THE DETERMINANTS OF AUGMENTED REALITY(AR) MARKETING AFFECT PURCHASE INTENTION IN THE BEAUTY AND MAKEUP INDUSTRY AMONG GEN Z IN MALAYSIA.

BY

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DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.

(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.

(3) Equal contribution has been made by each group member in completing the FYP.

(4) The word count of this research report is 9078 words.

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PREFACE

Augmented Reality have been developed and utilized in different fields in the past. However, more and more company applied it into kind of their marketing strategy or used it as business strategy in the current year. Especially those retail company start to create the mobile social media trend by using Augmented Reality features such as filters to create the buzz marketing campaign through online. However, the focus of study in this field was limited due to the geographical or demographic focus. Thus, this study will investigate the factors that may influence behaviour of customer and seeing whether the knowledge or attitude towards the acceptance of new technology might play important role. Therefore, the topic “The determinants of Augmented Reality(AR) Marketing affect purchase intention in the beauty and makeup industry among Gen Z in Malaysia” is developed.

ABSTRACT

Since the advancement of technology, the ways that marketers use to connect with customers between the product and customer have been changed. Although few studies have examined the relationship between a customer's purchase intent and a company's marketing strategy. Therefore, this research discusses the topic “The determinants of Augmented Reality (AR) Marketing affect purchase intention in the beauty and makeup industry among Gen Z in Malaysia.” by applying Technology Acceptance Model (TAM) to explore it. In this study, the potential factors that could affect a consumer's decision to use augmented reality (AR) to evaluate a product are critically explored. With that, the five variables proposed to this study are perceived ease of use, safety and privacy, perceived value, interactivity and purchase intention. The research instrument (a questionnaire) was given to the 384 Gen Z people who are the target respondents. Additionally, the SPSS Analysis Tool was used to look at the research data that was collected from the research tool. Reliability tests and regression models were employed to ascertain the connections between various variables. In summary, researchers and marketers can use these findings to improve the efficacy of augmented reality (AR) marketing and increase prospective customer intent to purchase.

CHAPTER 1 RESEARCH OVERVIEW

1.0 Introduction

Research Background

As a result of technology developments, a wide range of powerful, engaging, and widely adopted technologies have been created that offer unique, amusing, and emotional brand and purchasing experiences (Watson et al., 2018). Marketers have used technology to market their products through the internet to stay abreast of the dynamic and rapid change of technological environment in today's world (Bala & Verma, 2020). Digital marketing leverages technology to enhance marketing initiatives, leading to a more profound comprehension of customers' needs and enabling more effective responses to those needs(Chaffey, 2013), including augmented reality (AR), artificial intelligence (AI), video marketing, chatbots, voice assistants, and visual search(Kotane et al., 2019).These technologies have already integrated into our lives, even though we may not be aware of their presence, especially augmented reality.

AR technology has recently been applied in several industries such as tourism (Yung & Khoo, 2019; Loureiro et al., 2020), fashion and beauty (Kim & Cheeyong, 2015; Wang et al., 2022) and sport (Sawan et al, 2020; da Silva et al, 2021). To improve the customer experience when shopping online or consuming services, the virtual environment inside the "screen" enhances the interaction between the customer and the product. Augmented Reality (AR) extends beyond display technology and has the potential to enhance all human sensory, however, some AR applications may involve eliminating real objects from the perceived environment while adding virtual objects (Azuma, 2001).

The term "augmented reality" (AR) means a real-time perspective of the real world that has been improved by the addition of digital material that was created virtually. (Whang et al., 2021). 3D technology that offers a 360-degree vision of virtual goods expands into AR. However, the key distinction between 3D and AR is that the latter incorporates

the simulated good into the real world of the user (Bonetti et al., 2018). Hence, AR technology is known as a technology that "integrates both actual and computer-generated digital content into the user's perception of the tangible real world so that they are perceived as one environment" (Bonetti et al., 2018).

In the context of marketing, augmented reality (AR) has become a useful interactive technology that is increasingly used in the retailing industry and frequently created in the form of smart device apps (Javornik, 2016). By using AR marketing, marketers overlay digital content such as text, images, and video on real-world objects and places to develop an effective marketing strategy, such as product packaging, digital screen, geo-location and magic mirrors, customers may experience these mixed realities through digital displays or gadgets (Scholz & Smith, 2016). Through Augmented Reality (AR) Marketing, businesses can deliver products to consumers, offering them an engaging chance to interact with a company, service, or good (Yaoyuneyong et al., 2016). Thus, there is a rising number of large companies embracing AR in their marketing strategies such as Adidas, Nike, Zara, IKEA, H&M, and the luxury fashion brand Burberry provides AR apps to their customers in order to interact with the products (Wang et al., 2022).

Filter marketing, which involves the real-time enhancement of a person's face, is a prominent form of augmented reality marketing. This involves using the camera of a smart device to monitor the user's facial features and then adding a realistic virtual overlay that can be interacted with in real-time (Javornik et al., 2021; Yim & Park, 2019). Brands and social networks (SNs) are increasingly using AR filters to enhance the sensory experience and provide unique user experiences (Cowan et al., 2021). Social media apps likes Snapchat (Ritschel, 2018), Instagram(Rao,2017) and Facebook Messenger(Constine, 2018) have quickly adopted the trend of AR filters. Farace et al.(2017) proclaimed that AR filters can be used by brands and social networks in order to build the relationship with consumers and promote consumer-generated stories through images, resulting in increased engagement and optimistic electronic word-of-mouth (eWOM). A report by Deloitte (2021) found that the number of frequent AR

users on social media is expected to reach 2.2 billion by 2022. Companies are leveraging AR filters to engage with customers, such as Armani Beauty's lipstick try-on on Wechat, Dior's sunglasses try-on on Instagram, Chanel's AR Snapchat lens campaign celebrating their iconic perfume and Kylie's cosmetics's Instagram Stories AR filter (Javornik, 2021). Given that Snapchat users capture over 4.5 billion AR photoshoot daily, the potential for AR filters as a medium for communication and interaction holds significant promise. (Deloitte,2021).

The retail environment has been completely changed by smart retail and augmented reality technology, which has also greatly enhanced customers' quality of life (Nikhashemi et al., 2021). To support these considerations and comprehend its impacts on consumer behaviours, theoretical and empirical insights must be strengthened as consumer use of augmented reality technology during shopping rises (McLean and Wilson, 2019). When an individual engages in a behavior, their attitude will determine their intention.

1.1 Research Problem

Despite the fact that mobile augmented reality (MAR) is growing rapidly, some AR features that were developed for e-commerce purposes do not exist anymore. According to a tech trend survey that was conducted by Oppotus, there are58 % of respondents in Malaysia were conscious of Augmented reality(Statista, 2023). Besides, according to Statista's 2023 report, the adoption of augmented reality and virtual reality among users in Malaysia stands at a penetration rate of only 38.2%(Statista, 2023). As proof, this can assume low customer acceptance of the technology or poor business performance. In order to contribute benefit to businesses from this specific technology and grow their client base, the company must be conscious of whether these systems directly support and enhance customers' shopping behaviour (Raska & Richter, 2017). **Therefore, there is a need to determine the influence that contribute to the success or failure of AR applications in e-commerce.** Moreover, marketing academics have also recognized the need for AR

study. Particularly, the existing research explains how AR feature influences the decision making of (Hilken et al., 2017; Javornik, 2016); variables that affect in-app purchases in AR gaming apps (Rauschnabel et al., 2017); and shows reasons consumers engage with branded AR (Huang and Hsu Liu, 2014; Poushneh, 2018). However, **these research are limited to only customer behaviour or the development of technology development. There is a lack of related studies on how the perceived value of AR filters, such as the novelty and uniqueness of the filter, affects customers' purchase intention especially in malaysia.**

Undoubtedly, augmented reality (AR) was proposed by researchers as the innovative concept for marketing strategy (Chylinski et al., 2020). Kunkel et al. (2016) summarises that augmented reality (AR) may provide brand-new opportunities for interacting with goods and services.With the incorporation of virtual aspects into the physical world, it can enhance the user experience, enhance client information processing, and improve product presentation (Fan et al., 2020). Hence, it was started to be adopted by different industries, especially the fashion and beauty industry as a marketing channel connecting to customers. It may present businesses with chances to increase recognition, highlight features, and arouse interest in their product offerings. As a result, customers can also see how certain product features are combined with other environmental factors, which helps them to do decision making (Dacko, 2016). Hence, it is being used for marketing practice increasingly as a tool. Despite there are numerous advertisers and marketers are enthusiastic about exploring augmented reality (AR) marketing as a potential avenue for their product's future, but the lack of extensive case studies accompanying the widespread acceptance of this phenomenon and the anticipated growth in its significance within the industry highlight the need for a timely validation of all the results associated with this heuristic marketing approach. (ABI Research, 2019). As it becomes more widespread, **it is now necessary to understand the profound determinants that augmented reality has on customer decision making in order to influence it more effectively in their interests** (Yadaz et al, 2014).

Numerous research studies have been conducted on subjects related to purchase intent, the interplay of cognition, affect, and conation, the roles of consumer control, and augmented reality, each employing various conceptual theories. However, there are limited studies to discuss how AR features (e.g.filter) affects purchase intention by using the TAM model. Besides that, there is a **limited amount of research to link the topics with the group of Generation Z in Malaysia since this group has become a new emerging group that has purchasing power and high acceptance to new technology.** **Research Objectives**

General Objectives

The primary objective of this study is to specify the factors that influence the purchase intention in the beauty and makeup industry of Malaysia's Gen Z regarding Augmented Reality (AR) marketing. AI technologies are strengthening Generation Z's social media purchase intent. Since Malaysia continues to embrace globalisation, we must analyse its potential growth rate in order to assist with technology adoption. The results can help companies and marketers better reach and connect with Generation Z online using AI tools, ultimately leading to customer satisfaction. The main objectives are:

Specific Research Objectives

1. To investigate the impact of AR's perceived ease of use on the online purchasing intentions of Malaysian Generation Z.
2. To investigate the impact of AR's security and privacy on the online purchasing intentions of Malaysian Generation Z.
3. To investigate the impact of AR's perceived value on the online purchasing intentions of Malaysian Generation Z.
4. To investigate the impact of AR's interactivity on the online purchasing intentions of Malaysian Generation Z.

Research Question

1. Does the AR's perceived ease of use impact on the online purchasing intentions of Malaysian Generation Z?
2. Does the AR's security and privacy issue impact on the online purchasing intentions of Malaysian Generation Z.?
3. Does the AR's perceived value impact on the online purchasing intentions of Malaysian Generation Z?
4. Does the AR's interactivity impact on the online purchasing intentions of Malaysian Generation Z?

1.2 Research Significance

Marketing with augmented reality (AR) is an innovative and unique strategy. Its marketing effectiveness has been criticised though because it has not yet become ready to replace more established marketing strategies. Since Malaysia's technology is still developing, this research assists in defining the factors that influence buying behaviour while AR performs its duties in the make-up industry. Consumers may doubt the reliability of a product or firm; therefore, this research aims to raise their awareness about augmented reality (AR) and their trust in marketers who use AR to promote. Utilisation of the AR and social media significantly influence customers' decisions and purchase behaviour in the retailing of cosmetics nowadays. According to the Netherlands Report 2021, the number of followers and professionals using augmented reality is extraordinary. They are enquiring and taking their time to learn. As augmented reality evolves, it will change our lives and society by altering how we see and interact with the world around us (Snap Consumer AR Netherlands Report 2021, 2021). Studies also suggest that Augmented Reality marketing aids consumers in making better-informed decisions, thus mitigating the expenses incurred due to regrettable purchases, as it enables individuals to explore products from fresh and innovative perspectives (Miladinovic et al., 2018). With this research, practitioners will be capable of

strengthening their competitive advantages by providing better augmented reality (AR) services and by developing additional techniques for enhancing Generation Z's desire to purchase online. According to the research significance, our study's goal is to help fill a gap in the field of beauty and cosmetic's augmented reality research. In this study, we examine the factors that influence the marketing of augmented reality technologies on consumer purchasing intention. While augmented reality marketing in the beauty and cosmetics industry is undoubtedly a new phenomenon in Malaysia, as a multicultural country with equally widespread consumer shopping behaviour, marketing executives are uncertain as to how AR technologies with a focus on retail may influence customer behaviour. With this empirical technique, objective learning will increase the state of the art in fields such as AR technology advancement, AR user critical thinking, and AR marketing.

CHAPTER 2 LITERATURE REVIEW

In this chapter, we will examine the five independent variables (ease of use of AR feature (EU), safety and privacy (SP), perceived value (PV), informativeness (IF), and interactivity (IR), as well as the dependent variable (purchase intention). In addition, the conceptual and theoretical framework proposed includes a discussion of the relationship between variables.

2.1 Underlying Theories

2.1.1 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was introduced by Fred Davis in 1986 for his doctoral dissertation. TAM model is an adaptation of the Theory of Reasonable Action designed specifically for modelling user adoption of information systems and technologies (Fayad & Paper, 2015). The purpose of Davis's (1989) TAM is to clarify the core elements that impact user actions in relation to various end-user computing technologies and user demographics. (Davis, 1989a). Therefore, Davis presented the following constructs in the initial version of the TAM: attitude, behavioural intention to use, perceived usefulness (PU), and perceived ease of use (PEOU). PU and PEOU are two of the constructions which contribute to the formation of an end-beliefs user's

regarding a technology. These beliefs anticipate the user's final attitude towards the technology, which in turn predicts the technology's adoption (Ma & Liu, 2011). This study extends TAM with additional concepts; privacy and security issues and their effect on users' trust in accepting and utilizing AR marketing services. We propose that this variable will have a direct influence on the AR marketing of beauty and make up industry as AR interactive technology becomes more prevalent in the Metaverse, it is inevitable that more personal data and data interfaces will be generated. AR collects substantially more information about user identities and activities than social media networks or other forms of technology. It has led to user concerns and problems(Chen et al., 2022). Perceived usefulness is defined as the degree to which a person accepts the use of information technology in order to enhance performance(Davis, 1989b). While perceived ease of use is the extent to which a given system is devoid of effort and can be shown to be efficient and effective. PEOU is also defined as a judgement of the efforts needed to handle a system or technology product. In other words, users of new technology can complete some tasks simply when weighing the necessary effort against the anticipated advantages (Baharin et al., 2015). Behavioural intention and attitude towards use are two other TAM characteristics. However, our research suggests that perceptions of usefulness and ease of use may not influence the attitude of a consumer who attempts to use the AR services offered by a company, as a previous study found that perceptions of usefulness of the IS did not distinguish between individuals with a positive or negative attitude toward using the IS (Bajaj & Nidumolu, 1998). Behavioural intention determines IS system utilisation and technology acceptance. In general, using the theoretical definition of information systems and technologies offered by the studies as the basis for the TAM will produce more accurate results when used to anticipate user acceptability and willingness connected to e-shopping (Çelik & Yilmaz, 2011).

