THE IMPORTANCE OF CONSUMER SKEPTICISM IN THE AGE OF AUGMENTED REALITY: A COMPARATIVE STUDY OF AR-BASED SHOPPING EXPERIENCE AND AR-BASED VIDEO ADVERTISEMENTS

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THESIS APPROVAL PAGE

I certify that in my opinion the thesis submitted by Şahnoza KAYADIBI titled "THE IMPORTANCE OF CONSUMER SKEPTICISM IN THE AGE OF AUGMENTED REALITY: A COMPARATIVE STUDY OF AR-BASED SHOPPING EXPERIENCE AND AR-BASED VIDEO ADVERTISEMENTS." is fully adequate in scope and in quality as a thesis for the degree of PhD in Business Administration.

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DECLARATION

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FOREWORD

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ABSTRACT

Businesses use alternative promotional tools in the advertising of products, services, and innovations. Undoubtedly, video advertisements are at the forefront of these tools. When Augmented Reality (AR) first emerged, it was introduced to consumers through video advertisements as AR shopping experience. However, over the years, traditional media channels have started to lose their popularity, leading consumers to explore alternative platforms where they can have interactive experiences. Thus, AR technology has been integrated into web-based shopping platforms, and products and services have begun to be presented to consumers experientially through this new technology. Until now, numerous studies examining consumers' attitudes towards various advertising tools have overlooked the role of consumer skepticism. This thesis aims to develop a research model highlighting consumer skepticism's importance in technology acceptance. The research model was tested based on a quantitative method with between-subjects design comparatively on two different groups: those who had experienced web-based AR shopping experience as study 1 (n=180) and those who watched AR-embedded video advertisement in study 2 (n=186). Data were analyzed using Smart PLS4. Multiple group analysis was used to test whether the relationships between variables differed between the groups. The research results revealed that (1) skepticism negatively influenced attitudes towards AR shopping in both groups, and (2) the impact of privacy concerns, complexity-in-use, and perceived informativeness on consumer skepticism significantly differed between the two groups. The effect of these variables on consumer skepticism was higher in participants who viewed AR-embedded video advertisements compared to those who experienced web-based AR shopping. The research findings provide important insights for practitioners and researchers on the impact of alternative advertising tools on consumer skepticism. The results are discussed with the relevant literature.

Keywords: Augmented Reality, S-O-R Model, TAM Model, Consumer Skepticism, Experiential Marketing, AR-Embedded Video Advertising.

ÖZET

İşletmeler ürün, hizmet ve yeniliklerin reklamında alternatif tanıtım araçlarını kullanır. Bu araçların başında hiç şüphesiz video reklamlar gelmektedir. Artırılmış Gerçeklik (AR) ilk ortaya çıktığında AR alışveriş deneyimi olarak video reklamlar aracılığıyla tüketicilere tanıtılmıştı. Ancak yıllar geçtikçe geleneksel medya kanallarının popülerliğini kaybetmeye başlaması tüketicileri interaktif deneyimler yaşayabilecekleri alternatif platformları keşfetmeye yönlendirmektedir. Bu nedenle AR teknolojisi web tabanlı alışveriş platformlarına entegre edilmiş, ürün ve hizmetler bu yeni teknoloji aracılığıyla deneyimsel olarak tüketicilere sunulmaya başlanmıştır. Şimdiye kadar tüketicilerin çeşitli reklam araçlarına yönelik tutumlarını inceleyen çok sayıda araştırma, tüketici şüpheciliğinin rolünü gözden kaçırmaktaydı. Bu tez, tüketici şüpheciliğinin teknoloji kabulünde önemini vurgulayan bir araştırma modeli geliştirmeyi amaçlamaktadır. Araştırma modeli, niceliksel bir yönteme dayalı olarak yarı deneysel araştırmayla iki farklı grup üzerinde çalışma 1 ve çalışma 2 olarak karşılaştırmalı test edilmiştir: Çalışma 1'de web tabanlı AR alışveriş deneyimi yaşayanlar (n=180) ve çalışma 2'de AR-gömülü video reklamı izleyenler (n=186). Her iki gruptan toplanan veriler Smart PLS4 kullanılarak analiz edildi. Değişkenler arasındaki ilişkilerin gruplar arasında farklılaşıp farklılaşmadığını test etmek için çoklu grup analizi kullanıldı. Araştırma sonuçları, (1) şüpheciliğin her iki grupta da AR alışverişine yönelik tutumları olumsuz etkilediğini ve (2) mahremiyet kaygılarının, kullanımdaki karmaşıklığın ve algılanan bilgilendiriciliğin tüketici şüpheciliği üzerindeki etkisinin iki grup arasında önemli ölçüde farklılık gösterdiğini ortaya çıkardı. Başka bir deyişle, AR-gömülü video reklamları izleyen katılımcılarda, web tabanlı AR alışverişi deneyimleyenlere kıyasla bu değişkenlerin tüketici şüpheciliği üzerindeki etkisi daha yüksekti. Araştırma bulguları, alternatif reklam araçlarının tüketici şüpheciliği üzerindeki etkisi konusunda uygulayıcılara ve araştırmacılara önemli bilgiler sağlamaktadır. Araştırmanın sonuçları ilgili literatür doğrultusunda tartışılmıştır.

Anahtar Kelimeler: Artırılmış Gerçeklik, S-O-R Modeli, TAM Modeli, Tüketici Şüpheciliği, Deneyimsel Pazarlama, AR-Gömülü Video Reklamcılık.

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SYMBOLS AND ABBREVIATIONS

SYMBOLS

ρ : correlation coefficient

σ : standard deviation

β : Beta coefficient

ABBREVIATIONS

AR : Augmented Reality

ARA : Augmented Reality Advertising

VR : Virtual Reality

TRA : Theory of Reasoned Action

TAM : Technology Acceptance Model

AIDA : Awareness, Interest, Desire and Action Model

TPB : Theory of Planned Behavior

Apps : Applications

Ads : Advertisement

TL : Turkish Lira

SUBJECT OF THE RESEARCH

During the historical development of marketing, the methods and tools used to promote products, services, and innovations have varied over the years. Although businesses used traditional media tools in previous times, today, they have started to use more innovative approaches through online platforms. In this regard, the effectiveness of video advertisements (ads) seems arguable, especially when it comes to introducing technological innovations. Even if video ads are still effective in reaching consumers, marketers should use more creative and experiential ways, especially in promoting technology-based and experience-oriented technologies such as AR and VR, because it is known that consumers are more skeptical of specific types of advertisements. In this regard, this thesis aims to compare the role of consumer skepticism between AR-based shopping experiences and AR-embedded video* advertisements.

PROBLEM STATEMENT, PURPOSE AND IMPORTANCE OF THE RESEARCH

Problem Statement and Purpose of the Research

Consumers may be skeptical of brands and their promotional activities. In this direction, which advertising methods and tools businesses use is also an important factor affecting consumer skepticism. For example, consumers are more skeptical of the messages in the e-mail advertisements sent to them than the advertisement messages delivered face-to-face. This situation also occurs with the introduction of new technologies. Consumers may also have skeptical attitudes towards the introduction of a technological innovation. This situation needs to be addressed in the technology acceptance model, which is widely used in the literature. Therefore, this thesis study aims to examine the role of consumer skepticism in the technology acceptance model by integrating it into the S-O-R framework.

*AR-embedded video refers to a concept wherein video advertisements incorporate Augmented Reality (AR) applications, providing viewers with an immersive and interactive experience. By integrating AR elements directly into the video content, marketers aim to enhance viewer engagement and offer a richer, more layered presentation of the product or technology being advertised. In an AR-embedded video advertisement, the viewer observes individuals engaging in the shopping action but does not actively participate in the shopping process themselves.

Consumer skepticism has surged due to intense market competition and increased exposure to various marketing strategies. Unfortunately, traditional technology acceptance models tend to disregard crucial factors such as consumer skepticism. Therefore, this thesis aims to delve into the realm of consumer skepticism within the context of augmented reality applications, which have garnered considerable interest from consumers and brands in recent times. By doing so, the proposed research model aims to present substantial contributions to the existing literature, examining consumer acceptance of augmented reality applications.

While previous studies have explored a similar context using the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB), this study takes a unique approach by integrating these models with the Stimulus-Organism-Response (S-O-R) framework. Additionally, this study addresses a research gap by introducing the variable of consumer skepticism to investigate purchase intention within the context of augmented reality advertisements. Additionally, another objective of this study is to examine the factors with the mediation of consumer skepticism and draw a comparison between two distinct groups.

In other words, by incorporating this new perspective, the study aims to provide fresh insights into the phenomenon. Moreover, this study holds significance as it aims to compare two groups of a web-based AR shopping experience* and an AR-embedded video advertisement group, explicitly considering the role of consumer skepticism.

Importance of the Research

Consumers' attitudes towards promotional tools have been an important issue for both practitioners and researchers to date. However, the number of studies on which type of advertising content should be presented through which type of tools is quite limited. The model developed in this research includes perceptions of a product promoted by the same brand to customers through two different tools. In other words, this study reveals

* Web-based AR shopping experience refers to the utilization of Augmented Reality (AR) technologies via online platforms, enabling users to enjoy an enhanced shopping experience directly through their web browsers. By leveraging AR capabilities on the internet, consumers can visualize products in a more lifelike manner, simulate product usage in real-world scenarios, and make more informed purchasing decisions without the need for specialized apps or software.

that promotions made through an AR advertising video or a real AR shopping experience are more effective in terms of consumer skepticism.

Consumer purchase attitudes towards AR have interested business owners and academics over the past decades. Theoretical insights gained from this study will contribute to a better understanding of the influence of skepticism on this attitude and intention within the rapidly advancing technological environment. As technology plays a significant role in advertising products to consumers, this research sheds light on the importance of augmented reality in product promotions. The study recognizes the increasing effectiveness of augmented reality in influencing consumer purchase intention, making it significantly relevant to the subject matter.

The findings of this study will be valuable to academics in enhancing their understanding of the factors that influence consumer purchase intention by comparing and contrasting two study groups. This knowledge will ultimately lead to a better comprehension of consumer attitudes and intentions. Additionally, marketing practitioners will benefit from this study as it can guide them in improving and optimizing their promotion activities by implementing the latest technologies.

Overall, this research is essential for academics and marketing practitioners, as it contributes to understanding consumer purchase intention, provides insights into the role of augmented reality, and highlights the significance of technological advancements in marketing strategies. Indeed, augmented reality and virtual reality technologies enhance the consumer's perception of the real world and create immersive virtual experiences.

METHOD OF THE RESEARCH

In this study, a between-subjects design, which is a quantitative research method, was used to test the research model. Survey data was collected from 366 respondents representing a group of consumers who experienced web-based AR shopping experience (n=180) and another group who watched an AR-embedded video advertisement (n=186) for the same brand product. These different AR experiences were used as stimuli for the research model. To collect information from respondents, a self-administered questionnaire from prior literature was adapted and used to assess the hypothesized

relationships between the research variables. Furthermore, a five-point Likert scale was utilized in the questionnaire. Data was collected using the convenience sampling technique, and both groups were analyzed using Smart PLS4. Structural equation modeling (SEM) was employed in this study's analysis due to its suitability for examining complex research models. SEM offers the advantage of facilitating intergroup comparisons, precise measurement, and comprehensive structural model analysis. The research methodology, encompassing the survey design, adaptation of scales, and data collection procedures, is comprehensively discussed in Chapter Three of the thesis.

HYPOTHESIS OF THE RESEARCH

The rationale for the hypotheses is explained in chapter three. This section provides summary information, considering the thesis writing guidelines.

Research hypotheses:

HYPOTHESIS ONE (H1): Privacy concerns positively affect consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the positive effect of privacy concerns on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

HYPOTHESIS TWO (H2): Complexity-in-use positively affects consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the positive effect of complexity-in-use on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

HYPOTHESIS THREE (H3): Application knowledge negatively affects consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the effect of application knowledge on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

HYPOTHESIS FOUR (H4): Perceived informativeness negatively affects consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the negative effect of perceived informativeness on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

HYPOTHESIS FIVE (H5): Consumer skepticism negatively affects attitude toward AR shopping for (a) the web-based AR shopping experience group and (b) the AR-embedded video group.

HYPOTHESIS SIX (H6): Consumer skepticism mediates the relationship between privacy concerns and attitudes towards AR shopping.

HYPOTHESIS SEVEN (H7): Consumer skepticism mediates the relationship between complexity-in-use and attitudes towards AR shopping.

HYPOTHESIS EIGHT (H8): Consumer skepticism mediates the relationship between application knowledge and attitudes towards AR shopping.

HYPOTHESIS NINE (H9): Consumer skepticism mediates the relationship between perceived informativeness and attitudes towards AR shopping.

HYPOTHESIS TEN (H10): Attitude positively affects purchase intention both in the web-based AR experience and AR-embedded video group.

PARTICIPANT SELECTION AND DATA COLLECTION PROCEDURE

To test the hypothesis, quantitative research between-subjects design approach was conducted by recruiting 366 participants (n=180 for study 1 and n=186 for study 2) who owned AR-supportive smartphones with internet access. To guarantee that participants could experience AR technology, the selection criterion of holding an AR-compatible smartphone with internet connectivity was utilized. The questionnaire for this study was created using Google Forms, an online survey-building tool. Google Forms has an easy-to-use interface and various question types that may be tailored to the study objectives. The platform enables researchers to construct, disseminate, and

collect survey replies. The survey links were regularly shared on social media platforms within brand communities and brand discussion forums, accompanied by a call-to-action text. Participants were given an explanation about the nature of the research and informed that their participation was entirely voluntary. Participants were non-randomly assigned to the groups and asked to watch the AR-embedded video with a promotional advertisement or experience web-based AR shopping before completing the survey. In other words, the research utilized a quantitative approach with a survey method for two groups, study 1 and study 2.

Research Design

In this study, the subjects were non-randomly assigned to two scenarios. Study 1 (n=180 in group 1) focused on web-based AR shopping experience, while Study 2 (n=186 in group 2) investigated AR-embedded video advertisement watching. These different AR experiences were used as stimuli for the research model.

This study selected the *Arçelik* brand's coffee machine from the home appliance product categories for investigation. The same brand and coffee maker machine were used for both groups in this research. The following Figure 1 illustrates the rationale behind the selection of the *Arçelik* brand and its associated coffee machine for the purpose of this research.

Figure 1: Roadmap choosing the brand and product

During the product selection process for this research study, an evaluation was conducted on brands incorporating augmented reality (AR) technology in their products. Rigorous assessments were undertaken to ensure compatibility with a wide range of smartphones. Initial investigations encompassed accessories such as rings, watches, and optics, followed by the examination of the Applay Du Kindersurprise application in the context of children's toys. Subsequently, the research extended to include sportswear from Amazon, Sephora cosmetics, and various other products. Unfortunately, these items failed to meet the expectations of the research. Further exploration involved examining Blippar AR and Milo products as AR image recognition solutions. Regrettably, none of the above-mentioned products provided comprehensive AR support, reflecting the limited popularity and functionality of AR a few years ago. Ultimately, the AR features of *Arçelik's* products, notably the coffee machine within the home appliances category, exhibited superior performance compared to other brands, leading to the selection for this research study.

Furthermore, the difference between the questionnaires lies in the stimuli provided to the participants. In Group 1, participants were invited to click on a web-based AR shopping link, and they started shopping for *Arçelik's* coffee machine. In group 2, participants were instructed to watch the AR-related video by clicking the

provided link before completing the survey. They watched a video ad promoting the AR shopping experiences, and this ad used the same coffee maker of the same brand. By utilizing these two different stimuli, namely web-based AR shopping experience and AR-embedded video ad, this study provided a comprehensive understanding of how different AR modalities influence consumers' responses.

To confirm participation in this research, the devices used by the participants had to meet specific criteria. Those in the first group needed a device capable of accessing the YouTube platform to play the advertisement video. Meanwhile, participants in the second group had to possess hardware and software that supported the AR application. Before the survey, participants were asked whether they could seamlessly experience the AR feature. Those who could not experience AR due to software and hardware issues (n=112) or who could not watch the video (n=23) were excluded from the research. The final usable questionnaires amounted to 366 (180 for study 1 and 186 for study 2).

SCOPE AND LIMITATIONS / DIFFICULTIES

Scope of the Research

This study investigates the effects of various variables: privacy, complexity-in-use, application knowledge, perceived informativeness, consumer skepticism, and attitudes. The study includes two groups for comparison and aims to understand their similarities and differences through statistical analysis. In addition, the study explored the mediating role of consumer skepticism to gain a deeper understanding of its impact on the relationship between the variables.

By investigating these variables and their effect, the study sought to shed light on how factors such as privacy concerns, complexity-in-use, application knowledge, perceived informativeness, consumer skepticism, and consumer attitudes influence consumers' intentions to make a purchase. Through this research, a comprehensive understanding of the impact of these variables on consumer purchase intention was sought, contributing to the existing literature and providing valuable insights for marketers and practitioners in developing effective strategies to enhance consumer attitude and purchase intention.

Limitations and Directions for Future Research

One of the limitations of this study is that it focuses on a specific brand name, which may restrict the generalizability of the findings to other brands or the product itself. Furthermore, the potential influence of brand reputation can significantly impact consumer purchase intention. Future research might use numerous brands or other sorts of items to address this limitation. Researchers can improve the study's generalizability and provide a more comprehensive understanding of the technology's impact on consumers' shopping experiences across various brands and products.

Another limitation of this study is related to awareness of AR technology among people. According to this study's findings, 54.95% of the total group showed no awareness of augmented reality. If 54.95% of the complete group showed no awareness of augmented reality (AR), it suggests that a significant portion of the group has limited or no knowledge or familiarity with AR technology. This finding indicates a lack of awareness about AR among the study participants or the surveyed population. The lack

of awareness about AR can affect attitudes and intentions towards AR. If individuals are unaware of what AR is or its potential applications, they may not have formed a specific attitude towards it. In such cases, their intention to use AR might be influenced by factors other than attitude, such as exposure to AR experiences, education about AR, or social influence.

For those who showed no awareness of AR, introducing and educating them about AR can be beneficial in shaping their attitudes and intentions towards the technology. Providing information, demonstrations, or hands-on experiences of AR can help individuals understand the capabilities and potential benefits of AR, which in turn may influence their attitude towards it. It is important to note that the lack of awareness among a specific group does not necessarily imply a general lack of awareness in the broader population. Awareness levels can vary across different demographic groups, regions, or industries. Lastly, another limitation of the research is that the data was collected via social networks. In this study, participants' AR usage experience was not observed in real-time by the researcher. Accordingly, the declarations of participation by the participants were taken as the basis. Future studies could be conducted by observing participants in a laboratory setting.

1. CHAPTER ONE: Advertising, Augmented Reality And Experiential Marketing

1.1 Introduction

Advertising is a highly impactful communication tool within the marketing field, serving the primary objective of increasing awareness. It has become an indispensable component of the rapidly evolving marketing landscape, critical in promoting products, services, and brands. In essence, advertising can be defined as the promotional activities undertaken to attract customers and boost sales. It encompasses various strategies and techniques aimed at effectively conveying the benefits and value of a product or service to the target audience. Through creative messaging, persuasive visuals, and strategic placement, advertisements strive to capture the attention and interest of potential customers, ultimately influencing their purchase decisions (Tsai et al., 2020).

The significance of advertising lies in its ability to create brand recognition, establish a competitive edge in the market, and stimulate consumer demand. It is a powerful means of reaching a broad audience, increasing brand visibility, and generating sales revenue. Advertising plays a vital role in driving consumer engagement and facilitating business growth by effectively communicating a product or service's unique selling points and value propositions. Overall, advertising is an essential element of modern marketing practices, contributing to the success and profitability of businesses by effectively promoting and positioning their offerings in the competitive marketplace. Consequently, online advertisement is defined as commercial content delivered through the Internet to inform customers about the product (Shi, Zhang & Wu, 2020).

Nevertheless, there is a need for the redefinition of advertising due to the changes in advertising practices and expenditures. First of all, advertising practices are transforming from the traditional way to the digitalized approach with the advancement of technology in modern life. Further, Kerr and Richards (2020) mentioned that Google and Facebook collected two-third of online investment in 2018. Kerr and Richards (2020) study described the redefinition of advertising due to the innovation in the digital world.

As a result, consumer attitudes and advertising formats have changed as technology advances. Kerr & Richards argue that different authors define the advertisement in their own way, even though the American Marketing Association (AMA) committee discussed the uniformity of marketing terms used by authors. According to Kerr and Richards (2020), technological changes are accelerating and should not be avoided as they are significantly related to marketing. Therefore, authors need to use a proper and up-to-date definition of advertising to understand better. In summary, advertising is newly defined as "paid, owned, and earned mediated communication, activated by an identifiable brand and intent on persuading the consumer to make some cognitive, affective or behavioral change, now or in the future" (Kerr & Richards, 2020, p.16).

1.2 Advertising

Consumers can choose the products and services according to their beliefs and morals. Sometimes, advertisements can be misleading, and this advertised product is avoided. According to Kim, Choi & Kim (2019), 91% of consumers in the United States came across frustrating advertisements. Similarly, Run, Butt, Fam & Jong (2010) highlighted that religiosity is vital in considering people's attitudes toward offensive advertisements. For example, alcohol is prohibited in Islam, and promotions related to this product can be awful for Muslim consumers who practice the religion. However, advertisements in our daily lives are inevitable due to the competitiveness in the market, and every producer wants to sell their product. Furthermore, Salam, Muhammad & Leong (2019) mentioned that religion is essential to the young generation's attitude towards advertisements. Consequently, the religion of Islam greatly influences the advertisement regulations (Feiz, Fakharyan, Jalilvan & Hashemi, 2013).

Furthermore, consumers could perceive advertising messages differently, and the ability to identify the message depends on the consumers' age. According to Wojdynski & Evans (2020), children as consumers cannot recognize the advertising message, while adults are more aware of the message behind the advertisement. Therefore, AR advertisements could efficiently deliver the message to any age group of consumers.

Significantly, kids' products advertised using AR would help the kids to make more accessible choices. Children also have the right to make their own consumption choices.

Consequently, there is growth in the advertising field, and this has triggered the need for comprehensive research in this field (Khang et al., 2016). A retrospective analysis done by Khang et al. (2016) suggested that a broader scope of study could improve the knowledge related to the field. According to Kim, Williams & Wilcox (2016), traditional advertising significantly attracts consumers. However, the internet is developing rapidly following technology. Therefore, technology-induced advertisements are becoming essential to influence consumers. In this case, augmented reality (AR) is a critical approach for advertising consumer products and services to get customers' attention.

1.3 Augmented Reality Advertising

Advertising elements did not change (Kerr & Richards, 2020), though there have been notable changes in consumer lifestyle and technology. In turn, advertising approaches are transiting with the abovementioned changes (Lee & Cho, 2019). Advertisement content is significant because consumers need to differentiate the products from rival companies (Song, Kim, Kim & Lee, 2019). According to Çeltek (2015), AR enables the blending of the digital world with reality, allowing consumers and marketers to connect with the product closely. Augmented Reality marketing is a technology that facilitates information with physical reality (Green et al., 2017; Feng & Mueller, 2019; Sung, 2021). With the use of technological gadgets, AR advertisements help consumers see the product better (Hopp & Gangadharbatla, 2016), and digitalization is opening new boundaries for advertising by expanding the global market (Lee & Cho, 2019).

