakol & Dennick, 2011).

Table 1: Pilot Testing Reliability Results

Construct	Cronbach's Alpha
Perceived Enjoyment	,930
Perceived ease of use	,887
Perceived Usefulness	,777
Inspiration	,868
Consumer innovativeness	,923
Attitude toward use of AR applications	,845
Behavioural Intention to use AR applications	,885
Product involvement	,917
Purchase Intention	,864

3.5.3. Data Collection Procedure

An online survey platform known as Qualtrics was used to administer the final questionnaire. The data collection was done over a period of 6 weeks to allow enough time for recruiting participants and allowing them to complete the survey. During the data collection phase, the survey link was shared using Facebook to recruit potential participants. This approach was chosen for this reason, it is a cost-effective and efficient way to collect data. To increase participation in the study and target relevant participants, a targeted advertising was used on Facebook. This allowed the survey link to reach a more specific audience relevant to the study and improved the relevance of data gathered. To ensure that relevance and data quality, the participants had to meet a defined criterion. Participants were required to be between 18 years and older and only individuals who shops online very often were eligible to participate. Additionally, participants had to be Gauteng residents. Therefore, those who did not meet this criterion were automatically excluded.

3.6. Ethical considerations

To ensure ethical practices throughout the study, all procedures followed adhered to the rules and guidelines established by the university to protect the participants' rights. Prior to collecting data, ethical clearance was obtained from the Wits University, ensuring that the research is conducted with integrity.

To ensure voluntary participation, each participant was required to provide their consent before taking part in an online survey. This served as evidence that they have willingly chosen to participate in the study. Participants were informed that they are free to withdraw from the study at any point without facing any negative consequences.

Maintaining confidentiality was a top priority. Participants were informed that their data will be used solely for academic purposes. Additionally, the participants were encouraged not to provide their personal details such as identity numbers, contact numbers, names, and surnames. The data collected was secured through an electronic platform that housed the questionnaire and the responses. This platform can only be accessed with a password.

3.8. Reliability and validity

When assessing a measurement instrument or tool for research, the vital factors to consider are reliability and validity (Mohajan, 2017). It is important that research instruments demonstrate both reliability and validity to ensure the credibility of the research findings (Sullivan, 2011).

3.7.2.1. Reliability

Reliability refers to the consistency of results produced by an assessment instrument when used repeatedly in the same context with similar subjects (Heale & Twycross, 2015; Sullivan, 2011). There are three vital aspects of reliability: internal consistency, stability, and equivalence (Heale & Twycross, 2015). In this study, the internal consistency was assessed by calculating Cronbach's alpha using SPSS 28 software. Cronbach's alpha yields a numerical value ranging from 0 to 1, with a score of 0.7 or higher considered acceptable reliability (Heale & Twycross, 2015). In addition, the study used Composite Reliability (CR) to measure internal consistency.

3.7.2.2. Validity

Validity in a quantitative study is the measure of how accurately a concept is assessed (Heale & Twycross, 2015). Specifically, for outcome measures like surveys or tests, validity pertains to the precision of the measurement, reflecting how well the assessment tool captures the underlying outcome of interest (Sullivan, 2011). Heale and Twycross (2015) identify three primary types of validity: Content validity, construct validity, and Criterion validity. To assess validity, the study focused on construct validity, which include convergent validity and discriminant validity (Bhandari, 2023). These two types of construct validity were used to scrutinise the accuracy and relevance of the assessment tool, ensuring that it effectively measures the intended outcome of interest.

3.8. Limitations of the study

This research was specifically concentrating on the South African e-commerce fashion industry, potentially restricting the applicability of the findings to different industries or geographical areas. The target demographic for this study were respondents residing in the Gauteng province. The decision to exclude individuals from the other eight (8) provinces may be a hindrance for achieving a more comprehensive perspective in this study. The utilisation of self-reported data from consumers introduces the possibility of response bias. Participants may offer socially desirable responses or may not accurately remember or report their real behaviour. Furthermore, the sample of was only collected via Facebook by using organic and paid advertising to maximise reach of relevant respondents. This introduced a potential sampling bias.

3.9. Chapter summary

In this chapter, all the pivotal elements of the study were fully discussed and outlined. This includes the research philosophy, research design, data collection method, sampling, data analysis and the ethical considerations. The next chapter will present the empirical findings derived from data analysis.

CHAPTER 4: PRESENTATION OF RESULTS

4.1. Introduction

This chapter presents the findings of the study. First, the chapter provides an overview of results of demographic profile of respondents. This is followed by the presentation of Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) results obtained using SPSS 29 and AMOS 29. Finally, the results of hypothesis testing are presented.

4.2. Demographic Profile of the Respondents

4.2.1. Gender

The chart in Figure 4 illustrates the gender distribution of the respondents. The research findings indicate that 65% (n=210) of the respondents were females, while only 35% (n=114) were males.

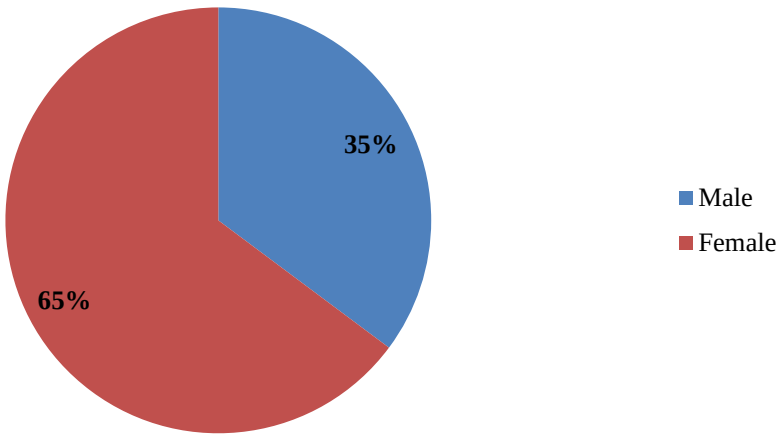


Figure 4: Gender distribution of the respondents

4.2.2. Age

The graph in Figure 5 shows the distribution of respondents across different age categories. The findings indicate that most of the respondents fell within the 35-44 age category,

comprising 39% (n=125) of the total sample. Following closely behind, were the respondents in the 25-34 age category, accounting for 37% (n=119) of the total respondents. The other age categories, such as 45 years and above, consisted of 16% (n=52) of the respondents, while 18-24 age group comprised 9% (n=28) of the total respondents.

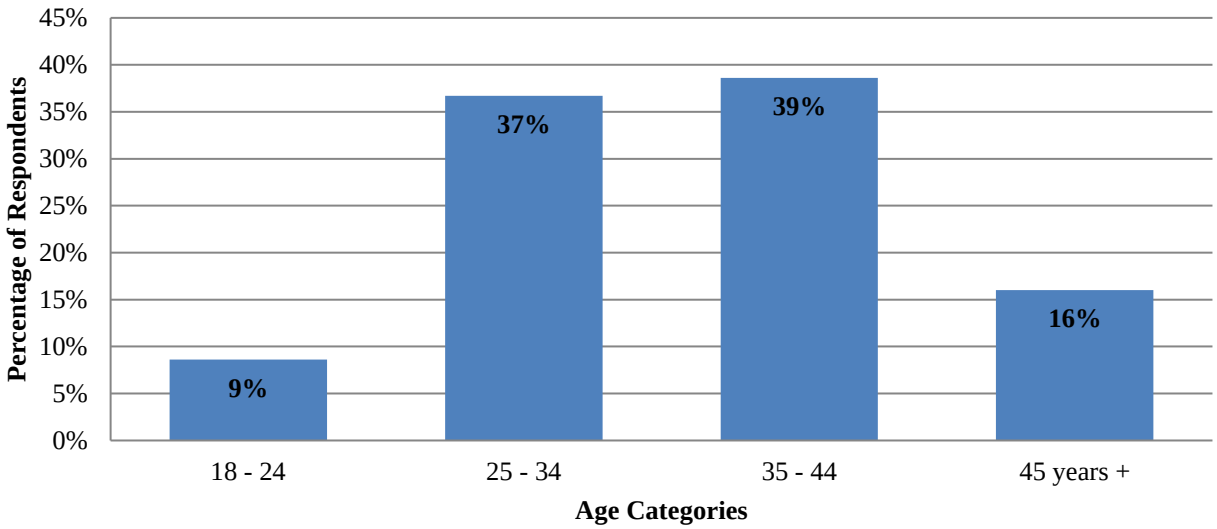


Figure 5: Age categories of respondents

4.2.3. Racial Profile

Table 2 illustrates the racial profile of the respondents. The research findings indicate that most of the respondents were African, making up 83% (n=269) of the total sample and 7% (n=23) were White. The coloured race also comprises of 7% (n=23) of the respondents, while the Indian race makes up 2% (n=7) of the sample. In addition, 0.6% (n=2) of respondents were from other races.

Table 2: Racial profile of the respondents

Race	Frequency	Percentage
African	269	83
Coloured	23	7.1
Indian	7	2.2
White	23	7.1
Other	2	0.6
Total	**324**	**100**

4.2.4. Educational Level

Most of the respondents, 27% (n=88) indicated that they have completed a Diploma. This is followed by 24% (n=77) of the respondents who indicated that they have completed a bachelor's degree, while 23.5% (n=76) indicated that they have completed a Matric. In addition, 21% (n=68) of the respondents indicated that they have completed Postgraduate Degree, while only 5% (n=15) of the respondents have indicated that they have completed other level of education. The results are depicted on the graph below in Figure 6.

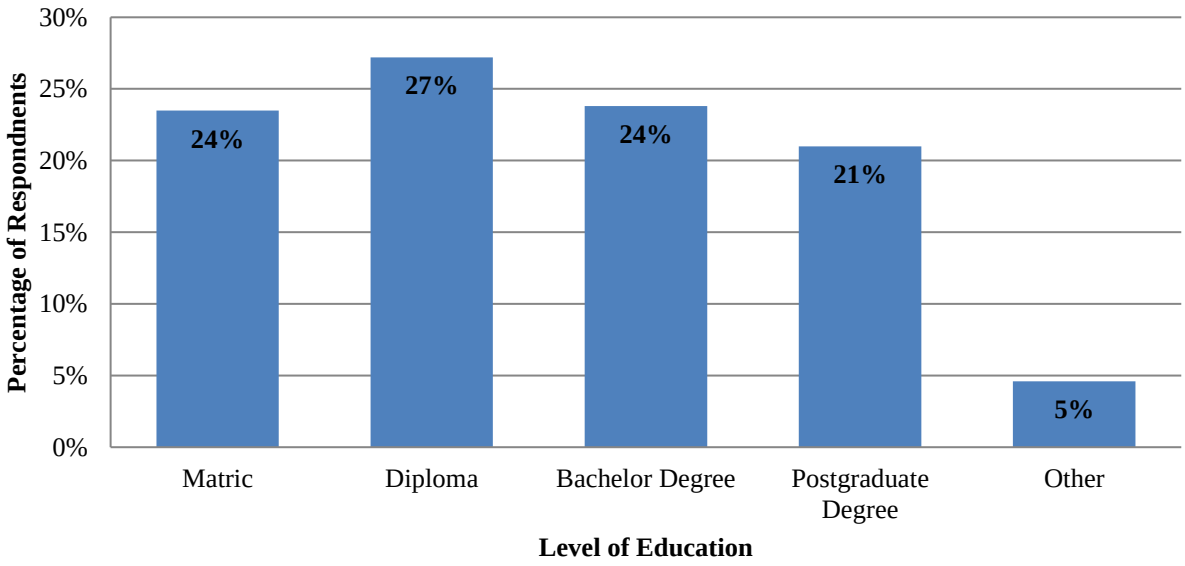


Figure 6: Level of education

4.2.5. Monthly Household Income

The research findings as illustrated in Table 3 indicate that 34% (n=110) of the respondents has a monthly household income of between R10 001-R25 000. This is followed by 23.1% (n=75) of the respondents with monthly household income of between R25 001-R52 000 and 17.6% (n=57) have monthly household income of between R5001-R10 000. In addition, 14.2% (n=46) of the respondents have monthly household income of R52 001 or more, while only 11.1 % (n=36) of the respondents have the monthly household income of between R0-R5000.

Table 3: Monthly household income of respondent

Monthly Household Income	Frequency	Percentage
R0-R5000	36	11,1
R5001-R10 000	57	17,6
R10 001-R25 000	110	34,0
R25 001-R52 000	75	23,1
R52 001 +	46	14,2
Total	**324**	**100**

4.2.6. Online shopping behaviour

The graph in Figure 7 shows the online shopping behaviour for fashion items of the respondents. The research findings indicate that most of the respondents shop for fashion items online once a month, making up 41% (n=134) of the total sample. This is followed by 25% (n=80) of the respondents who indicated that they shop for fashion items online occasionally. Furthermore, 19% (n=62) of the respondents indicated that they shop for items online seasonally and 10% (n=33) indicated that they shop for fashion items online only when needed. While 5% (n=15) of the respondents indicated that they rarely shop for fashion items online.