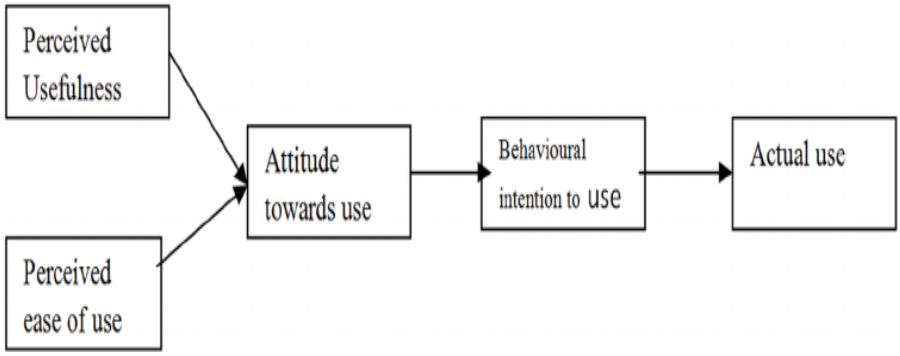

Figure 2.1 : TAM Model
Source: Davis, 1989

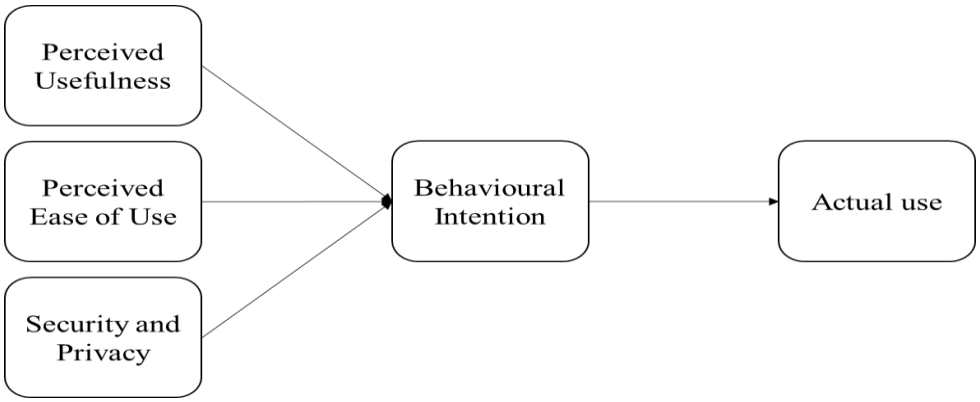

Figure 2.2 : Revised TAM Model

2.2 Review of Variables

2.2.1 Purchase Intention

Purchase intention is a type of consumer behaviour defined by Kotler and Keller (2016) as the inclination to obtain a product is driven by one's longing, the actual experience of using it, and the aspiration for the said product. The subject of the consumer's intention to make a purchase is concerned with the consumer's ability to make a purchase as well as the requirements of the consumer. The consumer has a fundamental requirement for a variety of the basic goods that are required for living (Abbas et al., 2020). Intention to purchase is a type of decision that investigates why a consumer purchases a particular brand. Constructions like "considering" buying a product and "anticipating" buying a product help to define the intentions of buying (Akkucuk & Esmaeili, 2016). Purchase intentions are forward-thinking plans to make certain

purchases of products or services in the future. Nevertheless, these plans are not always carried through because they depend on the capability of the individual (Rahim et al., 2016). Refer to empirical data, AR improves perceived diagnosis, reduces psychological distance and perceived risk, and increases online purchase intentions (Uhm et al., 2022). Due to the anticipated profits, online sellers are interested in comprehending the factors that can increase customers' purchase intent.

2.2.2 Perceived ease of use

Perceived ease of use refers to the degree to which an individual believes that employing a specific technology will be simple. This notion is derived from the definition of "ease," which is "freedom from difficulty or exertion." (Davis, 1989b). From a different perspective, perceived ease of use refers to how user-friendly a website or social networking platform is in terms of management, competition, operation, and access to data and information on demand (Nuseir & Elrefae, 2022). Wilson et al. (2021) defines perceived ease of use in the context of the use of new technology as the ability for customers to express their opinion regarding how challenging and time-consuming it is to acquire a new system. The program with the highest perceived ease of use wins out over other programs with comparable capabilities. Additional research has revealed that ease of use of the technology is inversely connected with user trust in a system. (Ikram et al., 2019).

2.2.3 Security and Privacy

The digital security and privacy industry has begun to identify and address the severe security, privacy, and safety issues posed by developing augmented reality technologies (Lebeck et al., 2018). For example, an individual's augmented reality device could be compromised, enabling malicious actors to observe their actions and interactions within the environment. According to (Udo, 2001), security is the safeguarding of data against unintentional or deliberate disclosure to third parties, illegal alterations, or destruction. The phrase "privacy" indicates the freedom of individuals and organisations to choose when, how, and how much information about

them is to be shared with others. In addition, from the perspective of another author, there is an informational dimension of privacy, which refers to intellectual consumption activities in which thought should be unrestricted. Nevertheless, there is also a spatial dimension, which represents the traditional autonomy zone enjoyed by activities in private spaces (Guarda, 2008). However, "privacy protection" is a vague idea. The amount of information that should be disclosed during a specific transaction may be influenced not only by the conflicting interests and viewpoints of the parties involved, but also by the trade-offs that a single person may have to make between her obligation to disclose and her obligation to keep certain categories of personal information private (Acquisti, 2001).

2.2.4 Perceived Value

Perceived value is a person's overall assessment of how useful a product is, based on what they get from it and what they have to give in exchange (Faqih, 2016). Thus, the perceived usefulness of the product may have a positive effect on the product's perceived value. (Yu et al, 2017). It describes how customers evaluate the quality of a product or service compared to its price. This evaluation can positively affect their levels of satisfaction. (Hult et al, 2019). It can be defined as the trade-off between costs sacrificed and benefits earned before the customer makes a decision (Cranmer et al., 2020). However, when making purchase decisions customers will not only simply compare benefits and cost (Chopdar and Balakrishnan, 2020), but also other factors such as time consumption, convenience and risk (Wang and Wang, 2010). Informativeness can be defined as the usefulness and relevant product information that is provided to assist consumers in making informed decisions when making a purchase (Lim and Ting, 2012; Rese et al., 2014). It may be kind of the element to minimise the cost of time spent on capture or searching as a product in order to increase their perceived value on using AR feature. The studies from Qin et al. (2021) proclaimed the perceived value of Augmented Reality to customers, which is that the efficiency of integrated shopping experience is the crucial factor to affect customer’s response. Hence, customer satisfaction (Samudro et al, 2020), loyalty (Kusumawati & Rahayu,

2020), and even purchase intention (Shariq et al, 2011) are dependent on the subjective perceived value derived from customer's experiences.

2.2.5 Interactivity

When there is a direct and immediate exchange of responses, the interaction in a mediated environment is considered to be interactive (Newhagen & Rafaeli, 1996). The interactions that take place between salespeople and customers in physical environments are crucial factors that influence the choices made by customers when purchasing products or services(Edmondson et al., 2019). Some researchers clarified that interactivity is one of the most significant features of AR apps (Javornik, 2016). Interactivity can be classified into three types which are user-to-user, user-to-content and user-to-system(McMillan, 2002). Its ability of interactive features to fully engage consumers in a mental state that ultimately leads to observable behavioural reactions (Sundar et al., 2015) allow users to share product information and receive feedback from friends on social media platforms. Additionally, users can easily navigate to the company's website to view product details and make purchases. AR feature's interactivity may directly or indirectly impact customer shopping experience. Additionally, certain studies have revealed that there is a positive correlation between the degree of interactivity and both the perceived utility and perceived simplicity of use (Coursaris & Sung, 2012; Pai & Yeh, 2014). Therefore, in this study we consider interactivity as an element of perceived usefulness.

2.3 Proposed Theoretical / Conceptual Framework

Study is currently examining how AR technology affects consumer buying behavior within the beauty industry, based on a review of relevant theories and literature. This study considers four different factors that may affect consumer behaviour, including the ease of using the augmented reality feature, concerns around safety and privacy, perceived value and interactivity. Thus, the framework is proposed as below:

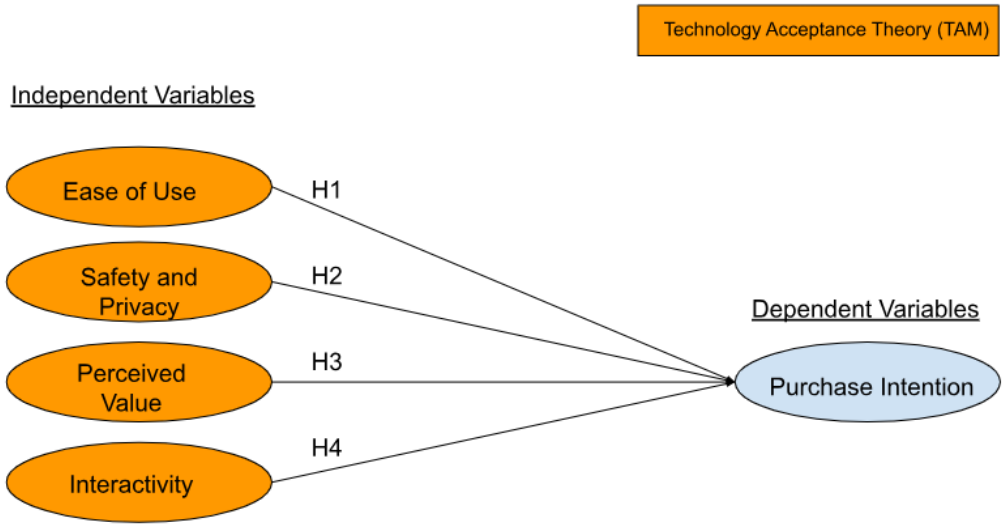

Figure 2.3: Proposed Conceptual Framework

This study is focus on determine the usefulness of the AR feature in marketing and explore how the feature influences the customer's purchase intent in the beauty and cosmetics industry.

2.4 Hypothesis Development

2.4.1 The relationship between perceived ease of use of AR feature and purchase intention

According to the (Miladinovic et al., 2018)'s findings, augmented reality technology boosts consumers' willingness to make online purchases and has a beneficial impact on their product purchase intentions. In other words, if consumers feel the ease of undertaking online purchases, they will develop a favourable attitude towards online shopping (Zuelseptia et al., 2018). From the AR technology, study discovered that attitudes towards augmented reality were not significantly affected by perceived ease of use, but that stated attitudes towards using augmented reality positively affect behavioural intention (Ghobadi et al., 2023). Perceived ease of use has a considerable impact on online purchasing intention. Therefore, technologies perceived as ease to use will encourage consumers to make online purchases (Moslehpour et al., 2018). This finding is enormously related, as online consumers indicate that the conveniences of

the use of augmented reality facilitate accurate product decision making in the beauty and cosmetics industry.

H1: Perceived ease of use of Augmented reality (AR) feature will positively affect Malaysia Gen Z's purchasing intention to consume beauty and make up products.

2.4.2 The relationship between safety and privacy of AR feature and purchase intention

Notwithstanding the source, security and privacy is a fundamental concern in electronic commerce. The greater consumers' perception of the security and privacy of online transactions in an online store, the higher their repurchase intent. When consumers feel protected by the security of their data, they are unconcerned about the online store's safety and will attempt to access and purchase products from it. In addition, when consumers are aware that their privacy is protected, they will not be concerned that their privacy will be disclosed or exploited, and they will keep purchasing at the same online store (Rahmisyari et al., 2020). Although advanced from a security and privacy perspective, augmented reality systems do not protect the user's privacy by preventing unauthorised access to or viewing of information. As a result, they pose a security and privacy risk (Bonetti et al., 2018). There are several potential concerns associated with AR technologies, and existing research has mostly addressed a small number of security and privacy-related issues (Lebeck et al., 2018). Issues related to the security and privacy of augmented reality are still active research topics, and we anticipate that these studies will bring greater clarity to admittedly unclear areas.

H2: Security and privacy of Augmented reality (AR) will positively affect Malaysia Gen Z's purchasing intention to consume beauty and make up products.

2.4.3 The relationship between perceived value from AR feature and purchase intention

The idea of perceived value refers to how much utility or benefit a customer feels they will obtain from a product or service, depending on their beliefs of what they would acquire in return for it (Zeithaml, 1988). In the context of mobile applications, Wang (2014) discovered that perceived value was a crucial factor in consumer satisfaction and purchase intent. The level of informativeness plays a crucial role in affecting the customer's perceived value that AR feature related to online shopping, as it enables the provision of valid arguments and helps to decrease the perceived risks associated with it (Forsythe et al. 2006).When it comes to online shopping, consumers tend to be less involved and committed when they are first looking at products and considering which ones to include in their options for purchasing. However, once they have decided to make a purchase, they become more dedicated and put more cognitive effort into their decision-making process (Wolfinbarger & Gilly, 2010).Furthermore, earlier research found that shopping convenience and decreased search costs increased customers' perceived value (Hult et al., 2019; Chopdar and Balakrishnan, 2020). When adopting AR feature, Qin et al. (2021) discovered that perceived value positively increases consumer purchase intention but is mediated by satisfaction. Besides that, Wang et al.(2021) found that when users of AR technology in shopping environments perceived the aesthetics in a positive manner, it resulted in a stronger sense of being in a real shopping environment and increased the purchase intention. In our study, we defined perceived value as the time spent by consumers in exploring products that match their aesthetic preferences.

H3: Perceived value will positively affect Malaysia Gen Z's purchasing intention when applying the augmented reality feature before purchasing beauty products.

2.4.4 The relationship between interactivity of AR feature and purchase intention

According to previous study on AR, the vividness, interactivity, and better display forms are general media properties of AR(Hilken et al., 2018; Javornik, 2016).AR features encourage engagement, which entertains and immerses customers, ultimately leading to good emotional consumer responses such as purchase intention (Gaberli, 2019). Yim et al. (2017) discovered that media usefulness and enjoyment were impacted by both interactivity and vividness when experienced through immersion. These factors ultimately influenced the attitude towards augmented reality (AR), which had a significant influence on purchase intention. Additionally, the level of interactivity also has a noteworthy effect on cognition, with both direct and indirect impacts on affection(Haile & Kang, 2020) thus affecting customers' behavioural intentions. Hence, based on a review and analysis of relevant literature, we propose the following research hypothesis that before purchasing beauty tools or cosmetics, customers using highly interactive AR features can gain a more understanding of product information and preview makeup effects in advance, thereby increasing their purchase intention.

H4 : Interactivity will positively affect Malaysia Gen Z's purchasing intention when applying the augmented reality feature before purchasing beauty products.

CHAPTER 3 METHODOLOGY

3.1 Research Design

Research design is kind of a blueprint that giving a guideline on how a study will conduct from the research purpose or questions through the outcomes (Abutabenjeh & Jaradat, 2018). The methodology blueprint incorporates a quantitative approach, which involves gathering data that can be quantified and then analyzing this data using mathematical techniques. Quantitative research is also beneficial in quantifying opinions, attitudes, and behaviors in order to figure out how the entire population feels about a particular issue. This is implemented because data collection tools like questionnaires and tests allow for the measurement of a wide range of phenomena. In short, quantitative research looks for quantities in something and establishes research numerically (Kamolson, 2007). In this study, descriptive research was chosen because it permits researchers to both quantify and define the basic characteristics of a data set.

3.2 Sampling Design

3.2.1 Target Population

A target population consists of all the individuals who satisfy the research's specified criteria (Willie, 2022). The target population for this research included all members of Generation Z in Malaysia between the ages of 16 to 25. We chose this age range as our target demographic because this generation grew up with the internet and social media, with some of the eldest now graduating from college and entering the workforce. They are distinct for their heightened creativity, self-expression, and their distinct connection to the prevailing digital culture. Supposingly, Gen Z should involve the minority, 7- to 15-year-olds, but we discover that their applications will cause problems for our research, such as gatekeeper ethics. Due to the imbalance of power between minors and adult researchers, research ethics commissions must serve as gatekeepers, but parents'

role as gatekeepers in research participation should not be overlooked (Facca et al., 2020).

3.2.2 Sampling Frame and Sampling Location

A sampling frame is the collection of primary materials from which a sample is selected. The definition also includes the feature of sampling frames, which is to provide a method for selecting the survey respondents from the target population (Turner, 2008). Since this technology is still in the adaptation stage and a sampling frame is not needed for this study, it would be very difficult to gather data and information on a significant proportion of Malaysia's Generation Z. Due to the difficulty of locating participants during the stage of AR adaptation, the online platform, or public serves as the collection point for questionnaires.

3.2.3 Sampling Elements

This study will examine Malaysia's generation Z, which ranges in age from 16 to 25. All individuals who have used augmented reality marketing in the beauty and cosmetics industry may qualify as target respondents.

3.2.4 Sample size

According to the Department of Statistic Malaysia, the total population of Malaysia in 2022 is estimated at 32.7 million (Department of Statistics Malaysia, 2023); while according to Tjiptono, F., Khan, G., Yeong, E.S. and Kunchamboo, V. (2020), Generation Z in Malaysia is currently the largest age group representing 29% of the overall population.

Sampling size is essential because determining the correct number of samples is crucial for drawing valid conclusions from research findings (Memon et al., 2020). The strongest explanation for sample size is one that explicitly states the least impact size that is thought to be interesting. Therefore, it becomes possible to design a study with adequate power if the smallest effect size of interest can be determined and decided

upon after thorough consideration (Läkens, 2022). As a result, to calculate the sample size for our investigation, we use Morgan's Sample Size Table. The sample size for 9.57 million counts is 384, according to Morgan's table (Figure 3.2.4).

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	26	140	103	340	181	1000	276	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is Population Size
"S" is Sample Size.

Table 3.1: Krejcie and Morgan Table

3.2.5 Sampling Technique

This step applied to snowball sampling, a form of non-probability sampling. Snowball sampling proceeded with the identification of a small number of injecting drug users who were readily available for recruitment into the cohort. These cohort participants subsequently referred other injecting drug users as potential cohort participants, who in turn suggested more. (Sedgwick, 2013). The researcher began by contacting a single member of Generation Z who has been involved in AR marketing since its youth. Then, this individual was tasked with identifying other members of Generation Z who met the inclusion criteria, namely those who were currently or previously involved in AR

marketing. Depending on their requirement, the researcher then scheduled either a physical or digital questionnaire with the participants.

3.3 Methods for Data Collection

3.3.1 Primary Data Collection Procedures

The data collection is used to interpret the hypotheses of the analysis. This study employed a primary data methodology, which entails collecting data specifically tailored to the research problem, utilizing methods best suited for the research inquiry. Each instance of gathering primary data contributes fresh insights to the existing body of social knowledge. (Hox & Boeije, 2004). Using a questionnaire would be more standardised because it would be delivered to respondents physically or online, and it would be more convenient to collect data using a questionnaire. As a result, survey was chosen as the method of data collection, and 384 sets of survey questionnaires will be distributed to Malaysian Gen Z members who have used augmented reality features in the cosmetics and makeup industry. The unfamiliar augmented reality environment in Malaysia necessitates that we take advantage if one respondent recognises another same-matching respondent; we will ask the respondent to assist us in distributing the questionnaire in order to speed the data collection procedures.

3.4 Research Instrument

3.4.1 Questionnaire Design

To collect data for this research, we use the questionnaire as our research instrument, which will be administered through a Google-Form based online survey. The questionnaire will be written in English and divided into section A and B. Section A will consist of demographic questions that will gather information on respondents' personal details, including their name, email, gender, age, occupation, highest

academic qualification, experience using AR, and the social media apps they commonly use. Section B will contain a total of 25 questions, with each variable contributing five questions that will focus on respondents' responses regarding the relationship between the IVs which are PEOU, SP, PV, and IN and the dependent variable which is PI of this research. This approach will allow us to gather comprehensive data that can be used to analyse the relationship between these variables and provide insights into consumer behaviour in relation to AR technology. A five-point Likert scale will be implemented for the questions in section B, it allows respondent to answer the questions regarding those variables according to the level of agreement that developed by 5 likert scale.

Table 3.2 Research Instrument (Questionnaire)

Constructs	Indicator	Questionnaires	Sources
Purchase Intentions(PI)	PI1	AR feature make me more likely to purchase the product.	Peng et al., 2019
	PI2	AR feature make me more likely to recommend this product.	
	PI3	AR feature make me more likely to try this product.	
	PI4	AR feature make me more willing to purchase the item.	
	PI5	AR feature make me more loyal to this product.	
Perceived Ease of Use (PEOU)	PEOU1	AR feature is very easy to use.	Rese et al, 2021; Papakostas et al, 2021
	PEOU2	AR feature is intuitive to use.	
	PEOU3	It is easy to learn how to use AR feature.	
	PEOU4	Handling the scan function and its elements was easy.	
	PEOU5	My interaction with the AR feature is clear and understandable.	
Safety and Privacy (SP)	SP1	Using AR feature may expose my personal information.	Giovanis et al., 2012; Taddicken, 2014
	SP2	Using AR feature may jeopardise my privacy.	
	SP3	Using AR feature is insecure.	

	SP4	Using AR feature is high risk.	
	SP5	Using AR feature, my personal data will be shared with third parties.	
Perceived Value (PV)	PV1	AR feature provides detailed information about the product.	Cranmer et al.,2020: McLean & Wilson, 2019
	PV2	AR feature provide information that help me in my decision.	
	PV3	Using the AR feature enhances my shopping performance.	
	PV4	Using the AR feature enables me to accomplish shopping tasks more quickly.	
	PV5	Using the AR feature increases my productivity.	
Interactivity (IN)	IN1	AR feature was very interactive with me.	Haile et al, 2020; Whang et al., 2021
	IN2	AR feacture facilitates two-ways communications.	
	IN3	AR feacture facilitates concurrent communications.	
	IN4	While using AR feature, I feel on an equal footing.	
	IN5	AR feature offers me a vivid communication experience.	

3.4.2 Pilot Study

Table 3.3 Reliability Test for Pilot Test

Variable	Alpha Value	Number of Items
Purchase Intention (PI)	0.936	5
Perceived Ease of Use (PEOU)	0.891	5
Safety and Privacy (SP)	0.943	5
Perceived Value (PV)	0.923	5
Interactivity (IN)	0.923	5
Overall	**0.896**	**25**

Pilot study is a preliminary investigation conducted on a small scale to assess the viability of the techniques intended for use in a larger, more rigorous, or conclusive study (Lowe, 2019). The primary goal of a pilot study is to prevent researchers from embarking on an extensive inquiry without a thorough grasp of the proposed methodologies. (Polit and Beck, 2017). Essentially, a pilot study is carried out to prevent the occurrence of a severe flaw in a study that can be time-consuming and expensive (Polit and Beck, 2017). Phiri (2016) states that the sample size for the pilot test should be 10% of the overall sample size for the study, thus 384 respondents in our case. As a result, throughout the pilot study, a total of 38 sets of questionnaires will be delivered.

3.5 Proposed Data Analysis Tool

In this study, we interpret the data using the Statistical Package for Social Science (SPSS) software, which is commonly used in the research fields of marketing, healthcare, and education (Ong & Puteh, 2017).

3.5.1 Descriptive Analysis

Descriptive analysis involves the collection and representation of statistical data that reflects objective phenomena and processes. By summarising and analysing the data, it provides a comprehensive understanding of the common quantitative characteristics that are representative of the objective phenomena (Jaiswal, n.d.), including central tendency, variability, and distribution meanwhile it can be performed in the form of tables, graphs, charts, or written reports (Smith, 2021).

3.5.2 Internal Consistency Analysis

Internal consistency analysis is a statistical technique for determining the dependability of a research instrument or questionnaire. It evaluates the reliability of a data set by ensuring that each component measures only one aspect of the construct, and using multiple factors to gather information about a particular construct increases the data set's reliability(Hajjar, 2018). However, Cronbach's alpha is a statistical technique used to evaluate the level of internal consistency or reliability of tests and instruments used in research, thereby demonstrating their sufficiency. (Glen, 2016).

Table 3.4: Rule of Thumb on Cronbach's Alpha

Cronbach's alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

Source: Glen (2016)

The list indicates that a high value of alpha in a test may suggest that the questions in the test are strongly related to each other. However, the alpha coefficient is also influenced by the number of questions in the test. A greater number of questions can lead to a higher alpha, while a smaller number of questions may result in a lower alpha value. Then, If the alpha score is less than 0.5, it indicates that the test is not reliable. On the other hand, if the alpha score exceeds 0.95, it suggests that there is redundancy in the responses provided in the test.

3.5.3 Inferential Analysis

3.5.3.1 Multiple Regression Analysis

The utilization of a multiple regression model is a statistical methodology utilised to examine the association between a reliant variable and numerous independent variables. (Grant, 2021).Not only that, it also assesses the magnitude of the dependency between a single dependent variable and multiple independent variables, simultaneously constructing a linear equation to portray these associations(Uyanık et al, 2013).

The estimated regression model is:

$$y= \beta_0+ \beta_1x_1+ \beta_2x_2+...+ \beta_nx_n$$

Hence, a multiple regression equation is generated as :

$$PI= \beta_0+ \beta_1(PEOU)+ \beta_2(SP)+ \beta_3(PV)+ \beta_4(IN)$$

Whereby,

PI = Purchase Intention that affected by AR

β0 = constant

PEOU= Perceived Ease of Use

SP = Safety and Privacy

IN = Interactivity

CHAPTER 4 DATA ANALYSIS

4.1 Descriptive Analysis

4.1.1 Respondents' Demographic Profile

Table 4.1 : Respondents' Demographic Profile

Descriptive	Frequency (f)	Percent (%)
Gender		
Female	214	55.7
Male	170	44.3
Age		
16-20 years	129	33.6
21-25 years	255	66.4
Occupation		
Beauty consultant	1	0.3
Civil servant	2	0.5
construction	1	0.3
Educator	1	0.3
Enterprise staff	50	13
executive	1	0.3
Freelancer	15	3.9
hairdresser	1	0.3
Self-employed	21	5.5
Student	289	75.3

technical maintenance worker	1	0.3
tuisyen teacher	1	0.3
Highest academic qualification		
Bachelor's Degree	233	60.7
Diploma	29	7.6
Master's degree or higher education	6	1.6
SPM/ STPM	116	30.2
Do you have experience to used or heard AR feature (E.g.: AR filter, 3D imagery AR)?		
Yes	384	100

Table 4.1 shows the analysis of the respondent's demographic profile from 384 respondents in frequency and percentage analysis. According to the table, more than half of respondents are female with 55.7% and the male respondents have only 44.3%. The majority with 66.4 percent of respondents are between 21 to 25 years old. Regarding occupations the majority of respondents (75.3%) are categorized as students. Given that the targeted response group is on Generation Z, a significant number of participants, around 60.7%, hold a bachelor's degree as their highest educational qualification, followed by 30.2% having completed SPM or STPM. The data collection process employed the snowball method to target individuals with familiarity or experience in using AR features. Consequently, the analysis reveals that all respondents possess AR experience.

Table 4.2: Internal Consistency / Reliability Analysis

Variable's Name	Alpha Value	Number of Items
Purchase Intention(PI)	0.945	5
Perceived Ease of Use (PEOU)	0.951	5
Safety and Privacy(SP)	0.947	5
Perceived Value(PV)	0.939	5
Interactivity(IN)	0.938	5
Overall	**0.971**	**25**

Cronbach's alpha analysis is a statistical approach used to assess the level of reliability or consistency, as well as to demonstrate that the adequacy of tests and scales (e.g. likert scales) developed or applied for research projects (Glen, 2016) According to Glen (2016), when alpha value in between of 0.8 and 0.9 is considered good internal consistency, while the value greater than 0.9 is showing great reliability between the variables. Table 4.2 reveals that the majority of values are more than 0.9, indicating that all variables are excellent.

4.2 Inferential Analysis

Table 4.3 : Summary Result of Regression Model

Multiple R	R Square	Adjusted R Square	Std. Error of the Estimate
0.791	0.626	0.622	2.72782

According to Frost (2019), R Square (R2) is also called the coefficient of multiple determination for multiple regression to evaluate how the scatter of data points fit to the regression line. It implies that the capacity of independent variables (IVs) to clarify

the change in the DV is strengthened while the value of R2 increases. Moore et al. (2013) stated that the regression model is considered moderate effect size when the R2 value is between 0.5 to 0.7. In this study, the R2 value of 0.626 shows that 62.6% of the findings are significant to explain the regression model. As a result, the collective impact of all IVs accounted for 62.6% influence on the purchase intention of Malaysia Gen Z in the beauty and makeup industry.

Table 4.4 : ANOVA TEST

	Sum of Squares	df	Mean Square	F	Significant F.
Regression	4720.101	4	1180.025	158.584	<.001b
Residual	2820.139	379	7.441		
Total	7540.24	383			

Table 4.4 demonstrates that the F- value is 158,584. A larger F - value indicates that the differences between groups are greater than the differences within groups which suggests a significant statistical distinction in the means of the groups (Feldman, 2018). In addition, the value of Significant F (p-value) is less than 0.05 interpret that the variables is statistically significant. As a result, the individual variables (PEOU, SP, PV, IN) of AR marketing can effectively explain the variation in the purchase intention among Gen Z in the beauty and make-up industry when they use the function.

Table 4.5: Coefficients of Equation

	Unstandardized Coefficients		Standardized Coefficients		
	Coefficient Correlation	Std. Error	Beta	t	Significant F.
(Constant)	1.641	0.7		2.344	0.02

Perceived Ease of Use (PEOU)	0.684	0.256	0.133	2.669	0.008
Safety and Privacy (SP)	0.077	0.037	0.083	2.076	0.039
Perceived Value (PV)	0.431	0.058	0.42	7.481	<.001
Interactivity (IN)	0.245	0.055	0.244	4.494	<.001

Using information from Table 4.5, we can analyze both the correlation coefficient and the p-value for each variable. When the p-value < 0.05, we should reject the null hypothesis, indicating that the variable is statistically significant. Conversely, if the p-value exceeds this threshold, we should retain the null hypothesis, and that variable should not be included in the equation's development to ensure the best possible model.

According to the table, all p-values of independent variables smaller than 0.05, signifying their statistical significance. Additionally, the correlation coefficient for each variable quantifies the strength of the linear relationship between them. A higher correlation coefficient implies a stronger connection between the variables.

Therefore, we develop an equation for this study:

$$\mathbf{PI= \beta_0+ \beta_1(PEOU)+ \beta_2(SP)+ \beta_3(PV)+ \beta_4(IN)}$$

And substitute the numerical value,

$$\mathbf{PI=1.641+0.684(PEOU)+0.077(SP)+0.431(PV)+0.245(IN)}$$

Whereby,

PI = Purchase Intention that affected by AR

0 = constant

PEOU= Perceived Ease of Use

SP = Safety and Privacy

IN = Interactivity

CHAPTER 5 DISCUSSION, CONCLUSION, AND IMPLICATIONS

5.1 Discussion of Major Finding

Table 5.1 : Result of Hypothesis Test

Hypothesis	Significant F. (P-Value)	Result
Perceived ease of use(PEOU) of Augmented reality (AR) feature will positively affect Malaysia Gen Z's purchasing intention to consume beauty and make up products.	0.008	Supported
Security and privacy (SP) of Augmented reality (AR) will positively affect Malaysia Gen Z's purchasing intention to consume beauty and make up products	0.039	Supported
Perceived value (PV) will positively affect Malaysia Gen Z's purchasing intention when applying the augmented reality feature before purchasing beauty products.	<.001	Supported
Interactivity (IN) will positively affect Malaysia Gen Z's purchasing intention when applying the augmented reality feature before purchasing beauty products.	<.001	Supported

H1: Perceived ease of use (PEOU) of Augmented reality (AR) feature will significantly affect Malaysian consumers' purchasing intention to consume beauty and make up products.

Findings indicate that PEOU of AR has a significant impact on Malaysian Generation Z's intent to purchase beauty and cosmetics. This study found that users are concerned about the convenience of use of augmented reality (AR) in performing beneficial functions while purchasing a beauty product, including smooth navigation, concise instructions, and a well-designed user interface. When AR is easy to use, it becomes more accessible and enjoyable for a wide range of users. The findings contradict those of the prior study. According to this research, while certain consumers believe that prior experiences with AR features can enhance the convenience of selecting product options,

there is no conclusive evidence to suggest that it fosters consumer confidence in making future purchases through the repeated use of AR features.(Anifa & Sanaji, 2022). However, achieving a high level of ease of use in Augmented Reality (AR) applications is essential to provide users with satisfying purchase experiences.

H2: Security and privacy (SP) of Augmented reality (AR) will positively affect Malaysian Gen Z's purchase intention to consume beauty and make up products.

There is a similar result that SP has positively influence on Malaysian Gen Z' purchasing intention to consume beauty and make up products. The result conflicts with a previous study's assertion that augmented reality creates challenges to functionality and privacy because it requires processing data from the real environment. It emphasizes the classic conflict between privacy and functionality (Roesner, 2021). Hence, it could further explain that security and privacy are critical considerations when developing and using Augmented Reality (AR) applications. As AR technology becomes more integrated into our daily lives, it's important to address potential risks and protect users' sensitive information.

H3: Perceived value (PV) will positively affect Malaysian c Gen Z's purchasing intention when applying the augmented reality feature before purchasing beauty products.

Similarly, PV has a significant influence on Malaysian Generation Z's intent to purchase beauty and cosmetics products. The statement implies that Malaysian Gen Z individuals believe that using AR features to evaluate beauty products provides them with value, they are more likely to intend to purchase those products. The result is consistent with past research that showed perceived value, enjoyment, and informativeness are the building blocks of consumer experience, which in turn affects purchase intention. (Outman et al., 2023). Hence, it can be inferred that Malaysian of Generation Z believe augmented reality (AR) characteristics have significant value for facilitating their efficient evaluation of cosmetic products.

H4: Interactivity (IN) will positively affect Malaysian Gen Z's purchasing intention when applying the augmented reality feature before purchasing beauty products.

The hypothesis shows that IN of AR significantly influences the Malaysian Gen Z' purchasing intention to consume beauty and make up products. This research has discovered that higher interactivity in using AR features for beauty product evaluation enhances the engagement and interaction of Gen Z consumers. This is consistent with the idea that greater interactivity can produce a more engaging and immersive experience, which may influence purchasing decisions positively. However, the result contradicts the previous research. The research indicates that the interactivity of augmented reality is predominantly machine- and space-based, with less emphasis on two-way communication, which is typical of web and mobile interactivity. Thus, AR interactivity may result in consumer responses that differ from web interactivity responses (Javornik, 2016). In the context of our research, it implies that higher interactivity in using AR features for beauty product evaluation enhances the engagement and interaction of Gen Z consumers.

5.2 Implications of The Research

5.2.1 Theoretical Implications

This study provides valuable theoretical insights into "The determinants of Augmented Reality (AR) Marketing's impact on purchase intention in the beauty and makeup industry among Generation Z in Malaysia." The research applies the TAM (Technology Acceptance Model) framework to investigate how the adoption of AR technology influences purchase intent. This theory aims to uncover user intentions regarding purchasing products through augmented reality and their actual usage behavior. To enhance the TAM model's applicability, this study introduces a novel variable - "Security and Privacy" - alongside the established components of perceived ease of use, perceived usefulness, interactivity, and perceived value. The findings of this study indicate that the perceived ease of use, security and privacy, perceived value, and

interactivity have a positive effect on beauty product purchase intent in the context of augmented reality. Specifically, the hypotheses related to perceived ease of use and perceived value positively affecting purchase intention in beauty products via AR are supported.

Notably, prior research had limited exploration into how security and privacy influence purchase intention in beauty products through AR technology. Thus, the inclusion of the "security and privacy" variable in this study offers valuable insights for future research on purchase intention. It suggests that individuals are more inclined to make online purchases when they perceive lower risks associated with security and privacy. Furthermore, this research contributes significantly to the field of online purchasing and AR studies. While the TAM model has been widely employed in various contexts such as computer hardware, software, information management systems, and web-based technologies, it has not been extensively applied to the study of purchase intention for beauty products using AR technology. Therefore, this research fills an important gap in the existing literature and offers potential benefits to researchers exploring this subject. In conclusion, this study provides comprehensive support for the TAM model, with no rejected hypotheses. This suggests the need for further research or potential modifications to the theory to better understand the dynamics of AR marketing's impact on purchase intention.

5.2.2 Managerial Implications

Besides to the theoretical implications, there are also managerial implications for the development and use of AR features in relation to purchase intention.

First and foremost, the beauty industry needs to prioritize security and privacy concerns when it comes to purchasing beauty products through AR, given the limited research in this area prior to this study. The results suggest that security and privacy play a crucial role in shaping purchase intentions. These factors have been recognized as key determinants in enhancing perceived benefits while reducing perceived risks. When it comes to AR shopping, developers and users of augmented reality must be proactive

in identifying risks and implementing safeguards to protect security and privacy due to it have varying effects on individuals' purchase intent. It raises many privacy concerns and questions related to hacking, usage, and security of user information, data storage, etc. For instance, AR developers should protect data transmitted between augmented reality (AR) equipment and servers using robust encryption techniques. This prevents unauthorised access to sensitive data transmitted over the network. Plus, The company should create AR marketing campaigns that prioritise their security and privacy by implementing robust authentication methods to ensure that only authorised users have access to AR experiences. This could involve multifactor authentication and secure login procedures. By prohibiting specific kinds of harmful data packets from entering the business network system, people will view their risks as being lower.

Second, the beauty industry should focus on the ease of use of the AR. As this research suggests that ease of use has a positive influence on the purchase intention, the effectiveness of consumers use the AR to purchase the beauty product in the shopping sites, they do not require a lot of effort. Therefore, the ease in understanding information, the use of applications, and the service provided may affect consumer's purchase decisions. Gaining user input and analysing user profiles are crucial for boosting effectiveness. To exemplify, the company may carefully consider user experience, interface design, and interaction design. For example, ensure that consumers can easily comprehend how to interact with augmented reality content by developing a simple user interface. The usage instructions for the AR application should be concise and straightforward. Utilise visual cues, tooltips, and on-screen instructions to help consumers comprehend their choices. Using common interactions and gestures can reduce the learning curve. Users must be able to easily navigate and interact with the AR environment.

In this study, however, perceived value increases purchase intention favorably. Users are more likely to have a favorable purchase intention when they believe the benefits and value, they will obtain from an AR product or service outweigh the price. The purchase intention of users is significantly influenced by other users, as the satisfaction

and enjoyment derived from using the technology serves as a motivating factor for recommending it to others. For instance, the beauty industry may consider offering opportunities for users to try or demo the AR experience can enhance their perception of its value. By focusing on creating engaging, educational, and personalised experiences during trials, demonstrations, and free samples, the company could offer free trials of the AR product for a limited time. This enables users to evaluate the product's value before committing to a purchase. Moreover, create interactive demos that enable users to explore and interact with the functionalities of the augmented reality product in a controlled environment. Use step-by-step guides to demonstrate how to use the product's various features, ensuring that users fully comprehend and value its capabilities hence increasing the likelihood of purchase.

In this study, interactivity has a beneficial impact on purchase intention. Interactivity is a fundamental aspect of Augmented Reality (AR) that distinguishes it from passive forms of media consumption. AR technology allows users to engage with and manipulate virtual objects and information within their real-world environment. High interactivity enables users to virtually try on different makeup products, shades, and styles in real-time, allowing them to see how beauty products would look on their own face before making a purchase.The company could improve the visualisation of realistic virtual makeup by making the virtual makeup appear as realistic as possible. In order to do this, creating a realistic experience requires accurate colour reproduction and high-quality visualisation. The AR technology also provides high-quality AR simulations to create a realistic experience, helping customers assess the appearance and texture of makeup products on their skin. Interactive AR experiences empower consumers to confidently make purchasing decisions, reducing the likelihood of buyer's remorse. Overall, high interactivity in AR transforms the beauty and makeup industry by creating engaging, personalized, and immersive experiences that enhance consumer engagement, education, and purchasing decisions.

5.3 Limitations and Recommendations of Study

5.3.1 Limitation of geodemographic scope in this study

This study was conducted in Malaysia and only focused on Malaysians Gen Z while there is only 58% of Malaysians aware of augmented reality (Statista, 2023). It is considered low when compared to those European countries and the United States. Hence, the insights of this study can't be generalized to reflect the purchase intention of other countries. This may be due to the difference of the consumer behaviour that is affected by the culture (e.g Hofstede's 6D model of national culture), education and purchasing power among different countries or regions, such as western and Asian countries their uncertainty avoidance level are different. These variations may lead to different results for the research. Therefore, future studies should consider conducting a study that collects the respondents from a few different countries with different target groups in order to have a more precise result towards the purchase intention.

5.3.2 The limited ulitilization of data collection method for this study

Since the Covid-19 outbreak, people are more tend to digitalization. Therefore, Google Form was chosen as one of the data collection method by most of the researchers. The team has observed that some respondents may not be putting forth their full effort when completing the questionnaire, potentially leading to responses that do not accurately reflect their interest, attitude, or behavior towards the AR features. This problem has emerged due to the distribution of research questionnaires via social media platforms, primarily for the sake of convenience. This approach has led to the questionnaires being treated in a generalized manner, often overlooked, and sometimes even disregarded by potential participants. While participants are cognizant of the existence of these questionnaires, a significant number express reluctance to engage with them. Consequently, the efficiency of data collection has been compromised, and the duration of the data gathering process has been extended.To address this situation, it is recommended that future researchers consider offering incentives or rewards to participants who successfully complete the questionnaires. These incentives could

include physical items such as gadgets, snacks, or merchandise related to the survey's topic. By providing these incentives, researchers can potentially attract respondents who are interested in the rewards being offered. This approach would increase the efficacy of data collection, as potential respondents would be motivated by the possibility of receiving a reward and would pay closer attention to the distributed questionnaires. Offering incentives would also convey sincerity on the part of the researchers, making participants feel valued and increasing their willingness to complete the questionnaires.

5.4 Conclusion

This study discussed the key findings derived from hypothesis testing, particularly focusing on advanced technology which is Augmented Reality (AR) marketing. These findings precisely offer insights and recommendations for prospective researchers and marketers. The study acknowledges its limitations and proposes refined research recommendations to bolster future research.

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Appendixes

Appendix 1.0: Questionnaire

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE

BACHELOR OF MARKETING (HONS)

FINAL YEAR PROJECT

The determinants of Augmented Reality(AR) Marketing affect Purchase Intention in the Beauty and Makeup Industry among Gen Z in Malaysia

Questionnaire

Description of Augmented Reality

AR technology is known as a technology that "integrates both actual and computer-generated digital content into the user's perception of the tangible real world so that they are perceived as one environment" (Whang et al., 2021). The AR technology has been well used and integrated into people's lives in different fields. For example, photograph filter (Snapchat/Instagram filter), Pokémon Go and Google maps (live view/use it to identify the place). This technology has revolutionized the way we interact with digital content and the physical world, offering limitless possibilities for enhancing our daily lives.

Section A – Demographical Question

1. E-mail
2. Age:

a. 18 -20years old
b. 21- 23 years old
c. 24 -28 years old
d. Above 28 years old

3. Gender
    a. Female
    b. Male
4. Ethnicity
    a. Malay
    b. Chinese
    c. India
    d. Others
5. Occupation
    a. Civil servant
    b. Enterprise staff
    c. Freelancer
    d. Self-employed
    e. Student
    f. Others: _____
6. Highest academic qualification
    a. SPM/ STPM
    b. Diploma
    c. Bachelor's Degree
    d. Master's degree or higher education
7. Which social media are you using? (Eg: filters)
    a. Instagram
    b. TikTok
    c. Facebook
    d. Snapchat
    e. Others: _____
8. Do you have experience to used or heard AR feature (E.g.: AR filter, 3D imagery AR)?
    a. Yes
    b. No
    c.

Section B - Variables

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

PI1	AR feature make me more likely to purchase the product.	1	2	3	4	5
PI2	AR feature make me more likely to recommend this product.	1	2	3	4	5
PI3	AR feature make me more likely to try this product.	1	2	3	4	5
PI4	AR feature make me more willing to purchase the item.	1	2	3	4	5
PI5	AR feature make me more loyal to this product.	1	2	3	4	5
PEOU1	AR feature is very easy to use.	1	2	3	4	5
PEOU2	AR feature is intuitive to use.	1	2	3	4	5
PEOU3	It is easy to learn how to use AR feature.	1	2	3	4	5
PEOU4	Handling the scan function and its elements was easy.	1	2	3	4	5
PEOU5	My interaction with the AR feature is clear and understandable.	1	2	3	4	5
SP1	Using AR feature may expose my personal information.	1	2	3	4	5
SP2	Using AR feature may jeopardise my privacy.	1	2	3	4	5
SP3	Using AR feature is insecure.	1	2	3	4	5
SP4	Using AR feature is high risk.	1	2	3	4	5
SP5	Using AR feature, my personal data will be shared with third parties.	1	2	3	4	5
PV1	AR feature provides detailed information about the product.	1	2	3	4	5

PV2	AR feature provide information that help me in my decision.	1	2	3	4	5
PV3	Using the AR feature enhances my shopping performance.	1	2	3	4	5
PV4	Using the AR feature enables me to accomplish shopping tasks more quickly.	1	2	3	4	5
PV5	Using the AR feature increases my productivity.	1	2	3	4	5
IN1	AR feature was very interactive with me.	1	2	3	4	5
IN2	AR feacture facilitates two-ways communications.	1	2	3	4	5
IN3	AR feacture facilitates concurrent communications.	1	2	3	4	5
IN4	While using AR feature, I feel on an equal footing.	1	2	3	4	5
IN5	AR feature offers me a vivid communication experience.	1	2	3	4	5