It is essential to mention that the AR concept has been used in different fields, including aviation (Macchiarella, Gangadharan, Vincenzi & Majoros, 2005; Eschen, Kotter, Rodeck, Harnisch & Schuppstuhl, 2018), education (Lee, 2012; Wu, Lee, Chang & Liang, 2013; Green et al., 2017; Papanastasiou et al., 2019), health care (Mitha, Almekhlafi, Janjua, Albuquerque & McDougall, 2013; Albina & Hernandez, 2019), hospitality (Çeltek, 2015), and manufacturing (Lotsaris et al., 2020). Additionally, the

marketing field is a new prospect for implementing AR as consumer attention is increasing towards technology-facilitated advertisements (Wafa & Hashim, 2016). According to Yang, Carlson & Chen (2020), most of the AR studies have been done in retailing, and few studies have been done in advertising and marketing. Therefore, this research will study consumer buying behavior towards AR in advertising.

Furthermore, Scholz & Smith (2016) discussed the details of the types of augmented reality marketing, including packaging/active print, bogus window, Geo-Layer, and Magic mirror. First, packaging or functional print includes advertisements outside of the home. This could augment targets presented in printed materials combined with digital objects, such as QR code scanning from the printed advertisement material, to gain further knowledge about the advertisement. Furthermore, the bogus window includes the augmentation from TV screens disguised as standard glass windows with digital objects. Moreover, the Geo-Layer is where augmentation occurs in the space around the user with digital objects and privately owned devices. Lastly, Magic mirrors augment the area or object around the user with digital objects, mainly with public devices, such as TV screens, that could or could not be concealed as ordinary mirrors.

Marketers and advertising industries have begun to realize the considerable potential of augmented reality marketing in the past years. As a new way of advertising, augmented reality (AR) advertising is taking consumers' attention, so this type of advertising is more attractive. In the eyes of consumers, AR could be more entertaining (Feng & Mueller, 2019) since it is technology-facilitated. It is revealed that widely recognized companies are taking advantage of AR, while the AR software market is expected to expand in 2022 (Feng & Mueller, 2019). Augmented reality advertisements are becoming popular at a faster rate (Hopp & Gangadharbatla, 2016). However, less literature exists about its efficiency. Furthermore, Table 1 below represents the categories of augmented reality applications based on previous studies.

Table 1: Categories of Augmented Reality Apps

Author	Category	Description
Mittal & Gupta (2021)	Social media and communication	E-commerce has revolutionized how customers shop by providing convenience, variety, transparency, and ease of use. It has eliminated geographical limitations and empowered customers with more control and choices, making online shopping a preferred option for many.
Javornik (2016)	AR apps augmenting products	Enables getting additional digital information through scanning related images with the support of AR apps
Watson et al. (2020)	Retail and e-commerce	AR can enrich sensory experiences for consumers through the overlay of virtual elements directly into the live environment, thus enhancing their perception.
Mahony (2015)	AR apps for communication	The prospective brand adopter can evaluate how well the attributes of AR align with their communication objectives. This assessment will help determine if AR is suitable for enhancing brand communication and achieving the desired goals.

Source: Javornik (2016), Mittal & Gupta (2021), Mahony (2015), and Watson et al. (2020).

Additionally, AR is a concept that helps to visualize the extensive virtual information merged into the physical surroundings (Mahony, 2015; Catalan & Gidlof, 2018). Similarly, Javornik (2016) mentioned that augmented reality is a real-time view of real surroundings, directly or indirectly, with computer-enhanced information. It is essential to note that the COVID-19 pandemic significantly affected the whole globe and forced businesses to undertake marketing transactions online. This is an opportunity to use AR advertising to attract customers and influence buyer decision-making. Lee & Cho's (2019) study reveals the antecedents of consumers' perceived values and attitudes towards digital signage advertising. Further, it is mentioned that digital signage advertising influences consumers' purchase intention, and AR is a primary factor in formulating consumer buying decisions (Tsai et al., 2020).

1.3.1 Background of Augmented Reality Advertising

Augmented reality is an innovation in the field of marketing, and it is proliferating by attracting marketers' attention (Wedel, Bigne & Zhang, 2020). It is also cost-efficient (Abrar, 2018). Advertising is an essential communication tool in that consumers can gain knowledge about the product, and utilizing AR advertisements are interactive way to provide detailed information about the product (Mauroner & Best, 2016). Essentially, interactivity is a primary factor in information processing from consumers' perspectives. Nevertheless, there is a lack of studies to show a practical model that explains the influence of AR in marketing and communication (Mauroner et al., 2016).

Similar to augmented reality, Virtual Reality (VR) is also widely used in marketing. VR uses advanced technology that helps to simulate a realistic atmosphere (Zheng, Chan & Gibson, 1998; Catalan & Gidlof, 2018; Eschen et al., 2018), and it also helps the manufacturing cost low with a better product design (Zheng et al., 1998). The main difference between VR and AR is that VR needs more accessories. Essentially, VR and AR are part of Mixed Reality (MR), as shown in Figure 2.

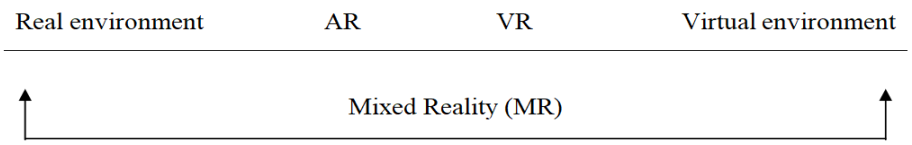

Figure 2: Mixed Reality Continuum (Eschen et al., 2018).

The following bar chart, as illustrated in Figure 3, provides statistical data about Augmented Reality (AR), virtual reality (VR), and mixed reality (MR) market size worldwide from 2021 to 2024 (in billion U.S. dollars) (Statista, 2021).

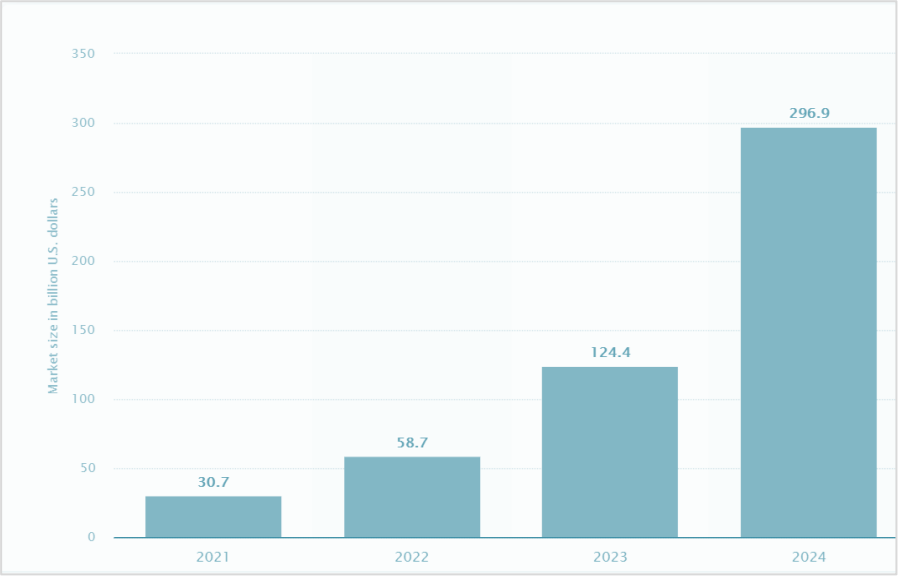

Figure 3: AR, VR, and MR market size worldwide (Statista, 2021).

The data shows a significant growth in market size within four years, indicating massive potential in demand for AR, VR, and MR for 2021, 2022, 2023, and 2024 years. Essentially, AR tools were developed by companies to anticipate marketing needs. Interestingly, Liao (2015) argues in his paper that the marketing field is a competitive environment that needs the initial technology in their precise demands and assumed needs. For instance, Boeing researcher Tom Caudell first applied the term "augmented reality" in the 1990s. In addition, the AR topic popularity was driven by the release of the *Pokemon Go* application in 2016, which was free of charge and had appealing attributes (Green, Green & Brown, 2017).

Furthermore, Green et al. (2017) mentioned that Ivan Sutherland used AR related concept in 1965, which described computer-facilitated displays to get familiarity with the virtual world. Nonetheless, Sutherland did not use augmented reality to describe the device. It is considered as a precursor to augmented reality. In table 2, the lengthy history of AR and VR can be viewed.

Table 2: The History of Augmented Reality and Virtual Reality

Year	Description
1950	Morton Heilig - The cinematography developed the first forms of AR, which named the special cinema features "Sensorama."
1960	Ivan Sutherland developed the first head-mounted display at Harvard.
1970 - 1980	National Aeronautics and Space Administration (NASA), research institutes, and other industries worked on developing wearable devices, 3D graphics, and digital displays with AR technology.
1974	The Videoplace – Myron Krueger created an artificial laboratory. This laboratory used projectors and cameras to develop interactive surroundings for its users.
1990	As a Boeing researcher, Tom Caudell applied the term "augmented reality" in the research project to train workers.
1992	Louis Rosenberg developed one of the earliest AR systems, Virtual Fixtures, built for the Air Force.
1994	Julie Martin called the first augmented reality theater production "Dancing in Cyberspace."
1998	Tekla Perry and his group members developed significant innovations; the yellow first–down the line appeared on stadium grass during The National Football League.
1999	Battlefield Augmented Reality System (BARS) is the robust, original model of early wearable soldier units.
2000	ARToolKit is an open-source software library created by Hirokaza Kato. Interestingly, ARToolKit is still widely used to compliment many AR experiences.
2003	Sportsvision unveils the first computer graphic system capable of inserting the 1st & Ten lines from the popular Skyscam, the National Football League mobile camera, which provides the field's aerial perspective.
2009	Print media uses AR for the first time, where Esquire Magazine prompts readers to scan the cover to make Robert Downey Jr. come alive on the page. ARToolKit brings AR to a web browser.
2013	Car manufacturers use AR as a new-age vehicle service manual. For example, The Volkswagen MARTA app (Mobile Augmented Reality Technical Assistance) provides virtual step-by-step repair assistance, allowing service technicians to foresee how a repair process will look on the vehicle in front of them.
2014	Magic Leap announces the most significant AR investment to date of USD 50 million, Series A. Google announces shipment of google glass devices for customers, thus starting a trend of wearable AR.
2015	AR and VR investment reached USD 700 million.
2016	AR and VR investment reaches USD 1.1 billion. Microsoft HoloLens Developer Kit ships. Meta 2 Developer Kit ships.
2019	300 % AR and VR investment growth during 12 months in an early-stage market. It was expected to reach USD120 billion in profits in 2020.

***Source*:** Javornik (2016); Kelvin (2019); Papanastasiou et al. (2019).

From Table 2 above, it can be seen that AR and VR technology have developed rapidly over the past decade. Interestingly, AR and VR investment increased from USD

700 million to USD 1.1 billion in 2015 and 2016. This vast amount shows the increasing demand for this technology within one year. Unfortunately, there is a lack of empirical evidence on AR advertisements' effect on consumer buying attitudes, even though the AR market has been expanding at the fastest rate in recent years. In addition, Wedel et al. (2020) studied AR and VR from a consumer marketing perspective. They pointed out that there are limited resources pertinent to the literature and research framework from a consumer marketing perspective.

Furthermore, technology has become an integral part of people's daily life. According to technological changes, tremendous changes are also taking place in marketing. From the AR perspective, the number of active users of this new technology is increasing yearly. Figure 4 illustrates the number of active mobile augmented reality (AR) users worldwide from 2019 to 2024.

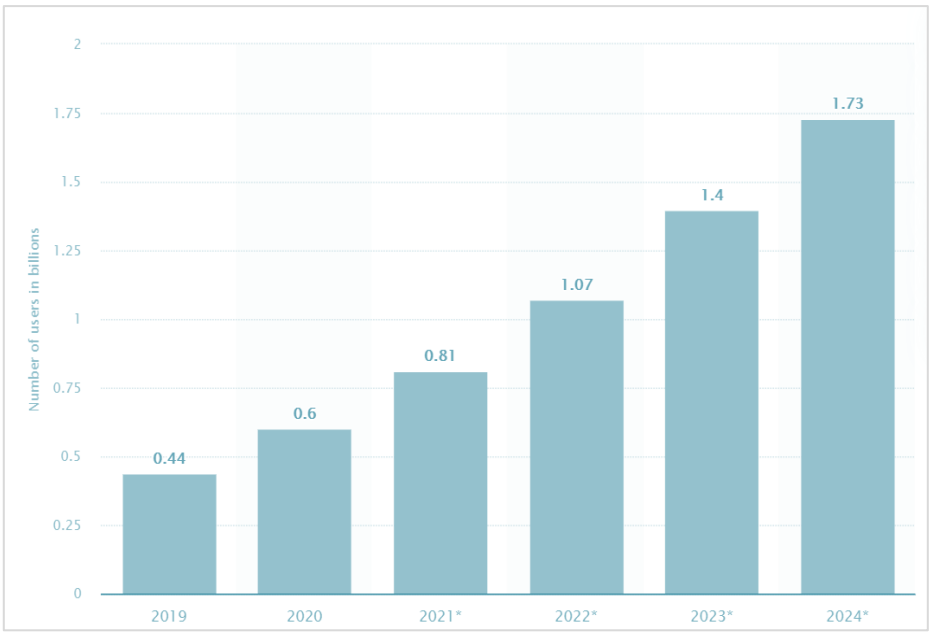

Figure 4: Number of AR users from 2019 to 2024 (Statista, 2021).

As shown in Figure 3 above, the number of mobile AR users is forecasted to reach 1.73 billion in 2024, while the number was over 800 million in 2021. According to Statista (2021), 44% of global consumers under the age of 40 acknowledged having used AR-enhanced technology, which includes Generation Z (21%) and Millennials

(23%) for the past 12 months. The remaining sample agreed to try AR apps in their shopping if they were allowed to try them (Lionel, 2021). That is why this study includes Generation Y for further investigation. In a similar study, Thomas (2021) stated that the AR market is expected to grow globally in the coming years. In addition, Thomas (2021) points out that Snap is the most significant contributor to mobile AR users worldwide, with more than 300 million active users. Further, other remarkable mobile AR social networks include Facebook AR and TikTok.

1.3.2 Augmented Reality Implementation

According to Tekoğlu & Sığrı (2020), AR plays an essential role in influencing consumers' online purchase intention and their experience. Popular brands implemented AR technology for their products, aiming to increase sales by entertaining advertisements that attract more customers. Table 3 summarizes the retailers and the AR applications for their brands.

Table 3: Examples of Augmented Reality implemented by retailers

Retailer	Augmented Reality Implementation
Ikea	Launched the latest AR technology to test products, Ikea Studio App
Lego	Offered interactive AR application for children
Walmart	Implemented AR technology to speed up inventory transportation from the store to the sales room
Burberry	Retail brand launching AR application to bring back luxury customers after the Covid-19 pandemic.
Amazon	Offered new AR technology-based hair salon, where customers can see their hair in different shades before actual hair coloring.
Gucci	One of the earliest luxury brands implemented AR tools to help customers make better choices. It offered virtual sneakers, letting customers try the product virtually.
Machine A	A concept store based in London allows users to experience fashion design in a virtual boutique.
Sephora	Virtual Artist is an application that uses AR tools to help customers see how beauty products match their face (such as lipsticks, fake eyelashes, and eyeshadows)
Kinder	Installed AR applications in several stores to entertain children and surprise them with supplementary toys
Adidas	Adidas try-on sneakers, with the support of AR technology, allow customers to see how they look on them. Adidas was one of the earliest brands to introduce try-on sneakers. Nevertheless, many other brands are also using VR and AR technology for their products due to the pandemic restrictions.

1.4 Augmented Reality and Consumer Attitude

The integration of AR technology into advertising has garnered significant attention due to its potential to enhance consumer engagement and influence purchasing intention. Studies have shown that AR ads capture consumers' attention, evoke positive emotions, and enhance their overall engagement with the brand or product. AR experiences create a sense of novelty, excitement, and enjoyment, which can result in more favorable attitudes. AR ads' interactive and experiential nature can create a stronger desire to own or experience the advertised product, leading to a higher likelihood of purchasing.

Augmented Reality (AR) has the potential to positively impact consumer purchasing patterns and shape their inclination to make a purchase. Research outcomes indicate a noteworthy correlation between the use of AR and heightened brand engagement. Furthermore, AR emerges as a potent instrument for drawing in customers and bolstering overall customer awareness. In essence, the integration of AR technologies not only enriches the shopping experience but also serves as a compelling means to capture customer attention and enhance brand recognition (Abrar, 2018).

The research on AR advertising indicates its potential to impact consumer attitudes and purchase intention positively. By offering immersive and interactive experiences, AR ads can capture consumers' attention, enhance brand attitudes, and stimulate purchase motivation. AR advertising has been found to increase consumer engagement by providing interactive and immersive experiences. Furthermore, table 4 summarizes the studies on augmented reality advertising and its impact on consumer attitude and purchase intention.

Table 4: Studies related to AR

Author/Date	Title	Methodology	Findings of the study
Tekoglu & Sigri (2020)	*"Artırılmış gerçeklik ile pazarlamanın, tüketıcı deneyimi ve çevrimiçi satın alma niyeti ile ilişkisi üzerine nitel bir araştırma"*	Qualitative	AR affects consumer experience as well as online purchase intention
Yang et al. (2020)	*"How augmented reality affects advertising effectiveness: The mediating effects of curiosity and attention toward the ad."*	Quantitative and Laboratory Study	AR influences advertising effectiveness. AR increases customer attitude. However, it applies only to customers who are unaware of AR advertisements.
Khan & Sriram (2019)	*"Role of Augmented Reality in Influencing Purchase Intention Among Millenials"*	Quantitative	AR affects customer purchase intention. Purchase intention is associated with perceived ease of use and perceived usefulness.
Mittal, Minto & Gupta (2021)	*"Impact of Augmented Reality on Website Quality and Purchase Intention"*	Quantitative	Findings suggest that AR does not impact Service quality and information quality. However, AR has a significant influence on system quality and purchase intention.
Abrar (2018)	*"Impact of Augmented Reality on Consumer Purchase Intention with the Mediating role of Customer Brand Engagement: Moderating role of Interactivity in Online Shopping."*	Quantitative	AR can enhance buying behavior and influence the intention to purchase. Findings suggested a significant relationship between AR and brand engagement. AR is also an effective tool to attract customers and increase customer awareness.
Kang et al. (2020)	*"How 3D Virtual Reality Stores Can Shape Consumer Purchase Decisions: The Roles of Informativeness and Playfulness."*	Experimental Study	Informativeness is a more explanatory variable for subsequent purchase intentions. Interactivity and visual-spatial cues are essential to affect perceived informativeness.
Phua & Kim (2018)	*"Starring in your Snapchat advertisement: Influence of self-brand congruity, self-referencing and perceived humor on brand attitude and purchase intention of advertised brands."*	Quantitative	Self-brand congruity, self-referencing, and perceived humor significantly affected consumers' post- use brand attitude and purchase intention.
Watson et al. (2020)	*"The impact of experiential augmented reality applications on fashion purchase intention."*	Quantitative	Positive Affective response mediates the relationship between AR app usage and purchase intention. A hedonic shopping experience moderates the relationship between augmentation and positive affective response.

1.5 Augmented Reality-Based Shopping As An Experiential Marketing Strategy

This section delves into the importance of introducing AR (Augmented Reality) technologies to customers within online shopping experiences and highlights the significant relevance of this topic from the perspective of experiential marketing. Studies referenced in this section bolster this argument, indicating that the outcomes of introducing these technologies through a genuine shopping experience or via video advertising would likely differ. Investigating these distinct modes of introduction and their resultant impacts would be invaluable to the field.

Experiential marketing focuses on creating immersive and memorable customer experiences beyond traditional advertising. AR-based shopping aligns seamlessly with this approach by offering consumers interactive and engaging experiences that bridge the gap between the physical and digital worlds. Through AR, shoppers can virtually try on clothing, visualize furniture in their homes, or even see how products work in real-world scenarios. Accordingly, the following part of this thesis describes how and why AR-based shopping is a pivotal component of experiential marketing in contemporary times.

1.5.1 Digital Transformation and AR-Based Shopping Experience

The marketing environment is undergoing a transformation. In light of the overarching challenges posed by digitalization in an environment where consumer markets are becoming progressively more transparent, empowered, and collaborative, businesses must respond by adopting innovative strategies and technologies to remain competitive in this evolving environment (Homburg et al., 2017). In response, companies have considered augmented reality (AR) an integral component of their experiential marketing strategy (Urdea & Constantin, 2021). This approach seeks to engage consumers by providing experiences that deeply resonate with them and create a memorable impact. AR is recognized as one of the most promising marketing techniques for addressing contemporary market challenges.

It is also crucial to comprehend how consumer behavior in the metaverse is evolving due to shifts in the medium. Consumer behavior influenced by AR can be viewed as an extension of the physical world, while VR represents an entirely immersive experience that transports users to different places and times (Dwivedi, Hughes et al., 2023). Correspondingly, virtual reality (VR) offers the chance to effectively explore and test existing and new concepts and theories. It enables participants to be immersed in virtual environments, making eliciting genuine experiences through different manipulations easier than relying on participants' imagination. VR allows for the isolation and manipulation of specific sensory inputs, making it a valuable tool for studying the impact of sensory integration on consumer behavior (Wedel et al., 2020).

In a virtual world, branding must be in harmony with the platform and the brand's core philosophy. Dwivedi (2022) emphasized the importance of brand awareness in the contemporary marketing environment. Establishing brand awareness is a significant hurdle for marketers. Coexisting in physical and virtual worlds poses a unique challenge for brands. Traditional media strategies may not yield the same results in the metaverse, requiring marketers to adapt and refine their marketing approaches for both realms. A comprehensive and cohesive strategy and execution will be demanding for marketers. Accordingly, viral AR marketing campaigns have the potential to reach a vast audience through social sharing, user-generated content, word-of-mouth, media coverage, and cross-platform promotion. The resulting exposure can significantly benefit a brand by increasing brand recognition, expanding its customer base, and ultimately driving business growth.

It is worth emphasizing that while experiential marketing centers on creating immersive experiences, social media primarily revolves around sharing these experiences (Chang, 2021). The popularity of the internet has led to significant transformations in how people share information and communicate (Shobeiri et al., 2014). Notably, social media platforms have emerged as companies' primary mass communication channels to relay information to consumers. Similarly, Urdea & Constantin (2021) pointed out that integrating interactive social media platforms into experiential marketing events raises consumer awareness. In the context of augmented reality based shopping experiences, social media plays a crucial role in amplifying the impact of these immersive encounters. Shoppers often share their AR-powered try-ons

or product interactions on platforms like Instagram, Facebook, or TikTok, allowing for widespread exposure and peer-to-peer recommendations, thereby extending the reach and influence of AR-based shopping within the broader experiential marketing landscape.

Experiential marketing, also known as engagement and event marketing, is a strategy that prioritizes the creation of memorable and unconventional customer experiences, moving away from traditional marketing methods (citation needed). This approach aims to immerse consumers in enjoyable and unique encounters, piquing their interest in a brand and its offerings (Budovich, 2019). The significance of crafting immersive marketing experiences lies in their ability to foster engagement, memorability, emotional connections, and differentiation. Moreover, these experiences influence consumer behavior and amplify brand messages through sharing, ultimately contributing to the development of more substantial and enduring relationships between brands and their target audiences. In this context, AR-based shopping platforms and technologies play a crucial role in contemporary experiential marketing strategies (Chang, 2021).