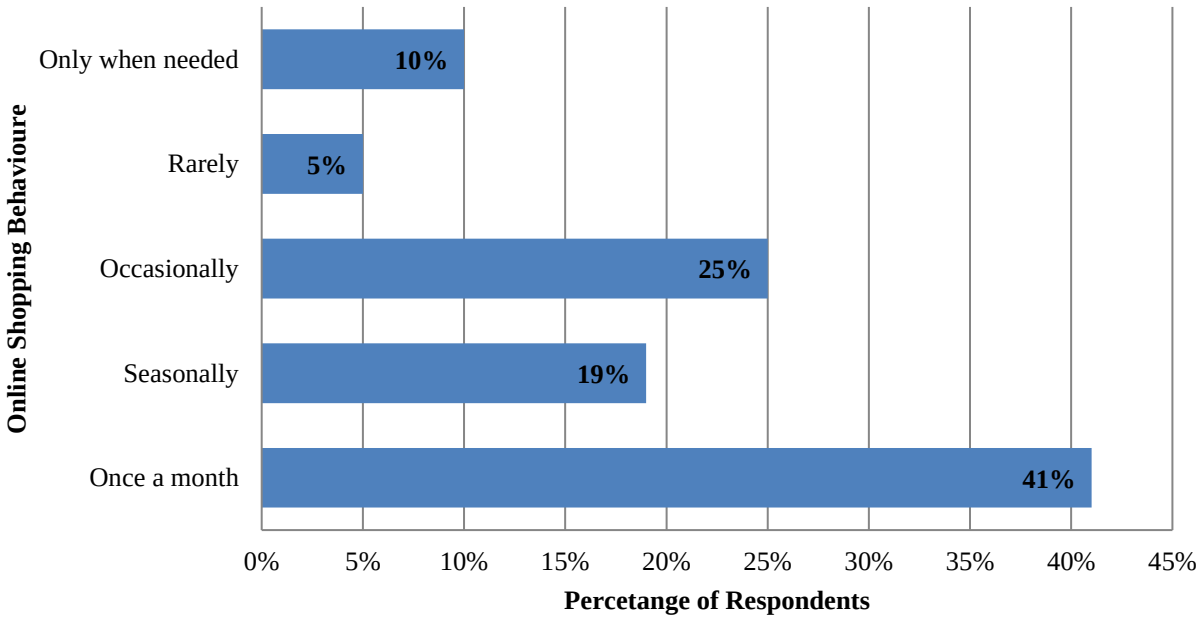


Figure 7: online shopping behaviour for fashion items

4.2.7. Most used online platforms to buy fashion items

Table 4 presents the results on the most used online platforms for buying fashion items by respondents. Of the respondents, 20.4% (n=66) use Takealot, while 17.9% (n=58) use Shein. In addition, 14.5% (n=47) indicated that they use Superbalist, and 12.3% (n=40) indicated that they use other platforms. The remaining 34.9% (n=113) of respondents split their preference across different platforms as follows: Woolworths (8.6%), Bash (7.1%), Mr Price (6.8%), Temu (4.3%), Zara (3.7%), Zando (2.8%), H&M (0.9%) and Cotton On (0.6%).

Table 4: Most used online platforms to buy fashion items by respondent

Online platforms	Frequency	Percent
Takealot	66	20,4
Superbalist	47	14,5
Bash	23	7,1
Woolworths	28	8,6
Cotton On	2	0,6
Temu	14	4,3
Shein	58	17,9
Zando	9	2,8
Mr Price	22	6,8
Zara	12	3,7
H&M	3	0,9
Other	40	12,3
Total	**324**	**100**

4.3. Measurement Scale: Descriptive statistics

This section presents the descriptive statistics of measurement scales. In this study, each construct was measured using multi-item scale adapted from the literature. The responses were recorded on a 5-point Likert scale ranging from strongly disagree to strongly agree.

4.3.1. Perceived enjoyment

Perceived enjoyment was assessed using three measurement items scale. Table 5 presents the results for each item. Majority of respondents have indicated that they enjoy using AR when shopping for fashion items online. This is consistent across all measurement items. When respondents were asked if they have fun using AR during online shopping process, 54% of respondents agreed and 28% strongly agreed. While only 3% of respondents reported some level of disagreement (2% strongly disagreed and 1% disagreed). This finding aligns with previous studies that suggest that users not only use new technologies to improve performance but also to experience enjoyment (To & Trinh, 2021).

Table 5: Perceived enjoyment (PE)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I enjoy online platforms that use augmented reality technology when shopping for fashion items.	3%	2%	13%	53%	29%
I find the shopping process pleasant on online platforms that use augmented reality technology for fashion items.	2%	2%	12%	52%	32%
I have fun utilising augmented reality technology during the online shopping process.	2%	1%	15%	54%	28%

4.3.2. Perceived ease of use (PEU)

Perceived ease of use measured how easy it is for respondents to navigate and interact with the AR features in online shopping platforms. The construct was measured using four items. The findings as presented in Table 6 indicates that respondents find AR in online shopping platforms to be accessible and easy to use. Mainly, 49% of respondents agreed and 34% of respondents strongly agreed that their interaction with AR is clear and understandable.

Table 6: Perceived ease of use (PEU)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
For me, it is easy to learn how to use augmented reality technology in online shopping platforms.	1%	4%	13%	48%	34%
I find it easy to get augmented reality technology to do what I want it to do when doing my online shopping.	1%	3%	19%	45%	31%
For me, it is easy to become skilful at using augmented reality technology on online shopping platforms	2%	3%	13%	47%	36%
My interaction with augmented reality technology is clear and understandable.	2%	3%	13%	49%	34%

4.3.3. Perceived usefulness (PU)

Perceived usefulness was assessed using five measurement items. Each item targeted a separate aspect of perceived benefit from AR. This is a vital construct that measured the degree of which the respondents feel that AR improve their online shopping experience. Majority of respondents indicated a positive perception of AR's utility. This is consistent across all measurement items. The results presented in Table 7 indicates that respondents find AR as a useful tool to improve online shopping efficiency and decision making when shopping for fashion items. For instance, 53% of respondents agreed and 29% of respondents strongly agreed with this statement, "Utilising the augmented reality feature on online shopping platforms makes it easier to shop for fashion items." This finding confirms that individuals are most likely to adopt a technology if they perceive it to be useful in improving their productivity, efficiency, or overall performance (Venkatesh & Davis, 2000).

Table 7: Perceived usefulness (PU)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Utilising the augmented reality feature on online shopping platforms allows me to shop for fashion items faster.	2%	3%	23%	46%	27%
Utilising the augmented reality feature on online shopping platforms enhances my shopping performance.	2%	3%	18%	49%	28%
Utilising the augmented reality feature on online shopping platforms makes it easier to shop for fashion items.	2%	3%	14%	53%	29%
I find the augmented reality feature on online shopping platforms useful when shopping for fashion items.	2%	2%	11%	58%	28%
Utilising the augmented reality feature on online shopping platforms increases my shopping productivity.	2%	4%	22%	49%	24%

4.3.4. Inspiration

Inspiration was evaluated using four items. This construct measured whether AR stimulates creative and explorative shopping behaviour when shopping fashion items. Majority of respondents reported a sizeable level of agreement that AR improves their shopping creativity. The findings are presented in Table 8. When respondents were asked if AR stimulate their thinking when shopping for fashion items on online platforms, 56% of respondents agreed and 25% of respondents strongly agreed. The findings align with the assertion by Hinsch et al. (2020), that AR can offer experiences that can inspire consumers.

Table 8: Inspiration (I)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The online shopping platform with augmented reality technology inspires me when shopping for fashion items.	2%	2%	17%	54%	25%
The online shopping platform with augmented reality technology stimulates my thinking when shopping for fashion items.	2%	3%	15%	56%	25%
The online shopping platform with augmented reality technology gives me new ideas and views when shopping for fashion items.	2%	2%	17%	53%	28%
The online shopping platform with augmented reality technology broadens my horizons when shopping for fashion items.	1%	3%	19%	55%	23%

4.3.5. Consumer Innovativeness

Consumer Innovativeness measured the degree of which the respondents are prepared to try new technologies such as AR as a new shopping tool. Five measurement items were used to assess this construct, and the results are presented in Table 9. The findings show that majority of respondents are receptive of using AR in online shopping when shopping for fashion items. For instance, 48% of respondents agreed and 33% strongly agreed with this statement, “If I heard that a new technology feature was available on the online shopping platform, I would be interested to test it.” This indicates a positive attitude toward the adopting the technology.

Table 9: Consumer Innovativeness (CI)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Usually, I am the first person in my group of friends to attempt experimenting with new features on online shopping platforms.	2%	11%	19%	37%	30%
If I heard that a new technology feature was available on the online shopping platform, I would be interested to test it.	1%	3%	15%	48%	33%
I am ahead of most people in my circle of friends with new technological features on online shopping platforms.	1%	9%	18%	37%	35%
I would use a new technology feature on an online shopping platform even if no one has tried it in my circle of friends.	2%	5%	13%	45%	36%
Usually, I am the first person in my group of friends to know of new technology features on online shopping platforms.	3%	8%	22%	33%	35%

4.3.6. Attitude Toward Use

Attitude toward use of AR applications was measured using four items. Table 10 presents the results for each item. Majority of respondents were found to have a positive attitude toward use of AR in online shopping. When respondents were asked this question “Shopping for fashion items online using a platform with an augmented reality feature is a good idea”, 56% of respondents agreed and 31% of respondents strongly agreed. While only 2% of respondents reported some level of disagreement (disagree 1% and strongly disagree 1%) and only 11% of respondents were undecided.

Table 10: Attitude toward use (ATU)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am enthusiastic about online shopping platforms with an augmented reality feature.	1%	2%	16%	50%	31%
The idea of using augmented reality in online shopping platforms is so interesting that I want to learn more about it.	1%	3%	13%	50%	33%
Shopping for fashion items online using a platform with an augmented reality feature is a good idea.	1%	1%	11%	56%	31%
It makes sense to use augmented reality when shopping for fashion items online.	2%	3%	11%	53%	31%

4.3.7. Behavioural Intention (BI)

Behavioural intention to use AR applications was measured using four measurement item scale. This was mainly to assess the likelihood of respondents adopting AR in future when shopping for fashion items online. The findings are presented in Table 11 and majority of respondents have shown a favourable intention to use AR in future. For instance, 56% of respondents agreed and 28% strongly agreed with this statement, "I will regularly use augmented reality in the future to shop for fashion items online." While only 4% of respondents indicated some level of disagreement (1% strongly disagree and 3% disagree) and only 13% of respondents were undecided.

Table 11: Behavioural Intention (BI)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I will regularly use augmented reality in the future to shop for fashion items online.	1%	3%	13%	56%	28%
I think it will be helpful for me to use augmented reality when buying fashion items online.	1%	3%	13%	56%	28%
I will recommend using augmented reality to my friends.	1%	1%	11%	57%	30%
I am willing to use augmented reality when shopping for fashion items online.	1%	2%	9%	59%	30%

4.3.8. Product Involvement (PINV)

Product involvement was measured using three measurement items and the results are presented in Table 12. Majority of respondents have shown a high degree of involvement with fashion items. For instance, 45% of respondents agreed and 38% strongly agreed with the statement, "I have a strong interest in fashion items." Previous studies have shown that consumers with high product involvement tend to engage in more thorough information processing and decision-making (Hwang et al., 2020).

Table 12: Product Involvement (PINV)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I like to buy fashion items.	0%	1%	12%	45%	42%
It does not have to be a special occasion to buy fashion items.	1%	3%	15%	51%	31%
I have a strong interest in fashion items.	0%	3%	15%	45%	38%

I attach great importance to the fashion items I buy.	0%	4%	14%	45%	36%
Fashion items are a pleasure to me.	0%	3%	14%	49%	34%

4.3.9. Purchase intention (PI)

Purchase intention was measured with four items to gauge the chances of respondents completing a purchasing after using AR in online shopping. The results are presented in Table 13, demonstrating that majority of respondents are likely to be influenced by AR to purchase fashion items online. 55% of respondents agreed and 22% strongly agreed with this statement, "I would think about buying a fashion item online after experiencing it with augmented reality technology". This indicates that that AR applications could enhance customer tendency to follow through with a purchase after engaging with it. Therefore, this demonstrates that AR could be a valuable tool in influencing online shopping behaviour of consumers.

Table 13: Purchase intention (PI)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
In the future, I intend to buy fashion items online using augmented reality technology.	1%	3%	16%	49%	32%
My general intention to buy fashion items online using augmented reality is very high.	1%	3%	20%	51%	25%
I would think about buying a fashion item online after experiencing it with augmented reality technology.	2%	3%	19%	55%	22%
I am likely to use augmented reality when buying fashion items online.	1%	3%	14%	58%	25%

4.4. Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was performed using AMOS 29 to assess the measurement model and relationship between observed variables and latent constructs. It is an important step in assessing whether the data fits the hypothesised factor structure based on theoretical expectations (Goretzko et al., 2024). Several widely accepted fit indices were used to assess the adequacy of the model, and the results are summarised in Table 14 below, including the thresholds for model fit indices recommended by Browne and Cudeck (1993) and Hu and Bentler (1999). The model demonstrated a good fit with the data. The CFI, TLI and IFI values were above the recommended threshold of 0.90. The RMSEA values also fell within the acceptable range.

