

**THE IMPACT OF TECHNOLOGICAL INNOVATION OF AUGMENTED REALITY  
ON CONSUMERS' PURCHASE INTENTION IN THE ONLINE FASHION RETAILING  
INDUSTRY**

by

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## ABSTRACT

Augmented Reality (AR) is revolutionizing various sectors, with the fashion industry at the forefront of this transformation. This study dives deep into the dynamics of AR applications in online fashion retailing, emphasizing the impact of the factors of the Innovation Diffusion Theory, including *relative advantage*, *complexity*, *trialability*, and *compatibility* on consumers' purchase intention of a fashion retail product via an AR-enabled mobile app. Based on the Flow Theory, this research also investigates the direct and mediating influences of AR aesthetics, the wow effect, and individual attitudes on consumers' purchase intentions. A total of 180 survey data are collected from potential users of the "Wanna Kicks app", an AR-enabled mobile-commerce app selling brand shoes. This study found that AR aesthetics significantly shape users' positive attitudes toward AR, while the wow effect significantly influences purchase intentions, and marginally moderates attitude-purchase intention relationships. This study also reveals that the relative advantage and trialability significantly influence consumers' attitudes toward AR apps while compatibility and complexity are found to be not insignificantly associated with consumers' attitudes. By exploring the Innovation Diffusion Theory (IDT) and Flow Theory, integrating factors like AR aesthetics and the wow effect for customers' purchase intention using AR, this research offers a holistic lens to understand the determinants driving consumers' purchase intentions via AR-enabled technology in the context of the fashion retailing industry. Surprisingly, consumers' prior AR knowledge doesn't necessarily amplify the wow effect, while AR knowledge influences app aesthetics, suggesting that seasoned AR users might possess a nuanced appreciation of AR app design elements. The findings provide invaluable insights for fashion retail marketers, informing about tailored marketing and technology strategies for diverse user segments, and underscore the importance of aesthetic and user-friendly AR design for enhanced consumer engagement and purchase decisions.

## LIST OF ABBREVIATIONS USED

COMPL	Complexity
COMPA	Compatibility
TRI	Trialability
REA	Relative advantage
AES	Aesthetic
WOW	Wow
AR	Augmented Reality
App	Application
	Innovation Diffusion
IDT	Theory
ARK	AR Knowledge
MTurk	Mechanical Turk
VIF	Variance Inflation Factor
PI	Purchase Intention
ATT	Attitude
TAM	Technology Acceptance Model

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## CHAPTER 1: INTRODUCTION

Augmented Reality (AR) has emerged as a pivotal force in the technological revolution and is set to redefine how we interface with the digital environment by seamlessly integrating virtual elements into our physical reality, AR establishes a blended experience that surpasses traditional digital interactions. As noted by Pichai (2021), AR is projected to underpin future technological paradigms, reflecting its indispensable role in transforming various industries. Global data on AR market growth illustrates its soaring potential valued at \$42.20 billion in 2022 and is anticipated that the worldwide market will expand significantly, increasing from a valuation of \$62.75 billion in 2023 to an estimated \$1,109.71 billion by 2030. This growth represents a compound annual growth rate (CAGR) of approximately 50.7% over the forecast period (Fortune Business Insights, 2023). Several factors have propelled this growth. The widespread availability of affordable AR-compatible devices, such as smartphones and tablets, has expanded access to AR knowledge. Moreover, AR's versatility ensures its utility across a plethora of sectors, ranging from entertainment to advanced healthcare procedures (Ng et al., 2019).

Across various industries, the retail sector has always been keen to harness technological innovations and stands on the precipice of AR-driven innovations. Traditional retail landscapes are undergoing profound transformations (Grewal et al., 2017). AR has ascended as a powerful instrument to bolster consumer engagement, streamline operations, and re-envision shopping paradigms. Major global entities, from Burberry to Nike, have integrated AR into their strategies, launching immersive applications (a.k.a. apps, hereinafter) that facilitate enriched product visualization and foster interactive consumer-brand dynamics (Paine, 2018).

However, the physical appeal of physical stores remains undiminished. The hands-on joy of physical shopping, the immediacy of in-store purchases, and the confidence instilled by direct try-ons continue to appeal to consumers. A significant segment preferentially integrates online product exploration with offline acquisitions, exemplifying the 'web rooming' trend (Kang, 2018). Notwithstanding, online retail is not without its challenges. The fashion retailing industry confronts substantial return rates, predominantly attributed



to fit inconsistencies. These returns not only dent profits but also amplify environmental challenges, primarily due to expanded logistics and carbon emissions (Cullinane et al., 2019).

Fashion, by its nature aligned with continual evolution, is poised at a critical juncture. Virtual try-on apps, powered by AR, have emerged as game-changers. These applications empower consumers to virtually try on outfits, synthesizing online shopping's convenience with the reliability of physical trials. Consumers savor streamlined experiences, retailers can potentially reduce returns and economize on operational expenditures, and there's an overarching societal advantage via diminished environmental impacts (Goel, et al., 2023). Yet, apprehensions about AR imagery's realism, the precision of virtual fittings, and the tangible benefits of AR juxtaposed against traditional shopping deter widespread adoption in m-commerce (Plotkina and Saurel, 2019).

AR technology's ongoing refinements herald a paradigmatic shift, emphasizing immersive, personalized, and intuitive user experiences (Germanakos, 2022). Existing literature has begun examining diverse facets of AR adoption, encompassing factors like perceived utility, ease of use, and hedonic experience dimensions (Hoffmann and Mai, 2022; Holdack et al., 2022; Vijayasarathy, 2004). The *wow effect in AR*—its inherent capacity to evoke awe and wonder—has been identified as a central determinant in shaping user perception in the fashion industry (Arghashi, 2022), and *aesthetics aspects* of product display in retailing—which deals with the visual appeal and content design of AR app—has been found an important factor for consumers positive experience in the mobile shopping in fashion retailing industry (David et al., 2021; Kim et al., 2019).

Notwithstanding the extensive discussion, limited research investigated the influence of *AR aesthetics* and the *wow effect* on consumer attitudes toward AR apps in the fashion retailing context (Arghashi, 2022; Kim et al., 2019). Furthermore, the integration of key *Innovation Diffusion Theory antecedents* (such as *relative advantage, complexity, trialability, and compatibility*) with AR's *wow effect* and *aesthetics* to understand fashion retailing consumers' AR attitudes and purchase intention is relatively nascent (Jiang et al., 2021). This research aspires to bridge these gaps, providing a holistic exploration of AR's transformative potential in the fashion retail industry.

In sum, based on Innovation Diffusion Theory (IDT) (Jiang et al., 2021; Rogers, 1995), Flow Theory (Csikszentmihalyi, 1997; Ikad, 2016), and the literature on the adoption of AR in the retail contexts, this study is intended to investigate the synergistic effects of *Innovation Diffusion Theory factors* and the *AR wow effect* and *aesthetics* on consumers' *purchase intention*. It also investigates the effect of consumers' prior knowledge of AR technology, in general, to see if the experience influences their *AR wow effect* and *aesthetics* by trying an AR-enabled mobile app for fashion retailing. Additionally, it examines the moderating effect of *AR wow effect* and *aesthetics* on the relationship between consumers' *AR attitudes* and *purchase intention*.

Findings from survey data collected from individuals who are asked to install and use an AR app for fashion retailing for footwear (i.e., Wanna Kicks in IOS) underscore the AR wow effect as a crucial determinant directly influencing their 'purchase intention of fashion products via the AR app' (purchase intention, hereinafter). AR aesthetics, while not directly influencing purchase intention, indirectly influence purchase intentions through 'forming a positive attitude toward AR apps' (attitude, hereinafter). Furthermore, insights into the relationship between individuals' prior *AR knowledge* and *AR wow effect* and *aesthetics* are also revealed. Contrary to expectations, prior AR knowledge doesn't necessarily amplify the wow effect. However, prior AR knowledge significantly influences app aesthetics, suggesting that experienced AR users might possess an insightful appreciation of AR app design elements.

The finding of this study offers some theoretical contributions. It contributes to the theory of IDT and Flow, as this study applied these theories to investigate the phenomena related to innovation adoption and consumers' flow experience in the context of AR apps for the fashion retailing industries. This study also contributes to the literature on the impact of AR in mobile marketing. It offers some practical applications; it can help AR designers and developers create visual aesthetics that will meet consumers' needs by making AR knowledge unique and distinct by designing a user-friendly interface. It can also help digital marketers in the fashion retailing industry prepare customized marketing approaches targeted at AR novices or AR experts to increase their purchase intention.

The subsequent sections commence with an overview of Augmented Reality in retailing, the impact of technology in fashion retailing, purchase intention in fashion retailing, aesthetics, and the wow effect through mobile apps, Innovation Diffusion, and Flow Theory.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 AUGMENTED REALITY IN THE FASHION RETAILING**

Augmented Reality (AR) is an innovative technology that revolutionizes user engagement by seamlessly overlaying digital visual elements onto the real-world environment, enhancing the user's perception and interaction with their surroundings (Grewal et al., 2017). The transformative potential of Mobile Augmented Reality (AR) is evident across diverse sectors, from reshaping consumer behavior in e-commerce to redefining immersive experiences in gaming, furniture, automobile, cosmetic and beauty, tourism, entertainment and education (Awang et al., 2019; Bonnin, 2020; Hinsch et al., 2020; Khan, 2019; Kim et al., 2019; Leu and Jung, 2014; McLean and Wilson, 2019; Qin et al., 2021). As the literature suggests, AR's capacity to overlay digital data onto the physical world not only enhances user engagement and interactivity but also offers the prospect of a more personalized and immersive user experience (Grewal et al., 2017; Holdack et. al. 2022).

Building on the foundations of AR's versatile applicability, the domain of marketing has harnessed this technology to create novel and engaging consumer experiences. AR marketing interweaves digital enhancements with the physical world, enriching consumer perception and clearly articulating value propositions (Rauschnabel et al., 2019). A recent article has underscored the substantial potential of AR in marketing, while also acknowledging the challenges associated with its implementation (BCG, 2018). Additionally, researchers have found that AR advertising has emerged as a superior alternative to traditional advertising methods. AR-empowered advertisements offer a wealth of advantages, including greater informativeness, novelty, entertainment value, and complexity (Feng & Xie, 2019; Yang et al., 2020). The integration of AR technology into advertising enhances the overall quality of consumer engagement and facilitates a more immersive and interactive advertising experience, ultimately boosting the effectiveness of marketing campaigns, evoking stronger affective responses, and eliciting behavioral intentions through the perceived state of flow (Javornik, 2016; Rauschnabel et al., 2017).

