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VIRTUAL REALITY ACCEPTANCE IN COSMETIC PRODUCT: A STUDY AMONG YOUNG WORKING GIRLS IN PETALING JAYA, SELANGOR

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ABSTRACT

Virtual Reality (VR) refers to a computer-generated immersive experience that creates human-digital interaction and its ability to provide three-dimensional (3D) visual experiences which simulate the sensation of living information on cosmetic products. This technology has gained major attention, especially in the Malaysian cosmetic industry over the recent years due to its ability to provide users with an interactive experience. The usual way of getting information on cosmetic products is time-consuming and costly as this conventional method requires human interaction. Virtual reality offers an innovative method for sharing information about cosmetic products, eliminating the need for young working girls to be physically present at a specific location to access this information. VR is an emerging technology with a large potential for business opportunity especially in the cosmetic industry. The consumer's willingness to buy cosmetic products from an e-commerce company also has consequences in digitalisation purchasing intention. The study aims to recognise the acceptance and use of VR in cosmetic product information among young working girls in Petaling Jaya, Selangor. The study applied a non-probability convenience sampling method, where the questionnaire was distributed to a group of 300 young working girls in various locations at Petaling Jaya. The study shows that Virtual Reality Hedonic Motivation with Pearson Correlation r=.738 is the highest factor influencing the use of Behavioural Intention that leads towards acceptance and use of VR in getting information on cosmetic products. This result indicated that young working girls are accepting VR as an alternative method of gaining product information. The results of VR acceptance will be incorporated into existing literature to assist future researchers in enhancing VR as an alternative means of obtaining information about cosmetic products, particularly within the context of Malaysia

ARTICLE INFO

1.0 INTRODUCTION

Virtual Reality (VR) creates a computer-generated environment featuring lifelike scenes, creating a sense of immersion for users who feel as though they are placed within surroundings that can mimic reality or even get product information while being imaginative. VR often creates an interactive environment from the physical world (Jailani & Nurbatra, 2019) and typically utilises computer technology to generate a three-dimensional and interactive environment, providing users with an immersive experience and allowing them to explore and interact within a virtual world (Godovykh et al., 2022). Wang (2022), states that by donning a dedicated VR headset, users are fully immersed in a virtual world that effectively stimulates their senses of vision, touch, hearing and even smell and taste. VR technology is being used in various fields such as tourism, halal industry, tourism, education, entertainment, township planning and medical training. In the digitalisation world, consumer demand for cosmetic products has surged and to ensure transparency in product information, the integration of VR technology offers a promising solution for gaining product information. Implementing VR in product knowledge has a significant impact on knowledge retention and transforming the conventional environment (Alsaffar, 2021) to a more engaging and interactive one (Rashid et al., 2021). By utilising VR, businesses can provide immersive and comprehensive experiences that help consumers make informed choices when it comes to cosmetic products. One of the primary benefits of using virtual reality in cosmetic product information is the ability to offer consumers a more detailed and realistic view of the products (Sun, 2022). Traditional methods of product display such as images, sometimes fall short of conveying the full essence of the cosmetic product. VR can take consumers on a virtual tour of production facilities, allowing them to witness the entire process, from sourcing ingredients to packaging, ensuring transparency and authenticity.

The use of virtual reality technology in engaging businesses is not a recent idea. VR has been researched and analysed since 1990, particularly in Anglo-Saxon countries. VR has emerged as a marketing tool for enhancing young working girls' product knowledge and helping them to understand better product compliance. Through immersive experiences, young working girls can learn about cosmetic products and also foster trust and brand loyalty. Virtual reality technology has rapidly advanced in recent years, opening up new possibilities and applications across the cosmetic industry. Nowadays, technology has spread its arms over every sector of life and the biggest spectator of technology is the educational institution (Akman & Çakır, 2020) whereby knowledge is gained through alternative methods. As an example, the architecture and designing sector have benefited through the implementation of VR. By creating virtual walkthroughs, professionals present their designs to clients in an immersive and interactive manner. According to Gómez et al., (2021), design training significantly improved orientation, rotation and visualisation of architectural spaces realistically modelled in immersive virtual reality environments allowing for the same sensations that the designer initially sought to convey. VR in cosmetic products is in demand not only in Muslim-majority countries but also in many non-Muslim regions. Virtual reality transcends geographical boundaries (Jeng et al., 2020), making it an ideal medium for presenting cosmetic product information to a diverse and global audience. Businesses create VR experiences that cater to various cultural backgrounds and languages, ensuring that all consumers, regardless of their location and all relevant information are being accessed electronically (Jeng et al., 2020). The immersive nature of VR has proven to be transformative, benefiting a wide range of users and it's a new method (Rashid et al., 2021). According to Ruan (2022), research indicates that the implementation of virtual reality in getting information has yielded several positive effects. These benefits encompass the improvement of young working girls' behaviour listening skills, the enhancement of their perception of cosmetic products and an overall increase in young working girls' eagerness to obtain new information regarding cosmetic products. The use of interactive apps and virtual reality has transformed traditional methods of conventional marketing into dynamic and immersive marketing environments (Alsaffar, 2021). By creating virtual environments, young working girls can explore cosmetic products without being at a specific place as information would be able to obtain through digitalisation information. Using VR to obtain information, allows young working girls to increase interest in learning, promote the understanding of knowledge, as well as the establishment of emotional attitudes and values. (Zhang & Yin, 2020).

VR can empower young working girls to make informed choices when selecting cosmetic products. For example, a virtual reality shopping experience allows consumers to inspect products, read labels and access detailed information about ingredients and certifications interactively. This hands-on approach is significantly enhancing the consumer's confidence in their purchase decisions (Zhang & Yin, 2020). Virtual reality is poised to revolutionise the way cosmetic product information is presented and accessed by consumers. Its ability to offer enhanced product visualisation, deliver engaging education, provide global access, support interactive decision-making and promote eco-friendliness makes VR an invaluable tool for businesses in the cosmetic industry (Arshad et al., 2017). As the demand for cosmetic products continues to grow, embracing VR technology cannot only meet this demand but also foster trust, transparency and informed consumer choices in the cosmetic market.

To identify the acceptance of virtual reality in cosmetic product information among young working girls in Petaling Jaya, this study underlines three (3) main objectives: -

  i.   To identify VR factors influencing Virtual Information Behavioural Intention (VIBI)
  ii. To identify Virtual Information Behavioural Intention (VIBI) and its impact towards Virtual Information Use Behaviour (VIUB)
  iii. To study the acceptance and use of Virtual Information Use Behaviour (VIUB) and its impact towards Cosmetic Product Information (CPI)

This study employs the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Venkatesh et al., 2012) which is a theoretical model that examines the factors influencing the acceptance and use of VR technology among young working girls for gaining cosmetic product information. Venkatesh et al., (2003) previously used UTAUT, which considers Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI) and Facilitating Conditions (FC) as the key factors influencing technology acceptance. UTAUT is widely regarded as one of the most suitable models for technology acceptance and many researchers have engaged this model in acceptance and use-related studies. These constructs are moderated by factors such as age, gender, experience and voluntariness of use. UTAUT aims to provide a comprehensive framework for explaining and predicting technology acceptance (Azalan et al., (2022; Dwiyanto et al.,2020), offering stronger predictive power compared to other models. It has been tested in various contexts and has shown wide application and generalisability. UTAUT has also been extended and refined over the years with the enhancement of three additional constructs, namely Hedonic Motivation (HM), Price Value (PV) and Habit (H) to explain behavioural intention and usage behaviour in the UTAUT2 framework. In this VR study, UTAUT2 is adapted to explain and predict the behavioural intention and usage behaviour of young working girls towards VR in gaining cosmetic product information. Figure 1 illustrates the VR theoretical framework, comprising two main dimensions: Virtual Reality Acceptance and use and cosmetic product information. This theoretical framework integrates UTAUT2 (Venkatesh et al., 2012) to evaluate the acceptance of new technology in cosmetic product information (Kasri et al., 2023). The following hypotheses are obtained from the research theoretical framework in Figure 1.

H_1 There is a significant relationship between Virtual Reality Performance Expectancy (VRPE) and Virtual Information Behavioural Intention (VIBI) among young working girls

H_2 There is a significant relationship between Virtual Reality Effort Expectancy (VREE) and Virtual Learning Behavioural Intention (VLBI) among young working girls

H_3 There is a significant relationship between Virtual Reality Social Influence (VRSI) and Virtual Information Behavioural Intention (VIBI) among young working girls

H_4 There is a significant relationship between Virtual Reality Hedonic Motivation (VRHM) and Virtual Information Behavioural Intention (VIBI) among young working girls

H_5 There is a significant relationship between Virtual Information Behavioural Intention (VIBI) and Virtual Information Use Behaviour (VIUB) among young working girls

H_6 There is a significant relationship between Virtual Information Use Behaviour (VIUB) and Cosmetic Product Information (CPI) among young working girls

Unified Theory of Acceptance and Use of Technology 2 (Venkatesh et al, 2012)

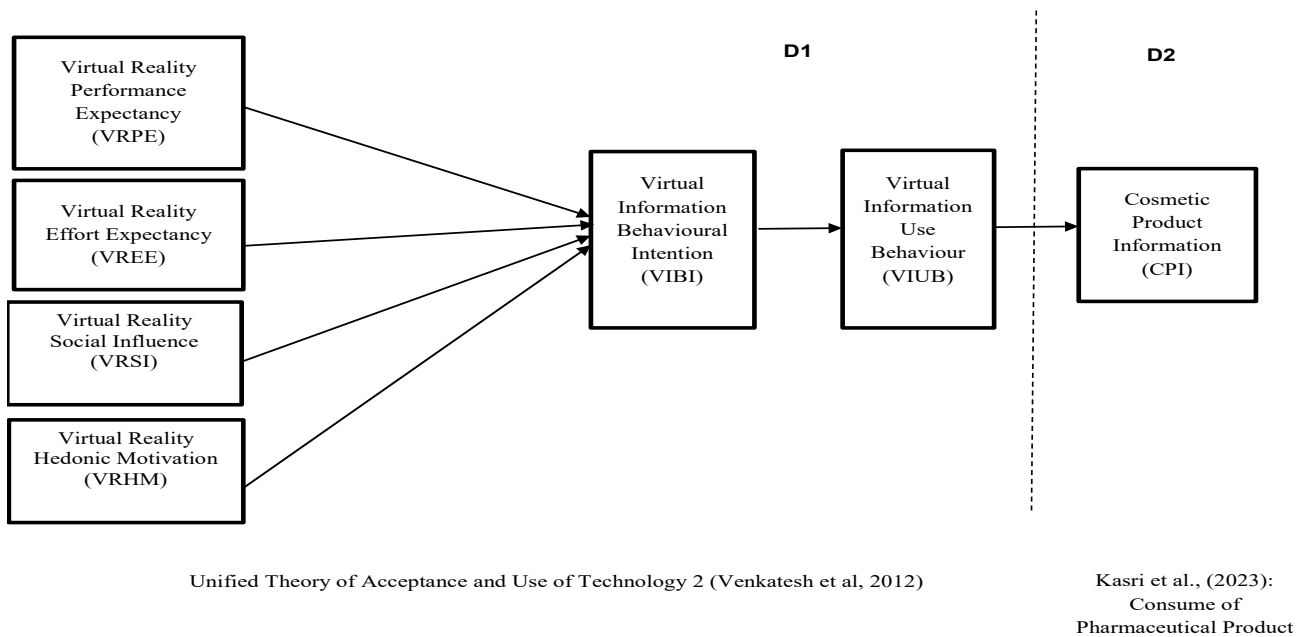Kasri et al., (2023): Consume of Pharmaceutical Product

Figure 1. Research Theoretical Framework

1.0 LITERATURE REVIEW

Virtual Reality Development over the Years

Virtual Reality (VR) technology has rapidly evolved over the past few decades, bringing about a paradigm shift in various industries and revolutionising digital content. VR offers an immersive and interactive experience that transcends the boundaries of the physical world (Hilken et al., 2021; de Keyser et al., 2019) and by having interactive encounters, young working girls are more eager to gain information on cosmetic products. From its inception as a niche concept to its widespread application in gaming, healthcare, tourism, marketing, halal products, education and beyond, VR has made tremendous strides in both hardware and software development. The roots of virtual reality are traced back to the 1960s when pioneers like Ivan Sutherland developed early VR systems (Dodge & Kitchin, 2003). The development of VR faced many challenges, especially in graphical capabilities and interface design. However, technological advancements gradually brought about significant breakthroughs. In the 1990s, VR gained mainstream attention with commercial products like Nintendo's Virtual Boy and early arcade VR experiences. During this time of development, VR was expensive, limiting its accessibility to wealthy individuals only. As a result, its potential impact on society remained constrained and widespread adoption was slow to materialise. The initial high expenses were mainly linked to the need for complex and specialised hardware necessary to provide a fulfilling VR encounter. Additionally, limited manufacturing capabilities and economies of scale contributed to the high price tags of VR systems (Aithal & Aithal, 2018). Nevertheless, despite its initial exclusivity, the early adopters and enthusiasts of VR technology laid the groundwork for its future growth. Their enthusiasm and feedback provided valuable insights to developers and manufacturers, encouraging them to refine and innovate the technology further (Juřík et al., 2021). According to Weijdom (2022), VR as a new media is a new concept of digital environment where the user metaphorically steps inside a reality world in

exploring interactive information, games, online festivals, conferences and enjoying performances (Weijdom, 2022). The concept of digitalisation provides end users with a distinctive platform for immersing themselves in content and virtual environments that replicate reality. It empowers them to perceive and interact with computer-generated elements within a three-dimensional space and create an interactive environment. As advancements in computing and display technologies continued, the costs of VR hardware gradually started to decline (Hashem et al., 2021). Virtual reality technology has evolved over the years, benefiting all end users in so many sectors.

Cosmetic Product Information

Cosmetic products have become an integral part of our daily lives, offering a wide array of options to enhance our appearance, boost our self-esteem especially for women (Morganti et al, 2020) and address various skincare and beauty concerns. Understanding cosmetic product information is crucial for many reasons and most cosmetic users still lack awareness of the ingredients of certain products that they have consumed (Kamil et al, 2020). In Malaysia, beauty product sales are increasing even though the majority of Malaysians are concerned about various issues regarding, cosmetics and their impact on users (Boon, Fern & Chee 2020). The manufacturing sector which emphasises on cosmetics and toiletries industry has contributed to approximately RM13 billion in sales in 2003 and imparts a 13 percent growth rate per year (Mustafar et al. 2018). According to Höfer (2021), the global cosmetic market grew by 5.5% in the year 2018 and this growth has a significant impact on product sharing information as social media is being used as a marketing platform. Women and cosmetics are tightly interwoven (Boon, Fern &Chee 2020) and nowadays women use many kinds of different cosmetic products on their faces every day without seeking product information products that aligns with their values, such as cruelty-free, vegan, or eco-friendly options, which could be determined through comprehensive product information. In the cosmetics market, there are several categories, including skincare, hair care, makeup, fragrances, and deodorants. One of the causes for this expanding expansion is technological progress. The details of cosmetic product information would be able to be visualised by virtual reality technology. VR has emerged as a game-changing technology in the world of cosmetics as the integration of VR into the cosmetic product industry has created a transformative experience for both consumers and businesses ((Juřík et al., 2021). VR has revolutionised the way consumers discover cosmetic products. In the past, consumers had to rely on traditional methods, such as visiting physical stores, consulting with beauty advisors, or relying on product descriptions and images. Now, with VR technology, customers can virtually explore an extensive range of products in a highly immersive and interactive environment (Wirawan & Gading, 2022; Alsaffar, 2021). Virtual try-on experiences (Shmeleva et al., 2020) have become increasingly popular whereby consumers can virtually apply cosmetics, from lipstick and eyeshadow to foundation and blush, to see how they would look on their skin. This not only saves time and money but also offers a more personalised and accurate way of selecting products that suit individual skin tones and preferences.

2.0 METHODOLOGY

This research uses a cross-sectional survey where the questionnaire was distributed to young working girls aged 18 to 25 years old (Morean et al, 2023; Potvin et al., 2022; Adams et al., 2021; Peng et al, 2020) in Petaling Jaya, Selangor, Malaysia. During this period, young girls experience increased personal freedom, experimentation and the development of independence from their families (Zarrett & Schulenberg, 2006). The researcher chose this age category because this age group represents the stage of emerging adulthood, which is characterised by significant developmental changes and transitions (Kouros et al., 2017) and most of them have social media to gain product information on cosmetic products. In today's world, young working girls are growing up in a digital technology era where internet-based smartphones, laptops and tablets influence all aspects of our modern life (Cottin et al., 2022). This age is also a development period where emotion and intellectual thinking have an impact on brain development and this age group has behavioural adjustments associated with basic psychosocial age-related developmental tasks (Richard et al., 2015). This young working age group represent an important life stage involving a transition to adulthood, earning money at their end which individuals can spend on the product they need (Morean et al., 2023). Besides that, this age category considered as emerging adulthood is a critical period for human physical, cognitive, emotional and social development (Lee et al., 2022). This survey applied

convenience sampling in Petaling Jaya as the respondents meet the age criteria as there are numerous shopping malls in the area. This questionnaire was done in traditional paper-and-pencil surveys as it provides higher response rates than online surveys which would not receive a high response rate given the fact that some potential participants lack willingness to participate in online surveys (Lefever et al., 2007). The results indicate that the effect of the length of the response field is more pronounced in the paper-and-pencil condition compared to the web survey condition (Fuchs, 2009). They were 100 % female respondent as this survey only targeted young working girls and cosmetics and women are tightly interwoven (Boon, Fern &Chee 2020). Table 1 indicates the age demographic that participated in this cross-sectional.

Table 1. Demographic for participant ($n = 300$)

Age Group (years)	Frequency (n)	Percentage (%)
18 - 20 years old	84	28.0
21 – 23 years old	106	35.3
24 – 25 years old	110	36.7

The instrument developed is structured in which the entire question is directly related to virtual reality acceptance in cosmetic product information among young working girls and all the questions are developed to answer the objective of the study. All items are divided into 2 sections which are A: Demographic, B: Acceptance and Use of Technology. All questions in section B are asked using a 5-point Likert Scale with "1" being Strongly Disagree. "2" being Almost Disagree, "3" being Neutral, "4" being Agree and "5" being Strongly Agree. The survey comprises 42 questions that are closed-ended and these include a demographic section. This survey aims to explore whether a connection exists between virtual reality technology and cosmetic product information among young working adults in Petaling Jaya, Selangor. This study emphasises non-probability sampling design as part of the sampling strategy. Non-probability sampling is employed in this study because randomisation is impossible for young working adults as the population is very large and time limitation to conduct the study (Pace, 2021; Etikan et al., 2016). The resulting outcome is not being targeted to produce findings that will be used to create generalisations about the whole population. Therefore, convenience sampling was done on young working girls in the Petaling Jaya vicinity where participants of the target population met age standards, had easy geographical access were willing to participate in the research and were given a set of questionnaires. Each respondent answered the same set of surveys that were being distributed to 300 young working girls aged 18 – 25 years old. Before the data was collected, reliability and normality tests were done. The reliability of the research instrument was assessed by conducting a Cronbach's Alpha reliability test, as outlined by Field (2009) & Spiliotopoulou (2009) and the results are in Table 2. The acceptable value of this test is 0.70 (Nunnally & Bernstein, 1994) and all variables are more than 0.70.

Table 2. Summary Results of Reliability Analysis ($n = 300$)

Variable	Number of items	Cronbach's alpha
VRPE	6	.746
VREE	5	.763
VRSI	5	.788
VRHM	5	.914
VIBI	5	.881
VIUB	6	.787
CPI	6	.854

To examine the normality of the data, a normality test was conducted, where the assessment of Skewness and Kurtosis was involved. Table 3 shows the test of normality for 7 variables applied in the survey. The skewness and Kurtosis index was used to identify the normality of the collected data with SPSS (Pallant, 2013, 2005). The data considered being normal for the range of skewness from -3 to +3 and kurtosis -10 +10 (Brown, 2006). The skewness index range was from -1.037 to -.101 and the kurtosis index range was from -.896 to .623. Hence, it is concluded that the data collection for seven (7) variables, exhibited a normal distribution range, as indicated by the Skewness and Kurtosis where all data collected fell within the range for a normal distribution

Table 3. Test of Normality *(n* = 300)

Variable	N Statistic	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
VRPE	300	-.222	.131	-.548	.251
VREE	300	-.101	.131	-.896	.251
VRSI	300	-.387	.131	-.082	.251
VRHM	300	-1.037	.131	.012	.251
VLBI	300	-.881	.131	.623	.251
VLUB	300	-.377	.131	.124	.251
CPI	300	-.635	.131	.057	.251

The Kaiser-Meyer-Olkin (KMO) test was carried out to assess the data's appropriateness for factor analysis, verifying its compliance with essential criteria for further analysis. The KMO test aims to evaluate the degree of partial correlation strength among the variables. According to Napitupulu et al., (2017), KMO values closer to 1.0 are considered ideal while values less than 0.5 are unacceptable. Bartlett's test of Sphericity is being used to test the null hypothesis that the correlation matrix is an identity matrix, which means, variables are unrelated and not ideal for factor analysis (Rojas et al., 2015). Table 4 shows the result for KMO & Bartlett's Test with result .887 which is close value to 1.0 and this result is acceptable.

Table 4. Test of Normality *(n* = 300)

Kaiser–Meyer–Olkin Measure of Sampling Adequacy		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	1674.867
	df	21
	Sig	.000

3.0 FINDINGS AND DISCUSSION

To Identify Virtual Reality Factors Influencing Virtual Information Behavioural Intention (VIBI)

An analysis was conducted employing a one-tailed test to assess the likelihood of a relationship in a particular direction, with no consideration for the possibility of a relationship in the opposite direction. Table 5 indicates the results of factors influencing VIBI by using Pearson Correlation and Regression. Based on the result relating to the Pearson Correlation, the researcher finds out that VRHM (r = .750) is the main factor that influences the relationship between VIBI in the first dimension. Hedonic motivation plays a vital role in young working girls accepting VR as a tool for gaining cosmetic product information. 86.5% of young working girls in Petaling Jaya strongly agree that using VR for cosmetic product information is fun while only 2.5% disagree with the above statement. Previous research done by Bower & Lai (2020) and Sharif & Raza (2017) indicates similar results where hedonic motivation predicts behavioural intention in accepting new technology. The next result of Pearson Correlation follows VRSI (r = .702) and VRPE (r = .686). The least factor that influences the relationship between VIBI is VREE (r = .577), however, this factor is still significant towards the study

because young working girls perceive the expectations that by using VR it creates convenient knowledge information regarding cosmetic products. Based on the given outcome, it shows that social influence does have an impact on young working girls in gaining information on cosmetic products. 76.8 % of the respondents agree that the usage of VR is influenced by family members and 71 % are influenced by friends.

The researcher also produces the result of Regression for the study using VR towards factors that influence VIBI. It shows that, in the first dimension, VRHM relationship towards VIBI (R^2 = .562) is the main factor influencing the intention among young working girls to use VR for gaining knowledge on cosmetic products. Second highest result for regression was VRSI (R^2 = .503), followed by VRPE (R^2 = .471) and lastly VREE (R^2 = .344). The construct of VRPE, VREE, VRSI, VRHM does have a significant relationship between VIBI among young working girls thus hypotheses H_1, H_2, H_3 and H_4 have been answered. Several studies confirmed that PE, EE, SI and HM have a significant influence on BI to accept new technology such as VR games for chemical education (Chioma et al., 2021), students' acceptance of the Use & Go Pay (Batoro, 2020), Moodle-Learning Management System (Zwain, 2019) and acceptance on e-scooter VR service (Huang, 2020). Since this study focused on young working girls' acceptance and use of VR for gaining cosmetic product information, the constructs play a significant role in accepting and using VR technology

Table 5. Summary Results of Pearson Correlation *(n* = 300, a=0.05)

Variable	Pearson Correlation (r)	Regression (R^2)
VRPE > VIBI	.686	.471
VREE > VIBI	.577	.344
VRSI > VIBI	.702	.503
VRHM > VIBI	.750	.562

To Identify Virtual Information Behavioural Intention (VIBI) and Its Impact towards Virtual Information Use Behaviour (VIUB)

The study's Pearson Correlation analysis revealed a significant impact of VIBI on VIUB, with a correlation coefficient of r = .755. Additionally, the regression analysis result for the study, indicated by an R-squared value of R2 = .597, further supports the notion that VIBI holds significant influence over VIUB. Therefore, it's concluded that H_5 has been answered. According to Xie (2022) and Adnan & Bahar, (2019), the advent of technology in a globalised world has led to a transformation in marketing, shifting it towards digital platforms like digitalisation advertisement boards. It's a new norm in the cosmetic product field especially when the method of sharing information with digital technology has grown popular in recent years. As these respondents are young working girls ages 18-25 years old, they are excited and happy exploring and using new technology as an alternative way of product information. According to Chioma et al., (2021), behavioural intention is an indication that a customer is willing to give trust in a company and this affects use behaviour so that when using products and services from that company, consumers will feel satisfied. Based on the findings, 87.7%, of young working girls agree that "virtual reality is exciting in gaining product information' and this shows that young working girls are willing to adapt and accept new technology as an alternative way of gaining information. The great advantage of virtual is the increasing knowledge power of the media use as it provides a wider range of knowledge as the young working girls would ask any type of question to this media whereas books have limitations. Apart from these, the VR gives more practical and colourful images so the end user understands better and they do not get conventional information from the seller this increases the enthusiasm for the knowledge in the mind and helps to boost their imagination of the product (Yulie et al., 2021). Digitalisations became increasingly essential in 2020

as the world faced the COVID-19 pandemic where customer engagement and interactions in the traditional face-to-face environment have instantly changed the world scenario (Salta et al., 20220). During this pandemic outbreak, all sectors were badly hit including marketing. Individuals are forced to stay home and encourage social distancing to stop the spreading of the deadly virus. Therefore, digital product information has become essential and important to keep up with the current product information environment (Madan et al., 2022).

To Study the Acceptance and Use of Virtual Information Use Behaviour (VIUB) And Its Impact Towards Cosmetic Product Information (CPI)

On the second dimension, where HIP is the dependent variable, the researcher finds out that VIUB influences CPI with Pearson Correlation result (r = .766) and the result of Regression for the study is (R^2 = .564). These findings indicate that VIUB plays a substantial role in explaining CPI thus this result shows that there is a significant relationship between VIUB and CPI among young working girls as indicated at H_6. The introduction of graphics-oriented visuals has had a significant impact on young working girls' behaviour, particularly in the context of information sharing (Bistaman et al., 2018). A study done by Wirawan & Gading (2022), indicated that any interactive information that has viability, applicability and efficacy for gaining knowledge does improve young adults' motivation to gain more information. According to Wang & Hemchua (2022), these visual components possess the ability to captivate and educate young professional women, making intricate concepts more accessible and relatable to them. Research shows that users prefer graphical interfaces over purely textual ones, as they improve knowledge to a greater extent (Engin & Donanci, 2016; Iordatii et al., 2015). Based on the result analysis, it shows that 92 % of young working girls are interested in using VR for cosmetic product information and only 1.2 % disagree on that particular matter. The object-oriented created by VR technology features improve understanding compared with the complex explanation and it facilitates end users to interact actively. The use of visuals like videos, diagrams and charts simplifies complex information by transforming it into visual cues. This approach helps young professionals to establish connections and retain information about cosmetic products more efficiently. Additionally, visual aids cater to different needs, accommodating both visual who thrive on imagery and kinaesthetic who benefit from interactive content. As a result, these elements not only capture young working girl's attention but also foster a deeper level of comprehension and knowledge retention (Wirawan & Gading, 2022)

4.0 CONCLUSION

In conclusion, the integration of virtual reality in the field of cosmetic product information signifies a revolutionary and versatile progress that holds the potential to deliver extensive advantages across various industries' incorporation into the cosmetic industry transcends the mere dissemination of information; it heralds a paradigm shift in how consumers, producers, and various stakeholders interact with and perceive cosmetic products. (Kashif et al., 2017). The use of VR in the marketing environment is gaining significant attention due to its ability to create immersive and interactive experiences that transcend traditional ways of getting information (Alsaffar, 2021). This technology enables young working adults to get information on specific requirements such as cosmetic ingredients list which is one of the most critical aspects of cosmetic product information. that provides insight into what the product contains, allowing consumers to avoid substances they may be sensitive to or allergic to. VR offers a unique and immersive experience that engages young working girls to enhance their understanding of certain products (Dwipayana et al., 2019). The adoption of VR in cosmetic product information enriches the consumer experience. It offers an immersive and engaging platform that transcends traditional two-dimensional presentations. The usage of VR would be able to assist end users with clear instructions on how to use the product which is typically included in an accompanying leaflet. Young working girls can interact with products in a three-dimensional, virtual space, enabling them to gain a comprehensive understanding of a product's composition, source and production methods (Wirawan & Gading, 2022). As a result, young working girls are not only passively absorbing information but actively participating in their learning journey, fostering deeper comprehension and retention of knowledge. This heightened engagement fosters trust and confidence among consumers, as they have more choices of first-hand virtual experiences.

Cosmetic products have established themselves as indispensable tools for enhancing women's physical appearance (Nayak et al., 2021) and whether it's a subtle touch-up with concealer or a bold statement with vibrant lipstick, cosmetics provide them with the means to accentuate the best features and minimise imperfections. Virtual reality offers a creative 3D dimension for self-expression, allowing them to experiment with different looks and styles, adapting the appearance to suit their mood or the occasion. Furthermore, VR's potential benefits extend to the businesses operating within the cosmetic industry. Manufacturers and producers now have an innovative tool at their disposal to showcase their products to a global audience. VR enables them to effectively communicate their commitment to guidelines, providing transparency and authenticity to consumers (Adnan & Bahar, 2019). This result has a significant increase in market share, brand loyalty, and ultimately, improved financial performance for cosmetic-oriented businesses. Beyond the consumer-producer relationship, VR in cosmetic product information stands to benefit regulatory bodies and certifying agencies. By embracing VR, these organisations can streamline the marketing process, ensuring that products adhere to guidelines regarding promoting the products. This technology facilitates better monitoring, inspection and quality control, contributing to the overall integrity of cosmetic certification (Kamali, 2013). According to Weissblueth & Nissim (2018), VR stimulates young working girls' interest and motivation by providing them with the opportunity to engage in otherwise impossible-to-experience situations and by offering a range of experimental tools delivered directly to their brains and this situation is an advantage of getting cosmetic product information to a different level.

The emergence of COVID-19 has caused many industrial sectors in the world to shift from conventional towards online despite inadequate facilities. Technology has accelerated because of COVID-19 and this disease has been regarded as one of the most important events of the twenty-first century. The impact of modern communication technologies on marketing tools has been significant. These technologies, such as Zoom, Google Meet and 360-degree videos have revolutionised the way cosmetic product information is delivered. Accepting a new technology is challenging based on many factors such as age, locality, infrastructure, time and many more factors. This was an important factor in accepting new technology and this study adapts the Unified Theory of Acceptance and Use of Technology 2 by Venkatesh et al., (2012) to evaluate young working girl's acceptance of using virtual reality towards cosmetic product information. Accepting a new technology is challenging based on many factors such as age, locality, infrastructure, time and many more factors. This was an important factor in accepting new technology and this study adapts the Unified Theory of Acceptance and Use of Technology 2 by Venkatesh et al., (2012) to evaluate young working girl's acceptance of using virtual reality towards getting cosmetic product information.

Four main constructs were used to evaluate the acceptance of technology which are PE, EE, SI HM. The UTAUT2 was used to forecast behavioural intention and use behaviour of young working girls in Petaling Jaya towards VR in a dynamic marketing environment and evaluate influences that are relevant to the technology acceptance. The results of the study have few theoretical implications. First, the study value adds current knowledge surrounding VR as an alternative information method. The acceptance validated that the established construct in UTAUT2 may be broadened and used to different virtual technologies such as Artificial Intelligence or Augmented Reality to gain information regarding cosmetic product information. Second, the framework further validated factors that may be relevant to understanding young working girls' objective toward using VR for gaining cosmetic product information. VRHM was confirmed as the most significant factor acceptance and use of technology toward behavioural intention to use VR in cosmetic product information. All hypotheses showed that there is a significant relationship between independent and dependent variables. Furthermore, this study established that the framework is a useful instrument to understand how young working girls perceive using VR to gain cosmetic product information. Moreover, VR has the potential to stimulate innovation in various sectors associated with cosmetic products. Cosmetic products have seamlessly woven themselves into the fabric of women's daily lives, offering a plethora of advantages. They are not solely about aesthetics but also serve as tools for self-expression, confidence-building, and solutions for various skincare and beauty needs. Their ability to enhance young working girl's appearance and well-being makes them an integral part of our modern lifestyle. VR's immersive experiences have the potential to open fresh avenues for research, development, and marketing across a spectrum of industries (Rashid et al., 2021) including cosmetics, food and beverages, pharmaceuticals, and tourism. This validated acceptance and use may be adapted with different moderating variables by future researchers in different market

segmentations such as tourism, property management or sports training. This would allow for more understanding of how these factors explain user behaviour intention with similar technologies.

There are three limitations associated with this study. First, the representation of this study is very limited. Although the findings are based on data collected from young working girls in Petaling Jaya, the results may not be generalised to all working girls because the data collection was only based in Petaling Jaya vicinity. Demographic factors elsewhere would play a significant role in young professionals' acceptance and use of VR in cosmetic product information. However, this result may be used to inform future researchers regarding the acceptance and use of VR technology towards cosmetic product information. The next shortcoming is the construct used in the UTAUT2 model. The scale of the study has limitations towards the construct used in evaluating the behavioural intention of using VR. Other constructs such as habit, different demographics and different age group variables may have a different outcome towards the framework and may provide different outcomes towards the study. Future research could look into the factors of the validated acceptance and use and revise them appropriately according to their subject matter.

The final constraint pertains is the survey instrument used in this study. The survey instrument for this study focuses on the acceptance and use of VR towards cosmetic product information. The future researcher could value-add the instrument based on their focus areas such as education, property management, tourism or aviation. The dependent variable may be change towards their studied subject. The future researcher should value add current survey instruments to other immersive simulation technologies, such as artificial intelligence, augmented reality or holograms. Cosmetic products have evolved to occupy a central role in women's daily routines (Nayak et al., 2021) seamlessly integrating into their lives in various ways. Their significance extends beyond mere aesthetics, encompassing a multitude of functions that cater to their appearance, self-esteem, and broader skincare and beauty needs. In conclusion, the incorporation of VR into cosmetic product information is a transformative force with the potential to enhance consumer experiences, bolster business competitiveness, strengthen regulatory oversight and foster innovation across sectors. As VR technology continues to evolve and become more accessible, stakeholders within the cosmetic industry must recognise its potential and harness its capabilities. By doing so, they can collectively propel the cosmetic industry into a new era of growth, trust, and excellence, ultimately benefiting consumers, businesses, and society as a whole.

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