Table 14 Model Fit Results For CFA

Measure	Acceptable Value	Value
Chi-Square (χ^2)	< 3	2.033
RMSEA	< 0.08	0.057
Goodness of Fit (GFI)	≥ 0.90	0.837
CFI	≥ 0.90	0.939
TLI	≥ 0.90	0.931
IFI	≥ 0.90	0.939

4.5. Reliability and Validity Measurement

This section presents the test results of reliability and validity of the measurement instrument used in the study. A measure is considered reliable if it consistently yields the same results. Although, reliability is important for accuracy, it is not enough on its own to guarantee validity (Cooper & Schindler, 2014). To test reliability, two key measures were used: Cronbach's Alpha and Composite Reliability (CR). For validity, the Average Variance Extracted (AVE) is used to assess how well the constructs capture the variance in the data, a measure known as convergent validity.

4.5.1. Reliability

4.5.1.1. Cronbach Alpha

Cronbach's Alpha was used to assess the reliability of internal consistency of a set of items in a survey or measurement scale. There are different opinions on what is considered an acceptable alpha value, a value above 0.70 is normally considered acceptable, with higher values indicating better reliability (Tavakol & Dennick, 2011). As shown in Table 15, all constructs show Cronbach's Alpha values above the acceptable threshold of 0.70, indicating that the items for each construct are reliable and internally consistent.

Table 15: Reliability Results

Construct	Cronbach's Alpha	Number of Items
Perceived Enjoyment (PE)	0.89	3
Perceived Ease of Use (PEU)	0.92	4
Perceived Usefulness (PU)	0.93	5
Inspiration (I)	0.88	4
Consumer Innovativeness (CI)	0.89	5
Attitude Toward Use (ATU)	0.89	4
Behavioural Intention (BI)	0.91	4
Product Involvement (PINV)	0.88	4
Purchase Intention (PI)	0.88	4

4.5.1.2. Composite Reliability and Average Variance Extracted

Composite Reliability (CR) reflects the internal consistency of the construct, with higher values indicating higher reliability (Haji-Othman & Yusuff, 2022). According to Hair et al. (2019), a CR value of 0.70 or higher is desirable. All constructs show composite reliability above the acceptable threshold, signifying overall reliability of the constructs.

Average Variance Extracted (AVE) indicates the amount of variation shared between constructs and its indicators (Hair et al., 2019). Hair et al. (2019) recommends AVE value to be 0.5 or higher, and all constructs exceed the recommended minimum of 0.50, indicating that

the constructs adequately capture the variance of their indicators and possess good convergent validity. The results are presented in Table 16 below.

Table 16: Factor Loading, CR and AVE Results

	Factor Loading	CR	AVE
Perceived Enjoyment		**0.887**	**0.724**
PE1	0.818		
PE2	0.877		
PE3	0.856		
Perceived Ease of Use		**0.916**	**0.732**
PEU1	0.847		
PEU2	0.860		
PEU3	0.882		
PEU4	0.832		
Perceived Usefulness		**0.928**	**0.719**
PU1	0.794		
PU2	0.843		
PU3	0.880		
PU4	0.874		
PU5	0.847		
Inspiration		**0.879**	**0.646**
I1	0.857		
I2	0.804		
I3	0.804		
I4	0.745		
Consumer Innovativeness		**0.890**	**0.620**
CI1	0.727		
CI2	0.716		
CI3	0.843		
CI4	0.768		
CI5	0.870		
Attitude Toward Use		**0.892**	**0.673**

ATU1	0.835		
ATU2	0.785		
ATU3	0.838		
ATU4	0.822		
Behavioural Intention		**0.908**	**0.713**
BI1	0.852		
BI2	0.847		
BI3	0.848		
BI4	0.830		
Product Involvement		**0.880**	**0.648**
PINV1	0.734		
PINV2	0.844		
PINV3	0.778		
PINV4	0.857		
Purchase Intention		**0.883**	**0.655**
PI1	0.872		
PI2	0.800		
PI3	0.697		
PI4	0.857		

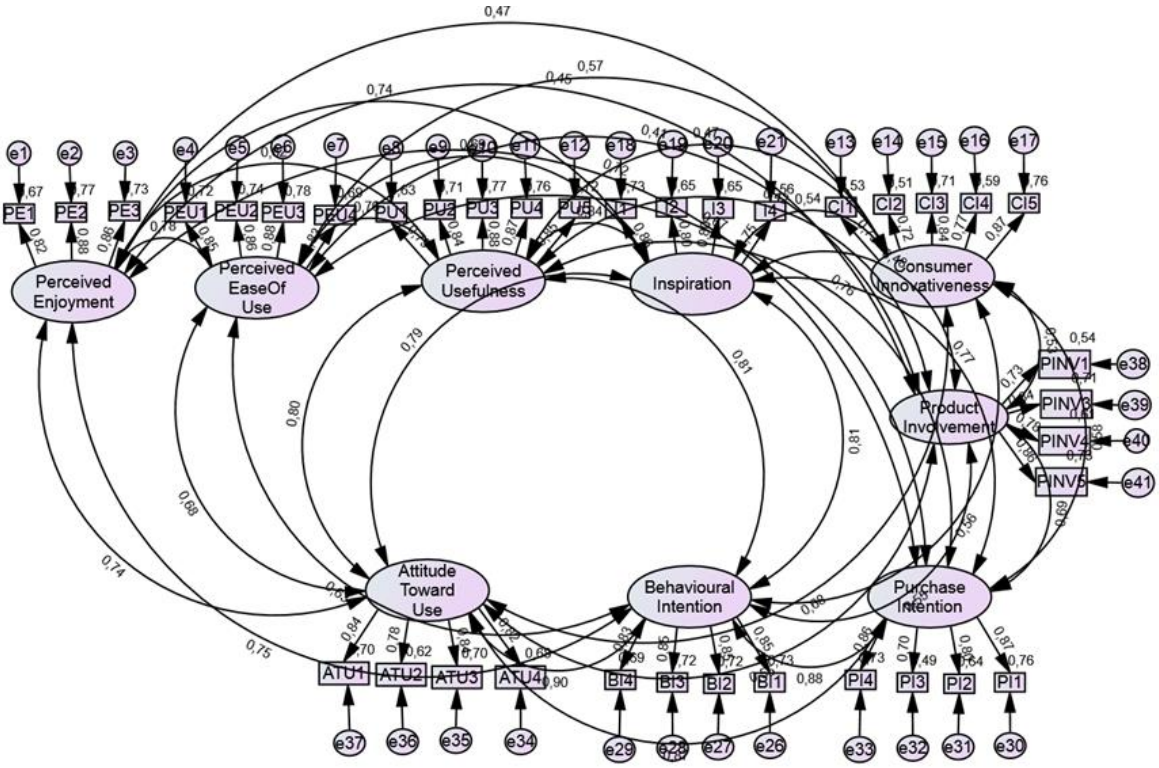


Figure 8: CFA Model

4.5.2. Validity

4.5.2.1. Convergent Validity

All constructs were assessed for convergent validity. The AVE values as indicated in Table 4.5 exceeded the recommended threshold, indicating that the items in each construct are satisfactory correlated and that the model shows good convergent validity.

4.5.2.2. Discriminant Validity

To assess the validity of the research constructs, discriminant validity was tested using the Heterotrait-Monotrait Ratio (HTMT). According to Henseler et al. (2015), the HTMT values should be below 0.90 for constructs to be considered sufficiently distinct. However, a more conservative threshold of 0.85 is at times recommended. As indicated in Table 17 all values are below 0.90 except one value which is slightly exceeds the recommend threshold. These results indicate that discriminant validity is achieved.

Table 17: Heterotrait-Monotrait Ratio (HTMT)

	PINV	ATU	PI	BI	I	CI	PU	PEU	PE
PINV									
ATU	0.551								
PI	0.693	0.875							
BI	0.553	0.905	0.886						
I	0.483	0.787	0.773	0.812					
CI	0.535	0.677	0.584	0.565	0.545				
PU	0.416	0.798	0.757	0.808	0.838	0.467			
PEU	0.408	0.680	0.670	0.625	0.690	0.574	0.759		
PE	0.459	0.744	0.719	0.747	0.743	0.471	0.824	0780	

4.6. Structural Equation Modelling

After assessing the measurement model through CFA, Structural Equation Modelling (SEM) was used to test the hypothesised relationships between the constructs. SEM enables simultaneous analysis of different relationships. It offers a thorough assessment of both direct and indirect effects between variables (Ullman & Bentler, 2012). The same set of fit indices employed for the CFA were used to evaluate the structural model as indicated in Table 18. The structural model also demonstrated a good fit with the data. The CFI, TLI and IFI values were above the recommended threshold of 0.90. The RMSEA values also fell within the acceptable range.

Table 18: SEM Model Fit Results

Measure	Acceptable Value	Value
Chi-Square (χ^2)	< 3	2.135
RMSEA	< 0.08	0.059
Goodness of Fit (GFI)	≥ 0.90	0.828
CFI	≥ 0.90	0.931
TLI	≥ 0.90	0.924
IFI	≥ 0.90	0.932

4.6.1. Path Coefficient

For each hypothesised path, standardised estimate, standard errors (SE) and t-value were calculated. The significance of these paths was evaluated at the 0.05 level. Seven of the ten proposed hypotheses were supported while the remaining three were not supported. Table 19 presents the findings of the hypothesis testing.

Table 19: Hypothesis Testing Results

Path Analysis		Standardised Estimate	S.E.	t-value	P-value	Outcome
Attitude Toward Use	← Perceived Enjoyment	0.192	0.073	2.392	0.017	**Supported**
	← Perceived Ease of Use	-0.089	0.065	-1.256	0.209	Not Supported
	← Perceived Usefulness	0.318	0.093	3.258	0.001	**Supported**
	← Inspiration	0.238	0.079	2.905	0.004	**Supported**
	← Consumer Innovativeness	0.281	0.046	5.298	***	**Supported**
Behavioural Intention	← Attitude Toward Use	0.784	0.071	11.065	***	**Supported**
	← Perceived Usefulness	0.252	0.064	3.785	***	**Supported**
	← Perceived Ease of Use	-0.072	0.048	-1.386	0.166	Not Supported
Purchase Intention	← Behavioural Intention	0.911	0.056	17.621	***	**Supported**

4.6.1.1. Moderation Analysis

The moderating role of product involvement (PINV) on the relationship between attitude toward use (ATU) and behavioural intention (BI) was assessed. The results as presented in

Table 20 indicate an insignificant moderating role impact of PINV on the relationship between ATU and BI. Therefore, PINV does not moderate the relationship between ATU and BI.

Table 20: Moderation Analysis Results

Path Analysis	Standardised Estimate	S.E.	t-value	P-value	Outcome
Behavioural Intention ← CentreATUxPINV	0.743	0.031	-4.666	0.865	Not Supported

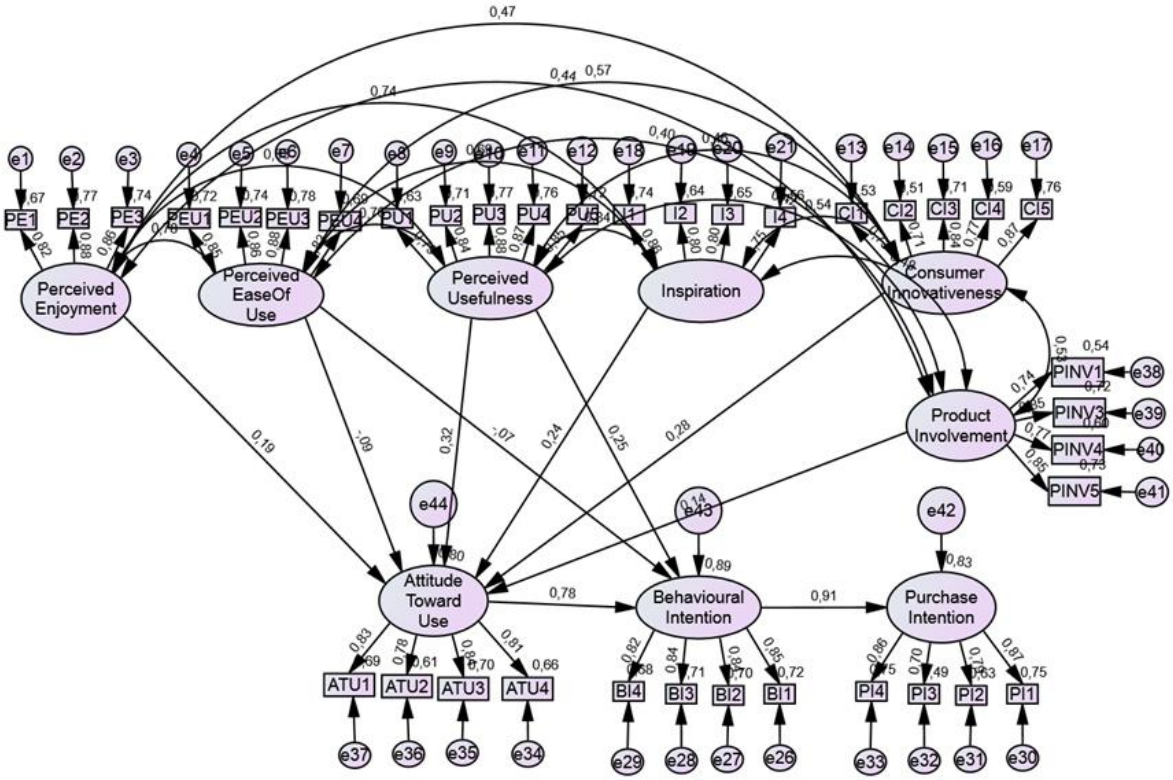


Figure 9: Conceptual model results

4.6.2. Summary of the Hypothesis Testing

H 1: Perceived enjoyment will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry. The findings show that perceived enjoyment has a significant impact on consumers attitude toward use of AR applications in the South African e-commerce fashion industry, with a standardise estimate of 0.192, a t-value of 2.392 and a p-value of 0.017. Therefore, H1 is supported.