Businesses have acknowledged the importance of immersive and captivating interactions (Eyüboğlu, 2011). According to a survey, chief marketing officers intend to dedicate a substantial portion of their budgets to such experiences, and 77% of them stress the significance of experiential marketing (Moffett et al., 2021). Experiential marketing involves brands connecting with customers through experiences, and these frequently integrate both in-person and digital elements to craft unique and memorable experiences. Without a doubt, AR-based shopping is one of these experiences.

1.5.2 Experiential Nature of AR-Based Shopping

The experiential nature of AR-based shopping offers various opportunities for businesses. These opportunities contribute to the customer experience and also contribute to the long-term profitability of businesses.

1.5.2.1.Enhanced Customer Engagement

Experiential marketing and AR share the goal of enhancing consumer engagement. Experiential marketing aims to engage consumers deeply by providing memorable experiences. AR, with its ability to overlay digital content on the physical world, enhances this engagement by allowing consumers to interact with digital elements in a real-world context. For example, AR can provide virtual try-on experiences for clothing or visualize how home appliances would look in a real living space. Consumer engagement involves engaging consumers in specific interactions and experiences to cultivate and strengthen consumer relationships. This practice has become necessary for maintaining competitive superiority (Qin et al., 2021; Scholz & Smith, 2016).

Effective consumer engagement often involves a combination of creative strategies tailored to the specific target audience and industry. For instance, creating interactive content, social media engagement, and AR are well-known strategies for developing consumer engagement. The goal is to create meaningful and memorable interactions that build trust, loyalty, and a positive brand perception. In this aspect, AR technology is essential in creating interactive and immersive experiences that captivate and engage consumers.

1.5.2.2. Brand Image and Innovation

Experiential marketing and AR aim to achieve a shared objective of crafting immersive experiences. Experiential marketing immerses consumers in a brand's story or message. AR technology enables brands to create highly immersive experiences by adding virtual elements to the real world. It can include interactive 3D animations, games, or storytelling experiences that consumers can participate in through their smartphones or AR glasses. Accordingly, marketers can craft exceptional and valuable experiences through proficient utilization of augmented reality (Scholz & Smith, 2016; Wedel et al., 2020).

Consequently, AR-based shopping, as a part of experiential marketing could help increase brand awareness (Sung, 2021). When consumers have memorable and engaging

experiences with a brand through AR, they are more likely to remember and talk about that brand. For example, AR marketing campaigns that go viral can lead to significant brand exposure (Nie, 2023). According to Hollensen et al. (2023), the metaverse is expected to experience rapid growth as development reaches the extensive layer of regional and local brands that operate beneath the more prominent global brands.

1.5.2.3. Personalization

Moreover, experiential marketing and AR-based shopping are closely linked to personalization. Personalization in marketing is vital for providing a superior customer experience, driving engagement and conversions, fostering loyalty, and ultimately achieving business growth in an increasingly competitive business environment. Fundamentally, experiential marketing often involves tailoring experiences to individual preferences. Correspondingly, AR can take personalization a step further by allowing consumers to customize their AR experiences. For example, in retail, AR apps can adapt product recommendations and information based on the user's preferences and behavior.

1.5.2.4. Cost-effectiveness

In marketing, virtual and augmented reality provides a cost-effective way to conduct experiments, unlike traditional field experiments that are typically limited to minor tactical issues due to their high costs and risks (Wedel et al., 2020). Experiments in VR or AR environments offer similar realism but are more cost-efficient, confidential, and scalable. They can be applied to tackle significant marketing challenges, including product assortments, positioning, branding, and personalized marketing content (Wedel et al., 2020).

1.5.2.5. Data collection and process development

Companies can collect valuable data on consumer behavior and preferences through AR-based shopping activities. AR applications can gather data on how users interact with virtual elements, shaping future marketing strategies and product

development. This data can be used to refine and personalize experiential marketing efforts. Finally, experiential marketing can occur across various channels, including physical events, social media, and online platforms. AR can bridge these channels by allowing consumers to access immersive experiences both in-person and through digital platforms. This seamless integration enhances the overall marketing strategy.

1.5.2.6. Differentiation and Competitive Advantage

Differentiation and competitive advantage are crucial aspects of why firms are increasingly embracing augmented reality based shopping experiences. Firms that implement AR-based shopping experiences often stand out in the market, as such technologies are not yet mainstream. This differentiation can attract more customers and create a competitive advantage. Embracing AR-based shopping can translate into a tangible competitive advantage. Firms that pioneer the use of AR in their industry gain a head start and often become market leaders. They can set the standard for what customers expect in terms of interactive and immersive product experiences. This advantage not only attracts more customers but also positions the company as an industry leader, which can be appealing to partners, investors, and potential employees. As AR adoption becomes more widespread, firms that have already integrated these technologies may have a significant edge over competitors who are slower to adapt.

In summary, experiential marketing and AR are interconnected in their shared goal of creating engaging and memorable consumer experiences. AR technology provides a powerful tool for experiential marketers to enhance engagement, immersion, personalization, and brand awareness, ultimately contributing to more effective marketing campaigns (Scholz & Smith, 2016).

1.5.3 Research findings on experiential marketing and web-based augmented reality shopping

AR technology has had a profound influence on the marketing landscape. AR experiential marketing allows for easy online sharing, reducing the need for traditional advertising. Although AR technology is less mature than web-based tech, it is an

emerging trend that will likely influence the future of experiential marketing (Y.-H. Lin et al., 2020). Recent studies discuss the importance of AR regarding consumers' experiences, decision-making processes, and their implications for purchasing decisions (Jayaswal & Parida, 2023).

Research carried out by Sung (2021) confers that the immersive brand experiences made possible by AR favorably impact consumer responses. It is agreed that AR technology has transformed how we perceive and interact with products and services (Qin, Osatuyi et al., 2021). Overlaying virtual information onto real-world objects and spaces offers customers an immersive shopping experience while providing enhanced access to goods and services (Qin, Osatuyi et al., 2021). That means professionals should contemplate integrating AR marketing tools with current marketing strategies to encourage shared social interactions and enhance the likelihood of purchasing.

In the current information-driven and technologically advanced era, the digital revolution and the internet's widespread presence are compelling marketers to revolutionize their marketing approaches (Aktan et al., 2023). They are doing this by integrating digital tools that engage customers not only during the purchase itself but also before and after it. This transformation in marketing practices is commonly called 'online experiential marketing.' Studies across various industries have consistently shown that when consumers have positive and engaging experiences with brands through these digital channels, it has a beneficial impact on how they perceive and evaluate those brands (Aktan et al., 2023).

In a study by Urdea et al. (2021), 58 empirical articles spanning a twenty-year period were examined, with a specific focus on experiential marketing within the e-commerce context. The results underscore the primary benefit of the digital experience, which is an elevated level of satisfaction, a crucial element for both consumers and online businesses. However, Urdea et al. (2021) also highlighted the presence of challenges, such as the need to establish high levels of interactivity and trust. Similarly, another study conducted by Jayaswal & Parida (2023) revealed that marketers and retailers should be transparent with consumers regarding data handling to build trust through responsible technology use. Therefore, consumer trust is now a crucial factor influencing the acceptance of augmented reality marketing (ARM). To address privacy

concerns, retailers need to give consumers control over their data and make their platforms more transparent (Jayaswal & Parida, 2023; Urdea et al., 2021).

Today's most popular use of AR technology is its integration with experiential marketing (Tomar et al., 2022; Jin & Yazdanifard, 2015). AR technologies provide consumers with effective service experiences, enhance brand value, and foster long-term customer loyalty. (Tsai et al., 2016). Correspondingly, Lin et al. (2020) and Sülük & Aydin (2019) mentioned that the influence of digital applications on consumers' purchase intentions in experiential marketing holds significant importance. Efficient, well-timed communication with the right audience can save resources and improve overall effectiveness (Sülük & Aydin, 2019).

Notably, Shobeiri et al. (2014) have developed and tested a model that explores the impact of different experiential values on website engagement. Experiential marketing helps increase customer engagement, which is also a critical aspect of website design. In addition, Shobeiri et al. (2014) study indicated that aesthetics, service excellence, and customer return on investment are particularly effective experiential values for enhancing firms' reputation and increasing customer involvement on the website.

A similar study conducted by Luo et al. (2011) discussed the factors contributing to the effectiveness of experiential marketing on the Internet. Experiential marketing encompasses five key elements, which are sensorial, emotional, cognitive, behavioral, and relational value (Carmo et al., 2022). These elements collectively replace or augment the traditional focus on the functional importance of a product or service. In experiential marketing, the emphasis shifts towards creating meaningful and memorable experiences for consumers, encompassing their senses, emotions, thoughts, actions, and relationships with the brand.

In most cases, experiential marketing research recognizes that not all consumer behavior is solely driven by practical or economic needs. It acknowledges the emotional component and values the experiential benefits of using a product, shopping, dining, or visiting websites (Yaoyuneyong et al., 2016). In today's consumer landscape, there's a demand for multisensory experiences, and augmented reality is seen as an effective tool to meet this demand in marketing.

Linked to the above statement, Windasari et al. (2022) argued that retail websites, as an early touchpoint technology, introduce a unique shopping experience. They provide accessibility, customization, information, and customer collaboration, leading to time-efficient online shopping. Additionally, websites generate intrinsic experiential value, including amusement and appealing experiences, when customers engage with the websites (Windasari et al., 2022; Lin et al., 2020).

Particularly, one significant advantage of AR lies in its capacity to boost consumer engagement and satisfaction, all the while decreasing expenses associated with sales efforts. AR achieves this by creating immersive and interactive experiences for consumers. When consumers can engage with products or services through AR, it often leads to a higher level of interest and involvement. This engagement can result in increased satisfaction as consumers have a more profound understanding and connection with what they are considering or purchasing (Berman & Pollack, 2021).

In general, Perannagari and Chakrabarti (2020) stated that despite other factors or challenges, certain features, like the option to share content on social media platforms, are useful for getting users involved and for making more people aware of the product. Essentially, Chouyluam et al. (2021) highlight that experiential marketing places its emphasis on providing consumers with positive experiences that are not only memorable but also evoke recollections of past interactions with brands. In addition to that, the study has examined and discussed the significance of experiential marketing in improving the competence of digital entrepreneurs (Chouyluam et al., 2021).

Furthermore, research proposes that the integration of VR and AR technology holds the potential to deliver truly genuine, authentic, and captivating marketing and sales experiences in the healthcare sector (Renu, 2021). Experiential marketing enables customers to assess products and service innovations with the same level of detail and authenticity as if they had the physical version in front of them. Therefore, it aids in customer acquisition, conversion, retention, and the education of digitally engaged customers regarding various technological aspects (Renu, 2021).

Essentially, interactive technologies are tools and platforms that allow customers to actively engage with products, services, or content (Budovich, 2019; Coman et al., 2018). This engagement can be in the form of interactive websites, virtual

demonstrations, or other digital means that enable customers to have a hands-on or immersive experience. The idea is that when customers have the opportunity to actively participate and interact with a product or service, they are more likely to be convinced or persuaded of its value, functionality, or benefits.

Furthermore, some studies suggested that there is a lack of research on AR in Türkiye (e.g., Eru et al., 2022; Eyüboğlu, 2011). As a result, conducting further research will fill the gap and provide valuable insights for brands operating in Türkiye. Additionally, Eyüboğlu (2011) suggested that AR, as a tool in experiential marketing, can benefit brands not only in the short term but also in the long term by helping create a positive brand attitude and generate positive word-of-mouth.

As concluding remarks, experiential marketing is a strategic approach focused on creating a set of sensory and emotional values that delight and engage consumers and form a deep connection with a brand. It goes beyond merely promoting a product or service. Instead, it aims to create memorable, meaningful, and immersive consumer experiences. These experiences appeal to their senses, emotions, and overall satisfaction. By doing so, experiential marketing aims to foster a strong emotional bond between consumers and the brand. This, in turn, leads to enhanced brand loyalty, as consumers are more likely to return, recommend the brand to others, and develop a lasting, positive relationship with the brand based on their positive experiences (Eru et al., 2022).

2. CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Background of Study

The theoretical framework of this research refers to a set of interrelated constructs that represent a systematic view of the study phenomena. Tracking the connecting dots between theory and the problem of the study, the theoretical framework is seen as an organized structure that gives a brief overview of the research problem under investigation. In other words, it helps to make research findings more meaningful and generable for further studies. The theoretical framework of this study is developed with the support of S-O-R, the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), and the AIDA model. The details of the research framework are explained in the following sections.

2.1.2 S-O-R Framework

The model has gained popularity and provides a valuable method for assessing how new and developing experiential retail technologies influence customers' emotional and behavioral reactions, which has been utilized in the context of online purchasing behaviors by previous studies (Watson et al., 2020; Dyana et al., 2018). Mehrabian and Russell (1974) proposed the S-O-R model, which incorporates three perspectives: stimulus (S), organism (O), and authentic reaction (R) (Gao & Bai, 2014). The original framework is illustrated in Figure 5.

Figure 5: S-O-R Framework (Kim et al., 2020)

Applying a stimulus-organism-response (S-O-R) framework as the theoretical foundation, this study investigates the impact of the consumer's assessment of web-based AR and video AR, including variables (perceived informativeness, privacy, complexity-in-use, and app knowledge) on the effect of skepticism and its subsequent impact on purchase attitude and intention. According to this framework, stimulus refers to input, an external factor related to the environment. In addition, Gao & Bai (2014) mentioned that it has an impact on consumers' psychological states (O), resulting in their actions or intentions (R). In light of this, this study proposed that the perceived informativeness, privacy, complexity-in-use, and application knowledge as stimuli (S), with the impact of consumer skepticism as the organism (O) regarding the product ads with AR technology, eventually leading to responsiveness (R) such as consumer attitude and purchase intention.

2.1.3 Theory of Reasoned Action

The theory of reasoned action (TRA) was developed by Martin Fishbein and Icek Ajzen in 1967. TRA aims to describe the relationship between attitude and behavior regarding human activity. Predicting individuals' behavior based on their pre-existing attitudes and behavioral intentions is helpful. TRA is a particular case of the theory of planned behavior (TPB). The difference between these theories is that TPB includes behavioral control as an added factor of intentions and behavior (Madden et al., 1992). Since complexity exists in human behavior, it is a challenging concept to understand. Consequently, the theory of reasoned action and planned behavior focuses on theoretical concepts concerned with individual motivational factors as elements of the likelihood of carrying out particular behaviors (Glanz, Rimer & Viswanath, 2015; Madden et al., 1992).

Though much research has adapted TPB as an extended theory of TRA (Emekci, 2019), this study adapts TRA for this research. It is because TPB, as an advance of TRA, includes the construct of perceived behavioral control. According to Hale, Householder & Greene (2002), behavioral intentions could result from an individual and normative influence.

To make it simple, TRA can be expressed in the following mathematical equation as follows:

$$BI=(AB)W_1+(SN)W_2$$

Where:

BI=behavioral intention

(AB)=one's attitude towards performing the behavior

W=empirically derived weights

SN=one's subjective norm related to achieving the behavior

This research empirically investigates how independent variables influence dependent variables with the influence of augmented reality. Therefore, the constructs of this study are developed with the support of earlier-mentioned theories, and hypotheses are also designed to test the relationship between independent and dependent variables. Furthermore, the following section discusses the details of the TRA model, as it is also a part of an integrated theoretical framework of this research.

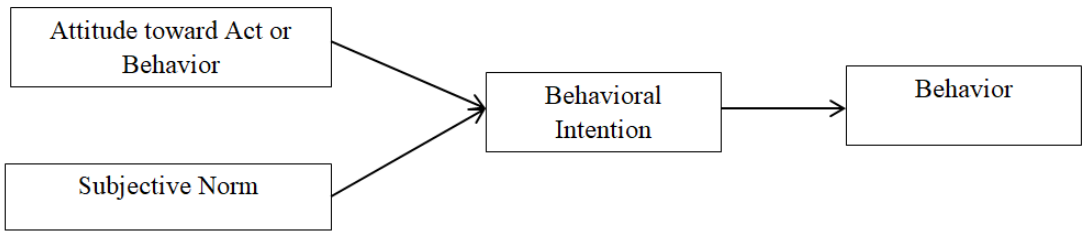

Figure 6: Theory of Reasoned Action (Fishbein & Ajzen, 1967).

2.1.4 Technology Acceptance Model

One widely used model in social sciences research is known as the technology acceptance model (TAM), which was created by Fred Davis in 1986. This model helps evaluate users' acceptance level of technology and information systems. Research by Lee, Kozar & Larsen (2003) mentioned that TAM is an influential and primarily implemented theory for describing an individual's acceptance of technology. TAM was adapted from the TRA (Ajzen & Fishbein, 1980) and proposed by Davis in 1986.

Fundamentally, TAM includes two essential variables, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), by assuming the individuals' acceptance of information systems (Pavlou, 2003). Meanwhile, this study includes Perceived Informativeness (PI) instead of PEOU. For instance, PEOU would be more useful if the context was a virtual reality perspective. It is worth mentioning that TAM is more straightforward, powerful, and empirically advantageous compared to the Theory of Planned Behavior (TPB) (Lee et al., 2003). Furthermore, the TAM model is illustrated in the following figure 7.

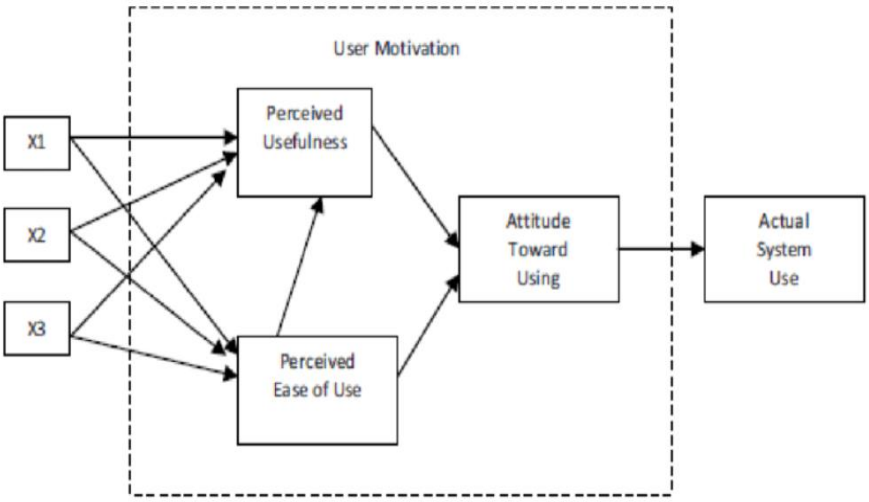

Figure 7: Original Technology Acceptance Model (Davis, 1986).

Further, many studies have been conducted to analyze consumer attitudes using TAM, and its findings suggested the importance of the variables to learning online purchase intention. Similarly, Koufaris (2002) studied the online consumer attitude by adapting TAM and mentioned the importance of profound research to understand the customer's purchase decisions. As technological advances are on the fastest path, marketing trends are changing accordingly. Thus, it indicates the attitude of consumers shopping online with advanced specialized tools. Perhaps customers came across AR-involved content.

Consequently, the positive relationship between behavioral intention and action is broadly studied by Pavlou (2003) by implementing TRA and TPB. It also mentioned that TRA and TAM constantly approve of the high correlations between intention and attitude. Another study pertinent to TAM and TRA implementation in consumer behavior research stated that it usually results in accuracy in terms of usage and adoption of technology as well as information (Rese, Schreiber & Baier, 2014). Similarly, another study was conducted by integrating TAM with other models, and the results showed the TAM to be the most economical and generic model. In other words, it is a simple model with great explanatory predictive power (Hong, Thong & Tam, 2006). Since AR is still in the adoption stage, employing the TAM model in this research is crucial to developing a robust conceptual model. Since AR is a new context in the existing literature, this study could be beneficial in adapting TAM. Furthermore, this study includes the AIDA model, which is explained in the following section.

2.1.5 AIDA Model

The following model, known as the AIDA model, is crucial in developing this research's theoretical framework. This model is beneficial in the research area of advertising. AIDA is the abbreviation of Awareness, Interest, Desire, and Action. It is also called Purchase Funnel, and this model was developed by Elias St. Elmo Lewis in 1898. The hierarchy model shows the process of customer engagement with advertisement. In addition, the AIDA model is known as one of the widespread advertising models in marketing (Rehman, Navaz, Ilyas & Hyder, 2014).

Furthermore, this model helps understand consumer attitudes further (Lin & Chen, 2019). Figure 8 shows the AIDA model and is explained in detail.

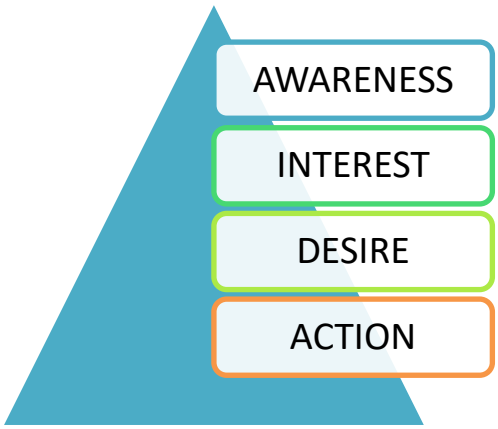

Figure 8: AIDA Model for Advertising

- *Awareness* is the state of consciousness about the product through any marketing channel
- *Interest* is the customer's curiosity about the product
- *Desire* is the state of the customer's wish to get the product
- *Action* is the state where the customer makes the purchase

The study showed the importance of the AIDA model in analyzing consumer purchase attitudes and behavior (Cuomo, Ciasullo, Tortora & Metallo, 2015).

The most important part of this model is awareness. There would not be marketing transactions if customers were unaware of the product. Therefore, creating awareness is crucial for marketers to develop alertness in customers' minds (Rehman et al., 2014). Due to this rationale, this study explores consumers' awareness of augmented reality (AR) within the marketing field. It is worth noting that the study context aligns with the emerging trend in marketing. Consequently, understanding consumers' awareness of AR is significant for future research endeavors.

2.2 Conceptual Model Development

Conceptual model development is constructing a theoretical framework that illustrates the interconnections and relationships among crucial variables or concepts within a specific research domain (Moody, 2005). It offers a visual depiction of how these variables are linked. This study conducted a thorough literature review on the research problem to inform the development of the research model. The study's theoretical background played a vital role in shaping this model. The conceptual model is visually presented in the following Figure 9.