In retailing, AR-empowered stores and restaurants have provided consumers with novel on-site experiences (Batat, 2021; Bonetti et al., 2019; Cuomo et al., 2020; Heller et al., 2019). AR apps can provide detailed product information, user reviews, and even personalized recommendations, all accessible in user-friendly and engaging manners (Cuomo et al., 2020; Heller et al., 2019). This level of personalized engagement increases customer satisfaction and fosters brand loyalty (McLean and Wilson, 2019; Smink et al., 2020). Additionally, AR technology provides retailers with valuable consumer data and insights. By analyzing interactions with product scans, retailers gain a deeper understanding of customer preferences, which is essential for optimizing marketing strategies and product development (Hsu and Lin, 2016; Jiang, et al., 2021). Such innovations have redefined the online shopping paradigm, combining the convenience of digital exploration with the assurance of tangible product interaction (Bonnin, 2020; Whang et al., 2021). Besides, AR in retail significantly improves inventory management and in-store navigation (Jung et al., 2021). With the incorporation of AR technology, retailers can offer customers virtual maps and guides within physical stores, making the shopping experience more efficient and enjoyable and increasing the likelihood of purchase.

In the fashion retail industry, the use of Augmented Reality (AR) applications has marked a significant shift in how consumers interact with products and brands. As detailed by Holdack et al. (2022), Jiang et al. (2021), and Qin et al. (2021), AR apps offer immersive experiences that enhance consumer engagement. For instance, virtual try-on features allow customers to visualize clothing, accessories, or makeup on themselves, bridging the gap between the digital and physical realms. This blend of digital exploration with a sense of tangible product interaction, as observed by Bonnin (2020) and Whang et al. (2021), is reshaping the landscape of online shopping. Beyond virtual try-ons, AR in fashion retailing extends to interactive product demonstrations and 3D visualizations, enabling consumers to see products in their intended environment. This immersive experience not only improves customer satisfaction but also reduces the likelihood of product returns, a significant challenge in online retail. AR-driven apps help customers make more informed purchasing decisions, aligning their expectations with the reality of the product (Kim and Forsythe, 2009).

However, despite the extensive exploration of ARs in different aspects, there is a recognized need for a deeper understanding of their impact on consumers' purchase decision-making, particularly in the fashion retailing industry. The gap identified in the literature concerning AR's influence on consumer attitudes and behavioral intentions points to a rich avenue for future research, especially in the realm of fashion retailing where its successful implementation is contingent upon high-quality, realistic graphics and immersive AI-enabled platforms to ensure seamless and realistic user interactions (Chandra & Kumar, 2018; Fan et al., 2020; Qin et al., 2021). In order to explore the extant studies on the role of AR in the fashion retailing industry, I have reviewed 25 papers. Table 1 summarizes the studies on the AR applications within the retailing industry in different contexts, which informed me to find a research gap in the current literature on the impact of AR in the retail industry. As shown, while these studies have investigated the roles of AR in various retail contexts, little empirical effort has been made to look into the roles of AR apps in fashion retailing.

**Table 1 Literature Review on the impact of AR in the retailing industry**

<b>Context</b>	<b>Authors (years)</b>	<b>Type of Study</b>	<b>Theory</b>	<b>IV</b>	<b>DV</b>	<b>Med/Mod.</b>	<b>Findings</b>
Automobile	Jung et al. (2021)	Online survey	Experience Economy Theory	Spatial ability (sensory domain), sense of presence (feeling domain), and conceptual understanding (cognitive domain)	Purchase Intention	Mediation: educational, entertainment, aesthetic, and escape experience	The study found that the use of Augmented Reality (AR) in educational, aesthetic, entertainment, and escape contexts has a positive impact on user satisfaction and purchase intention. AR experience mediates the relationships among presence, conceptual understanding, spatial ability, user satisfaction, and intention to purchase location-based AR systems.
Cosmetics and beauty	Watson et al. (2018)	Experiment	Stimulus Organism Theory	Presence of AR Apps (Augmentation) Performance Expectancy, Effort expectancy, Social Influence, Facilitating condition, Innovativeness,	AR Adoption	Moderation: hedonic motivation Mediation: positive affective response.	The study found that using an experiential AR retail app can increase purchase intention by inducing a positive emotional response.

				Reward, Trust and Enjoyment			
	Smink et al. (2020)	Lab experiment	Reactance Theory	Spatial presence, Perceived personalization, Perceived intrusiveness	App responses and Brand responses		Spatial presence and perceived personalization were found to be factors contributing to positive persuasive responses towards AR apps. Perceived personalization increased purchase intentions in an app. Spatial presence enhanced purchase intentions in an app that showed virtual products in one's surroundings, and no negative persuasive consequences were found.
	Whang et al. (2021)	Experiment	Telepresence Theory	AR Experiences (Vividness, interactivity)	Purchase intention	Mediation: Behavioral control and cognitive control Moderation: peers' opinion	A customer's intention to purchase is increased solely by cognitive control which is equally affected by communication with peers.



E-commerce	Hsu and Lin (2016)	Experiment	ABC model of attribute	Perceived value (Hedonic and Utilitarian value), social influences (social norm and social identification).	ABC model of attribute	Mediation: Attitude, satisfaction, and stickiness	Perceived value and social influences influence mobile app stickiness. Mobile app stickiness has a positive effect on in-app purchase intention. The effect of perceived value (social influence) on in-app purchase intention is mediated by mobile app stickiness.
	Rauschnabel and Ro (2016)	Survey	TAM	Social norm, self-presentation, functional benefits, ease of use, attitude towards the manufacturer brand, data privacy image of the manufacturer brand, and technology innovativeness	Adoption	Attitude towards using smart glasses.	The study revealed high consumer knowledge about smart glasses, with technological innovativeness shaping attitudes and adoption intentions. Social norms and brand attitudes significantly influence the adoption of augmented reality smart glasses
	Baek et al. (2018)	Experiment	Self-Attention Theory	AR Viewing	Purchase Intention	Mediation: Self-Brand Connection (SBC)	The study found that self-viewing through AR leads to stronger SBC and higher purchase intentions. SBC fully mediates the

							relationship between the AR viewpoint and purchase intentions.
Chandra and Kumar (2018)	Online survey questionnaire	Technology-Organization - Environment Theory (TOE)	Technological Factors: Technological Competence and Relative Advantage Organizational factor Environmental factors (consumer readiness and competitive pressure)	AR adoption Intention	N/A		The study revealed that the adoption intention of AR technology is influenced by technological competence, relative advantage, top management support, and consumer readiness
Khan, (2019)	Survey	Experiential Learning Theory/TAM	Credibility, Perceived usefulness, and Apps personalization	Purchase Intention	N/A		The study found that the credibility of AR marketing significantly affects purchase intention. Also, perceived usefulness influences app personalization and in turn, influences the purchase intention.
Rahi et al. (2019)	Structured Questionnaire	UTAUT	E-service Quality (website design, customer service, assurance and reliability)	Intention to adopt	Mediation: effort expectancy and		The study found that assurance had the most significant influence on customers' intention to adopt Internet banking.

						performance expectancy	Also, performance expectancy and effort expectancy positively mediate the relationship between website design, customer service, and customers' adoption of internet banking.
Bonnin (2020)	Experiment	TAM	AR Presence/AR Absence (Utilitarian Hedonic and perceived risk)	Patronage Intention	N/A		The study found that the attractiveness of the online store and the user's familiarity with AR significantly enhance patronage intention. Conversely, perceived risk markedly diminishes this intention.
Qin et al. (2021)	Survey	Cognition-Affect-Conation (CAC)	Cognitive factors (including perceived value, Experiential value, virtual presence, Shopping benefit) affective factors (attitude and satisfaction)	Continuous use and purchase intention	Moderation: familiarity Mediation: perceived risk and attractiveness		The study found that cognitive and affective factors influence users' continuous use and purchase intentions of mobile augmented reality (MAR). Also, satisfaction mediated the relationship between perceived value and MAR.

	Holdack et al. (2022)	Survey	Extended TAM	Perceived informativeness, perceived ease of use, perceived usefulness, and perceived enjoyment	Intention to use	Mediation: Attitude	Perceived ease of use (PEOU) doesn't influence perceived usefulness (PU) and attitude directly but indirectly through perceived enjoyment (PE) and perceived informativeness (PI).
Education	Awang et al. (2019)	Survey	IDT	Ease of use, usefulness, self-efficacy, compatibility	Use intention	N/A	The findings show that Mobile AR is affected by ease of use, usefulness, and compatibility in teaching and learning.
	Mundy et al. (2022)	Mixed Method	IDT	AR content, student excitement, and student enjoyment	Student engagement	N/A	AR content, student excitement, and student enjoyment positively affect student engagement.
Entertainment	Hinsch et al. (2020)	Survey	Processing fluency theory	Psychological inspiration (inspired by) and behavioral inspiration (inspired to) AR expertise, Ease of use, App brand	Behavioral inspiration (Inspired to)	Mediation: Nostalgia and wow effect	The study established that nostalgia fully mediates the relationship between psychological inspiration and behavioral outcomes. In contrast, the "wow effect" does not.

Furniture	Raska and Richter (2017)	Experiment	Schwartz's Theory	Telepresence, Technological Anxiety, Perceived ease of use, Ego involvement	Purchase Intention	Mediation: Hedonic value and Utilitarian value, attitude and product knowledge	The results show that product knowledge, and hedonic and utilitarian value positively influence purchase intention. Telepresence doesn't influence purchase intention except when being mediated.
	McLean and Wilson (2019)	Online survey and questionnaire	TAM	AR Attributes (AR interactivity, AR Vividness and AR Novelty)	Brand Engagement	Mediation: Technology Attributes (Perceived ease of use, (PEU) perceived usefulness, enjoyment, and subjective norms) Moderation: Usefulness	The study found that: The interactivity, vividness, and novelty of the AR content displayed affect consumers' PEU of the technology. Brand engagement through AR is more effective in enhancing customer satisfaction. (iii) The novelty of AR content influences consumer's enjoyment of the technology
Gaming	Kim et al. (2019)	Focused group interview	Theory of planned behavior	Design innovation (attributes (aesthetics, features, and emotions) AR Presence/Absence	Patronage Intention	Moderation: familiarity Mediation: perceived	The study found innovative design attributes (aesthetics, features, and emotional attributes)

				(Utilitarian, Hedonic, and Perceived Product risk		risk and attractiveness	improved perceived value, and perceived value leads to the purchase intention of augmented products.
Grocery and supermarket	Saprikis et al. (2020)	Survey questionnaire	UTAUT	Performance Expectancy, Effort expectancy, Social Influence, Facilitating condition, Innovativeness, Reward, Trust and enjoyment	AR Adoption	N/A	The results showed that performance expectancy, enjoyment, and reward directly influence AR technology adoption whereas facilitating conditions, social influence, innovativeness, and trust indirectly influence behavioral intention adoption.
Mobile banking	Lin (2011)	Survey	IDT & Knowledge-Based Trust	Innovation attributes (perceived relative advantage, perceived ease of use, perceived compatibility) Knowledge-based trust about adoption (Perceived competence, perceived benevolence, perceived integrity)	Behavioral intention	Mediation: Attitude toward adopting	The study found that the perceived relative advantage and ease of use, perceived competence, and integrity had a significant impact on attitudes toward mobile banking while perceived benevolence is insignificant.