H2a: Perceived ease of use will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry. The findings indicates that perceived ease of use does not significantly affect consumers attitude toward use of AR applications in the South African e-commerce fashion industry, with a standardise estimate of -0.089, a t-value of -1.256, and a p-value of 0.209. As a result, H2a is not supported.

H2b: Perceived ease of use will significantly influence consumers behavioural intention to use AR applications in the South African e-commerce fashion industry. The relationship between perceived ease of use and behavioural intention to use AR applications in the South African e-commerce fashion industry was found to be insignificant, with a standardise estimate of -0.072, a t-value of -1.386, and a p-value of 0.166. Therefore, H2b is not supported.

H3a: Perceived usefulness will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry. The findings show that perceived usefulness has a significant impact on consumers attitude toward use of AR applications in the South African e-commerce fashion industry, with a standardise estimate of 0.318, a t-value of 3.258 and a p-value of <0.001. H3a was therefore supported.

H3b: Perceived usefulness will significantly influence consumers behavioural intention to use AR applications in the South African e-commerce fashion industry. The findings show that perceived usefulness has a significant impact on consumers behavioural intention to use AR applications in the South African e-commerce fashion industry, with a standardise estimate of 0.252, a t-value of 3.785, and a p-value of 0.001. H3b was therefore supported.

H4: Inspiration will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry. The relationship between inspiration and consumers attitude toward use of AR applications in the South African e-commerce fashion industry was found to be significant, with a standardise estimate of 0.238, a t-value of 2.905, and a p-value of 0.004. Therefore, H4 is supported.

H5: Consumer innovativeness will significantly influence consumers attitude toward use of AR applications in the South African e-commerce fashion industry. Consumer innovativeness was found to have a significant influence on consumers attitude toward use of AR applications in the South African e-commerce fashion industry, as demonstrated by a standardise estimate of 0.281, a t-value of 5.298, and a p-value of <0.001. H5 was therefore supported.

H6: Attitude toward use will significantly influence consumers behavioural intention to use AR applications in the South African e-commerce fashion industry. The findings show that attitude toward use of augmented reality has a significant impact on consumers behavioural intention to use AR applications in the South African e-commerce fashion industry, with a standardise estimate of 0.784, a t-value of 11.065 and a p-value of <0.001. Therefore, H6 is supported.

H7: Consumers behavioural intention to use AR applications will significantly influence consumers purchase intentions in the South African e-commerce fashion industry. Consumers behavioural intention to use AR applications was found to have a significant influence on consumers purchase intentions in the South African e-commerce fashion industry, as demonstrated by a standardise estimate of 0.911, a t-value of 17.621, and a p-value of <0.001. H7 was therefore supported.

H8: Product involvement moderates the relationship between consumers attitude toward use and their behavioural intention to use AR applications in the South African e-commerce fashion industry. The findings demonstrate that product involvement does not moderate the relationship between consumers attitude toward use and behavioural intention to use AR applications in the South African e-commerce fashion industry, with a standardised estimate of 0.743, a t-value of -4.666 and a p-value of 0.865. H8 was therefore not supported.

4.7. Conclusion

In summary, a detailed presentation of the key findings of the study was presented in this chapter. This included the demographic profiles of the participants, the reliability and validity of the research instrument and the results of hypotheses testing. The reliability of the research instrument was analysed using Cronbach's Alpha and Composite Reliability. The findings confirmed that all construct has shown good internal consistency and reliability. In addition, Convergent validity was achieved through AVE values, all values exceeded the recommended threshold demonstrating a good convergence. The hypothesised relationship between constructs were tested and the results revealed a significant influence of factors like perceived enjoyment, inspiration, perceived usefulness, consumer innovativeness and behavioural intention. Meanwhile, construct such as perceived ease of use and product involvement demonstrated insignificant influence. Finally, the results presented in this chapter offers a base for upcoming discussions in the next chapter

CHAPTER 5: DISCUSSION OF RESULTS

5.1. Introduction

This chapter discusses the key findings of the study. Firstly, the demographic profile of respondents is discussed. This is followed by the discussion of key findings of the hypotheses compared with existing literature. Finally, the conclusion of the chapter is presented.

5.2. Demographic Profile of Respondents

The demographic profile of the respondents offers a vital context for understanding the characteristics of the sample. This also includes how these factors can influence the findings of the study. The characteristics of the sample include age, gender, racial profile, education, income, online shopping behaviour and most used online platforms to buy fashion items.

5.2.1. Gender

The findings of the study revealed a slight prevalence of female respondents (65%) with only 35% of male respondents. This could be explained by the demographic reality that there is a more female population in South Africa than male. A mid-year report by Statistics South Africa indicate that women make up 51% of the population in South Africa (Stats SA, 2024). In addition, previous studies have indicated that women are more inclined to participate in surveys than men (Wu et al., 2022).

5.2.2. Age Distribution

The age distribution of respondents indicated a strong representation of middle-aged consumers (35-44 years), making up 39% of the sample. This is followed by the younger consumers between the ages of 25-34 years, comprising 37% of the sample. A recent study on online retail sales in South Africa has revealed that online shopping is prevalent in these age group (World Wide Worx, 2024). The younger consumers between the ages of 18-24 years, make up 9% of the sample. One of the criteria to participate in this study was that participants had to be active online shoppers who shops online very often. A report on online sales in South Africa has revealed a decline in online shopping among these age group due to high youth

unemployment (World Wide Worx, 2024). Therefore, this explains the low participation in this study by this age group. Respondents aged 45 and older, though were few in numbers, comprising 16% played a significant role in the study.

5.2.3. Racial Profile

In terms of race, most (83%) of respondents were Black Africans, followed by Coloured respondents making 7.1% of the sample. White respondents accounted for 7.1%, Indians for 2.2% and other racial groups 0.6%. These findings reflect the racial demographics of South Africa where Black Africans and Coloured population are the largest groups at 81.4% and 8.2% respectively (Stats SA, 2023).

5.2.4. Educational Level

Respondents had different levels of education. Most (72%) of them hold tertiary qualifications, including diplomas, bachelor's degrees and postgraduate degrees. Meanwhile, only 29% of respondents hold matric and other form of education. A report by World Wide Worx (2024) found that there is a positive correlation between education level and the frequency of online shopping. This indicates that consumers with higher educational qualifications are inclined to use online shopping more often than consumers with lower educational qualifications.

5.2.5. Monthly Household Income

The study included respondents from different income brackets. Only few (11.1%) respondents earn a monthly household income of between R0-R5000, with majority of respondents earning a monthly household income of between R10 001-R25 000. This supports the assertion by World Wide Worx (2024) that higher income consumers are generally more active in online shopping. In addition, this is consistent with the idea that consumers in high income groups tend to have greater access to digital devices and stable internet connectivity.

5.2.6. Online shopping behaviour

Almost half (41%) of the respondents' shops for fashion items online at least once a month, while 25% shops occasionally. The remaining 34% of respondents indicated that they either shop for fashion items seasonally (19%), only when needed (10%) and rarely (5%). A study

conducted by Deloitte found that more than 70% of consumers in South Africa shop online at least once a month (Deloitte, 2021), and fashion items are the most popular items purchased online (Deloitte, 2021; World Wide Worx, 2024). This highlights a growing consumer trust and use of online shopping platforms.

5.2.7. Most used online platforms to buy fashion items

The findings of the study indicates that Takealot emerged as the most popular platform, with 20.4% of respondents indicating that they frequently use this platform. This is supported by a study conducted by World Wide Worx, (2024) that revealed Takealot as a dominant platform frequently used in South Africa, with a 20.9% market share. This preference for Takealot probably suggest that consumers find value in its offerings and shopping experience. On the other hand, the findings of the study show that the remaining online platforms had lower usage percentages, Shein (17.9%), Superbalist (14.5%), Woolworths (8.6%), Bash (7.1%), Mr Price (6.8%), Temu (4.3%), Zara (3.7%), Zando (2.8%), H&M (0.9%) and Cotton On (0.6%). However, these platforms still hold relevance in the online shopping landscape as a result of an evident shift in consumer preference and competitive dynamics in the online retail market in South Africa (World Wide Worx, 2024).

5.3. Hypotheses discussion

5.3.1. Perceived enjoyment and consumers attitude toward use of AR applications

The findings of the study support H1, confirming that perceived enjoyment is a key factor influencing consumers attitude toward use of AR applications in the South African e-commerce fashion industry. This finding highlights the significance of hedonic value in forming favourable attitude toward the use of AR. The finding is similar to several studies in the literature which indicates that enjoyment is a significant factor of technology adoption, mainly in interactive technologies such as AR (Holdack et al., 2022; Yim et al. (2017). It is therefore likely that the immersive and interactive nature of AR which allows users to modify and potentially to customise experience improves the shopping experience of consumers, making the technology to be enjoyable and engaging (McLean & Wilson, 2019). As a result, this may lead to consumer trust and enhance inclination to use AR applications. This supports the

assertion by To and Trinh (2021) that perceived enjoyment can lower levels of anxiety or concern of using a new technology. Therefore, the significant influence of perceived enjoyment indicates the need for e-commerce fashion retailers in South Africa to focus on developing engaging and entertaining AR features.

5.3.2. Perceived ease of use and consumers attitude toward and behavioural intention to use AR applications

Contrasting the expectations, H2a and H2b were not supported by the findings of this study, indicating that perceived ease of use has insignificant influence on both consumers attitude and behavioural intention to use AR applications in the South African e-commerce fashion industry. These findings differ with the study by Davis et al. (1989) which suggest that perceived ease of use is a significant factor in forming consumer attitude and behavioural intention to use a technology. This assertion is supported by Saleem et al. (2021) who found a significant relationship between perceived ease of use and consumers' behavioural intention to use AR applications.

A possible explanation of these insignificant direct relationships could be that consumers in the South African e-commerce fashion industry are prioritising the functional role of AR more than its perceived ease of use by focusing on the tool capability to alleviate online shopping drawbacks, like visualising how fashion items look in real life. Song et al. (2019) indicated that these capabilities could assist consumers make informed decisions when shopping online. It is therefore evident that the ability of AR to reduce the uncertainty in online shopping looks to dominate concerns about usability. Gefen and Straub (2000) argued that when an online shopping platform is used to buy products, perceived ease of use would not significantly influence the adoption of technology. This assertion aligns with Oyman et al. (2022) study findings, which revealed that perceived ease of use did not have an influence on consumers behavioural intention to use AR application. This means that factors such as perceived usefulness and the practical benefits, might play an influential role in forming consumer attitudes. Given that AR is still a relatively new technology in the South African e-commerce industry, consumers might prioritise the capability of the tool to improve decision making and minimizing uncertainty more than technical ease of the application. This calls for online fashion

retailers to focus on the practical value that AR application provide instead of only focusing on enhancing the simplicity of user interface.

5.3.3. Perceived usefulness and consumers attitude toward and behavioural intention to use AR applications

Meanwhile, the findings of the study yet again supported H3a and H3b, confirming that perceived usefulness is a vital factor influencing consumers attitude toward and behavioural intention to use AR applications in the South African e-commerce fashion industry. This indicates that perceived usefulness plays a critical role in online shopping experiences facilitated by AR applications to assist consumers make informed buying decisions. The findings align with the Technology Acceptance Model (TAM) that indicate that perceived usefulness is a strong factor of determining users' intention of using a technology (Venkatesh & Davis, 2000). Likewise, Arghashi and Yüksel (2022) indicated that consumers are inclined to use technology if they perceive it to be useful in enhancing their performance. AR can enhance the online shopping experience of consumers (Wang et al., 2022) by providing advanced features such as virtual try-on technology to augment product visibility and offer sensory response (Batool & Mou 2023). These features assist to bridge the gap between physical and online shopping (Song et al., 2019). Therefore, this indicates that consumers perceive these features as useful, as it addresses online shopping challenges when buying fashion items.

