FACTORS INFLUENCING CONSUMER INTENTION TO USE VIRTUAL REALITY IN REAL ESTATE INDUSTRY

PANG YAO WEI

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2024

FACTORS INFLUENCING CONSUMER INTENTION TO USE VIRTUAL REALITY IN REAL ESTATE INDUSTRY

PANG YAO WEI

A report submitted
in partial fulfilment of the requirements for the degree of
Bachelor of Technology Management (High Technology Marketing)

Faculty of Technology Management and Technopreneurship

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2024

DECLARATION

I declare that this thesis entitled "FACTORS INFLUENCING CONSUMER INTENTION TO USE VIRTUAL REALITY IN REAL ESTATE INDUSTRY is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

SIGNATURE : 

NAME : PANG YAO WEI

DATE : 25/1/2024

APPROVAL

"I hereby declare that I had read and go through for this proposal and its adequate in term of scope and quality which fulfil the requirements for the award of Bachelor of Technology Management (High-Technology Marketing) with Honours."

SIGNATURE : 

NAME OF SUPERVISOR : MR. MUKHIFFUN BIN MUKAPIT

DATE : 25/1/2024

SIGNATURE : 

NAME OF PANEL : DR. KAMARUDIN BIN ABU BAKAR

DATE : 25/1/2024

DEDICATIONS

I would like to begin by expressing my gratitude to my family and supervisor for providing me with the necessary support and encouragement to complete the thesis report. Then, a special thank you to Universiti Teknologi Malaysia Melaka for providing me with the opportunity to conduct and finish the research to graduate.

ACKNOWLEDGEMENTS

First, I express my gratitude to my supervisor, Mr. Mukhiffun Bin Mukapit. From the outset, he provided me with unwavering support and refused to allow me to surrender despite my want to do so. I have immense gratitude for his endurance over this journey and his refusal to let me give up. In addition, he always demonstrates patience towards me whenever I struggle to comprehend the subject or methods involved in completing a thesis for my degree. He consistently provides me with insightful guidance on how to go with it. His assistance and teaching were vital in enabling me to timely complete my research. I am grateful for his willingness to allocate time for us, despite his demanding schedule. In addition, I would like to express my gratitude to Dr. Kamarudin Bin Abu Bakar, who served as a panel for my final year project. He provides me with assistance and offers guidance on enhancing my final-year project. I greatly benefit from his perspective.

My friends who are pursuing advanced degrees also need acknowledgment for their support. I am grateful to my friends and those who have provided me with assistance on several times. Their perspectives and counsel are very invaluable. I deeply value and acknowledge the entirety of my family.

ABSTRACT

The purpose of this study was to examine the factors that influence consumers' intention to use virtual reality (VR) technology in the real estate industry, including virtual room tours. To achieve this, the researchers used the Technology Acceptance Model (TAM), which includes variables such as perceived usefulness (PU), perceived ease of use (PEOU), and perceived enjoyment (PE). The research methodology is quantitative, and non-probability methods were used to collect data from respondents for this study. A total of 230 respondents from Kuala Lumpur, Malaysia, participated in the study. They were observed using non-immersive VR and then answered the questionnaire questions through Google Forms. The collected quantitative data were analyzed using Statistical Package for Social Science (SPSS) version 23. The analysis included descriptive analysis, a pilot test, a normality test, a reliability test, and multiple regression analysis. The outcomes obtained from this study proved that all independent variables (PU, PEOU, and PE) have a relationship with the intention to use VR in RE. The findings show PE is the most significant variable affecting the intention to use virtual reality in the real estate industry, with a beta value of 0.389. Finally, the study project's limits are outlined, and recommendations are given for upcoming scholars who may be interested in a similar topic.

Keyword: Virtual Reality, Non-immersive VR, Real estate, TAM, Virtual Room Tours

ABSTRAK

Tujuan kajian ini adalah untuk mengkaji faktor yang mempengaruhi niat pengguna untuk menggunakan teknologi realiti maya (VR) dalam industri hartanah termasuk lawatan bilik maya. Untuk mencapai matlamat ini, penyelidik menggunakan Model Penerimaan Teknologi (TAM), yang merangkumi pembolehubah seperti persepsi kebergunaan (PU), persepsi kemudahan penggunaan (PEOU), dan persepsi keseronokan (PE). Metodologi kajian adalah kuantitatif, dan kaedah bukan kebarangkalian digunakan untuk mengumpul data daripada responden untuk kajian ini. Seramai , Virtual230 responden dari Kuala Lumpur, Malaysia, telah mengambil bahagian dalam kajian ini. Mereka telah diperhatikan menggunakan VR bukan immersive dan kemudian menjawab soalan soal selidik melalui Borang Google. Data kuantitatif yang dikumpul dianalisis menggunakan Statistical Package for Social Science (SPSS) versi 23. Analisis termasuk analisis deskriptif, ujian rintis, ujian normaliti, ujian kebolehpercayaan dan analisis regresi berganda. Hasil yang diperoleh daripada kajian ini membuktikan bahawa semua pembolehubah tidak bersandar (PU, PEOU, dan PE) mempunyai hubungan dengan niat untuk menggunakan VR dalam RE. Penemuan menunjukkan PE adalah pembolehubah paling ketara yang mempengaruhi niat untuk menggunakan realiti maya dalam industri hartanah, dengan nilai beta 0.389. Akhir sekali, had projek kajian digariskan, dan cadangan diberikan untuk sarjana akan datang yang mungkin berminat dengan topik yang sama.

Kata Kunci: Realiti Maya, VR Tanpa Imersif, Hartanah, TAM, Lawatan Bilik Maya

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

Abbreviations	Meaning
AR	Augmented Reality
VR	Virtual Reality
RE	Real Estate
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
PE	Perceived Enjoyment
CI	Consumer Intention
APAC	Asia Pacific
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action
SPSS	Statistical Package for Social Sciences

LIST OF APPENDIXES

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter is about the outline of research that provide a general view of background of the study, a discussion of problem statement about the real estate industry, the research question and objectives, scope of study, significant of study and summary that as well as important of study.

The real estate sector is witnessing technological advancements, and one such promising innovation is virtual reality (VR), which has the potential to enhance the buying experience. This research proposal aims to explore what factors influence consumers to accept VR in the real estate industry. The focus will be on identifying the factors that impact consumer behaviour in relation to VR adoption, using a quantitative research approach.

1.2 Background of Study

The Fourth Industrial Revolution (IR 4.0) has compelled businesses to rethink their approaches to the implementation of innovative technologies and virtual commerce. Incorporated technologies such as artificial intelligence (AI), machine learning (ML), robotics, autonomous vehicles, and the Internet of Things (IoT) obscure the boundaries between the physical, digital, and biological spheres. According to (Azmi et al., 2023), virtual commerce and marketing would be incorporated into the companies' interaction and engagement strategies in order to interact with visually and virtually connected internet users. In marketing, virtual reality (VR) has been found to

positively influence emotions and elicit positive consumer responses that influence purchase intent (Martínez-Navarro et al., 2019).

Virtual reality (VR) is a type of computer simulation technology in which users can explore the virtual world. VR technology incorporates computer graphics technology, multimedia technology, human-computer interaction technology, network technology, three-dimensional display technology, and simulation technology. (Ma X, 2020). Besides, VR is the term used to describe a 3D computer-generated world that is immersive, interactive, multisensory, viewer-centred, and built using a variety of technologies. According to Suh and Lee (2005), VR can distinguish between immersive VR and non-immersive VR. Immersive VR uses a head-mounted set to construct the 3D environment, whereas non-immersive VR uses a computer screen to display the simulated environment. Virtual elements are created by computer graphics and other visual components in VR (Lister et al., 2008).

VR is not just for entertainment, it has grown into a thriving market with diverse applications in marketing, business, entertainment, communications, research, travel, education, healthcare and real estate. (Muller Queiroz et al., 2018). In this study, the researcher will focus on virtual reality in the real estate industry. Moreover, the advent of the coronavirus disease 2019 (COVID-19) pandemic has had a significant impact on the economic sector and caused a significant shift towards digital marketing strategies. (Athira et al., 2022) As a result of the pandemic or Movement Control Order (MCO) Malaysia, potential consumers were unable to visit for-sale properties and make purchase decisions (Sulaiman et al., 2020a). This made the real estate industry one of the most severely impacted industries. Due to the impact of MCO, the potential consumer can only watch the room tour with their existing devices non-immersive VR (computer or smartphone). Maya Bay Residences is a project for Property Guru which offers a 3D tour on their website.

As a result of the development of computer technology, it is now possible to simulate virtual environments using computers and currently available technology. Technology advancements have had a significant impact on the real estate market, resulting in the creation of virtual reality (VR) as a potential tool to improve the home-buying experience. (Athira and others, 2021). The real estate industry has adopted virtual reality (VR) technology to provide immersive and interactive features that

surpass traditional property viewing. Virtual reality (VR) technology enables prospective buyers to investigate and interact with properties virtually, resulting in a more realistic and engaging experience. It has been discovered that non-immersive VR technologies, such as 3D excursions, substantially increase the number of consumer behaviours on a website (Zhu, 2022). It has been discovered that non-immersive VR technologies, such as 3D excursions, substantially increase the number of consumer behaviours from a website perspective, highlighting the benefits of VR technology in the real estate market. VR technology has been incorporated in the real estate industry to save both sellers and purchasers time and money by employing modern technologies. (Deaky & Parv, 2018)

The real estate industry is becoming increasingly interested in using virtual reality (VR) technology to improve the experience of purchasing a property. VR technology offers a multisensory form of advertising that provides prospective purchasers with an innovative and engaging experience. (Nieradka, 2019). Researchers need to understand the factors that influence consumer intention to use VR technology. This is because consumer intention to use is critical to the adoption and utilisation of virtual reality technology in the home-buying process. Identifying and analysing these factors can provide industry professionals, developers, and technology providers with valuable insights for implementing VR solutions and creating enhanced purchasing experiences that meet the preferences and requirements of consumers.

Consumer intention to use of virtual reality technology in real estate is influenced by perceived usefulness, ease of use, enjoyment to adopt VR technology in the home buying process. The perceived usefulness plays a significant role in the evaluation of virtual reality technology by consumers. It refers to the perceived benefits and utility that consumers associate with the use of virtual reality in the process of purchasing real estate. The immersive and realistic experience provided by VR enables prospective purchasers to virtually investigate a property, visualise the space, and evaluate the property's overall suitability prior to a physical visit (Martínez-Navarro et al., 2019). This feature improves the decision-making process and reduces the need for multiple in-person visits, sparing both buyers and property agent time and effort (Deaky & Parv, 2018). Besides, the VR technology should be usable, easy to access, and user-friendly to increase consumer acceptance (Zhu, 2022). Personal

beliefs and prior experiences can influence positive attitudes towards virtual reality, which can increase the technology's acceptance.

This study seeks to resolve this gap in the literature by investigating the factors that influence consumer intention to use virtual reality for enhancing buying experience in real estate. This study employs a comprehensive theory, such as the Technology Acceptance Model (TAM), to identify the underlying factors that influence consumers' intention to use of VR technology.

1.3 Problem Statement

In their previous study, Deaky and Parv (2018) conducted a VR implementation for a real estate developer, with the specific goal of enhancing immersion. They concluded that this technology is well-suited for showcasing houses that are yet to be constructed. Nevertheless, many obstacles to the widespread acceptance and use of virtual reality (VR) technology still remain unresolved (Yu, 2011). While numerous studies have explored the use of virtual reality in various contexts (Martínez-Navarro et al., 2019), few have probed into the factors influencing consumer adoption of VR in the real estate buying process. As the real estate industry continues to adapt technological advancements, comprehending the factors influencing consumer intention to use and acceptance adoption of virtual reality (VR) technology is crucial (Nieradka, 2019). The adoption of VR technology can revolutionize how prospective buyers view and interact with properties by offering a more immersive and authentic experience. However, this technology remains underutilized due to several factors, including perceived usefulness, ease of use, enjoyment (Martínez-Navarro et al., 2019).

Additionally, the COVID-19 pandemic highlighted the need for more effective remote and virtual property viewing options, making this study both timely and relevant (Azmi et al., 2023). The pandemic had a significant economic impact and prompted a significant shift towards digital marketing strategies. Thus, understanding the specific factors that affect consumer adoption of VR-enhanced real estate buying experiences is necessary. Identifying and understanding these factors can aid industry professionals, VR developers, and policymakers in creating effective strategies to

promote the acceptability and adoption of VR technology in the real estate industry (Deaky & Parv, 2018). However, the specific factors influencing consumer acceptability of virtual reality-enhanced real estate buying experiences remain inadequately understood. This lack of understanding represents a significant barrier to the comprehensive implementation of VR technology in the industry and a gap in knowledge (Deaky & Parv, 2018).

Hence, the research challenge might be stated as follows: "There is a significant gap in current research concerning the precise determinants that factor consumer intention to use of virtual reality in the real estate purchasing experience, resulting in the inefficient utilization of this technology within the industry." The study aims to present an innovative approach for utilising virtual reality (VR) in the world of real estate, with the objective of facilitating customer acceptance of VR room tours.

1.4 Research Question

1. What are the factors that influence consumer intention to use virtual reality in the real estate industry?
2. Which is the most significant variable affecting the consumer intention to use virtual reality in the real estate industry?

1.5 Research Objective

1. To identify the factors that influence consumer intention to use virtual reality in the real estate industry.
2. To identify the most significant variable affecting the intention to use virtual reality in the real estate industry.

1.6 Scope of Study

This study seeks to investigate the factors that influence consumer intention to use non-immersive virtual reality (VR) technology in the Kuala Lumpur real estate industry. The independent variable will be on three factors: perceived utility, perceived usability, and perceived enjoyment. The primary concentration will be on non-immersive VR technologies, such as computer-based and smartphone-based VR

applications. By limiting the scope to a specific location and specific form of non-immersive VR technology, this study seeks to shed light on the factors driving consumer intention to use VR in the Kuala Lumpur real estate industry. The study will employ a quantitative research methodology to collect information from prospective purchasers in Kuala Lumpur. The researchers will collect data from the target population in Kuala Lumpur via survey questionnaires like google form.

1.7 Significant of Study

The significance of this study is in its investigation of the variables that impact consumer inclination to use virtual reality (VR) in the real estate industry, with particular emphasis on perceived usefulness, ease of use, and enjoyment. The anticipated result of this research is to understand the function of virtual reality (VR) technology in improving the real estate purchasing experience and to facilitate its broader acceptance. The study's findings will enhance the current knowledge base by addressing the gap in comprehension on the particular aspects that impact customer intention to use virtual reality (VR) in the real estate industry. Ultimately, the study's insights and recommendations will help industry professionals develop effective strategies to implement VR technology, increase consumer acceptability of VR, and create more immersive and engaging property exploration experiences. Simultaneously, it is expected that consumers utilizing VR to view properties will benefit from reduced travel time, transportation expenses, and the effort spent on sifting through various properties.

1.8 Summary

This chapter introduces a study proposal aimed at examining the determinants that impact consumer intention to use of virtual reality (VR) within the real estate sector. It emphasizes the importance of comprehending these factors and addresses the underutilization of VR technology within the industry. Also described are the study's research questions, objectives, scope, and prospective impact.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The chapter will provide a comprehensive overview of the real estate industry. The researcher will determine and explain the dependent and independent variables employed in this study, namely perceived usefulness (PU), perceived ease of use (PEOU), perceived enjoyment (PE), intention to use virtual reality in the industry of real estate. The association between the variables will be determined by analysing previous empirical studies. This chapter will also provide an examination of the study's theoretical models and theoretical framework.

2.2 Real Estate Industry

According to Chernus, N.Y. (2021), real estate can be defined as property consisting of land and its building structure and its natural resources, such as cereals, minerals, and water. It is a complex concept that takes spatial, urban planning, investment, and environmental considerations at the regional level into account (Holovachov, 2022). Real estate incorporates a vast array of activities pertaining to the purchase, sale, renting, and development of properties. This includes residential, industrial, and commercial properties. There are numerous legal, regulatory, and contractual issues within the industry. The construction industry and other real estate business activities comprise the majority of the real estate sector (Erol, I, 2015) The real estate rental market is an important aspect of the industry, and its growth is essential for the industry's constant and robust expansion (Meng, 2019). The International Accounting Standards Board has provided a precise definition of a real estate business that offers clarity on whether a transaction should be classified as an asset purchase or a business combination (Ruan, 2021). The introduction of novel real

estate classifications inside the legal framework requires an enhancement in the legal administration of real estate rights and transactions (Chernus, N.Y., 2021). The International Accounting Standards Board has provided a precise definition of a real estate business that offers clarity on whether a transaction should be classified as an asset purchase or a business combination (Ruan, 2021). The introduction of novel real estate classifications inside the legal framework requires an enhancement in the legal administration of real estate rights and transactions (Chernus, N.Y., 2021).

Real estate is often related to activities bought and sold. The value of real estate can fluctuate depending on market conditions and other factors (Holovachov, 2022). Besides, land use regulations, zoning laws, and property taxes are examples of legal and regulatory issues that can arise in real estate transactions (Chernus, N.Y, 2021). Real property may also be subject to contractually imposed limitations and encumbrances on the right of ownership (Sevryukova, I, 2021). In addition, real estate can be prepared for sale or rental by staging, which involves making the property visually appealing to prospective purchasers or tenants (Bonenberg & Wlazły, 2022).

The real estate industry is a crucial driver of economic growth and development due to its tremendous significance and extensive scope. Globally, the real estate industry is a significant contributor to Gross Domestic Product (GDP) (Chunlu, L et al., 2005). Numerous nations' economies are supported by the construction industry and other real estate business activities, which have made significant contributions to the economic development of regions (Abdulai et al., 2015). The building industry and other real estate business activities, which include establishments engaged in real estate management, selling, purchasing, appraising, and mortgage lending, collectively define the overall real estate sector. Important investment opportunities exist in the real estate industry, with a concentration on market and financial analysis (Wu, J et al., 2015). The concept of real estate encompasses several dimensions, including spatial, urban planning, investment, and environmental aspects, which play an essential part in regional development (Holovachov, 2022). In addition, home staging, which refers to the professional preparation of real estate for sale or rental, places significant attention on enhancing the visual attractiveness of interiors and their impact on potential homeowners. Home staging plays a crucial role in the marketing, economic,

and sales aspects of designing architectural interiors. The citation for this information is Bonenberg and Wlazły (2022).