	Rahi et al. (2019)	Structured questionnaire	UTAUT	E-service Quality (website design, customer service, assurance and reliability)	Intention to adopt	Mediation: effort expectancy and performance expectancy	The study found that assurance had the most significant influence on customers' intention to adopt Internet banking. Besides, performance expectancy and effort expectancy positively mediated the relationship between website design, customer service, and customers' adoption of Internet banking.
Tourism	Leue & Jung (2014)	Review	TAM	Enjoyment, Perceived benefits, Personal Innovativeness, Information quality, Costs of Use	Usage Behavior and Intention to Use	Mediation: Attitude	The study found that enjoyment, personal innovativeness, perceived benefits, costs, and information quality positively affect behavior and use intention.
	Alam et al.(2022)	Survey	Integrated Technological Environment (TOE) and Diffusion of	Perceived cost, relative advantages, complexity and compatibility, observability, competitor pressure, value alignment,	Behavioral Intention	Mediation: Value Alignment	The study found that except for competitor pressure, all the factors including perceived cost, relative advantages, complexity and compatibility, observability, competitor

			Innovation (DOI).	customer pressure, and trialability			pressure, value alignment, customer pressure, and trialability, are positively associated with the behavioral intention.
	Shen et al. (2022)	Survey	TAM	Perceived usefulness, perceived ease of use, hedonic motivation, and perceived price value	Behavioral Intention	Mediation: Attitude	Findings indicated that perceived usefulness, hedonic motivation, and price value are important predicting factors for Chinese students' adoption and use of these applications. Perceived usefulness and hedonic motivation are positively associated with students' attitudes.

\* DV= Dependent Variable, IV= Independent Variable, Mod=Moderation, Med= Mediation

\* ABC model = Affective-Behavior-Cognitive model, TAM = Technology Acceptance Model, UTAUT = Unified Theory of Acceptance and Use of Technology, IDT= Innovation Diffusion Theory



## 2.2 INNOVATION DIFFUSION THEORY

Innovation Diffusion Theory (IDT), developed by Rogers in 1962, seeks to explain how and why new ideas, technologies, products, or services spread within societies or among different groups of people. The theory provides insights into the adoption process and identifies the factors that influence the rate of adoption of an innovation (Rogers, 1962). Specifically, IDT aims to shed light on how innovations are introduced, accepted, and adopted by individuals or social systems. IDT is preferred over the Technology Acceptance Model (TAM) because it is suitable for exploring the broader diffusion process across different user segments and societal contexts, which is essential in the dynamic fashion retail sector, unlike TAM which is primarily based on usability. Thus, TAM primarily focuses on perceived ease of use and perceived usefulness, which might not capture the full range of factors influencing AR adoption in fashion retailing. Hence, Legrit et al. (2003) proposed enhancing TAM to include variables that reflect change processes which could be achieved through the adoption of the innovation model into TAM. IDT posits that the adoption of innovations follows a predictable pattern and is influenced by specific factors: relative advantage, compatibility, trialability, observability, and complexity (Lee et al., 2011; Rogers, 1962). Relative advantage refers to the perceived superiority of a new product or innovation over existing alternatives. Compatibility is the degree to which an innovation or product harmonizes with the existing values, prior experiences and requirements of potential adopters. Trialability refers to the extent to which an innovation or product can be experimented before being committed. Observability refers to the extent to which the effects and advantages of an innovation or product are visible and easily perceived by potential adopters. Complexity refers to the degree of difficulty involved in understanding and using a new product or innovation (Jiang et al, 2021; Rogers, 1995).

IDT has found application in various fields, including technology adoption, healthcare, education, agriculture, marketing, and social change initiatives, and has received substantial empirical validation across diverse domains, particularly in the context of innovative products and services with AR, such as smartphones, mobile banking, social media platforms, and entertainment, (e.g., Awang et al., 2019; Jiang et al., 2021; Plotkina

and Saurel, 2019; Lin, 2011). In the context of the fashion industry, Baek et al. (2022) found that the accuracy in depicting the size and color of dresses was comparable to that of physical try-ons and that AR also effectively showcased visual aspects such as style, garment details, and compatibility with other items. Similarly, Schein et al. (2021) examined the barriers to adoption of AR in the fashion industry. These studies support the applicability of this theory to the context of AR technology used in the fashion retailing industry.

This research explores the interactions and influences of *relative advantage*, *compatibility*, *trialability*, and *complexity*, investigating their impact on consumers' attitudes toward AR-powered mobile apps for fashion retailing and their intentions to purchase fashion products using the app. Observability was intentionally omitted due to the personalized nature of using the App, where the focus of this study lies on an individual's behavioral intention of using the AR app to purchase fashion products (i.e., shoes). Purchasing decisions using a mobile app, being inherently private and individual, minimizes the relevance of observability in this context, rendering it negligible for consideration.

### **2.3 THE FLOW THEORY: AR AESTHETICS AND WOW EFFECT**

The concept of flow denotes a state where individuals become completely absorbed in an activity, detaching themselves from the external world. Coined by Csikszentmihalyi (1997), this phenomenon represents a scenario in which an individual exhibits unwavering focus, full immersion, and profound engagement in the task at hand. During this state, self-consciousness dissipates, and individuals find immense enjoyment in the process. Although flow is relatively rare in everyday life, it can be induced by various activities such as work, study, or even religious rituals (Seligman & Csikszentmihalyi, 2014).

Flow has been observed in diverse activities including chess, rock climbing, and dancing (Csikszentmihalyi, 1997). Recent research has extended the concept to areas like sports, shopping (both online and offline), and virtual gaming where Hoffman and Novak (2009) emphasize the pivotal role of concentration and immersion in defining the flow

experience, which entails the feelings of profound pleasure, focused attention, and an altered perception of time.

Technology-driven flows are proposed by Novak et al. (2000), and Novak et al. (2003), who describe the technological flow experience as a seamless sequence of interactions facilitated by machine interactivity, inherently enjoyable, and accompanied by a loss of self-consciousness. Some recent studies have also highlighted the various technology-driven flow experiences. For example, Kim et al. (2012) found the immersive tendency significantly influences users' psychological states during digital interactions and Lin et al. (2020) argued that online flow experiences are perceived as optimal due to their seamless response, interactivity, inner pleasure, and loss of temporal and spatial awareness. Among many technologies that enable users' flow experiences, AR technology, with its inherent interactivity, creates meaningful engagements for users, enhancing their interactions with products and brands (Poushneh & Vasquez-Parraga, 2017). Moreover, the flow theory has been identified as a valid metric for assessing users' AR experiences, positively influencing their satisfaction and attitudes (Shin, 2019).

Among various flow experiences achieved by AR, several studies proposed *the aesthetic* and *wow effect* as important flow experiences. Ikad (2016) suggests that when users find an AR app visually appealing and engaging, they are more likely to become fully immersed, leading to a flow experience of *aesthetics*. *The wow effect*, achieved through stunning visual effects or interactive features, triggers emotional responses such as surprise, excitement, or curiosity (Hinsch et al., 2020). These emotional engagements heighten users' immersion, making them lose themselves in the AR experience, leading to positive reactions to the objects displayed by AR.

These AR-enabled flow experiences play important roles in affecting consumers' perceptions and intentions for the products and services presented with AR because they can captivate users' attention and enhance immersion during the encounters of products and services (Ikad, 2016). That is, when the visual elements are beautiful and well-organized and positively surprise the consumers, they can concentrate fully on their interactions with the products and services, leading to a sense of immersion and flow. Bazi, (2023); Butt et al. (2021) also found that the AR-enabled *wow effect* makes

products or virtual objects more visually attractive to users and that *aesthetic appeal* fosters positive emotional responses and engagement with AR content. Innovative design attributes, including aesthetics, features, and emotional elements, are found to positively influence perceived value, which in turn plays a pivotal role in influencing the purchase intention of the products displayed with AR technology (Kim et al., 2019). Therefore, this study adopts the flow experience of *aesthetics* and *wow effect* in AR applications to examine consumer attitudes and purchase intentions in the fashion retailing industry.

## **2.4 THE ROLE OF AR IN FORMING PURCHASE INTENTION IN THE FASHION RETAILING INDUSTRY**

Purchase intention is defined as the likelihood that a consumer will choose to buy a particular product or service. This concept is crucial in understanding consumer behavior and driving marketing strategies (Chitioui 2020; Kim and Forsythe, 2008).

The fashion industry, known for its dynamic nature and consumer-centric approaches, focuses significantly on psychological and social factors for purchase intention. These include aspects like brand image, fashion trends, personal identity expression, and social influence, all of which play a pivotal role in shaping consumers' purchasing decisions (Chitioui, 2020; Gabriel et al., 2023; Park and Kim, 2021).

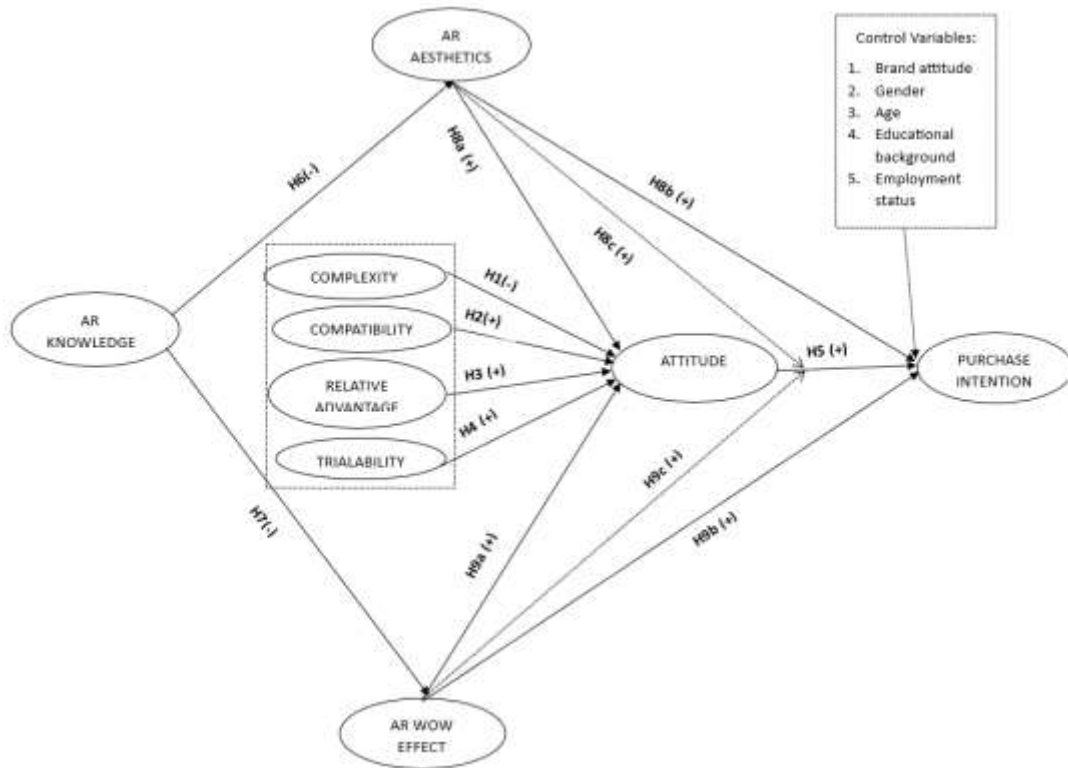
Recently, there have been a few empirical attempts to apply AR in enhancing consumers' purchase intention in the fashion retailing industry (Arghashi, 2022; Hinsch et al., 2020), because AR can provide immersive and interactive experiences, allowing consumers to visualize various fashion items on themselves without physically trying them on (Arghashi, 2022; Hinsch et al., 2020). Such AR experiences enhance customer engagement and can positively impact the perceived value and attractiveness of fashion products. For example, AR-powered shopping apps are becoming increasingly popular, enabling customers to try on and visualize products virtually, thus facilitating more informed and satisfying purchase decisions (e.g., Arghashi, 2020; Hinsch et al., 2020). However, only a handful of studies have investigated the factors that influence consumers' purchase intention in the context of AR technology in fashion retailing. Therefore, this study focuses on consumers' purchase intention in the fashion retailing industry using IDT and flow experience to explore how AR technology can enhance the