5.3.4. Inspiration and consumers attitude toward use of AR applications

Also, the findings of the study supported H4, indicating that inspiration significantly influences consumer attitude towards use of AR applications in the South African e-commerce fashion industry. This finding suggests that consumers regard AR as a source of inspirations for new fashion styles, consistent with a study by Hinsch et al. (2020) that revealed that technological innovations such as AR can offer experiences that can inspire consumers. Through digital platforms, South African consumers are continuously exposed to global fashion trends. Therefore, AR applications might complement this exposure as the technology permits user to move beyond passive viewing, allowing active engagement with trends that consumers might find to be appealing. Previous studies suggested that inspiration can shift consumers attitude

towards a behavioural outcome (Nikhashemi et al., 2021; Rauschnabel et al., 2019). Therefore, the significant influence of inspiration on attitude toward use of AR indicates the need for e-commerce fashion retailers in South Africa to focus on positioning AR as a creative enabler by integrating features that offers personalised recommendation and allowing consumers to share their creative experiences.

5.3.5. Consumer innovativeness and consumers attitude toward use of AR applications

Consumer innovativeness was found to have a significant influence on consumers attitude toward use of AR applications in the South African e-commerce fashion industry. This indicates that consumers with inclination to explore new technologies are likely to develop a positive attitude toward use of AR applications. The finding is consistent with Alam et al. (2022) study revealed consumer innovativeness as a critical factor in the adoption of new technology such as AR. Likewise, Rauschnabel and Ro (2016) indicated that consumers with high levels of innovativeness are more likely to adopt AR as they are intrinsically motivated to try new and distinct experiences. The consistency with previous studies confirms assertion by Frank et al. (2015) that consumer innovativeness is a common precursor of early adoption, especially of new technologies. Conversely, AR is an emerging technology in most African markets, including South Africa, which might make innovative consumer more willing to explore the technology. This study's finding emphasises the importance of e-commerce fashion retailers in South Africa to target innovative consumers as early adopters to drive wider adoption of the AR technology.

5.3.6. Attitude toward use and behavioural intention to use AR applications

Again, this study findings supported H6, indicating that consumers attitude toward use has significant influence on behavioural intention to use AR applications in the South African e-commerce fashion industry. This highlights that consumer will likely consider using AR for shopping fashion items online when they feel positive about the technology, aligning to TAM by Davis (1989) which indicates that positive attitude toward a technology influence intention to use it directly. Similar to Alam et al. (2022) study that found that user's behavioural intention to use AR increases as attitude toward use increases. This further validates the assertion by Saleem et al. (2021) that attitude toward use plays a vital role in determining whether an

individual will utilise a new technology. The significant relationship found in this study could be due to that AR is an emerging technology in the South African market. As a result, consumers that demonstrate positive attitude are more willingly to explore this technology, indicating to e-commerce fashion retailers in South Africa the importance of building positive attitudes toward AR application among consumers to drive behavioural intention.

5.3.7. Consumers behavioural intention to use AR applications and purchase intentions

Furthermore, the findings of this study supported H7. Consumers behavioural intention to use AR applications was found to have a significant influence on consumers purchase intentions in the South African e-commerce fashion industry. This indicates the key role that AR applications play in improving consumers shopping experience and influencing their behaviour (Wang et al., 2022). Previous studies have found a significant relationship between AR and purchase intention (Park & Kim, 2021; Wang et al., 2021). The immersive and interactive features provided by AR applications significantly contribute to consumers decision making process as they shop fashion items online. Park and Kim (2021) suggested that the ability to virtually try-on fashion items lessen uncertainty about fit and style and empower consumers to make informed purchase decisions.

5.3.8. Moderation of product involvement

Finally, it was hypothesised that product involvement will moderate the relationship between consumers attitude toward use of AR and their behavioural intention to use AR applications in the South African e-commerce fashion industry. The findings of this study revealed that this is not the case. This is despite previous studies indicating that product involvement is a significant factor in forming the behaviour of consumers. Serravalle et al. (2023) asserted that product involvement has a direct impact on the choices and actions of consumers. Likewise, Rhee and Lee (2021) found that product involvement significantly improves the influence of consumers attitudes on behavioural intention when using AR in e-commerce fashion retail. The insignificant result of this hypothesis can be justified by the Technology Acceptance Model theory, which suggests that perceived usefulness and ease of use are the key drivers of behavioural intention to use new technologies (Davis, 1989). Another possible explanation could be contextual factors that are distinct to the South African market. Given that AR is still new in this market, it is likely that South African consumers are still exploring how AR

technology connects with their shopping needs, which reduce the role of product involvement while highly involved consumer in developed markets may have already adopted this technology in their shopping experience. Interestingly, this insignificant result validates the findings by Trivedi et al. (2022) that revealed that product involvement as a moderator does not have a significant influence on attitude and behavioural intention. It is, therefore, evident that the adoption of AR in the South African market is likely to be depended on the appeal of the technology than on specific interests of consumers in fashion.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1. Introduction

The aim of this study was to investigate how AR applications influence consumers' purchase intentions in the South African e-commerce fashion industry. Therefore, this is the last chapter of the study, a conclusion is presented. Then, the theoretical and managerial implications are outlined. Finally, the limitations of this study and direction for future studies are discussed.

6.2. Conclusion of the Study

The research problem outlined in Chapter 1 of this study, led to the formulation of the following research objectives which the study aimed to address:

Primary Objective:

- To investigate the influence of AR applications on consumers' purchase intentions in the South African e-commerce fashion industry.

Secondary objectives

- To explore the influence of factors such as perceived ease of use (PEU), perceived usefulness (PU), perceived enjoyment (PE), consumer innovativeness (CI) and inspiration (I) on consumers' attitude toward using (ATU) AR applications in the South African e-commerce fashion industry.
- To determine the influence of consumers attitude toward use (ATU) on behavioural intention (BI) to use AR applications in the South African e-commerce fashion industry.
- To determine the moderating role of product involvement (PINV) on consumers attitude toward use and consumers behavioural intention to use AR applications in the South African e-commerce fashion industry.

The conclusions drawn from the objectives of this study, aimed at addressing the research problem and fulfilling the aim of the study are discussed below.

6.2.1. Primary Objective: To investigate the influence of AR applications on consumers' purchase intentions in the South African e-commerce fashion industry.

To address this research objective a hypothesis was formulated and empirically tested the relationship between behavioural intention to use AR applications and consumers purchase intentions. Behavioural intention to use AR applications was found to significantly influence consumers purchase intentions. This finding corresponded with previous study by Ibrahim et al. (2023) confirming that AR has positive influence on consumers' intention to purchase. In addition, according to Whang et al. (2021) consumers that are not exposed to AR experiences during their purchasing journey tend to demonstrate weaker purchase intentions. Therefore, it is concluded that consumers AR applications positively influence consumers purchase intentions in the South African e-commerce fashion industry. This means that AR applications empower consumers to make informed buying decisions by enhancing shopping experience through immersive engagement and interactivity,

6.2.2. Secondary Objective: To explore the influence of factors such as perceived ease of use (PEU), perceived usefulness (PU), perceived enjoyment (PE), consumer innovativeness (CI) and inspiration (I) on consumers' adoption of AR technology in the South African e-commerce fashion industry.

To address this research objective, five hypotheses were formulated and empirically tested the relationship between each factor and attitude toward use of AR applications in the South African e-commerce fashion industry. The results revealed that perceived usefulness, inspiration, perceived enjoyment and consumer innovativeness significantly influence attitude toward use of AR applications, indicating that consumers who finds AR engaging and useful are more likely to have positive attitude to use it. However, in contrast to the expectations, perceived ease of use was found to have insignificant influence on consumers attitude toward use of AR applications, indicating that consumers in the e-commerce fashion industry are prioritising practical benefits more than ease of use. According to Gefen and Straub (2000) perceived ease of use would not significantly influence the adoption of technology when an online shopping platform is used to buy products. Therefore, the study concluded that perceived usefulness is a strong and significant factor of determining users' intention to adopt AR applications in the South African e-commerce fashion industry. The finding aligns with the Technology Acceptance Model (TAM) by Venkatesh and Davis (2000). Other important

factors identified in this study are perceived enjoyment, inspiration and consumer innovativeness which is a precursor of early adoption. As such, it is indicative that AR applications have a great potential to improve consumers online shopping experience by decreasing uncertainties and improving decision making processes.

6.2.3. Secondary Objective: To explore the influence of consumers attitude toward use (ATU) on behavioural intention (BI) to use AR applications in the South African e-commerce fashion industry.

A hypothesis was formulated and empirically tested the relationship between consumers attitude toward use and behavioural intention to use AR applications to address this objective. Attitude toward AR was found to significantly influence behavioural intention. Previous studies have demonstrated that as consumers attitude toward use increases, the behavioural intention to adopt AR also increases (Alam et al., 2022). Therefore, the conclusion drawn from this hypothesis is that consumers attitude is an important factor that influences the behavioural intention to use AR applications in the South African e-commerce fashion industry.

6.2.4. Secondary objective: To determine the moderating role of product involvement (PINV) on consumers attitude toward use and consumers behavioural intention to use AR applications in the South African e-commerce fashion industry.

To address this research objective a hypothesis was formulated and empirically tested the moderating effect of product involvement between consumers attitude toward use and behavioural intention to use AR applications. Contrary to the expected result, product involvement did not have a significant moderating effect on the relationship between attitudes and behavioural intentions. It is therefore concluded that consumers intentions to use AR applications when shopping online are more closely linked to the technology perceived usefulness more than the level of attachment to a particular fashion product.

6.3. Implications

6.3.1. Theoretical Implications

The theoretical findings of this study contribute to the existing literature on consumer behaviour and technology adoption in the context of AR applications in the South African e-

commerce fashion industry. As highlighted previously, this study enhanced the TAM with additional constructs as recommended by Tarhini et al. (2016) to improve prediction of AR applications adoption behaviour of consumers. The constructs included consumer innovativeness, inspiration, and product involvement as a moderator variable. The findings of this study indicated the need for TAM to include the practical benefits that are offered by AR technology because of the vital role played by perceived usefulness and behavioural intentions in influencing consumers behaviour. Additionally, these results demonstrate that consumers are motivated to use AR applications because of their perceived usefulness. This emphasises the importance of functional value in propelling consumers adoption of AR applications in the e-commerce fashion industry in South Africa. Consumer innovativeness was found to be an important factor that drives positive attitude toward use of AR applications. This shows that consumers that value innovation are most likely to engage with AR applications in e-commerce fashion industry, emphasising the need for TAM models used in retail technology adoption to include personality related factors such as innovativeness. This is vital in markets where the need for innovation may affect the decision to adopt a technology. Additionally, product involvement as a moderator was found to be insignificant in influencing the relationship between attitudes and behavioural intention. As such, TAM adaptions would likely be improved by focusing on constructs that influence attitudes than focusing on product relevance as a moderator in e-commerce settings.

6.3.2. Managerial Implications

According to Harms et al. (2022) consumers are demanding consistent shopping experience in both physical stores and online platforms. Therefore, the result of this study provides practical insights for marketers, online retailers and technology developers in South Africa that aim to improve consumer engagement and drive purchase intentions. To attract users of AR technology and establish a competitive advantage in the market, online retailers and technology developers should focus on creating enjoyable and inspirational experiences. The AR features such as virtual try-ons which according to Batool and Mou (2023) could help reduce high rate of product returns that are faced by e-commerce fashion retailers can act as a source of creativity and discovery for users that want to explore latest fashion trends. Marketing initiatives should prioritise demonstrating AR applications as fun and practical. This can be done by showing how AR reduces uncertainty in online shopping through accurate size and fit recommendations. Also, hedonic and inspirational appeal can be improved through social

sharing features and influencer collaborations. Furthermore, the findings of this study which is supported by literature has shown the important role that consumer innovativeness plays in influencing consumer behavioural intention. This indicates the need for targeted marketing strategies that resonate with early adopters and consumers that are tech-savvy. Therefore, marketers and online retailers should leverage appropriate strategies to attract this segment. These strategies could include personalised content and exclusive offers. Given that AR is still a new technology in the South African market, educational campaigns can explain AR technology and improve confidence among late adopters and laggards.

To benefit from consumer behavioural intent, online retailers and marketers should ensure that AR features are seamlessly incorporated into the online shopping process. These shopping process will include product exploration and checkout. Therefore, the marketing strategies should have clear call to action, and it should also highlight the efficiency of AR enhanced shopping. This is to ensure that the technology supports the ultimate outcome which is to drive conversions. Although perceived ease of use was found to be insignificant in influencing behavioural intention in this study, this factor should not be ignored. A well-established theory, TAM, recognise ease of use as one of the key drivers of behavioural intention to use new technologies (Davis, 1989). Therefore, online retailers and developers should ensure that AR applications remain user-friendly. Applications that are not user friendly are likely to discourage use or compromise the experience. In conclusion, online retailers, and marketers should focus on experiential and practical benefits AR. This is to drive adoption of AR, improve customer satisfaction and purchase intentions.

6.4. Limitations of the study

Although this study provides valuable insights to e-commerce fashion retailers in South Africa, it is important to consider the limitations of this study when interpreting the findings. Firstly, the responses were collected from participants staying in Gauteng. This limits the generalisability of the findings to other regions in the country. Secondly, the sample of this study was made up of individuals who buys online very often. Thirdly, this study relied only on online survey to collect data. This might have restricted the depth of insights because respondents were limited to structured responses instead of providing valuable, qualitative responses. Lastly, the study only focused on e-commerce fashion industry, limiting the interpretation to this context.