The significance of customer behaviour in the real estate sector. When people buy or rent a property, they go through a decision-making process. The decision-making process consists of many steps, including problem identification, information retrieval, option assessment, purchase choice, and post-purchase evaluation. Consumers take into account factors such as the geographical position, cost-effectiveness, facilities, and personal preferences.

2.3 Virtual Reality

(Lee et al., 2013) define immersive technology as a type of technology that creates a feeling of being completely absorbed or involved in an experience, making it difficult to distinguish between the real, virtual, and simulated worlds. Immersive technologies encompass virtual reality (VR), augmented reality (AR), and mixed reality (MR) (Lee et al., 2013). Virtual Reality (VR) is a computer technology that utilises virtual reality headsets to create lifelike visuals, sounds, and other sensations that imitate a user's physical existence in a virtual setting (Milgram & Kishino, 1994). Originating in the middle of the 20th century, virtual reality has experienced exponential growth and advancement in tandem with the evolution of technology. Figure 2.1 illustrates the "reality-virtuality continuum" proposed by Milgram and Kishino in 1994. This concept suggests a seamless progression from the real world to the virtual environment.

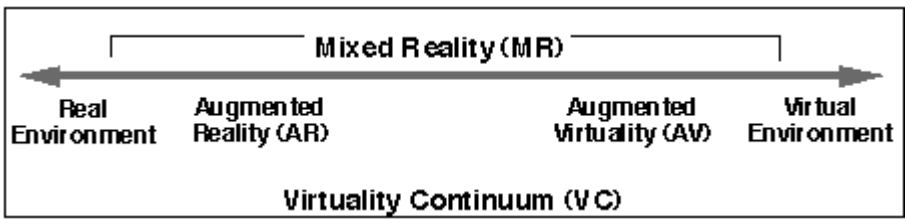

Figure 2. 1: Simplified representation of reality-virtuality continuum

Milgram and Kishino (1994) and Milgram et al. (1994) provide a definition for the left side of the continuum, which refers to any environment that only consists of tangible things and contains all the elements of a real-world setting that can be directly perceived either in person or through a display. On the other hand, settings that only

contain virtual things, such as computer visual simulations, accurately represent the designated space. Figure 2.1 illustrates that augmented reality (AR) is a component of the wider idea of mixed reality. Mixed reality involves the combination and fusion of elements from both the physical and virtual realms on a single screen. Conversely, virtual reality (VR) is a simulation of tangible reality and exists exclusively within a simulated universe (Azuma, 1995). Virtual reality enables users to enter an all-encompassing, computer-generated environment, leading to a strong feeling of being there (Bekele and Champion, 2019). The combination of tangible and intangible entities might be present at any point along the spectrum, spanning from one extreme to the other. Augmented reality (AR) is a technology that overlays virtual information onto the actual world, as described by Azuma (1995). On the other hand, virtual reality (VR) creates realistic simulations inside an interactive virtual environment, as explained by Lee et al. (2013). Hence, it is important to differentiate between Virtual Reality (VR) and Augmented Reality (AR).

2.3.1 Differential between Virtual Reality (VR) and Augmented Reality (AR)

In recent years, Virtual Reality (VR) and Augmented Reality (AR) have become increasingly popular immersive technologies. However, they have fundamental differences that impact their applications and user experiences. Despite the fact that both technologies offer consumers a distinctive experience, there are significant distinctions between them.

VR technology generates a fully simulated environment that effectively separates the user from the physical world by deeply engaging them in an alternate reality (Bailenson, 2018). This technology use virtual reality headsets or multi-projected settings to provide lifelike visuals, sounds, and other experiences that replicate a user's actual existence in a virtual or fictional world. The headgear tracks the user's head motions and adapts the perspective appropriately, generating the perception that the user is fully engaged in the virtual realm. The virtual environment allows for user interaction and manipulation of items (Milgram & Kishino, 1994). In addition, virtual reality utilises a peripheral device, commonly a head-mounted display (Bonetti, Warnaby, & Quinn, 2018; Peddie, 2017).

Alternatively, augmented reality (AR) integrates digital information with the user's environment in real-time, superimposing virtual objects onto the physical world to enhance the perception of reality (Azuma, 1997). This merger of the physical and digital realms occurs while the user remains in the real world and interacts with it. This experience is typically facilitated by mobile devices, smart eyewear, or AR headgear, with the latter two providing a more immersive experience (Carmigniani & Furht, 2011). AR is interoperable with smartphones, tablet computers, helmets, and spectacles (Peddie, 2017). A user views the actual world through a smartphone or tablet on which an augmented reality (AR) application has been installed. The application uses the device's camera to capture the real world and then displays digital information, such as images, videos, or text, onto the display. AR has multiple applications, including gaming, education, and marketing. Mobile games, such as Pokémon Go, Mobile Legends, PUBG, and others, may also increase the efficacy of augmented reality marketing because they enable gamers to overlay real-world game scenarios on their mobile phones (Yim et al., 2017).

Any application's choice between virtual reality and augmented reality depends on the intended user experience. Virtual reality provides total immersion in a simulated environment, but isolates the user from the actual world (Sherman & Craig, 2003). On the other hand, AR augments the user's existing reality with virtual elements, facilitating simultaneous interaction with both the physical and virtual environment (Azuma et al., 2001; Carmigniani & Furht, 2011). Both have possible benefits in the context of real estate. VR can provide prospective purchasers with immersive virtual property tours, sparing them time and resources (Smith, 2019). On the other hand, AR can superimpose digital information onto physical spaces, such as visualizing how furniture may appear in a room (Jerald, 2015).

2.3.2 Application of Virtual Reality

According to Lee et al. (2013), immersive technology refers to technology that hides the distinction between the actual, virtual, and simulated surroundings. Immersive technologies encompass virtual reality (VR), augmented reality (AR), and mixed reality (MR), as defined by Lee et al. (2013). Augmented Reality (AR) is a technology that overlays virtual information onto the real environment (Azuma, 1995).

The utilization of these technologies in recent years has provided opportunities for diverse research investigations in various fields, including psychology and healthcare (Diemer et al., 2015; Shin, 2018), education (Ke et al., 2016), retail, and marketing (Pizzi et al., 2019; Van Kerrebroeck et al., 2017). The objective is to enhance the efficiency of their work processes (Heydarian et al., 2015). The present research on immersive technologies primarily examines the impact of these technologies on user experience and explores their potential to enhance user performance (Suh & Prophet, 2018).

According to Diemer et al. (2015), virtual reality has the potential to simulate real-world situations and the physical world, which allows researchers to examine human behaviour in a controlled setting. The immersive and present nature of VR has facilitated extensive research on customer behaviour in the retail and marketing sectors (Martínez-Navarro et al., 2019; Scarpi et al., 2014). These studies indicate that virtual stores successfully prompt customers to exhibit behavioural and evaluative reactions. Furthermore, Bleize & Antheunis (2019) provided evidence that virtual marketing strategies have the ability to cultivate positive product perceptions. Product visualisations in virtual reality (VR) have the potential to enhance consumers' purchasing intentions by allowing them to assess, experience, and engage with the items before making a purchase. Moreover, marketers may employ VR to enhance customer experience and create more engaging commercials by utilizing immersive technology (Scholz & Smith, 2016). The realism of VR simulation enables customers to envision their emotions and sensations as if they own or acquired a certain goods. Van Kerrebroeck et al. (2017) found that virtual reality generates positive opinions towards the product and encourages consumers to intend to make a purchase.

2.3.2.1 Application of Virtual Reality in Real Estate Industry

The application of digital visualisation in marketing research has extended to the residential real estate sector as well (Azmi et al., 2022). Residential real estate companies in the US, such as Redfin and Sotheby's, have started using virtual reality (VR) technology to offer virtual tours. These tours allow clients to explore homes in a simulated environment using 3D virtual walkthroughs (Sihi, 2018). Recent studies have shown that virtual reality (VR) and augmented reality (AR) can improve the process of purchasing a property. It has been demonstrated to offer significant time

convenience for both real estate agents and purchasers during the house purchasing process, for instance by enabling buyers to quickly tour properties in various regions (Sihi, 2018). Additionally, virtual reality (VR) assists in the visualisation of houses that are being built or developed, particularly when selling off-the-plan homes using the sell-before-you-build concepts (Juan et al., 2018).

Additionally, studies have indicated that VR can make pre-occupancy evaluations of houses for persons with disabilities easier, particularly during the early design stages when determining if the home setting is appropriate for individuals with disabilities (Azmi et al., 2022). VR may be used to assess how well people with disabilities perform on physical tasks that are reproduced in a constructed environment, such as moving around the house in a wheelchair (Palmon et al., 2018). Research suggests that VR might provide valuable insights for designing and constructing customised environments that are specifically adapted to accommodate the challenges faced by those with disabilities when doing everyday household tasks.

Previous studies conducted with prospective homebuyers in Taiwan have demonstrated that the use of virtual reality (VR) enhances their understanding of the housing project under development and increases their desire to purchase the property (Juan et al., 2018). Nevertheless, their research revealed concerns over the satisfaction of potential homebuyers with virtual reality (VR) and the limited acceptance of this technology by local real estate developers for future property sales (Juan et al., 2018). The limited satisfaction experienced by potential homebuyers regarding the utilization of VR for pre-sales of homes may be attributed to the complex nature of the homebuying process, which entails a substantial financial transaction and requires a high level of emotional involvement from the individual (Jørgensen, 2016). Furthermore, when contemplating the purchase of a property, it is essential to take into account the emotional and personal satisfaction aspects. Understanding the impact of emotions on decision-making is essential when utilizing VR as a tool for assessing residential real estate in the market. This is in addition to considering factors such as the property's price and location (Andrew & Larceneux, 2019).

While previous research has shown positive results using VR to visualize and enhance user experience in the construction industry, it is critical to study how the virtual environment of VR affects user behaviour, especially in the context of

residential real estate marketing (Suh & Prophet, 2018). Research exploring the technology's impact on users' emotions and behaviour appears to have been overlooked or overlooked. Also, exploring user acceptance of VR has not been done.

Recent research in Malaysia has advocated the use of VR in the local real estate industry because it might save expenses associated with developing display homes and enhance its marketing strategy as an alternative to traditional marketing tactics, particularly during the Covid-19 epidemic (Sulaiman et al., 2020b; Yoke et al., 2018). However, fewer studies have been done to determine how this virtual reality technology affects customer acceptability of room tours when compared to traditional marketing methods employing physically built show houses. While VR technology for real estate is widely embraced in the United States, it is important to recognize that diverse cultural contexts can shape individuals' perspectives regarding the use of this technology for purchasing homes (Sihi, 2018). Therefore, this study aims to focus on the consumer intention to use the virtual reality technology to see the home touring especially Malaysian home buyers or home seekers in Kuala Lumpur. This is because VR technology is new in Malaysia, and many of problems require consideration. Thus, this study is only to examine, whether the respondent can accept the use of technology in real estate. At the same time, this study will focus on non-immersive virtual reality like computer or smartphone with a virtual environment.

2.4 Technology Acceptance Model (TAM)

In 1986, Fred Davis created the Technology Acceptance Model. Based on an adaptation of the Theory of Reasonable Action (Ma & Liu, 2005), TAM was developed to measure the consumer acceptability of information systems and technology. The Technology Acceptance Model (TAM) has received a significant amount of empirical support from researchers and practitioners in the form of validations, applications, and replications, indicating that TAM is consistent across time, locations, populations, and technologies. It is one of the most popular models used to predict and explain end-user behavior, system usage, and IT adoption. Since hundreds of studies have evaluated this model in the field of information systems, TAM is gaining popularity as a theory suited to the information management context (Chen, Li, & Li, 2011). Two specific components of this theory are recommended for a more complete comprehension of

technological acceptance. Perceived usefulness refers to the degree to which an individual believes that using a specific system would improve their work performance. On the other hand, perceived simplicity of use refers to the degree to which an individual believes that using a specific system would require minimal physical and mental effort.

Based on the Theory of Reasoned Action (TRA), TAM was developed. The TRA asserts that an individual's behavior is determined by his intention to perform the action, and that behavioral intention is influenced by the individual's attitudes and subjective norms regarding the objective conduct (Fishman & Ajzen, 2011). Subjective standards, perceived behavioral constraints, and attitudes toward technology use may be incorporated into TRA and the Theory of Planned Behavior to investigate system utilization (Chen, Li, & Li, 2011). TAM, like TRA, suggests that fundamental beliefs, such as perceived ease of use and perceived utility, moderate the effect of exogenous variables, such as system design attributes, on intention. Davis modified his conceptual model based on previous work by Fischbein and Ajzen and other pertinent research studies to present the Technology Acceptance Model, as depicted in the figure below.

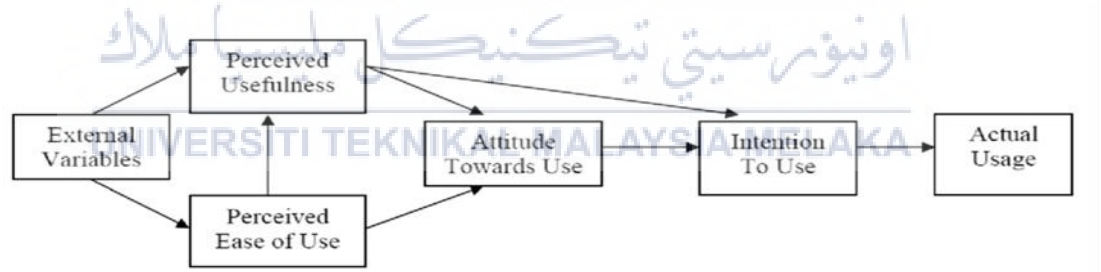

Figure 2.2: Technology Acceptance Model (Davis, 1989)

TAM is well-known and has been the subject of multiple studies, particularly in relation to technological adoption (Lee, Kozar, & Larsen, 2003). According to the study (Slade, Dwivedi, Piercy, & Williams, 2015), TAM has become the most prevalent framework for evaluating information systems and information technology studies. In addition to assisting researchers and professionals in determining why particular technologies or systems are accepted or rejected, TAM provides a comprehensive explanation and estimate.

Next, the perceived ease of use and perceived usefulness are the primary determinants of the intention to use (Shaw, 2014). Moreover, TAM research demonstrates a positive relationship between perceived usefulness and perceived ease of use (Van der Heijden, 2003). In order to determine consumer intent regarding virtual reality utilization, the current study incorporated both variables. The decision to exclude "actual use" from the study was made in order to place greater emphasis on consumers' intentions as opposed to their past usage patterns. This method permits a more in-depth examination of consumers' attitudes and intention to use regarding the adoption of virtual reality in the real estate insudtry, while isolating their intrinsic motivations from external factors that may influence their actual utilization behavior. In addition, the study acknowledges that external factors, such as technological limitations, infrastructure availability, and market conditions, may influence actual usage. By concentrating on intent, the study is able to analyze consumers' perceptions and attitudes in a controlled environment, yielding valuable insights into their innate preferences for virtual reality adoption in real estate, independent of external influences. Besides, the technology has not matured in Malaysia. Therefore, actual use is eliminated in this study.

According to the TAM model, an individual's behavioural intention to use a technology is determined by two beliefs: perceived ease of use and perceived utility. Davis, Bagozzi & Warshaw (1992) later characterised perceived usefulness as an external incentive and perceived enjoyment as an internal motivation. Davis et al. (1992) defined perceived enjoyment as "the extent to which the activity of using the computer is perceived to be enjoyable in and of itself, apart from any anticipated performance consequences." Perceived enjoyment is a form of intrinsic motivation because it emphasises the delight and inherent satisfaction derived from a particular activity. Thus, perceived enjoyment is the extension of variables that will be incorporated in this study. The TAM model with perceived enjoyment variable will show in the Figure 2.3.

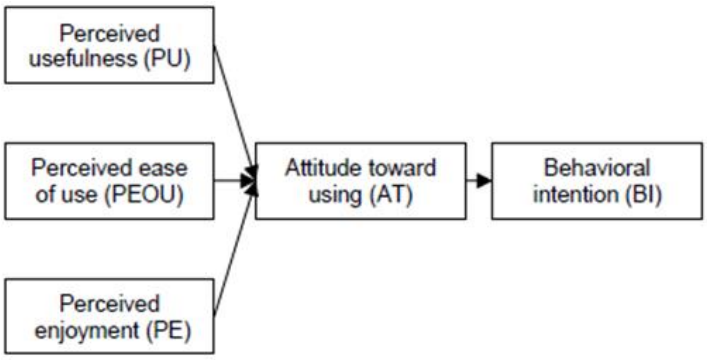

Figure 2. 3: TAM with perceived enjoyment based on Davis, Bagozzi & Warshaw (1992)

2.5 Predictors of Outcome

2.5.1 Perceived Usefulness

Perceived usefulness (PU) is a variable which is constructed in the technology acceptance model (TAM). It refers to faith and confidence of an individual that the adoption of a particular system can achieve enhancement on his or her performance and productivity of job and equip him or her with features which can assist in facilitating and guaranteeing the execution (Malik & Annuar, 2019). In general, it illustrates the anticipation of a user regarding the performance of a specific system. Agrebi & Jallais (2014) stated that perceived usefulness is describes as a person's viewpoint regarding the advancement of performance of the tasks with the employment of particular system.