shopping experience and subsequently affect purchase intention. This approach provides an insightful understanding of the combined effects of the technological innovation factors (i.e., from IDT) and consumer experience factors (i.e., from Flow theory) on purchase behavior in the fashion retailing industry.

### CHAPTER 3: RESEARCH MODEL AND HYPOTHESES

Based on the preceding reviews, this study investigates the relationships among ‘prior AR knowledge’ (ARK, hereinafter), four innovation diffusion factors (relative advantages, complexity, trialability, compatibility), two flow experiences achieved by AR (wow effect and aesthetics), ‘attitudes toward an AR app for fashion retailing’ (attitude, hereinafter), and ‘consumers’ purchase intention of fashion products using AR’ (purchase intention, hereinafter).

Figure 1 shows the research model.



**Figure 1 The research model**

Based on Innovation Diffusion Theory (IDT), complexity entails the challenge or difficulty in comprehending or utilizing Augmented Reality (AR) apps (Jiang, 2021; Rogers, 1995). The level of difficulty involved in the use of AR apps should significantly

and negatively influence consumers' attitudes. Several studies have shown that the complexity of technology negatively affects consumers' technology attitudes (Agag & El-Masry, 2016; Amaro & Duarte, 2015; Chen et al., 2002; Jiang et al., 2021; Van Slyke et al., 2007). For example, Alam et al. (2011) confirmed that complexity negatively affects SMEs' e-commerce adoption intention. Similarly, Jiang et al. (2021) demonstrated a negative relationship between complexity and consumers' adoption attitudes in retailing.

In the context of AR apps for fashion retailing as well, complex AR apps often entail steeper learning curves, requiring users to invest more time and effort to comprehend their functionalities. Users may find such apps challenging to navigate, leading to frustration and negative attitudes. Similarly, complex AR apps may give users a sense of diminished control due to intricate features or unclear instructions. Therefore, the study posits that:

**H1: The complexity of AR Apps is negatively associated with consumers' attitudes toward AR apps.**

When consumers encounter a new technology, their inclination to adopt it is deeply rooted within the framework of their established living habits, behaviors, cognitive processes, values, and specific requirements (Agag & El-Masry, 2016). As defined, compatibility entails one's feeling that a technology being adopted is compatible with the existing values, beliefs, and needs of potential adopters (Jiang et al., 2021; Rogers, 1995).

Consequently, the compatibility of new technologies with consumers' existing lifestyles and preferences holds immense significance. A body of research corroborates the positive and significant influence of perceived compatibility on consumers' attitudes toward adopting emerging technologies (Agag & El-Masry, 2016; Agarwal & Prasad, 2000; Amaro & Duarte, 2015; Van Slyke et al., 2007; Wang et al., 2018). In the context of this study, if consumers perceive AR Apps will meet their existing lifestyle and needs, they form a positive attitude toward the use of AR Apps (Singh 2020, Jiang et al., 2021). Hence, I posit that:

**H2: The compatibility of AR apps is positively associated with consumers' attitudes toward AR Apps.**

Relative advantage entails the perceived superiority of new technology or innovation over existing solutions. (Jiang et al., 2021; Rogers, 1995). It plays a significant role in shaping consumers' attitudes and adoption intentions. When consumers believe that adopting a new product or technology offers significant benefits, improvements, or advantages compared to what they are currently using, it enhances their positive attitudes and intentions toward that product or technology (Jiang et al., 2021; Rogers, 1995).

The research conducted by Jiang et al. (2021), and Van Slyke (2007) indicated that the perceived relative advantage, a central concept in innovation diffusion theory, directly influences users' attitudes toward communication technology. In the fashion retailing App context as well, when users find AR apps offer more benefits, improvements, or advantages in shopping for fashion items compared to what they could do without it (e.g., a category-based fashion mobile-commerce apps without AR), they are inclined to have favorable attitudes, considering them as technologically superior. Therefore, it is proposed that:

**H3: The relative advantage of AR Apps is positively associated with consumers' attitudes toward AR apps.**

Trialability provides consumers with the opportunity to familiarize themselves with a technology service's interface and functionality. It also enables users to make informed decisions about whether the technology-enabled service suits their requirements, which increases their confidence about using the technology. As an individual gains confidence in using technology, their attitudes should become more positive (Jiang et al. 2021; Rogers, 1995). Previous research by Karahanna et al. (1999) also highlighted the positive impact of perceived trialability on individual's attitudes regarding the utilization of online electronic operating systems. This finding has been corroborated by subsequent studies (Wang et al., 2018; Al-Rahmi et al., 2019).

In the context of AR apps for fashion retailing items, by experiencing the app's interfaces and functionality firsthand, consumers can become more confident that the app aligns



with their expectations and objectives, which will result in a positive attitude (Jiang et al., 2021; Van Slyke et al., 2007). Hence, it is hypothesized that:

**H4: Trialability of AR Apps is positively associated with consumers' attitudes toward AR apps.**

Positive attitudes toward AR apps often lead to higher engagement levels. (Reardon et al., 2006). Interactive and enjoyable experiences within the app, such as gamified elements or personalized content, capture users' attention and interest, encouraging them to explore products further using the app. Positive attitudes toward these apps indicate reliability and credibility, making consumers more comfortable with the idea of purchasing by using the AR apps. (Van Slyke et al., 2007).

In online retail, consumers' positive attitude toward the utilization of technologies significantly influences their purchase intentions with the technology (Fan et al., 2020; Plotkina and Saurel, 2019; Zhang et al., 2019). For instance, positive attitudes exhibited by consumers regarding self-service collection services at automated parcel stations and communication technologies enhance their intentions to embrace these services (Van Slyke et al., 2007; Wang et al., 2018). Besides, a positive attitude toward AR smart applications stimulates consumer use intention (Jiang et al., 2021) and I argue that this positive attitude toward the AR app should improve users' intention to purchase fashion items using the app in the fashion retailing as well. Hence, I posit that:

**H5: Consumers' attitude toward AR Apps is positively associated with purchase intention.**

Consumers who have minimal knowledge about AR might have a stronger perception of AR aesthetics because they lack comparisons to previous encounters. Therefore, they are more likely to find the aesthetic effect of AR impressive and visually appealing. This is in line with a study by Jung et al. (2021) discovered that education had a stronger impact on satisfaction for those without prior AR knowledge, which was also consistent with previous research indicating that prior experience positively affects first-timer users' satisfaction with art education programs at museums (Araujo, 2018).

Barhorst et al. (2021) posit that for users with previous AR knowledge, the AR characteristics such as vividness, novelty, and interactivity might not be as striking or new, which could lessen the intensity of the flow state. Their familiarity with AR might lead them to have specific expectations and a more critical view of AR aesthetics. As a result, they may not experience the same level of aesthetic impact as those encountering these features for the first time. Hence, it is hypothesized that:

**H6: Consumers' previous knowledge about AR technology is negatively associated with AR aesthetic effect experience.**

Consumers with minimal knowledge of AR are more likely to experience a stronger sense of wonder or amazement when they interact with AR technology for the first time. This response can be attributed to the novelty and unfamiliarity of the experience. Without preconceived notions or benchmarks for comparison, these consumers encounter AR as a fresh and innovative technology, leading to a more pronounced emotional reaction. This perspective is supported by research indicating that novelty plays a significant role in determining the intensity of user experience with technological innovations with in-home use of a robot (Abendschein et al., 2022).

Similarly, Hoffmann and Mai (2022) analyzed consumers' experience with AR, acceptance of AR, and behavioral reactions to AR in various online and offline environments. The authors found that consumers' previous knowledge about AR technology is negatively associated with the level of amazement with AR. Hence, it is hypothesized:

**H7: Consumers' previous knowledge about AR technology is negatively associated with the AR wow effect experience.**

The visual appeal and content design of AR interfaces are fundamental in shaping consumer attitudes toward these applications. Research in the field of human-computer interaction, as demonstrated by Billingham et al. (2015), shows the significance of visual and interactive design elements in determining user satisfaction and acceptance of AR technologies. Ikad (2016) further elaborates that the visual appeal and intuitive design of

AR apps are essential for creating a flow experience, where users become deeply immersed and engaged.

Arghashi and Yuksel (2022) extend this concept by showing how a flow experience within AR environments can foster favorable attitudes towards these apps, leading to increased trust and engagement. This engagement is not just with the AR apps themselves but also translates into improved attitudes towards brands and a greater intent to use branded products or services. Hence, it is hypothesized that:

**H8a: The AR aesthetic is positively associated with consumers' attitudes toward AR apps.**

When consumers find an AR application aesthetically pleasing and easy to navigate, they are likely to perceive the application as more valuable. This perceived value is a crucial factor in determining the likelihood of consumers using these apps for shopping purposes, as outlined by Trivedi et al. (2022). When product design draws the interests or emotions of consumers, it can often overshadow price considerations (Norman, 2004). This suggests that the aesthetic aspect of AR applications can play a pivotal role in influencing consumer behavior.

This is further corroborated by Yang and Jie (2022) that the design aesthetic affects consumers' purchase intention. Hence, it is hypothesized that:

**H8b: AR aesthetic effect is positively associated with purchase intention.**

The aesthetic quality of AR apps plays a pivotal role in shaping consumers' behavioral intentions, particularly in the context of purchasing fashion products. Consumers' evaluations of the visual and design elements of AR apps can alter the relationship between their attitudes toward using AR apps and their intention to use the app for purchasing fashion products. The higher the aesthetic design of AR apps as perceived by consumers the higher the relationship between consumers' attitudes and purchase intention using AR apps.

This notion is supported by the findings of Shi et al. (2021), who demonstrated that consumers' reactions to AR apps vary significantly depending on the aesthetic quality of

the design. Their research revealed a crucial distinction: not all design aesthetics exert an equal impact. High-quality, visually appealing designs are more effective in positively influencing consumers' responses towards technology, including AR apps. This suggests that when AR apps are perceived as aesthetically superior, they are more likely to strengthen the link between positive consumer attitudes and the likelihood of using the app for purchase decisions. Hence it is hypothesized that:

**H8c: AR aesthetic moderates the relationship between consumers' attitudes toward AR apps and purchase intention.**

This initial interaction with the AR app can evoke awe and strong emotional responses, such as wonder or excitement between the consumers and the app. These emotional responses are powerful drivers of attitudes and behaviors. A positive emotional reaction can lead to a more favorable attitude toward the app. Research has shown that positive emotions can have a significant impact on consumer attitudes (Murray, 2013). When consumers experience positive emotions during their interaction with the app, these feelings can translate into a more favorable perception of the app itself. According to Guo et al. (2018), awe positively steers consumers toward using AR apps. Hence, it is hypothesized that:

**H9a: The wow effect of AR apps is positively associated with consumer attitude towards AR apps.**

The wow effect, characterized by profound feelings of awe and amazement, emerges prominently during interactions with AR apps (Arghashi, 2022). Research has shown that positive emotional reactions through the feeling of awe using AR apps increase engagement and purchasing intention (Song et al., 2015; Poushneh and Vasquez-Parraga, 2017). Hence, it is hypothesized that:

**H9b: The wow effect of AR apps is positively associated with purchase intention.**

AR-based applications frequently induce feelings of wonder, as noted by Hinsch et al. (2020). This feeling of wonder can alter the relationship between consumers' attitudes toward AR apps and their intention to use the Apps for purchase. When the wow effect is

stronger, the relationship between consumers' attitudes and purchase intention becomes stronger. The wow effect acts as a magnifying factor, making the positive attitude even more pronounced in shaping consumers' decision to use AR apps for purchase intention. According to Hinsch et al. (2020), the positive emotional response generated by AR apps can influence consumers' attitudes and purchase intentions through the AR wow effect. Hence, it is hypothesized that:

**H9c: The wow effect of AR apps moderates the relationship between attitude and purchase intention.**

## **CHAPTER 4 RESEARCH METHODOLOGY**

To evaluate the proposed hypotheses, an online survey was conducted. Data analysis was subsequently performed utilizing the Partial Least Squares (PLS) Structural Equation Modeling (SEM), PLS-SEM technique, using SmartPLS 4.0.

### **4.1 SAMPLES AND DATA COLLECTION**

To achieve our research objectives, an online survey was administered via Prolific.co, a reputable online recruitment platform renowned for its rigorous participant treatment protocols and intuitive user interface. In comparison to similar platforms like MTurk, Prolific.co offers a broader suite of features and ensures the collection of high-quality survey data (Peer et al., 2017).

The study's target population is the individual capable of leveraging AR technology to purchase retail products using their smartphones. The sampling framework is the individual registered on the Prolific.co platform and Apple phone users. Eligibility criteria mandated participants to operate Apple phones with iOS 13.0 or subsequent versions and express willingness to download a specific, free application, "Wanna Kicks," exclusively available for iOS devices. To ascertain eligibility, participants answered three screening questions concerning their device, iOS version, and app installation willingness. Only affirmative responses to all criteria ensured participation inclusion. In this case, out of the initial 500 participants screened, only 240 participants were eligible to participate. Among these 240 initial survey data, incomplete survey responses, those with completion time of fewer than 5 minutes and those with less than a standard deviation below 0.2 calculated from the Likert-scale answers were excluded because these survey data are considered low-attentiveness data (Ulitzsch et al., 2022). This filtration yielded 180 final usable data, comfortably surpassing the threshold established by Hair et al. (2011). To determine the required sample, according to Hair, Ringle, and Sarstedt (2011), the minimal dataset size for a study can be determined by multiplying the number of direct relationships (represented as arrows in Figure 2) between constructs by ten. Excluding the control variables, with 11 identified relationships, the requisite minimum sample size would be 130 (calculated as 13 relationships multiplied by 10). However, for enhanced statistical robustness, the research

secured a minimum of 180 valid samples. The participants who were previously screened were asked to download the Wanna Kicks App, try any Nike shoe model, and see how it fit them before completing the survey questionnaire based on their experience of using the Wanna Kicks App for their shoe purchasing processes, but they were not asked the complete the purchasing process.

The respondent gender consists of 37% men, 61% women, 2% non-binary, and 1% no response. The predominant age bracket was 18-29, representing 74% of respondents. In terms of educational attainment, over 80% possessed a bachelor's degree or higher. The mean and standard deviation values of brand attitude toward Nike were 6.088 and 0.981 respectively. Table 2 gives the descriptive statistics of the participants' demographic data.

**Table 2 Descriptive statistics: participant characteristics (N=180)**

<b>Variable</b>	<b>Category</b>	<b>Frequency</b>	<b>Ratio (%)</b>
<b>Gender</b>	Man	66	37%
	Woman	109	61%
	Non-Binary	4	2%
	Prefer not to say	1	1%
<b>Employment</b>	Employed-Public Sector	28	16%
	Employed-Private Sector	72	40%
	Self-Employed	10	6%
	Unemployed	23	13%
	Students	43	24%
	Others	4	2%
<b>Educational Background</b>	High School	32	18%
	Bachelor	108	60%
	Masters	34	19%
	PhD	2	1%
	Others	4	2%
<b>Age</b>	18-29	133	74%
	30-39	36	20%
	40-49	9	5%
	50-59	2	1%

## 4.2 MEASUREMENT

The measurements of the variables were adopted from existing studies and tailored to the specific context of this study, except for prior AR knowledge, which is created for this study. Specifically, the scales for measuring the variables were adopted from the following studies: Wow-Effect (Feng and Xie, 2019), AR Aesthetics (Hosany and Witham 2010), (Mehmetoglu and Engen, 2011; Quadri-Felitti and Fiore, 2013); Purchase Intention towards AR app (Yoo and Donthu, 2001), Attitude towards AR Apps (Rese et al., 2017), (Plotkina and Saurel 2019), Trialability (Moore and Benbasat, 1991; Yuen et al., 2018), Relative Advantage (Moore and Benbasat, 1991; Yuen et al., 2018), Compatibility (Moore and Benbasat, 1991; Yuen et al., 2018), Complexity Moore and Benbasat (1991; Yuen et al.,2018), AR knowledge (Vagias, 2006) and Brand Attitude (Park et al., 2015). The definitions of each variable are shown in Table 2. The measurement items are listed in Appendix A. A closed-end survey was designed predominantly using a seven-point Likert scale, ranging from “strongly disagree (1)” to “strongly agree (7)”. However, certain questions employ different scales, such as multiple-choice formats.

**Table 3 Conceptual definitions of all constructs**

<b>Constructs</b>	<b>Definition</b>	<b>Reference</b>
Complexity (COMPL)	The perceived difficulty in understanding and using the AR app to purchase a product.	(Jiang et al., 2021; Rogers, 1995).
Compatibility (COMPA)	The degree to which the AR app is perceived as compatible with the existing values, beliefs, and needs of potential adopters.	(Jiang et al., 2021; Rogers, 1995).
Relative advantage (REA)	The opportunity for a user to experiment with the AR app on a limited basis before making a full commitment.	(Jiang et al., 2021; Rogers, 1995).
Trialability (TRI)	The opportunity for a user to experiment with the AR app on a limited basis before making a full commitment.	(Jiang et al., 2021; Rogers, 1995).



Attitude (ATT)	The feelings, beliefs, and behavioral intentions of a user toward an AR app.	(Cipresso, 2018)
Prior AR knowledge (ARK)	The prior knowledge consumers have about AR.	(Vagias, 2006)
AR aesthetics (AES)	A user's perception of the visual appeal of the AR App such as the design and content of the app	(Kim et al., 2019)
Wow effect (WOW)	A user's profound feelings of awe and amazement from the AR app.	(Arghashi, 2022)
Purchase intention (PI)	A user's inclination or likelihood to buy fashion products or accessories via the AR app	(Watson et al. 2018)
Brand attitude (BR) – Control Variable	It refers to consumers' perceptions, feelings, and overall evaluations of a brand.	(Park et al., 2015)

## 4.3 DATA ANALYSIS

### 4.3.1 Measurement Property Analysis

The validation of the scales adhered to the methodology outlined by Hair et al. (2017). Initially, the measurement model was tested to establish internal reliability and construct and discriminant validities, followed by a test for the common method bias. Then, the structural model is tested for hypothesis validation, including the demographic information of participants (*age, education level, employment status, and gender*) and *brand attitude* as control variables (Park et al., 2015). Data analysis is conducted using PLS-SEM, employing the Smart PLS 4.0 software. PLS-SEM was chosen due to its suitability for studies with limited sample sizes and non-normal data, as recommended by Hair et al. (2017). PLS-SEM can effectively fulfill the main goals of this study, which include determining the significance of the relationships depicted in Figure 1 and validating the measurement properties of the data gathered through survey collection methods. In this study, all constructs (COMPL, COMP, REA, TRI, ATT, ARK, AES, WOW, PI) were treated as reflective constructs.

The internal reliability of the reflective constructs (those measured by more than 2 items) was examined as shown in Table 5. The Cronbach's  $\alpha$  values surpassed the 0.70 threshold, underscoring the constructs' reliability, as suggested by Henseler et al. (2016) and Hair et al. (2012).

For the convergent validity, the factor loadings, the composite reliability (CR), and the Average Variance Extracted (AVE) for each variable were examined. As shown in Table 4, all factor loadings of the items with their own latent variables are greater than 0.6 (Hullard, 1999), the composite reliability (CR) values for all variables are above 0.70 (Aguirre-Urretal et al., 2013), and all the average variance extracted (AVE) values are above 0.50, confirming ensuring the adequate level of convergent validity (Fornell and Larcker, 1981).

For the discriminant validity, all the square roots of the AVE for each variable (the italic numbers in Table 5) in the Fornell-Larcker criterion surpass intercorrelations among the variables as shown in Table 6. Hence, each variable is distinctly measured by its respective constructs (Fornell and Larcker, 1981). Besides, all the Heterotrait-Monotrait ratios (HTMT) are less than 0.90 as indicated in Table 6, which confirms the constructs measure distinct concepts. Hence, there is no issue with discriminant validity (Gold et al., 2001). In sum, the outcomes from the measurement property tests indicate that our measurement model is adequately reliable and valid.

**Table 4 Measurement of internal reliability and convergent validity (for multiple-item variables)**

<b>Construct</b>	<b>Loadings</b>	<b>Cronbach's <math>\alpha</math></b>	<b>Composite reliability</b>	<b>AVE*</b>
Complexity (COMPL)	COMPL1: 0.898	0.873	0.912	0.724
	COMPL2: 0.677			
	COMPL3: 0.922			
	COMPL4: 0.884			
Compatibility (COMPA)	COMPA1: 0.886	0.892	0.925	0.755
	COMPA2: 0.893			
	COMPA3: 0.856			

	COMPA4: 0.839			
Relative Advantage (REA)	REA1: 0.872	0.916	0.937	0.749
	REA2: 0.843			
	REA3: 0.838			
	REA4: 0.873			
	REA5: 0.901			
Triability (TRI)	TRI1: 0.708	0.790	0.858	0.602
	TRI2: 0.795			
	TRI3: 0.791			
	TRI4: 0.806			
Attitude (ATT)	ATT1: 0.817	0.898	0.900	0.664
	ATT2: 0.758			
	ATT3: 0.823			
	ATT4: 0.804			
	ATT5: 0.895			
	ATT6: 0.788			
Aesthetics (AES)	AES1: 0.835	0.899	0.925	0.712
	AES2: 0.870			
	AES3: 0.838			
	AES4: 0.810			
	AES5: 0.863			
Wow Effect (WOW)	WOW1: 0.860	0.912	0.938	0.792
	WOW2: 0.908			
	WOW3: 0.864			
	WOW4: 0.926			
Purchase Intention (PI)	PI1: 0.919	0.908	0.935	0.784
	PI2: 0.900			
	PI3: 0.888			
	PI4: 0.831			

\* AVE: Average Variance Extracted

**Table 5 Fornell-Larcker Criterion: Construct an inter-correlation matrix and the square roots of AVE with reflective measures.**

<b>Construct</b>	<b>COMPL</b>	<b>COMPA</b>	<b>REA</b>	<b>TRI</b>	<b>ATT</b>	<b>ARK</b>	<b>AES</b>	<b>WOW</b>	<b>PI</b>
COMPL	<i>0.851</i>								
COMPA	-0.129	<i>0.869</i>							
REA	-0.309	0.677	<i>0.866</i>						
TRI	-0.432	0.436	0.582	<i>0.776</i>					
ATT	-0.314	0.619	0.796	0.664	<i>0.815</i>				
ARK	0.119	-0.169	-0.149	-0.121	-0.168	<i>1.000</i>			
AES	-0.381	0.453	0.600	0.549	0.752	-0.151	<i>0.844</i>		
WOW	-0.231	0.498	0.667	0.488	0.683	-0.045	0.629	<i>0.890</i>	
PI	-0.232	0.556	0.699	0.391	0.648	-0.070	0.574	0.601	<i>0.885</i>

**Table 6 Heterotrait-Monotrait ratio (HTMT) criterion: Construct inter-correlation matrix and the square roots of AVE with reflective measures.**

<b>Construct</b>	<b>COMPL</b>	<b>COMPA</b>	<b>REA</b>	<b>TRI</b>	<b>ATT</b>	<b>ARK</b>	<b>WOW</b>	<b>AES</b>	<b>PI</b>
COMPL									
COMPA	0.134								
REA	0.328	0.741							
TRI	0.541	0.478	0.643						
ATT	0.343	0.682	0.876	0.769					
ARK	0.113	0.185	0.155	0.126	0.18				
WOW	0.249	0.549	0.728	0.547	0.751	0.046			
AES	0.404	0.499	0.652	0.633	0.824	0.15	0.686		
PI	0.243	0.602	0.762	0.413	0.709	0.072	0.655	0.619	

The full collinearity test helps detect the possible issue of common method bias (CMB), by examining variance inflation factors (VIFs), which measure the strength of correlations between predictor variables (Kock, 2015). The VIF values less than the conservative threshold of 5.0 can indicate that there is not a serious issue of multicollinearity among latent variables (Diamantopoulos and Siguaw, 2006; Venkatesh

et al., 2012). Other researchers have recommended that a serious multicollinearity issue exists if the VIFs are greater than 10 (Henseler, 2015; Hair Jr, et al., 2017). Table 7 shows all the VIFs obtained by using all but the dependent variable (PI) as independent variables for PI are less than 3.3 (the stricter rules for the multicollinearity) (Kock, 2015), except for those for relative advantage (REA) and attitude (ATT), which are still less than 5.0. This analysis shows that this study does not have a serious issue with CMB.

**Table 7 Multicollinearity (VIF) of reflective measure**

	VIF
COMPL -> PI	1.336
COMPA -> PI	1.969
REA -> PI	3.538
TRI -> PI	2.009
ATT -> PI	4.658
ARK -> PI	1.06
WOW -> PI	2.213
AES -> PI	2.613

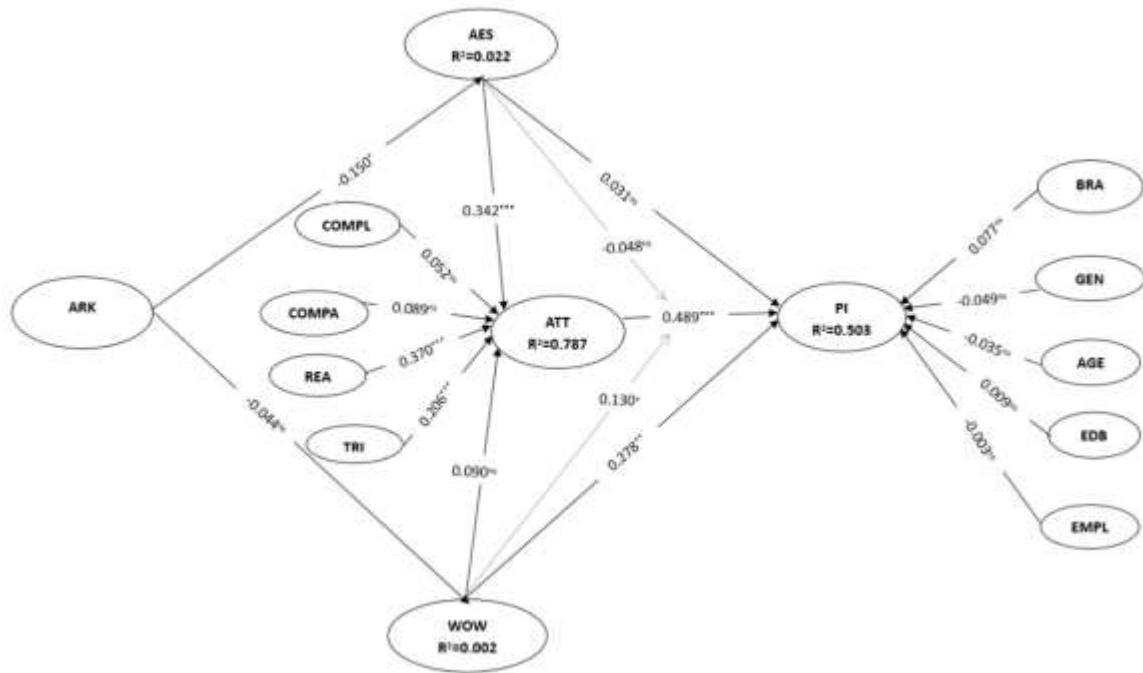
#### 4.3.2. Structural Model Testing

The structural model's path analysis was executed, assessing the variance explained ( $R^2$ ), path coefficients ( $\beta$ ), and their significance levels (t-values) through the bootstrapping technique using 5,000 re-samples and the PLS algorithm. The path coefficient quantifies the strength and direction of the relationship between predictor and outcome variables. A path coefficient indicates how much (or sensitive) the variations in the predictor variables correspond to pronounced changes in the outcome variable.

The  $R^2$  value denotes the proportion of variance in the dependent variable that is accounted for by this research model. It serves as an indicator of the model's predictive efficacy (Chin, 1998; Gefen et al., 2000). As delineated in Figure 2, the model elucidates 22% of the variance in AR aesthetics, 78.7% in attitude, and 50.3% in purchase intention via the AR App. Collectively, variables such as complexity, compatibility, relative

advantage, trialability, wow effect, and AR aesthetics account for 78.7% of the variability in attitudes toward AR App usage. Attitude, wow effect, AR aesthetics, and the control variables account for 50.3% of the variability in purchase intention. These findings underscore the model's moderate predictive power, consistent with Hair et al. (2018).

The statistical significance of path coefficients ( $\beta$ ) was ascertained using t-values. Figure 2 presents the variance explained ( $R^2$ ), path coefficients ( $\beta$ ), and their respective significance levels (t-values) of direct and moderating relationships. Overall, the hypotheses H3, H4, H5, H6, H8a and H9b were significant, while H1, H2, H7, H8b, H8c, H9a, and H9c were not significant. None of the control variables demonstrated a statistically significant association with the purchase intention. The following section will discuss the findings in detail.



Note(s): +=  $p < 0.1$ , \* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$

**Figure 2 Structural test results (N=180)**

## CHAPTER 5: DISCUSSION

### 5.1 FINDINGS

Consumers' perceived complexity (COMPL) and compatibility (COMPA) in using the fashion retailing AR app do not have a significant relationship with consumers' attitudes (ATT) toward AR apps ( $\beta=0.052$  and  $0.089$  respectively,  $p\text{-value} > 0.1$ ). H1 and H2 are not supported. The degree of complexity doesn't influence attitude because it is possible that the app is intuitive and offers a well-designed user experience, hence, consumers will not be negatively affected by the complexity. H2 is not consistent with the previous findings (Agag and El-masry, 2016; Jiang et al., 2021; Van Slyke et al., 2007). For example, Jiang et al. (2021) found that compatibility is associated with consumer attitudes toward AR apps in the retail context. My finding, however, shows that the app's alignment with users' existing preferences or habits is not significantly associated with their attitude toward the app. Since the Wanna Kick app is relatively new, it can pique users' interest simply because it offers something fresh and different. This novelty might temporarily overshadow any misalignment with existing preferences or habits. Besides, the app is free and is highly recommended, users might be willing to give it a try without deeply considering how well it fits into their existing habits.

The Relative advantage (REA) is significantly associated with consumers' attitudes (ATT) toward AR App ( $\beta=0.370$ ,  $p\text{-value} < 0.001$ ), supporting H3. This finding is consistent with the existing research (Jiang et al., 2021, Lin, 2011). When consumers perceive the AR app for fashion retailing as offering superior advantages, it positively impacts their attitudes toward the app. As this app could decrease the likelihood of exchanges or returns due to the fit issues, customers who recognize the distinct relative advantage of this AR app will develop favorable perceptions and judgments, leading to a positive attitude towards the apps. Likewise, trialability ( $\beta=0.206$ ,  $p\text{-value} < 0.001$ ), supporting H4. The result is consistent with the existing literature (Yunus, 2014;). It implies that allowing consumers to easily try the new AR fashion apps can lead to more positive attitudes.

Similarly, a consumer's attitude (ATT) about the AR app is found to be significantly associated with their purchase intentions (PI) using the AR fashion app ( $\beta=0.489$ ,  $p\text{-value}$

= 0.001), supporting hypothesis H5. This indicates that a consumer's positive attitude about an AR app for fashion retailing can be a strong predictor of consumers' intention to adopt the app and purchase fashion products using the app. This is consistent with the existing research on AR apps (Jiang et al., 2021) and with existing studies on cognitive alignment and theories of attitude, suggesting that an individual's intent to act is influenced by their personal beliefs (Fishbein & Ajzen, 1975).

A negative and significant association is found between consumers' knowledge about AR knowledge (ARK) and their perception of AR aesthetics, ( $\beta=-0.150$ , p-value  $<0.05$ ), supporting Hypothesis (H6). This result implies that as the depth of consumers' knowledge regarding AR experiences increases, their appreciation or perception of AR aesthetics tends to diminish. One plausible interpretation of this phenomenon is that novice AR app users, being relatively unfamiliar with the technology, are more inclined to perceive its aesthetics more favorably compared to their more experienced counterparts. This trend may be attributed to heightened expectations among seasoned AR users. As users become more acquainted with AR technology, they might develop higher standards for aesthetics and subsequently become more discerning in their evaluations. However, the consumers' prior AR knowledge (ARK) has an insignificant relationship with the wow effect (WOW) ( $\beta=-0.044$ , p-value  $> 0.1$ ), not supporting H7. This suggests that a deeper knowledge of AR does not necessarily heighten or lower the sense of amazement or astonishment related to AR for fashion retailing. This is consistent with the study by Hinsch et al (2020) that showed no relationship between users' expertise and the “inspired-by” construct.

For hypotheses H8a~c, AR aesthetics (AES) is found to be positively associated with consumers' attitudes toward using AR apps for fashion retailing (ATT) ( $\beta=0.342$  at a significant level of  $p<0.001$ ), supporting H8a. This indicates that the aesthetic appeal of the AR app significantly influences the consumer's positive feelings about the app. This is somewhat consistent with the previous study that the innovative characteristics of AR technology (aesthetics and emotional attributes) affect consumer attitudes toward purchase intention (Kim et al., 2019).



However, for H8b, AR aesthetics (AES) did not have a direct significant relationship with purchase intentions (PI) ( $\beta=0.03$ ,  $p\text{-value} > 0.1$ ), not supporting H8b. This result is not consistent with an existing finding by Kim et al. (2019) that the innovative characteristics (aesthetics and emotional attributes) improved purchase intention in the AR gaming context. This study's finding can be interpreted that consumers' purchasing decisions regarding fashion products using the AR app may not be strongly driven by aesthetic appeal alone; other factors might have a more dominant influence. For example, the actual functionality of the AR app could be more crucial than aesthetics to directly lead users to purchase fashion products using the app. If the AR feature does not provide a meaningful or useful enhancement to the shopping experience, consumers may not be motivated to purchase (Jung et al., 2021).

Similarly, the moderating effect of AR aesthetics on the relationship between attitude and purchase intention is found to be insignificant ( $\beta=-0.048$ ,  $p\text{-value} > 0.1$ ) Hence, H8c is not supported. This implies that the interaction effect of AR aesthetics (AES) and consumers' attitudes (ATT) did not significantly influence purchase intentions (PI). The results from H8, as well as H5, suggest a possibility of the mediating role of the attitude for the theoretical link between AR aesthetics (AES) and purchase intention (PI). Therefore, a post-hoc analysis is conducted to test the mediating role of attitudes for the link between AR aesthetics and purchase intention.

For hypotheses H9a~c, unlike the case of AR aesthetics, the empirical data does not support the relationship between wow effect (WOW) and attitude (ATT) ( $\beta=0.097$ ,  $p>0.1$ ), not supporting H9a. This indicates that the wow effect alone does not significantly impact the consumer's positive feelings about the app. A high wow effect can sometimes lead to sensory or cognitive overload, making the experience overwhelming rather than enjoyable or engaging while a low wow effect might not evoke strong emotional responses, leaving individuals relatively unmoved or indifferent. This lack of emotional engagement is unlikely to influence attitudes significantly.

For H9b, it is found that the wow effect (WOW) has a direct significant association with purchase intentions (PI) ( $\beta=0.295$ ,  $p<0.001$ ), supporting H9b. The result indicates that the level of amazement experienced by consumers directly influences their intention to

purchase a fashion product using the AR app. This relationship underscores the importance of creating captivating and immersive AR experiences for consumers to make use of the app to purchase a fashion product. When consumers are genuinely impressed and amazed by the AR Apps, they are more likely to express intentions to make a purchase. This is in line with the findings by Guo et al. (2018) that the sensation of awe not only enhances the memorability of products but also amplifies consumers' purchase intentions and fosters positive word-of-mouth recommendations.

Finally, H9c posits that the wow effect (WOW) should alter the relationship between consumers' attitudes toward AR App (ATT) and purchase intentions (PI). The data marginally support this relationship ( $\beta=0.125$ ,  $p\text{-value} = 0.081$ ). This implies that an increase in the wow effect makes the relationship between ATT and PI stronger, supporting H9c.

No control variable (Brand attitude, educational background, age, gender, and employment) is significantly related to purchase intention. This suggests that factors such as brand attitude, educational background, age, gender, and employment status do not play a significant role in determining whether individuals are inclined to purchase in the context of an AR fashion App. The structural model testing results are summarized in Tables 8 and 9.

**Table 8 The path coefficient of the structural Model**

	<b>Path coefficients</b>	<b>Standard deviation</b>	<b>T-Value</b>	<b>P- values</b>	<b>Hypotheses</b>
COMPL -> ATT	0.052	0.041	1.266	0.206 <sup>n.s.</sup>	H1---Not Supported
COMPA -> ATT	0.089	0.064	1.387	0.166 <sup>n.s.</sup>	H2---Not Supported
REA -> ATT	0.37	0.08	4.643	0.000***	H3---Supported
TRI -> ATT	0.206	0.057	3.607	0.000***	H4---Supported
ATT -> PI	0.489	0.1	4.917	0.000***	H5---Supported
ARK -> AES	-0.15	0.067	2.228	0.026*	H6---Supported

ARK -> WOW	-0.044	0.081	0.549	0.583 <sup>n.s.</sup>	H7----Not Supported
AES -> ATT	0.342	0.062	5.515	0.000 <sup>***</sup>	H8a---Supported
AES -> PI	0.199	0.107	0.293	0.770 <sup>n.s.</sup>	H8b---Not Supported
WOW -> ATT	0.09	0.06	1.512	0.131 <sup>n.s.</sup>	H9a---Not supported
WOW -> PI	0.322	0.082	3.394	0.001 <sup>**</sup>	H9b---Supported
<b>Moderating Relationships</b>					
AES x ATT -> PI	-0.048	0.069	0.694	0.487 <sup>n.s.</sup>	H8c---Not Supported
WOW x ATT -> PI	0.13	0.073	1.771	0.077 <sup>+</sup>	H9c--- Marginally Supported

Note(s): += p < 0.1, \* = p < 0.05, \*\* = p < 0.01, \*\*\* = p < 0.001, n.s. = not supported

**Table 9 The path coefficient of the structural Model for Control variables**

	<b>Path coefficients</b>	<b>Standard deviation</b>	<b>T-Value</b>	<b>P- values</b>
AGE -> PI	-0.035	0.048	0.715	0.474 <sup>n.s.</sup>
BRA -> PI	0.077	0.055	1.411	0.158 <sup>n.s.</sup>
EDB -> PI	0.009	0.052	0.180	0.857 <sup>n.s.</sup>
EMP -> PI	-0.003	0.056	0.061	0.951 <sup>n.s.</sup>
GEN -> PI	-0.049	0.05	0.968	0.333 <sup>n.s.</sup>

Note(s): += p < 0.1, \* = p < 0.05, \*\* = p < 0.01, \*\*\* = p < 0.001, n.s. = not supported

As mentioned, I found that while the wow effect (WOW) is directly associated with purchase intention (PI) (H9b supported), AR aesthetics (AES) is not significantly associated with PI (H8b not supported) but is significantly associated with attitude (ATT) (H8a supported). To further explore the possible mediating role of ATT on the link between AES and PI, a post-hoc mediation analysis is conducted using the bootstrapping indirect impact analysis recommended by Hair et al. (2017). The results revealed that the indirect effect from AES to PI through ATT is significant ( $\beta = 0.190$ ; T-value = 2.196; p

< 0.05), while the direct impact was not significant as found in H8b, indicating that the user's attitude toward purchasing fashion products fully mediates the relationship between AR aesthetics and their purchase intention using the AR app. This result implies that while the aesthetic appeal of the AR apps for fashion retailing alone cannot directly affect consumers' purchasing decisions if they form positive attitudes toward the app by aesthetics of the app and other utilitarian beliefs (i.e., relative advantage and trialability in this study), they can have higher level of purchase intention, highlighting the indirect effect of AES on PI.

## **5.2 THEORETICAL CONTRIBUTION**

From a theoretical standpoint, my research makes a significant contribution to various academic fields and bodies of knowledge by investigating the direct and indirect effects of an individual consumer's prior AR knowledge, AR wow effect, AR aesthetics, and the innovation diffusion factors on consumers' attitudes and purchase intentions using an AR app for fashion retailing.

Firstly, this study contributes to the theory of innovation diffusion (IDT). By extending IDT into the context of AR apps for fashion retailing and finding the significant relationships among relative advantage, trialability, attitude toward the AR technology, and consumer's purchase intention of fashion products using the AR technology, this study has extended the reach of this theory into the roles of a mixed reality technology in shaping consumers' adoptions of innovations.

Secondly, this study expands the literature on digital marketing using mobile applications by investigating the antecedents of consumers' purchase intention using one of the newest mobile apps (i.e., AR-enabled mobile commerce app). Additionally, the study explores the moderating effects of the wow effect and aesthetics on the relationship between consumers' attitudes toward the mobile app and their purchase intention using the mobile app, enhancing our understanding of consumer decisions in AR technology contexts.

Thirdly, this study makes contributions to flow theory. It explores how the adoption of AR aesthetics and the wow effect as technological elements facilitate the psychological

state of flow. The research found both direct and indirect impacts of these flow experiences on consumers' purchase intentions in the context of AR applications. By examining how AR aesthetics and the wow effect influence a user's ability to achieve a flow experience, which subsequently influences purchase intentions either directly or through forming positive attitudes toward AR technology, the study provides valuable insights into designing more effective and engaging AR experiences through AR technology. Furthermore, it enhances our understanding of the psychological impacts of these technologies, offering guidance on creating AR applications that are not only functional but also psychologically rewarding.

Finally, this study contributes to the theoretical framework of Human-Computer Interactions (HCI) by delving into the relationship between consumers and innovative technologies. Identifying and analyzing the factors affecting purchase intention in AR applications extends our understanding of user interactions in augmented environments. These insights can enhance existing HCI models, making them more adaptable to the nuances of AR technology, thus contributing to the theoretical evolution of HCI frameworks.

### **5.3 PRACTICAL CONTRIBUTIONS**

From a managerial standpoint, our study offers valuable insights for marketers and retailers, providing some insightful implications about the factors influencing purchase intention using AR technology in the fashion retailing industry. Specifically, the results show the importance of the wow effect on consumers' purchase intention using AR fashion retailing applications. Hence, marketers and fashion retailers are encouraged to prioritize enhancing the wow attributes of their apps, ensuring they are fun, entertaining, and enjoyable for users. This focus can substantially improve user engagement and ultimately influence purchase decisions using AR fashion retailing apps.

Secondly, the study shows that the visually appealing and user-friendly interface and content design of AR apps are important in forming positive feelings about the apps, which can eventually encourage people to use the app for purchasing fashion products. Based on this finding, mobile app designers for AR apps for fashion retailing should create interfaces that users can navigate seamlessly. An intuitive interface enhances user

satisfaction, encouraging prolonged usage, and creating a positive attitude toward using the App and subsequent purchase intention.

Thirdly, the findings highlight the role of relative advantages and trialability achieved by mobile apps using AR technology, by making it possible to have virtual interactions with products and even try fashion products within an augmented reality environment, which can reduce consumers' anxiety and uncertainty about purchasing fashion products without physically trying them. Virtual interaction features empower users to engage deeply with products, transcending the limitations of static images and text descriptions. Customers can interact with products in a dynamic and immersive way, fostering a sense of connection and involvement. This heightened engagement captures user attention, prolongs interaction time, and creates a memorable experience, which is pivotal in stimulating users' positive attitudes toward using AR applications. One of the inherent challenges of online shopping is the lack of physical interaction with products. AR's virtual product simulation addresses this by providing a simulated yet realistic experience, bridging the online-offline divide. For example, users can virtually try on shoes or visualize how new fashion items fit their style, adding a tangible and immediate aspect to their shopping experience. Furthermore, this technology helps eliminate the uncertainty often associated with online shopping by offering a realistic preview of the products. Consumers can assess fit, color, texture, and other important attributes before making a purchase decision. This transparency builds trust in the online shopping process, leading to a more secure and confident consumer attitude.

Finally, the study's findings reveal a substantial effect of an individual's prior knowledge of AR on their interaction with AR applications, particularly in the fashion retail sector which provides practical implications for app developers and marketers. The design of AR applications should be intuitive and accessible, catering to a diverse range of users with varying levels of tech-savviness. By designing AR experiences that are easily navigable and understandable, retailers can ensure that even consumers with limited prior knowledge of AR can engage effectively with the technology, thereby enhancing their overall shopping experience and potentially boosting their purchase intentions.

#### **5.4 LIMITATIONS AND FUTURE RESEARCH**

The constraints identified in this study present avenues for future research exploration. Firstly, the research doesn't consider the impact of aesthetics on the wow effect. Specifically, regarding the relationship between aesthetics and the wow effect. The research does not delve into how aesthetics influences the perception of the "wow" effect in the context of the study. This gap in the research provides an opportunity for future studies to investigate and explore the intricate connection between aesthetics and the phenomenon of the "wow" effect, potentially leading to valuable insights and a deeper understanding of user experiences with innovative technologies like Augmented Reality.

Secondly, this study collected data in a cross-sectional way, so it is hard to generalize the causality in the relationships that are found significant. Therefore, future researchers can delve deeper into the specific factors for attitude formation within AR contexts, conduct longitudinal studies to assess the long-term impact of AR apps on consumer's attitude formation and purchase intention and explore cultural influences, thereby enriching the academic understanding of causal influences of technology-related beliefs and perceptions on consumers' attitude toward the technology and purchase intention using the technology.

Thirdly, this study encountered a limitation in not incorporating confirmatory questions to verify participants' actual download and utilization of the application. In conducting similar research in the future, I would ensure specific questions that capture such confirmation of app usage. Additionally, participants will be requested to provide supplementary evidence, such as uploading screenshots of their interaction with the application, as part of their survey responses, thereby ensuring a more robust validation of engagement with the app and the quality of survey responses.

Fourthly, the researcher could explore larger sample sizes to carry out future research. Although the study benefited from a diverse group of participants and collected more than the required amount of data for the minimum level of statistical power for the PLS-SEM analysis, more usable data will help enhance the robustness of the data analysis and provide a more comprehensive analysis that could affirm or challenge the conclusions drawn from this research.

Fifthly, the potential impact of users' prior knowledge of augmented reality (AR) on the relative advantage, trialability, complexity, and compatibility was not considered. The research primarily focused on examining how AR knowledge influences AR aesthetics and the wow effect and their impact on consumer attitudes and purchase intentions. Users with diverse levels of AR knowledge might respond differently to these factors, potentially influencing the observed relationships. Consequently, future research should consider incorporating users' prior knowledge of AR to provide a more comprehensive and nuanced understanding of the dynamics among AR aesthetics, the wow effect, and the specified factors. This would contribute to a more robust and contextually relevant exploration of the variables at play in the realm of augmented reality and consumer behavior.

Finally, the results of the study show that the AR wow effect does not affect consumer attitudes toward AR apps and the AR aesthetics does not affect purchase intention. Cultural factors can significantly influence how individuals perceive and respond to technological innovations. Researchers can conduct cross-cultural studies to investigate whether the impact of the wow effect and aesthetics on attitudes or purchase intention varies across different cultural contexts. Understanding these cultural nuances can provide valuable insights into the generalizability of the findings and help design more culturally sensitive AR applications.



## CHAPTER 6: CONCLUSION

This research examines the influence of Augmented Reality (AR) technology on consumer behavior within the fashion retail sector, with a particular focus on innovation diffusion factors, the wow effect and AR aesthetics. The study's objective is to elucidate the interactions among a user's prior knowledge about AR, the key factors of innovation adoption by the IDT—Complexity, Compatibility, Relative Advantage, and Trialability—, the wow effect, aesthetics, consumer attitudes, and purchase intentions.

The findings underscore the substantial influence of relative advantage and trialability on consumer attitudes towards AR apps, as well as the role of the wow effect in eliciting surprise and awe, thereby affecting purchase intentions. Aesthetics are found to indirectly influence purchase intentions by shaping consumer attitudes towards AR applications, underscoring the significance of user-friendly content and interfaces.

However, demographic factors such as brand attitude, educational background, age, and employment status have a negligible effect on the decision-making process regarding AR applications, suggesting a broad appeal of AR experiences across diverse consumer segments. Notably, the study reveals that neither complexity nor compatibility significantly alters consumer attitudes toward AR applications.

In conclusion, this study illuminates the interplay of user experience factors within AR applications and their impact on consumer's purchasing intention using an AR-enabled technology. By integrating the wow effect, aesthetics, and consumer attitudes utilizing IDT and Flow framework, this research offers valuable insights for businesses and developers aiming to craft engaging AR experiences and informs targeted marketing strategies to bolster purchase intentions in the fashion retail industry. The contributions of this study enhance the understanding of AR technology adoption and consumer behavior, expanding the scope of IDT and technology-enabled marketing literature.

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## APPENDIX A Measurement Items

Construct	Measurement item	Sources
Complexity	I feel this AR App: <ul style="list-style-type: none"> <li>• Is easy to use.</li> <li>• Is difficult to use.</li> <li>• Is difficult to learn how to use.</li> <li>• Is frustrating to use.</li> <li>• Requires a lot of effort to use.</li> </ul>	Moore and Benbasat, (1991); Yuen et al., (2018).
Compatibility	Online shopping with this AR App would be compatible with...: <ul style="list-style-type: none"> <li>• My lifestyle</li> <li>• My actual needs</li> <li>• My current situation</li> <li>• The way I like online shopping</li> </ul>	Moore and Benbasat (1991); Yuen et al. (2018).
Relative Advantage	<ul style="list-style-type: none"> <li>• This AR App improves my online shopping experience.</li> <li>• This AR App makes it easier to make a purchase decision.</li> <li>• This AR App will be more beneficial to me.</li> <li>• This AR App will be the best way for me to experience online shopping.</li> <li>• The AR App is better to complete the process of online shopping more efficiently.</li> </ul>	Moore and Benbasat (1991); Yuen et al. (2018).
Triability	<ul style="list-style-type: none"> <li>• This AR App is easy to try.</li> <li>• I can try this AR App for as long as I want.</li> <li>• I can access this AR App adequately.</li> <li>• I can make use of this AR App</li> </ul>	Moore and Benbasat (1991); Yuen et al. (2018).

Attitude	<ul style="list-style-type: none"> <li>• I think I am happy with this AR app.</li> <li>• I think this AR App is fun.</li> <li>• I think this AR App will make a lot of sense.</li> <li>• I think using this AR App is a good idea.</li> <li>• I think I am satisfied with this AR App.</li> </ul>	Rese et al. (2017); Plotkina and Saurel (2019).
AR Knowledge	<p>How well do you know about a technology called ‘Augmented Reality’?</p> <ul style="list-style-type: none"> <li>• Not at all aware - Slightly aware - Somewhat aware - Moderately aware - Extremely aware</li> </ul>	Vagias, Wade M. (2006)
AR wow Effect	<ul style="list-style-type: none"> <li>• Seeing this app amazed me.</li> <li>• When I used this app, I often thought “Wow!”</li> <li>• This app has thrilled me from the very beginning.</li> <li>• Using this app really wowed me.</li> </ul>	Feng and Xie, (2019)
AR Aesthetics	<ul style="list-style-type: none"> <li>• This AR App’s content design is attractive.</li> <li>• I like to look at this AR App content.</li> <li>• This AR App content is beautiful.</li> <li>• This AR App content is well coordinated.</li> <li>• This AR App content is pleasing to see.</li> </ul>	Hosany and Witham (2010); Mehmetoglu and Engen (2011); Quadri-Felitti and Fiore (2013).
Purchase Intention	<ul style="list-style-type: none"> <li>• I will definitely buy products using this App the next time I buy online.</li> <li>• I intend to purchase products using this App in the near future.</li> <li>• I expect to purchase products with this App in the near future.</li> <li>• I would recommend this App to my friend for their online purchase.</li> </ul>	Yoo and Donthu, (2010).
Brand Attitude	<ul style="list-style-type: none"> <li>• I like the Nike brand.</li> <li>• I am in favor of this Nike brand.</li> </ul>	Park et al. (2015)

	<ul style="list-style-type: none"><li>• I am pleased about this Nike.</li><li>• I am satisfied with this Nike brand.</li></ul>	
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