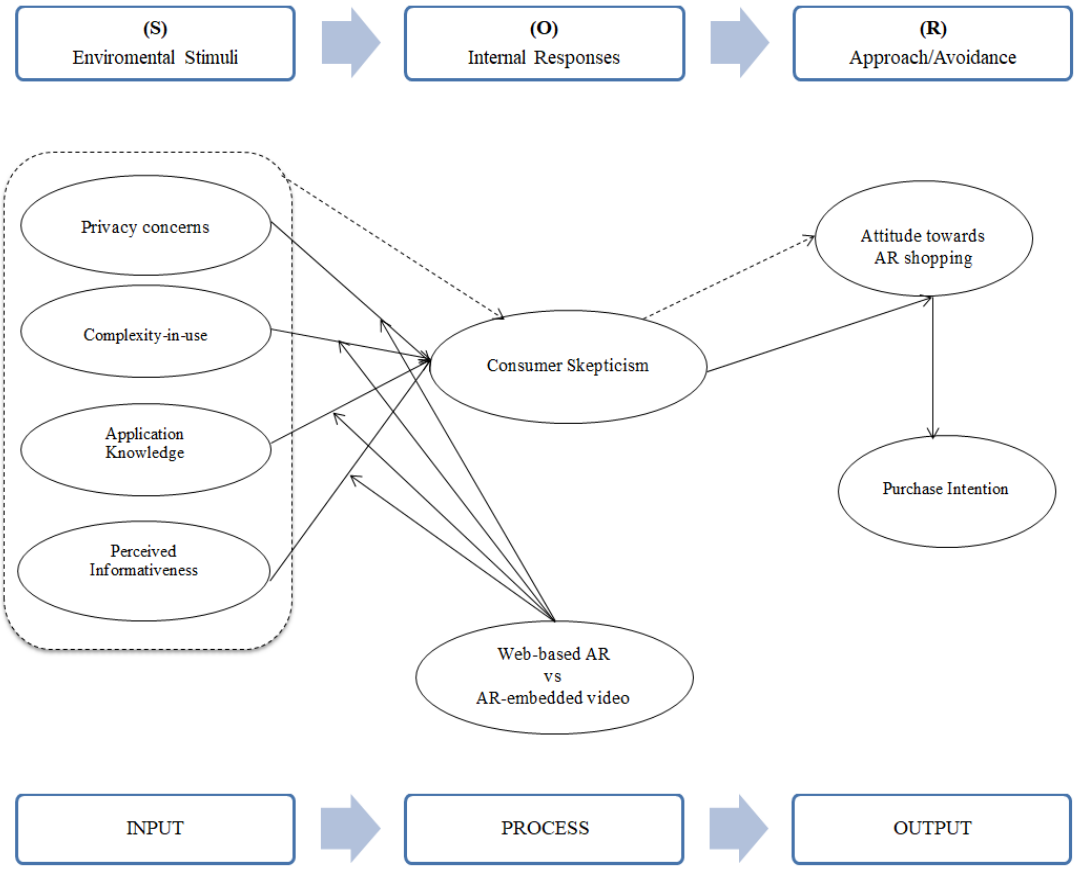

Figure 9: Conceptual Model

2.2.1 Privacy Concerns

Individuals' lives are moving towards digitalization due to the rapidly expanding invasion of artificial intelligence technology into regular daily lives (Lütjens et al., 2022), with over 4 billion global active users spending at least two hours every day on

the internet for various purposes (Jabeen et al., 2023). The core of this modern era of technology is integrating personal information from the internet, tangible, and social settings into practical choices and endeavors, hence boosting personal daily life quality (Zhang et al., 2023). For instance, ethics and data privacy are global issues that require companies to create data governance to lead innovative solutions (Uren & Edwards, 2023). In this notion, Jaspers & Pearson (2022) mentioned that privacy concerns are a most challenging marketing issue. In this perspective, privacy impact assessment is frequently replaced with data protection impact assessment on privacy (Stahl, 2022).

Furthermore, Yang & Zhang (2022) stated that personal information is exposed to the internet due to publicity, which might generate privacy issues. Additionally, privacy concerns are raised by sharing private information with other entities (Veiga, 2022). Consequently, consumers face privacy concerns when revealing personal information since their information may be disclosed or abused against them (Chen & Duan, 2022). This issue could be rectified through privacy control, which is allowed on social media platforms (Cloarec, 2022).

In the context of online privacy, it refers to data abuse or misuse of data as a potential risk that consumers may face when browsing the internet (Rodríguez-Priego et al., 2022). Moreover, Zhang et al. (2023) mentioned the types of privacy concerns that include information, physical, and social privacy concerns. Previous studies on information privacy concerns are investigated in the context of facial recognition technology (Shore, 2022), location-based mobile applications (Rodríguez-Priego et al., 2022), contact tracing applications (Abramova et al., 2022), tools for transformative artificial intelligence (Dwivedi, Kshetri, et al., 2023), educational platform (Dassel & Klein, 2023), and smart shopping malls (Ameen et al., 2022).

In the research findings (Veiga, 2022), statistically significant differences revealed that older individuals and female participants had higher privacy expectations than younger generation participants. Similarly, Smit et al. (2014) agree that the older generation and women have more concerns regarding privacy issues. Furthermore, Smit et al. (2014) mentioned that privacy concerns influence consumer shopping. Privacy issues are also considered a crucial threat in the metaverse environment (Dwivedi et al., 2022). According to Cai & Mardani (2023), a personalized advertising approach provokes consumers' concerns about privacy. Consequently, conducting further research

on privacy concerns in the context of this study contributes valuable insights to the existing body of literature.

2.2.2 Complexity-in-use

Artificial intelligence promoted new technologies, including augmented reality apps and programs that employ complex technical systems to create interactive experiences that integrate the actual world with digitally produced information for commercial projects. Vihi et al. (2021) acknowledge that information technology is an essential tool and component for sustainable development, with the potential to decrease inequality and enhance livelihoods by presenting users with accurate data, lowering costs associated with transactions, and boosting efficiency. It also reduces supply expenses (Kim et al., 2005) and redesigns business approaches (Martín-Rojas et al., 2021). Adopting innovative technological programs must be consistent with the company's business plan (Bharadwaj et al., 2013) because technology adoption is an ever-evolving procedure designated by changing consumer use patterns of innovation (Wood & Moreau, 2006).

The complexity-in-use for technological innovation refers to the perceived amount of the learning costs necessary to obtain its advantages (Wood & Moreau, 2006). According to Al-Ghaith et al. (2010), complexity-in-use is the extent to which an invention is perceived to be challenging to comprehend and use. It deals with consumers benefitting from technological advancement (Flight et al., 2011). The complexity-in-use as a technological challenge has two aspects: system dependency and semantic dependency (Dinh & Simanjuntak, 2022). That explains the disparity between users in terms of the simplicity and complexity of their use of the technology. System dependency is a comprehensive software engineering concept when software depends on other programs for its functionality. In contrast, semantic dependency examines how much users rely on the task logic embedded in the system (Dinh & Simanjuntak, 2022).

In the atmosphere of modern technology, actual behavior usually differs from the expected consequences (DeSanctis & Poole, 1994). People either adapt to new technology, oppose it, or do not even utilize it. Accordingly, it depends on the consumer acceptability of new technology. As a result, it impacts consumer decision-making for

business activities (DeSanctis & Poole, 1994). That is to say, consumer attitude differs according to the acceptability of technological innovation implemented in business activities. The concept of complexity for technology use investigated for navigation systems (Butz, 2004), advancing biology learning (Marzieh Dehghani et al., 2023), information and communication technology for agriculture (Vihi et al., 2021), block chain innovation adjustments (Sahu et al., 2023), education (Khan et al., 2019) as well as social media usage (Martín-Rojas et al., 2021).

In addition, Mueller & Lauterbach (2021) suggested that complexity-in-use needs to be given special attention by developing a careful and sequential business plan for digital transformation by conducting analysis. For this study, the semantic dependency aspect is investigated. Furthermore, complexity-in-use explains why learning and utilizing digital tools are simple and straightforward for users in a particular setting but difficult and time-consuming in another environment (Mueller & Lauterbach, 2021). For example, users try the augmented application to evaluate the product better during the buying process. Thus, AR users need a phone or computer that supports the augmented reality application.

It is a fact that complexity-in-use discourages customers and creates hurdles to acquiring particular goods and services, resulting in adverse effects (Shim et al., 2021; Muriithi et al., 2016). In addition, Vihi et al. (2021) findings show the significance of complexity-in-use for information technology; however, it has a negative association with information and communication technology. The complexity-in-use of technology could be seen as a barrier (Sahu et al., 2023), and further investigation is needed to identify its effect on purchase intention. In this case, this study motivated to investigate the complexity-in-use towards study variables.

2.2.3 Application Knowledge

In today's technologically advanced environment, knowledge is one of the most competitive resources, and people are eager to seek out impeccable education and knowledge (Zhou et al., 2022). Augmented reality (AR), one of the most intriguing advanced innovations, can completely redefine how consumers shop. The use of AR technology is changing the way customers buy things through online shopping platforms

(Uhm et al., 2022) as AR implementation is a developing marketing strategy (Sadamali Jayawardena et al., 2023; Eckertz et al., 2021).

In this sense, online devices offer sophisticated interactive technologies that are widely utilized and deliver exciting, appealing, and profound purchasing experiences (Xu et al., 2021). Similarly, Watson et al. (2020) stated that retailers are using augmented reality (AR) applications (apps) on a growing basis as a tool for developing interactive consumer experiences. App knowledge based on artificial intelligence refers to using and applying existing technological expertise to make decisions and perform purchasing behaviors (Jawaid et al., 2022) to improve the online purchasing experience.

In developing marketing, consumers need not only to be aware of AR technologies to have a better shopping experience but also to be educated on how to use AR technology. Consequently, Zhang & Wu (2012) highlighted that some knowledgeable customers with technical knowledge might contribute helpful information and even get involved with developing new products. Aside from the business field, studies on technology application knowledge have been conducted in the field of medicine (Sivaraman et al., 2015), astronomy (Lindner et al., 2019), product sustainability on the environment (Frank, 2021), and AR lab experiment for science (Altmeyer et al., 2020). Consumers' knowledge related to apps helps them to be better informed about goods, make sound purchase decisions, and become wiser on issues that matter to them (Alnawas & Aburub, 2016).

From the consumption perspective, knowledge and ability performance may frequently be fundamentally significant to consumers (Puntoni et al., 2021). Research findings showed that consumer purchase intention is influenced by consumer informativeness related to artificial intelligence (Yen & Chiang, 2021) and knowledge sharing through virtual communities (Hsu et al., 2007). On the other hand, complexity is increasing in production activities (Wang, 2023), and modern consumers have increased their knowledge concerning products and applications more than ever due to the internet (Zboja et al., 2021). AR technology usage by consumers enables them to view or test a virtual version of an actual product. In this way, it increases purchases and reduces product return rates (Ozturkcan, 2021).

It is also essential to know how to handle AR applications. Consequently, the knowledge required for using augmented reality (AR) devices is also readily accessible from various human-oriented sources (Eckertz et al., 2021). Technology and consumer knowledge play a critical role in developing cognitive complements for innovation execution (Shang & Yao, 2010). As it is mentioned by Mullins & Cronan (2021), promoting good attitudes and expanding knowledge are critical success elements for business systems.

Additionally, consumers purchase after becoming familiar with an app (Hsu & Lin, 2016). On top of that, AR apps play a significant role in influencing consumers' purchase intentions (Watson et al., 2020). According to the study of (Gupta et al., 2022), understanding digital services minimizes ambiguity, increasing confidence and predicting purchases. Therefore, existing research has aimed to investigate whether AR app knowledge impacts this study's research variables.

2.2.4 Perceived Informativeness

Augmented reality advertising effectiveness depends on the context in which a customer experiences the content of ads (Ruyter, Heller, Hilken, Chylinski, Keeling & Mahr, 2020). Perceived informativeness is a primary attribute of online advertisements that could influence purchase intention, as discussed by scholars (Kim, Kim & Park, 2010). According to this research framework, this attribute is associated with the economic benefits of products or services advertised with AR technology. Generally, consumers make cost and benefit analyses before obtaining the product. With that regard, AR tools could be advantageous for consumers by representing the product in an augmented manner.

Furthermore, perceived informativeness is the ability to provide the necessary information (Kim et al., 2010) and helpful and valuable information (Bayrak Meydanoglu et al., 2020) about products to target customers. For this study, perceived informativeness is defined as the extent to which an advertising message consists of supportive informational content (Friedrich & Figl, 2018). Similarly, Lah, Hussin & Dahlan (2019) defined perceived informativeness as "the whole perceptions of the consumer regarding the quality of information related to the characteristics of online

review.” Compared to Ahmad & Lasi's (2020) study, perceived informativeness is the ability to provide alternative product information to consumers to make a better purchase decision by comparing the products.

Considering that perceived informativeness of engaging with the product offered through augmented reality enhancements is a rational process and could be ambiguous. Therefore, a study needs to be conducted to examine the statistical significance merit of perceived informativeness on purchase intention in contextual AR advertising. Previous research has identified that AR ads favorably influence perceived informativeness (Tsai et al., 2020).

Although it seems clear by now that perceived informativeness towards advertising would be an antecedent of the purchase attitude of consumers, it is essential to research this variable in the context of AR. Within the context of AR, Liao (2015) stated that fulfilling customers' needs is one of the marketing goals. However, it is still unclear whether perceived informativeness is associated with consumer purchase intention within the framework of this study. In a similar line of reasoning, perceived informativeness plays a crucial role in facilitating consumer purchase intention (Kim et al., 2010). Draganska, Hartmann & Stanglein (2014) argued that assuming consumers lack brand knowledge would be naive because information about the product is easily accessed due to online media.

In their study, Liu, Sinkovics, Pezderka & Haghirian (2012) point out that consumers' purchase attitudes and intentions increase if ads are informative and relevant. Considering AR ads, it is advantageous for consumers to visualize the product with digitized information and a better quality product image than classical ads. In a related vein, perceived informativeness is a significant variable in persuading consumers to purchase intention (Ahmad & Lasi, 2020).

However, it is still unclear how perceived informativeness facilitates consumer purchase intention concerning immersive technology (Holdack et al., 2020) and how perceived informativeness leads to purchase intent for a product presented with AR (Smink, Frowijn, Reijmersdal, Noort & Neijens, 2019). In the context of mobile augmented reality advertising, Qin, Peak & Prybutok (2021) adapted the TAM model

and found that consumer perceptions of AR ads' informativeness correlate with behavioral intention towards shopping.

Augmented reality can introduce new dimensions and features that may not be fully understood or familiar to consumers. When consumers interact with a product using augmented reality, they rely on the information provided by the AR experience to form judgments and make decisions. However, due to the unique nature of augmented reality and its ability to blend virtual elements with the real world, the information presented may sometimes be ambiguous or open to interpretation. As a result, the perceived informativeness of engaging with augmented reality can involve a rational evaluation process where consumers try to make sense of the information presented to them (Ahmad & Lasi, 2020). This evaluation may require additional cognitive effort as consumers navigate the augmented reality experience and interpret the information provided (W. H. S. Tsai et al., 2020).

2.2.5 Consumer Skepticism

Concerns about advertising clutter in the social media environment have arisen due to the fast expansion of online advertising (Ha & McCann, 2008). Advertising is intended to influence customers to create product awareness by expressing a product's societal, psychological, or utilitarian advantages (Rauwers et al., 2018). However, customers are not always receptive to advertising and frequently oppose its attempts to persuade them. Most consumers (around 70%) believe advertising attempts to convince individuals to buy products they would not like (Fransen et al., 2015). As a consequence, the topic of customer skepticism has prompted a lot of consumer behavior research (Bailey, 2007).

In addition, for the sake of this study, consumer skepticism is defined as doubts regarding the advertisement's effectiveness (Deb et al., 2021). Similar studies (Minton et al., 2021; Obermiller & Spangenberg, 1998) mentioned consumer skepticism related to prevailing distrust in advertisement claims. People with less good thoughts and more critical about advertising are predicted to have more excellent persuasive persuasion knowledge of sponsored content (Boerman et al., 2018).

Consumer Skepticism was discovered to be composed of two parts: predisposition skepticism and situational skepticism (Deb et al., 2021). Predispositional skepticism develops early and becomes established in the consumer's mind while considering any marketing scheme. On the other hand, situational skepticism is influenced by the context and substance of marketing communications, unaffected by consumer psychographics (Deb et al., 2021). However, there is a lack of study on situational skepticism, which depends more on the marketing claim's legitimacy than on customers' psychographics. It can be said that this subject is under-researched and requires further investigation.

In the study of Obermiller and Spangenberg (1998)**,** consumer skepticism scales related to advertising were developed, arguing that advertising skepticism is persuasive and uncertain rather than consistently predictable. This study agrees with the argument because situational factors could moderate advertising skepticism. Due to consumer skepticism, advertisers created new advertising methods, such as sponsored content, in which commercial messages are placed in non-commercial content (Buvár & Orosz, 2020). Furthermore, Lievens & Moons (2023) stated that social benefits and financial gains must be balanced to prevent consumer skepticism.

According to previous studies, consumer skepticism increases due to the high donation amounts in cause-related marketing advertising (Chang et al., 2023), disbelief concerning eco-friendly practices and sustainability (Jacobson & Harrison, 2022), customer-generated advertisement (Knoll, 2016), direct-to-consumer prescription pharmaceutical advertising approach (Koinig et al., 2023) and adverse emotions such as consumer skepticism may arise when consumers are made aware of the compelling character of a message through disclosure (De Veirman & Hudders, 2020).

On the contrary, Hartmann & Apaolaza-Ibáñez (2009) investigated green advertising and mentioned widespread skepticism about green advertising because it is difficult to determine a product's or organization's genuine environmental standpoint. Similarly, Hartmann et al. (2022) stated that consumer skepticism towards green advertising has increased. Consumers' levels of skepticism differ (Lee & Youn, 2009). The levels of skepticism can vary widely among individuals. Therefore, investigating the factors influencing consumers' skepticism can assist marketers in developing strategies to address and mitigate skepticism and build trust with their target audience.

2.2.6 Consumer Attitude

Digitalization of marketplaces transforms selling and buying procedures from physical stores into online shops. Unlike physical markets, online shopping websites cannot fully provide the products' physical features and details. Consumers may only have complete information about the products' physical appearance at marketplaces. However, new technological developments like augmented reality allow consumers to experience the products' physical appearance virtually at any location and time.

As a part of media content, attitude towards advertising is a frequent study term used to analyze consumers' attitudes regarding advertising (Ha & McCann, 2008). The literature on information systems has long regarded attitude as a focal point related to end-user beliefs and attitudes (Ahn et al., 2022). As a consequence of artificial intelligence, which may be used to forecast customer attitude (Dwivedi et al., 2021). In this study, customer attitude refers to a consumer's psychological tendency to evaluate something with a certain level of favor or disfavor (Jung et al., 2016). In light of this, behavioral intention indicates an individual's attentiveness to a particular activity (Jung et al., 2016). Another study investigated the attitude towards advertising in a multicultural discipline and mentioned the conflicting nature of customers' attitudes towards advertising (O'Donohoe, 1995). That means consumer attitudes towards advertising would vary across cultures.

Some studies have examined consumer attitudes towards personalized advertising (Chen et al., 2023), product evaluations (Minton et al., 2021), green lies (Gatti et al., 2021), purchase-risk notices to avoid online returns (Martínez-López et al., 2022), and social media ethical issues on adolescents consumption attitudes (Gentina et al., 2021). Recent research has been done related to falsity in the tourism industry (Kim et al., 2023), online stores (Xue et al., 2019), and suspicion of online product reviews (Harrison-Walker & Jiang, 2023). In turn, speciousness or uncertainty should be avoided through purchase-risk notices to avoid online returns (Martínez-López et al., 2022). In contrast, Wallace & Buil (2023) investigated the conspicuous green behavior. According to (Harrison-Walker & Jiang, 2023), suspicion leads to negative attitudes and purchase intention.

Product image credibility has been proven to predict online shoppers' interest in a product significantly. In contrast, credibility decreases product uncertainty in social media marketing by eliciting a favorable attitude from consumers (X. L. Jin et al., 2022). Furthermore, Ahn et al. (2022) findings showed that emotional appeal is a powerful strategy for online marketing to influence customer attitude. Perhaps Chu & Kim (2011) mentioned that electronic Word of mouth (eWOM) is a powerful tool to influence consumer attitudes and behavior in online settings. With that respect, Amos et al. (2008) stated that celebrity endorsement positively influences how consumers' attitude changes towards advertisements.

Another study mentioned that product review effects positively impact how customers perceive the brand (Costa Filho et al., 2023; Das et al., 2021). In light of this, the research mentioned that customer attitude and purchase intention are influenced by reliable sources (Karagür et al., 2022; Hussain et al., 2020). A similar study (Román et al., 2023) mentioned that perceiving an online review as misleading may prompt the customer reading the review to ask how far that observation may be predicted to other evaluations made on that review site, increasing skepticism of the source of the study. Green claims lead to increased trust and good product attitudes (Janssen et al., 2022). As a result, misleading firm practices cause customers to be skeptical of the product (Kim et al., 2023). As a result, this study aims to study consumer attitudes further within the scope of this research model.

2.2.7 Consumer Purchase Intention

Advertising plays a significant role as it helps to communicate the brand message to customers. It is also beneficial in that it could influence customers' purchase intention. Purchase intention is defined as a commitment of one’s self to purchase a specific product or service (Abrar, 2018). In another study, purchase intention is a customer’s willingness to buy a particular product (Balakrishnan, Dahnil & Yi, 2014; Dehghani & Tumer, 2015). As mentioned by Alalwan (2018) and Yang et al. (2020), studying intention and attitude is vital in understanding consumer buying habits from social media advertising perspective (Lombart et al., 2020). AR technology in advertisements stimulates customer curiosity towards products and services, leading to purchase

intention. A similar study discussed the importance of purchase intention through the implementation of advertising tools, and intention predicts the TRA (Sawaftah, Calicioglu, and Awadallah, 2020). Therefore, it is important for marketers to understand the type of messages which influences the customer purchase intention (Chang, Hsu, Hsu and Sung, 2019).

Furthermore, Khan & Sriram (2019) investigated the purchase intention in the context of augmented reality advertisement, and the results showed the significance of the correlation between study variables, as it is mentioned by Mittal, Minto, and Gupta (2021) that AR highly effects the customer purchase intention. Primarily, customers' preference increased towards online shopping due to the Covid-19 pandemic. Thus, marketers aim to influence customers' purchase intention. Furthermore, attitude and behavioral sense need to be further studied regarding AR apps (Rauschnabel et al., 2017). Indeed, AR technology usage in advertising products and services is vital in encouraging people to buy.

It has been observed by Abrar (2018) that AR tools effectively enrich advertisements to increase purchase intention. Therefore, this study intends to investigate the relationship between study variables and purchase intention in the context of augmented reality advertisements. They were utilizing AR technology, opening new means of shopping experience for the customers and AR advertisements enhancing the intent and attitude of the customers (Kang, Shin, and Ponto, 2020). In addition to that, Park & Kim's (2020) and Qin et al. (2021) investigation provide empirical evidence of AR effectiveness in effect consumer behavioral intention towards shopping. From the retailing perspective, AR applications are helpful in consumer decision-making (Dacko, 2017; Perannagari & Chakrabarti, 2020).

Similar studies stated that AR ads impact purchase intention, leading to behavioral intention (Phua & Kim, 2018; Watson, Alexander, and Salawati, 2020; Alam, Susmit, Lin, Masukujjaman & Ho, 2021). Due to the AR stimulation capability, marketers can digitally promote the product to customers (Javornik, 2014). It can be concluded that there is scant empirical research related to purchase intention with the influence of AR. Therefore, it motivates this study to investigate consumer purchase intention further within the framework of this study.

3. CHAPTER THREE: METHODOLOGY

As outlined by the institute's thesis writing guidelines, while a summary of the methodological approach is provided in the preliminary sections preceding Chapter One, this third chapter delves into the comprehensive details of the methodology. The rationale behind this study's research hypotheses, research design, data collection procedures, and analytical techniques are discussed thoroughly.