6.5. Direction of future studies

Few avenues for future studies have been identified. Future studies, could focus on using a mixed method approach, integrating quantitative surveys and qualitative interviews to gather more insights on consumer motivation and attitudes toward AR in e-commerce fashion industry. To improve the generalisability of the findings, future studies could expand the geographic scope of data collection and include respondents from other provinces in South Africa. Extending the study beyond e-commerce fashion industry to include other industries could show if consumers attitude and behaviour toward AR vary by industry context. In addition, future studies could investigate the long-term outcomes of AR engagement like repeat purchase behaviour and customer loyalty.

REFERENCES

Agyare-Dwomoh, Y. (2022, April 14). The shift to e-commerce in South Africa. *Bizcommunity*. Retrieved March 19, 2024, from https://www.bizcommunity.com/Article/196/394/226979.html

Alam, S. S., Masukujjaman, M., Sayeed, S., Omar, N. A., Ayob, A. H., & Hussain, W. M. H. W. (2022). Modeling Consumers' Usage Intention of Augmented Reality in Online Buying Context: Empirical Setting with Measurement Development. *Journal of Global Marketing*, *36*(1), 1–24. https://doi.org/10.1080/08911762.2022.2087580

Alam, S. S., Susmit, S., Lin, C., Masukujjaman, M., & Ho, Y. (2021). Factors affecting augmented reality adoption in the retail industry. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(2), 142. https://doi.org/10.3390/joitmc7020142

Alimamy, S., & Al-Imamy, S. Y. (2021). Customer perceived value through quality augmented reality experiences in retail: The mediating effect of customer attitudes. *Journal of Marketing Communications*, *28*(4), 428–447. https://doi.org/10.1080/13527266.2021.1897648

Amin, M., Rezaei, S., & Abolghasemi, M. (2014). User satisfaction with mobile websites: the impact of perceived usefulness (PU), perceived ease of use (PEOU) and trust. *Nankai Business Review International*, *5*(3), 258–274. https://doi.org/10.1108/nbri-01-2014-0005

Athapaththu, J. C., & Kulathunga, D. (2018). Factors affecting online purchase intention: Effects of technology and social commerce. *International Business Research*, *11*(10), 111. https://doi.org/10.5539/ibr.v11n10p111

Barnsbee, L., Barnett, A., Halton, K., & Nghiem, S. (2018). Cost-effectiveness. In *Elsevier eBooks* (pp. 749–772). https://doi.org/10.1016/b978-0-12-810491-0.00024-2

Batool, R., & Mou, J. (2023). A systematic literature review and analysis of try-on technology: Virtual fitting rooms. *Data and Information Management*, 100060. https://doi.org/10.1016/j.dim.2023.100060

Beran, T., & Violato, C. (2010). Structural equation modeling in medical research: a primer. *BMC Research Notes*, *3*(1). https://doi.org/10.1186/1756-0500-3-267

Bhandari, P. (2023, June 22). *Construct Validity | Definition, types, & examples*. Scribbr. Retrieved March 20, 2024, from https://www.scribbr.com/methodology/construct-validity/

Bhatia, M. (2019, July 12). *Your guide to qualitative and quantitative data analysis methods*. Atlan | Humans of Data. https://humansofdata.atlan.com/2018/09/qualitative-quantitative-data-analysis-methods/

Böttger, T., Rudolph, T., Evanschitzky, H., & Pfrang, T. (2017). Customer inspiration: conceptualization, scale development, and validation. *Journal of Marketing*, *81*(6), 116–131. https://doi.org/10.1509/jm.15.0007

Brown, S. A., Dennis, A. R., & Venkatesh, V. (2010). Predicting Collaboration Technology use: Integrating technology adoption and collaboration research. *Journal of Management Information Systems*, *27*(2), 9–54. https://doi.org/10.2753/mis0742-1222270201

Chaffey, D., & Ellis-Chadwick, F. (2022). Digital Marketing Strategy, Implementation and Practice. In *Pearson eBooks* (8th ed.). Pearson Education Limited. http://dspace.uniten.edu.my/handle/123456789/16971

Chen, C., Liu, C., Chiu, T., Lee, Y., & Wu, K. (2022). Role of perceived ease of use for augmented reality app designed to help children navigate smart libraries. *International Journal of Human-Computer Interaction*, *39*(13), 2606–2623. https://doi.org/10.1080/10447318.2022.2082017

Chen, S., Li, S., & Li, C. (2011). Recent related research in Technology Acceptance Model: A Literature review. *Australian Journal of Business and Management Research*, *01*(09), 124–127. https://doi.org/10.52283/nswrca.ajbmr.20110109a14

Chevalier, S. (2024, February 6). *Global retail e-commerce sales 2014-2027 | Statista*. Statista. Retrieved March 22, 2024, from https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/

Cooper, D. R., & Schindler, P. S. (2014). *Business research methods* (12th ed.). New York: McGraw-Hill/Irwin.

Cowling, N. (2024, January 10). *Topic: E-commerce in South Africa*. Statista. Retrieved March 11, 2024, from https://www.statista.com/topics/11038/e-commerce-in-south-africa/#topicOverview

Davids, G. (2024, February 22). *Can clothing retailers get back in fashion?* Retrieved March 10, 2024, from https://sanlamprivatewealth.sanlam.com/resources/investments/can-clothing-retailers-get-back-in-fashion/

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

De Sousa, V. E. C., Matson, J., & Lopez, K. V. D. (2016). Questionnaire Adapting: Little changes mean a lot. *Western Journal of Nursing Research*, *39*(9), 1289–1300. https://doi.org/10.1177/0193945916678212

Deloitte Digital & Snap Inc. (2021). *Snap Consumer AR Global Report 2021*. Retrieved March 22, 2024, from https://www2.deloitte.com/content/dam/Deloitte/xe/Documents/About-Deloitte/Snap%20Consumer%20AR_Global%20Report_2021.pdf

Erdmann, A., Mas, J. M., & Arilla, R. (2021a). Value-based adoption of augmented reality: A study on the influence on online purchase intention in retail. *Journal of Consumer Behaviour*, *22*(4), 912–932. https://doi.org/10.1002/cb.1993

Erdmann, A., Mas, J. M., & Arilla, R. (2021b). Value-based adoption of augmented reality: A study on the influence on online purchase intention in retail. *Journal of Consumer Behaviour*, *22*(4), 912–932. https://doi.org/10.1002/cb.1993

Fan, Y., Chen, J., Shirkey, G., John, R., Wu, S. R., & Park, H. (2016). Applications of structural equation modeling (SEM) in ecological studies: an updated review. *Ecological Processes*, *5*(1). https://doi.org/10.1186/s13717-016-0063-3

Faqih, K. M. S. (2022). Factors influencing the behavioral intention to adopt a technological innovation from a developing country context: The case of mobile augmented reality games. *Technology in Society*, *69*, 101958. https://doi.org/10.1016/j.techsoc.2022.101958

Frank, B., Enkawa, T., Schvaneveldt, S. J., & Torrico, B. C. H. (2015). Antecedents and consequences of innate willingness to pay for innovations: Understanding motivations and consumer preferences of prospective early adopters. *Technological Forecasting and Social Change*, *99*, 252–266. https://doi.org/10.1016/j.techfore.2015.06.029

Garg, M., Dhull, H., Kalluri, N., & Agrawal, S. (2024). Understanding Sample Size Determination In Research: A Practical Guide. *Educational Administration: Theory and Practice*. https://doi.org/10.53555/kuey.v30i5.6040

Gefen, D., & Straub, D. W. (2000). The relative importance of perceived ease of use in IS adoption: A study of E-Commerce Adoption. *Journal of the Association for Information Systems*, *1*, 8. https://aisel.aisnet.org/jais/vol1/iss1/8/

Goga, S., Paelo, A., & Nyamwena, J. (2019). Online retailing in South Africa: An Overview. *Social Science Research Network*. https://doi.org/10.2139/ssrn.3386008

Gupta, S., Kushwaha, P., Badhera, U., Chatterjee, P., & Gonzalez, E. D. R. S. (2023). Identification of Benefits, Challenges, and Pathways in E-commerce Industries: An integrated two-phase decision-making model. *Sustainable Operations and Computers*, *4*, 200–218. https://doi.org/10.1016/j.susoc.2023.08.005

Hagger, M. S. (2019). The reasoned action approach and the theories of reasoned action and planned behavior. *Psychology*. https://doi.org/10.1093/obo/9780199828340-0240

Hall, S., & Takahashi, R. (2017, October 3). Augmented and virtual reality: The promise and peril of immersive technologies. McKinsey & Company. https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/augmented-and-virtual-reality-the-promise-and-peril-of-immersive-technologies#/

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing*, *18*(3), 66–67. https://doi.org/10.1136/eb-2015-102129

Hinsch, C., Felix, R., & Rauschnabel, P. A. (2020). Nostalgia beats the wow-effect: Inspiration, awe and meaningful associations in augmented reality marketing. *Journal of Retailing and Consumer Services*, *53*, 101987. https://doi.org/10.1016/j.jretconser.2019.101987

Holdack, E., Lurie-Stoyanov, K., & Fromme, H. F. (2022). The role of perceived enjoyment and perceived informativeness in assessing the acceptance of AR wearables. *Journal of Retailing and Consumer Services*, *65*, 102259. https://doi.org/10.1016/j.jretconser.2020.102259

Hwang, J., Kim, W., & Kim, J. J. (2020). Application of the value-belief-norm model to environmentally friendly drone food delivery services. *International Journal of Contemporary Hospitality Management*, *32*(5), 1775–1794. https://doi.org/10.1108/ijchm-08-2019-0710

Hyken, S. (2018, April 1). Your best opportunity for growing business: the customer experience. *Forbes*. https://www.forbes.com/sites/shephyken/2018/04/01/your-best-opportunity-for-growing-business-the-customer-experience/?sh=172460e53a3e

Illidge, M. (2023, August 16). E-commerce giants in South Africa. *Mybroadband*. Retrieved March 10, 2024, from https://mybroadband.co.za/news/business/504516-e-commerce-giants-in-south-africa.html

Jayaswal, P., & Parida, B. (2023). Past, present and future of augmented reality marketing research: a bibliometric and thematic analysis approach. *European Journal of Marketing*, *57*(9), 2237–2289. https://doi.org/10.1108/ejm-05-2022-0397

Kasilingam, D. (2020). Understanding the attitude and intention to use smartphone chatbots for shopping. *Technology in Society*, *62*, 101280. https://doi.org/10.1016/j.techsoc.2020.101280

Kim, A. J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research*, *65*(10), 1480–1486. https://doi.org/10.1016/j.jbusres.2011.10.014

Kim, H. (2005). Consumer profiles of apparel product involvement and values. *Journal of Fashion Marketing and Management*, *9*(2), 207–220. https://doi.org/10.1108/13612020510599358

Kim, K., Hwang, J., Zo, H., & Lee, H. (2014). Understanding users' continuance intention toward smartphone augmented reality applications. *Information Development*, *32*(2), 161–174. https://doi.org/10.1177/0266666914535119

Kim, S., Park, H., & Kader, M. S. (2022). How augmented reality can improve e-commerce website quality through interactivity and vividness: the moderating role of need for touch. *Journal of Fashion Marketing and Management*, 1–24. https://doi.org/10.1108/jfmm-01-2022-0001

King, W. R., & He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management*, *43*(6), 740–755. https://doi.org/10.1016/j.im.2006.05.003

Kothari, C. (2004). *Research methodology: Methods and techniques*. https://ndl.ethernet.edu.et/bitstream/123456789/88770/1/2004%20Kothari_%20Research%20Methodology%20Methods%20and%20Techniques.pdf

Kotler, P., Keller, K., & Chernev, A. (2022). *Marketing management* (16th ed.). Pearson Education, Inc.

Lavoye, V., Mero, J., & Tarkiainen, A. (2021). Consumer behavior with augmented reality in retail: a review and research agenda. *The International Review of Retail, Distribution and Consumer Research*, *31*(3), 299–329. https://doi.org/10.1080/09593969.2021.1901765

Lee, H., Chung, N., & Jung, T. (2014). Examining the cultural differences in acceptance of mobile augmented Reality: Comparison of South Korea and Ireland. In *Springer eBooks* (pp. 477–491). https://doi.org/10.1007/978-3-319-14343-9_35

Leedy, P. D., & Ormrod, J. E. (2015). *Practical research: planning and design* (11th ed.). Harlow: Pearson Education Limited.

Li, H., Daugherty, T., & Biocca, F. (2002). Impact of 3-D advertising on product knowledge, brand attitude, and purchase intention: the mediating role of presence. *Journal of Advertising*, *31*(3), 43–57. https://doi.org/10.1080/00913367.2002.10673675

Li, L., Wang, Z., Li, Y., & Liao, A. (2021). Impacts of consumer innovativeness on the intention to purchase sustainable products. Sustainable Production and Consumption, 27, 774–786. https://doi.org/10.1016/j.spc.2021.02.002

Luo, X. (2002). Uses and Gratifications Theory and E-Consumer Behaviors. *Journal of Interactive Advertising*, *2*(2), 34–41. https://doi.org/10.1080/15252019.2002.10722060

Mainardes, E. W., De Almeida, C. M., & De-Oliveira, M. (2019). e-Commerce: an analysis of the factors that antecede purchase intentions in an emerging market. *Journal of International Consumer Marketing*, *31*(5), 447–468. https://doi.org/10.1080/08961530.2019.1605643

Manzano, J. A., Navarré, C. L., Mafé, C. R., & Blas, S. S. (2009). The role of consumer innovativeness and perceived risk in online banking usage. *International Journal of Bank Marketing*, *27*(1), 53–75. https://doi.org/10.1108/02652320910928245

Marikyan, D., & Papagiannidis, S. (2023, September 23). *Unified Theory of Acceptance and Use of Technology - TheoryHub - Academic theories reviews for research and T&L*. https://open.ncl.ac.uk/theories/2/unified-theory-of-acceptance-and-use-of-technology/

McLean, G., & Wilson, A. (2019). Shopping in the digital world: Examining customer engagement through augmented reality mobile applications. *Computers in Human Behavior*, *101*, 210–224. https://doi.org/10.1016/j.chb.2019.07.002

Mittal, B., & Lee, M. (1989). A causal model of consumer involvement. *Journal of Economic Psychology*, *10*(3), 363–389. https://doi.org/10.1016/0167-4870(89)90030-5

Mohajan, H. (2017). Two criteria for good measurements in research: validity and reliability. *Annals of Spiru Haret University Economic Series*, *17*(4), 59–82. https://doi.org/10.26458/1746

Monzon, L. (2022, September 1). *Luis Monzon*. IT News Africa. https://www.itnewsafrica.com/2022/09/online-shopping-surges-in-sa-but-digital-divide-remains-a-barrier/

Mzekandaba, S. (2019, April 4). Online shopping via smartphones eclipses PCs, tablets. *ITWeb*. Retrieved March 9, 2024, from https://www.itweb.co.za/article/online-shopping-via-smartphones-eclipses-pcs-tablets/RgeVDMPo5337KJN3

Nagar, K. (2015). Modeling the effects of green advertising on brand image: Investigating the moderating effects of product involvement using structural equation. *Journal of Global Marketing*, *28*(3–5), 152–171. https://doi.org/10.1080/08911762.2015.1114692

Nikhashemi, S. R., Knight, H. H., Nusair, K., & Liat, C. B. (2021). Augmented reality in smart retailing: A (n) (A) Symmetric Approach to continuous intention to use retail brands' mobile AR apps. *Journal of Retailing and Consumer Services*, *60*, 102464. https://doi.org/10.1016/j.jretconser.2021.102464

Oyman, M., Bal, D., & Ozer, S. (2022). Extending the technology acceptance model to explain how perceived augmented reality affects consumers' perceptions. *Computers in Human Behavior*, *128*, 107127. https://doi.org/10.1016/j.chb.2021.107127

Pantano, E., Rese, A., & Baier, D. (2017). Enhancing the online decision-making process by using augmented reality: A two country comparison of youth markets. *Journal of Retailing and Consumer Services, 38*, 81–95. https://doi.org/10.1016/j.jretconser.2017.05.011

Papakostas, C., Troussas, C., Krouska, A., & Sgouropoulou, C. (2022). Exploring Users' Behavioral Intention to Adopt Mobile Augmented Reality in Education through an Extended Technology Acceptance Model. *International Journal of Human-Computer Interaction*, *39*(6), 1294–1302. https://doi.org/10.1080/10447318.2022.2062551

Pappas, I. O., Kourouthanassis, P. E., Giannakos, M. N., & Lekakos, G. (2017). The interplay of online shopping motivations and experiential factors on personalized e-commerce: A complexity theory approach. *Telematics and Informatics*, *34*(5), 730–742. https://doi.org/10.1016/j.tele.2016.08.021

Park, H., & Kim, S. (2021). Do augmented and virtual reality technologies increase consumers' purchase intentions? The role of cognitive elaboration and shopping goals. *Clothing and Textiles Research Journal*, *41*(2), 91–106. https://doi.org/10.1177/0887302x21994287

Precedence Research. (2023, May 18). *Yahoo is part of the Yahoo family of brands*. Yahoo Finance. Retrieved March 25, 2024, from https://finance.yahoo.com/news/augmented-reality-market-size-worth-101800650.html

Rauschnabel, P. A. (2018). Virtually enhancing the real world with holograms: An exploration of expected gratifications of using augmented reality smart glasses. *Psychology & Marketing*, *35*(8), 557–572. https://doi.org/10.1002/mar.21106

Rauschnabel, P. A., Felix, R., & Hinsch, C. (2019). Augmented reality marketing: How mobile AR-apps can improve brands through inspiration. *Journal of Retailing and Consumer Services*, *49*, 43–53. https://doi.org/10.1016/j.jretconser.2019.03.004

Rauschnabel, P. A., & Ro, Y. K. (2016). Augmented reality smart glasses: an investigation of technology acceptance drivers. *International Journal of Technology Marketing*, *11*(2), 123. https://doi.org/10.1504/ijtmkt.2016.075690

Rejeb, A., Rejeb, K., & Treiblmaier, H. (2021). How augmented reality impacts retail marketing: a state-of-the-art review from a consumer perspective. *Journal of Strategic Marketing*, *31*(3), 718–748. https://doi.org/10.1080/0965254x.2021.1972439

Rese, A., Baier, D., Geyer-Schulz, A., & Schreiber, S. (2017). How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions. *Technological Forecasting and Social Change*, *124*, 306–319. https://doi.org/10.1016/j.techfore.2016.10.010

Rhee, H., & Lee, K. (2021). Enhancing the Sneakers Shopping Experience through Virtual Fitting Using Augmented Reality. *Sustainability*, *13*(11), 6336. https://doi.org/10.3390/su13116336

Roehrich, G. (2004). Consumer innovativeness. *Journal of Business Research*, *57*(6), 671–677. https://doi.org/10.1016/s0148-2963(02)00311-9

Rusdian, S., Sugiat, J., & Tojiri, Y. (2024). Understanding Consumer Behavior in Marketing Management: A Descriptive study and Review of literature. *Golden Ratio of Marketing and Applied Psychology of Business*, *4*(2), 76–87. https://doi.org/10.52970/grmapb.v4i2.416

Saleem, M., Kamarudin, S., Shoaib, H. M., & Nasar, A. (2021). Retail consumers' behavioral intention to use augmented reality mobile apps in Pakistan. *Journal of Internet Commerce*, *21*(4), 497–525. https://doi.org/10.1080/15332861.2021.1975427

Saunders, M. N., Lewis, P., & Thornhill, A. (2009). Understanding research philosophies and approaches. *ResearchGate*. https://www.researchgate.net/publication/309102603_Understanding_research_philosophies_and_approaches

Schmalsteig, D., & Höllerer, T. (2016). *Augmented Reality: principles and practice*.

Semerádová, T., & Weinlich, P. (2022). The broad and narrow definition of E-Commerce. In *Contributions to management science* (pp. 1–26). https://doi.org/10.1007/978-3-030-93131-5_1

Serravalle, F., Vanheems, R., & Viassone, M. (2023). Does product involvement drive consumer flow state in the AR environment? A study on behavioural responses. *Journal of Retailing and Consumer Services, 72*, 103279. https://doi.org/10.1016/j.jretconser.2023.103279

Shao, G. (2009). Understanding the appeal of user-generated media: a uses and gratification perspective. Internet Research, 19(1), 7–25. https://doi.org/10.1108/10662240910927795

Shin, E., & Lee, J. E. (2021). What makes consumers purchase apparel products through social shopping services that social media fashion influencers have worn? *Journal of Business Research, 132*, 416–428. https://doi.org/10.1016/j.jbusres.2021.04.022

Singh, P., Ahmad, A., Prakash, G., & Kushwah, P. K. S. (2021). Investigating the effects of consumer characteristics with respect to brand knowledge and product involvement on brand alliance evaluation. *Asia Pacific Journal of Marketing and Logistics*, *33*(8), 1798–1813. https://doi.org/10.1108/apjml-05-2019-0321

Sirisilla, S. (2023, February 20). Bridging the Gap: Overcome these 7 flaws in descriptive research design. *Enago Academy*. https://www.enago.com/academy/descriptive-research-design/

Smink, A. R., Van Reijmersdal, E. A., & Van Noort, G. (2021). Consumers' use of augmented reality apps: prevalence, user characteristics, and gratifications. *Journal of Advertising*, *51*(1), 85–94. https://doi.org/10.1080/00913367.2021.1973622

Song, H. K., Baek, E., & Choo, H. J. (2019). Try-on experience with augmented reality comforts your decision. *Information Technology & People*, *33*(4), 1214–1234. https://doi.org/10.1108/itp-02-2019-0092

Statista. (2024a, January 29). *Leading e-commerce sectors in South Africa 2022*. Retrieved March 9, 2024, from https://www.statista.com/statistics/1267056/leading-e-commerce-sectors-in-south-africa/

Statista. (2024b, February 14). *Most popular categories for online purchases in South Africa 2023*. Retrieved March 10, 2024, from https://www.statista.com/forecasts/826547/most-popular-categories-for-online-purchases-in-south-africa#:~:text=Among%20South%20African%20consumers%20the,in%20South%20Africa%2C%20in%202023.

Statista. (2024c, February 23). *South Africa: digital population as of January 2024*. Retrieved March 9, 2024, from https://www.statista.com/statistics/685134/south-africa-digital-population/

Stats SA. (2023, October 23). *Census 2022 Population Count Results 10 October 2023*. statssa.gov.za. Retrieved October 12, 2024, from https://www.statssa.gov.za/?p=16716

Stevens, S. (2023, September 7). *What is data analysis? Examples and how to get started*. Retrieved March 9, 2024, from https://zapier.com/blog/data-analysis-example/

Sullivan, G. M. (2011). A primer on the validity of assessment instruments. *Journal of Graduate Medical Education*, *3*(2), 119–120. https://doi.org/10.4300/jgme-d-11-00075.1

Swanepoel, G. (2023, March 20). Age, income, and education drive online retail in South Africa. *Mastercard Newsroom*. Retrieved March 23, 2024, from https://www.mastercard.com/news/eemea/en/perspectives/en/2023/age-income-and-education-drive-online-retail-in-south-africa/

Tamminen, K. A., & Poucher, Z. A. (2020). Research philosophies. In *Routledge eBooks* (pp. 535–549). https://doi.org/10.4324/9781315187259-39

Tan, Y. C., Chandukala, S. R., & Reddy, S. K. (2021). Augmented reality in retail and its impact on sales. *Journal of Marketing*, *86*(1), 48–66. https://doi.org/10.1177/0022242921995449

Tariq, J. (2017, September 24). *Research philosophy* [Slide show]. SlideShare. https://www.slideshare.net/DrJasimKhanTariqPhDA/research-philosophy-80102191

Thakur, R., Angriawan, A., & Summey, J. H. (2016). Technological opinion leadership: The role of personal innovativeness, gadget love, and technological innovativeness. *Journal of Business Research*, *69*(8), 2764–2773. https://doi.org/10.1016/j.jbusres.2015.11.012

Theodorakopoulos, L., & Theodoropoulou, A. (2024). Leveraging big data analytics for Understanding Consumer Behavior in Digital Marketing: A Systematic review. *Human Behavior and Emerging Technologies*, *2024*(1). https://doi.org/10.1155/2024/3641502

Thrash, T. M., Moldovan, E. G., Oleynick, V. C., & Maruskin, L. A. (2014). The psychology of inspiration. *Social and Personality Psychology Compass*, *8*(9), 495–510. https://doi.org/10.1111/spc3.12127

To, A. T., & Trinh, T. H. M. (2021). Understanding behavioral intention to use mobile wallets in vietnam: Extending the tam model with trust and enjoyment. *Cogent Business & Management*, *8*(1). https://doi.org/10.1080/23311975.2021.1891661

Trivedi, J. P., Kasilingam, D., Arora, P., & Soni, S. (2022). The effect of augmented reality in mobile applications on consumers' online impulse purchase intention: The mediating role of perceived value. *Journal of Consumer Behaviour*, *21*(4), 896–908. https://doi.org/10.1002/cb.2047

Truong, Y. (2013). A cross-country study of consumer innovativeness and technological service innovation. *Journal of Retailing and Consumer Services*, *20*(1), 130–137. https://doi.org/10.1016/j.jretconser.2012.10.014

Van Der Merwe, M. (2024, January 29). The eCommerce market in South Africa - Orcanically. *Orcanically*. https://orcanically.co.za/south-african-ecommerce/

Van Gelder, K. (2024, February 15). *Topic: E-commerce worldwide*. Statista. Retrieved March 22, 2024, from https://www.statista.com/topics/871/online-shopping/#topicOverview

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: four longitudinal field studies. *Management Science*, *46*(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

Vinney, C., PhD. (2024, March 6). *Uses and Gratifications Theory in Media Psychology*. Verywell Mind. https://www.verywellmind.com/what-is-uses-and-gratifications-theory-in-media-psychology-5217572