2.5.2 Perceived Ease of Use

Perceived ease of use (PEU) refers to the extent which a specific system is believed to be free of effort. It is found that people would prefer using new technology if it is perceived to be easy to use (Saade & Bahli, 2005). Perceived ease of use is described as the state which a transformation or modernization introduced is easy to understand and use. Ease of use can be shown in the usage frequency and interaction among the users and the system. System which is widely used tend to demonstrate its better recognition, easier operation and application for users (Iriani & Andjarwati, 2020).

In addition, perceived ease of use refers to the extent of an individual's confidence in utilising a system with minimal effort, leading to its easy acceptance by users. Perceived ease of use, as described by Wiwoho (2019), refers to the extent to which a user feels that utilising technology from a certain website is simple, comprehensible, and requires minimal effort. Perceived ease of use, as defined by Wilson et al. (2021) in their research, refers to the level of convenience for consumers to evaluate the amount of work and duration needed to learn a new technological system, allowing them to provide either a favourable or negative review.

2.5.3 Perceived Enjoyment

Perceived enjoyment (PE) is acknowledged in scholarly literature as a significant behavioral belief, alongside perceived usefulness (PU) and perceived ease of use (PEOU), influencing attitudes and ultimately behavioral intentions toward adopting new technology (Rese et al., 2017). The definition of perceived enjoyment, as provided by Davis et al. (1992), characterizes it as "the degree to which the activity of using technology is perceived to be enjoyable in its own right apart from any performance consequences that may be anticipated." This concept refers to the extent to which an individual finds the act of utilizing a particular technology delightful, irrespective of any anticipated performance outcomes (Davis, Bagozzi, & Warshaw, 1992; Pantano & Di Pietro, 2014; Venkatesh, 2000). Enjoyment is linked to an emotional state or internal motivation that can potentially encourage consumers to engage with the technology (Pantano & Di Pietro, 2014). Individuals who derive pleasure from exploring virtual rooms may exhibit increased engagement during the visitation process, potentially leading to longer and more frequent interactions with the technology.

2.5.4 Consumer Intention to Use

The research considers consumer intention to use as the dependent variable, with this intention being influenced by the technological factors outlined earlier. Consumer intention to use VR technology is the likelihood that individuals will adopt a specific new technology, specifically virtual reality within the real estate sector. This

concept is frequently explored in the context of technology adoption and utilization behaviors (Sánchez-Torres, 2019).

Within the real estate industry, the advantages of virtual reality have the potential to impact consumers' intentions to use it. For example, the utilization of virtual reality enables consumers to undergo immersive virtual tours of properties, facilitating more informed decision-making (Cummings & Bailenson, 2016). The incorporation of virtual reality (VR) in real estate stands to significantly enhance consumer experiences by providing a more lifelike perception of property spaces, particularly beneficial when physical visits are inconvenient or unfeasible (El-Said & Aziz, 2022).

The two most significant TAM constructs that are utilised to support outcomes, either directly or indirectly, are PEOU and PU (Scherer, Siddiq & Tondeur, 2019). They went on to say that both notions are frequently enhanced by outside factors in order to explain why PEOU and PU be different. Together with PEOU and PU serving as TAM's attitude determinants, attitude is also a critical factor in predicting a person's desire to utilise innovative technologies (Song, Ruan & Jeon, 2021).

In conclusion, consumer intent to use is a multidimensional concept influenced by personal, social, and contextual variables. In this study, the consumer intention to use is influenced by PU, PEOU and PE. It is vital to the adoption and utilisation of virtual reality in the real estate industry.

2.5 Research Framework

The study incorporates a research framework. The left side displays the independent variable, while the right side displays the dependent variable.

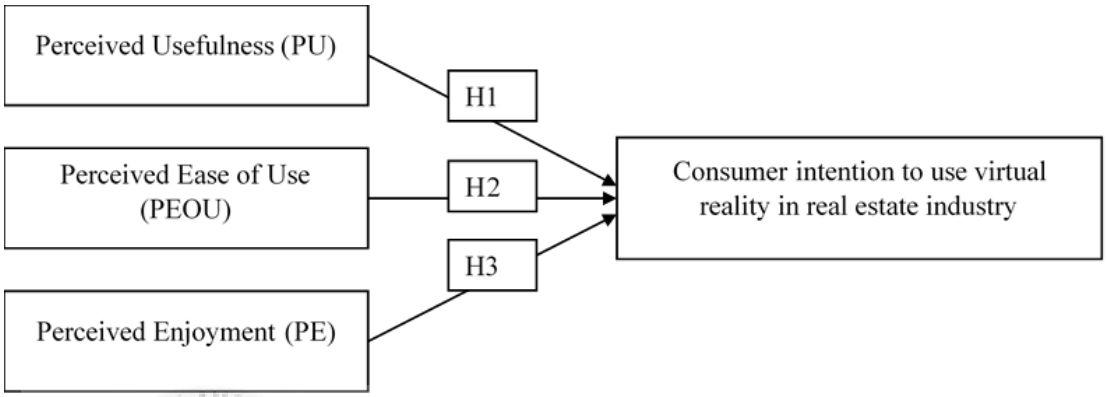

Figure 2. 4: Research Framework for this study

2.6 Research Hypothesis

Hypothesis 1:

H_1: There is a significant relationship between **perceived usefulness** and consumer intention to use virtual reality (VR) in the real estate industry.

Hypothesis 2:

H_2: There is a significant relationship between **perceived ease of use** and consumer intention to use virtual reality (VR) in the real estate industry.

Hypothesis 3:

H_3: There is a significant relationship between **perceived enjoyment** and consumer intention to use virtual reality (VR) in the real estate industry.

2.7 Summary

This chapter focuses on the definition and idea of virtual reality, as well as the background of the Technology Acceptance Model (TAM). The TAM is built upon prior research conducted by various researchers. Furthermore, a comparison is made between the differences of AR and VR. Unlike augmented reality, virtual reality is shown as a technology that creates fully immersive virtual environments. Moreover, the primary goal of the framework depicted in Figure 2.3 is to offer a more distinct understanding of the aspects that impact customer intention to use VR technology. The researcher designed a study framework based on the TAM, which includes three independent factors and one dependent variable. The study examined the relationship between perceived usefulness, perceived ease of use, and perceived enjoyment of VR technology as independent factors, and consumer intention to use the technology as the dependent variable. Finally, the researcher also developed hypothesis testing methods to assess the correlation between the independent factors and the dependent variable. The study's analytical approach will be discussed in the subsequent chapter.

CHAPTER 3

METHODOLOGY

3.1 Introduction

In the previous chapter, the researcher provided an overview of virtual reality, real estate, hypothesis, and introduced the conceptual research framework. Building upon that foundation, this chapter will explain the methodology employed in this study to gather information and statistics. The selection of an appropriate methodology is crucial as it directly impacts the study's outcomes. The purpose of employing research methods is to not only validate the hypothesis but also collect data that can effectively address the research questions and achieve the research objectives. Consistent implementation of the methodology is vital to ensure the attainment of the research objectives. This chapter explores several aspects of the research process, including research design, method selection, data collection sources, sampling design, research strategy, data analysis methods, validity, and reliability.

3.2 Research Approach

In deductive research methods, specific hypotheses derived from existing theories or frameworks are tested. In the study on the factors influencing consumer intention to use virtual reality in real estate industry, a deductive research strategy would be appropriate for examining the relationships between variables in light of established theories and prior research. Using a deductive research methodology, the researcher begins with a theoretical framework or a set of hypotheses regarding the impact of virtual reality on consumer intention to use the technology. The research

design includes the collection of data that can be analysed to support or refute these hypotheses. This methodology permits the researcher to draw conclusions based on logical deductions from the gathered data (Creswell & Creswell, 2018).

3.3 Research Design

This research examines the factors that influence the consumer intention to use VR in real estate industry. The researcher must use the research design as a general strategy by justifying the selection of data resources, collection methods, and data analysis technique to achieve the research objective (Saunders et al., 2019). A research design for virtual reality in real estate can be exploratory and descriptive. According to Collis and Hussey (2009), exploratory research is essential for comprehending novel disciplines with limited prior research. Its adaptable nature allows it to refine its methodology and define the research problem with precision. It functions as a foundation for more targeted, in-depth investigations despite its breadth and flexibility (Collis & Hussey, 2009).

There are numerous methods to conduct this study, including searching for relevant literature, conducting interviews on the topic, conducting interviews with focus groups, and frequently more. Therefore, it is feasible to conduct a descriptive study if the data or information important to the research topic can be gathered. Using the questions, the researcher would use the descriptive study to conduct surveys and interviews and collect all the necessary data (Ghauri and Gronhaug, 2010). At once, explanatory analysis can also be applied to the concept of the sample. (Saunders et al., 2019) An explanatory analysis is an investigation into a condition or problem to explain the relationship between variables.

The variety of surveys that explain the answers to who, when, why, and when questions will require descriptive analysis. Depending on the sample, this method will add an effective relationship between independent variables and variables to a design study intended to assess improvements in the questionnaire response over time statistics. The objective of descriptive analysis, a method of conclusive research, is to explain something, typically the characteristics or functions of a business (Malhotra, 2007).

Description research is a comprehensive and systematic approach for determining a condition, population, or event. It can be used to answer the following queries, what, when, where and how, except why. This descriptive study design may investigate one or more variables using a variety of research methods. Descriptive research is a viable alternative when the purpose of the study is to define frequencies, trends, categories, and characteristics (McCombes, 2019). The objective of descriptive research methods is to accurately and methodically characterize a situation, population, or phenomenon. Descriptive research is used to discover a large number of individuals, which aides in defining the variability of various phenomena (Burns & Bush, 2006).

For instance, the researcher will conduct a demographic study, collect population data, and conduct descriptive research on this community to better comprehend Malaysians' adoption of virtual reality,

3.4 Methodology Choice

Quantitative, qualitative, and mixed methodologies may be utilized to establish a research connection. According to Rovai et al. (2014), quantitative research is a deductive approach to inquiry. Closed queries or question are used in quantitative research and are based on hypotheses that have already been developed (Ishtiaq, 2019). In addition, qualitative research focuses on discovering and comprehending "the meaning individuals or groups ascribe to a social or human problem" (Creswell, 2014). There are different sources including observation, unstructured interviews, group interviews, and the collection of documentary materials, can be used to conduct qualitative research (Ishtiaq, 2019).

The study used the quantitative research methodology to get significant and relevant responds, thus accomplishing the research objectives. This is because it can provide results with a high level of accuracy and precision, and the data is easily understandable. The selection of this research approach was chosen as it prioritizes the acquisition of quantitative information and data, as compared to qualitative research. Furthermore, quantitative research depends on a larger sample size, allowing for the examination and confirmation of predetermined hypotheses. In addition, the repeated

method of quantifying the data allows reviewers to make comparisons in similar situations (McCusker & Gunaydin, 2015). The study is conducted by integrating secondary data obtained from external sources, including peer-reviewed scientific journals, reports, statistics, and books, with primary data acquired through a web-administered online survey.

3.5 Source of Data

Data sources are the methods used to obtain, incorporate, and collect respondent information through questionnaire surveys. Primary information and secondary data are two different categories of data. In this research study, the researcher employs both primary and secondary data as a method for data acquisition and report completion. Most studies required a combination of primary and secondary data in order to attain their objectives (Saunders et al., 2019). In this analysis, the researcher integrated all data analysis tools using both primary and secondary data.

3.5.1 Primary Data Source

As outlined by Saunders et al. (2019), primary data pertains to original information gathered firsthand, specifically for the purpose of a research study. It encompasses data collected directly from the subject under analysis (Jilcha Sileyew, 2020). Aligned with the research design, primary data is commonly acquired through methodologies like surveys, interviews, observations, and experiments.

For this study, primary data will be collected through online surveys with potential real estate industry consumers who have been interested and interacted with virtual reality technologies. The benefit of using primary data is that it provides direct insights into the research problem, ensuring that the collected data are pertinent and tailored to the research objectives. However, obtaining primary data is frequently time-consuming and can be more expensive than using secondary data. Furthermore, the specificity and depth of primary data make it a valuable resource for the current research study.

3.5.2 Secondary Data Source

Secondary data consists of previously collected and analyzed information that has been repurposed for a separate study (Saunders et al., 2019). These data may originate from a variety of sources, including government reports, industry statistics, research papers, journal article and databases (Bryman, 2016). Secondary data may lack the specificity and direct relevance of primary data. For example, secondary data typically cover a larger population and extended time period, are easier and less expensive to obtain, and can increase the validity and reliability of the research by corroborating findings from the primary data (Saunders et al., 2019).

Secondary data will supplement the primary data for this study, providing a broader context for the analysis. These data can provide valuable insights into the overall trends and patterns in consumer adoption of virtual reality in real estate and serve as a basis for comparison with the primary data of the study (Archer, 2023).

3.6 Location of Research

The research is conducted around Kuala Lumpur, the capital city of Malaysia, providing a promising setting for investigating the application of virtual reality (VR) in the real estate industry. As a result of foreign investments and the rise of middle-income households, the city's real estate market is experiencing significant growth (World Bank, 2020), making it an ideal location for evaluating the effects of VR technology. According to Ganbold S. (2023), the real estate investment outlook in APAC by city in 2023 is 4.96 for Kuala Lumpur. Other states in Malaysia have a lower index score than Kuala Lumpur. Given the government's commitment to increasing digital adoption in enterprises (Ministry of Communications and Multimedia Malaysia, 2021), there is the potential for a rise in the use of virtual reality in the real estate industry.

3.7 Population and Sample Size

The population is defined as the entire set of case study make inference about. In this study, the term "population" refers to Malaysian households, which are defined as a set of unrelated individuals residing in a single place of residence. According to DOSM, there were 8,2 million households in Malaysia in 2020, of which 97.3% were private households. According to this published statistic, the population is greater than one million.

Researchers adopt G*Power to ascertain the needed sample size for their investigations, ensuring the reliability and significance of the findings. GPower enables researchers to perform power evaluations for various statistical tests, enabling them to make educated decisions regarding the necessary sample size to get enough statistical power. From the G*Power calculator, the test family is F tests and number of predictors are 3, thus the results of total sample size are 119 respondents. This show researcher needs to gather data respondents at least 119. At the end of the data collection, researchers get the total respondents 230 for this research.

3.8 Sampling Technique

Probability sampling, also known as "random sampling," gives each item in the universe an equal chance of being included in the sample (Etikan, 2017). It is essential to remember that a sample provides data more efficiently than a census. In order to generalize the results of this investigation, a sample population was utilized.

This study adopted purposive sampling which is one of the non-probability samplings. Non-probability sampling is used to properly reflect the intended population (Pace, 2021). This method was chosen because non-probability sampling may be utilized to better investigate a problem (Amir et al., 2020). Besides, the method also practicality and cost-effectiveness. Firstly, the study aimed at those who already start to work aged between 25 and 60 years old. Secondly, people who have affordable salaries to buy house. Thirdly, people who have the intention to try a new technology. The researchers also included replies from individuals aged 18-24 in the questionnaire, as this paper solely investigates their intention or motivation to utilise this technology. According to Szymkowiak et al. (2021), this age group as youth adopt and use new

technologies. By incorporating these individuals into the study, researchers have the opportunity to gather valuable insights into the perceptions and adoption of virtual reality within the real estate industry, specifically among this particular demographic. This inclusion became imperative given the study's focus on factors influencing consumer intention to use virtual reality in real estate. Consequently, respondents were required to adhere to these criteria when responding to the surveys. Respondents will explore project properties through a 360-degree virtual tour on Gamuda Cove's website. They will view the virtual tour using non-immersive virtual reality (via a computer or smartphone) before completing a questionnaire within a Google Form. The researcher has provided the link to the Gamuda Cove non-immersive VR showroom on the first page of the questionnaire.

Participants for the study will be identified and recruited through various online platforms where virtual reality in real estate is a focus, including social media groups, online forums, and suggestions of agents. The researcher shared the questionnaire on Facebook groups dedicated to real estate or property rentals in Kuala Lumpur, such as "KL Property & Real Estate for Sale," "Properties in KL," "KL Property Rentals," and other similar groups. The aim is to obtain a sample size that is sufficient to ensure the reliability of the study while considering resource constraints.

3.9 Measurement of Variables

Research instrumentation refers to tools that are utilised to collect data and evaluate the results of the phenomena being studied (Taherdoost, 2021). This study aims to examine the factors influencing consumer intention to utilise virtual reality (VR) technology in the context of real estate purchasing. To gather data, a survey was conducted using booklet questionnaires. The survey approach was used for this study due to its suitability for explanatory research and its ability to provide a standardised inquiry that would be given uniformly to all respondents (Jain, 2021).

The booklet questionnaire, survey form, or Google Form was divided into three sections. Section A is about the respondent's demographic profile; Section B is about perceived usefulness, perceived ease of use, and perceived enjoyment as technology factors that have an impact on VR technology; and Section C is about the consumer's or home buyer 's intention to use VR technology. There were five constructs measured

in the questionnaires. All questions are measured by using the 5-point Likert scale. The measurements are 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1 = Strongly Disagree were used to measure the respondents' agreement with the statements.

3.10 Data Analysis Methods

Data analysis was then carried out after data collection. The statistical tests were carried out using the most widely used programme among academics, SPSS version 23.0 (Statistical Software Package for Social Sciences). There were five statistical tests that were used in data analysis which were descriptive analysis, reliability test, normality test, Pearson's correlation coefficient and regression test.

3.10.1 Pilot test

A pilot test is a preliminary trial conducted before the main research to evaluate the feasibility and effectiveness of the study's design, data collection methods, and other elements. As noted by Aithal & Aithal (2020), pilot testing is a crucial phase in guaranteeing that the questionnaire effectively captures participants' perspectives and concepts. The main goal of a pilot test is to identify potential issues and refine the study's framework before committing substantial time and resources to a more comprehensive investigation. In this study, only 30 respondents will be involved in conducting the pilot test.