3.1 Hypothesis Development

The hypotheses in this study were developed based on the research objectives, existing theories, prior empirical evidence, and the researcher's knowledge of the research area. These hypotheses formed the study's data collection and statistical analysis framework. In the previous chapter, extensive discussions were held regarding the definitions and backgrounds of the research variables. However, supporting the research hypotheses with compelling arguments is equally essential. The purpose of this section is to provide the necessary support and rationale for the research hypotheses.

3.1.1. Privacy Concerns

Prior research has extensively explored information privacy concerns across various technological domains, such as facial recognition technology (Shore, 2022), location-based mobile applications (Rodríguez-Priego et al., 2022), contact tracing applications (Abramova et al., 2022), tools for transformative artificial intelligence (Dwivedi, Kshetri, et al., 2023), educational platform (Dassel & Klein, 2023), and smart shopping malls (Ameen et al., 2022). None of these studies have directly linked privacy concerns to consumer skepticism. Furthermore, the degree to which privacy concerns influence the adoption of innovative technologies is still not extensively known (Jaspers & Pearson, 2022).

This study posits that privacy concerns positively influence consumer skepticism. The rationale behind this hypothesis is rooted in the growing awareness and sensitivity towards data privacy in the digital age. Privacy concerns refer to data abuse

or misuse as a potential risk consumers may face when browsing the internet (Rodríguez-Priego et al., 2022). Moreover, Zhang et al. (2023) mentioned the types of privacy concerns, including information, physical, and social.

As consumers become more informed about the risks associated with using personal information, their trust in technology and digital platforms will likely diminish. This wariness is particularly relevant in emerging technologies, where data security protocols are yet to be standardized and fully transparent. Consequently, a heightened sense of privacy concern is expected to bolster consumer skepticism, leading to more cautious and discerning behavior in technology adoption and utilization.

Furthermore, limited exposure to AR through promotional videos can lead to misconceptions and heightened privacy concerns. Without firsthand experience, individuals may overestimate the risks associated with AR technology, fostering a sense of distrust and apprehension. In contrast, direct experience with AR shopping can demystify the technology. Engaging with AR in a shopping context allows consumers to understand how their data is used, potentially alleviating privacy concerns and reducing skepticism.

HYPOTHESIS ONE (H1): Privacy concerns positively affect consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the positive effect of privacy concerns on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

3.1.2 Complexity-in-use

The complexity-in-use for technological innovation refers to the perceived amount of the learning costs necessary to obtain its advantages (Wood & Moreau, 2006). According to Al-Ghaith et al. (2010), complexity-in-use is the extent to which an invention is perceived to be challenging to comprehend and use. It deals with consumers benefitting from technological advancement (Flight et al., 2011). The complexity-in-use as a technological challenge has two aspects: system dependency and

semantic dependency (Dinh & Simanjuntak, 2022). That explains the disparity between users in terms of the simplicity and complexity of their use of the technology.

There is a lack of studies pertinent to the complexity-in-use for consumer attitude after adopting AR technology in marketing (Wood & Moreau, 2006). While most studies have shown that perceived product complexity causes consumers to postpone or avoid purchasing a new product, less than 1% have looked at the impact of perceived complexity on postadoption behavior. Muriithi et al. (2016) stated that complexity-in-use and consumer attitude have an association in which a higher level of complexity of technology would reduce the attitude and motivation. Therefore, when consumers perceive a technology as complex, it often leads to uncertainty and distrust. This complexity makes the technology appear less accessible and understandable, increasing skepticism due to concerns about its usability and potential risks.

Consequently, the more complex a technology is perceived to be, the higher the skepticism among consumers regarding its adoption and trustworthiness. Furthermore, watching AR through promotional videos may lead to it being perceived as overly complex and not user-friendly. This limited exposure often fails to provide a comprehensive understanding, thereby enhancing the perceived complexity of the technology. Therefore, this study developed the following hypothesis:

HYPOTHESIS TWO (H2): Complexity-in-use positively affects consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the positive effect of complexity-in-use on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

3.1.3 Application Knowledge

App knowledge based on artificial intelligence refers to using and applying existing technological expertise to make decisions and perform behaviors (Jawaid et al., 2022) to improve the online purchasing experience. Consequently, the knowledge required for using augmented reality (AR) is also readily accessible from various human-oriented sources (Eckertz et al., 2021). Due to the technology and consumer

knowledge importance, it plays a critical role in developing cognitive complement for innovation execution (Shang & Yao, 2010). As Mullins & Cronan (2021) mentioned, promoting good attitudes and expanding knowledge are critical success elements for the marketing field.

Users familiar with the app's interface, features, and workflows can quickly complete tasks, saving time and effort. It is important to note that knowing how to use an app enables users to navigate its features, functions, and capabilities effectively. It ensures users can maximize the app's functionalities and derive maximum value. App knowledge is essential for empowering users, improving efficiency, enhancing user experience, enabling problem-solving, and fostering continuous learning and improvement. It is a crucial factor in maximizing the benefits and value of using an app.

Additionally, consumers purchase after becoming familiar with an app (Hsu & Lin, 2016). On top of that, AR apps play a significant role in influencing consumers' purchase intentions (Watson et al., 2020). According to the study of (Gupta et al., 2022), understanding digital services minimizes ambiguity, increasing confidence and predicting purchases. Individuals with limited application knowledge of a technology, such as AR, tend to be more skeptical about its use and benefits. This skepticism arises from a need for more understanding of how the technology works and its practical applications, leading to doubts about its effectiveness and value. Conversely, increased knowledge and familiarity with the technology typically reduce skepticism as users become more confident and comfortable with its capabilities and benefits.

Moreover, Individuals who have only watched AR promotional videos will likely have less application knowledge about AR technology. This limited understanding can lead to higher levels of consumer skepticism than those engaged in AR shopping experiences. The direct, hands-on interaction in AR shopping provides practical insights into how the technology works, reducing skepticism by enhancing familiarity and confidence in its use. In contrast, promotional videos might not effectively convey the full scope and ease of AR application, leaving viewers with a superficial understanding and increased skepticism. Thus, this study posits the following hypotheses:

HYPOTHESIS THREE (H3): Application knowledge negatively affects consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video

group, and (c) the strength of the effect of application knowledge on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

3.1.4 Perceived Informativeness

This study defines perceived informativeness as the extent to which an advertising message consists of supportive informational content (Friedrich & Figl, 2018). Similarly, Lah, Hussin & Dahlan (2019) defined perceived informativeness as "the whole perceptions of the consumer regarding the quality of information related to the characteristics of online review." Compared to Ahmad & Lasi's (2020) study, perceived informativeness is the ability to provide alternative product information in ads so that consumers can make better purchase decisions by comparing the products.

In their study, Liu, Sinkovics, Pezderka & Haghirian (2012) point out that consumers' purchase attitudes and intentions increase if ads are informative and relevant. Considering AR ads, it is advantageous for consumers to visualize the product with digitized information and a better quality product image than classical ads. In a related vein, perceived informativeness is a significant variable in persuading the consumer to purchase intention (Ahmad & Lasi, 2020).

However, it is still unclear how perceived informativeness facilitates consumer purchase attitudes concerning immersive technology (Holdack et al., 2020) and how perceived informativeness leads to purchase intent for a product presented with AR ads (Smink, Frowijn, Reijmersdal, Noort & Neijens, 2019). In the context of mobile augmented reality advertising, Qin, Peak & Prybutok (2021) adapted the TAM model and found that consumer perceptions of AR ads' informativeness correlate with behavioral intention towards shopping.

When consumers perceive information about a technology as comprehensive and informative, it reduces their skepticism. This reduction in skepticism is due to a clearer understanding of the technology's features, benefits, and applications provided by the informative content. As perceived informativeness increases, it dispels doubts and uncertainties, making consumers feel more confident and trusting towards the

technology. Therefore, well-informed consumers are typically less skeptical as their awareness and comprehension of the technology improve.

In addition, it can be predicted that individuals exposed to AR technology solely through promotional videos will have lower levels of perceived informativeness, leading to higher consumer skepticism compared to those who have experienced AR in a shopping context. Promotional videos, while visually appealing, often provide only a superficial overview of the technology, lacking in-depth information about its practical applications and benefits. This limited informativeness can leave viewers with questions and uncertainties, increasing skepticism. In contrast, direct AR shopping experiences allow consumers to engage with the technology practically, offering a richer understanding and clearer demonstration of its capabilities. This hands-on interaction enhances the perceived informativeness, effectively reducing skepticism by providing a more comprehensive and tangible grasp of the technology's real-world utility. Therefore, this study developed the following hypotheses:

HYPOTHESIS FOUR (H4): Perceived informativeness negatively affects consumer skepticism for (a) the web-based AR shopping experience, (b) the AR-embedded video group, and (c) the strength of the negative effect of perceived informativeness on consumer skepticism will be stronger among the AR-embedded video group compared to the web-based AR shopping experience group.

3.1.5 Consumer Skepticism and Consumer Attitude

Consumer skepticism is doubts regarding the advertisement's effectiveness (Deb et al., 2021). Similar studies (Minton et al., 2021; Obermiller & Spangenberg, 1998) mentioned consumer skepticism related to prevailing distrust in advertisement claims. People with less good thoughts and more critical about advertising are predicted to have greater evaluative persuasion knowledge of sponsored content (Boerman et al., 2018).

Skepticism and intention are distinct, related constructs (Minton et al., 2021). Similarly, skepticism leads to decreased trustworthiness and a less favorable attitude toward purchase intention (Hudders et al., 2021). Customers' levels of skepticism differ

(Lee & Youn, 2009). Therefore, Lievens & Moons (2023) stated that social benefits and financial gains must be balanced to prevent consumer skepticism.

Customer attitude refers to a consumer's psychological tendency to evaluate something with a certain level of favor or disfavor (Jung et al., 2016). In light of this, behavioral intention indicates an individual's attentiveness to a particular activity (Jung et al., 2016). Furthermore, customer attitude and purchase intention are influenced by reliable sources (Karagür et al., 2022; Hussain et al., 2020). A similar study by (Román et al., 2023) mentioned that perceiving an online review as misleading may prompt the customer reading the review to ask how far that observation may be predicted to other evaluations made on that review site, increasing skepticism of the source of the study. As a result, misleading firm practices cause customers to be skeptical of the product (Kim et al., 2023).

It is important to understand that the consumer attitude influenced by advertising is crucial. Business firms can invest in advertising particular goods and services to encourage customers to recall a product name in their memory (Barroso & Llobet, 2012). As a result, consumers can buy the product when they recognize the brand name positively. For that reason, this study developed the following hypothesis:

HYPOTHESIS FIVE (H5): Consumer skepticism negatively affects attitude toward AR shopping for (a) the web-based AR shopping experience group, (b) the AR-embedded video group.

3.1.6 Consumer Skepticism as a Mediator

In the dynamic context of Augmented Reality (AR) technology, consumer attitudes are shaped by many factors, including privacy concerns, perceived complexity, application knowledge, and informativeness. Our hypothesis suggests that consumer skepticism plays a pivotal mediating role in this complex interplay. Privacy concerns, for instance, typically negatively influence consumer attitudes towards AR. However, when filtered through the lens of skepticism, these concerns are subject to critical evaluation. A lower level of skepticism can mitigate the adverse effects of privacy worries, leading to a more balanced and potentially positive attitude.

Similarly, the perceived complexity of AR technology can be daunting, negatively swaying consumer attitudes. Yet, skepticism mediates this relationship by prompting consumers to question and dissect the perceived complexity. This critical assessment, especially when skepticism is reduced through familiarity and understanding, can transform an initially intimidating technology into a more approachable and accepted innovation.

Furthermore, application knowledge, or the lack thereof, directly influences consumer attitudes. In cases where application knowledge is limited, attitudes tend to skew negatively due to uncertainties regarding the technology's benefits and usage. Here, skepticism is a crucial mediator, providing a platform for inquiry and learning. As consumers acquire more knowledge and skepticism diminishes, their attitudes towards AR technology generally shift from negative to positive.

Lastly, the role of perceived informativeness cannot be underestimated. High informativeness about AR technology will likely foster positive consumer attitudes. Once again, skepticism mediates this relationship. It influences how information is processed and assimilated. Well-informed consumers who exhibit lower skepticism are more inclined to develop positive attitudes towards AR.

In conclusion, consumer skepticism is not just a barrier but a mediator that shapes the pathway from various perceptions to consumer attitudes towards AR technology. It is the critical lens through which privacy concerns, complexity, knowledge, and informativeness are evaluated and integrated into the overall attitude. Therefore, understanding and managing consumer skepticism is vital in positively steering consumer attitudes in AR technology. In light of this, this study posits the following hypothesis:

HYPOTHESIS SIX (H6): Consumer skepticism mediates the relationship between privacy concerns and attitudes towards AR shopping.

HYPOTHESIS SEVEN (H7): Consumer skepticism mediates the relationship between complexity-in-use and attitudes towards AR shopping.

HYPOTHESIS EIGHT (H8): Consumer skepticism mediates the relationship between application knowledge and attitudes towards AR shopping.

HYPOTHESIS NINE (H9): Consumer skepticism mediates the relationship between perceived informativeness and attitudes towards AR shopping.

3.1.7 Consumer Purchase Intention

Purchase intention is defined as a commitment of one's self to purchase a specific product or service (Abrar, 2018). In another study, purchase intention is a customer's willingness to buy a particular product (Balakrishnan, Dahnil & Yi, 2014; Dehghani & Tumer, 2015). As Alalwan (2018) and Yang et al. (2020) mentioned, studying intention and attitude is vital in understanding consumer buying habits for online shopping. AR technology in advertisements stimulates customer curiosity toward products and services, leading to purchase intention. A similar study discussed the importance of purchase intention by implementing advertising tools, and intention predicts the TRA (Sawaftah, Calicioglu, and Awadallah, 2020). For that reason, this study developed the following hypothesis:

HYPOTHESIS TEN (H10): Attitude positively affects purchase intention both in the web-based AR experience and AR-embedded video group.

3.2 Research Model

The hypothesized conceptual framework is developed to investigate the relationships between given variables (See Figure 10).

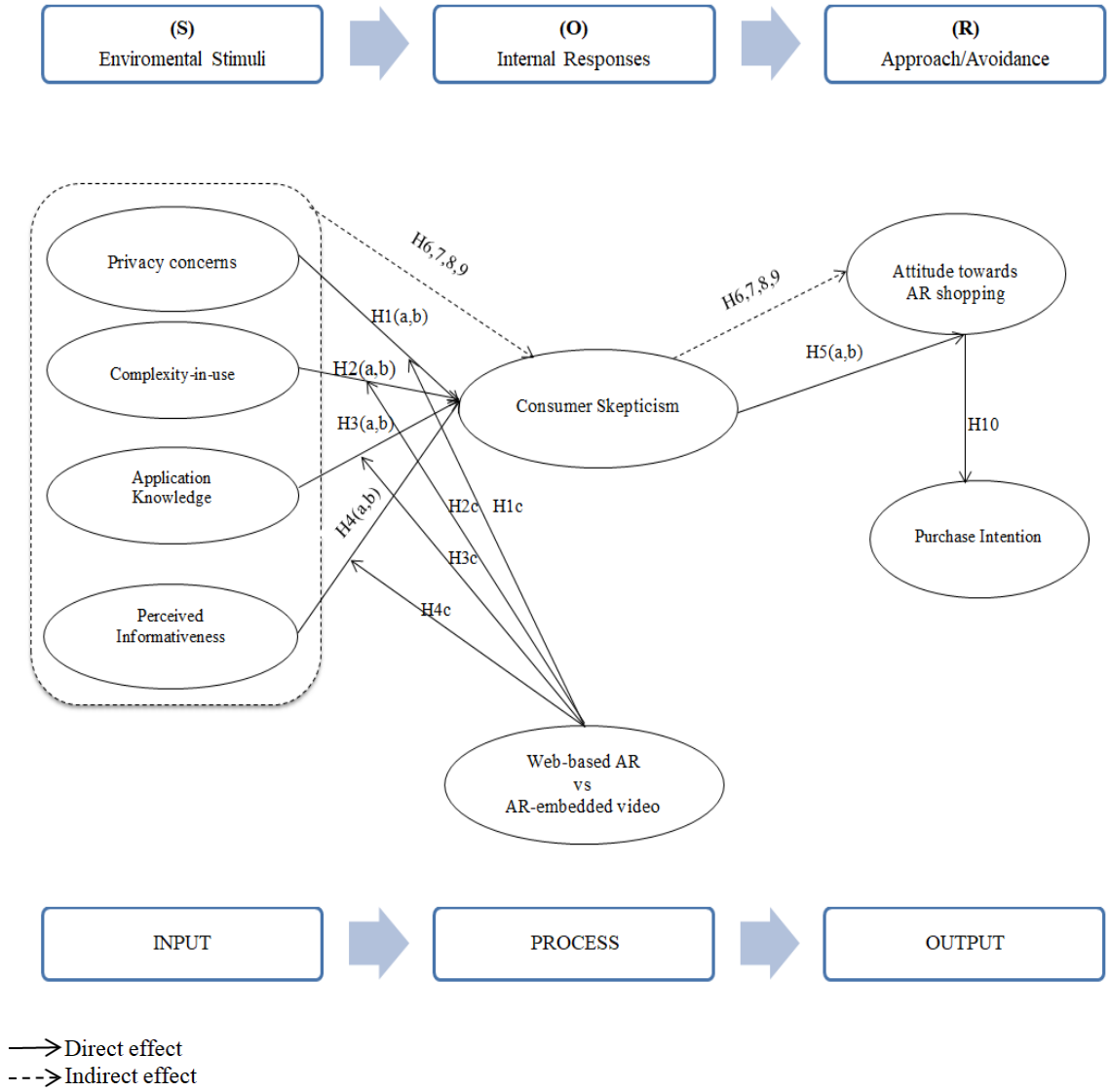

Figure 10: Hypothesized conceptual framework.

3.3 Research Design

In social sciences research, it is essential to define the purpose of the research design before examining the research methodology. Therefore, research design refers to the strategy that helps to incorporate the various components of the study in a logical way to address the research problem and find answers to the research questions. Research design is significant in identifying research problem solutions (Knight, 2010). According to Akhtar (2016), the research design is a conceptual outline that requires evidence to answer the research question practically. Research design includes data collection, measurement, and analysis methods. In addition, this research utilized

purposive/convenience sampling to test the research model. The following table 5 shows the summary of the research design for this study, which can be referred to as follows:

Table 5: Research Design

Research Approach	Between-subjects Design as Quantitative Research
Data Collection Method	Survey
Sampling Technique	Convenience Sampling
Unit of Analysis	Individuals
Data Analysis Tools	SmartPLS 4

3.3.1 Research Paradigm

The methodology for this study is based on the positivism paradigm, which is a quantitative study. Quantitative research is based on numerical data, explaining phenomena; data analysis relies on statistical calculation. For instance, the quantitative research method tests the theory and includes the deductive approach (Wright et al., 2016). According to Walker (1997), quantitative studies include that the relationships may have been already established between variables, and the hypothesis of the research deals with the examination of which is significant in a scientific way. In addition, Wright et al. (2016) stated that the quantitative research approach aims to generalize findings and attempts to gather evidence of reliability and validity.

Essentially, variables in quantitative research play a significant role as they are quantified. Data are gathered and translated into numerical data for statistical analysis (Apuke, 2017). He further mentioned that the quantitative research approach engages in strategies that employ experiments, surveys, and data collection on predetermined instruments that produce statistical data. According to Bacon-Shone (2015), the quantitative research approach includes the following significant elements which are:

i) Counting
ii) Testing hypothesis
iii) Sample size and control
iv) Modeling variability

v) Prediction

Consequently, the positivist research paradigm reinforces the quantitative method of research. Subsequently, the quantitative method follows the confirmatory scientific practice, focusing on hypothesis and theory testing (Antwi & Kasim, 2015).

3.3.2 Data Collection Method

In this study, the survey method employing questionnaire distribution has been utilized. A comprehensive set of questions was distributed among a selected sample population. Respondents provided answers to the questions, and subsequently, the collected data was subjected to thorough analysis. The data collection method was chosen after carefully evaluating the research objectives, the inherent nature of the data, ethical considerations, and practical constraints. Subsequent sections will expound upon the details of the data collection method and present the research results.

3.3.3 Population and Sample Size

From the perspective of statistics, the population is defined as the entire pool in which the sample is chosen. It refers to the whole group of people or measurements. Therefore, a population can be a collective observation of subjects grouped by a common feature (Barreiro & Albandoz, 2001). The targeted population for this study is individuals who own and have experience using mobile phones and their modern applications. The targeted respondents were students, employees, or non-professionals to reduce sampling bias. Furthermore, the convenience sampling method was employed in this research. The reason for choosing this sampling technique is because of cost-effectiveness, easiness, and efficiency.

According to Schönbrodt & Perugini (2013) and Pathak (1984), sample correlations congregate to the population value with an increasing number of samples, and the estimation is typically imprecise in a small sample size. According to Hair et al. (2006), the appropriate number of samples ranges between 200 and 400 for SEM

analysis based on maximum likelihood estimation. Consequently, Hoe (2008) stated that a sample size of 200 is adequate statistical power for data analysis. Therefore, the total sample size (three hundred sixty-six) is sufficient for further statistical analysis.

3.3.4 Participants and Procedure

To test the hypothesis, quantitative research between-subjects design approach was conducted by recruiting 366 participants (n=180 for study 1 and n=186 for study 2) who owned AR-supportive smartphones with internet access. To guarantee that participants could experience AR technology, the selection criterion of holding an AR-compatible smartphone with internet connectivity was utilized. The online survey was developed using Google Forms and distributed to participants during February, March, and April 2023. To reduce data bias, more samples were obtained than were needed. In general, these strategies serve to strengthen the research itself. Pilot testing and pretesting were performed before data collection to ensure the validity and reliability of the research instruments.

In addition, it was stated that the scales used in the research were revised to express the use of augmented reality in the online shopping experience. The survey was written in Turkish, translated into English, and then back-translated to ensure it was comprehensible in the participants' native language. Participation was voluntary, and responses were kept highly confidential. The Smart PLS 4 program was used to analyze the data (Ringle et al., 2022). The survey consists of three parts, including an introduction about the survey title, guidelines for respondents, and the researcher's contact information. The following section included questions about attitude, purchase intention, privacy concerns, complexity-in-use, app knowledge, perceived informativeness, and consumer skepticism. Finally, the survey ends with concluding remarks thanking participants for their responses.

It is essential to mention that two questionnaires have been developed with the same questions. The differences between these questionnaires were that Study 1 included a web-based AR shopping invitation link, and Study 2 included a YouTube video link related to AR video. Web-based AR link was attached to the first survey, and participants needed to try and experience it before responding to the study. On the other

hand, the participants must watch the AR video by clicking the link in the survey before filling up the survey.

Furthermore, an online survey was conducted for studies 1 (n=180) and 2 (n=186) to examine the research model, with the web-based AR experience (study 1) and AR-embedded video (study 2) serving as the stimulus. The experimental investigation was carried out using two conditions, following the method of (Watson et al., 2020). In Study 1 (web-based AR experience) augmented condition, users engaged with the web-based AR by clicking the link to the questionnaire form. In this scenario, respondents tried the web-based AR for around five minutes before responding to the survey. Next, without augmentation, participants watched a one-minute AR-embedded video for the same local brand's initial response to the questionnaire. As a result, the stimulus's "augmentation" effect may be assessed concerning the study context.