Vishwakarma, P., Mukherjee, S., & Datta, B. (2020). Travelers' intention to adopt virtual reality: A consumer value perspective. *Journal of Destination Marketing and Management*, *17*, 100456. https://doi.org/10.1016/j.jdmm.2020.100456

Wahab, H. A., Diaa, N. M., & Nagaty, S. A. (2023). Demographic characteristics and consumer decision-making styles: Do they impact fashion product involvement? *Cogent Business & Management*, *10*(2). https://doi.org/10.1080/23311975.2023.2208430

Wan, Y. (2023). Investigating the impact and effectiveness of digital marketing on brand awareness, sales and customer engagement. *Advances in Economics Management and Political Sciences*, *51*(1), 146–152. https://doi.org/10.54254/2754-1169/51/20230651

Wang, W., Cao, D., & Ameen, N. (2022). Understanding customer satisfaction of augmented reality in retail: a human value orientation and consumption value perspective. *Information Technology & People*, *36*(6), 2211–2233. https://doi.org/10.1108/itp-04-2021-0293

Wang, Y., Ko, E., & Wang, H. (2021). Augmented reality (AR) app use in the beauty product industry and consumer purchase intention. *Asia Pacific Journal of Marketing and Logistics*, *34*(1), 110–131. https://doi.org/10.1108/apjml-11-2019-0684

Watson, A., Alexander, B., & Salavati, L. (2018). The impact of experiential augmented reality applications on fashion purchase intention. *International Journal of Retail & Distribution Management*, *48*(5), 433–451. https://doi.org/10.1108/ijrdm-06-2017-0117

We Are Social & Meltwater. (2024). *Digital around the world — DataReportal – Global Digital Insights*. DataReportal – Global Digital Insights. Retrieved March 22, 2024, from https://datareportal.com/global-digital-overview

Whang, J. B., Song, J. H., Choi, B., & Lee, J. (2021). The effect of Augmented Reality on purchase intention of beauty products: The roles of consumers' control. *Journal of Business Research, 133*, 275–284. https://doi.org/10.1016/j.jbusres.2021.04.057

Willie, M. M. (2023). Distinguishing between population and target population: A mini review. *Surgery Research Journal*, *3*(2). https://doi.org/10.33425/2768-0428.1027

World Wide Worx, Mastercard, Peach Payments, & Ask Afrika. (2024). Online Retail in South Africa 2024. In *https://gadget.co.za/*. Retrieved October 12, 2024, from https://gadget.co.za/wp-content/uploads/2024/05/Online-Retail-in-South-Africa-2024.pdf

Wu, S., Chiu, C., & Chen, Y. (2020). The influences of innovative technological introduction on interpretive experiences of exhibition:a discussion on the intention to use augmented reality. *Asia Pacific Journal of Tourism Research*, *25*(6), 662–677. https://doi.org/10.1080/10941665.2020.1752754

Wu, M., Zhao, K., & Fils-Aime, F. (2022). Response rates of online surveys in published research: A meta-analysis. *Computers in Human Behavior Reports*, *7*, 100206. https://doi.org/10.1016/j.chbr.2022.100206

Yim, M. Y., Chu, S., & Sauer, P. (2017). Is augmented reality technology an effective tool for e-commerce? An interactivity and vividness perspective. *Journal of Interactive Marketing, 39*, 89–103. https://doi.org/10.1016/j.intmar.2017.04.001

Yu, Q. (2023). Research on factors affecting consumers' purchase intention. *Advances in Economics Management and Political Sciences*, *37*(1), 61–66. https://doi.org/10.54254/2754-1169/37/20231835

Yudelson, J. (1999). Adapting McCarthy's four p's for the Twenty-First century. *Journal of Marketing Education*, *21*(1), 60–67. https://doi.org/10.1177/0273475399211008

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, *12*(3), 341. https://doi.org/10.1086/208520

APPENDICES

Appendix 1: cover letter



Dear Participant,

My name is Kgothatso Molefe, and I am currently pursuing a Master's Degree in Strategic Marketing at Wits Business School. As part of my studies, I must complete a research project. I would like to invite you to participate in this academic survey. The purpose of this survey is to gather your inputs on the use of augment reality applications in the South African e-commerce fashion industry. The research is undertaken strictly for academic purposes under the supervision of Dr Emmanuel Quaye, and it has been approved by the university's Research Ethics Committee.

Participation in this study is voluntary, and you may choose to withdraw from the study at any point without any negative consequences. Rest assured that all the information you provide would be treated with utmost confidentiality, and your right to anonymity would be respected. It is important to abstain from mentioning your name in the survey to ensure anonymity. The survey will approximately take 10 minutes to complete. Kindly answer all the questions to the best of your ability. There are no correct or incorrect answers.

Thank you for your consideration. Your participation is greatly appreciated. Should you have any questions relating to this survey, please contact the undersigned. If you have any concerns or complaints about the ethical procedures of this research 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,

Researcher: Kgothatso Molefe

Email: 1530336@wits.ac.za

Supervisor: Dr Emmanuel Quaye

Email: emmanuel.quaye@wits.ac.za

Appendix 2: Research Instrument

SECTION 1: SCREENING QUESTIONS

1.A	Are you a South African citizen OR permanent residence?

YES	
NO	

1.B	Are you residing in Gauteng?

YES	
NO	

1.C	Do you have access to the internet?

YES	
NO	

1.D	Do you buy online very often?

YES	
NO	

If you have answered "**YES"** to all the above questions, please continue to answer the rest of the questionnaire. If you have answered "**NO"** to any of the above questions, please end here.

SECTION 2: DEMOGRAPHICS

2.A	Please select your gender

Male	
Female	
Prefer not to say	

2.B	Please select your racial profile

Black African	
Coloured	
Indian/Asian	
White	
Other (Specify)	

2.C	Please select your highest level of education you have completed

Matric	
Diploma	
Bachelor Degree	
Postgraduate Degree	
Other (Specify)	
Matric	

2.D	Please select your age group

18 - 24	
25 - 34	
35 - 44	
45 - 54	
55 and above	

2.E	Please select your monthly household income bracket

R0 - R5000	
R5001 - R10 000	
R10 001 - R25 000	
R25 001 - R52 000	
R52 001 or more	

2.F	How often do you shop for fashion items online?

Once a month	
Seasonally	
Occasionally	
Rarely	
Only when needed	

2.G	Select the online platforms you use the most to buy fashion items (please tick as many as apply)

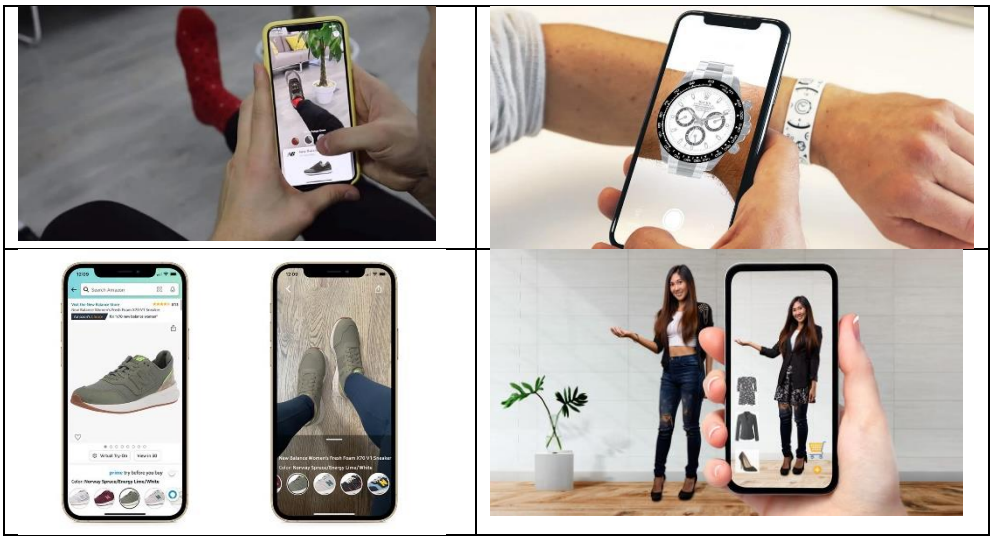
Takealot	
Superbalist	
Bash (Foschini Group)	
Woolworths	
Cotton on	
Temu	
Shein	
Zando	
Mr Price	
Zara	
Zana	
H&M	
Other (Please specify)	

SECTION 3: CONSTRUCTS MEASUREMENTS

The statements that will follow are related to augmented reality. Please rate the statements based on the extent to which you agree or disagree. There are no correct or incorrect answers.

> *Tan et al. (2022), defines augmented reality as the technology that provides users with a visual depiction of how virtual objects will look in the real world by overlaying these objects onto real-world environments.*

Images showing augmented reality in use to show how fashion items will look in real-world environments.



Images sources: (Ferenczi, 2018; Hyperbeast, 2023; Pettai, 2022; Shopexp, 2022)

3.A	Perceived Enjoyment (Alam et al., 2021)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I enjoy online platforms that use augmented reality technology when shopping for fashion items.					
I find the shopping process pleasant on online platforms that use augmented reality technology for fashion items.					
I have fun utilising augmented reality technology during the online shopping process.					

3.B	Perceived ease of use (Saleem et al., 2021)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
For me, it is easy to learn how to use augmented reality technology in online shopping platforms.					
I find it easy to get augmented reality technology to do what I want it to do when doing my online shopping.					
For me, it is easy to become skilful at using augmented reality technology on online shopping platforms					
My interaction with augmented reality technology is clear and understandable.					

3.C	Perceived Usefulness (McLean & Wilson, 2019)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Utilising the augmented reality feature on online shopping platforms allows me to shop for fashion items faster.					
Utilising the augmented reality feature on online shopping platforms enhances my shopping performance.					
Utilising the augmented reality feature on online shopping platforms makes it easier to shop for fashion items.					
I find the augmented reality feature on online shopping platforms useful when shopping for fashion items.					
Utilising the augmented reality feature on online shopping platforms increases my shopping productivity.					

3.D	Inspiration (Böttger et al., 2017; Rauschnabel et al., 2019)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The online shopping platform with augmented reality technology inspires me when shopping for fashion items.					
The online shopping platform with augmented reality technology stimulates my thinking when shopping for fashion items.					
The online shopping platform with augmented reality technology gives me new ideas and views when shopping for fashion items.					
The online shopping platform with augmented reality technology broadens my horizons when shopping for fashion items.					

3.E	**Consumer innovativeness (Goldsmith and Hofacker, 1991; Citrin et al., 2000 as cited in; Manzano et al., 2009)**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Usually, I am the first person in my group of friends to attempt experimenting with new features on online shopping platforms.					
If I heard that a new technology feature was available on the online shopping platform, I would be interested to test it.					
I am ahead of most people in my circle of friends with new technological features on online shopping platforms.					
I would use a new technology feature on an online shopping platform even if no one has tried it in my circle of friends.					
Usually, I am the first person in my group of friends to know of new technology features on online shopping platforms.					

3.F	**Attitude toward use of augmented reality (Saleem et al., 2021)**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I am enthusiastic about online shopping platforms with an augmented reality feature.					
The idea of using augmented reality in online shopping platforms is so interesting that I want to learn more about it.					
Shopping for fashion items online using a platform with an augmented reality feature is a good idea.					
It makes sense to use augmented reality when shopping for fashion items online.					

3.G	Behavioural Intention to use augmented reality (Rauschnabel & Ro, 2016; Saleem et al., 2021)

Measurement Item	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I will regularly use augmented reality in the future to shop for fashion items online.					
I think it will be helpful for me to use augmented reality when buying fashion items online.					
I will recommend using augmented reality to my friends.					
I am willing to use augmented reality when shopping for fashion items online.					

3.H	Product involvement (Kim, 2005; Trivedi et al., 2022)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I like to buy fashion items.					
It does not have to be a special occasion to buy fashion items.					

I have a strong interest in fashion items.					
I attach great importance to the fashion items I buy.					
Fashion items are a pleasure to me.					

3.I	Purchase Intention (Hwang et al., 2020; Mainardes et al., 2019; Pappas et al., 2017)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
In the future, I intend to buy fashion items online using augmented reality technology.					
My general intention to buy fashion items online using augmented reality is very high.					
I would think about buying a fashion item online after experiencing it with augmented reality technology.					
I am likely to use augmented reality when buying fashion items online.					

We thank you for your time spent taking this survey.

Your response has been recorded.

Appendix 3: Ethics Clearance Certificate

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School

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

Ethics Clearance Certificate

Ethics protocol number: WBS/SM1530336/776
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below,

Project title	Augmented reality applications and consumers' purchase intentions in the South African e-commerce fashion industry
Investigator / Researcher	Mr Kgothatso Molefe
Nature of Project	MM (Strategic Marketing)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed anonymity and confidentiality.
Issue Date of Certificate	2024/05/24
Expiry date	Date of submission of the project / research report
Chairperson	Ms Ayanda Magida ☎ +27 11 717 3953 ✉ ayanda.magida@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

24 May 2024
Date: