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## FACTORS INFLUENCING INTENTION TO USE VIRTUAL REALITY TECHNOLOGY IN TRAVEL PLANNING

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### Abstract:

This study aims to identify the factors shaping individuals intention to use virtual reality (VR) technology in travel planning. This study utilizes the value-based adoption model (VAM) to examine users' perceived values and the intention to use VR in travel planning. The respondents of this study will be Malaysian youth aged 15 to 40. Data will be collected using a convenience sampling technique. To collect data, online survey questionnaires will be disseminated via social media. The findings of this study are expected to assist industry players in attracting more tourists through VR.

### Keywords:

Virtual Reality, Travel Planning, Youth, Value-Based Adoption Model

## Introduction

VR technology creates a completely immersive and computer-generated environment, replacing the real world entirely. Through a specialized head-mounted display (HMD) or other devices, users can experience a computer-generated simulation of an immersive and interactive

environment. This form of technology is referred to as virtual reality (VR). The goal of VR technology is to give users a realistic sense of presence—the impression that they are actually in the virtual world. To improve the immersive experience, it usually combines visual, auditory, and occasionally haptic (touch-based) feedback (Cummings, J. J., Bailenson, J. N., & Fidler, M. J. 2018). VR is an innovative tool which has the ability to fundamentally change a number of service industries including travel and tourism. As individuals increasingly seek personalized and immersive travel experiences, VR presents a unique opportunity to enhance the way people plan and explore destinations. Even if the application of VR travel planning is still in its early stages, it's important to comprehend the underlying elements influencing people's intents.

In the US, people utilize VR technology headsets to play virtual games that feel like they are being played in real life. Given this, 47% of Americans claim to be aware of virtual reality. Kolmar (2023) reports that VR users are expected to number 171 million globally, with 65.9 million in the US. Here, it has been proved how crucial it is to employ VR technology to give users of the technology a genuine experience. It makes sensible that most people associate VR with gaming, given the \$1.1 billion valuation of the VR gaming business. The global VR market is presently valued at \$7.72 billion, and by 2027, it is expected to reach \$26.9 billion. There are now 80,000 employees in the U.S. that use VR, with a projected increase to 2.32 million by 2030. VR is also used by professional.

According to Yu, Seo, and Choi (2019), when people utilize technology, they consider the trade-off between the cost of using it and the benefit (usefulness) provided by doing so. Tussyadiah, Wang, Jung, and Tom Dieck (2018) found that most existing studies focused on attitude-based VR adoption rather than value-based VR adoption. Attitude-based VR adoption refers to studies that primarily investigate the aspects affecting individuals' attitudes toward VR and their intention to use VR technology. Attitude-based studies aim to identify the key determinants of individuals' attitudes towards VR technology, with the assumption that positive attitudes will lead to greater adoption and use of VR. Perception usefulness and perceived ease of use are taken into consideration as predecessors of technology adoption intention in the Technology Adoption Model (TAM), for instance. Some extended versions of the Technology Acceptance Model (TAM) have included system quality, habits, technological anxiety, social influence, trust, facilitating conditions, perceived risk, and aversion to technology as additional antecedents of the intentions to use technology (Rafique, et al., 2020). However, each of these is the consequence of psychological or technical causes. The benefits, sacrifices, and perceived values associated with the adoption of new technologies have not received sufficient consideration in the literature, especially when it involves the utilization of VR to the evaluation of tourism destinations. By employing the value-based adoption model (VAM) framework, this conceptual paper aims to examine the factors shaping individuals' intention to use VR in travel planning. It will explore the relationships between perceived value, perceived usefulness, perceived enjoyment, perceived immersion, perceived complexity, perceived physical risk, perceived cost, perceived technology anxiety, and users' intention to adopt VR for travel planning purposes.

## Literature Review

### *Theoretical Background and Hypotheses*

In addition to freely consuming services like gaming, mobile banking, and mobile internet, the VAM focuses on identifying use intention and risk factors among users who utilize traditional information systems for work-related purposes. In VAM, every customer aims to maximize value. According to Dodds and Monroe (1985), perceived value refers to the benefit and sacrifice associated with "giving" and "receiving" products. Consumers evaluate their products overall considering their values before taking the desired course of action. Perceived benefit variables have a positive correlation with perceived value, but perceived sacrifice elements have the opposite correlation. Perceived benefits including perceived usefulness, perceived enjoyment, and perceived immersion seem to affect perceived value more profoundly than the degree of perceived sacrifice. Perceived value is determined by the paradigm of perceived sacrifice and perceived reward. Conversely, perceived complexity, perceived physical risk, perceived cost and perceived technological anxiety are included in perceived sacrifice. Research has shown the validity of VAM to behavioral intention which has been studied by several researchers (Liang et al., 2021; Mathavan et al., 2024; Niknejad et al., 2020). Additionally, several researchers have looked into the viability of VAM in relation to behavioral intention. (Liang et al., 2021; Niknejad et al., 2020a; Yang et al., 2016).

### *Perceived Benefits*

When conceptualizing the cognitive evaluation theory, internal and extrinsic incentives were divided into two categories. These motivations—*intrinsic* and *extrinsic*—have a major influence on perceived worth and intention and are comparable to hedonic and utilitarian rewards, according to Rogers (1995). Perceived utility and enjoyment have been suggested by the research as *intrinsic* and *extrinsic* motivators for using ICT (Lin & Lu, 2011). The experience of being present in the actual world is one that technology gives its users. Considering that *intrinsic* motivation is an element of cognition, perceived immersion might be regarded an *intrinsic* attribute. Many studies have highlighted the significance of perceived advantages in assessing perceived value in various circumstances (Chen et al., 2018; Hsiao & Chen, 2017; Lau et al., 2019). For example, Hsu and Lin (2016) when adopting internet of things (IoT) services, perceived benefits such as enjoyment and usefulness were considered. It was revealed that the perceived benefits had a greater impact on perceived value. This conceptual paper suggests employing VR for its purported benefits as well as the amusement and immersion it offers. Therefore, it assumes that perceived utility is utilitarian and that reported enjoyment and immersion are hedonic components of perceived advantages that add to overall perceived value.

### *Perceived Usefulness*

Perceived usefulness, as defined by Almahamid et al. (2016), is considered a function of apparent enjoyment and perceived ease of use. Yu et al. (2017) equates perceived usefulness to the functional benefits of using products or services. This perception plays a crucial role in influencing the intention to use a product or service. The quality of information is a fundamental effect influencing to perceived usefulness. Li and Chen (2019) found that perceived usefulness considerably influences the intention to travel, and it has impact on decision-making capacity when selecting a tourist destination. Vishwakarma et al. (2020) emphasizes the critical role of perceived usefulness in the adoption of VR technology for experiencing destinations.

H1. Perceived usefulness of VR technology has a positive effect on perceived value.

### ***Perceived Enjoyment***

Disztinger et al. (2017) defined perceived enjoyment as “the degree to which a system or a service is perceived to be enjoyable”. Perceived enjoyment has been identified in the past as an intrinsic motivator for information technology adoption (Kim et al., 2007; Agrebi & Jallais, 2015; Yang et al., 2016). Strong and positive attitudes are directly correlated with perceived enjoyment, which even surpasses perceived utility. Regardless of the negative effects of utilizing technology, the thrill and pleasure of using it is what gives birth to a feeling of delight (Lau et al., 2019). Therefore, using technology like VR to experience a vacation digitally may also be seen as an enjoyable activity because it gives users an entirely new perspective on the location as they have never experienced it before.

H2. Perceived enjoyment in using VR technology has a positive effect on the perceived value.

### ***Perceived Immersion***

Perceived immersion in VR involves the sensation of physically being present in a nonphysical world, achieved through engrossing sensory stimuli like images and interactive environments (Shin, 2019; Teng, 2010). It is a crucial aspect of the virtual environment, enabling users to feel genuinely present in VR space (Shen et al., 2020). Immersion has gained significant attention in VR research for its impact on users' sense of presence and overall satisfaction (Rose et al., 2018). Perceived immersion in destination experiences has a significant impact on VR adoption (Vishwakarma et al. 2020). The immersion features of VR improve conventional ways of learning about a place and provide consumers with a rich, first-hand experience that can significantly impact their decision-making (Disztinger et al., 2017). Immersed users become fully engaged in exploring destinations, often losing awareness of their surroundings, offering a unique opportunity to gain comprehensive knowledge about potential destinations before physical visits.

H3. Perceived immersion in using VR technology has a positive effect on perceived value.

### ***Perceived Sacrifice***

Zeithaml (1988) defined perceived sacrifice as having non-monetary components like time, effort, and energy as well as monetary components like the cost of the commodities. From the perspective of the user, using VR technology results in additional costs as well as some personal harm. The travelers could believe that using an HMD to participate in VR could cause health issues. Researchers have found that perceived sacrifices have a substantial impact on IoT and mobile services adoption (Hsu & Lin, 2016; Chung & Koo, 2015). Therefore, this conceptual study will use perceived complexity, perceived physical risk, perceived cost, and perceived technology anxiety as perceived sacrifices.

### ***Perceived Complexity***

Perceived complexity, according to Rogers (1995), refers to users' perception of the difficulty in understanding and using a specific IT innovation, significantly impacting its adoption. Simplifying technology enhances adoption likelihood (Shih & Fang, 2004). Perceived complexity, or poorly perceived ease of use, is crucial in understanding users' challenges with technology for experiencing destinations (Rogers, 1995). Chuang et al. (2009) found that innovations seen as hard to understand and negatively impact acceptance, as observed in their

study on Internet adoption. In essence, perceived complexity is pivotal in IT innovation adoption; when users find a technology challenging, it hinders acceptance, necessitating an understanding of complexity in assessing user perceptions and adoption behaviors

H4. Perceived complexity in using VR technology has a negative influence on perceived value.

#### ***Perceived Physical Risk***

Perceived physical risk, as defined by Schiffman and Kanuk (2004), refers to the potential harm a product may cause to the consumer and those nearby. The perception of physical risk influences intentions to use augmented reality (Alimamy et al. 2017). The effect of physical risk on the intention to accept technology has been confirmed by many studies (Wu & Ke, 2015; Herz & Rauschnabel, 2019).

H5. Perceived physical risk in using VR technology has a negative influence on perceived value.

#### ***Perceived Cost***

Perceived cost, defined by Machogu and Okiko (2012), refers to the expenses associated with technology adoption and is viewed as a hindrance to innovation acceptance. Information systems adoption is significantly influenced by perceived cost (Mathieson et al., 2001). The adoption of smart home technology is inversely correlated with perceived cost (Nikou, 2019). According to Wang et al. (2018), the adoption of GPS navigation apps is negatively correlated with perceived utility and cost.

H6. Perceived cost of using VR technology has a negative influence on perceived value.

#### ***Perceived Technology Anxiety***

Technology anxiety, characterized by a negative valence and a sense of unpredictability regarding potential future threats or harmful events, influences perceptions of unease and fear associated with technology use (Barlow et al., 1996). Also known as computer anxiety, it significantly affects one's confidence in utilizing technology, impacting beliefs about the effort required. Perceived technology fear plays a key role in shaping perceptions of value. Anxiety, as a negative emotion, has been shown to bias individuals toward perceiving less value in products or experiences (Mellers et al., 1999).

H7. Perceived technology anxiety of using VR technology has a negative influence on perceived value.

#### ***Perceived Value***

Perceived value, as defined by Zeithaml (1988) is a consumer's overall evaluation of a product's utility based on perceived benefits and sacrifices. Numerous past studies have highlighted the impact of perceived value in online travel purchase and social commerce (Ponte et al., 2015; Chen et al., 2018). It significantly positively influences customer purchase intention (Huang et al., 2016).

H8. Perceived value of VR technology has a positive effect on the Intention to use VR.

### ***Intention to Use VR***

The intention behind using VR in travel planning is to enhance the overall experience and make it easier for people to plan their trips. By using VR technology, travelers can virtually explore different destinations and get a realistic preview of what they have to offer. Participants who expressed a higher intention to use VR reported a greater perception of value associated with the technology. The authors found that this effect was primarily driven by the anticipated enjoyment and entertainment value of VR, as well as the perceived usefulness and potential benefits of VR experiences. The importance of individuals' attitudes and expectations towards VR technology in shaping their perception of its value, ultimately influencing their adoption and acceptance of VR applications (Lee, & Kim, 2019).

### **Methodology**

In this study, a quantitative research approach will be employed. The data collection will be conducted through an online survey. The link to the questionnaire will be shared I emil and other social media and communication channels including Facebook, Instagram, X and WhatsApp. A convenience sampling method will be employed for data collection. The sample will consist of Malaysian youth aged 15-40 years old. The software SPSS Version 25.0 will be employed for the statistical analysis. All the questions in the questionnaire will be adapted based on previous well-validated instruments.

### **Conclusion**

This study is expected to provide invaluable knowledge into the variables influencing people's intentions to use VR for travel planning, highlighting the technology's revolutionary potential in the travel sector. From an academic standpoint, this research attempts to fill a gap in the body of current literature, *which highlights the transformative potential of VR technology in travel planning, offering a nuanced perspective beneficial for scholars in tourism management, marketing, and technology adoption. Practically, this study will assist businesses in the travel and tourism sector by leveraging the findings to enhance user experiences by tailoring VR offerings to align with tourists' preferences.*

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