3.4 Demographic Profile of Respondents (Study1 and Study2)

The data for the study 1 group shows that 52.8% of the sample identified as male, while 47.2% identified as female. This suggests a slightly higher representation of males in the sample. Gender demographics are often crucial in marketing and advertising as they help understand the target audience and tailor messaging and strategies accordingly. The most significant proportion of the sample, 52.2%, falls within the 20-29 age range. This indicates a significant presence of young adults in the sample.

Table 6: Respondents' profiles for Study 1 and Study 2 (Demographics and online shopping experience)

Category	Study1 (n=180)	Study 2 (n=186)
Gender	52,8% = Male	68.8% = Male
	47,2% = Female	31.2% = Female
Age	52.2% = 20-29	53.8% = 20-29
	25.6% = 30-39	28.5% = 30-39
	12.2% = 40-49	12.9% = 40-49
	10% = 50-59	4.8% = 50-59
Education Level	60.0% = Bachelor's Degree	57.5% = Bachelor's Degree
	14.4% = Master's Degree	22.6% = Master's Degree
	25.6% = PhD	19.9% = PhD
Employment Status	20.0% = Part-time	17.7% = Part-time
	42.8% = Full-time	37.6% = Full-time
	37.2% = Unemployed	44.6% = Unemployed
Monthly Income	49.4% = Less than TL 5,999	66.1% = Less than TL 5,999
	8.3% = TL 6,000 - TL 9,999	1.6% = TL 6,000 - TL 9,999
	42.2% = TL 20,000 and above	8.6% = TL 10,000 – TL 14,999
		15.1%= TL 15,000 – TL 19,999
		8.6% = TL 20,000 and above
Working Experience	48.9% = less than 3 years	50.0% = less than 3 years
	12.2% = 3-6 years	17.7% = 3-6 years
	8.9% = 6-9 years	10.8% = 6-9 years
	7.2% = 9-12 years	5.9% = 9-12 years
	3.9% = 12-15 years	5.9% = 12-15 years
	18.9% = more than 15 years	9.7% = more than 15 years
AR Awareness	40.6% = Yes	49.5% = Yes
	59.4% = No	50.5% = No
Online Shopping Preference	74.4% = Yes	67.7% = Yes
	25.6% = No	32.3% = No

Among the respondents, 48.9% reported having less than three years of working experience. This suggests that a significant portion of the sample comprises relatively new individuals to the workforce. The distribution of working experience gradually decreases with longer durations, with 12.2% reporting 3-6 years, 8.9% reporting 6-9 years, 7.2% reporting 9-12 years, 3.9% reporting 12-15 years, and 18.9% reporting more than 15 years of working experience. Analyzing working experience can provide insights into the level of professional expertise and seniority within the sample, which can be relevant for understanding consumer behavior and preferences.

As shown in table 6 above, According to the data, 74.4% of the respondents preferred online shopping, while 25.6% reported no online shopping. This indicates a strong inclination towards online shopping within the sample. The preference for online shopping can impact marketing strategies, as businesses may need to adapt their approaches to cater to the target audience's online shopping attitude and intention.

Furthermore, table 6 also represents the data for the Study 2 group. The data indicates that 68.8% of the sample identified as male, while 31.2% identified as female. This suggests a higher representation of males in the sample compared to females. The most significant proportion of the sample, 53.8%, falls within the 20-29 age range. This indicates a significant presence of young adults in the sample. The 30-39 age range represents 28.5% of the sample, showing a notable segment of individuals in their thirties. The 40-49 age range comprises 12.9% of the sample, suggesting a more minor but still significant presence of individuals in their forties. The 50-59 age range accounts for 4.8% of the sample, indicating a relatively more minor segment of individuals in their fifties.

3.5 Construct Measurements

According to Hair et al. (2019), reliability for exploratory research should be at least 0.60, whereas reliability for research that depends on established indicators should be at least 0.70. Cronbach's coefficient and composite reliability (CR) for all constructs met the minimal value of 0.70 in the current study, indicating the constructs' reliability (Hair et al., 2023). The extracted average variance (AVE) findings verified the sufficiency of convergent validity, as they were more than the required threshold of 0.50 (Hair et al., 2014; Fornell & Larcker, 1981).

The questionnaire used in this study adapted from existing scales for perceived informativeness (King et al., 2014), consumer attitudes (Chen et al., 2002), purchase intention (Kim & Lennon, 2013), consumer skepticism (reverse coded) (Deb et al., 2021), privacy concerns (Baek and Morimoto, 2012), complexity-in-use (Flight et al., 2011), app knowledge (Young Choi et al., 2010). Each scale was measured on a five-point Likert scale (1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly agree).

Furthermore, a pilot test was conducted by distributing the questionnaire to the five experts related to the field of this study. Based on experts' comments and suggestions, improvements were made to the questionnaire. This helps to measure the validity of the questionnaire. After that, pre-testing was conducted by involving ten respondents as a sample, aiming to improve the clarity and quality of the questionnaire.

It is also important to mention that convenience sampling is well suited in pilot testing. Upon completing the pre-testing, adjustments were made based on the feedback from the respondents. This test helps to measure the validity and reliability of questions.

3.6 Harman's Single-Factor Test For Common Method Bias

Harman's single-factor test for common method bias uses the principal axis factoring extraction method. According to Fuller et al. (2016), scholars are increasingly paying close attention to the possible effects of common method variance (CMV) and common method bias (CMB). Harman's single-factor test indicates that CMV is troublesome if an exploratory factor analysis (EFA) using all research variables yields eigenvalues showing that one factor explains more than 50% of the variation across variables (Kock, 2021; Fuller et al., 2016).

Fortunately, this research data had no problem with common method bias. Furthermore, the total variance extracted by one factor is 31.219% (study 1) and 42.890% (study 2), respectively. Therefore, further data analysis was carried out since the total variance extracted was less than the recommended threshold of 50% for both studies. The common method bias will be present in the study if the total variance extracted by one factor exceeds 50% (AL-Shboul, 2023). Furthermore, the results are shown in Appendix 3 for both studies, which include the web-based AR experience group (study 1) and AR-embedded video group (study 2).

3.7 Results

3.7.1 Data Analysis

This research utilized PLS-SEM, which stands for Partial Least Squares-Structural Equation Modeling with Smart PLS 4 program for statistical data analysis (Hair et al., 2023; Pop et al., 2023; Davari & Rezazadeh, 2014). Firstly, the PLS-SEM standard algorithm is conducted to validate constructs and measurement items and assess their reliability by calculating Convergent Validity, Average Variance Extracted, Internal Consistency Reliability, Discriminant Validity, Fornell-larcker criterion, and Cross loadings (Albayati et al., 2023). In addition, R-Square statistics are utilized to

measure the amount of variation explained by an independent variable in a regression model for a dependent variable. Using bootstrapping is also helpful in measuring the hypothesis significance by analyzing factors such as the p-value, t-value, and path coefficients.

Furthermore, the Outer loadings and Outer weights tests were conducted to estimate relationships in reflective measurement models. Consequently, Measurement Invariance Assessment (MICOM) and Multi-Group Analysis (MGA) were performed (Sarstedt et al., 2011). The multigroup analysis allows researchers to determine if pre-defined data groups have significant discrepancies in their group-specific parameter estimations, for instance, outer weights, outer loadings, and path coefficients. SmartPLS gives findings from three different methods, each based on bootstrapping results from each group (Hair et al., 2019; Sarstedt et al., 2011).

3.7.2 Measurement Model Evaluation

Descriptive statistics facilitate an understanding of the data utilized in the research. The aim here is to describe the fundamental characteristics of the data. Furthermore, descriptive statistics are techniques for summarizing and explaining the critical elements of a dataset, such as its central tendency, variability, and distribution. These approaches give a concise summary of the data and facilitate the identification of correlations. As a result, data becomes meaningful, and people are aware of it. In this way, information is easily accessible. In other words, descriptive statistics reflect the summary values of the data employed in the research study.

Furthermore, Table 7 on the following page represents the data for variables with mean values and standard deviations. The Web-based AR experience group's average mean for perceived informativeness is 2.472, with a standard deviation of 1.034. This suggests that, on average, participants rated the perceived informativeness of the web-based AR positively, and the scores had relatively low variability. The AR-embedded video group's average mean for perceived informativeness is 2.522, with a standard deviation of 1.153. This indicates that, on average, participants in the AR video group also rated the perceived informativeness positively, but the scores had slightly higher variability than the Web-based AR group.

The variable with the highest mean value among the other variables is privacy concerns (sum value) for the web-based AR group. The average mean value for privacy concerns is 3.846, and the standard deviation is 1.174. This suggests that, on average, participants in the Web-based AR group expressed higher privacy concerns than the other measured variables. The higher mean value indicates a relatively higher level of perceived privacy concerns within the Web-based AR context. Similarly, privacy concerns scored the highest mean value and standard deviation among other variables for the AR-embedded video group.

Participants in the Web-based AR study expressed more robust responses to the privacy concern variable, as it scored the average highest mean value among the variables measured. Additionally, the impact of privacy concerns on skepticism is lower in the Web-based AR group compared to the AR-embedded video group. This implies that, despite having more significant privacy concerns, the relationship between privacy concerns and skepticism might be weaker or less pronounced in the Web-based AR group.

Additionally, Table 7 provides the skewness, kurtosis, and factor loading results for study 1 and study 2. The skewness of a normally distributed dataset is 0. In a perfectly symmetrical normal distribution, the mean, median, and mode are all equal, and the distribution has no skewness. Skewness measures the asymmetry of a distribution, and a skewness of 0 indicates that the distribution is perfectly symmetrical. Furthermore, factor loadings (λ) represent the strength and direction of the relationship between the observed variable and the underlying latent construct. Higher absolute values suggest stronger relationships (Joe F. Hair et al., 2011). Table 7 shows that all individual items' factor loadings (study 1) were above 0.6 (factor loading coefficients ranged from 0.783 to 0.932). Furthermore, the factor loadings (study 2) for all individual items were above 0.6 (factor loading coefficients ranged from 0.799 to 0.931), which follows the values suggested by (Hair et al., 2012).

Table 7: Descriptive statistics of measurement items (Study 1 and Study 2)

	Study 1					Study 2				
Items	Mean	S.D.	SK	K	λ	Mean	S.D.	SK	K	λ
Info1	2.349	1.118	0.651	-0.146	0.783	2.544	1.175	0.472	-0.566	0.855
Info2	2.425	1.009	0.492	-0.188	0.824	2.583	1.164	0.330	-0.614	0.873
Info3	2.462	1.027	0.507	-0.110	0.890	2.611	1.166	0.417	-0.562	0.890
Info4	2.484	1.001	0.401	-0.113	0.822	2.622	1.131	0.390	-0.443	0.845
Info5	2.462	1.032	0.575	-0.017	0.856	2.578	1.164	0.535	-0.439	0.880
Info6	2.597	1.002	0.394	0.062	0.853	2.556	1.107	0.404	-0.516	0.849
Info7	2.527	1.048	0.451	-0.252	0.851	2.583	1.168	0.482	-0.463	0.841
Att1	2.301	1.055	0.673	-0.082	0.913	2.561	1.279	0.514	-0.780	0.925
Att2	2.495	1.064	0.419	-0.498	0.873	2.611	1.244	0.406	-0.844	0.920
Att3	2.532	1.038	0.452	-0.309	0.892	2.739	1.235	0.206	-0.887	0.873
Att4	2.403	1.080	0.666	-0.083	0.890	2.572	1.229	0.465	-0.710	0.917
Att5	2,47	1,20	0.452	-0.309	0.892	2,63	1,28	0.206	-0.887	0.873
Att6	2,43	1,20	0.666	-0.083	0.890	2,54	1,29	0.465	-0.710	0.917
Int1	2.726	1.034	0.277	-0.076	0.902	2.750	1.090	0.330	-0.360	0.877
Int2	2.651	1.011	0.243	-0.180	0.932	2.678	1.114	0.373	-0.544	0.931
Int3	2.473	1.074	0.517	-0.108	0.916	2.633	1.164	0.516	-0.495	0.897
Int4	2.618	1.052	0.368	-0.336	0.899	2.606	1.147	0.417	-0.517	0.911
Skpt1	3.430	1.010	-0.439	-0.079	0.849	3.033	1.233	-0.189	-0.906	0.866
Skpt2	3.677	0.947	-0.617	0.112	0.811	3.194	1.248	-0.097	-0.992	0.911
Skpt3	3.672	1.024	-0.670	-0.048	0.886	3.094	1.285	-0.051	-1.037	0.916
Skpt4	3.468	0.979	-0.255	-0.316	0.891	3.161	1.136	-0.138	-0.555	0.890
Skpt5	3.452	0.956	-0.121	-0.331	0.797	3.089	1.161	-0.024	-0.764	0.911
Privacy1	3.995	1.293	-1.103	0.012	0.868	2.922	1.356	-0.020	-1.176	0.799
Privacy2	3.919	1.145	-0.881	-0.076	0.906	2.906	1.223	0.072	-0.966	0.866
Privacy3	4.022	1.159	-1.065	0.254	0.888	2.911	1.266	0.086	-0.892	0.859
Privacy4	3.909	1.096	-0.929	0.255	0.904	2.944	1.298	0.104	-1.034	0.865
Privacy5	3.543	1.146	-0.398	-0.527	0.808	2.889	1.299	0.024	-1.078	0.899
Privacy6	3.688	1.205	-0.551	-0.681	0.780	3.011	1.206	0.093	-0.860	0.865
CompUse1	3.253	1.095	-0.393	-0.313	0.838	2.861	1.242	0.161	-0.880	0.871
CompUse2	2.882	1.056	0.156	-0.363	0.844	2.739	1.147	0.459	-0.499	0.878
CompUse3	3.065	1.076	-0.234	-0.440	0.855	2.717	1.198	0.153	-0.868	0.881
CompUse4	2.984	1.124	-0.151	-0.667	0.864	2.744	1.221	0.279	-0.759	0.885
AppKnow1	2.973	1.070	0.054	-0.327	0.920	2.883	1.194	0.129	-0.744	0.898
AppKnow2	3.005	1.060	-0.120	-0.453	0.925	3.078	1.166	0.017	-0.768	0.917
AppKnow3	2.871	1.034	0.144	-0.242	0.908	2.933	1.214	0.166	-0.753	0.902

Note: S.D.=Standard deviation, SK=Skewness, K=Kurtosis, λ=Factor Loadings, Info=perceived informativeness, Att=consumer attitude, Int=purchase intention, Skpt=consumer skepticism, Privacy=privacy concerns, CompUse=complexity-in-use, AppKnow=application knowledge

This study examined convergent validity, discriminant validity, and internal consistency to ensure the robustness of the measurement quality (See Table 8). The assessment involved the examination of Cronbach's alpha, composite reliabilities (CR), and average variance extracted (AVE) values to evaluate the convergence validity and reliability of the constructs, as outlined by Hair et al. (2013). As depicted in Table 8, all CR values for study 1, study 2, and the complete dataset surpassed the designated threshold of 0.60, indicating the reliability of all constructs. Additionally, we scrutinized

AVE values to ensure convergent validity. Table 2 illustrates that AVE values for Study 1, study 2, and the complete dataset exceeded the stipulated threshold of 0.50, as suggested by Hair et al. (2013) and Hair et al. (2011). Finally, the internal consistency results affirmed the validity across study 1, study 2, and the complete dataset (See table 8).

Table 8: Construct Reliability (Study 1, Study 2 and Complete dataset)

		Internal Consistency Reliability			Convergent Validity
	Latent Variable	Cronbach's alpha 0.60 – 0.90	Composite reliability 0.60 – 0.90		AVE >0.50
			(rho_a)	(rho_c)	
Study 1	App Know	0.907	0.917	0.941	0.842
	Att	0.915	0.917	0.940	0.796
	CompUse	0.873	0.877	0.913	0.723
	Info	0.931	0.937	0.944	0.706
	Int	0.933	0.935	0.952	0.833
	Privacy	0.929	0.937	0.945	0.740
	Skpt	0.907	0.927	0.719	0.907
Study 2	App Know	0.891	0.896	0.932	0.820
	Att	0.930	0.933	0.950	0.827
	CompUse	0.902	0.903	0.931	0.773
	Info	0.942	0.947	0.953	0.743
	Int	0.925	0.926	0.947	0.817
	Privacy	0.929	0.932	0.944	0.738
	Skpt	0.940	0.941	0.955	0.808
Complete	App Know	0.897	0.905	0.936	0.829
	Att	0.924	0.926	0.946	0.814
	CompUse	0.890	0.892	0.924	0.752
	Info	0.937	0.939	0.949	0.726
	Int	0.929	0.929	0.949	0.824
	Privacy	0.939	0.940	0.951	0.766
	Skpt	0.929	0.929	0.946	0.779

Note: CR = Composite Reliability; AVE = Average Variance Explained

In addition, the Fornell-Larcker Criterion is a method used in structural equation modeling (SEM) to assess discriminant validity, and it is named after its developers, C. Fornell and D. Larcker. This criterion helps researchers evaluate whether the constructs

in a model are distinct or if there is a potential overlap in their measurement. The Average Variance Extracted (AVE) for each construct is calculated by taking the average of the squared factor loadings for the indicators of that construct. For each pair of constructs, compare the AVE of each construct to the squared correlation between the constructs. The Fornell-Larcker Criterion suggests that the AVE for a construct should be greater than the squared correlation between that construct and any other construct in the model. The Fornell-Larcker Criterion is applied as follows:

a) $$AVE = \frac{\Sigma(\text{Squared Factor Loadings})}{\text{Number of Indicators}}$$

b) $$AVE_{\text{Construct A}} > \text{Squared Correlation}_{\text{Construct A-Construct B}}$$

Discriminant validity is supported if the AVE is greater than the squared correlation. Essentially, The Fornell-Larcker Criterion provides a simple and widely used approach to assess whether the variance captured by each construct (as measured by the AVE) is greater than the shared variance between constructs (as indicated by the squared correlation). This method is one of several approaches researchers use to evaluate discriminant validity in SEM, and it helps ensure that each construct in the model measures a unique aspect of the underlying theoretical concept. Finally, Table 9 shows that all constructs in Study 1, Study 2, and the complete dataset achieved discriminant validity, as evidenced by the Fornell-Larcker Criterion.

Table 9: Discriminant validity (Fornell-larcker criterion for study 1, study 2, and complete dataset)

		AppKnow	Att	CompUse	Info	Int	Privacy	Skpt
Study 1	AppKnow	**0.918**						
	Att	-0.390	**0.892**					
	CompUse	0.204	-0.041	**0.850**				
	Info	-0.221	0.675	0.059	**0.840**			
	Int	-0.389	0.681	-0.042	0.605	**0.913**		
	Privacy	0.078	-0.313	0.239	-0.309	-0.252	**0.860**	
	Skpt	0.358	-0.458	0.256	-0.347	-0.456	0.310	**0.848**
Study 2	AppKnow	**0.906**						
	Att	-0.448	**0.909**					
	CompUse	0.514	-0.294	**0.879**				
	Info	-0.432	0.783	-0.237	**0.862**			
	Int	-0.550	0.781	-0.333	0.732	**0.904**		
	Privacy	0.601	-0.501	0.779	-0.423	-0.465	**0.859**	
	Skpt	0.612	-0.416	0.842	-0.338	-0.431	0.845	**0.899**
Complete	AppKnow	**0.911**						
	Att	-0.420	**0.902**					
	CompUse	0.369	-0.196	**0.867**				
	Info	-0.334	0.736	-0.113	**0.852**			
	Int	-0.476	0.733	-0.201	0.670	**0.908**		
	Privacy	0.331	-0.419	0.543	-0.364	-0.346	**0.875**	
	Skpt	0.491	-0.439	0.610	-0.342	-0.435	0.637	**0.882**

Note: The bolded values displayed on the diagonal reflect the square root of AVE. Off-diagonal values reflect the pairwise correlations between the constructs.

Furthermore, R-squared (R^2) quantifies the goodness of fit of the model by indicating how well the independent variable(s) account for the variability observed in the dependent variable (See Table 10). In other words, R^2 is a statistical measure that represents the proportion of variance in the dependent (endogenous) variable that is explained by the independent (exogenous) variable(s) in a regression model. It is proposed that an R^2 value equal to or exceeding 0.10 is considered appropriate to characterize the adequacy of variance explained in a specific endogenous construct (Falk & Miller, 1992). As a result, table 10 shows that the research model achieved acceptable explanatory power. In addition, Cohen (1988) outlined the evaluation of R^2 values for endogenous latent variables, suggesting categorizations such as 0.26 (substantial), 0.13

(moderate), and 0.02 (weak). Besides, Chin (1998) suggested benchmark R^2 values for endogenous latent variables, indicating thresholds of 0.67 (substantial), 0.33 (moderate), and 0.19 (weak).

Table 10: R^2 values (Study 1, study 2 and complete dataset)

	Predictors	Outcomes	R^2
Study 1	AppKnow CompUse Info Privacy Skpt	Skepticism	0.275
	Att	Attitude	0.210
		Intention	0.464
Study 2	AppKnow CompUse Info Privacy Skpt	Skepticism	0.810
	Att	Attitude	0.173
		Intention	0.610
Complete	AppKnow CompUse Info Privacy Skpt	Skepticism	0.566
	Att	Attitude	0.193
		Intention	0.538

Note: AppKnow=application knowledge, Att=attitude, CompUse= complexity-in-use, Info=perceived informativeness, Skpt=consumer skepticism, Privacy=privacy concerns

In the realm of scholarly research focused on marketing issues, Hair et al. (2011) and Hair et al. (2013) proposed general guidelines, considering R^2 values of 0.75, 0.50, or 0.25 for endogenous latent variables to be indicative of substantial, moderate, or weak explanatory power, respectively. Furthermore, the Normed Fit Index (NFI), a measure of goodness-of-fit, was examined to evaluate the model's overall fit. This index is relative and falls within a range of 0 to 1 (Bentler, 1990). The study outcomes revealed NFI values of 0.844, 0.774, and 0.810 for the complete dataset, Study 1 and Study 2,

respectively. These results suggest a satisfactory fit, given the range of 0 to 1 as recommended by (Bentler, 1990).

3.7.3 Structural Model Evaluation

After examining the measurement model, the structural path is evaluated to assess path coefficients (relationships among the constructs) and their significance level. Initially, the direct relationship of variables for group 1 and group 2 was investigated. After that, hypothesis 10 and mediation analyses were examined for the complete group. The summary of hypothesis results (H1ab to H5ab and H6 to H10) is presented in Table 11. It is important to note that mediation analysis was conducted to show the importance of consumer skepticism.

Furthermore, the findings indicate that all others were statistically significant except for three path coefficients. It suggests that the effect of application knowledge on skepticism was significant but positive in both groups. Therefore, H3a and H3b were not supported. Additionally, hypothesis 4b was not supported as the result showed the positive perceived informativeness effect on consumer skepticism. However, all remaining relationships were significant and aligned with this research's initial predictions. The comprehensive outcomes of the hypotheses, accompanied by the supporting literature review, are discussed in the subsequent Chapter Four.

Table 11: Structural model test results (Hypothesis from H1ab to H5ab and H6 to H10)

	Path	β	t-value	*P*	Results
Study 1	Privacy->Skpt	0.170	2.298	0.022*	H1a Supported
	CompUse -> Skpt	0.178	2.275	0.023*	H2a Supported
	AppKnow -> Skpt	0.253	3.423	0.001*	H3a Not Supported
	Info -> Skpt	-0.250	3.575	0.000*	H4a Supported
	Skpt -> Att	-0.458	6.549	0.000*	H5a Supported
Study 2	Privacy->Skpt	0.413	4.349	0.000*	H1b Supported
	CompUse -> Skpt	0.453	4.352	0.000*	H2b Supported
	AppKnow -> Skpt	0.131	2.174	0.030*	H3b Not Supported
	Info -> Skpt	0.001	0.015	0.988	H4b Not Supported
	Skpt -> Att	-0.416	5.138	0.000*	H5b Supported
	Att -> Int	0.733	23.784	0.000*	H10 Supported
	Mediation Analysis Results				
Complete	Privacy -> Skpt -> Att	-0.152	4.746	0.000*	H6 Supported
	CompUse -> Skpt -> Att	-0.144	5.009	0.000*	H7 Supported
	AppKnow -> Skpt -> Att	-0.097	3.605	0.000*	H8 Supported
	Info -> Skpt -> Att	0.046	2.057	0.040*	H9 Supported

Notes: *Relationships are significant at $p < 0.05$, β = Beta Coefficient, T = t – Statistics, *P* = significance value. Att=Attitude, Skpt=Skepticism, CompUse=Complexity-in-use, AppKnow=Application knowledge, Info=Perceived informativeness, Privacy=privacy concerns, Int=Intention.

3.7.4 Assessment of Measurement Invariance (MICOM)

Assessment of measurement invariance (MICOM) is a statistical procedure used to evaluate whether the measurement properties of a scale or instrument remain consistent across different groups or conditions (Cheah et al., 2023). Essentially, it is a new method for determining measurement invariance recommended by Henseler et al. (2016). It is particularly relevant in the context of structural equation modeling (SEM). Measurement invariance is crucial for ensuring that the constructs measured by a scale are comparable and meaningful across diverse populations or conditions. The MICOM procedure comprises three steps, which are measuring configural invariance (Step I), measuring compositional invariance (Step II), and determining the equality of a composite's mean value and variance across groups (Step III). If both configural and compositional invariance (Steps I and II) are validated, it implies partial measurement

invariance, allowing researchers to proceed with comparing route coefficients using the MGA (Cheah et al., 2020; Henseler et al., 2016; Schlägel & Sarstedt, 2016).

Furthermore, measuring configural invariance (Step I) and measuring compositional invariance (Step II) were validated. The MICOM procedure confirmed partial measurement invariance in this study, suggesting that comparisons and interpretations of group-specific differences in the MGA's PLS-SEM results are viable. After exploring MICOM, Multi-group analysis (MGA) was conducted, and results were discussed in detail in the subsequent section.

3.7.5 Multi-Group Analysis

In this study, "AR-embedded video" refers to the group in Study 2, while "web-based AR" refers to the group in Study 1. The distinction between the two groups is based on the different methods or platforms used to deliver the augmented reality (AR) experience. In Study 1, the participants experienced AR through a web-based platform. This means they accessed and interacted with augmented reality content through a web application. In Study 2, the participants experienced AR through a video format. This implies that the augmented reality content was delivered to the participants through pre-recorded videos they could watch and engage with. Different methods or platforms for delivering AR experiences in the two studies allow for comparing the effects or outcomes between the two groups. This study is interested in examining how the different modes of AR delivery (web-based AR vs. AR video) influence various variables or measures of interest in the study.

The research focused on comparing the effects of various variables on consumer skepticism between two studies. The MGA test helps to examine the selected groups for significant differences in the parameter estimates (e.g., outer weights, outer loadings, and path coefficients). All data under Study 1 was compared against all data under Study 2. The findings indicated significant variations between the two study groups regarding these effects. These results were obtained through a multi-group analysis; a summary of the findings for the Hypothesis from H1c to H5c can be found in Table 12. The MGA results showed that H1c, H2c, and H4 were supported, while H3c was not supported.

Table 12: Multi-group analysis (Hypothesis from H1c to H5c)

Hypothesis	Relationships	Difference (Study1 – Study2)	p-value	Results
H1c	Privacy → Skpt (study 1<study2)	-0.243	0.047*	Supported
H2c	CompUse →Skpt (study 1<study2)	-0.275	0.031*	Supported
H3c	AppKnow → Skpt (study 1<study2)	0.122	0.203	Not Supported
H4c	Info → Skpt (study 1<study2)	-0.250	0.002*	Supported

Note: *The differences are significant in the relationships between the two studies ($p<0.05$). Skpt=consumer skepticism, CompUse=complexity-in-use, AppKnow=application knowledge, Info=perceived informativeness, Privacy=privacy concerns.

These findings highlight the importance of considering the mode of AR delivery (web-based or video) and its potential impact on various psychological factors. The differences observed in the multi-group analysis indicate that the method of delivering the AR experience can have varying effects on consumers' acceptance of technology. The differences in consumer skepticism between web-based AR and AR-embedded video could be attributed to several factors. First, web-based AR experiences often provide more interactive elements than AR-embedded video. The ability to actively engage with augmented content and manipulate virtual objects in a web-based AR environment may enhance user immersion and reduce skepticism. In contrast, video AR typically offers a more passive viewing experience, limiting interactivity and potentially leading to higher skepticism.

These factors highlight the potential reasons for differences in consumer skepticism between web-based AR and AR-embedded video experiences by consumers. However, it is important to note that individual preferences and prior experiences can also influence skepticism levels, and further research specific to the context of the study would be needed to provide a more comprehensive understanding of the observed differences. The comprehensive outcomes of the hypotheses, accompanied by the supporting literature review, are discussed in the subsequent Chapter Four.

4. CHAPTER FOUR: DISCUSSION

4.1 DISCUSSION

Drawing upon existing literature, there is a growing trend of consumers developing increasingly unfavorable perceptions of brands and social media. A notable statistic from Appel et al. (2020) reveals that over 40% of digitally connected adults have acknowledged deleting at least one social media account due to concerns about data misuse. Earlier research has underscored the significance of privacy apprehensions in technology adoption and their correlation with consumer skepticism (Sinha et al., 2019; Slyke et al., 2006). However, the extent to which privacy concerns influence the adoption of innovative technologies remains insufficiently explored (Jaspers & Pearson, 2022). Therefore, the outcomes of this study make a substantial contribution to the existing literature.

This study's findings indicate that privacy concerns positively impact skepticism regarding the web-based AR shopping experience and the AR-embedded video group. As privacy concerns intensify, consumer skepticism rises in both the web-based AR experience and AR-embedded video groups. Moreover, the results suggest that in web-based AR shopping experiences and AR-embedded video groups, privacy concerns play a constructive role in heightening consumer skepticism. As outlined in the literature review, these results align with findings from prior studies (Uren & Edwards, 2023; Zhang et al., 2023; Veiga, 2022; Yang & Zhang, 2022; Smit et al., 2014). To address privacy concerns, retailers must give consumers control over their data and make their platforms more transparent (Jayaswal & Parida, 2023; Urdea et al., 2021). The results of this study also showed that the positive effect of privacy concerns on consumer skepticism will be stronger in the AR-embedded video group compared to the web-based AR shopping experience (Baek & Morimoto, 2012). The results align with the following theories, which include Rational Choice Theory (Quackenbush, 2004), Social Exchange Theory (Stanton & Stam, 2003), and Contextual Integrity Theory (Criado & Such, 2015).

Technical issues, such as connectivity problems, compatibility issues, or system crashes, can contribute to frustration and skepticism among users.

Consequently, individuals perceive AR technology as requiring significant effort or mental workload, which can lead to skepticism. According to the results of this study, consumer skepticism increases as the degree of complexity-in-use increases. In this study, the hypothesized relationship investigated whether there is a difference between the AR-embedded video group and the web-based AR shopping experience group. Consequently, this study finding showed that the positive effect of complexity-in-use on consumer skepticism is stronger among the AR-embedded video group than the web-based AR shopping experience group. This result is consistent with the prior literature (Sahu et al., 2023; Mueller & Lauterbach, 2021; Wood & Moreau, 2006; Butz, 2004; DeSanctis & Poole, 1994).

On top of that, complexity-in-use can also refer to technical challenges that users might encounter when interacting with AR technology. According to Al-Ghaith et al. (2010), complexity-in-use is the extent to which an invention is perceived to be challenging to comprehend and use. It deals with consumers benefitting from technological advancement (Flight et al., 2011).

The perception of high cognitive or physical effort can deter users and raise doubts about the benefits or usability of AR. Finally, the overall user experience can be influenced by the perceived complexity of AR technology. If users find it challenging to navigate or understand the interface, perform actions, or achieve desired outcomes, it can contribute to skepticism and doubts about the effectiveness of AR. It is a fact that complexity-in-use discourages customers and creates hurdles to acquiring particular goods and services, resulting in adverse effects (Shim et al., 2021; Muriithi et al., 2016). Users in the web-based AR shopping experience group may perceive more control over their interactions with the technology than those in the AR-embedded video group, where the video content dictates the pace and presentation of AR elements. This loss of perceived control in the video context could intensify skepticism related to complexity-in-use.

The proficiency required for engaging with AR is easily obtainable from diverse user-friendly sources, as Eckertz et al. (2021) noted. Given the significance of technology and consumer knowledge regarding AR applications, it is crucial to foster cognitive support to execute innovations (Shang & Yao, 2010). Mullins & Cronan (2021) also emphasize that the expansion of knowledge related to technology serves as

a critical success factor in the field of marketing. According to this study's assumption, application knowledge negatively affects consumer skepticism in the web-based AR shopping experience and AR-embedded video group, which was not supported. Besides, the results of this study indicated that the observed difference between the AR-embedded video group was not stronger than the web-based AR shopping experience group.

As consumers gain more knowledge about the application, they may develop a sense of trust in its functionality, security, and reliability. This increased trust could lead to lower levels of skepticism. As consumers become more familiar with the application, they may recognize its utility and value in enhancing the shopping experience. This positive perception can outweigh any potential skepticism. Furthermore, the Technology Acceptance Model (TAM) posits that user friendliness' toward applications influences consumers' attitudes toward using technology (Simon & Usunier, 2007). If consumers find the AR application easy to understand and valuable, it may positively impact their skepticism. It is essential to conduct further research to investigate the factors contributing to application knowledge's positive effect on consumer skepticism in web-based AR shopping. Additionally, exploring additional factors, such as user perceptions, experiences, and specific aspects of application knowledge that influence skepticism, will contribute to the literature.

Perceived informativeness is a primary attribute of online advertisements that could influence consumers' shopping experience (Kim, Kim & Park, 2010). Generally, consumers make cost and benefit analyses before obtaining the product (Quackenbush, 2004). With that regard, AR tools could be advantageous for consumers by representing the product in an augmented manner. Additionally, perceived informativeness encompasses the capability to furnish essential information, as emphasized by Kim et al. (2010), and to offer valuable and helpful information about products to target customers, as noted by Bayrak Meydanoglu et al. (2020).

In their study, Liu, Sinkovics, Pezderka & Haghirian (2012) pointed out that consumers' purchase attitudes and intentions increase if ads are informative and relevant. Considering AR ads, it is advantageous for consumers to visualize the product with digitized information and a better quality product image than classical ads. This

study supports the idea that perceived informativeness negatively affects consumer skepticism of the web-based AR shopping experience.

On the contrary, the results of the present study did not support the idea that perceived informativeness negatively affects consumer skepticism for the AR-embedded video group. Perceived informativeness can be crucial in reducing consumer skepticism for the AR-embedded video group by enhancing clarity, understanding, trust, engagement, and confirmation of expectations regarding the information presented in the videos. Other scholars can test this assumption in different research settings with a similar context. The results revealed that the hypothesized relationships differed significantly between the AR-embedded video and web-based AR shopping experience groups. The effect of perceived informativeness on consumer skepticism was stronger among the AR-embedded video group, which can be considered an essential contribution to the literature.

As indicated by Lee and Youn (2009), consumer skepticism levels show variations, and skepticism levels can be diverse among individuals. Therefore, exploring the factors influencing consumer skepticism can help marketers devise strategies to acknowledge and alleviate skepticism, fostering trust with their target audience. Concerns about advertising clutter in the social media realm have emerged due to the rapid expansion of online advertising (Ha & McCann, 2008). The purpose of advertising is to impact customers, creating awareness of a product by highlighting its societal, psychological, or utilitarian advantages (Rauwers et al., 2018).

Lievens and Moons (2023) emphasized that balancing social benefits and financial gains is crucial to preventing consumer skepticism, as the findings of this study confirmed that consumer skepticism negatively affects attitude toward AR shopping for the web-based AR shopping experience group and the AR-embedded video group. As predicted, the findings of this study support the negative effect of consumer skepticism on attitude for both groups, namely the web-based AR shopping experience group and the AR-embedded video group. As discussed in the literature, these results are consistent with prior literature (Deb et al., 2021; Minton et al., 2021; De Veirman & Hudders, 2020; Ha & McCann, 2008; Obermiller & Spangenberg, 1998).

Furthermore, misleading practices by companies can lead customers to adopt a skeptical attitude toward the product, as Kim et al. (2023) noted. “Attitude towards advertising” is a commonly studied term employed to assess consumers’ perspectives on advertising (Ha and McCann, 2008). In the literature on information systems, attitude has long been considered a central element in understanding consumer attitudes, as highlighted by Ahn et al. (2022). Artificial intelligence has introduced the capability to predict attitudes (Dwivedi et al., 2021).

This study posited that consumer skepticism mediates the relationship between privacy concerns and attitudes toward AR shopping. The results of this study indicated a negative relationship between privacy concerns and consumer skepticism mediation towards consumer attitude. It is important to note that various factors, including individual attitudes, experiences, and the study’s specific context, can influence the relationship between privacy concerns and consumer skepticism. The negative correlation observed in the results suggests an interesting dynamic that would require further investigation and understanding within the specific context of this research. The current study’s findings align with the previous research (Morimoto, 2021) in the marketing field, which has indicated that privacy concerns can negatively impact attitudes toward technology. The results revealed that privacy concerns indirectly affect attitudes toward technology (Al-alak et al., 2010), with consumer skepticism mediating this relationship.

In other words, when individuals have privacy concerns, it increases consumer skepticism, influencing their overall attitude toward the technology. Some theories explain this relationship, such as Privacy Calculus Theory (Wang et al., 2016), Social Exchange Theory (Stanton & Stam, 2003) and Contextual Integrity Theory (Criado & Such, 2015).

As Pechpeyrou and Odou (2012) discussed, complexity-in-use is an antecedent of consumer skepticism. A study by Román et al. (2023) highlighted that perceiving an online review as misleading may lead readers to question how similar observations can be applied to other evaluations on the same review site. This heightened skepticism towards the source of the study is further intensified by misleading practices by firms (Kim et al., 2023). This study assumed consumer skepticism mediates the relationship between complexity-in-use and attitudes toward AR shopping. Furthermore, the study

findings indicated negative mediation between complexity-in-use and consumer skepticism towards attitude. According to Kim et al. (2023), misleading firm practices cause customers to be skeptical of the product.

Understanding an app's functionality is vital, offering users empowerment, improved efficiency, enhanced experiences, problem-solving capabilities, and continuous learning and improvement opportunities. This knowledge is pivotal for maximizing the advantages and value derived from using an app. Furthermore, consumers' buying decisions often follow app familiarity, as Hsu and Lin (2016) indicated. Additionally, the influence of AR apps on consumers' attitudes is significant, as Watson et al. (2020) emphasized. In addition, Gupta et al. (2022) contribute to this understanding, highlighting that comprehension of digital services reduces ambiguity, instills confidence, and predicts consumer purchases. For instance, this study significantly mediates consumer skepticism between app knowledge and attitude.

Additionally, the mediation relationship of consumer skepticism between app knowledge and attitude was negative due to this study. This assumption is supported by the Cognitive Dissonance Theory (Hinojosa et al., 2017). This theory posits that individuals experience discomfort or dissonance when they hold conflicting beliefs, attitudes, or behaviors. In the context of your assumption, consumers with higher levels of app knowledge may have more positive attitudes towards the app as they understand its features, benefits, and functions better. However, if they also experience skepticism about the app, perhaps due to concerns about privacy, security, or usability, this creates a cognitive inconsistency or dissonance.

Besides, privacy concerns refer to individuals' worries or apprehensions about the potential risks to their personal information and privacy when using a particular technology. When individuals have significant concerns about their privacy while using AR and VR technologies, it can lead to a more negative attitude toward these technologies. This negative attitude arises from the perceived risks of privacy breaches, data collection, unauthorized access to personal information, or surveillance concerns. As a result of this study, consumer skepticism positively and significantly mediates the relationship between perceived informativeness and attitudes towards AR shopping. The Elaboration Likelihood Model supports the assumption that consumer skepticism

mediates the relationship between perceived informativeness and attitudes towards AR shopping (Bhattacherjee & Clive, 2016; Cho, 1999).

Finally, the findings of this study confirmed that attitude positively affects purchase intention both in the web-based AR experience and AR-embedded video group. This finding is similar to Moon & Domina's (2015) study, which mentioned that attitude is a strong antecedent of purchase intention. This way, consumer purchase intention would be predicted by evaluating an attitude (Pop et al., 2023; Reimer & Benkenstein, 2018). In marketing, it is often observed that intention is directly determined by attitude (Papakostas et al., 2022). The results are consistent with the following theories, which are the Theory of Reasoned Action (Sawaftah, Calicioglu, and Awadallah, 2020; Emekci, 2019; Ajzen & Fishbein, 1980) and the Theory of Planned Behavior (Lee et al., 2003; Madden et al., 1992).

4.2 Theoretical and Practical Implications

This study offers notable contributions to the academic field by integrating the technology acceptance model and the S-O-R (Stimulus-Organism-Response) model. A comprehensive research model is initially developed and conceptualized, encompassing key factors such as privacy concerns, complexity-in-use, application knowledge, perceived informativeness, consumer skepticism, consumer attitudes, and consumer purchase intention. This study specifically investigates the mediating role of consumer skepticism in online shopping with augmented reality features. The research model is empirically tested, providing valuable insights into skepticism and the influencing variables that impact purchase intentions in online shopping. The literature review reveals a gap in the investigation of consumer skepticism in web-based augmented reality applications and advertisements within the online environment. This empirical research aims to fill this gap and contribute to existing knowledge. Given the rapid technological advancements, many online stores are adopting augmented reality to enhance the shopping experience by allowing buyers to better understand products before purchasing.

Furthermore, this study combines various theoretical perspectives, integrating the S-O-R model with TAM and TPB, to enrich the comprehensive understanding of the

subject. Doing so addresses the research gap concerning consumer skepticism in web-based augmented reality applications and video AR advertisements within the online environment. While previous studies have explored consumer skepticism in augmented reality and online advertising, there has been a lack of research examining how web-based augmented reality applications and advertisements influence consumer skepticism. This study contributes to theoretical advancements and provides a rationale for the hypotheses investigated in this research context.

This study holds practical significance for online marketers who employ augmented reality applications on their websites, especially in the growing prevalence of online marketing, which has led to a shift from physical stores to virtual platforms. With the rise of online marketing, consumer skepticism and hesitation towards making purchase decisions in online shopping have become increasingly prevalent. Thus, this study is motivated to delve deeper into the factors influencing purchasing intentions, addressing a crucial research gap.

The findings of this study provide valuable insights for retailers and practitioners seeking to comprehend the factors that impact consumers' purchase decisions in online shopping. It offers substantial benefits to retailers looking to implement augmented reality technology to showcase their products online. For retailers unable to demonstrate their products physically, augmented reality is a valuable tool to showcase them virtually. Furthermore, online marketers can glean useful findings that align with the research, enabling them to enhance their online selling strategies. This study strongly recommends that online marketers gain a comprehensive understanding of their consumers' purchase decisions, as this knowledge can greatly assist in developing effective marketing strategies for online shopping.

Furthermore, this researches practical significance lies in its potential to transform industries, enhance user experiences, and offer innovative solutions to real-world challenges. As the technology continues to evolve, AR studies play a vital role in shaping its practical implementation and ensuring its positive impact on society. Furthermore, this study drives advancements in AR technology by addressing challenges, improving usability, and enhancing the effectiveness of AR solutions. Understanding how consumers perceive and adopt AR applications is crucial for enhancing user experiences and acceptance. Consequently, this study opens new

avenues for creative marketing and advertising campaigns. Brands can leverage AR to deliver interactive and immersive content to their audiences, leading to better brand engagement and recall.

4.3 Limitations and Suggestions for Future Research

One of the limitations of this study is that it focuses on a specific brand name, which may restrict the generalizability of the findings to other brands or the product itself. Furthermore, the potential influence of brand reputation can significantly impact consumer purchase intention. Future research might address this limitation by using numerous brands or different sorts of items. Researchers can improve the study's generalizability and provide a more comprehensive understanding of the technology's impact on consumers' shopping experiences across various brands and products.

It is essential to mention that while age is a recognized limitation, other demographic factors, such as gender, education level, or cultural background, might also play a significant role in shaping attitudes and behaviors. Future research should aim to incorporate a more specific and representative sample to enhance the external validity and broaden the applicability of the findings. Another limitation of this study is related to awareness of AR technology among people. According to this study's findings, 54.95% of the total group showed no awareness of augmented reality. In that case, it suggests that most of the group has limited or no knowledge or familiarity with AR technology. This finding indicates a lack of awareness about AR among the study participants or the surveyed population.

For those who showed no awareness of AR, introducing and educating them about AR can be beneficial in shaping their attitudes and intentions toward the technology. Providing information, demonstrations, or hands-on experiences of AR can help individuals understand the capabilities and potential benefits of AR, which in turn may influence their attitude towards it. It is important to note that the lack of awareness among a specific group does not necessarily imply a general lack of awareness in the broader population. Awareness levels can vary across different demographic groups, regions, or industries. Additionally, the specific study or survey methodology, sample size, and demographics can influence the reported percentage of individuals with no

awareness of AR. Lastly, another limitation of the research is that the data was collected via social networks. In this study, participants AR usage experience was not observed in real time by the researcher. Accordingly, the declarations of participation by the participants were taken as the basis. Future studies could be conducted by observing participants in a laboratory setting.

CONCLUSION

The digitalization of the marketing world continues to reshape how businesses engage with consumers, with augmented reality (AR) playing a pivotal role in this transformation. As consumers increasingly rely on digital channels for product discovery and purchasing decisions, marketers leverage AR to create interactive, personalized experiences that captivate audiences. From virtual try-on experiences to immersive product demonstrations, AR enables brands to showcase their offerings engagingly, driving customer engagement and brand loyalty. Furthermore, integrating AR into marketing strategies allows data-driven insights, empowering marketers to optimize campaigns and deliver targeted messaging to consumers.

Augmented reality development has seen significant advancements year by year, driven by technological innovations and increasing demand across various industries. Each year, more sophisticated AR tools and platforms emerge, catering to diverse applications such as gaming, education, healthcare, and retail. Developers constantly refine AR software to enhance user experiences, improve performance, and expand device compatibility. Furthermore, collaboration between hardware manufacturers and software developers fuels the evolution of AR technology, resulting in more immersive and seamless augmented experiences. Additionally, feedback from users and industry stakeholders drives continuous iteration and enhancement of AR applications, ensuring they remain relevant and impactful in an ever-changing landscape.

As consumers increasingly embrace augmented reality applications for online shopping, their attitudes are influenced by various factors, including skepticism towards the technology. Consumer skepticism stems from concerns about privacy, security, and the accuracy of AR-enhanced experiences. While AR offers exciting possibilities for immersive shopping experiences, some consumers may remain cautious about fully embracing the technology due to perceived risks or uncertainties. Therefore, addressing consumer skepticism through transparent communication, robust security measures, and compelling use cases is crucial for fostering trust and encouraging widespread adoption of AR for onlıne shoppıng. By addressing these concerns and delivering value-added experiences, businesses can mitigate consumer skepticism and drive positive attitudes towards augmented reality in online shopping contexts.

The study investigates the mediating role of consumer skepticism on consumer attitude by comparing the web-based AR shopping experience and AR-embedded video on consumer attitudes. It highlights the potential discrepancy between brands promoting technological advancements through video ads and consumers' experiences, which can lead to skepticism. To explore this, the researcher conducted the study with 366 participants divided into two groups: study 1 and study 2.

In concluding remarks, this study uniquely integrates the technology acceptance and S-O-R models, making significant contributions to academia. It establishes a comprehensive research model that includes various factors related to online shopping, such as privacy concerns, complexity-in-use, application knowledge, perceived informativeness, consumer skepticism, consumer attitude, and consumer purchase intention. In addition, research findings advance existing literature by exploring the mediation of consumer skepticism in the model for online shopping with augmented reality enrichment. It provides valuable insights into consumer attitudes in the era of technology adoption and online shopping, benefiting future researchers interested in technology applications and the impact of augmented reality on business activities.

The novelty of this research lies in collecting and comparing data from two groups (study 1 and study 2), offering a fresh perspective and contributing to augmented reality research. This unique approach also provides a novel way to measure research outcomes using augmented reality technology. It uncovers the factors influencing consumers' attitudes toward online shopping, specifically focusing on mediating consumer skepticism. Retailers who cannot physically showcase their products can leverage augmented reality to provide virtual product experiences, opening up new opportunities for online sales and effective consumer engagement.

There has been a significant interest in augmented reality marketing within the advertising industry. This innovative advertising approach utilizes technology to create immersive and interactive experiences, which have captured the attention of marketers and consumers alike. Consumers perceive augmented reality (AR) as a more enjoyable form of advertising due to its incorporation of technology, resulting in enhanced engagement. Online marketers can extract valuable insights from this study to improve their marketing strategies and boost online selling. Understanding consumers' attitudes and intentions for online shopping is crucial for developing effective marketing

campaigns, and this study emphasizes the importance of such understanding, offering recommendations for marketers to tailor their strategies accordingly. Lastly, this study bridges the gap between academia and real-world applications, making theoretical and practical contributions. It effectively communicates the idea that the insights into technology adoption, augmented reality, and online shopping make the source valuable for future research and offer practical guidance for retailers and online marketers.

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Online Survey Questionnaire

The survey instrument used in this study (Group 1 and Group 2) was translated and revised accurately into English and Turkish. It helps to facilitate accessibility for a wider range of consumers and to ensure that all respondents can fully understand the statements. The translations were performed by qualified translators with expertise in both languages, and a thorough revision process was conducted to ensure the accuracy and clarity of the translated versions.

To access the survey in your preferred language, please refer to the following links:

Group1:

https://docs.google.com/forms/u/0/d/14W21QAGkXkYcuSv1JBl0PHsbcPxSmy2M_T_H-PNIflw/edit?usp=forms_home&ths=true&pli=1

Group2:

https://docs.google.com/forms/d/1arPifcbb7iiCHkRNIjhRVWjb8_lUJ4rIPrRDDZC1XdQ/edit?usp=forms_home&ths=true

By clicking the respective links, respondents will be directed to the survey in their preferred language. This approach allows for personalized language selection, ensuring respondents can comfortably engage with the survey. Using multiple language versions aims to enhance inclusivity and promote comprehensive participation in the study.

APPENDIX 1. Questionnaire for study 1 (English)

A SURVEY ON THE MEDIATING ROLE OF CONSUMER SKEPTICISM ON ATTITUDE IN A COMPARATIVE STUDY OF WEB-BASED AR AND AR-EMBEDDED VIDEO EXPERIENCES

Dear Respondents,

This survey is related to PhD research on augmented reality advertisement and its effect on consumer attitude and purchase intention. It would be beneficial if you could fill out the following questionnaire. There are no right or wrong answers and your responses are confidential. This survey will take only 10-15 minutes of your time.

- **PLEASE click here to try the following web-based augmented reality application before you fill out the questionnaire.**

- Note: **AR** stands for augmented reality. **Web-based AR** means experiencing the design features and how they stand in a certain place with three-dimensional images of certain products in online shopping.

Thank you.

Kind regards,

Şahnoza KAYADİBİ
PhD Candidate

Supervisor:
Prof. Dr. Hakan CENGIZ

Section A: Demographic Profile

Section A: Demographics

Instruction: *Please tick (√) on the appropriate answer below:*

1. Gender □ Male □ Female

2. Age Group

□ 20 - 29 □ 30 - 39 □ 40 - 49 □ 50 - 59

4. Education Level

□ Bachelor's Degree □ PhD

□ Master's Degree □ Others please specify_____

5. Employment Status

□ Part-time □ Unemployed

□ Full-time □ Others please specify_____

6. Monthly-Income (TL)

□ Less than TL 5,999 □ TL 15,000- TL 19,999

□ TL 6,000- TL 9,999 □ TL 20,000 and above

□ TL 10,000- TL 14,999

7. Work Experience

□ less than 3 years □ 6-9 years □ 12-15 years

□ 3-6 years □ 9-12 years □ more than 15 years

Are you familiar with the concept of Augmented Reality?

_____

Do you prefer to purchase products online?

_____

SCALES ARE RATED AS FOLLOWS:				
1= Strongly Disagree	2= Disagree	3= Neutral	4= Agree	5= Strongly Agree

Section B: Perceived Informativeness

For each of the following statements about perceived informativeness, please rate your response accordingly.	Perceived Informativeness				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Augmented reality applications are essential for online shopping	**1**	**2**	**3**	**4**	**5**
2. I think augmented reality apps are useful for online shopping	**1**	**2**	**3**	**4**	**5**
3. I found augmented reality apps to be informative for online shopping	**1**	**2**	**3**	**4**	**5**
4. I find the online shopping process of augmented reality applications pleasant.	**1**	**2**	**3**	**4**	**5**
5. Augmented reality applications provide necessary information about the product.	**1**	**2**	**3**	**4**	**5**
6. Augmented reality applications provide timely information about products	**1**	**2**	**3**	**4**	**5**
7. Augmented reality applications provide product information when needed	**1**	**2**	**3**	**4**	**5**

Section C: Consumer Attitude

For each of the following statements about consumer attitude, please rate your response accordingly.	Consumer Attitude				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Augmented reality application in online shopping is a good idea	**1**	**2**	**3**	**4**	**5**
2. I find it interesting to use an augmented reality application for online shopping	**1**	**2**	**3**	**4**	**5**
3. I find it fun to use an augmented reality app for online shopping	**1**	**2**	**3**	**4**	**5**
4. My opinion about augmented reality applications is positive	**1**	**2**	**3**	**4**	**5**
5. I find it right to integrate augmented reality into the online shopping experience	**1**	**2**	**3**	**4**	**5**
6. I feel positive about augmented reality applications	**1**	**2**	**3**	**4**	**5**

Section D: Purchase Intention

For each of the following statements about purchase intention, please rate your response accordingly.	Purchase Intention				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I buy products advertised through augmented reality.	**1**	**2**	**3**	**4**	**5**
2. I want to buy products advertised through augmented reality	**1**	**2**	**3**	**4**	**5**
3. I am more likely to buy products advertised through augmented reality	**1**	**2**	**3**	**4**	**5**
4. I plan to purchase products advertised through augmented reality	**1**	**2**	**3**	**4**	**5**

Section E: Skepticism

For each of the following statements about skepticism, please rate your response accordingly.	Skepticism				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I think most of the augmented reality applications or augmented reality-enhanced product descriptions are not true. (R)	**1**	**2**	**3**	**4**	**5**
2. Most of the augmented reality applications or augmented reality-enriched product descriptions aim to mislead the consumer rather than inform. (R)	**1**	**2**	**3**	**4**	**5**
3. I find product advertisements made with augmented reality exaggerated. (R)	**1**	**2**	**3**	**4**	**5**
4. I do not trust the explanations made in advertisements or packaging labels for augmented reality applications. (R)	**1**	**2**	**3**	**4**	**5**
5. I do not think it is beneficial to use augmented reality applications in product descriptions. (R)	**1**	**2**	**3**	**4**	**5**

Section F: **Privacy concerns**

For each of the following statements about privacy concerns, please rate your response accordingly.	Privacy concerns				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I am concerned about sharing information online without my consent when using an augmented reality application	**1**	**2**	**3**	**4**	**5**
2. I am concerned about the misuse of personal information when using an augmented reality application.	**1**	**2**	**3**	**4**	**5**
3. When using an augmented reality application, it bothers me to receive too many advertising materials that do not interest me.	**1**	**2**	**3**	**4**	**5**
4. I am afraid that the information stored may not be safe when using an augmented reality application.	**1**	**2**	**3**	**4**	**5**
5. I believe that personal information is often misused when using an augmented reality application.	**1**	**2**	**3**	**4**	**5**
6. When using an augmented reality application, I think companies share information without customer consent.	**1**	**2**	**3**	**4**	**5**

Section G: Complexity-in-use

For each of the following statements about complexity-in-use , please rate your response accordingly.	Complexity-in-use				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I think the augmented reality application takes a lot of time compared to other applications.	**1**	**2**	**3**	**4**	**5**
2. I think augmented reality applications are too complex and difficult to understand	**1**	**2**	**3**	**4**	**5**
3. I think the use of augmented reality takes too much time	**1**	**2**	**3**	**4**	**5**
4. I think it will take a long time to learn how to use the augmented reality application.	**1**	**2**	**3**	**4**	**5**

Section H: App Knowledge

For each of the following statements about application knowledge, please rate your response accordingly.	App Knowledge				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I feel very knowledgeable about the augmented reality application.	**1**	**2**	**3**	**4**	**5**
2. If a friend asks me about the augmented reality application, I can advise him on how to use it.	**1**	**2**	**3**	**4**	**5**
3. I am very confident in my ability to explain the use of augmented reality applications to others	**1**	**2**	**3**	**4**	**5**

APPENDIX 2 Çalışma 1 ANKET (Türkçe)

WEB TABANLI AR VE AR-GÖMÜLÜ VİDEO DENEYİMLERİNİN KARŞILAŞTIRMALI ÇALIŞMASINDA TÜKETİCİ ŞÜPHESİNİN TUTUM ÜZERİNDEKİ ARACI DEĞİŞKEN ROLÜ.

Sevgili Yanıtlayanlar,

Bu anket, artırılmış gerçeklik reklamı ve bunun tüketici tutumu ve satın alma niyeti üzerindeki etkisi üzerine doktora araştırması ile ilgilidir. Aşağıdaki anketi doldurmanız bizim için çok faydalı olacaktır. Doğru ya da yanlış cevap yoktur ve yanıtlarınız son derece gizli tutulacaktır. Bu anket sadece 10 -15 dakikanızı alacaktır.

- **Anketi doldurmadan önce web tabanlı artırılmış gerçeklik uygulamasını denemek için LÜTFEN buraya tıklayın.**

- **AR** arttırılmış gerçeklik anlamına gelmektedir. **Web tabanlı AR**: çevrimiçi alışverişte belirli ürünlerin üç boyutlu görselleriyle belirli bir yerde nasıl durduğunun ve tasarım özelliklerinin deneyimlenmesi anlamına gelmektedir.

Teşekkürler.

Saygılarımla,

Şahnoza KAYADİBİ

Doktora adayı

Danışman:

Prof. Dr. Hakan CENGİZ

Bölüm A: Demografik Profil

Bölüm A: Demografi Talimat: *Lütfen aşağıdaki uygun cevabı (√) işaretleyin:*
1. Cinsiyet □ Erkek □ Kadın
2. Yaş Grubu □ 20 – 29 □ 30 - 39 □ 40 – 49 □ 50 - 59
3. Eğitim Düzeyi □ Lisans □ Doktora □ Yüksek Lisans □ Diğerleri lütfen belirtiniz _____
4. İstihdam Durumu □ Yarı zamanlı □ İşsiz □ Tam zamanlı □ Diğerleri lütfen belirtin _____
5. Aylık-Gelir (TL) □ 5,999 TL'den az □ 15.000 TL- 19,999 TL □ 6.000 TL- 9,999 TL □ 20.000 TL ve üzeri □ 10.000 TL – 14,999 TL
6. İş Deneyimi □ 3 yıldan az □ 6-9 yıl □ 12-15 yıl □ 3-6 yıl □ 9-12 yıl □ 15 yıldan fazla
7. Artırılmış Gerçeklik kavramına aşina mısınız? _____
8. Ürünleri internetten satın almayı mı tercih ediyorsunuz? _____

Ölçek şu şekilde derecelendirilir:				
1= Kesinlikle Katılmıyorum	2= katılmıyorum	3= Nötr	4= katılıyorum	5= Kesinlikle Katılıyorum

Bölüm B: Algilanan Bilgilendirme

Bilgilendirme ile ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre değerlendirin.	Algılanan Bilgilendirme				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Artırılmış gerçeklik uygulamaları çevrimiçi alışveriş için faydalıdır	**1**	**2**	**3**	**4**	**5**
2. Artırılmış gerçeklik uygulamalarının çevrimiçi alışveriş için yararlı olduğunu düşünüyorum	**1**	**2**	**3**	**4**	**5**
3. Artırılmış gerçeklik uygulamalarının çevrimiçi alışveriş için bilgilendirici olduğunu gördüm	**1**	**2**	**3**	**4**	**5**
4. Arttırılmış gerçeklik uygulamalarının çevrimiçi alışveriş sürecini hoş buluyorum.	**1**	**2**	**3**	**4**	**5**
5. Artırılmış gerçeklik uygulamaları ürün hakkında gerekli bilgileri sağlar.	**1**	**2**	**3**	**4**	**5**
6. Artırılmış gerçeklik uygulamaları ürünler hakkında zamanında bilgi verir	**1**	**2**	**3**	**4**	**5**
7. Artırılmış gerçeklik uygulamaları, ihtiyaç duyulduğunda ürün bilgisi sağlar	**1**	**2**	**3**	**4**	**5**

Bölüm C: Tüketici Tutumu

Tüketici tutumuyla ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre değerlendirin.	Tüketici Tutumu				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Çevrimiçi alışverişte artırılmış gerçeklik uygulaması iyi bir fikirdir	**1**	**2**	**3**	**4**	**5**
2. Çevrimiçi alışverişte artırılmış gerçeklik uygulaması kullanmayı ilginç buluyorum	**1**	**2**	**3**	**4**	**5**
3. Çevrimiçi alışverişte artırılmış gerçeklik uygulaması kullanmayı eğlenceli buluyorum	**1**	**2**	**3**	**4**	**5**
4. Artırılmış gerçeklik uygulamaları hakkında kanaatim olumlu	**1**	**2**	**3**	**4**	**5**
5. Çevrimiçi alışveriş deneyimine arttırılmış gerçekliğin entegre edilmesini doğru buluyorum	**1**	**2**	**3**	**4**	**5**
6. Artırılmış gerçeklik uygulamalarına karşı olumlu hissediyorum	**1**	**2**	**3**	**4**	**5**

Bölüm D: Satin Alma Niyeti

Satın alma niyetiyle ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre değerlendirin.	Satın Alma Niyeti				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Arttırılmış gerçeklik aracılığıyla tanıtılan ürünleri satın alırım.	**1**	**2**	**3**	**4**	**5**
2. Arttırılmış gerçeklik aracılığıyla tanıtılan ürünleri satın almak istiyorum	**1**	**2**	**3**	**4**	**5**
3. Arttırılmış gerçeklik aracılığıyla tanıtılan ürünleri satın alma olasılığım yüksek	**1**	**2**	**3**	**4**	**5**
4. Arttırılmış gerçeklik aracılığıyla tanıtılan ürünleri satın almayı planlıyorum	**1**	**2**	**3**	**4**	**5**

Bölüm E: Şüphecilik

Şüphecilikle ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre değerlendirin.	Şüphecilik				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Artırılmış gerçeklik uygulaması veya artırılmış gerçeklikle zenginleştirilmiş ürün açıklamalarının çoğunun doğru olmadığını düşünüyorum.	**1**	**2**	**3**	**4**	**5**
2. Artırılmış gerçeklik uygulaması veya artırılmış gerçeklikle zenginleştirilmiş ürün açıklamalarının çoğu tüketiciyi bilgilendirmek yerine yanlış yönlendirmeyi amaçlıyor.	**1**	**2**	**3**	**4**	**5**
3. Artırılmış gerçeklik ile yapılan ürün tanıtımlarını abartılı buluyorum.	**1**	**2**	**3**	**4**	**5**
4. Artırılmış gerçeklik uygulamalarına ilişkin reklamlarda veya ambalaj etiketlerinde yapılan açıklamalara güvenmiyorum.	**1**	**2**	**3**	**4**	**5**
5. Artırılmış gerçeklik uygulamalarının ürün tanımında kullanılmasının faydalı olduğunu düşünmüyorum.	**1**	**2**	**3**	**4**	**5**

Bölüm F: Gizlilikle İlgili Endişeler

Gizlilikle ilgili endişelerle ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre derecelendirin.	Gizlilikle İlgili Endişeler				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Arttırılmış gerçeklik uygulaması kullanırken iznim olmadan çevrimiçi bilgi paylaşılmasından endişe duyarım	**1**	**2**	**3**	**4**	**5**
2. Arttırılmış gerçeklik uygulaması kullanırken kişisel bilgilerin kötüye kullanılması konusunda endişeliyim.	**1**	**2**	**3**	**4**	**5**
3. Arttırılmış gerçeklik uygulaması kullanırken İlgimi çekmeyen çok fazla reklam malzemesi almak beni rahatsız ediyor.	**1**	**2**	**3**	**4**	**5**
4. Arttırılmış gerçeklik uygulaması kullanırken depolanan bilgilerin güvenli olmayabileceğinden korkuyorum.	**1**	**2**	**3**	**4**	**5**
5. Arttırılmış gerçeklik uygulaması kullanırken kişisel bilgilerin sıklıkla kötüye kullanıldığına inanıyorum.	**1**	**2**	**3**	**4**	**5**
6. Arttırılmış gerçeklik uygulaması kullanırken şirketlerin müşteri izni olmadan bilgi paylaştığını düşünüyorum.	**1**	**2**	**3**	**4**	**5**

Bölüm G: Kullanımdaki Karmaşıklık

Kullanımdaki karmaşıklıkla ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre değerlendirin.	Kullanımdaki karmaşıklık				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Artırılmış gerçeklik uygulamasının diğer uygulamalara göre çok fazla zaman aldığını düşünüyorum.	**1**	**2**	**3**	**4**	**5**
2. Artırılmış gerçeklik uygulamalarının çok karmaşık ve anlaşılması zor olduğunu düşünüyorum	**1**	**2**	**3**	**4**	**5**
3. Artırılmış gerçeklik kullanımının çok fazla zaman aldığını düşünüyorum	**1**	**2**	**3**	**4**	**5**
4. Artırılmış gerçeklik uygulamasının nasıl kullanılacağını öğrenmenin uzun süreceğini düşünüyorum.	**1**	**2**	**3**	**4**	**5**

Bölüm H: Uygulama Bilgisi

Uygulama bilgisi ile ilgili aşağıdaki ifadelerin her biri için lütfen yanıtınızı buna göre derecelendirin.	Uygulama Bilgisi				
	Kesinlikle Katılmıyorum	Katılmıyorum	Nötr	Katılıyorum	Kesinlikle katılıyorum
1. Artırılmış gerçeklik uygulaması hakkında kendimi çok bilgili hissediyorum.	**1**	**2**	**3**	**4**	**5**
2. Bir arkadaşım bana artırılmış gerçeklik uygulaması hakkında soru sorsa, ona bunu nasıl kullanacağı hakkında tavsiyede bulunabilirim.	**1**	**2**	**3**	**4**	**5**
3. Artırılmış gerçeklik uygulaması kullanımını başkalarına anlatabilme yeteneğim konusunda kendime çok güveniyorum	**1**	**2**	**3**	**4**	**5**

APPENDIX 3. Harman's Single Factor Analysis (Study 1)

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11,443	32,693	32,693	10,927	**31,219**	31,219
2	4,637	13,250	45,943			
3	3,555	10,158	56,101			
4	3,149	8,997	65,099			
5	1,852	5,292	70,391			
6	1,376	3,931	74,323			
7	1,303	3,722	78,045			
8	,913	2,609	80,654			
9	,599	1,711	82,364			
10	,580	1,658	84,022			
11	,493	1,407	85,429			
12	,485	1,385	86,814			
13	,421	1,202	88,016			
14	,395	1,128	89,144			
15	,379	1,082	90,227			
16	,315	,901	91,128			
17	,299	,854	91,982			
18	,291	,833	92,815			
19	,264	,754	93,569			
20	,243	,695	94,264			
21	,221	,631	94,895			
22	,202	,576	95,471			
23	,195	,557	96,028			
24	,178	,509	96,537			
25	,167	,476	97,013			
26	,157	,450	97,463			
27	,145	,415	97,878			
28	,122	,347	98,225			

29	,119	,339	98,565
30	,104	,296	98,861
31	,097	,276	99,137
32	,090	,257	99,394
33	,081	,232	99,626
34	,073	,210	99,836
35	,057	,164	100,000

Extraction Method: Principal Axis Factoring.

APPENDIX 4. Harman's Single Factor Analysis (Study 2)

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15,529	44,368	44,368	15,012	**42,890**	42,890
2	4,058	11,593	55,961			
3	3,131	8,945	64,906			
4	2,078	5,938	70,844			
5	1,437	4,105	74,949			
6	1,060	3,027	77,976			
7	,796	2,274	80,250			
8	,678	1,938	82,188			
9	,549	1,568	83,756			
10	,497	1,421	85,177			
11	,438	1,251	86,428			
12	,428	1,222	87,650			
13	,390	1,113	88,763			
14	,337	,963	89,726			
15	,314	,896	90,622			
16	,294	,840	91,463			
17	,276	,790	92,253			
18	,265	,757	93,009			
19	,255	,730	93,739			
20	,242	,693	94,432			
21	,229	,654	95,086			
22	,201	,574	95,660			
23	,185	,530	96,190			
24	,176	,503	96,693			
25	,162	,462	97,155			
26	,146	,418	97,573			
27	,135	,386	97,959			
28	,120	,344	98,303			

29	,113	,323	98,626
30	,105	,301	98,927
31	,097	,278	99,205
32	,083	,237	99,443
33	,071	,203	99,646
34	,067	,191	99,837
35	,057	,163	100,000

Extraction Method: Principal Axis Factoring.

CURRICULUM VITAE

Şahnoza KAYADİBİ graduated from the Faculty of Economics and Management Sciences at the International Islamic University Malaysia, where she completed her undergraduate studies (2013). Following that, she pursued a Master of Science degree in Marketing (2017). While initially starting her Ph.D. in Business Administration in Malaysia, she later transferred to Karabük University in Türkiye. She is a driven and dedicated individual with a strong passion for artificial intelligence, higher education, and cause-related marketing studies. Furthermore, she has actively engaged in various international conferences, participating in Malaysia, Türkiye, India, the USA, and Indonesia. She had the opportunity to present her research paper at conferences held in Türkiye and Malaysia. Finally, with this thesis, she completed her Ph.D. study at Karabük University, Faculty of Business Administration.