3.10.2 Descriptive Analysis

Descriptive analysis is a form of observational study design that permits researchers to examine and describe the distribution of one or more variables without regard to causal or other hypotheses. It is a technique used to provide descriptive knowledge and comprehension of the phenomenon being investigated. In qualitative data analysis, which is a method for identifying patterns, themes, and categories in the data, descriptive analysis is frequently used. SPSS is a statistical application that,

among other statistical analyses, can be used for descriptive analysis (Aggarwal & Ranganathan, 2019).

3.10.3 Normality Test

The normality test helps to check whether the collected data is normally distributed. This is important because non-normality affects the accuracy of statistical tests (Knief & Forstmeier, 2021). Normality tests were performed for each questionnaire item in each variable. The normality of the data can be judged by the skewness and kurtosis values of each item. Hair, Black, Babin, and Anderson (2010) and Demir, S (2022) proposed that when the skewness value of a variable is less than ±3 and the kurtosis value is less than ±10, the variable is considered to be normally distributed.

3.10.4 Reliability Analysis

According to Kreutzer, DeLuca, and Caplan (2011), reliability is the degree to which a measurement achieves its accuracy without mistake. The stability and credibility of the survey results demonstrate the trustworthiness of the measurement in terms of consistency or stability (Luo et al., 2019). The Cronbach Alpha reliability test is used in SPSS to evaluate the internal consistency, or reliability, of the measurement apparatus.

3.10.4.1 Cronbach Alpha

According to Revicki (2014), internal consistency is a measurement of reliability. It demonstrates the extent to which a tool's component measures multiple aspects of the same features. Cronbach's alpha is widely regarded as a reliable estimator of internal consistency. Alpha evaluates the proportion of variance that is consistent and organised in a set of survey responses. Typically, the gauge of statistics ranges between 0 and 1. However, negative figures are possible when there is no positive correlation between the variables. Alpha is proportional to the number of scale items (Vaske, Beaman, & Sponarski, 2017). The reliability estimate illustrates the

frequency of measurement errors in a test. When the approximation of reliability rises, the proportion of test scores that are influenced by error falls (Tavakol & Dennick, 2011).

Table 3.1: Rule of Thumb in Cronbach's Alpha

Source: Hair J. F. et al., (2003).

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Very Good
$0.8 > \alpha \geq 0.7$	Good
$0.7 > \alpha \geq 0.6$	Moderate
$0.6 > \alpha$	Poor

The table above shows that the value above 0.9, having the highest reliability, indicates excellent. Value between 0.8 and 0.9 is very good and value between 0.7 and 0.8 is considered good. Moreover, when value falls under the category between the values of 0.6 and 0.7, it is moderate. Lastly, value lower than 0.6 has the least reliability and is poor.

3.10.5 Pearson's Correlation Analysis

The sample correlation coefficient, denoted as "r," is generated through correlation analysis and is utilized to assess the direction and strength of linear associations between sets of continuous data (University Libraries, n.d.). This statistical measure gauges the extent of the relationship between variables, focusing on joint variations rather than establishing causality (Kafle, 2019; Flynn, 2003). The correlation coefficient, ranging from -1.00 to +1.00, signifies a perfect absence of correlation at 0, while -1.00 or +1.00 indicates a perfect association between two variables (Jr et al., 2021). Assessing the correlation coefficient aids in understanding the degree of connection between the variables under investigation, guiding researchers in interpreting the observed patterns in the data.

3.10.6 Muptiple Regression Analysis

The questionnaire's reliability and validity were assessed using SPSS23.0. It is commonly accepted that the consistency and stability of variables increase with the value of the Alpha coefficient (Lu et al., 2021). The dependability improves with increasing factor loading (Yaru, 2020). In a regression study, the objective is to investigate the relationship between the independent variable X and the dependent variable Y (Jr et al., 2021).

The coefficients in multiple regression analysis, specifically 0 and +1, indicate the strength of the correlation between the dependent variable and independent variables. A coefficient of 0 signifies that the independent variable has no impact on the fluctuation of the dependent variable. Conversely, a coefficient of +1 implies that the independent variable can statistically explain all the variance in the dependent variable (Shrestha, 2020).

3.10 Summary

This chapter presents the research methodology for a study exploring factors influencing consumer intention to use virtual reality in the real estate industry. Employing a deductive approach, the study examines relationships between variables based on existing theories and utilizes an exploratory and descriptive research design for data gathering through literature reviews, and surveys. The selected method is quantitative research with 230 respondents, combining secondary data from external sources with primary data from a questionnaire survey, enabling hypothesis testing, and offering findings with high precision and accuracy.

CHAPTER 4

DATA ANALYSIS

4.1 Introduction

This chapter contains a discussion of the results and findings that will be provided after conducting data analysis through the online questionnaire survey. The purpose of this analysis is to rank the consumer intention to use virtual reality (VR) as a new technology skill for a home tour in real estate. Data analysis will involve descriptive statistic techniques, including the utilization of the relative importance index. A pilot test was distributed by the researcher before being distributed to the actual respondents. Responds from a total of 230 respondents were collected to form the major part of this chapter and cover the objectives of the study besides used it for the final analysis. Thus, Statistical Package for Social Science (SPSS 23) was used to calculate and analyze the data of descriptive analysis, Pearson correlation coefficient and multiple regression analysis.

4.2 Pilot Test

The researcher ran a pilot test to ensure the respondents would comprehend the questionnaires. The purpose of the pilot test was to demonstrate the validity of the researcher's questions. As a result, there may be less chance of error and misinterpretation in this pilot, which could impact the validity and dependability of the results. Therefore, this pre-test aims to minimize respondents' uncertainty when answering the survey, which could result in inaccurate study findings. After the pilot test was finished, a few adjustments were made. The researcher chose 30 respondents to fill out the questionnaire via Google Form for the pilot test before continuing to collect data until there were 230 respondents. The items in the table below have all

been confirmed to be valid and reliable. The researcher utilised SPSS to examine the data's reliability, and the Cronbach's alpha technique was used to assess the data's reliability. There was a test of the three independent variables, which are perceived usefulness, perceived ease of use, and perceived enjoyment, and one dependent variable, which is consumer intention to use VR, during the pilot test.

There were 30 participants in the pilot test, mostly between the ages of 25 and 44. There were 22 men and 8 women. The participants had a wide range of expertise within the real estate industry. About 16 of the participants had previously used virtual reality viewing houses, and about 18 of them had monthly household incomes between RM3000 and RM6000.

Table 4.1: Reliability Statistics for Independent Variable 1 (Perceived Usefulness)

Sources: (SPSS Output)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.861	5

The reliability statistics for Independent Variable 1: Perceived Usefulness (PU) are shown in Table 4.1 above. There are five questions included in the questionnaire for IV1. The Cronbach's Alpha value for Perceived Usefulness (IV1) is 0.861, which is higher than 0.7. As a result, IV1 is considered acceptable and good because Cronbach Alpha Coefficient Range is between 0.8 to 0.9.

Table 4.2: Reliability Statistics for Independent Variable 2 (Perceived Ease of Use)

Sources: (SPSS Output)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.860	5

Table 4.2 presents the reliability statistics for Independent Variable 2: Perceived Ease of Use (PEOU). The questionnaire for Independent Variable 2 comprises five questions. The Cronbach's Alpha value for Perceived Ease of Use (IV2) is 0.860, surpassing the threshold of 0.7. Therefore, the reliability of IV2 is deemed acceptable and good, falling within the Cronbach Alpha Coefficient Range of 0.8 to 0.9.

Table 4.3: Reliability Statistics for Independent Variable 3 (Perceived Enjoyment)

Sources: (SPSS Output)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.769	5

The reliability statistics for Independent Variable 3: Perceived Enjoyment (PE) are shown in Table 4.3 above. There are five questions included in the questionnaire for Independent Variable 3. The Cronbach's Alpha value for Perceived Enjoyment (IV3) is 0.769, which is higher than 0.7. As a result, IV3 is considered acceptable because the Cronbach Alpha Coefficient Range is between 0.7 to 0.8.

Table 4.4: Reliability Statistics for Dependent Variable (Consumer Intention to Use

Sources: (SPSS Output)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

.

Reliability Statistics

Cronbach's Alpha	N of Items
.748	5

The reliability statistics for the Dependent Variable: Consumer Intention to Use VR in Real Estate (CI) are shown in Table 4.4 above. There are five questions included in the questionnaire for Dependent Variable. The Cronbach's Alpha value for Consumer Intention to use VR in real estate (DV) is 0.748, which is higher than 0.7. As a result, DV is considered acceptable because the Cronbach Alpha Coefficient Range is between 0.7 to 0.8.

Table 4.5: Reliability Statistics for All Items (Overall)
Sources: (SPSS Output)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.930	20

The reliability statistics for all 20 items are presented in Table 4.5 The Cronbach's Alpha value is 0.930, which is higher than 0.7. As a result, it suggests that it has high reliability and that the questionnaire was trustworthy. Consequently, the researcher can confidently proceed with data collection until reaching a sample size of 230 respondents.

4.3 Descriptive Analysis

Descriptive analysis involves the compilation of a dataset that represents either the entire population or a selected sample, providing an overview of the sample and its findings. Each data sample undergoes assessment, accompanied by graphical analysis. Preliminary analysis, a specific type of descriptive analysis, involves gathering information from questionnaires to describe and explain the data presented and its functionality within the sample. This approach employs tables, graphs, and summaries to illustrate, describe, and elucidate the collected data. In essence, descriptive analysis serves as a comprehensive tool for presenting and interpreting various aspects of a dataset.

In this study, the researchers decided to distribute surveys via Facebook groups for real estate, rentals, and property sales in the KL area as well as via Google Forms. The first section, which is Section A, consists of gender, age, household income,

experience in real estate, and prior VR experience for viewing hose. Meanwhile, questions have been covered in Section B on dependent variables that focus on technology factors such as perceived usefulness, perceived ease of use, and perceived enjoyment. Lastly, Section C is a dependent variable that consists of the consumer's intention to use VR in real estate.

4.3.1 Respondents Demographic Analysis

Section A of the questionnaire begins with collecting demographic information about the 230 respondents. This section contains 5 demographic questions, such as gender, age, household income, experience years in real estate, and prior VR experience for viewing house.

4.3.1.1 Gender

Table 4.6: Gender of Respondents

Source: SPSS Output

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	131	57.0	57.0	57.0
	Female	99	43.0	43.0	100.0
	Total	230	100.0	100.0	

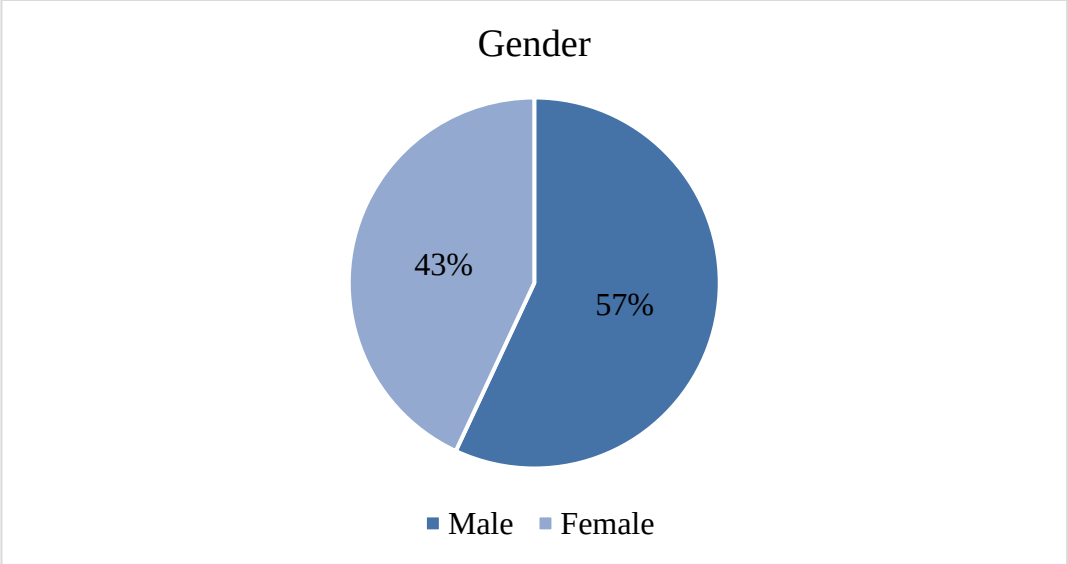

Figure 4.1: Pie Chart for Respondents Gender

Table 4.6 and Figure 4.1 present the distribution of respondents based on their gender, indicating both the frequency and percentage. The research attracted a total of 230 participants. Among them, 131 were male, constituting 57.0%, and 99 were female, making up 43.0% of the total respondents.

4.3.1.2 Age

Table 4. 7: Age of Respondents

Source: SPSS Output

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	18	7.8	7.8	7.8
	25-34	138	60.0	60.0	67.8
	35-44	51	22.2	22.2	90.0
	45-54	18	7.8	7.8	97.8
	55 and above	5	2.2	2.2	100.0
	Total	230	100.0	100.0	

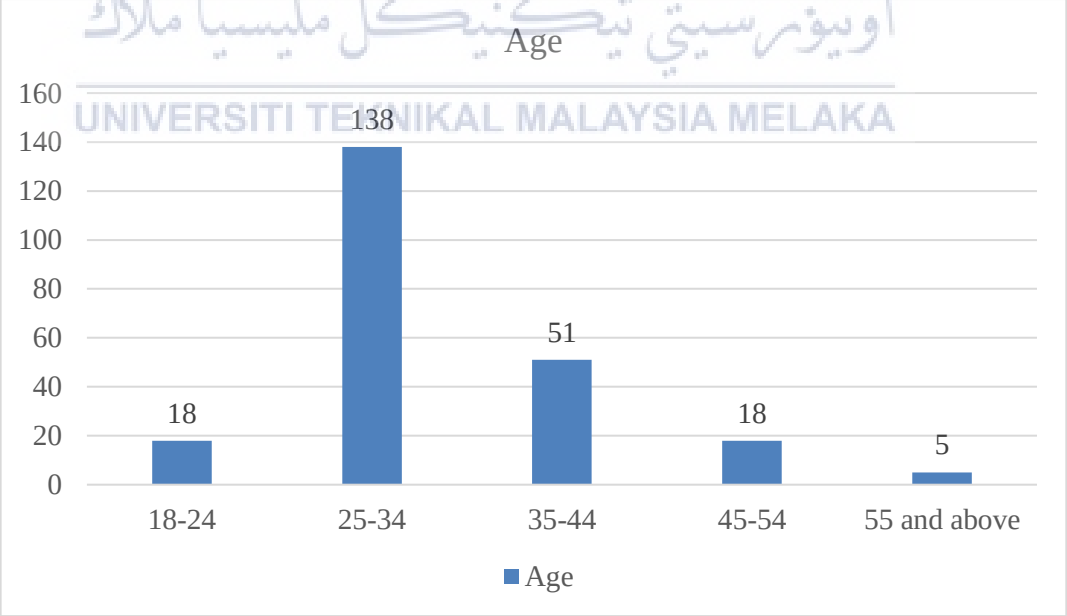

Figure 4.2: Bar Chart for Respondents Age

Table 4.7 and Figure 4.2 show the frequency and percentage based on the age of respondents. There are five categories for age range: 18–24 years old, 25–34 years

old, 35–44 years old, 45–54 years old, and 55 years old and above. Out of the total of 230 respondents, the most respondents' ages ranged from 25 to 34 years old, which is 138, or 60.0%. Second, 51 respondents or 22.2% were aged between 35 and 44 years old. There are 18 respondents or 7.8% in the age range of 18 to 24 years old and 45 to 54 years old respectively. In the age range of 55 years old and above, only 5 respondents or 2.2% were involved in this study.

4.3.1.3 Household Income

Table 4.8: Household Income of Respondents

Source: SPSS Output

Household Income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than RM3000	18	7.8	7.8	7.8
	RM3000-RM5999	136	59.1	59.1	66.9
	RM6000-RM8999	57	24.8	24.8	91.7
	More than RM9000	19	8.3	8.3	100.0
	Total	230	100.0	100.0	

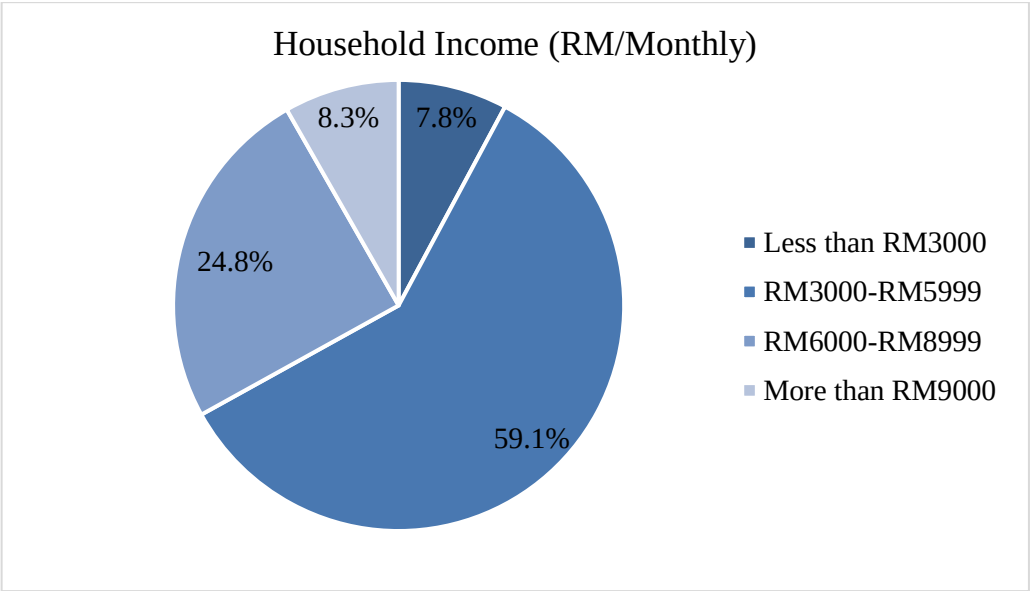

Figure 4.3: Bar Chart of Respondents Household Income

Table 4.8 and Figure 4.3 depict the frequency and percentage distribution based on respondents' household income. The income ranges are categorized as follows: less than RM3000, RM3000-RM5999, RM6000-RM8999, and more than RM9000. Out of the total 230 respondents, the majority, accounting for 136 individuals or 59.1%, fell within the household income range of RM3000 to RM5999. The second-largest group comprised 57 respondents, constituting 24.8%, with household incomes falling between RM6000 and RM8999. Those with incomes exceeding RM9000 constituted 19 respondents, making up 8.3%. Only 18 respondents, or 7.8%, had household incomes less than RM3000.

4.3.1.4 Experience in Real Estate (years)

Table 4.9: Respondents Experience in Real Estate

Source: SPSS Output

Experience in Real Estate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	116	50.4	50.4	50.4
	6-10 year	78	33.9	33.9	84.3
	11-15 years	25	10.9	10.9	95.2
	More than 16 years	11	4.8	4.8	100.0
	Total	230	100.0	100.0	

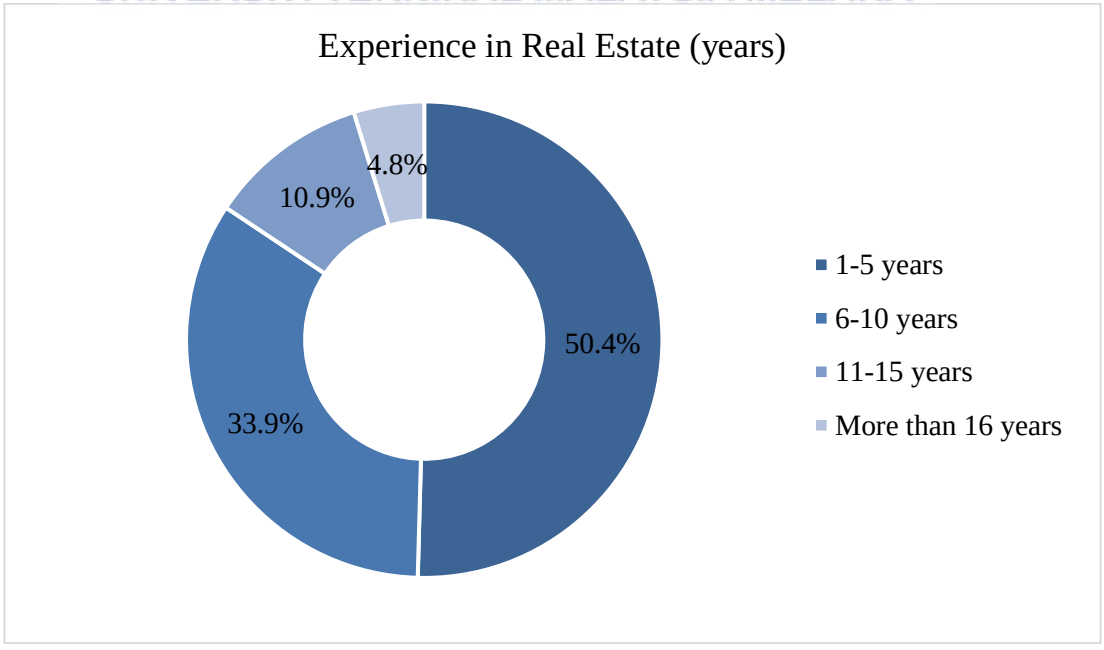

Figure 4.4: Bar Chart of Respondent’s Experience in Real Estate

Table 4.9 and Figure 4.4 illustrate the frequency and percentage distribution of respondents' experience in the real estate sector. The experiences were categorized into four groups. The most substantial group comprised 116 respondents, constituting 50.4%, with an experience range of 1 to 5 years. The second-largest group included approximately 78 respondents, or 33.9%, who reported having 6 to 10 years of experience in real estate. Following this, 25 respondents, or 10.9%, indicated having 11 to 15 years of experience. Lastly, 11 respondents, or 4.8%, reported having more than 16 years of experience.

4.3.1.5 Prior VR experience for Viewing house

Table 4.10: Prior VR Experience for Viewing house

Source: SPSS Output

Prior VR Experience for Viewing House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	96	41.7	41.7	41.7
	No	134	58.3	58.3	100.0
	Total	230	100.0	100.0	

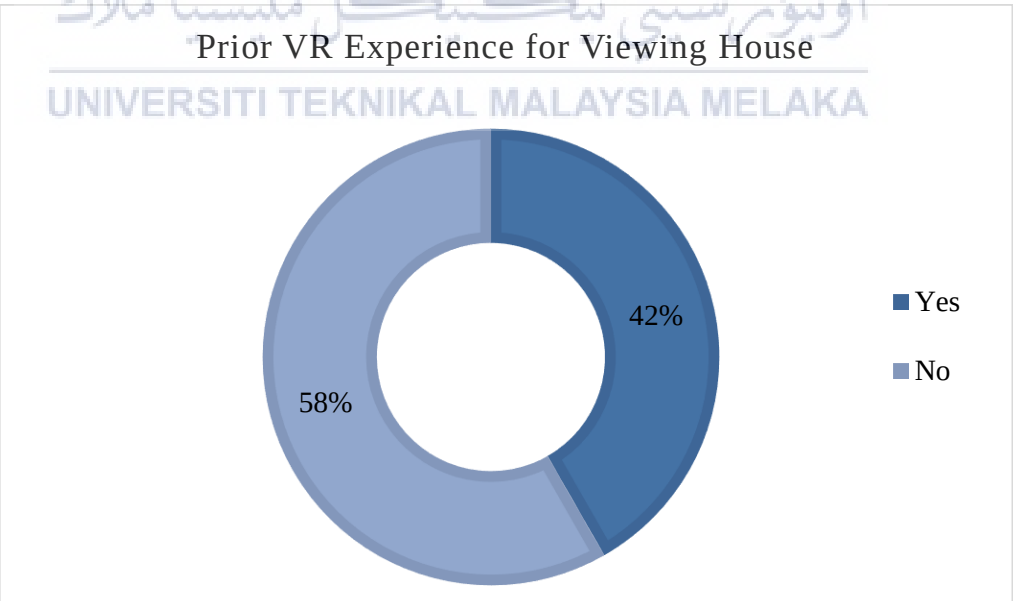

Figure 4.5: Pie Chart of Respondents Prior VR Experience for Viewing House

In Table 4.10 and Figure 4.5, the respondents' prior VR experience for viewing houses was illustrated. Among them, 134 respondents or 58.3% had not used VR for viewing house before. Conversely, only 96 respondents or 41.7% had previous experience using VR for viewing houses. Although 134 participants hadn't experienced using VR for viewing houses before, their responses were highly valuable. Their insights assisted in understanding what consumers might get from VR and their intention to use VR. The researcher's consideration of both new and experienced users provided a deeper understanding of why individuals might be drawn to VR for viewing houses.

4.3.2 Descriptive Statistic Analysis of Independent Variable

Three measuring questions for independent variables, including perceived utility, perceived ease of use, and reported enjoyment, were included in the questionnaire. The dimensions in the model were measured using a five-point Likert scale, where 1 represented "strongly disagree," 5 represented "strongly agree," and 3 represented "neutral."

4.3.2.1 Descriptive Statistic Analysis of Independent Variable 1 (IV1)

Table 4.11: Descriptive Statistic Analysis of Perceived Usefulness (PU)

Source: SPSS Output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PU1: Using VR in real estate would help me be more productive	230	1.00	5.00	3.89	.972
PU2: Using VR in real estate would increase my efficiency in property selection	230	1.00	5.00	3.92	.813
PU3: Using VR in real estate would be useful in my property selection	230	1.00	5.00	4.05	.791
PU4: Using VR in real estate gives me a better understanding of property layouts, dimensions and features	230	1.00	5.00	4.09	.879
PU5: Using VR in real estate increase ability to compare and evaluate different properties (save time)	230	1.00	5.00	4.27	.795
Valid N (listwise)	230				

Table 4.11 shows the descriptive statistic of perceived usefulness, which is independent variable 1 (IV1) in this research. From table 4.11, the findings revealed that the highest mean value of the PU factor was 4.27 with the item “PU5: Using VR in real estate to increase the ability to compare and evaluate different properties (save time)," and the value of the standard deviation for PU5 was 0.795. They agreed that using the VR could save them time while comparing the different properties. In contrast, the lower value of the mean was the item “PU1: Using VR in real estate would help me be more productive," with a value of the 3.89 mean and standard deviation for PU1 of 0.972. Next, PU2: “Using VR in real estate would increase my efficiency in property selection” had the second-lowest mean with 3.92 and a standard deviation of 0.813. Moreover, the PU3: Using VR in real estate would be useful in my property selection had a mean value of 4.05 and the lowest standard deviation value of 0.791.

Lastly, the PU4: Using VR in real estate gives me a better understanding of property layouts, dimensions, and features had a mean value of 4.09 and a standard deviation of 0.879.

4.3.2.2 Descriptive Statistic Analysis of Independent Variable 2 (IV2)

Table 4.12: Descriptive Statistic Analysis of Perceived Ease of Use (PEOU)

Source: SPSS Output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PEOU1: Using VR in real estate does not require a lot of mental effort	230	2.00	5.00	4.25	.833
PEOU2: Using VR in real estate would be easy for me	230	1.00	5.00	4.34	.820
PEOU3: Using VR in real estate would be clear and understandable	230	2.00	5.00	4.50	.792
PEOU4: Using VR in real estate would require very little effort on my part	230	1.00	5.00	4.28	.748
PEOU5: Using VR in real estate would be easy for me become skilful	230	1.00	5.00	4.09	.877
Valid N (listwise)	230				

Table 4.12 illustrates the descriptive statistics of perceived ease of use (PEOU), serving as the independent variable 2 (IV2) in this research. As per the table, the item registering the highest mean value of 4.50 was "PEOU3: Using VR in real estate would be clear and understandable," with a standard deviation of 0.792. Conversely, the item “PEOU5: Using VR in real estate would be easy for me become skilful” had the lowest mean value at 4.09, accompanied by a standard deviation of 0.877. The second highest value of the standard deviation was 0.833 with the item “PEOU1: Using VR in real estate does not require a lot of mental effort” and 4.25 for the mean value. Next, the item “PEOU4: Using VR in real estate would require very little effort on my part”

recorded the lowest value of the standard deviation, which is 0.748, and a mean value of 4.28. Lastly, the item “PEOU2: Using VR in real estate would be easy for me” had a mean value of 4.34 and a standard deviation value of 0.820.

4.3.2.3 Descriptive Statistic Analysis of Independent Variable 3 (IV3)

Table 4.13: Descriptive Statistic Analysis of Perceived Enjoyment (PE)

Source: SPSS Output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
PE1: I believe I would have fun using VR in real estate	230	1.00	5.00	4.34	.741
PE2: I enjoy the experience of exploring properties through VR	230	1.00	5.00	4.28	.754
PE3: The viewing enjoyments makes me want to live in a house like this	230	1.00	5.00	4.13	.890
PE4: Interacting with VR in real estate would be stimulating than viewing picture	230	1.00	5.00	4.50	.685
PE5: I feel that I was absorbed in the viewing room tour with VR	230	1.00	5.00	4.27	.828
Valid N (listwise)	230				

Table 4.13 shows the descriptive statistic of perceived enjoyment, which is independent variable 3 (IV3) in this research. From table 4.13, the findings revealed that the highest mean value of the PE factor was 4.50 with the item “PE4: Interacting with VR in real estate would be stimulating than viewing picture" and the value of the standard deviation for PE4 was 0.828. In contrast, the lower value of the mean was the item “PE3: The viewing enjoyments makes me want to live in a house like this" with a mean value 4.13 and the standard deviation was 0.890. Next, “PE2: I enjoy the experience of exploring properties through VR” had the second-lowest mean with 4.28 and a standard deviation of 0.754. Moreover, the “PE1: I believe I would have fun using VR” had a mean value of 4.34 and a standard deviation of 0.741. Lastly, the

"PE5: I feel that I was absorbed in the viewing room tour with VR" had a mean value of 4.27 and a standard deviation of 0.828.

4.3.3 Descriptive Statistic Analysis of Dependent Variable

Table 4.14: Descriptive Statistic Analysis of Consumer Intention to Use VR (CI)

Source: SPSS Output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CI1: I intend to use VR when searching for properties in the future	230	2.00	5.00	4.45	.664
CI2: I will use VR within the foreseeable future	230	2.00	5.00	4.32	.747
CI3: I would prefer to use VR for property viewing over traditional methods (physical visit)	230	2.00	5.00	4.03	.804
CI4: I believe VR could become an essential tool for property searching in the future	230	2.00	5.00	4.50	.685
CI5: I would recommend the use of VR in real estate to others	230	3.00	5.00	4.01	.727
Valid N (listwise)	230				

Table 4.14 illustrates the descriptive statistics of consumer intention to use VR in real estate, serving as the dependent variable (DV) in this research. As per the table, the item registering the highest mean value of 4.50 was "CI4: I believed VR could become an essential tool for property searching in the future," with a standard deviation of 0.685. Conversely, the item "CI5: I would recommend the use of VR in real estate to others" had the lowest mean value at 4.01, accompanied by a standard deviation of 0.727. The highest value of the standard deviation was 0.804 with the item "CI3: I would prefer to use VR for property viewing over traditional methods (physical visit)" and 4.03 for the mean value. Next, the item "CI1: I intend to use VR when searching for properties in the future" recorded the lowest value of the standard deviation, which is 0.664, and a mean value of 4.45. Lastly, the item "CI2: I will use VR within the foreseeable future" had a mean value of 4.32 and a standard deviation value of 0. 747.

4.3.4 Descriptive Statistic Analysis of Independent and Dependent Variable

Table 4.15: Descriptive Statistic Analysis of Independent and Dependent Variable

Source: SPSS Output

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IV1	230	1.00	5.00	4.04	.664
IV2	230	1.40	5.00	4.29	.639
IV3	230	1.00	5.00	4.30	.633
DV	230	2.20	5.00	4.26	.573
Valid N (listwise)	230				

Table 4.15 above shows the results of the descriptive statistics of the independent and dependent variables. The researcher has utilised the Statistical Package for Social Sciences (SPSS) to examine the results of descriptive statistics. The independent variables were the technology factors influencing consumer intention to use VR in the real estate industry, whereby IV1 represents perceived usefulness, IV2 represents perceived ease of use, and IV3 represents perceived enjoyment, while the dependent variable was consumer intention to use VR in real estate.

From Table 4.15, perceived enjoyment as IV3 has scored the highest mean value, which is 4.30. This indicates that most of the respondents agreed with the statement that perceived enjoyment has the most impact on consumer intention to use new technology. With a mean value of 4.29, perceived ease of use (IV2) is in second place, and perceived usefulness (IV1) is third with a mean value of 4.04.

Furthermore, the value of the standard deviation is also shown in the table above. The IV1 scored the highest standard deviation, which is 0.664, among the three independent variables. IV3 followed it, with a standard deviation of 0.633. The lowest standard deviation among the three independent variables was IV2, which is 0.639. On the other hand, consumer intention to use VR in real estate, which acts as a dependent variable (DV), has a mean value of 4.26 and a standard deviation of 0.573. It reflects that respondents agreed that they had the intention to use new technology like VR while on a room tour.

4.4 Normality Test

To assess whether a data set is well-modelled by a normal distribution and to estimate the likelihood that a random variable underlying the data set will follow a normal distribution, normality tests are utilized. If the majority of participants are in the middle of the test results, and just a tiny fraction is on the right or left tails, the test is deemed normal. It shows one data cluster in the centre and the symmetry. According to Demir, S (2022), These ranges are ±3 for the skewness coefficient and ±10 for the kurtosis coefficient.

Table 4.16: Results of Normality Test

Source: SPSS Output

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PU1	230	3.89	.972	-.817	.160	.506	.320
PU2	230	3.92	.813	-.486	.160	.109	.320
PU3	230	4.05	.791	-.680	.160	.547	.320
PU4	230	4.09	.879	-1.034	.160	.832	.320
PU5	230	4.27	.795	-1.091	.160	1.296	.320
PEOU1	230	4.25	.833	-.950	.160	.286	.320
PEOU2	230	4.34	.820	-1.431	.160	2.348	.320
PEOU3	230	4.28	.748	-.820	.160	.620	.320
PEOU4	230	4.09	.877	-.836	.160	.491	.320
PEOU5	230	4.50	.792	**-1.611**	.160	2.009	.320
PE1	230	4.34	.741	-1.038	.160	1.243	.320
PE2	230	4.28	.754	-1.188	.160	2.104	.320
PE3	230	4.13	.890	-1.226	.160	2.125	.320
PE4	230	4.50	.685	-1.536	.160	**3.253**	.320
PE5	230	4.27	.828	-1.042	.160	.821	.320
CI1	230	4.45	.664	-1.163	.160	1.641	.320
CI2	230	4.32	.747	-1.099	.160	1.269	.320
CI3	230	4.03	.804	-.455	.160	-.362	.320
CI4	230	4.50	.685	-1.274	.160	1.260	.320
CI5	230	4.01	.727	**-.020**	.160	**-1.096**	.320
Valid N (listwise)	230						

The final normality test results are shown in Table 4.16. The skewness value of each question in the questionnaire ranges from -1.611 to -0.2, and the kurtosis value ranges from -1.096 to 3.253. According to the standard established by Demir, S (2022), the skewness within ±3 is considered to be normal, and the kurtosis within ±10 is considered to be normal distribution. It is certain that all the data meet the normal test, so it is considered each of the questionnaire to be normal distribution. The figure below shows the results of all independent variables and dependent variable in distribution curve.

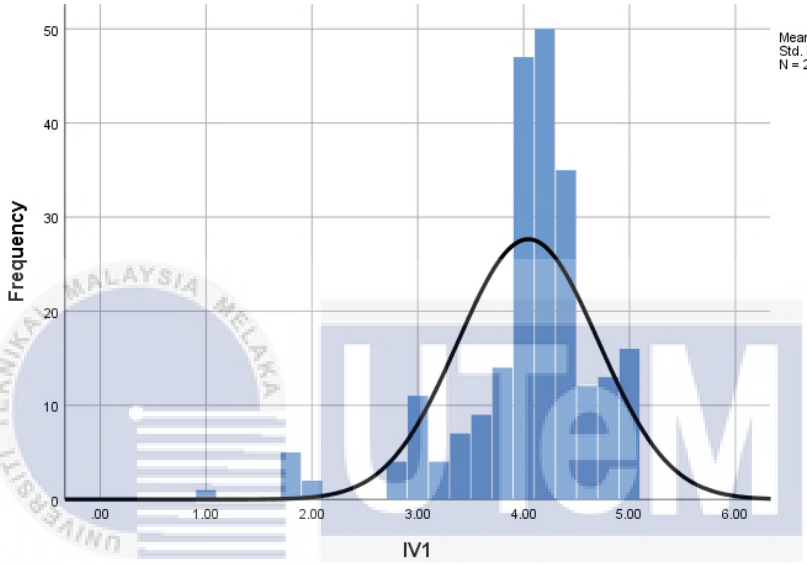

Figure 4.6: Distribution curve for independent variable 1 (Perceived Usefulness)

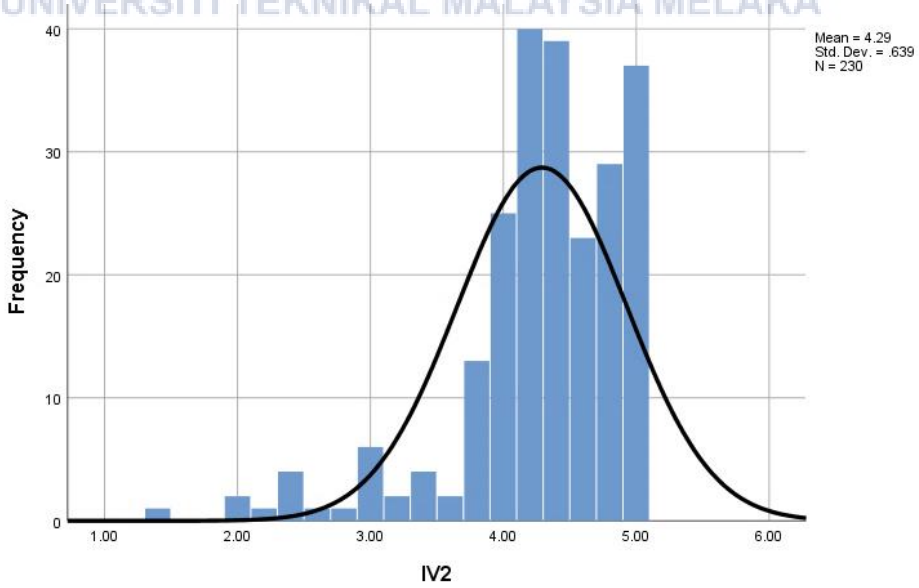

Figure 4.7: Distribution curve for independent variable 2 (Perceived Ease of Use)

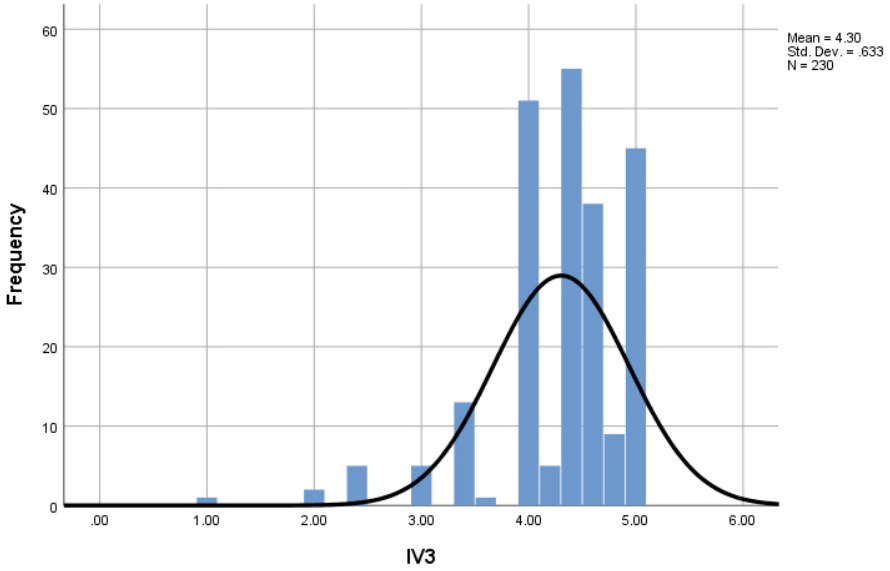

Figure 4.8: Distribution curve for independent variable 3 (Perceived Enjoyment)

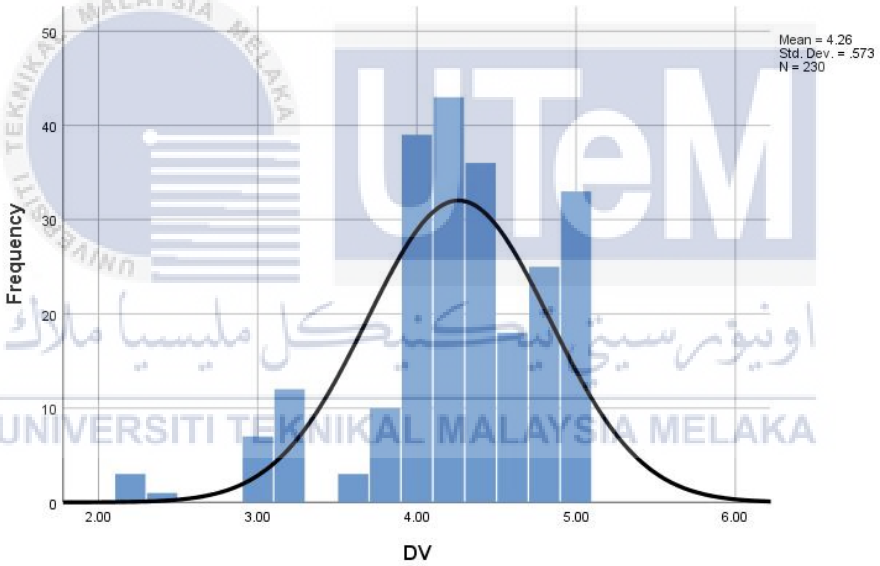

Figure 4.9: Distribution curve for dependent variable (Consumer intention)

4.4 Reliability Analysis

The questionnaire consistency, test, observation, and other methods of measurement were comparable to the reliability test. The analysis shouldn't contain any bias that could influence respondents to select any particular response. One option for a reliability test instrument is to use Cronbach's Alpha. The table below showed the range and the strength of association.

Table 4.17: Cronbach's Alpha Coefficient Range

Cronbach Alpha Coefficient Range	Strength of Association
$\alpha \geq 0.9$	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

Table 4.18: Reliability Statistics for All Items (Overall)

Case Processing Summary

		N	%
Cases	Valid	230	100.0
	Excluded[a]	0	.0
	Total	230	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.949	20

In this research, there were 20 items had been included in the questionnaires as purposed to test the reliability of the variables. According to the table above, Cronbach's alpha of reliability test statistics for all the variables were 0.949 which considered as excellent reliability valued.

Table 4.19: Summary of Reliability Analysis for Each Variables

Source: Developed from Research

Variables	Number of Items	Cronbach's Alpha	Strength of Association
Perceived Usefulness (PU)	5	0.837	Good
Perceived Ease of Use (PEOU)	5	0.843	Good
Perceived Enjoyment (PE)	5	0.868	Good
Consumer Intention to use VR (CI)	5	0.847	Good

Minimum alpha value from 0.7 to acceptable. Table 4.19 shows that all four variables exceeded the minimum alpha value of 0.7. Since, according to the alpha coefficient rule of thumb, all variables exceed the alpha value of 0.8, it means that they are all considered acceptable and have good reliability. PE has the highest alpha values ($\alpha = 0.868$) of all variables, indicating that the PE measurement construct is the most reliable and consistent. At the same time, the alpha value of PEOU and CI is about 0.84, is also considered a coherent legacy. The lowest alpha value is a CI of 0.837 and the strength of association is also considered good.

4.5 Pearson Correlation Analysis

Table 4.20: Pearson's Correlation Coefficients

Correlations

		PU	PEOU	PE	CI
PU	Pearson Correlation	1	.678**	.851**	.831**
	Sig. (2-tailed)		.000	.000	.000
	N	230	230	230	230
PEOU	Pearson Correlation	.678**	1	.676**	.663**
	Sig. (2-tailed)	.000		.000	.000
	N	230	230	230	230
PE	Pearson Correlation	.851**	.676**	1	.836**
	Sig. (2-tailed)	.000	.000		.000
	N	230	230	230	230
CI	Pearson Correlation	.831**	.663**	.836**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	230	230	230	230

**. Correlation is significant at the 0.01 level (2-tailed).

From Table 4.20, there are three independent variables: perceived usefulness (PU), perceived ease of use (PEOU), and perceived enjoyment (PE), whereas one dependent variable is consumer intention to use VR (CI). There shows the result of correlation between the independent variables and dependent variable. Based on the results, it shows that all the independent variables are positively correlate to the dependent variable.

Based on the data provided in Table 4.19, the correlation between PU, PEOU, and PE was classified as a positive relationship with CI. The first independent variable was PU, with a correlation coefficient (r) value of 0.831. The independent variable with the lowest correlation coefficient (r) value was PEOU, which had a correlation coefficient (r) value of 0.633. Subsequently, the correlation of the third independent variable was PE, with a value of 0.836 which was the highest correlation coefficient (r) value among the three independent variables.

The table shows a positive correlation between the three independent variables (PU, PEOU, and PE) and the dependent variable (CI). The first independent variable (PU) and the third independent variable (PE) have a high positive correlation with values of 0.831 and 0.836, respectively. The second independent variable (PEOU) has a moderate correlation with the dependent variable (CI) since their Pearson coefficient values are in the range of 0.41 to 0.70, corresponding to 0.663. Consequently, all independent factors exhibited a positive correlation with the dependent variable.

4.6 Multiple Regression Analysis

The researcher used multiple regression analysis to determine the strength and significance of the association between the independent variables, which are perceived usefulness (PU), perceived ease of use (PEOU) and perceived enjoyment (PE), along with the dependent variable, which is consumer intention to use VR in real estate (CI).

Table 4.21: Model Summary of Multiple Regression Analysis

Source: SPSS Output

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	PE, PEOU, PU[b]	.	Enter

a. Dependent Variable: CI

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.870[a]	.757	.753	.28443

a. Predictors: (Constant), PE, PEOU, PU

The Table 4.20 is the Model Summary table. This table presents the values for R, R^2, adjusted R^2, and the standard error of the estimate. These values are useful for assessing the goodness of fit of a regression model to the data.

The value of R, which represents the multiple correlation coefficient, is indicated in the "R" column. R can be viewed as a metric used to evaluate the accuracy of forecasting the dependent variable, namely the consumer's intention to use VR. A value of 0.870 indicates a significant level of prediction accuracy or a strong association in this scenario. The "R Square" column presents the R2 value, which is sometimes referred to as the coefficient of correlation. This number represents the proportion of the variability in the dependent variable that can be explained by the independent variables. Specifically, it quantifies the amount of variance explained by the regression model, exceeding that of the mean model. The number of 0.757 indicates that our independent variables account for 75.7% of the variability observed

in our dependent variable, CI. This suggested that consumer intention to use VR in real estate was 75.7% influenced by the independent variables, which were perceived usefulness, perceived ease of use and perceived enjoyment. The rest 24.3% (100%-75.7%) was influence by other unknown factors that not stated in this research. Moreover, the adjusted R^2 values of 0.753 indicate that around 75.3% of the variance in the dependent variable, which is CI, could be clarified by the regression predictor variables.

4.6.1 Anova

Table 4.22: Anova

Source: SPSS Output

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.864	3	18.955	234.300	.000[b]
	Residual	18.283	226	.081		
	Total	75.148	229			

a. Dependent Variable: CI

b. Predictors: (Constant), PE, PEOU, PU

The F-ratio in the ANOVA table tests whether the entire regression model fits the data well. The table shows that the independent variables have strong statistical significance in predicting the dependent variable as shown by $F(3, 226) = 234.3$, $p<0.05$, which means the regression model accurately represents the data. It can be assumed that there is a significant correlation between the independent variables and the dependent variable. Therefore, all independent factors showed statistical significance in their influence on the dependent variable. The independent variables, namely perceived usefulness, perceived ease of use, and perceived enjoyment, influence the dependent variable of consumer intention to use virtual reality in real estate.

4.6.2 Coefficients

Table 4.23: Coefficients
Source: SPSS Output

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.808	.140		5.770	.000
	PU	.339	.056	.393	6.055	.000
	PEOU	.095	.041	.105	2.284	.023
	PE	.389	.059	.431	6.655	.000

a. Dependent Variable: CI

b. Predictors: (Constant), PE, PEOU, PU

Based on the results above, PU, PEOU, and PE had p-values less than 0.05, which are 0.000, 0.023, and 0.000, respectively. It indicates that three independent variables show a significant and positive relationship with the dependent variable (CI).

Table 4.23 above indicates the result of the coefficient for multiple regression analysis. The beta value of PU was 0.339 with a significant value of 0.000, while the beta value of PEOU was 0.095 with a significant value of 0.023. Besides, the beta value PE was 0.389, with a significant value of 0.000. The independent variable of PE has the highest beta value among the three independent variables, so it shows that PE has the greatest effective factor in consumer intention to use VR in real estate.

The multiple regression equation was formed as:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3$$

Where:

Y = Dependent Variable (CI)

α = Constant form coefficients table

x = Beta, β value

β x1 = Perceived Usefulness (PU)

β x2 = Perceived Ease of Use (PEOU)

β x3= Perceived Enjoyment (PE)

CI= 0.808+0.339(PU)+0.095(PEOU)+0.389(PE)

From Table 4.23, one of the IVs increases by one while the others remain constant, increasing the DV. Taking PU as an example, the above equation explains that CI increases by 0.339 units when PU increases by one and other variables remain constant. All IVs have been shown to have a significantly positive impact on consumer intentions to use virtual reality in real estate. When IVs have a high value, consumers are more likely to have a strong intention to use VR when searching for properties.

Furthermore, PE has the highest beta value (β = 0.389), followed by PEOU with the second-highest beta value (β = 0.339 and PE has the lowest beta value (β = 0.095). Therefore, it can be said that PE has the greatest influence on the willingness to use VR, while PEOU has the least influence on it. Furthermore, the results confirm that there is a significant positive relationship between all IVs and DVS in this study, p-value < 0.05.

4.7 Hypothesis Testing

Hypothesis 1 (Perceived Usefulness)

H1: There is a significant relationship between perceived usefulness and consumer intention to use virtual reality (VR) in the real estate industry.

Accept H1, if the p-value is lower than 0.05

Based on Table 4.23, the p-value of perceived is 0.000, which is below p-value of 0.05. H1 is thus accepted; perceived usefulness has major impact on the consumer intention to use VR in real estate.

Hypothesis 2 (Perceived Ease of Use)

H2: There is a significant relationship between perceived ease of use and consumer intention to use virtual reality (VR) in the real estate industry.

Accept H2, if the p-value is lower than 0.05

Based on Table 4.23, the p-value of perceived is 0.023, which is below p-value of 0.05. H2 is thus accepted; perceived ease of use has major impact on the consumer intention to use VR in real estate.

Hypothesis 3 (Perceived Enjoyment)

H3: There is a significant relationship between perceived enjoyment and consumer intention to use virtual reality (VR) in the real estate industry.

Accept H3, if the p-value is lower than 0.05

Based on Table 4.23, the p-value of perceived is 0.000, which is below p-value of 0.05. H3 is thus accepted; perceived ease of use has major impact on the consumer intention to use VR in real estate.

4.8 Summary

This chapter presents detailed data and an analysis of the results obtained from the study. The section explored five types of tests: descriptive analysis, normality test, Pearson analysis, reliability analysis, and multiple regression testing. The complete sample was analysed using SPSS version 23. The researchers determined the relationship between the independent and dependent variables by analysing data in SPSS and assessed the statistical significance of the hypothesis presented in Chapter 2. Furthermore, Chapter 5 focused on the final findings and provided recommendations.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter will provide an overview of the outcomes derived from the data analysis conducted in the previous chapter. A link about the research objective is required. In addition, there will be a discussion of hypothesis testing and the implementation of the study. Hence, the researcher will describe the limitations of this study and propose suggestions for future research.

5.2 Discussion of Demographic Background

This questionnaire was filled out by people who live in KL, have experience in real estate, and are interested in learning about new house-viewing technology. The demographic part of this questionnaire asked for some personal information about gender, age, income, how many years respondents have been in real estate, and whether respondents have used VR technology before. In the end, the researcher successfully collected 230 respondents to help with this research.

The results show the frequency and percentage of the gender of respondents who were interested in taking part in this research. Out of the total of 230 respondents, there were 131 male respondents which take up 57.0%, and 99 female respondents which take up 43.0%. In the Facebook real estate group, the researcher sent to, males were more willing to help fill out this questionnaire. Thus, the participants rate of male is higher than female.

There are five categories for age range: 18–24 years old, 25–34 years old, 35–44 years old, 45–54 years old, and 55 years old and above. Out of the total of 230 respondents, the most respondents' ages ranged from 25 to 34 years old, which is 138,

or 60.0%. Second, 51 respondents or 22.2% were aged between 35 and 44 years old. There are 18 respondents or 7.8% in the age range of 18 to 24 years old and 45 to 54 years old respectively. In the age range of 55 years old and above, only 5 respondents, or 2.2% were involved in this study. The high participant rate of this study between the ages of 25 to 34 may have resulted from their active involvement in the real estate market as potential buyer, renters, or investors, as well as their intention to use virtual reality (VR) for property exploration to save time and increase productivity. This age group can also accept new technologies and has a stable income.

Besides, there are four categories for household income range: less than RM3000, RM3000-RM5999, RM6000-RM8999, and more than RM9000. Out of the total of 230 respondents, most respondents' household income ranged from RM3000 to RM5999, which is 136, or 59.1%. Second, 57 respondents, or 24.8%, have household incomes from RM6000 to RM8999. There are 19 respondents, or 8.3%, in the income range of more than RM9000. In the income range of less than RM3000, only 18 respondents, or 7.8%, were involved in this study.

Furthermore, the experience of respondents in real estate was classified into four groups. Based on the results, the largest group had 116 respondents or 50.4%, with an experience range of 1 to 5 years. Following this, the second largest group consisted of approximately 78 respondents or 33.9%, who had 6 to 10 years of experience in real estate. Subsequently, 25 respondents or 10.9%, reported having 11 to 15 years of experience. Lastly, 11 respondents or 4.8% reported having more than 16 years of experience.

Lastly, the questionnaire asked the respondents' prior VR experience for viewing houses. Among them, 134 respondents, or 58.3% had not used VR for viewing houses before. Conversely, only 96 respondents, or 41.7% had previous experience using VR for viewing houses. Although 134 participants hadn't experienced using VR for viewing houses before, their responses were highly valuable. The researcher's consideration of both new and experienced users provided a deeper understanding of why individuals might be drawn to VR for viewing houses.

5.3 Discussion of Hypothesis Testing

The primary aim of this study is to examine the correlations among perceived usefulness, perceived ease of use, and perceived enjoyment in the context of utilizing virtual reality (VR) within the real estate industry. The summary of the results of hypothesis testing is presented in Table 5.1 below.

Table 5.1: Summary of Hypothesis Testing

Hypothesis	p-value	Result (Accepted when p<0.05)
H1: There is a significant relationship between perceived usefulness and consumer intention to use virtual reality (VR) in the real estate industry.	0.000	Accepted
H2: There is a significant relationship between perceived ease of use and consumer intention to use virtual reality (VR) in the real estate industry.	0.023	Accepted
H3: There is a significant relationship between perceived enjoyment and consumer intention to use virtual reality (VR) in the real estate industry.	0.000	Accepted

Table 5.1 presents a concise overview of the hypothesis test results. The analysis reveals that the p-values for all three hypotheses are below the significance level of 0.05, indicating agreement. This implies that the assumptions related to the dimensions of perceived usefulness, perceived ease of use, and perceived enjoyment are accepted. Consequently, it can be asserted that perceived usefulness, ease of use, and enjoyment collectively influence consumer intention to use virtual reality (VR) in the real estate industry.

The p-value for hypothesis 1 is 0.000, which is less than 0.05, suggesting a significant relationship between perceived usefulness and consumer intention to use VR in real estate. The findings of the research underscore that the utilization of VR technology to enhance property is perceived as valuable. Perceived usefulness, as conceptualized in the Technology Acceptance Model (TAM), refers to attitudes towards adopting new technology and its impact on users' advantages (Matikiti, Mpinganjira, & Roberts-Lombard, 2018). The increasing trend in perceived usefulness

indicates tangible benefits from using VR technology for property viewing. Consistent with prior studies by Davis (1989), Davis and Venkatesh (2000), and Hong et al. (2021), this study supports the idea that perceived usefulness significantly influences the intention to use TAM.

Hypothesis 2 is accepted based on the results in Table 5.1, with a significant p-value below 0.05. This indicates a significant relationship between perceived ease of use and consumer intention to use VR in real estate. The study aligns with the findings of other researchers like Abdullah, Ward, and Ahmed (2016) and Joo, Park, and Lim (2018), emphasizing the importance of perceived ease of use in influencing usage intention. Singh and Srivastava's (2018) study further supports this, suggesting that users are more inclined to adopt innovative technology when it is perceived as easy to operate and learn.

Furthermore, hypothesis 3 exhibits a significant p-value of 0.000, indicating a noteworthy relationship between perceived enjoyment and consumer intention to use VR in real estate. Therefore, H3 is accepted, rejecting the null hypothesis. Sarosa's (2019) study also reinforces this by demonstrating the significant influence of enjoyment on usage intention. Users are shown to be more likely to adopt and use technology when they find it enjoyable, as corroborated by Alalwan et al.'s (2018) statistical evidence that perceived enjoyment significantly impacts usage intention in the context of innovative technology.

In general, three of the hypotheses is accepted because their significant value is less than 0.05.

5.4 Discussion on Research Objectives

There are two research objectives in this research, which are to identify the technology factors that influence consumer intention to use virtual reality in the real estate industry and to identify the most significant variable affecting the intention to use virtual reality in the real estate industry.

5.4.1 To Identify the Factors that Influence Consumer Intention to Use Virtual Reality in the Real Estate Industry

This research applied the Technology Acceptance Model (TAM) theory to identify the three factors influencing consumer intention to use virtual reality (VR) in the real estate industry. The three technology factors considered in this study are perceived usefulness, perceived ease of use, and perceived enjoyment. All three independent variables were included in the questionnaire, and each exhibited a positive relationship with consumer intention to use VR. The results of the model summary from the multiple regression analysis revealed an R-squared value of 0.757. This indicates that 75.7% of the variation in consumer intention to use VR in real estate was influenced by these three technology factors.

5.4.1.1 Perceived Usefulness

The perceived usefulness is one of the technology factors in this research. Perceived usefulness is a critical factor influencing consumer intention to use VR in the real estate industry. Based on the results of the descriptive statistics for both the independent and dependent variables, the mean value for the Perceived Usefulness (PU) variable among 230 respondents was 4.04. This indicated that consumers agreed that perceived usefulness influenced their use of virtual reality when searching for property. Based on the questionnaire design for PU, most respondents agree that using VR in real estate increases the ability to compare and evaluate different properties, thus it can save travel time and transport fees. The Cronbach's alpha for the PU variable was 0.837, representing a good strength of association. Furthermore, the results of Pearson correlation coefficients showed that PU had a high positive correlation

(r=0.831) with consumer intention to use VR. Additionally, the PU variable, as hypothesized in Hypothesis 1, also showed a significant relationship between perceived usefulness and consumer intention to use virtual reality (VR) in the real estate industry, as the p-value was less than 0.05.

Another research has shown that the potential of VR for residential real estate marketing can influence house purchase intention. (Azmi et al., 2021) The perceived usefulness of VR in allowing potential homebuyers to experience properties remotely and in a personalized manner can significantly impact their intention to use this technology for property exploration and decision-making.

5.4.1.2 Perceived Ease of Use

Perceived ease of use is a critical factor influencing consumer intention to use VR in the real estate industry. Based on the results of the descriptive statistics for both the independent and dependent variables, the mean value for the Perceived Ease of Use (PEOU) variable among 230 respondents was 4.29. This indicated that consumers agreed that perceived ease of use influenced their use of virtual reality when searching for property. Based on the questionnaire design for PEOU, most respondents agree that using VR in real estate would be clear and understandable. The Cronbach's alpha for the PEOU variable was 0.843, representing a good strength of association. Furthermore, the results of Pearson correlation coefficients showed that PEOU had a moderate correlation (r=0.663) with consumer intention to use VR. Additionally, the PEOU variable, as hypothesized in Hypothesis 2, also showed a significant relationship between perceived ease of use and consumer intention to use virtual reality (VR) in the real estate industry, as the p-value was less than 0.05 which is 0.023.

In this research, the researcher provided a non-immersive VR experience to respondents before they answer the questionnaire through the VR website from gamuda cove. By providing users with a non-immersive VR experience utilizing widely available technology, the VR experience becomes more accessible and ease of use, potentially increase intention to use VR in the real estate industry (Pleyers & Poncin, 2020). Non-immersive virtual reality technologies in real estate allow consumers to view properties remotely and in a personalized manner, making the

experience more accessible to a wider range of potential buyers. This accessibility can increase the likelihood that consumers will use virtual reality in their property search and decision making.

5.4.1.3 Perceived Enjoyment

Perceived enjoyment is a critical factor influencing consumer intention to use VR in the real estate industry. Based on the results of the descriptive statistics for both the independent and dependent variables, the mean value for the Perceived Enjoyment (PE) variable among 230 respondents was 4.30. This indicated that consumers agreed that perceived enjoyment influenced their use of virtual reality when searching for property. Based on the questionnaire design for PE, most respondents agree that interacting with VR in real estate would be stimulating than viewing picture. The Cronbach's alpha for the PE variable was 0.868, representing a good strength of association and the highest value among the three factors. Furthermore, the results of Pearson correlation coefficients showed that PE had the highest correlation (r=0.836) with consumer intention to use VR. Additionally, the PE variable, as hypothesized in Hypothesis 3, also showed a significant relationship between perceived enjoyment and consumer intention to use virtual reality (VR) in the real estate industry, as the p-value was less than 0.05 which is 0.00.

Another Studies have revealed that VR positively influences emotions and generates positive consumer responses that impact purchase intention. (Azmi et al., 2023) The perceived enjoyment of the VR experience can enhance consumer satisfaction and contribute to their intention to use VR for property exploration and decision-making. Immersive VR experiences can provide a sense of telepresence, allowing consumers to feel as if they are physically present in the property. Full immersion in a virtual home tour creates an emotional connection and engages customers more effectively than traditional 2D images, music, and moving pictures.

5.4.2 To Identify the Most Significant Variable Affecting the Intention to Use Virtual Reality in The Real Estate Industry

Chapter 4 presents the findings of a multiple regression analysis, which showed that three independent variables, perceived ease of use, perceived usefulness, and perceived enjoyment, had a significant impact. The values for these variables were 0.023, 0.000, and 0.000, respectively, with a p-value less than 0.005. The beta coefficient for perceived ease of use was the smallest, at 0.105. On the other hand, the **highest beta coefficient is perceived enjoyment, which is 0.389**. Besides, the person correlation coefficient for PE had a value of 0.836, which was the highest correlation coefficient (r) value among the three independent variables. The Pearson correlation coefficient of 0.836 suggests that there is a strong positive connection between perceived enjoyment and the dependent variable, consumer intention to use VR in the real estate industry. As the perceived enjoyment level increases, there is a significant tendency for consumers to have more interest in using VR in the real estate industry. The strong positive correlation indicates that the perceived enjoyment variable has a substantial impact on customer intention to utilize VR in the real estate sector.

Perceived enjoyment had the most significant overall influence on the desire to utilise virtual reality (VR) inside the TAM framework. Perceived enjoyment had a significant relationship with all the components in the Technology Acceptance Model (TAM). Virtual reality (VR) offers people enjoyment by delivering an immersive experience. Consequently, the level of satisfaction experienced in virtual reality (VR) strongly influences consumers' overall attitude towards VR, resulting in a more positive perception. Consequently, perceived enjoyment is the most significant variable affecting the intention to use virtual reality in the real estate industry.

5.5 Contribution of Study

This study has the potential to offer useful insights into the elements that influence customer intention to utilise virtual reality (VR) in the real estate sector. This research aims to examine the connections between perceived usefulness, ease of use, and enjoyment as independent factors and consumer intention to use virtual reality (VR) in the real estate industry as the dependent variable. This research can make contributions to real Estate Industry. Real estate developers and agents can use insights

to enhance their marketing strategies and improve the virtual property viewing experience to attract potential buyers. By analyzing the influence of perceived usefulness, ease of use, and enjoyment on consumer intention to use VR in real estate, this research can give practical direction for industry stakeholders to modify their VR offers to better line with consumer preferences. Through this technology, potential buyers can have fewer trips to the house, immersive insights and save costs.

5.6 Limitation

While this study provides valuable insight into the use of virtual reality (VR) in the property purchase selection process, it has several limitations that should be taken into account. A limitation of this study is that the independent variable was restricted by the TAM dimension, but there may be additional variables that influence the consumer intention to use VR in the real estate industry. The explanation for this is that only three independent variables (PU, PEOU, and PE) accounted for 75.7% (R-square=0.757) of the variability in the dependent variable (CI), leaving the remaining 24.3% to be influenced by other factors.

Due to budget limitations, the research focuses exclusively on non-immersive VR experiences, omitting the broader spectrum of VR technologies, including those involving full-set VR equipment. The researcher has exclusively supplied a hyperlink to the Gamuda Cove website, featuring a virtual reality (VR) room tour. Respondents are required to utilize their non-immersive devices, such as smartphones or laptops, to experience the VR room tour. Consequently, the encounter may differ from a fully immersive VR experience. This choice potentially limits the generalizability of the findings to other forms of VR experiences.

Besides, the limitation of this study is that geographically limited. This study of location is only limited to Kuala Lumpur. Kuala Lumpur is a major urban area in Malaysia, their technology acceptance might be higher than another area. Thus, it may not accurately represent perspectives in different urban or rural contexts, thereby restricting the study's applicability across varied geographical settings.

Additionally, while demographic data such as gender and income were collected in this research. There has a lack of consideration for cultural factors, that is race and the rural-urban divide. It is because there had a different buying power for each race in Malaysia. Thus, it presents a limitation in understanding the broader demographic impact on VR adoption in property selection.

Moreover, this research design is reliance on quantitative analysis. This lack of qualitative data means potentially missing out on rich, detailed insights, which are crucial for a holistic understanding of user experiences with VR in property selection. The participant selection process might also introduce biases if the participants were predominantly tech-savvy or had prior exposure to VR technologies, which may not reflect the views of the general population.

In addition, the study results are time-limited and the rapid development of VR technology may impact users' perceptions and the effectiveness of this technology in the future. The lack of benchmarking with traditional real estate visualization methods or other technology-enabled visualization options limits a comprehensive understanding of VR effectiveness and user preferences. Lastly, the study does not focus on long-term user satisfaction or continued adoption of the VR technology, which are necessary to assess its practical feasibility in the real estate context. These limitations highlight areas to be examined in future research, thereby improving the understanding of the role of virtual reality in property selection.

5.7 Recommendation

The first recommendation is to use fully immersive VR technology while doing the research. It is because of Incorporating various VR modalities, including those utilizing full-set VR equipment, could offer a more comprehensive understanding of the broader landscape. The researcher can seek alternative funding sources or collaborations with the property company could be explored to mitigate budgetary constraints, allowing for a more inclusive examination of the various forms of VR experiences. Thus, the respondents can have a better immersive experience and answer the questionnaire more accurately.

Besides, the researcher recommends the further study should encompass or expand a wide array of VR technology and extend its geographical area beyond Kuala

Lumpur. It must cover diverse urban and rural areas in Malaysia to make sure the study examines is accuracy. This expansion will provide a more holistic view of VR's applicability and user preferences in various settings. Additionally, collecting comprehensive demographic data, including cultural factors such as race and the rural-urban divide, is crucial. This approach will enable a nuanced analysis of how different demographic and cultural groups perceive and utilize VR in property selection.

It's important to use both qualitative and quantitative methods in research about virtual reality (VR). Further research should use the mixed-methodology as a research design. In this way, researcher can really understand people's personal experiences and what respondents think about using VR. Also, it would be a good idea to study people over a long time to see how their feelings and use of VR changed over the years. Researchers must interview the agents, developers, and buyers. This can give us valuable information about how effective VR is and how people's opinions about it might change.

Further researcher can make comparative analyses with traditional property viewing methods and other technology-enhanced options are also necessary. Such comparisons will offer valuable insights into VR's relative effectiveness and user preferences among various property viewing methods. In addition, investigating long-term user satisfaction and the sustainability of VR technology in property selection is important for understanding its practical impact in the real estate market.

Following these suggestions in future research can help make progress in the field. It means developers can create more culturally sensitive, and well-matched VR tools like Metaverse for choosing properties and also for decoration. The researcher believes that VR is the further trends and technology that enhance a good experience for consumers.

5.8 Conclusion

In summary, the two objectives were achieved. All findings have answered the research question and show a significant positive relationship between all IV and DV. Consequently, this study is beneficial for future research and property companies and agents to design their marketing plains in developing a better virtual platform to increase performance and customer engagement.

REFERENCES

Abdulai, R.T., Obeng-Odoom, F., Ochieng, E., & Maliene, V. (Eds.). (2015). Real Estate, Construction and Economic Development in Emerging Market Economies (1st ed.). Routledge. https://doi.org/10.4324/9781315762289

Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' Perceived Ease of accepting compulsory device's usage: extending UTAUT. *Procedia Computer Science*, *161*, 115-122.

Aggarwal, R., & Ranganathan, P. (2019). Study designs: Part 2 – Descriptive studies. Perspectives in Clinical Research, 10(1), 34. https://doi.org/10.4103/PICR.PICR_154_18

Alalwan, A. A., Baabdullah, A. M., Rana, N. P., Tamilmani, K., & Dwivedi, Y. K. (2018). Examining adoption of mobile internet in Saudi Arabia: Extending

Amir, N., Jabeen, F., & Niaz, S. (2020, November 5). A Brief Review of Conditions, Circumstances and Applicability of Sampling Techniques in Computer Science Domain. *Proceedings - 2020 23rd IEEE International Multi-Topic Conference, INMIC 2020*. https://doi.org/10.1109/INMIC50486.2020.9318209

Andrew, M., & Larceneux, F. (2019). The role of emotion in a housing purchase: An empirical analysis of the anatomy of satisfaction from off-plan apartment purchases in France. *Environment and Planning A*, *51*(6), 1370–1388. https://doi.org/10.1177/0308518X18817539

Archer, L. (2023). Research methodology: A step-by-step guide for beginners (5th. ed.). *Journal of Latinos and Education*, *22*(1), 425–426. https://doi.org/10.1080/15348431.2019.1661251

Azmi, A., Ibrahim, R., Abdul Ghafar, M., & Rashidi, A. (2022). Smarter real estate marketing using virtual reality to influence potential homebuyers' emotions and purchase intention. *Smart and Sustainable Built Environment*, *11*(4), 870–890. https://doi.org/10.1108/SASBE-03-2021-0056

Azmi, A., Putra Malaysia Rahinah Ibrahim, U., Abdul Ghafar, M., & Rashidi, A. (2023). *Metaverse for Real Estate Marketing: The Impact of Virtual Reality on Satisfaction, Perceived Enjoyment and Purchase Intention*. https://doi.org/10.21203/rs.3.rs-2584882/v1

Azuma, R. T. (1995). Drascic, 1993; Feiner, 1994a, b; Milgram etal. In *Caudell*. http://www.cs.unc.edu/~azuma

Bekele, M.K., Champion, E., 2019. Redefining Mixed Reality: User-Reality-Virtuality and Virtual Heritage Perspectives. Proceedings of the 24th International Conference of the Association for Computer-Aided Architectural Design Research in Asia (CAADRIA) 2019, Volume 2, 675-684.

Bleize, D. N. M., & Antheunis, M. L. (2019). Factors influencing purchase intent in virtual worlds: a review of the literature. *Journal of Marketing Communications*, *25*(4), 403–420. https://doi.org/10.1080/13527266.2016.1278028

Bonenberg, A., & Wlazły, W. (2022). HOME STAGING, I.E. PREPARING REAL ESTATE FOR SALE. DISCUSSION OF THE DEFINITION. *Space&FORM*, *2022*(52), 43–60. https://doi.org/10.21005/pif.2022.52.B-02

Bonenberg, A., & Wlazły, W. (2022). HOME STAGING, I.E. PREPARING REAL ESTATE FOR SALE. DISCUSSION OF THE DEFINITION. *Space&FORM*, *2022*(52), 43–60. https://doi.org/10.21005/pif.2022.52.B-02

Bryman, A. (n.d.). *Social research methods*.

Carmigniani, J., & Furht, B. (2011). Augmented reality: an overview. In Handbook of augmented reality (pp. 3-46). Springer.

Chernus, N.Y. (2021). THE MODERN APPROACHES TO THE DEFINITION OF THE REAL ESTATE. *National Association of Scientists*.

Chunlu Liu, Yu Song, C. Langston （2005）Economic Indicator Comparisons of International Real Estate Sectors Using the Oecd Input-Output Database

Creswell, J. W., & Creswell, J. D. (2018). Mixed Methods Procedures. Research Defign: Qualitative, Quantitative, and Mixed M Ethods Approaches, pg 418

Cummings, J. J., & Bailenson, J. N. (2016). How Immersive Is Enough? A Meta-Analysis of the Effect of Immersive Technology on User Presence. *Media Psychology*, *19*(2), 272–309. https://doi.org/10.1080/15213269.2015.1015740

Deaky, B. A., & Parv, A. L. (2018). Virtual Reality for Real Estate - A case study. *IOP Conference Series: Materials Science and Engineering*, *399*(1). https://doi.org/10.1088/1757-899X/399/1/012013

Demir, S. (2022). Comparison of normality tests in terms of sample sizes under different skewness and Kurtosis coefficients. *International Journal of Assessment Tools in Education*, *9*(2), 397-409.

Diemer, J., Alpers, G. W., Peperkorn, H. M., Shiban, Y., & Mühlberger, A. (2015). The impact of perception and presence on emotional reactions: A review of research in virtual reality. In *Frontiers in Psychology* (Vol. 6, Issue JAN). Frontiers Research Foundation. https://doi.org/10.3389/fpsyg.2015.00026

El-Said, O., & Aziz, H. (2022). Virtual Tours a Means to an End: An Analysis of Virtual Tours' Role in Tourism Recovery Post COVID-19. *Journal of Travel Research*, *61*(3), 528–548. https://doi.org/10.1177/0047287521997567

Heydarian, A., Carneiro, J. P., Gerber, D., Becerik-Gerber, B., Hayes, T., & Wood, W. (2015). Immersive virtual environments versus physical built environments: A benchmarking study for building design and user-built environment explorations. *Automation in Construction*, *54*, 116–126. https://doi.org/10.1016/j.autcon.2015.03.020

Holovachov, V. (2022). DEFINITION OF REAL ESTATE: THEORETICAL ASPECTS. *Urban Development and Spatial Planning*, *81*, 108–123. https://doi.org/10.32347/2076-815x.2022.81.108-123

Hong, C., Choi, H. H., Choi, E. K. C., & Joung, H. W. D. (2021). Factors affecting customer intention to use online food delivery services before and during intention to use technology: TPACK, teacher self-efficacy, and technology acceptance model. *Journal of Educational Technology & Society*, *21*(3), 48-59.

Jain, N. (2021). Survey versus interviews: Comparing data collection tools for exploratory research. In *Qualitative Report* (Vol. 26, Issue 2, pp. 541–554). Peace and Conflict Studies. https://doi.org/10.46743/2160-3715/2021.4492

Jilcha Sileyew, K. (2020). Research Design and Methodology. In *Cyberspace*. IntechOpen. https://doi.org/10.5772/intechopen.85731

Joo, Y. J., Park, S., & Lim, E. (2018). Factors influencing preservice teachers'

Jørgensen, C. J. (2016). The Space of the Family: Emotions, Economy and Materiality in Homeownership. *Housing, Theory and Society*, *33*(1), 98–113. https://doi.org/10.1080/14036096.2015.1083052

Juan, Y. K., Chen, H. H., & Chi, H. Y. (2018). Developing and evaluating a virtual reality-based navigation system for pre-sale housing sales. *Applied Sciences (Switzerland)*, *8*(6). https://doi.org/10.3390/app8060952

Ke, F., Lee, S., & Xu, X. (2016). Teaching training in a mixed-reality integrated learning environment. *Computers in Human Behavior*, *62*, 212–220. https://doi.org/10.1016/j.chb.2016.03.094

Knief, U., & Forstmeier, W. (2021). Violating the normality assumption may be the lesser of two evils. *Behavior Research Methods*, *53*(6), 2576-2590.

Lee, H. G., Chung, S., & Lee, W. H. (2013). Presence in virtual golf simulators: The effects of presence on perceived enjoyment, perceived value, and behavioral intention. *New Media and Society*, *15*(6), 930–946. https://doi.org/10.1177/1461444812464033

Martínez-Navarro, J., Bigné, E., Guixeres, J., Alcañiz, M., & Torrecilla, C. (2019). The influence of virtual reality in e-commerce. *Journal of Business Research*, *100*, 475–482. https://doi.org/10.1016/j.jbusres.2018.10.054

McCusker, K., & Gunaydin, S. (2015). Research using qualitative, quantitative or mixed methods and choice based on the research. *Perfusion (United Kingdom)*, *30*(7), 537–542. https://doi.org/10.1177/0267659114559116

Meng, L. (2019). *Literature Review of Real Estate Rental Market in China*.

Milgram, P., & Kishino, F. (1994). A Taxonomy of Mixed Reality Visual Displays. In *IEICE Transactions on Information Systems* (Issue 12). http://vered.rose.utoronto.ca/people/paul_dir/IEICE94/ieice.html

Nieradka, P. (2019). Using virtual reality technologies in the real estate sector. *Annales Universitatis Mariae Curie-Skłodowska, Sectio H – Oeconomia*, *53*(2), 45. https://doi.org/10.17951/h.2019.53.2.45-53

Pace, D. S. (2021). PROBABILITY AND NON-PROBABILITY SAMPLING-AN ENTRY POINT FOR UNDERGRADUATE RESEARCHERS. In *International Journal of Quantitative and Qualitative Research Methods* (Vol. 9, Issue 2). https://ssrn.com/abstract=3851952

Palmon, O., Sahar, M., Wiess, L. P., & Oxman, R. (n.d.). *VIRTUAL ENVIRONMENTS FOR THE EVALUATION OF HUMAN PERFORMANCE Towards Virtual Occupancy Evaluation in Designed Environments (VOE)*.

Patino, C. M., & Ferreira, J. C. (2018). Inclusion and exclusion criteria in research studies: Definitions and why they matter. In *Jornal Brasileiro de Pneumologia* (Vol. 44, Issue 2, p. 84). Sociedade Brasileira de Pneumologia e Tisiologia. https://doi.org/10.1590/s1806-37562018000000088

Pizzi, G., Scarpi, D., Pichierri, M., & Vannucci, V. (2019). Virtual reality, real reactions?: Comparing consumers' perceptions and shopping orientation across physical and virtual-reality retail stores. *Computers in Human Behavior*, *96*, 1–12. https://doi.org/10.1016/J.CHB.2019.02.008

Ruan, Z. (2021). Asset Acquisition or Business Combination? Application of Definition of a Business in Real Estate Industry. *Open Journal of Accounting*, *10*(01), 9–16. https://doi.org/10.4236/ojacct.2021.10100

Sánchez-Torres, J. A. (2019). Moderating effect of the digital divide of e-commerce. *International Journal of Social Economics*, *46*(12), 1387–1400. https://doi.org/10.1108/IJSE-11-2018-0622

Saunders, M. N. K., Lewis, P., & Thornhill, A. (n.d.). *Research methods for business students*.

Scarpi, D., Pizzi, G., & Visentin, M. (2014). Shopping for fun or shopping to buy: Is it different online and offline? *Journal of Retailing and Consumer Services*, *21*(3), 258–267. https://doi.org/10.1016/J.JRETCONSER.2014.02.007

Scholz, J., & Smith, A. N. (2016). Augmented reality: Designing immersive experiences that maximize consumer engagement. *Business Horizons*, *59*(2), 149–161. https://doi.org/10.1016/J.BUSHOR.2015.10.003

Sevryukova, I. (2021). Problems of the definition and characteristics of the contractual basis for the limitation and encumbrance of ownership of real estate in Ukraine. *Yearly journal of scientific articles "Pravova derzhava"*.

Sherman, W. R., & Craig, A. B. (2003). Understanding virtual reality: Interface, application, and design. Morgan Kaufmann.

Shin, D. (2018). Empathy and embodied experience in virtual environment: To what extent can virtual reality stimulate empathy and embodied experience? *Computers in Human Behavior, 78,* 64–73.https://doi.org/10.1016/J.CHB.2017.09.012

Shrestha, N. (2020). Detecting multicollinearity in regression analysis. American Journal of Applied Mathematics and Statistics, 8(2), 39-42.

Sihi, D. (2018). Home sweet virtual home: The use of virtual and augmented reality technologies in high involvement purchase decisions. *Journal of Research in Interactive Marketing*, *12*(4), 398–417. https://doi.org/10.1108/JRIM-01-2018-0019

Singh, S., & Srivastava, R. K. (2018). Predicting the intention to use mobile banking in India. *International Journal of Bank Marketing*.

Suh, A., & Prophet, J. (2018). The state of immersive technology research: A literature analysis. *Computers in Human Behavior*, *86*, 77–90. https://doi.org/10.1016/J.CHB.2018.04.019

Sulaiman, M. Z., Nasiruddin, M., Aziz, A., Haidar, M., Bakar, A., Halili, N. A., & Azuddin, M. A. (2020a). *Matterport: Virtual Tour as A New Marketing Approach in Real Estate Business During Pandemic COVID-19*. www.pinterest.co.uk

Sulaiman, M. Z., Nasiruddin, M., Aziz, A., Haidar, M., Bakar, A., Halili, N. A., & Azuddin, M. A. (2020b). *Matterport: Virtual Tour as A New Marketing Approach in Real Estate Business During Pandemic COVID-19*. www.pinterest.co.uk

TAM with perceived enjoyment, innovativeness and trust. *Technology in* the COVID-19 pandemic. *Journal of Hospitality and Tourism Management*, *48*, 509-518.

Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. *Computers in human behavior*, *63*, 75-90.

Van Kerrebroeck, H., Brengman, M., & Willems, K. (2017). When brands come to life: experimental research on the vividness effect of Virtual Reality in transformational marketing communications. *Virtual Reality*, *21*(4), 177–191. https://doi.org/10.1007/s10055-017-0306-3

Wu, J., Gyourko, J., & Deng, Y. (2015). Real estate collateral value and investment: The case of China. *Journal of Urban Economics*, *86*, 43–53. https://doi.org/10.1016/j.jue.2014.12.006

Yim, M. Y. C., Chu, S. C., & Sauer, P. L. (2017). Is Augmented Reality Technology an Effective Tool for E-commerce? An Interactivity and Vividness Perspective. *Journal of Interactive Marketing*, *39*, 89–103. https://doi.org/10.1016/J.INTMAR.2017.04.001

Yoke, C. C., Mun, Y. W., Peng, L. M., & Yean, U. L. (2018). Purchase Intention of Residential Property in Greater Kuala Lumpur, Malaysia. *International Journal of Asian Social Science*, *8*(8), 580–590. https://doi.org/10.18488/journal.1.2018.88.580.590

Zhu, T. (2022). The Impact of Non-immersive Virtual Reality Technologies on Consumers' Behaviors in real estate: A Website's Perspective. *Proceedings - 2022 IEEE International Symposium on Mixed and Augmented Reality Adjunct, ISMAR-Adjunct 2022*, 13–20. https://doi.org/10.1109/ISMAR-Adjunct57072.2022.00013

APPENDIX A

CARTA GANTT PSM I (BTMU 3072)

Procedure for FYP 1	Week														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
PSM 1 talk						MID BREAK									
Search PSM topic															
Coversation with PSM supervisor through WhatsApp															
Modify research topic															
Topic confirmation															
Identify problem statement and background of study															
Identify research objective and research question															
Find information for literature review															
Preparation and completed for chapter 1															
Preparation and completed for chapter 2															
Preparation and completed for chapter 3															
Presentation of slide presentation															
PSM 1 presentation/viva															
Make correction for the proposal															
PSM 1 report submission															

APPENDIX B

CARTA GANTT PSM II (BTMU 4084)

Procedure for FYP 2	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PSM 2 talk							Mid Break									
Create questionnaire																
Meeting SV																
Data collection																
Data analysis																
Writing C4																
Writing C5																
Preparation of video presentation																
Viva session																
Meeting sv do correction																
FYP submission																

APPENDIX C

Questionnaire from Google Form

FACTORS INFLUENCING CONSUMER INTENTION TO USE VIRTUAL REALITY (VR) IN THE REAL ESTATE INDUSTRY

Dear Participants,

Thank you for taking your valuable time to participate in my **degree final year project**. The topic of my research is "Factors Influencing Consumers to Use Virtual Reality in the Real Estate Industry".

Your participation is very important to my research. Your response will help in better understand the consumers' willingness to use virtual reality technology in the real estate industry.

Please answer the questions in the questionnaire as truthfully and accurately as possible. All answers will be **treated confidentially** and used only for academic research purposes.

* 表示必填

Virtual reality (VR) is a computer technology that makes users feel as if they are in a completely different fictional world by simulating real-world environments. The **fully-immersive VR** or **non-immersive VR** related in this research.

Fully-immersive VR: Users need to wear a headset-mounted display (HMD) and trackers devices to view the virtual environment.
(Picture source from google)

Non-immersive VR: Exploring the virtual world through portals or windows using necessary hardware such as desktop computers, tablets, keyboards, and mice.
(Picture source from google)

If you have no idea to VR in real estate, i would like to offer you the opportunity to take a non-immersive virtual tour of a property. Please access the following link to have a room tour. Please take your time to navigate through the space before share your impressions
https://www.malaysiapropertyreviews.com/gamuda-cove/breeza-terrace-house/showroom/

*Disclaimer: The provided information is intended for general purposes only. Gamuda Cove does not make any guarantees or warranties regarding the information.
*Disclaimer: The Gamuda cove link I am using is solely for academic research purposes and is not intended for commercial use.

Demography Profile

Gender *

- ◯ Male
- ◯ Female

Age *

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

Household Income *

- ◯ < RM3000
- ◯ RM3000 - RM5999
- ◯ RM6000 - RM8999
- ◯ >RM9000

Experience in real estate *

- ◯ 1-5 years
- ◯ 6-10 years
- ◯ 11-15 years
- ◯ >16 years

Prior VR experience for viewing house *

- ◯ Yes
- ◯ No

Independent Variable: **Perceived Usefulness (PU)**

Please indicate your answer by choosing the appropriate number.
[1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree]

PU1: Using virtual reality (VR) in real estate would help me be more productive *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PU2: Using VR in real estate would increace my efficiency in property selection *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PU3: Using VR in real estate would be useful in my property selection *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PU4: Using VR in real estate gives me a better understanding of property layouts, dimensions and features *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PU5: Using VR in real estate increase ability to compare and evaluate different properties (save time) *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Independent Variable: **Perceived Ease of Use (PEOU)**

Please indicate your answer by choosing the appropriate number.
[1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree]

PEOU1: Using virtual reality (VR) in real estate does not require a lot of mental effort *

	1	2	3	4	5	
Strong Disagree	○	○	○	○	○	Strongly Agree

PEOU2: Using VR for viewing real estate would be easy for me *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PEOU3: Interacting with VR in real estate would be clear and understandable *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PEOU4: Using VR in real estate would require very little effort on my part *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PEOU5: Using VR in real estate would be easy for me become skillful *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Independent Variable: **Perceived Enjoyment (PE)**

Please indicate your answer by choosing the appropriate number.
[1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree]

PE1: I believe I would have fun using virtual reality (VR) in real estate *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PE2: I enjoy the experience of exploring properties through VR *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PE3: This viewing enjoyment makes me want to live in a house like this *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PE4: Interacting with VR in real estate would be stimulating than viewing picture *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

PE5: I feel that i was absorbed in the viewing room tour with VR *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Dependent Variable: **Intention to use virtual reality in real estate**

Please indicate your answer by choosing the appropriate number.
[1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree]

CI1: I intend to use virtual reality (VR) when searching for properties in the future *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

CI2: I will use VR within the foreseeable future *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

CI3: I would prefer to use VR for property viewing over traditional methods (physical visit) *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

CI4: I believe VR could become an essential tool for property searching in the future *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

CI5: I would recommend the use of VR in real estate to others *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree