360-Degree Video Marketing: The Role of Emerging Technologies in Tourism Destination Choice

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ABSTRACT

The use of 360-degree videos in marketing plans allows destination marketers to give a virtual adventure to their customers before their actual trip. Combining the motivation theory and Technology Acceptance Model (TAM), a research approach was developed to examine whether 360-degree videos are influential in creating a more positive attitude and influencing users' behavioral intentions towards a destination. To evaluate the relationships between the proposed constructs, structural equation modeling (SEM) was used. An online survey collected data from European participants (n = 598) regarding Hong Kong as a tourism destination. The results revealed that both intrinsic and extrinsic motivators influence tourists' satisfaction with a 360-degree experience of the destination that indirectly affects their visit and electronic word of mouth (eWOM) intentions through behavioral involvement. Overall, the findings indicate that a 360-degree video effectively attracts customers and influences their attitudes and behaviors. The research includes theoretical, managerial implications, and guidelines for future studies relying on these results.

Keywords: 360-degree video, technology acceptance, virtual experience, intrinsic and extrinsic motivators, TAM, tourism destination choice

ÖZ

360-derece videoların pazarlama planlarında kullanılması, destinasyon pazarlamacılarının müşterilerine gerçek seyahatlerinden önce sanal bir macera yaşatmalarına olanak tanır. Motivasyon teorisi ve Teknoloji Kabul Modeli (TAM) birleştirilerek, 360-derece videoların daha olumlu bir tutum oluşturmada ve kullanıcıların bir destinasyona yönelik davranışsal niyetlerini etkilemede etkili olup olmadığını incelemek için bir araştırma yapılmıştır. Önerilen yapılar arasındaki ilişkileri değerlendirmek için yapısal eşitlik modellemesi (SEM) kullanılmıştır. Araştırma kapsamında, Avrupalı katılımcılardan (n = 598) turizm destinasyonu olarak Hong Kong ile ilgili verileri toplamak için çevrimiçi anket şeklinde kullanılmıştır. Sonuçlar, hem içsel hem de dışsal motivasyonların, turistin 360 derecelik bir destinasyon deneyimi ile memnuniyetini, dolaylı olarak ziyaretlerini ve davranışsal katılım yoluyla elektronik ağızdan ağıza (eWOM) niyetlerini etkilediğini ortaya koymuştur. Genel olarak, bulgular 360 derecelik bir videonun müşterileri çekmek, onların tutum ve davranışlarını etkilemek için etkili bir araç olduğunu göstermektedir. Araştırma, bu sonuçlara dayanan gelecekteki çalışmalar için teorik, yönetsel çıkarımlar ve yönergeler içermektedir.

Anahtar Kelimeler: 360-derece video, teknoloji kabulu, sanal deneyim, içsel ve dışsal motive ediciler, teknoloji kabul modeli, turizm destinasyon seçimi.

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LIST OF ABBREVIATIONS

3D	Three-dimensional
AR	Augmented Reality
DMO	Destination Marketing Organization
HMD	Head Mounted Device
ICT	Information Communication Technology
IS	Information System
IT	Information Technology
ODV	Omnidirectional Videos
PC	Personal Computer
SEM	Structural Equation Modeling
TAM	Technology Acceptance Model
VE	Virtual Environment
VR	Virtual Reality

Chapter 1

INTRODUCTION

1.1 Overview

Tourism is a very information-intensive industry. The generation, collection, processing, implementation, and communication of information are essential for the daily operations of the tourism industry (Buhalis, 1998). Unlike durable and industrial products, it is impossible to present or inspect intangible tourism goods at the point of sale until they are purchased. Besides, tourist products are usually purchased far before the time of use and apart from consumption. The information is related to how the product is presented to potential tourists. As a result, tourists require a wide range of relevant regional information, such as accessibility, services, attractions, and local activities. The availability of consistent and dependable information about potential tourists' needs is also critical to meeting tourism's demands (Labanauskaitė et al., 2020).

The tourism industry's development requires developing new and unique strategies for attracting customers to each country and tourist destination. E-marketing is gaining popularity, especially in the tourism business (Labanauskaitė et al., 2020). Similarly, the marketplace is shifting, with new technology altering the marketing industry and opening new opportunities for all sectors. These novel marketing options and alternatives will increase profits for businesses while also providing a more pleasant and entertaining platform for visitors via equally accessible and

enjoyable channels. Technology has the potential to affect the tourism sector significantly. The success of the tourist industry is dependent on the incorporation of technology. Due to the internet and advancements in technology, prospective tourists may now obtain any information they require from any location at any time. Applying information and communication technologies (ICT) to tourism has become critical to the industry's success (Buhalis & Law, 2008; Rahimizhian & Irani, 2020).

Knowledge of the most recent technology is critical to success in the rapidly expanding global tourism industry, mainly destination marketing and promotion. Digital transformation can open up innovation and ensure that destination systems are competitive. However, it is crucial to understand that digitalization provides resources, mechanisms, and technologies to produce or add value to tourism products and visitor experiences. Recently, immersive technologies, including augmented reality (AR), virtual reality (VR), and other emerging technologies, have gained widespread recognition in the field of tourism (Chung et al., 2016; Huang et al., 2013, Zhang et al., 2019). As advancements are made in new technologies, improvements are also required in predicting users' interactions and experiences with these technologies. VR has been utilized to deliver a range of immersive experiences in tourism applications such as marketing, cultural heritage protection, sustainability, and education (Yung & Khoo-Lattimore, 2019).

Since VR's unique characteristics provide a new method of presenting travel and tourism products, it is credible that VR can significantly impact the tourist industry's future (Beck et al., 2019; Guttentag, 2010; Tussyadiah et al., 2018). From a marketing standpoint, VR has the potential to alter the promotion and sale of tourist products dramatically. Tourism marketers may use it as an innovative approach to

provide information to visitors (Tussyadiah et al., 2018) and create reliable experiences (Cranford, 1996).

VR advances, apps, gadgets, and tools for producing hypermedia content have allowed technology to escape from the shadows into the world of daily experiences since the 1960s. The accelerated growth of mobile devices such as smartphones has pushed the adoption of these destination marketing technologies, which play a crucial part in the tourism and travel experience (Tussyadiah, 2016). The 360-degree video format (Afzal et al., 2017) is one of the significant multimedia experiences regarded as a VR subsidiary that has gained popularity during the last several years. 360-degree videos, often known as desktop or mobile-based VR, are the most popular, inexpensive, and simple way to access VR apps (Carrozzino & Bergamasco, 2010). Nowadays, it is a relatively popular concept because social media sites like Facebook and YouTube have enabled their users to watch and share 360-degree videos (Afzal et al., 2017).

Immersive 360-degree video experiences have great potential to provide marketers with more fascinating and appealing experiential solutions, particularly in the tourist industry. 360-degree VR video simulations allow people to participate in events that would otherwise be impossible, and a 360 VR marketing approach may significantly affect prospective visitors' information search and decision-making.

Consequently, 360-degree video immersion in conjunction with 3D graphics models may be used to demonstrate a higher level of consumer interaction. By creating the sense of being in the actual world, this involvement enables visitors to form more

realistic and accurate expectations of their visit and develop an emotional connection to the virtual environment (Viveiros et al., 2021).

360-degree videos, known for their spherical representations, enable users to watch a virtual scene in all directions (Johnson, 2016). The use of these videos taken by omnidirectional cameras gives viewers more practical and navigable views. It can be viewed using different types of devices (Sreedhar et al., 2016). One way is to use Head-Mounted-Displays (HMDs) with stereoscopic abilities to present the highest immersion (Lin et al., 2019). By turning their heads at any time, HMD users can easily control the view of the scene (see Figure 1).

An alternative to the expensive and less accessible HMDs is watching 360-degree videos through mobile devices that allow users to physically control the camera by relocating them or touching the screen to move throughout the virtual environment (VE). Finally, users watching a 360-degree video using a desktop computer can use their cursor to turn the camera by dragging the video vertically and horizontally (Pavel et al., 2017). Different visual circumstances make the control and immersion of the environment possible. Watching 360-degree videos on smartphones is usually preferred by consumers because of their familiarity with navigational control and the plainness of the exploration.

Figure 1: Popular Models of Head-Mounted-Displays

Compared to standard videos, 360-degree videos have specific properties, such as a broad field of view and partial control of viewing scenes. These videos appear to elicit emotions and engagement from the audience, but they may also cause motion sickness and physical discomfort among viewers. The visual quality of the 360-degree video might be considered one of the shortcomings of these videos since their lower resolution can negatively impact users' engagement. Higher quality demands higher storage reservations and vaster network bandwidth for delivery (Wang et al., 2018). However, the effect of advantages ignores the weaknesses. A 360-degree video can more adequately absorb the audience than regular videos.

1.2 Problem Statement

Encouraging people to spend on a vacation and visit a destination can be a challenge for destination marketers. Travelers are interested in gathering information about the destination to set a budget and plan before they travel. The main advantage of virtual experiences in the tourism and travel sector is a little taste of the experience. More convincingly, it can cause strong emotions than simply watching images or reading customer feedback. Since consumers typically need much information before the actual trip, by using 360-degree videos, marketers may significantly shorten the process of researching and seeking information. These interactions provide an efficient way to show clients what their trip could look like and give them confidence that they are dealing with a reputable provider with nothing to hide before arriving at a decision.

The 360-degree experience encourages viewers to get involved by taking on the role of director and controlling the action. This new information technology (IT) provides tourists a distinct way of experiencing particular vacation destinations. Therefore, the ultimate aim of promoting VR is to give enhanced experiences at tourist attractions and thus probably valuable relationships that might boost visit and eWOM intentions to the destination (Tussyadiah et al., 2018), rather than to produce positive attitudes of VR itself. There are several studies on providing engaging material for traditional viewing settings, such as two-dimensional films (Connell, 2012), television (Pan et al., 2017), and games (Wang & Chen, 2019). However, knowledge about developing technologies, such as 360-degree videos, is scarce.

Because VR technologies have a wide industrial use and growth potential, various industries such as e-commerce, tourism, and recreation consider VR technologies as usable services. The 360-degree virtual tour market is one of these representative sectors. However, little empirical research has considered VR system varieties, such as 360-degree videos, to influence tourists' visit intentions for the tourist destination. Moreover, the implications and use of VR content in the tourism context (Guttentag, 2010; Williams & Hobson, 1995) and its effects on tourists' behaviors (Tussyadiah et al., 2018) have recently been considered in travel and tourism research.

However, the use of 360-degree videos in a variety of contexts does not always lead to persuasion. Despite the potential to increase user control over the 360-degree video viewing experience, users will tend to be less likely to "like" and “comment” on 360-degree videos on social networking sites in comparison to regular videos (Oh et al., 2020). Adopting the 360-degree feature is a significant trend to explore for marketing tourism destinations, as travel costs have become a primary focus of conversation for businesses seeking to make a difference in public discourse (Oh et al., 2020). Whereas traditional video communication research emphasized the fact that consumers are more inclined to make informed decisions toward positive development if they have access to relevant factual information, recent research in this area has revealed that people's motivations play a crucial role in their attitudes and behaviors toward these issues (Lee & Jeong, 2018).

Tourism is an area that motivates people to use new technologies to gather travel information, which facilitates their decision-making. From a motivational standpoint, individuals adopt information technology depending on their intrinsic and extrinsic motives and the saliency of these motivations (Shaw et al., 2018). Thus, it is essential

to discriminate between intrinsic and extrinsic motivations. Extrinsic motivation includes usefulness and ease of use, whereas intrinsic motivation includes enjoyment and autonomy. Both are vital criteria in technology adoption research because they influence customers' attitudes and behavioral intentions (Davis, 1989; Jung, 2011; Van der Heijden, 2004).

Today, no one questions the perfect combination of technology and travel. This collaborative design significantly affects how people travel, from the holiday spot they pick to what they do once they arrive. Millennials, especially, have been influential in this paradigm change. They enjoy traveling and are also interested in emerging technologies. This integration of interests has created a new framework in which social media, apps, blogs, and so on all play a significant role in planning a trip. Similarly, as the industry becomes more conscious of this development, it has adapted its business model and market presence to attract this beneficial target.

As previously stated, the concept of "try before you travel" is elevated to a whole new level. Until spending a large sum of money on travel, comparison and evaluation can be facilitated significantly through VR applications. From destination choice at home or the travel agent's office to hotel room reservation and even seat selection on an airplane, virtual previews will assist doubtful visitors in discovering and creating their desire vacation. Additionally, in particular, it can assist in bridging the difference between holiday expectations and experiences (Kozak & Baloglu, 2010). The travelers' experience should always meet, if not surpass, their goals, from the time they start thinking about where to travel to the time they return home and beyond, to end with satisfaction and positive feedback. Since VR brings potential visitors closer than ever before to "getting there without actually being there,"

tourists' expectations will be well set before they travel. Still, expectations might increase, implying that everything should fit adequately in the destination as well.

According to Lee et al. (2007), there is an abundance of research on service quality. Tourism marketers are continuously trying to enhance visitors' positive behavioral intentions by offering excellent and enjoyable experiences regarded as good value for their money throughout their stay. Nevertheless, there is limited study concentrating on tourism to highlight the consistency of the tourism experience, for instance, visits to a specific attraction or the use of virtual technology in a destination or site. Given this gap in the area, this research examines whether intrinsic/extrinsic motivations to engage with a 360-degree video experience can affect viewers' behavioral intentions towards a tourism destination. Including 360-degree video into tourism, the model will provide a better perception of the emerging technologies that tourists will face in the future. Therefore, it is worth examining the influence of VR satisfaction on a particular destination's behavioral intention. Consequently, this dissertation is conducted to provide answers to the following questions:

- Do intrinsic/extrinsic motivations influence viewers' satisfaction with the 360-degree experience of the tourist destination?
- Does satisfaction with the technology influence viewers' behavioral involvement to search for further information regarding the tourist destination?
- Does users' behavioral involvement influence their behavioral intention to visit or recommend the tourism destination?

1.3 Purpose of the Study

The aim of the research is twofold. First, to rightfully endure the link between 360-degree video experience and the tourist destination, the association of the experience and a site must collectively influence travelers. Theoretically, this link connecting 360-degree video and a physical area can be approved by the technology acceptance model (TAM), which has established a valuable framework for defining individuals' IT adoption (Davis, 1989). TAM has been modified for consideration in a variety of settings, including mobile technology (Kamal et al., 2020), virtual communities (Peñarroja et al., 2019), virtual worlds (Tussyadiah et al., 2018), and the influence of information technology in the travel decision-making process (Assaker, 2020). Thus, perceived usefulness, ease of use, and intention constructs adopt as three vital constructs in the current study from the TAM model.

Secondly, although the TAM model is suitable for this research, it does not meet each unique feature of the 360-degree video. Therefore, the study integrates intrinsic/extrinsic motivators into the TAM model to develop the participants' behavior patterns. The users of 360-degree videos are not just consumers who accept and use the latest services. They are the people that experience the immersive video and look for more such content, that is, different aspects of consumer behaviors. The theoretical framework of motivation helps to fully understand travelers' incentive and their participation in entertainment-oriented VE. Thus, integrating the TAM and motivational constructs helps better predict users' intentions while experiencing the place within a VE. The motivation theory (Deci & Ryan, 2000) states that the satisfaction of the psychological needs contributes to more intensified engagement in

virtual worlds and aids motivated behavior in different domains, such as marketing (Dholakia, 2006).

Despite various studies attempting to understand tourism and Internet innovations, more extensive comprehension and theory-based investigation of user experience and behavior within a virtual tourism setting is required. Therefore, this study aims to generate a framework linking TAM and motivation theory to explain the travelers adoption of the 360-degree video and its influences on their behavioral intention (adapted from Basoglu et al., 2017). Based on the study framework, a conceptual model was established to analyze the impact of the intrinsic/extrinsic elements on VR users' satisfaction and involvement, which influences their behavioral intentions toward a tourist location (Figure 2).

1.4 Contribution to the Current Knowledge

This study contributes to the current knowledge of tourism marketing in a variety of ways. First, 360-degree videos can be practiced for managing, planning, and marketing a tourist destination. The tourism marketing potential of VR lies mainly in its potential to provide prospective tourists with comprehensive sensory information. This ability is especially vital for the tourism industry because many tourist goods are services that customers must test in advance and decide whether or not to consume based solely on descriptive information (Guttentag, 2010). Hence, internet marketing is vital for the tourism industry (Buhalis, 2019; Stankov & Gretzel, 2020; Tavakoli & Wijesinghe, 2019). The immersive nature of 360-degree video makes it an ideal tool for providing helpful information for potential visitors searching for destination information.

The second contribution to the current knowledge of tourism marketing in this research is the four dimensions of motivation—enjoyment, autonomy, usefulness, and ease of use (Vallerand & Blssonnette, 1992) — which are used as causal antecedents of 360-degree technology satisfaction. This study distinguishes between intrinsic and extrinsic motivations' effect on viewers' satisfaction, which, in turn, results in their behavioral involvement and intentions toward the destination.

1.5 Dissertation Organization

This dissertation is divided into five chapters: an introduction, a literature review, a methods section, a results section, and a conclusion. The following chapter will discuss the existing literature on virtual reality and 360-degree video in tourism marketing, the observed variables, theoretical framework, and hypothesis development. The third section discusses the research design utilized in this dissertation, while the analysis, discussion, and conclusion findings are presented in chapters four and five, respectively.

1.1 Definitions of Terms

Enjoyment refers to the degree to which the activity of utilizing a particular system is perceived to be pleasant by itself, independent of any performance implications coming from system use (Davis et al., 1992). Within the context of this study, enjoyment relates to participants' self-reported level of pleasure and interest in a virtual tourist destination.

Perceived autonomy is defined as the degree to which users perceive his or her behaviors to be the consequence of his or her own free will in a particular situation, with no external intervention. People feel psychologically free and intrinsically driven when they believe their decisions are dependent on their autonomy (Deci &

Ryan, 1985). In this research, autonomy refers to the freedom given to users inside the virtual world, where the user determines the direction and viewing angle.

The extent to which a user knows that using a specific system will be devoid of effort is perceived ease of use (Davis, 1989; p.320). In the context of this research, this element is related to the ease of use of 360-degree technology and one's adoption of new technology.

Perceived usefulness is defined as the degree to which an individual believes that adopting a specific system can improve his or her performance (Davis, 1989, p. 320). This element is related to the 360-degree technology advantage as an efficient, informative tool for travel decision-making and a substitute for a short getaway from everyday life.

The entire cognitive or emotional response to product use is satisfaction (Oliver, 1980). Satisfaction with a VR app may stem from the characteristics of the video and its associated vendors, outcomes, or services.

Behavioral involvement has been determined as the time and effort spent on a specific task (Stone, 1984). In this research, behavioral involvement refers to the user's engagement with the destination characteristics depicted in the 360-degree video, resulting in information search activities.

Positive or negative comments about a product or service publicly accessible on the Internet are referred to as eWOM (Litvin et al., 2008).

The desire of a potential visitor to visit the destination is referred to as the intention to visit (Chen et al., 2014). It is the logical evaluation of a possible destination's expenses using external sources of information such as marketing promotions (e.g., 360-degree video).

Experienced user refers to the participants who have prior experience with the 360-degree video and virtual environment.

Participants with little or no prior familiarity with 360-degree technology and the virtual world are referred to as novice users.

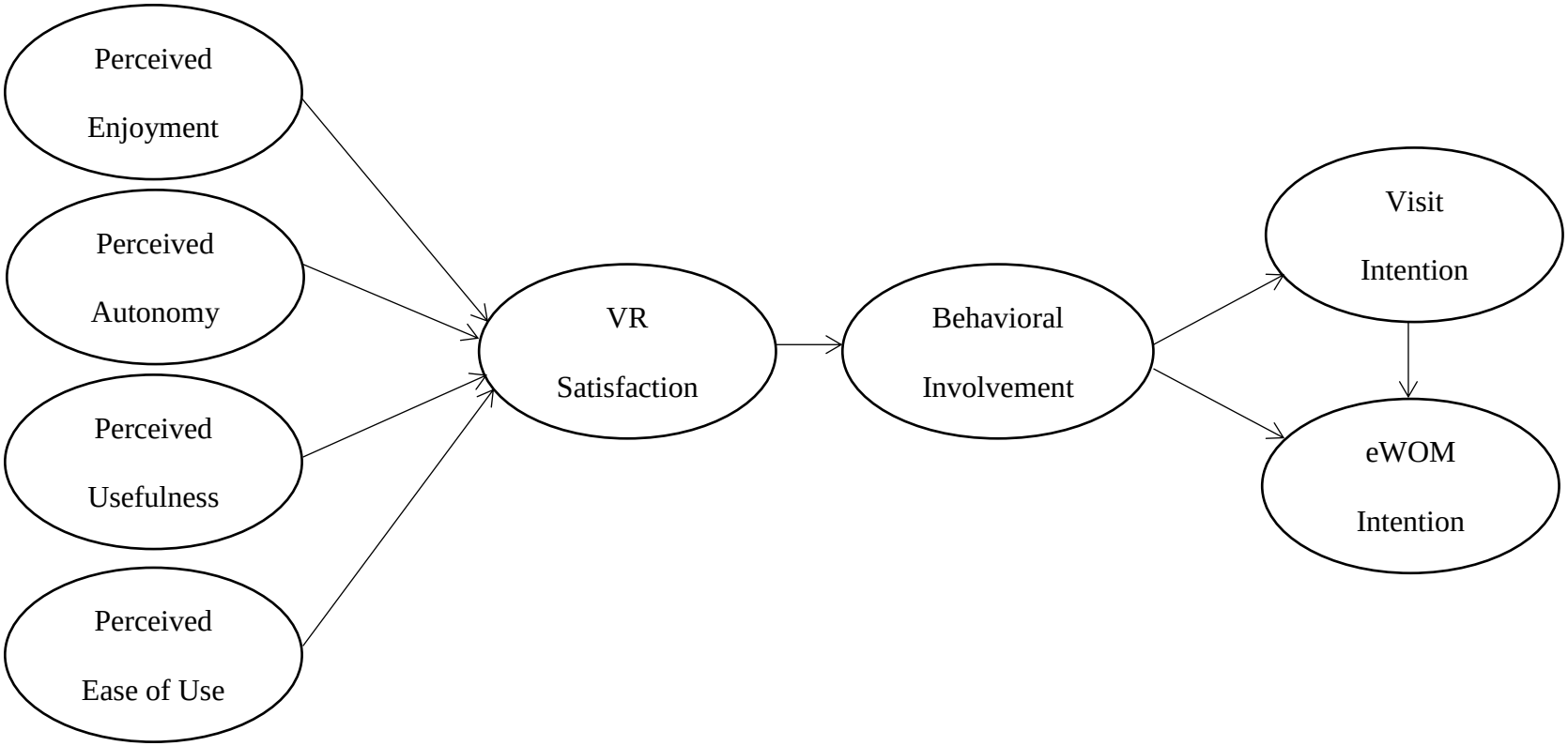


Figure 2: Proposed Research Model

Chapter 2

LITERATURE REVIEW

2.1 Overview

This section starts with a discussion of virtual experiences and their use in the travel and tourism context, particularly investigating how 360-degree VR videos are used in destination marketing, destination management, and tourists' decision-making behavior. The chapter also addresses the intrinsic/extrinsic motivations theory and technology acceptance determinants. Furthermore, the idea of the 360-degree video experience is examined in the context of the existing studies in the area of the virtual tourist experience. This chapter concludes with a consideration of the involvement and intentions of users and provides a conceptual model of research.

Because of the evolution of e-tourism, considerable academic research in tourism has focused on information and communication technology (ICT) (Buhalis & Law, 2008). Virtual reality (VR) is an emerging area of great concern. As a new technology seeks its identity, there is bound to be doubtfulness in early efforts to describe it. Nevertheless, to provide a thorough understanding of VR, its applications, and concepts, a complete definition of VR is required. According to Guttentag (2010, p. 638), VR can be defined as the use of a computer-generated three-dimensional (3D) environment – called a 'virtual environment' (VE) – that the user can navigate and possibly interact with, ending in a real-time simulation of one or more of their five senses. Navigate is the ability to move throughout and explore

the VE, and interact means picking and moving things within the VE (Gutierrez et al., 2008). Guttentag (2010) stated that the VR experience allows users to immerse themselves in a digitally created virtual environment by participating in the activity either physically or virtually. VR is a technology that can immerse the user in a simulated environment. The most instantly noticeable aspect of VR is the users' interaction with 3D images rather than viewing a screen in front of them. With recent technology advancements, virtual reality has become more intimately linked with an immersive VR experience that utilizes a Head-Mounted-Display (HMD) to immerse the viewer in a fully 3D simulated environment. Thus, the primary characteristics of the VR experience are immersion, navigation, and interactivity.

One of the first VR systems incorporated a head-mounted display was created by Ivan Sutherland in the 1960s. Sutherland (1968) described VR as a notion considered by many to be in its infancy. However, VR's origins may be traced back to the ultimate display. He issued the following challenge: “the screen serves as a gateway into a virtual world. The challenge is to make that world look real, act real, sound real, and feel real”. Over the last decade, this topic has become the research focus for a rapidly growing community of scholars and industries. While the possibilities integrated with the modern medium have only newly crossed a cultural threshold over this period, VR technology has undeviatingly progressed. Virtual reality has begun to move away from the purely theoretical toward the practical.

VR applications in tourism have been proposed in a variety of contexts. Suggested applications vary from a management and planning tool to help evaluate tourists' demands and needs via an entertainment tool, such as a tourist attraction, to a medium for educational reasons, such as a museum or a heritage site (Guttentag,

2010). However, the most often investigated field is the application of VR as a promotional tool.

At first, VR was entirely related to gaming, but today the technology is also in use in many other sectors in diverse ways due to the ICT developments. There are several VR applications in various industries, with the entertainment industry being the most popular one. In the healthcare industry, VR applications can be used for therapy purposes (Anderson & Molloy, 2020), in the military to reconstruct and practice situations (Ahir et al., 2020), in education for virtual fieldwork and immersive games (Checa & Bustillo, 2020; Cheng & Tsai, 2019), in design and architecture (Mouratidis & Hassan, 2020), and tourism (Tussyadiah et al., 2018). The consequences for the tourism sector of this focus on practical uses of VR are significant.

Virtual tourism has become increasingly popular among tourism industry stakeholders in recent years, primarily as a marketing tool. Sustained by worldwide technological advancements and Internet use and closely related to intelligent tourism, virtual tourism ventures are seen in many parts of the tourism and travel industry. It is a hybrid notion that combines both the concept of VR and tourism.

Virtual tourism takes various forms and appears in different degrees of technological capability (Van Damme et al., 2019). One way is to watch 360-degree videos of a tourist destination, using their hearing and sight senses (Feng et al., 2019). Another way is to being immersed in an environment through the utilization of a headset or simulator. It may require the use of various types of equipment, and there may be completing sensations such as movement, feeling, and smell (Shen et al., 2020).

However, HMDs offer more interactive VR experiences, yet users may experience a VR-like environment while using just a smartphone to enjoy a 360-degree video without really disrupting with VR headsets. These videos allow users to choose what they need to see and how they want to see it.

Virtual tourism promotes tourism experiences without tourists ever having to travel anywhere. Virtual reality has been widely employed as an advertising medium (Beck et al., 2019; Guttentag, 2010). Over the years, destination management organizations (DMOs), tour operators, and tourist attractions have been using VR as a way of promoting to draw visitors and bring in new business with the VR experience (Flavián et al., 2019; Lin et al., 2020; Williams & Hobson, 1995).

2.2 Information Technologies in the Tourism Industry

As the world enters the information age, the use of information technology (IT) is increasingly growing. Over the past decade, information technology has played a significant role in the hospitality and tourism industry. Technology has assisted in lowering costs, increasing operational efficiency, and improving services and customer experience. Improved communication, reservations, and guest service systems can help both customers and businesses. The wisdom of the market suggests that tourism managers must adopt technology to compete with both traditional competitors and entrants who base their businesses on cutting-edge technology. Within the dynamic environment, distribution models must be developed in conjunction with a strategic information management strategy that enables the enterprise's business purpose to be accomplished via guided information, controlled processes, and managed IT.

The internet has had a profound effect on the hospitality and tourism businesses. It is critical for a company to successfully use internet advertising, social media, blogs, and online purchasing to assist its consumers and survive in such a highly competitive market. The Internet has changed the world into a global village accessible with the click of a mouse (Buhalis & Law, 2008). The tourism industry thrives on information. The industry's size implies that it produces a large amount of data that must be processed and communicated. Countless messages and pieces of information, such as visitors, locations, or product information, must be exchanged with each person undertaking a journey.

Furthermore, the tourism industry has several other unique features that necessitate the use of IT applications. The nature of the travel and the characteristics of the passengers may have an impact on information requirements. Geographically dispersed countries, organizations, and travelers need information communications networks; otherwise, the tourism industry does not operate as effectively on a global scale (Benckendorff et al., 2019).

IT provides prospective visitors with easy access to visual and textual information about destinations worldwide. Consumers can now communicate directly with tourist organizations to obtain information, purchase goods, and interact with principals through internet technologies. The fast growth of the Internet gives the global representation and promotion of tourism unique and affordable opportunities (Buhalis, 1998). Technology plays a significant role in displaying tourist destinations by organizing and implementing sales promotions, initiatives, and deliveries (Jovicic, 2019).

The use of IT has altered the entire tourism industry. Research shows information technology is shaping how travel organizations in all sectors interact with consumers, compete, organize their plans, add value to their offerings, save costs, and streamline their operations (Buhalis & Law, 2008). IT became a preeminent driver of competitiveness in the travel and tourism industry. There has recently been a competition to adopt new technologies in the tourism sector. Technological innovation has a direct impact on price and, therefore, competition by gaining efficiencies. It also supports intra-organizational functions at a specified level. Many manual tasks are eliminated when dealing with payroll, inventory management, and accounting records that frees up time and allows employees to serve customers better.

Furthermore, IT provides the impulse in interest and motivation creation and satisfies visitors based on visual stimuli and physically visiting the destination. Using IT simplifies and expands the use of technology and other innovations for tourists in the tourism industry (Kim et al., 2020). Indeed, by improving competitive advantages, IT enables tourism industries to access both demand and supply. It demonstrates that IT is strongly associated with tourism destinations and visitor satisfaction (Chia et al., 2021). The tourism industry is among the most active IT users that has the most extensive computer investments in the world of business (Drosos et al., 2017), with the aviation sector being the most innovative and heavy user of IT with the implementation of computer reservation systems (Benckendorff et al., 2019).

All travel and tourism sectors, including hospitality, attractions, entertainment, casinos, and events, have specialized IT systems. The Internet has had a notable impact on many travel organizations (Pencarelli, 2020). Since the Internet's advent,

these organizations have increased their market strength by gaining access to distant international markets. Tourism destinations, for example, have discovered the importance of integrating IT into their marketing and management strategies (Buhalis, 2019). IT connects different sectors of the tourist destination and stakeholders and can communicate with visitors in new and creative ways, such as the Internet, social media, and mobile technologies. Furthermore, tourists profit greatly from technological advancement. Social networking and mobile technologies, in particular, provide universal access to information about destinations, travel companies, and experiences (Corrêa & Gosling, 2020).

Since the 1980s, information technology and tourism have grown as a prominent field of research, with IT changing the operations, delivery, and management of tourism businesses. It is derived from the tourism and information systems research areas. The creation of tourism and IS knowledge share the rambling and intricate nature of arising from and being affected by basic disciplines, including geography (for tourism) and computer science (for IS), and other underlying fundamental domains, such as sociology, psychology, political science, economics, and anthropology, which are critical in the creation and development of awareness in both disciplines (Cai & McKenna, 2021).

The components of the IT system in the tourism industry cover a wide range of technologies such as Artificial Intelligence (AI), robotics, cashless payments, AR, and VR, which are already being used to differing extents in various industries and parts of the globe, causing a slew of disruptive changes. The advancement and development of tourism technologies and applications accessible through intelligent devices provide an increasing diversity in tourism marketing. The focus of this study

is 360-degree videos as a type of VR application that is a new marketing tool to raise awareness, help gather tourist information, and provide tourist information. This tool gives tourism a competitive edge in management, marketing, education, and economics. In recent years, advances in technology have enhanced the reputation of VR as a product and tool in the hotel and hospitality business, leisure and entertainment, transportation, destination marketing, and as a tourist device itself.

2.3 Destination Choice in Tourism

Tourism decision-making is one of the main aspects of the industry that connects tourists to local governments and tour operators. Tourists need to decide about a particular destination as well as the type of experience during their visit (Irani & Rahimizhian, 2021). While destination managers are keenly interested in how tourist customers make all of these decisions, the most significant of these concerns is where to travel or the destination of choice.

Effective destination marketing management involves a detailed analysis of all of the complicated procedures involved in the decision-making process for tourist destinations (Crompton, 1992). In the tourism literature, a large number of theoretical investigations into the decision-making process have been published. Consumer behavior research has widely demonstrated that a consumer's decision is a multi-stage process (Liu et al., 2020).

The decision-making process of tourists is a sequential procedure based on a set of well-defined processes. It entails recognizing the problem, developing goals and objectives, developing a series of alternative objects, searching for information about the choices under consideration, evaluating a range of options, arriving at a

conclusion and preference among alternatives, acting on the decision, and providing feedback for future estimation (Crompton, 1992).

Various elements influence decision-making, including internal data and socio-psychological aspects such as reasons, attitudes, values, and personal attributes. It is also determined by affective variables such as mood state and feelings during the trip. Furthermore, external elements (e.g., situational limitations, destination pull factors, marketing mix, environmental stimuli, and social inputs), as well as the nature of the journey (e.g., travel distance, trip duration), might have an impact on this process (Liu et al., 2020).

The quest for information results in the choice of a destination. The complexity of tourist decision-making has spurred numerous studies in several academic areas. Gorman (1957, 1980) and Lancaster (1966, 1971) create a structure for consumer goods by depicting them as distinct features or quality packages. The value gain associated with consumption is calculated as the weighted total of the utilities contributed by each attribute. Therefore, destinations are usually regarded as mixtures of different qualities of attractions (Kislali et al., 2020; Masiero & Qiu, 2018; Valduga et al., 2019). According to Wu et al. (2011), there are three categories of factors influencing tourists' choice of destination including, alternative-specific factors and their accessibility such as service quality, resources, and available travel mode; situational elements such as climate and political circumstances; and decision maker-specific factors such as age, gender, and personality. These factors are generally considered objective factors of decision-making.

The growing use of smartphones and ubiquitous access to mobile networks significantly impacts the travel process as it influences travelers' information quest and decision-making (Liu et al., 2020). Due to the ad hoc access to information provided by relevant technologies, tourists opt to postpone many decisions they would have made before the trip to the on-site stage (Xiang et al., 2015). In all stages of decision-making, technology is ubiquitous. It assists people in filtering, analyzing, and processing information, formulating and evaluating alternatives either consciously or unconsciously. Any data, even if it is hidden, has an impact on the subconscious. A technology that plays a minor role in the decision-making process will have a minor effect on it. In contrast, a technology that plays a vital role in the selection process will significantly impact it (Darioshi & Lahav, 2021).

According to Huang et al. (2012), the process of travel decision-making is sequenced and influenced by sensory stimuli that combine formal communication such as advertising, the internet, and sales promotion with informal sources of information. Exploring the travel destination in the virtual world gives consumers a sensory experience and vital information for choosing a vacation. Information search is carried out at many phases of the decision-making process, and information collected from the web contributes to creating the destination image and helps travel decision-making (Assaker & O'Connor, 2021).

The ability to have information and communication accessible in real-time has significantly impacted consumers' expectations due to the fast development of mobile technology. Today, virtual experiences exhibit strikingly similar growth patterns to mobile but offer a distinct value proposition immersion. A 360-degree video is a 3D virtual representation of an actual attraction, destination, or tourist

experience that is designed as a prelude to visiting a destination or as a way of extending users' previous experiences (Kim & Hall, 2019). Real-world decision-making scenarios are complicated. Individuals must deal with uncertainty in the context of punishment and reward, with decisions that are advantageous in the short run becoming disadvantageous over time and vice versa. Virtual adventures, however, create artificial decision-making situations in which users' choices can be manipulated. According to Tussyadiah et al. (2018), employing VR to compare different places enables consumers to make more informed choices. Recent studies have been undertaken on how 360-degree virtual experiences might improve tourists' intent to visit and assist them in making travel decisions (Cho et al., 2002; Kim et al., 2020).

2.4 Virtual Reality in Tourism

People worldwide and their everyday lives are influenced by today's information technology and the rapid development of this sector. Not only does innovation change the way we live and the way we work, but boundaries are also steadily crossed into other dimensions (Urbinati et al., 2020). VR also provides exceptional opportunities for the entertainment and tourist sector in the pre-visit phase, during the trip, and post-visit stage, among the contributions technology, has made for these sectors (Hudson et al., 2018).

VR is advantageous within six tourism areas, including education, entertainment, planning and management, marketing, accessibility, and heritage conservation (Guttentag, 2010). However, all these fields present decent research opportunities and increasing scientific evidence that is indeed the viewpoint through which researchers have chosen to find the application of virtual reality in the tourism

environment. VR roles are diverse in the experience fields, including VR attractions (Waterford), historical collections (British Museum), and theme parks (Disney Quest), Internet-based virtual visits to museums (Louvre Virtual Museum Tour), hotel entertainment (Marriott Hotels), and virtual destination videos (Australia Virtual Tour). VR and 360-degree videos are being utilized in the tourism industry at every stage, from motivation to the final acquisition. However, VR is becoming a more common part of actual travel - as entertainment. To encourage and improve the consumer's experience, VR still has a lot of untapped potentials.

According to Hobson and Williams (1995), travel is a secondary world where the tourist escapes conditionally. Travelers prefer to skip into known simulated experiences assimilated into staged substitute realities (Cohen, 1979). The adoption of VR into the tourism experiences slightly drives this alternate reality one step further (Williams & Hobson, 1995). The availability of various VR applications in diverse tourism areas reveals that VR experiences can strongly impact this sector and affect tourism marketing. It offers marketers opportunities to connect with the target market by providing prospective visitors with an immersive and engaging experience to discover tourism destinations before visiting (Huang et al., 2016).

According to Guttentag (2010), compared to traditional media formats, VR has the unprecedented power to visualize spatial depth, which would be its most significant advantage when used in tourism contexts. Along with assisting people in making informed choices, wearing a virtual reality headset and digitally traveling to different places may elicit excitement and a desire to visit these destinations (Cheong, 1995).

Virtual experiences are vital additions to the economic experiences that offer many benefits from the customer and tourism industry perspective. Since tourists are seeking more impressive and exclusive experiences in the tourism sector, VR would be an excellent example of an inspirational tool (Lin et al., 2020). They allow natural attractions to be developed (Kim & Hall, 2019) and new experiences to be planned (Yung & Khoo-Lattimore, 2019). Travelers can engage in a virtual experience that is highly enjoyable (Kim et al., 2020). Additionally, it offers the potential for complete immersion (Lee et al., 2020), gamification (Wang & Chen, 2019), increased access to new and more customized experiences (Williams & Hobson, 1995), and co-creation of their experiences with the tourist provider (Buonincontri et al., 2017).

There are various ways that the tourism sector gains at the same time. From a marketing perspective, VR contributes to creating destination images (Yung et al., 2020) and allows customers to engage with relevant brands (Guttentag, 2010). For instance, giving a competitive edge (Jung & Tom Dieck, 2017) generates additional and improved benefits (Beck et al., 2019) that may be used for heritage preservation, planning, and staff training. According to IDC (2020), the highest consumer use case for VR technology is VR video and VR gaming, with 20.8 billion US dollars anticipated to be spent in these categories alone in 2023. However, experts believe that the benefits of VR will have an industry impact, with efficiency improvements being a real possibility. Consequently, by 2023, industrial consumption is predicted to be three times greater than consumer use (Figure 3).

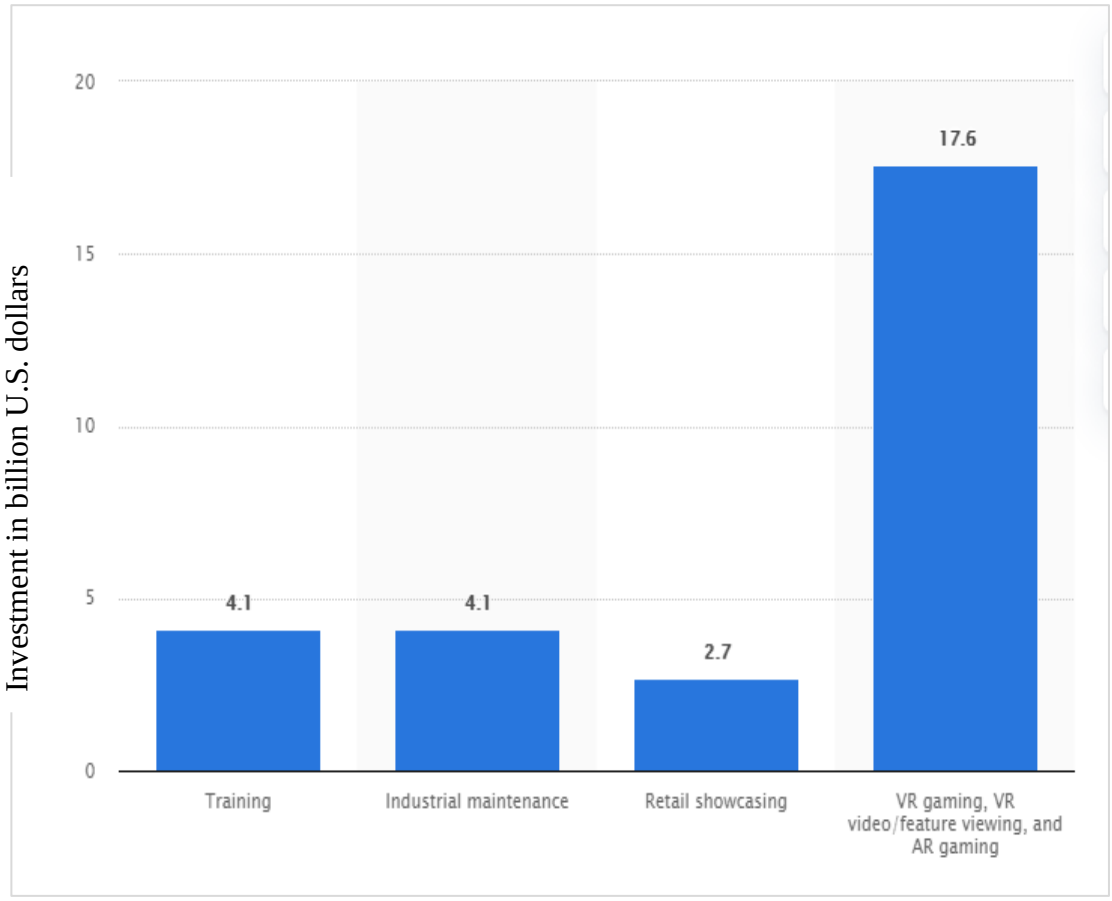


Figure 3: Investment in AR/VR Technology Worldwide in 2024, by Use Case
Source: IDC Worldwide Augmented and Virtual Reality Spending Guide

VR solutions are of particular interest to tourism marketers because they can provide prospective tourists with a realistic representation of their vacation experience regardless of where they are located. The technology's interactivity, simulation, and immersion can give visitors an immersive experience in virtual environments to aid in their travel planning and choice (William & Hobson 1995). As it aims to market such destinations by offering customers first-person experiences, numerous tourism businesses have started to incorporate VR techniques into their marketing and promotion campaigns.

Remarkably, there are two principal marketing approaches for VR usage. The first approach is informing and selling (Hassan, 2020). For instance, Shangri-La Hotels

equipping its global sales offices and the sales departments of hotels with Samsung GearVR headsets to promote the hotels to corporate clients, such as suppliers and travel agencies. Besides, Best Western Hotels has used 360-degree videos from its properties in North America that show the users' hotel suites, lobbies, and other services. In this way, VR is used to inform consumers about the product and improve sales.

The second approach is entertaining and marketing. For example, Marriot hotel chains provide their customers with the opportunity to use the Samsung GearVR headset and travel worldwide in their hotel rooms. This way, VR works as a tool for entertaining customers (Huang et al., 2016).

Travel businesses now need to integrate new technology, enhance their interactive content, and implement it in their marketing strategies to remain competitive in the long term, attract a wider audience and serve the needs and expectations of new generations of tourists (Beck et al., 2019). VR can offer information about tourism products and services in a different and much more impressive way since it positively impacts two of the most vital processes within the consumers' travel cycle (Cheong, 1995). First, by providing tourists access to destination information in a much more detailed and accurate way than traditional promotional content, VR affects the process of searching for information or planning (Rainoldi et al., 2018). Second, VR impacts the decision-making process and booking behavior of travelers by enabling them to experience a destination in advance (Israel et al., 2019).

Various tourism and virtual reality studies have confirmed that the informative and entertaining experience settings in a virtual world influence the processes of

information search and travel decision-making for travelers. For example, in the web domain, Kaplanidou and Vogt (2006) discovered that the component of perceived usefulness in online-based tourism was a strong predictor of visiting intentions toward the tourist site. Applying TAM and motivational frameworks, Mäntymäki and Salo (2011) researched the purchasing behavior of hotel consumers in a virtual social world, proposing that perceived ease of use and usefulness indirectly influence consumers' purchase intention. Besides, Huang et al. (2013) discovered that utilizing the TAM model in 3D virtual environments, perceived usefulness, and ease of use are predictors of user travel intentions to raise concern and awareness in selecting destinations.

Numerous researchers have long examined VR's potential as tourism promotion and marketing tool (Huang et al., 2016; Vishwakarma et al., 2020; Tussyadiah et al., 2018; Williams & Hobson, 1995). Specifically, the idea of VR has been widely applied in the hospitality and tourism industry. In the context of hotel booking, Zeng et al. (2020) studied the impact of VR applications in the link between online reviews and behavioral intention. The result revealed an increase in consumers' online reviews using VR to make a hotel booking. Moreover, Loureiro et al. (2020) found the most vital topics of VR and AR, based on earlier studies in the tourism setting. The most researched subject in VR and AR was atmospheric design guidelines, followed by cultural heritage and smart cities, seminal and trend articles, location-based data and image quality, smartphone usage for sustainable tourism, promotion of tourism destinations, TAM, telepresence, and case studies.

VR enables marketers to provide more compelling images of tourism sites to prospective visitors by delivering a taste of what it is like to be there, a "try before

you buy" experience. Abou-Shouk et al. (2013) discussed the advantages of incorporating immersive VR technology into marketing communication plans to create a sensory experience, with the specific goal of promoting the consumer's information-searching and decision-making phase. The immersive aspect of the VR experience has indeed been described as a way of consumer learning of products (Meißner et al., 2020), increasing brand awareness, product recall, the memory of experiences, and creating positive attitudes and behavioral responses (Mania & Chalmers, 2001; Tussyadiah et al., 2018).

This study focuses on 360-degree videos, a medium that is steadily rising in demand in tourism marketing. VR has traditionally been focused on virtual worlds created by computers. Nonetheless, real-world spherical 360-degree panorama photos and videos, sometimes referred to as 360-degree VR (Slater & Sanchez-Vives, 2016), have recently become very popular for creating VR content and experiences (Beck et al., 2019). Watching 360-degree videos help travelers to evaluate the actual destination in the pre-visit stage of the traveling process and enhance the desire to visit the viewed area. It permits the users to have more realistic expectations of the place and empowers them to get a clearer and more realistic perception of the destination.

2.5 360-Degree VR in Marketing of Tourism Destinations

360-degree videos, also called omnidirectional videos, surround the audience, whether they are made graphically or captured in real-time (ODV). The 360-degree VR application is an authentic VR technology that offers a high level of immersion and high exposure at a very affordable cost that is usually used to provide news

content (Lo & Cheng, 2020). Digital narration is considered an effective technique to deliver knowledge about attractions.

VR videos are recorded with the use of specialized cameras called omnidirectional cameras. These cameras simultaneously capture every aspect of the destination. After shooting, the footage is returned to the studio and stitched together to create a virtual reality marketing video. There are two varieties of VR tourism videos: monoscopic and stereoscopic videos. Monoscopic videos can be watched on a variety of devices, including smartphones and PCs. The users may drag or mouse across the screen to rotate the field of vision, similar to turning their heads to examine a scene. Stereoscopic videos are created for use with VR headsets and can not be watched on a standard device. While they need more time and money to produce, they offer a more immersive vacation experience. These movies have head tracking, which enables the user to move their head realistically around the environment.

A recent study shows that a virtual, immersive narration based on experiential media, such as virtual tours of 360 degrees, is a potentially transformational and pleasant method to explore tourist destinations (Argyriou et al., 2020). 360-degree videos are available in three popular monoscopic formats, including equirectangular, spherical fisheye, and dual fisheye (Figure 4). They can be displayed on various devices, including smartphones, PCs, and HMDs.

Figure 4: Three Formats of 360-Degree Videos: Equirectangular, Spherical Fisheye, and Dual Fisheye
Source: Pinnacle Studio 24 | Powerful Video Editing Software, 2021. Reterived from: https://www.pinnaclesys.com/en/landing/360video/

360-degree videos can be displayed on various end devices and device classes, including desktop computers, laptops, mobile phones, and tablets. The display outcome is affected mainly by the availability of computational power and memory. Relatively up-to-date hardware is required to react directly to the user's input while selecting the appropriate image segment. The manipulation of the image segment (via drag and drop on a monitor), the blocking-out of the external world (situational context when using a screen or VR-glasses), and visualization quality all affect the sense of presence and can thus be expected to be related to communication quality (Figure 5).

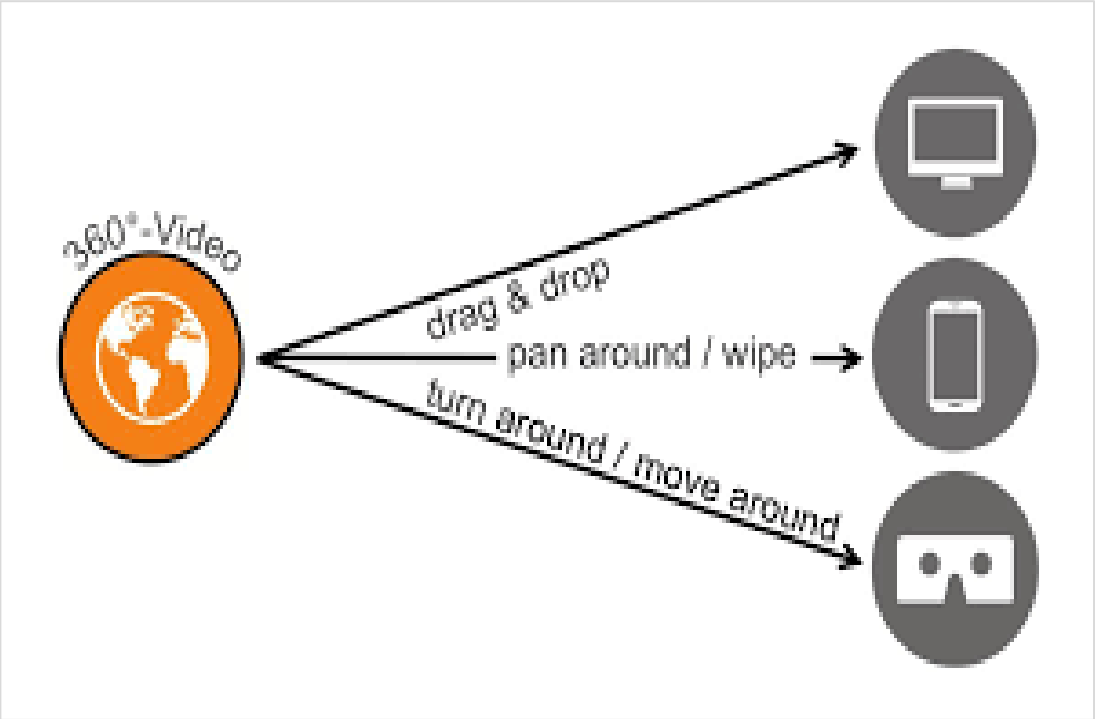


Figure 5: 360-Degree Video Display Devices and Interface
Source: From "360 Degrees Video and VR for Training and Marketing within Sports," by A. Hebbel-Seeger, 2017, Athens Journal of Sports, 4(4), p. 245.

The equirectangular format, like a world map, flattens the spherical experience into a rectangular form. It is the native format in which 360-degree video is edited. The spherical format places the camera in the center of the image and projects its perspectives around it, displaying a single spherical view that distorts objects. Even though it produces a stunning vision, this format is transformed for playback and editing. In the dual fisheye form, the camera is equipped with two lenses that each captures 180 degrees. This is often what the output file appears when loaded in a regular video viewer. It is also converted for playback and editing purposes.

360-degree cameras provide a comprehensive perspective of the area's diversity by utilizing several technology solutions, including single- and dual-lens cameras. Since all visual information is natively and directly stored into a file via an image sensor, a

single-lens camera with a 240-degree field of vision enables relatively simple video production. The majority of double-lens cameras are utilized in the consumer and semi-professional markets. Two diametrically aligned lenses having a field of vision of about 185 degrees imaged space in two directions. So far, the greatest resolution of single-lens and high-quality double-lens cameras is 4k (Figure 6).

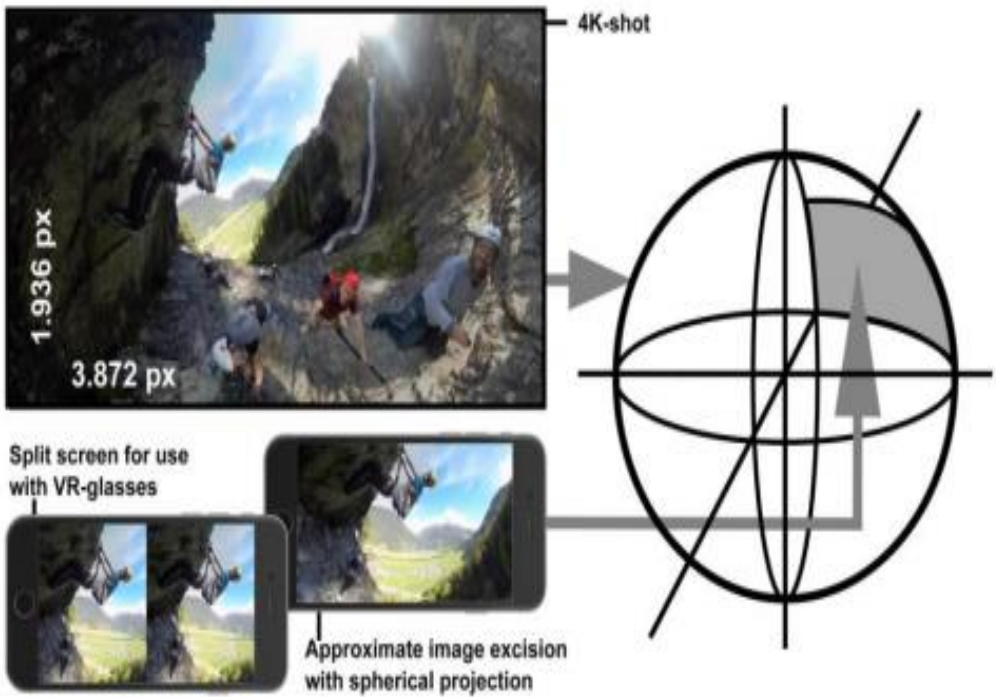


Figure 6: A Screenshot of the Spherical Representation of a 360-Degree Video Resolution and Image Sections
Source: From "360 Degrees Video and VR for Training and Marketing within Sports," by A. Hebbel-Seeger, 2017, Athens Journal of Sports, 4(4), p. 247.

Wu and Lin (2018) investigated the impact of 360-degree video with various perceptual systems. They discovered that the employment of various visual systems might influence the effectiveness of advertising. Also, In their investigation of the airport 360-degree video, Kelling et al. (2017) examined the elements that contribute to a positive viewing experience. They investigated how different viewing devices and location contexts might influence the experience, and they gathered information

from participants about their viewing thoughts and choices. Their findings revealed some concerns about using emerging technologies in semi-public spaces, mainly due to social and cultural anxieties.

Users have unprecedented control over their viewing experiences with 360-degree videos. Tourists are now looking for information that vividly represents a destination. The 360-degree videos of the destination primarily aim to channel what makes destinations outstanding. Promotion and awareness can be generated by encouraging future visitors to experience destinations and attractions before the actual trip. Virtual experiences can be utilized to approach such vividness in real-time proximity with an environment by technological applications such as 3D technology that immerse participants in VE (Hyun et al., 2009). 360-degree video in a tourist setting is defined as a technology that displays synthetic or 360-degree real-life captured content on a conventional (computer) screen. It enables virtual touristic experiences and stimulates the users' visual senses and other senses for planning, management, marketing, information exchange, entertainment, education, accessibility, and heritage preservation, before, during, or after travel (Beck et al., 2019, p. 592).

Users have exceptional control over their viewing experiences with 360-degree videos (Feng et al., 2019). The immersive viewing experience and intense imagery linked with 360-degree video distinguish it from the standard video also create the immersive attributes of these videos as the latest empathy engine (Feng, 2018). According to Pasanen et al. (2019), as a bit of taste of the experience, 360-degree videos give a more adequate representation of potential tourist destinations than traditional videos.

Due to their novelty, 360-degree videos are effective in capturing potential tourists' attention. They provide the necessary information, raise awareness about a destination, and motivate users to visit a marketed destination. These valuable opportunities for tourism marketing companies can leverage 360-degree technology for more effective marketing campaigns. Nonetheless, its application is dependent on many factors, such as the type of message, the targeted audience, and the way the audience deals with marketing messages in a particular market (Huang et al., 2013). 360-degree video marketing of a tourist destination concerns awareness and experience, simulation, decision-making, attachment, and evaluation (Jung & tom Dieck, 2017).

While visualizing immersive videos, viewers are supposed to be in the middle of a different sphere from standard 2D videos. Usually, the environment visualized by users only occupies a part of the whole video. The visual saliency in the view-port is quite distinct from the one in regular 2D videos because of the immersive perception. People favor high-frequency content and image items in a virtual experience, and the loss of image details may destroy the visual experience in the virtual case. There is a possibility that employing visual saliency for omnidirectional quality assessment can promote performance related to the extreme quality of visual attention in the immersive environment (Duan et al., 2018).

The intangible nature of tourism makes it even more vital to constantly create visual marketing components for a better destination image. Visual representation is an integral feature of tourism marketing strategies. Because of the vast range of benefits it provides, such as immersive sensory involvement and emotional attachment, the

introduction of VR applications and advancements in the industry have opened several potentials for tourism marketing.

Facebook and YouTube, two of the most popular social networking sites, provide a platform for marketers to upload 360-degree videos, also named immersive or spherical videos. These videos may also be recorded and uploaded to popular viewing sites such as Facebook or YouTube using a smartphone, making them a widely accessible method for regular individuals to record and share 360-degree clips (Kelling et al., 2017). Facebook launched the first VR application, Facebook 360, in 2017, allowing the sharing of 360-degree videos and images. Since 2016, Google has also invested US$ 300 million per year in VR start-up businesses. According to a recent estimate by Goldman Sachs, AR and VR are expected to grow into a $95 billion market by 2025 (see Figure 7). The emergence of 360-degree videos has revealed new opportunities for online marketing by immersing viewers in the scenery and enabling them to interact with the content (Johnson, 2016). Further, popular social networking sites' support of 360-degree video formats has aided its online dissemination (Popper, 2016).

Recent research has studied how 360-degree virtual tours might increase tourists' desire to visit and assist them in making travel decisions (Kim et al., 2020). Other studies have determined the characteristics that influence satisfaction with the 360-degree video experience. A 360-degree virtual tour gives consumers the sensation of being in a location. In their study of the social virtual world (SVW), Jung (2011) found that the sense of presence and the perception of autonomy showed a significant impact on users' continued use of SVW and their satisfaction. In their study of VR applications as a stimulus for travel intentions, Li and Chen (2019) discovered that

predicted enjoyment of a destination reflects visitors' expected pleasure and satisfaction in visiting the destination. As a result, tourists with a higher level of enjoyment should have a greater desire to visit the destination than those with a lower degree of enjoyment. Combining the findings of the previous VR studies leads to a reasonable conclusion that the potential variables affecting satisfaction with a 360-degree virtual experience could include intrinsic/extrinsic motivating components.

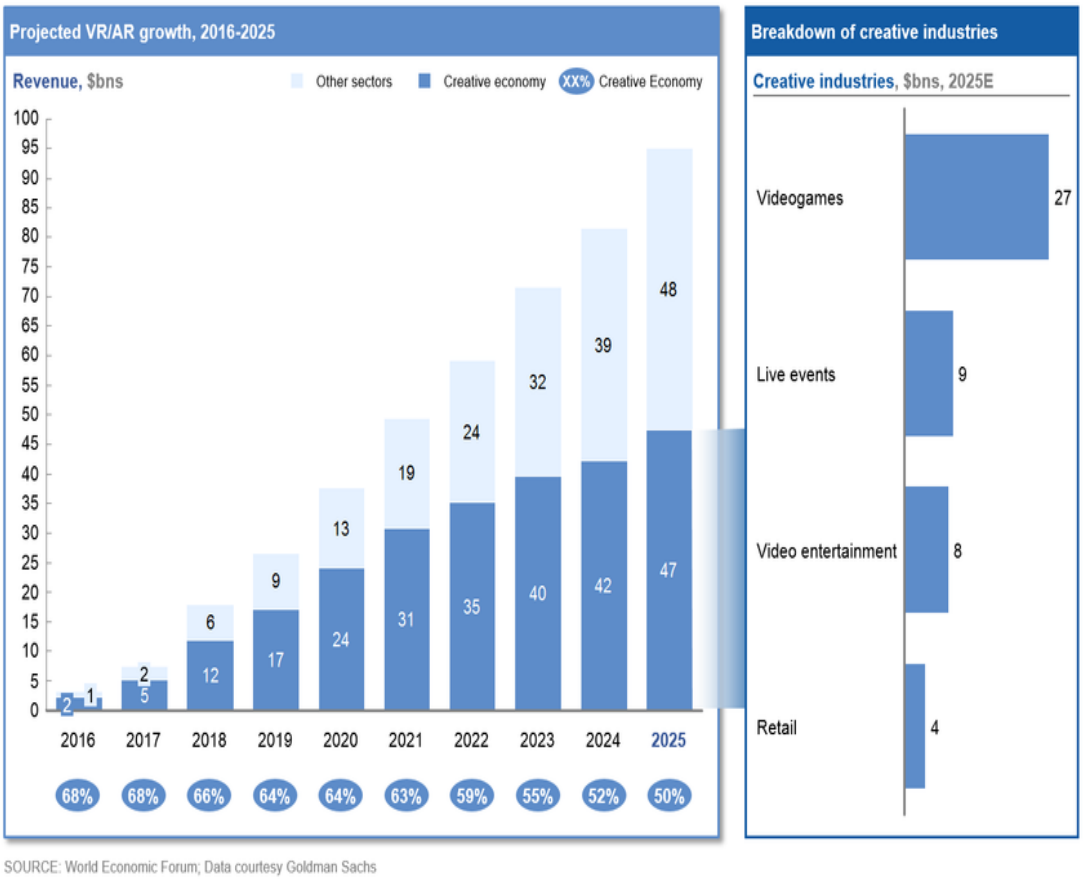


Figure 7: Projected VR/AR Growth, 2016-2025
Source: World Economic Forum, Data Courtesy Goldman Sachs

While the 360-degree approach and model or graphics-based VR are similar in that both experiences enable audiences to escape from the actual world and immerse themselves in videos in an innovative way, they are a different classification of

systems regarding the level of immersion (Slater and Sanchez-Vives, 2016). 360-degree videos can only convey the sensation of being immersed in the narrative. They identify the user's imperceptible sense of the location, feel the destination before the actual visit, and generate a more appropriate sales conversion. Selmanovic et al. (2018) represent a 360-degree immersive video application for conserving the bridge diving tradition linked with Mostar's Old Bridge. Participants view 360-degree videos of the bridge's story and diving history before taking a series of quizzes based on the information displayed. While this is an excellent way for building immersive solutions that can be accessed via VR applications, it needs to add a systematic design and implementation of additional motivational and immersion components. Moreover, Wan et al. (2007) discovered that VR adventures had a higher promotional impact on tourists than traditional brochures in a theme park experiment. Non-immersive VR systems have recently attracted significant research focus (Huang et al., 2016; Huang et al., 2013; Tavakoli & Mura, 2015) to help destination marketing organizations (DMOs), hotels, or hotels other tourism stakeholders to communicate and attract prospective travelers efficiently.

Aesthetically gratifying content, which highlights different attractions or shows the destination in imaginative ways, is expected to enhance people’s motivation (Tussyadiah et al., 2016). Travelers’ motivation is usually related to their needs for trip information. Because of the closeness of the virtual world to reality, both hedonic and utilitarian users prefer to use VR-based applications that offer indirect experiences and entertainment (Hyun et al., 2009). Therefore, it is essential to understand both intrinsic and extrinsic motivation and its impact on VR users’ satisfaction that can influence their travel intention.

An omnidirectional camera captures the actual world in all directions for 360-degree VR video. The viewer can control the video's directionality by rotating the screen. The videos can then be watched on high-end screens using mobile devices, VR headsets, or Google Cardboard viewers (Lo & Cheng, 2020). For watching 360-degree videos, high-end systems, such as HMDs, sensors, or trackers, are the most common, as they isolate users from the outside environment (Simone et al., 2006) and thereby boost their virtual experience. These instruments, however, have many drawbacks. They are usually expensive, large, and challenging to use (Sharples et al., 2008). Alternatively, any consumer with a smartphone has a low-cost 360-degree VR experience available. 360-degree videos can be watched in all directions, but the users cannot interact with the simulated environment (Lo & Cheng, 2020). 360-degree technology places the audience at the center of the scene.

2.6 TAM and Motivation Theories

The Technology Acceptance Model (TAM) was adopted in this research to predict user acceptance of information technology. Derived from the theory of reasoned action (TRA) (Fishbein & Ajzen, 1977), TAM has been adjusted and extensively used in previous studies on consumers' adoption of IT (Ayeh et al., 2013; Davis, 1989; Hew et al., 2018; Huang et al., 2013) (see Figure 8). It has also been modified for research on e-commerce that is similar to 360-degree video marketing since the participatory features of users are alike.

The technology acceptance model is rooted in information systems research and is frequently used to describe and anticipate what motivates consumers and businesses to adopt a particular technology (Huang & Liao, 2015). User acceptance of an innovation is considered a leading factor in determining its success in the market

(Rese et al., 2017). Success is determined by the user's attitude towards and behavioral intention to use the technology in the future (Pantano, 2014). Users' attitude refers to their technology appraisal, and behavioral intention relates to a user's readiness to undertake a specific action. Attitude is dependent on the individuals' belief that the use of technology is beneficial. Thus, the initial TAM is founded on four principles: perceived usefulness and ease of use, which influence attitude and affect the user's intention. These factors promote both the acceptance and success of the technology (Huang & Liao, 2015). TAM's popularity stems from its simplicity and universality. TAM has since been expanded to investigate the use of several technologies, including online shopping, online consumer behavior, attitudes about computers, and adoption of mobile technology, among others.

According to TAM, the main factors determining users' behavioral intention are perceived usefulness— "the extent to which one believes that using a particular system would improve her or his performance" (Davis, 1989) and ease of use—"the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320). Thus, perceived usefulness indicates the utility value of innovations, whereas perceived ease of use is the user-friendliness of a device. Davis (1989) appended that, although the predictors suggested by TAM are not the only indicators that may be of interest, it seems that they could play a fundamental role (p. 323).

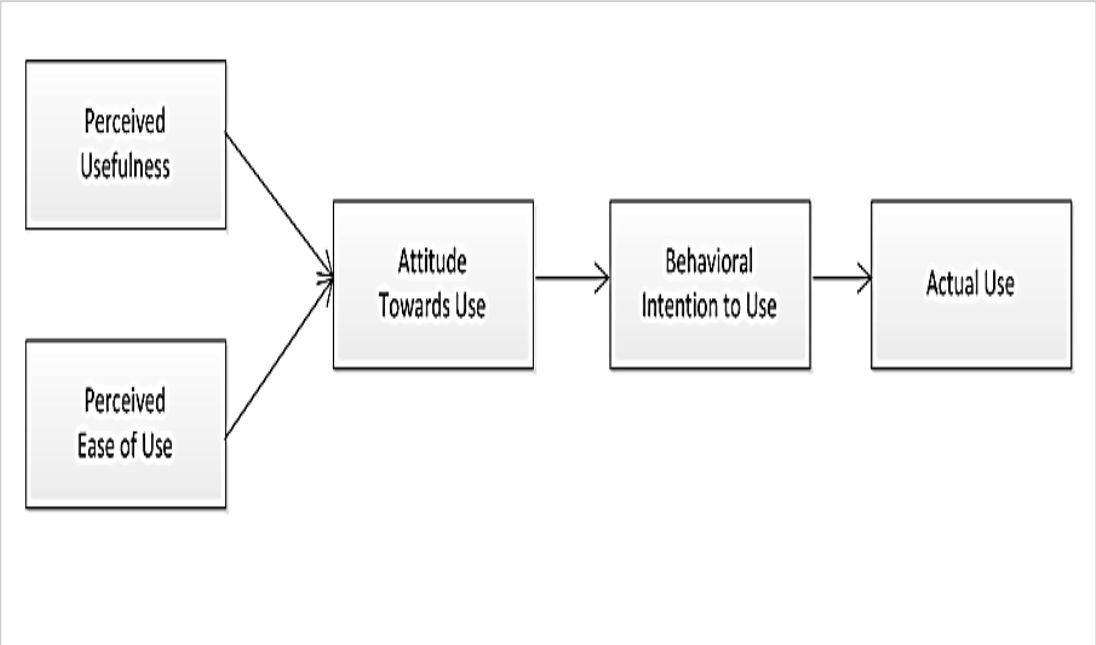


Figure 8: Technology Acceptance Model
Source: Davis (1986, p. 24)

TAM is considering a valuable and practical structure for describing users' adoption of ICT in the travel and tourism context. TAM was identified as the most generally applied framework, either as a single research model or in conjunction with other frameworks, in a study by Ukpabi and Karjaluoto (2017) in ICT applications in tourism. The study also revealed that acceptance is a vital success determinant of the ICTs deployment in tourism, and research needs continuous updating due to the industry dynamism. Huang et al. (2013) used the TAM framework to support the impression of visitors' use of virtual environments. Their research concluded that there is a positive association between tourists' perception of ease of use and their desire to travel. In consumer-generated media usage for travel decision-making, perceived usefulness was positively connected to visitors' intention and mobile social tourism shopping intention (Hew et al., 2018).

However, TAM does not cover all the unique properties of 360-degree video since users of this specific service are the individuals who actively participate and engage in services that can facilitate their decision-making. Various studies, however, extended the TAM framework with additional constructs to better explain and predict the user adoption process. The models utilized in the technology acceptance study developed increasingly incoherent and detached from one other because of the variety of distinct extra variables. Thus, an updated TAM based on elements from past research taking into account the features of 360-degree virtual experiences could be reasonable.

Based on the literature, we incorporate two intrinsic motivational constructs of perceived enjoyment and perceived autonomy (Deci & Ryan, 1985), which are likely to influence technology acceptance. Prior studies proved that integrating the TAM and motivational model appeared as a more reliable predictor of consumer behavior than the existing frameworks (Venkatesh et al., 2003). By incorporating perceived enjoyment and autonomy, the model enables assessing the consequences of information flow via a 360-degree virtual environment compared to the pleasure received through immersive experiences.

User acceptance is mainly explained by intrinsic and extrinsic factors (Davis et al., 1992). An intrinsically motivated person is encouraged by advantages arisen from the interaction with the system. An extrinsically motivated individual is inspired by the expectation of some award or benefit external to the system-user interplay per se (Brief & Aldag, 1997). Extrinsic motivation thus influences behaviors because of the practical value of performance, while intrinsic motivation related to the affective satisfaction derived from the activity for its own sake (Davis et al., 1992).

Satisfaction is among the main variables that scholars need to recognize when researching the use of technology (Delone & McLean, 2003). It is the degree to which consumers feel that a specific system meets their needs (Ives & Olson, 1984). Satisfaction helps consumers achieve positive results, such as positive word of mouth and repeat purchases (Shin et al., 2017) since satisfied customers inform their friends and families about their experiences, resulting in free promotion and marketing. User satisfaction predicts continuing IT usage intention (Li & Fang, 2019), website revisit, word-of-mouth (WOM), repeat purchase (Gounaris et al., 2010), and recommendation for various e-services (Finn et al., 2009).

According to Taylor et al. (2018), both extrinsic and intrinsic motivation affect travelers' technology-usage behaviors. Extrinsic motivator of perceived usefulness has been found as the most influential determinant of using utilitarian systems. In contrast, perceived enjoyment as an intrinsic motivator for the hedonic systems has higher importance than other factors (Wu & Lu, 2013). Previous research in destination marketing has extensively employed the extrinsic/intrinsic motivation theory (Hwang et al., 2018; Lee & Jeong, 2018; Li & Chen, 2019). For example, Li and Chen (2019) indicate that travelers' perceptions of VR devices and VR content have a distinct impact on travel intention. They also found that intrinsic motivation plays a more significant role in determining tourists' travel intentions. Hwang et al. (2018) found a positive relationship between intrinsic and extrinsic motivations and user satisfaction regarding using review websites for online hotel booking. Further, Kim and Hall (2019) applied the motivational theory to understand consumer hedonic behaviors on technology adoption in VR tourism.

360-degree videos are a hybrid of utilitarian and hedonic systems because they can be used for learning and pleasure. While perceived ease of use and usefulness were listed as principal representatives of extrinsic motivators of acceptance of technology (Kim et al., 2017), perceived enjoyment and autonomy are related to intrinsic motivation leading to continuance intention (Deci & Ryan, 1985). Previous studies added to the existing body of knowledge about how intrinsic and extrinsic motivations affect consumers of online travel communities (Chang et al., 2020).

2.7 Intrinsic Motivation and Satisfaction

A motivated person is inspired to do something or achieve a specific task or action (Deci & Ryan, 2000, p. 54). Different individuals have different degrees of motivation, and these variations depend on the role they intend to complete (Deci & Ryan, 2000, p. 54). Aside from a diverse amount of motivation for a task, various determinants generate the absolute motivation to perform a task. According to Maslow (1943), motivation arises from various requirements, including basic survival needs or self-actualization. When one desire is met, another degree of demands must be fulfilled. Need thus causes a motivation that decides a behavior aimed to meet the need. There is a difference between the origins of motivation. It can come from various sources that can be external or internal (Deci & Ryan, 2000).

Intrinsic motivation refers to motivation that arises from the interest or pleasure of achieving or performing the task rather than receiving an award from its outcome (Deci & Ryan, 2000). Intrinsic motivation is regarded as internal motivation (Deci & Ryan, 2000, p. 72). It is one of the most influential and effective predictors of human behavior (Deci & Ryan, 2000, p. 56). Intrinsic motivation is based on interest and curiosity for a task. It comes from inside the individual and interacts between the

participation of activities and the individual. Engagement in activity is thus a product of pleasure benefits from engaging in it, where enjoyment is a potent factor (Deci & Ryan, 2000).

Enjoyment can be described as "the degree to which, besides any expected performance outcomes, the process of using the system is considered to be enjoyable in its own right" (Davis et al., 1992, p. 1113). It defines the degree to which using the hedonic information system (IS) leads to one's pleasure. Kim et al. (2015) suggest that enjoyment is a psychological incentive for tourism consumers to purchase or reserve products/services via mobile apps, which strongly and positively boosts satisfaction. As one of the primary intrinsic motives, users' perceived enjoyment is a significant factor in their behavioral intention to utilize information systems and hedonic systems (Allam et al., 2019). In addition, Bosque and Martin (2008) have found that the more frequent positive emotions (e.g., enjoyment) experienced, the higher the level of travelers' satisfaction. TAM posits that beliefs about the system influence attitudes toward adopting the system, which is consistent with consumer satisfaction. According to TAM and motivation theories, positive cognitive and affective perceptions about a product/service are more likely to produce satisfaction. In the immersive destination experience, unique interaction opportunities can stimulate consumers' satisfaction to obtain more information about the destination for the sake of fun. The attainment of further knowledge could then be linked with a sense of enjoyment. Thus, the first hypothesis is suggested as:

Hypothesis 1: Perceived enjoyment positively affects users' satisfaction.

Autonomy is described as "the extent to which a person perceives his or her actions as a result of his or her own free will, without external intervention in a particular situation" (Jung, 2011, p. 497). The 360-degree video in this study allows users to

decide on their point of view to watch the video by steadily turning the mobile devices, pressing the keys, moving or clicking the mouse. Compared with the fixed structure of a regular video, the design of the 360-degree video, which includes multiple perspectives and audio, gives some narrative structure fluidity that could provide some level of interactivity (Feng et al., 2019). Interactivity and incentives attract users and promote favorable attitudes using visual and auditory stimulation (Batat & Wohlfeil, 2009).

The 360-degree videos give the viewer autonomy in exploring the area that can change their attitude more efficiently. The heightened motivation and autonomy can cause a higher attitude towards the mediated content in a gamification context to entertain the user (Oh et al., 2020). The user's perception of autonomy decreases resistance and intensifies their satisfaction, ending in the continuance level of adaptive system components (Sun, 2012). Moreover, the perception of autonomy significantly affects users' satisfaction with virtual world applications in the context of virtual social worlds (Jung, 2011). People experience more control over themselves and their environments during the activities that give them the freedom to make their own decisions. Such an environment encourages autonomy, boosts intrinsic motivation, and increases the level of customer satisfaction. Therefore, the following hypothesis was developed:

Hypothesis 2: Perceived autonomy positively affects users' satisfaction.

2.8 Extrinsic Motivation and Satisfaction

Compared to intrinsic motivation, extrinsic motivations have different causality from the source of determination (Deci & Ryan, 2000, p. 72). External motivation results from a performance that aims to achieve something other than only satisfaction (Deci

& Ryan, 2000, p. 71). Various kinds of motivation are included in the extrinsic motivation category, depending on the situation and the meaning of the current motivation (Deci & Ryan, 2000, p. 55). According to Ryan and Deci (2000), extrinsic motivation means performing an activity to achieve some detachable outcome. Therefore the behavior the person is showing is for obtaining something that helps him through the current activity.

Usefulness and ease of use are introduced as significant determinants of extrinsic motivations to estimate consumers' satisfaction from IS usage. Usefulness is a core aspect of technology adoption and is related to the functional benefit that mobile technology provides to its users (Revels et al., 2010). Users are more likely to accept an application that they find simple to use and hesitates to choose a highly technical one.

Devaraj et al. (2002) evaluated customer satisfaction and preference criteria in the context of e-commerce. They discovered that perceived usefulness and ease of use components predict consumer satisfaction in the virtual world. Lee and Jun (2007) stated that consumer satisfaction could be explained by usefulness, which is the TAM's core construct. Usefulness and ease of use influence the intention to use a system by consumers (Montazemi & Saremi, 2013) and are the primary constructs of the users' attitudes (e.g., satisfaction) (Martins et al., 2014). Hence, this study proposes the following hypotheses:

Hypothesis 3: Perceived usefulness positively impacts user satisfaction.

Hypothesis 4: Perceived ease of use positively impacts user satisfaction.

2.9 Satisfaction and Behavioral Involvement

Satisfaction is an adequate reaction to a perceived distinction between prior expectations and post-consumption perceived efficiency (Oliver, 1980). For researchers, satisfaction with technology is a fundamental challenge. In this study, VR satisfaction refers to customers' reactions to a 360-degree video experience. This feeling of satisfaction has contributed to the fact that interactivity stimulates users' fascinating memories, contributing to a higher degree of satisfaction (Huang & Tseng, 2015). The satisfaction level could incite people's incentive to seek more details about the destination during trip planning. Satisfaction with a 360-degree experience will enable individuals to become more engaged with the characteristics of the place highlighted in the video. Few investigations have been conducted on the relationship between satisfaction and engagement; however, some studies have proven that involvement is significantly influenced by satisfaction, specifically in an organizational setting (Davis et al., 2003; Mortimer & Lorence, 1989). The current study, therefore, recommends the following hypothesis:

Hypothesis 5: Users' satisfaction positively affects their behavioral involvement.

2.10 Behavioral Involvement and Behavioral Intentions

In social-psychological terminology, involvement has long been defined and operationalized. A state of motivation, excitement or interest concerning a product, an event, or an entity is social-psychological involvement (Rothschild, 1984). It is an internal state variable that shows the amount of arousal, interest, or drives evoked by a particular stimulus or situation (Bloch, 1982). Other research settings, however, have discussed that involvement can be considered in behavioral terms. The amount of time spent searching for the product, the amount of energy used, the number of options examined, and the depth of the decision process may all be used to evaluate

involvement. Consistent with this suggestion, Stone (1984) defined behavioral involvement as the time and effort to carry out a particular activity. In the field of leisure, it is reflected through measures such as the level of engagement, money spent, miles traveled, skill or abilities, equipment/book possession, and the number of memberships.

In general, individual involvement describes a person's degree of awareness and interest induced by a specific action or experience (Novak et al., 2003). A greater degree of involvement would lead individuals to devote more time and resources to the decision-making process (Lu et al., 2015). The degree to which individuals are involved in a destination greatly influences their assessment of the place, the quality of services, commitment, and the decision-making process (Chen et al., 2013). It is believed that involving users in system development leads to increased user engagement, acceptance, behavioral intention, adoption, and satisfaction with the system (Jackson et al., 1997). This study concentrates on the association between user involvement and behavioral intention.

The concept of involvement is vital in tourism and consumer behavior research. Huang et al. (2012) discovered an indirect association between participation and behavioral intentions in the context of a 3D virtual world in tourism marketing. According to Kim and Kim (2018), the behavioral intention of an audience to travel to film tourist locations is directly influenced by their behavioral involvement with a media program. Kim et al. (2018) explored the function of video clips in enhancing a destination's perception in the context of food tourism. They observed a substantial link between visitors' behavioral involvement with the destination's cuisine and their propensity to travel for food tourism. According to Fu et al. (2016), the extent of

individual involvement influences positive attitudes about destinations, resulting in higher behavioral intentions and positive word-of-mouth (WOM).

The purpose of word-of-mouth marketing is to connect with a global audience of potential customers and gain significant attention through social interactions (Ferreira et al., 2021). Individuals convey their opinions, initiating a cascade of information. Due to the spread of WOM, information can circulate faster and efficiently throughout social networks. Unlike direct and mass marketing, which focus exclusively on the consumer's intrinsic value, WOM marketing leverages the consumer's potential market by factoring in network elements when determining the fundamental value proposition (Ferreira et al., 2021). Individuals are strongly influenced by the information they receive from others (Roelens et al., 2016). In a social network, marketing via WOM is particularly effective, as people are likely to be influenced by their friends' and colleagues' choices. WOM is unique in that it has a higher impact on customer behavior when information is disseminated. It is the most influential information source for a customer (Roelens et al., 2016). Existing literature confirmed that when making decisions, consumers heavily rely on the advice of others in their network (Gursoy, 2019; Hamilton et al., 2021; Roelens et al., 2016).

The emergence of the internet has extended the notion to an online context known as electronic word of mouth (eWOM), which can reach huge audiences within a short period (Abubakar, 2016). Electronic word-of-mouth (eWOM) was described by Litvin et al. (2008) as all informal communications directed at users via Internet-based technology about the usage or qualities of certain products and services or their suppliers. It differs from WOM primarily in terms of the information transmission

channel, underlining an element of anonymity in the interaction between consumers. According to Abubakar (2016), in recent years, eWOM communication has received significant attention for several reasons, including its impact on marketing strategy, tourist destination choice, effective influence on decision-making, persuasive influence on purchase intention, and its effect in lowering tourists' risk perceptions while booking accommodations.

Behavioral involvement with the destination attributes presented in the 360-degree video in this study is mainly estimated by consumers' engagement with new technologies, information search activities, and contact with individuals who have visited the destination. The willingness to visit a location is described as visiting intention (Chen et al., 2014); the decision to visit a place is inferred as a systematic consideration of the costs and benefits of a set of alternative destinations derived from external information sources such as a virtual tour experience. The reason is that potential travelers regard virtual experiences as being more updated, more entertaining, and more reliable than the information offered by travel agents. As per this research, 360-degree video marketing is crucial for professional and integrative services.

An involved user is more likely to understand and memorize advertising stimuli and search for more location information and interact with individuals who have recently toured the destination. Due to the association between involvement, the destination, and the physical visit is likely to result in further behavioral intentions, such as visiting and eWOM. For tourists, eWOM is a valuable reference for related decision-making such as tourism destination choice and booking behaviors (Litvin et al., 2008). Because tourism items are believed to be high-risk and high-involvement

purchases, tourists prefer to rely on them before making their choices based on the opinions of their relatives, friends, and acquaintances. Based on the above discussion, the following hypotheses are proposed:

Hypothesis 6: Users' visit intention is positively influenced by their behavioral involvement toward tourist destinations.

Hypothesis 7: Users' eWOM intention is positively influenced by their behavioral involvement toward tourist destinations.

Hypothesis 8: Users' intention to visit the tourist destination positively affects their eWOM intention.

2.11 Chapter Summary

This section examines the importance of 360-degree video in destination marketing and travel behavior while performing virtual experiences in tourism and travel. It then conducted a review of existing literature on the TAM and motivation theories. Furthermore, this section presented the virtual tourist experience for travel purposes. The conceptual framework for the research was discussed and the concept of behavioral intentions addressed.

Chapter 3

METHODOLOGY

This research aims to analyze the effects of consumers' use of 360-degree videos for promoting a tourist destination. This chapter aims to explain in detail the research methods and the methodology implemented for this study. Specifically, this chapter comprises the research approach, sampling and population, data collection, construct measurements, as well as the estimation of the normal distribution of the data and method of analysis. This section shows how the research outcome at the end will be achieved in line with meeting the study's objective.

3.1 Research Approach

The research approach that was followed for this study was the deductive approach and a quantitative method. The deductive approach promotes hypotheses based on existing theory and then designs a research strategy to test those hypotheses (Wilson, 2014). The deductive approach was used to test whether the causal relationships of the research model to be implied by a particular theory.

As described by Creswell (2002), a quantitative method is an approach to evaluating objective hypotheses by analyzing the relationship between variables. In turn, these variables can be measured, usually with instruments, so that numbered data can be analyzed employing statistical procedures. The final written report has a fixed structure consisting of introduction, literature, theory, methods, findings, and discussion. Quantitative research is data-oriented. There are different types of

quantitative research methods in which survey research is the most common method for all quantitative outcome research methodologies and studies.

Survey research is determined as "collecting information from a sample of individuals through their responses to questions" (Check & Schutt, 2012, p. 160). This type of research allows for various approaches to recruit participants, collect data, and employ various instrumentation methods. A cross-sectional type of survey was implemented in this study. The cross-sectional survey provides an accurate portrayal or account of the characteristics of a particular individual, situation, or group. This design was adopted to meet the research objectives, specifically to discover the motivation and attitude of users of 360-degree videos for promoting a tourist destination. The current study collected information through self-administered questionnaires distributed online to its respondents.

3.2 Research Philosophy

This dissertation is based on the positivism research philosophy, emphasizing quantitative observations that lead to statistical analysis. In positivist investigations, the researcher's participation is limited to data collection and objective interpretation. Typically, the findings of this form of research are observable and quantitative. This philosophy is appropriate when the large sample of data collected for quantitative measurement is highly structured (Alharahsheh & Pius, 2020).

Positivism is built on quantitative observations that can be analyzed statistically. This philosophy is consistent with the empiricist concept in which knowledge is derived from human experience. It has an atomistic and ontological view of the universe. It is

also a collection of distinct, observable elements and events that interact in, predictable and regular ways (Alharahsheh & Pius, 2020).

The philosophy of research is concerned with the source, structure, and development of knowledge. Generally, a research philosophy is a set of beliefs about the best ways to gather, analyze, and apply evidence on a topic (Figure 9).

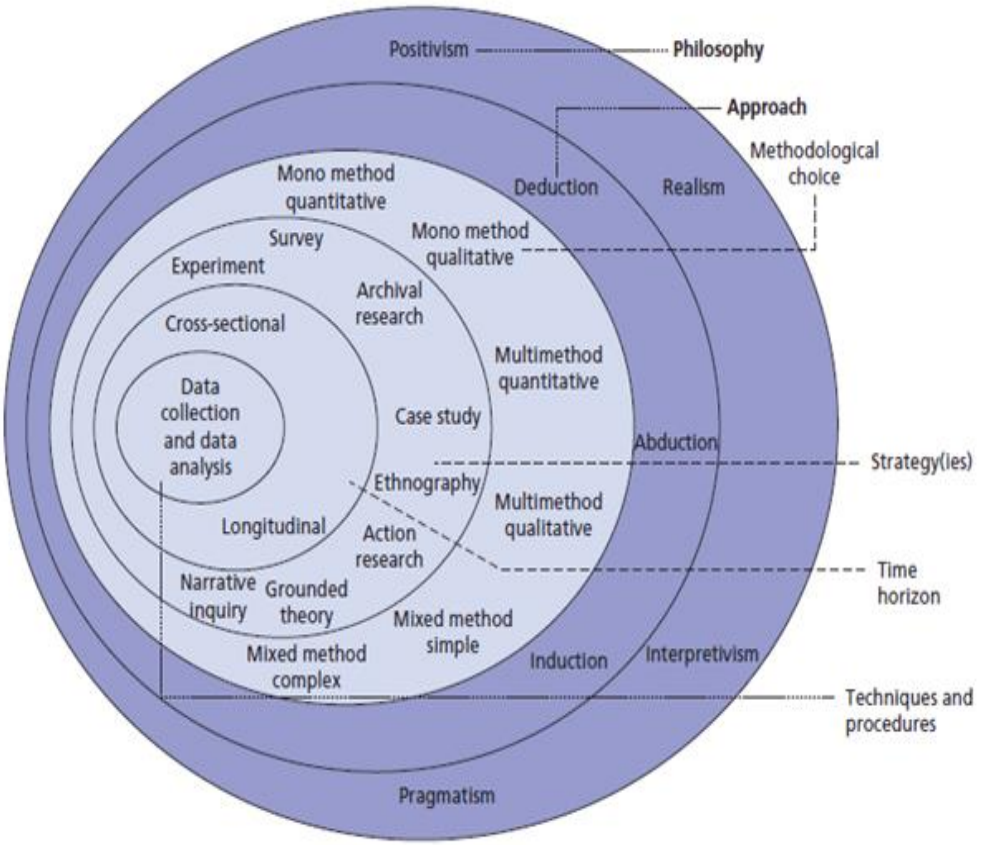


Figure 9: Research Philosophy in the 'Research Onion'
Source: Saunders, M., Lewis, P. & Thornhill, A. (2012) "Research Methods for Business Students" 6th edition, Pearson Education Limited.

3.3 Sampling and Procedure

The research began with the conceptualization of the idea. Later, the research team clarified the scope and purpose of the study. Then, using items solicited from existing literature, the questionnaire was designed. The purpose of this study was to

investigate the effect of 360-degree videos on participants' perceptions and behavioral intentions toward a tourist destination. Therefore, selecting the appropriate 360-degree clip connected to the study's objectives was critical. Thus, participants viewed a short 360-degree video created by the Sygic Travel Trip Planner website (Orbitian Media, 2020) (4 minutes 36 seconds) narrated in English, presenting various Hong Kong attractions. This specific video was chosen as it was short and allowed viewers to immerse themselves in a story by seeing some of Hong Kong's impressive attractions and experiences from all perspectives. In fact, Hong Kong is defined by distinct cultural features that attract a variety of visitor types depending on their geographical, historical, political, and economic circumstances. By gaining a greater understanding of visitors' perceptions of cultural distance between their home and host cultures, researchers and marketers may more precisely quantify the value of tourism behavior and future travel behaviors. Moreover, the Hong Kong destination was chosen to be surveyed since it is ranked as the world's top destination city by Euromonitor International (Euromonitor International, 2018).

A purposive sampling technique was used to conduct a short mobile survey among a sample of European respondents. Purposive sampling is a non-probability sampling method that gives the researcher a choice to obtain a representative sample from the study population using sound judgment, saving time and money (Altinay & Paraskevas, 2008). According to Wright's standards, the items have been digitalized to be sufficient for an online survey (Wright, 2005). The online survey was used as an appropriate way to gather quick and cost-effective feedback from participants (Kim et al., 2011).

European consumers were the population from which the sample was derived in this research because they make up the highest percentage of internet users worldwide

(ITU, 2019). Another reason, as indicated in Figure 10, is the immense expansion of the VR market in Europe by 2026, which is expected to reach 50.55 billion US dollars, up from 4.57 billion US dollars in 2018 (PR Newswire, 2019).

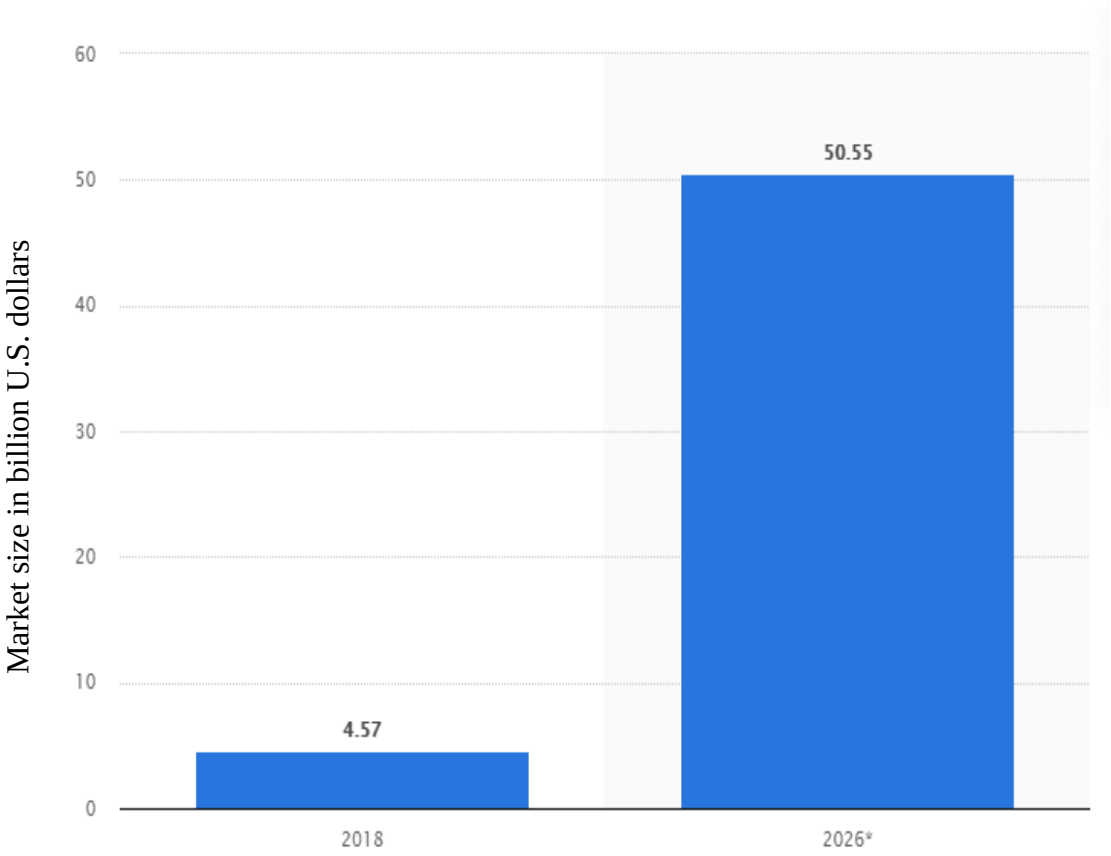


Figure 10: Size of the AR/VR Market in Europe 2018-2026.
Source: PR Newswire; Research and Markets

Some procedural and statistical remedies were applied following the recommendations of Podsakoff et al. (2003) to minimize the risk of common method bias. Firstly, to declare the consequence of the research objectives, a cover page was designed. The anonymity of the respondents' data and the confidentiality of the data has been ensured. Additionally, a psychological separation in the measurement of predictors and criteria has been considered. As the questionnaire was administered in

English, the respondents were asked to participate only if they had adequate English knowledge to avoid confusion due to language deficiencies.

Further, two questions regarding the prior experience with the destination and 360-degree experience were included to investigate their influence on the latent variables. Finally, a video link was embedded, and respondents were clearly explained to use the 360-degree video by dragging around the video with the cursor (for desktop computers) or moving the mobile device in each direction (left, right, up, down) to watch the 360-degree view of Hong Kong city before answering the questions. The questionnaire's items were slightly counterbalanced to induce mood states and other biases related to the question context as another procedural remedy.

While designing the questionnaire, some cross-cultural research practices were followed, such as using short and simple sentences, avoiding colloquial language, and repeating nouns instead of using pronouns wherever possible (Schaffer & Riordan, 2003). The online survey was structured so that prospective participants, after watching a short 360-degree video as requested, responded to the survey questions provided on the website.

A pilot study was performed at a university with 20 academics and 20 international students to ensure no ambiguities or difficulties existed in the procedure (e.g., readability, proper timing, etc.). The results of the pilot test showed that the items were clear and devoid of uncertainty.

3.4 Data Collection

Using an online platform (Google Forms), 1000 questionnaires were distributed to participants between August and October 2018. A link to the online questionnaire

was sent to respondents via mailing, blogs, and social networking sites to complete on their mobile devices. The users of 360-degree virtual experience that responded to the survey of this dissertation were extracted from the larger population of internet users in European countries.

Six hundred and seven people joined the survey, and five hundred and ninety-eight completed the embedded virtual adventure. The total number of valid responses was 598, representing a response rate of 59.8%. This sample size presents a sufficient representation of the study population. In line with the rule of thumb, any N > 200 offers adequate statistical power for data analysis for a measure having up to 40 items (Hoe, 2008). Comrey et al. (1973) rated a factor analysis sample of 50 as very weak, 100 as low, 200 as fair, 300 as good, 500 as very good, and 1000 as excellent. Due to this, 598 samples can analyze by SEM analysis.

3.5 Construct Measurements

The survey instruments were a combination of existing scales adapted from previous tourism and information technology literature. The motivation and TAM theories served as the basis for the survey questions. The questionnaire items described in the literature could not be used in their original form since they had been designed to fit specific destinations or populations. As a result, the final survey items were developed by adjusting the constructs' items given in the research literature (see Appendix A).

The questionnaire initially consisted of 33 items and eight constructs, including perceived enjoyment (4 items), perceived autonomy (3 items), perceived usefulness (4 items), and ease of use (4 items), VR satisfaction (4 items), visit intention (3

items), positive eWOM (6 items), and behavioral intention (5 items). Respondents were asked to recall their experience and rate on a Likert-type scale of 1 to 5 ranging from strongly disagree (1) to strongly agree (5), their feeling of experiencing Hong Kong's attractions highlighted in the 360-degree video.

3.5.1 Measure of Perceived Enjoyment

Enjoyment refers to the degree to which the activity of utilizing a particular system is perceived to be pleasant by itself, independent of any performance implications coming from system use (Davis et al., 1992). Perceived enjoyment included four items adapted from Van der Heijden (2004). Sample items from this measure include: “It is enjoyable for me to get information by interacting with this app.” “Using VR app does not bore me,” and “Using this app provides me with a great deal of enjoyment.”

3.5.2 Measure of Perceived Autonomy

Perceived autonomy is defined as the degree to which users perceive his or her behaviors to be the consequence of his or her own free will in a particular situation, with no external intervention. To measure perceived autonomy, the scales of Sheldon et al. (1996) have been adapted. Three items of perceived autonomy were developed to ask participants to rate their level of autonomy derived from interactivity among the user and stimuli that cause positive attitudes through visual and auditory stimulation. The items used to measure this construct are: “While I was watching VR video, I could choose freely what I wanted to do,” “I felt that I had much control over my visiting experience in VR,” and “While I was watching VR video, my actions decided the kind of experiences I got.”

3.5.3 Measure of Perceived Usefulness

The degree to which a person believes that employing a specific system would improve his or her performance is defined as perceived usefulness (Davis, 1989). Perceived usefulness was measured using 4-items developed by Haugstvedt and Krogstie (2012) and Venkatesh et al. (2003). Examples of measurement items included: “Using VR can help me obtain more trip information,” “Using VR can enhance my travel information gathering productivity.”

3.5.4 Measure of Perceived Ease of Use

Perceived ease of use refers to “the degree to which a person believes that using a particular system would be free of effort” (Davis, 1989). Four items were used to assess perceived ease of use, derived from Haugstvedt and Krogstie (2012) and Venkatesh et al. (2003). Participants were asked to rate on a scale of 1-5 whether the use of 360-degree technology was free of great effort. The items used to measure this construct are: “The interaction with the VR is clear and understandable,” “The interaction with the VR does not require much effort,” and “The app makes it simple for me to find the information I am seeking.”

3.5.5 Measure of Satisfaction

The entire cognitive or emotional response to product use is satisfaction (Oliver, 1980). Satisfaction was measured using four items derived from Chung et al. (2018). Participants were polled on how satisfied they were with the technology and the 360-degree video experience. Examples of measurement items include: “I am satisfied with the VR's information quality” and “I am satisfied with the VR's system abilities and speed.”

3.5.6 Measure of Behavioral Involvement

Behavioral involvement has been determined as the time and effort spent on a specific task (Stone, 1984). Behavioral involvement was measured using five items developed by Bell and Marshall (2003) and Getz et al. (2014). Sample items from this measure include: “After watching the 360-degree video, I would like to read news or articles about Hong Kong City on the internet,” “After watching the 360-degree video, I would like to search for responses about visiting Hong Kong on the internet,” and “After watching the 360-degree video, I would like to speak with people who have traveled to and visited Hong Kong.”

3.5.7 Measure of Behavioral Intentions

Six questions were classified as behavioral intentions, divided into two subgroups: visit intention and eWOM intention. The intention of a visit to a destination is the desire of a prospective tourist to visit the place (Chen et al., 2014). Visit intention was measured using three items adapted from Horng et al. (2012). An example of the questions used to examine participants’ intention to visit includes: “I plan to visit Hong Kong in the future.” eWOM is described as statements made about a product or service that are generally available on the Internet, either positive or negative (Litvin et al., 2008). Similarly, three-item measures of eWOM intention, developed by Wang (2009), have been used that include: “I would recommend the destination offered in this video.”

3.6 Estimation of Data Normality

The scale items were tested to ensure the reliability, normality, and validity of the data before the main examination of the study was carried out. The data has been screened regarding normality of the sample, in this regards, the skewness ranges from −1.017 (std. error = 0.100) to +0.106 (std. error = 0.100), and the kurtosis

ranges between −0.935 (std. error = 0.200) to +1.047 (std. error = 0.200) that both fell between the acceptable threshold of −2.00 and + 2.00 which reveals the data was normally distributed.

3.7 Chapter Summary

This section discussed the methods used throughout the research, selecting sample participants who ranged in experience with 360-degree videos from novice to experience. Then, a description of quantitative research as a data collection and analysis technique was given. Next, the data collection process and the pilot test were detailed. Finally, the chapter addressed the measures used during data collection and presented details about the sample.

Chapter 4

DATA ANALYSES AND RESULTS

The analysis and interpretation of the results of the data gathered from online European users are included in this section of the study. The results are reviewed in light of prior research findings and available literature to establish similarities and distinctions between this study and previous studies, where possible. More particularly, the section includes a detailed analysis of the demographic features of the respondents, the measurement model, and the results of the hypotheses' tests.

4.1 Demographic Data

Participants were 598 European users experiencing a 360-degree virtual tour of Hong-Kong city as a tourist destination. Participants ranged in age from 18 to 60 and over. The bulk of the respondents were young people between the ages of 18 and 25 (60.5%), females (67.6%), and highly educated graduates (55%) working full-time (61.0%). According to Clement (2019), millennials have the highest daily internet usage duration among internet users worldwide (See Figure 11).

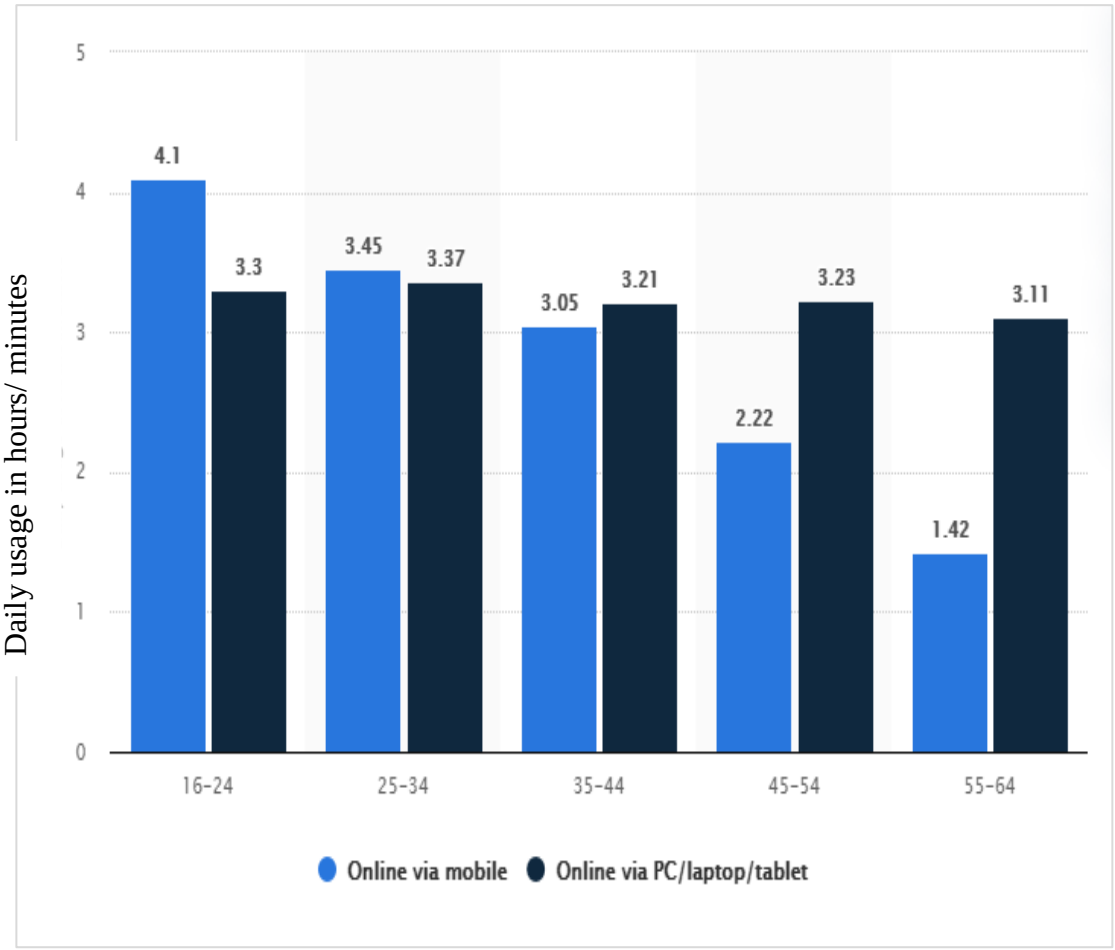


Figure 11: Average Daily Internet Usage Worldwide 2019, by Age and Device
Source: GlobalWebIndex. From *Device Flagship Report 2019, page 19*
(https://www.gwi.com/reports/device)

The majority of respondents were from the UK 177 (29.5%), Germany comes next 54 (9%), 45 from Cyprus (7.5%), 43 from Italy (7.2%), 40 from the Netherlands (6.7%), 31 from Austria (5%), and 30 from France (5%). The remains (30.5%) were from other European nations. Most of the respondents, 329 (55%), were intended to visit Hong Kong as their next trip destination, and 64 (10.7%) had previously visited Hong Kong. In general, 331 (55%) have used 360-degree video technology earlier (see Table 1).

Table 1: Demographic profile (n=598).

Profile Category		**Frequency**	**Percentage (%)**
Gender	Female	404	67.6
	Male	194	32.4
Age	18-25	365	61.0
	26-40	204	34.1
	41-60	26	4.3
	Over 60	3	0.5
Educational Level	Primary school	6	1.0
	Elementary school	2	0.3
	High school	37	6.2
	2 years university degree	63	10.5
	4 years university degree	160	26.8
	Master	301	50.3
	PhD	29	4.8
Occupation	Working full time	365	61.0
	Working part-time	157	26.3
	Career	6	1.0
	Student	56	9.4
	Temporarily unemployed	8	1.3
	Retired	1	0.2
	Other permanently unemployed	5	0.8
Nationality	Albania	4	.7
	Austria	31	5.2
	Belarus	3	.5
	Belgium	8	1.3
	Bosnia and Herzegovina	1	.2
	Bulgaria	11	1.8
	Croatia	4	.7
	Cyprus	45	7.5
	Czech Republic	9	1.5
	Denmark	11	1.8
	Estonia	1	.2

	Faroe Islands	2	.3
	Finland	2	.3
	France	30	5.0
	Germany	54	9.0
	Greece	11	1.8
	Hungary	17	2.8
	Iceland	2	.3
	Ireland	5	.8
	Italy	43	7.2
	Kosovo	2	.3
	Latvia	7	1.2
	Liechtenstein	1	.2
	Lithuania	10	1.7
	Netherlands	40	6.7
	Norway	7	1.2
	Poland	11	1.8
	Portugal	4	.7
	Romania	11	1.8
	Russia	9	1.5
	Serbia	2	.3
	Slovakia	5	.8
	Slovenia	3	.5
	Spain	6	1.0
	Sweden	1	.2
	Switzerland	3	.5
	Ukraine	2	.3
	United Kingdom	177	29.5
	Vatican City	1	.2
	Total	598	100.0
Have you ever visited the Hong Kong city?	Yes	64	10.7
	No	534	89.3
Have you ever used Virtual Reality before?	Yes	331	55.4
	No	267	44.6

4.2 Preliminary Tests

The acquired data was filtered and analyzed using SPSS V.20 and AMOS V.24. The correlations between the model's constructs were determined using structural equation modeling (SEM). The item measurements were examined to ensure the results' reliability, normality, and validity. Cronbach's alpha (a) and composite reliability (CR) were used to determine the internal constructs' accuracy (e.g., reliability).

Both confirmatory and exploratory factor analyses—using a maximum likelihood predictor, Promax with Kaiser Normalization—were carried out to ascertain the items' composition and structure (Bagozzi & Yi 1988; Hair et al., 1998; Fornell and Larcker, 1981). Various model fit indices such as chi-square/degree of freedom (χ^2 / df) and, Goodness-of-fit has been tested to declare the proposed model's fit validity. The examples are: goodness-of-fit (GFI), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR) (Hurley et al., 1997).

4.3 The Model Fit

Table 2 displays the results of the exploratory factor analysis (EFA). Six factors greater than one were removed during the first phase based on Eigenvalues. Following the screen plot and explanation of the reasonable proportion of variance, eight components revealed 68.01% of the total variance (Cliff, 1988). Next, the items were adequately loaded to an acceptable level within the carved circumstances (> .5). In this study, the common method variance (CMV) was analyzed using Harman's single-factor assessment to address the issue of common-method bias statistically. The single-factor showed 41.58% of the variance. Thus, the value is below the

threshold of 50%, revealing the absence of common method bias (Podsakoff et al., 2003).

The normal distribution is described by a series of curves uniquely characterized by two parameters: the population's mean and standard deviation. Although the curves are always symmetrically bell-shaped, the degree to which the bell is squeezed or flattened out is dependent on the population's standard deviation. Hence, the means and standard deviations were calculated and given for each item. For all constructs, to examine the reliability of the measures, this study calculated Cronbach's alpha and the Composite Reliability (CR). Table 2 shows the Cronbach's alpha coefficient effects and indicates that Cronbach's alpha values are higher than the frequently accepted cut-off level of .7 (Cortina, 1993).

Table 2: EFA, alpha coefficient, and descriptive statistics for variables.

variable	λ(%of variance)	Cronbach's alpha (Mean)	Eigenvalue (SD)
Behavioral Involvement	**42.72**	**.889**	**13.153**
Inv3	.923	3.46	1.149
Inv5	.836	3.38	1.114
Inv2	.791	3.21	1.201
Inv1	.700	3.40	1.105
Inv4	.583	3.66	1.048
Ease of Use	**8.23**	**.870**	**2.827**
Eou3	.982	4.01	.866
Eou2	.871	4.04	.944
Eou1	.669	4.02	.886
Eou4	.520	3.78	.940
Enjoyment	**4.43**	**.899**	**1.610**
Enj3	.946	3.83	1.046
Enj2	.921	3.74	1.032
Enj1	.753	4.00	.932
Enj4	.696	3.79	1.054
Usefulness	**3.16**	**.912**	**1.265**
Use2	.924	3.80	.978
Use3	.873	3.81	1.001
Use1	.859	3.90	.985
Use4	.607	3.88	.993
Visit Intention	**3.05**	**.883**	**1.193**
Vint3	.883	3.85	1.106
Vint1	.829	3.87	1.060
Vint2	.732	3.52	1.156
Autonomy	**2.28**	**.769**	**1.038**
Aut2	.904	3.47	1.046
Aut1	.786	3.59	1.091
Aut3	.525	2.91	1.109
Satisfaction	**2.31**	**.863**	**0.956***
Sat3	.955	3.95	.879
Sat2	.748	3.95	.883
Sat4	.582	4.03	.829
Sat1	.555	3.89	.887
E-WOM Intention	**1.80**	**.885**	**0.819***
Eint2	.888	3.65	.955
Eint1	.814	3.70	.925
Eint3	.588	3.49	1.075

Note: λ is the factor loading. Cronbach's alpha (α) is a measure of internal consistency (reliability). M stands for mean; SD is standard deviation. Kaiser-Meyer-Olkin (KMO) measure with .953 and Bartlett's test of Sphericity of 12708.859 was significant (P<.001). The scale items' sources are displayed in parenthesis. All items assessed by a 5-point Likert scale varying from strongly disagree (1) to strongly agree (5). * The Eigenvalues < 1 are explained by screen test and a reasonable proportion of variance explained.

The results from CFA acceptably explained the effects of the EFA, and the validity of the proposed model is presented in Table 3. Due to the cross-loading in CFA, one item has been removed from satisfaction (Sat1). According to Anderson and Gerbing (1988) and Hair et al. (1998), all of the items were significantly loaded under the required determinants, and the suggested level for standardized factor loading (SFL) was met (SFL>.6, P<.001). The model best fits the experiential data and passes the cut-off criterion (Hu & Bentler, 1999) for fit indices in covariance structure analysis χ^2=873.025, df =349, χ^2 / df=2.504, GFI=.905, CFI=.0956, SRMR=0.048, PClose=0.462, RMSEA=.050.

As shown in Table 3, the average variance extracted (AVE) and Composite Reliability (CR) values for the presented component are greater than .5 and .7, respectively, demonstrating the convergent validity of the study measures (Hair et al., 1998; Hu & Bentler, 1999). In terms of discriminate validity, all predictors of AVE consequences exceeded the maximum level of shared squared variance (MSV) (Anderson & Gerbing, 1988; Fornell & Larcker, 1981). Additionally, Table 3 demonstrates that the CR results are higher than .7, confirming the internal consistency of research scales (Fornell & Larcker, 1981).

Table 3: Descriptive statistics, CFA, composite reliability.

Item	SFL	AVE	MSV	CR
Autonomy (M=3.32, SD=.36)		.549	.435	.783
Aut1	.752			
Aut2	.827			
Aut3	.630			
EWOM Intention (M=3.33, SD=.37)		.677	.560	.863
Eint1	.867			
Eint2	.846			
Eint3	.751			
Enjoyment (M=3.84, SD=.11)		.698	.518	.902
Enj1	.829			
Enj2	.881			
Enj3	.878			
Enj4	.747			
Ease of Use (M=3.96, SD=.12)		.634	.629	.874
Eou1	.811			
Eou2	.778			
Eou3	.839			
Eou4	.755			
Satisfaction (M=3.97, SD=.04)		.674	.629	.861
Sat2	.806			
Sat3	.801			
Sat4	.855			
Visit Intention (M=3.74, SD=.19)		.721	.368	.886
Vint1	.857			
Vint2	.792			
Vint3	.895			
Usefulness (M=3.84, SD=.04)		.723	.504	.913
Use1	.823			
Use2	.863			
Use3	.891			
Use4	.823			
Behavioral Involvement (M=3.42, SD=.16)		.619	.560	.890
Inv1	.792			
Inv2	.748			
Inv3	.797			
Inv4	.756			
Inv5	.836			

Note: AVE: average variance extracted; SFL: standardized factor loading; MSV: maximum shared squared variance; M: composite score of items; CR: composite reliability; SD: standard deviation.
**SFL is significant at the $p < .001$.

Table 4: Comparison of Bootstrap and Bayesian estimates of selected model parameters.

	Sample		Mean of 1000 Bootstrap ML Estimates	SE	Bayesian Estimate (Mean)	SE	BootstrapEst – BayesianEst
Inv3	<---	inv	1.000				
Inv5	<---	inv	1.017	.045	1.013	0.000	0.004
Inv2	<---	inv	0.981	.050	0.977	0.000	0.004
Inv1	<---	inv	0.955	.045	0.952	0.000	0.003
Inv4	<---	inv	0.865	.044	0.862	0.000	0.003
Eou3	<---	eou	1.000				
Eou2	<---	eou	1.011	.047	1.007	0.001	0.004
Eou1	<---	eou	0.993	.044	0.988	0.000	0.005
Eou4	<---	eou	0.987	.047	0.983	0.000	0.004
Enj3	<---	enj	1.000				
Enj2	<---	enj	0.990	.034	0.987	0.000	0.003
Enj1	<---	enj	0.842	.032	0.839	0.000	0.003
Enj4	<---	enj	0.859	.039	0.856	0.000	0.003
Use2	<---	use	1.000				
Use3	<---	use	1.057	.036	1.055	0.000	0.002
Use1	<---	use	0.961	.038	0.959	0.000	0.002
Use4	<---	use	0.968	.038	0.966	0.000	0.002
Vint3	<---	vint	1.000				
Vint1	<---	vint	0.918	.035	0.915	0.000	0.003
Vint2	<---	vint	0.926	.039	0.922	0.000	0.004
Aut2	<---	aut	1.000				
Aut1	<---	aut	0.945	.054	0.938	0.001	0.007
Aut3	<---	aut	0.810	.055	0.805	0.001	0.005
Sat3	<---	sat	1.000				
Sat2	<---	sat	1.012	.047	1.008	0.001	0.004
Sat4	<---	sat	0.999	.043	0.994	0.001	0.005
Sat1	<---	sat	1.025	.047	1.019	0.001	0.006
Eint1	<---	eint	1.000				
Eint2	<---	eint	1.007	.041	1.004	0.000	0.003
Eint3	<---	eint	1.005	.048	1.002	0.000	0.003

Note: Configural SEM, grouped data, parameters freely estimated for each group.

In line with a study by Xu and Fox (2014), there is academic interest in the agreement between Maximum Likelihood (ML), bootstrap, and Bayesian estimates, proving the reality of this diversity. Substantially, the difference is minor. It is more

logical to conclude that no distinction has seen between the structural models estimated for the samples (see Table 4).

According to the results shown in Table 5, all the predictors provide a positive and significant correlation with the dependent variable (Hemphill, 2003). Overall, the eight constructs applied in this paper's conceptual model have adequate reliability and validity.

Table 5: Correlations among the variables.

	1	2	3	4	5	6	7	8
1. Behavioral Involvement	**0.787**							
2. Ease of Use	0.454*	**0.796**						
3. Enjoyment	0.565*	0.663*	**0.835**					
4. Usefulness	0.571*	0.654*	0.710*	**0.85**				
5. Visit Intention	0.606*	0.401*	0.430*	0.424*	**0.849**			
6. Autonomy	0.520*	0.609*	0.659*	0.603*	0.358*	**0.741**		
7. Satisfaction	0.490*	0.793*	0.720*	0.688*	0.474*	0.655*	**0.821**	
8. eWOM Intention	0.748*	0.476*	0.546*	0.559*	0.591*	0.484*	0.543*	**0.823**

Note: Diagonal elements (in bold) are the square root of the average variance extracted (AVE).
*p < .001.

4.4 Hypothesis Testing on Direct Effect

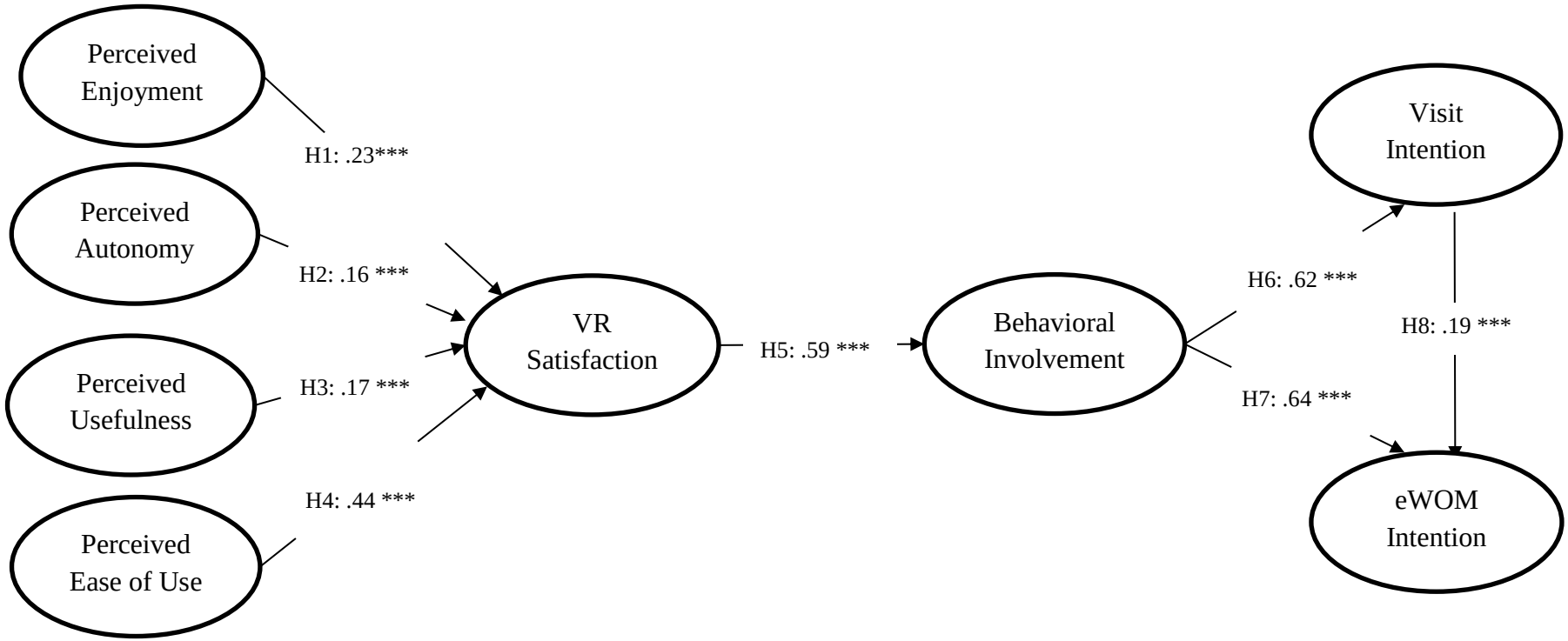
The structural equation modeling results, which used the maximum-likelihood estimation method, revealed an appropriate fit for the proposed research framework (Hu & Bentler, 1999) with the empirical data (Model fit indices: χ^2: 1011.085; df: 363; χ^2/df: 2.785; CFI: .0.94; SRMR: 0.083; RMSEA: 0.055; PClose: 0.027). The structural equation modeling described in Figure 12 is used to evaluate hypotheses 1–8. The analysis showed that user satisfaction is significantly influenced by enjoyment (β = .23, $p < .001$). As a result, Hypothesis 1 has been supported. Moreover, autonomy is a significant predictor of user satisfaction (β = .16, $p \leq .001$), supporting hypothesis 2. The findings indicate that usefulness has a positive effect on user satisfaction (β = .17, $p < .001$). As a result, hypothesis 3 was also confirmed. Ease of use has a significant effect on user satisfaction (β = .44, $p < .001$), confirming hypothesis 4. The relationship between satisfaction and behavioral involvement was positive and significant (β = .59, $p < .001$), supporting hypothesis 5. As a result, behavioral involvement influences visit intention positively (β = .62, $p < .001$). It resulted in support for hypothesis 6. In support of hypothesis 7, behavioral involvement shows a strong effect on eWOM (β = .64, $p < .001$). Lastly, visiting intention positively impacts eWOM intention (β = .19, $p < .001$), supporting hypothesis 8.

The research also included the control variables in the equations, naming gender, age, education, prior visit, and previous 360-degree experience. There was no statistically significant relationship between the control variables and the latent variables. A paired-samples t-test was conducted, and there was not a significant difference between males and females. Moreover, a one-way between-subjects

ANOVA was conducted to compare the effects of 360-degree experience among different age and educational levels, yet, there was no significant effect of the experience on cognitive functions among these conditions.

4.5 Chapter Summary

The analysis results used to explore the associations proposed in the developed research model were reported in this section. Investigating the relationships between the TAM and perceived motivational factors, we discovered a significant link between each construct. The results reveal that TAM and motivational components such as perceived enjoyment, autonomy, usefulness, and ease of use are significantly associated with user satisfaction and behavioral outcomes. As a result, perceptions of enjoyment, autonomy, usefulness, and ease of use appear to be critical variables to consider in 360-degree video marketing of a tourist destination to encourage a virtual experience. Overall, the TAM and motivation models appear appropriate as guiding frameworks for the current study propositions.



Model fit indices: χ^2 : 1011.085; df: 363;χ^2/df: 2.785; CFI: .0.94; SRMR: 0.083; RMSEA: 0.055; PClose: 0.027

Figure 12: The Causal Model's Hypothesis Testing and Path Analysis.

Chapter 5

DISCUSSION AND CONCLUSION

This study investigated factors associated with users' 360-degree virtual visits to a tourist destination and their behavioral outcomes. Hence, the current research examined the effects of VR users' motivations to experience a virtual trip on their satisfaction with the technology that indirectly influenced their behavioral intentions toward the tourist destination through behavioral involvement. Thereby, this study theoretically generated and empirically tested a research model that combined intrinsic/extrinsic motivations into technology acceptance to predict the adoption and use of 360-degree video for travel purposes. Overall, the findings revealed that a 360-degree video is a valuable marketing tool that can attract consumers and shape their attitudes and intentions toward a tourist destination.

VR technology is gaining popularity in tourism marketing. VR uses upgraded displays to provide the viewer with an interactive viewing experience of 3D virtual environments. The fast expansion of VR and its increasing consumer accessibility have pushed the VR narrative to the cutting edge of consumer experience. At the end of the last century, there were concerns that virtual reality could limit the growth of traditional tourism (Cheong, 1995). Few, however, investigated whether the technology would still be efficient in attracting travelers or if it would restrict actual visits. Based on the extrinsic and intrinsic motivation theory, this study investigated the relationships between tourists' extrinsic motivation, intrinsic motivation, and

travel intention to address this issue. The study's findings contribute to developing the mechanism of VR tourism marketing, making theoretical and practical contributions.

The contribution of this research to a deeper understanding of the virtual tourism experience was one of its most significant aspects. This study proposed a research paradigm for capturing the entertainment nature of virtual worlds and uniting the ideas that people in these worlds are technology users and potential customers by mixing the intrinsic motivation components of enjoyment and autonomy into the TAM framework. This approach recognizes the significance of inventive responses as an essential human element in understanding the use and acceptance of virtual tourism destinations.

The most important finding was that the 360-degree destination video effectively generated positive outcomes such as visit and eWOM intentions through behavioral involvement with the tourist destination. The findings revealed that 360-degree videos could provide helpful information for targeting destination representation through singular media to particular customer segments as travel motivation and the destination representation medium should be harmonious. It should also be noted that the effectiveness of such media for various consumer segments, such as younger users who are more open toward new technologies, will lead to a more positive perception towards this specific medium of delivering promotional content and the tourist destination.

This sense of involvement is critical in engaging the user with the content. In the absence of direct interaction, the content should therefore compensate for the need

for interaction. The audience should feel involved at some level, whether with the subject matter, filmmaking techniques, or other new ways. An opportunity for interaction and emotional connection lies in a 360-degree video application that could improve the experience with multisensory information. The findings show that in using 360-degree videos, people are looking for a different experience that creates a story around the experience. While this varies by individual, creating a truly unique experience is critical in attracting audiences.

Consistent with the current study, Willems et al. (2019) reported that among three virtual design media representing a tourist destination that generates different levels of consumer engagement, VR has the highest level of consumer engagement, accompanied by 360-degree video and lastly, the set of standard contents. Besides, inconsistent with this study, Guerrero-Rodríguez et al. (2020) indicate that shifting from the traditional to a more immersive mode of viewing a destination does not necessarily significantly affect destination perceptions, attitude, and intention to visit.

5.1 Contribution to the Literature

360-degree videos offer DMOs the opportunity to engage with specific consumers and increase potential tourists' knowledge of destinations in a vivid environment. However, before efficient communication can be accomplished, tourism markets must first understand the tourists' experience of the 360-degree tour in this virtual setting. This research was guided by two theories, the TAM and motivation theories, which were shown to be relevant frameworks. This research added to our understanding of virtual tourism by establishing that the TAM is a valuable theoretical framework for examining the 360-degree virtual experience. Moreover,

this research expanded the TAM model with the notion of intrinsic motivation included.

The primary theory used to guide this study, the TAM model, led to an understanding of the link between the participants and their interactions with the 360-degree virtual tour environments. In line with the study findings, the TAM variables of perceived usefulness and ease of use were associated with the virtual tour experience. The participants with a higher perception of these functional features regarding perceived usefulness and ease of use in virtual tourist destinations are more likely to visit a tourist destination and more conscious of it in their destination choice process.

The motivation theory was the second theory that guided this study. Although the importance of motivation theory has already been discussed in various domains, empirical research on virtual worlds and tourism literature remains scarce. Theoretically, this research adds to the current knowledge in the area by demonstrating that motivational aspects are significant for virtual travelers and should be incorporated into exertions to comprehend the experience and their behavioral intentions. The current study extends previous examinations by indicating that while traveling in a virtual tourism scene, the perceptions of enjoyment and autonomy are relevant to the 360-degree tour experience. These findings can be used to conduct future investigations on how psychological demands are fulfilled in virtual tourist activities and how they connect to on-site virtual experiences, and users' behavioral intentions.

According to the mean value of each item, all construct of intrinsic (enjoyment, autonomy) and extrinsic (usefulness, ease of use) motivations are significant predictors of satisfaction which is also compatible with earlier studies (Chung et al., 2015; Jung, 2011; Tussyadiah et al., 2018). The study findings imply that the destination itself is a crucial antecedent variable of trip intention in the context of VR adoption and application within tourism. The expected enjoyment of a tourist destination by visitors reflects their pleasure or interest in visiting the destination. In the meantime, VR applications are novel marketing tools compared to traditional approaches (Loureiro et al., 2020). The 360-degree VR video is an appealing tool for users seeking information. The virtual experience may capture tourists' interest more than the VR content. Consequently, in current and future studies, it is reasonable to distinguish between users' extrinsic and intrinsic motivations of using 360-degree videos to discover their degree of satisfaction and the following behavioral outcomes. This finding offers scholars working on other technology-related tourism studies a novel perspective.

At the same time, perceived enjoyment, autonomy, usefulness, and ease of use are all predictors of satisfaction. First, because hypotheses 1 and 2 were supported, we infer that users' perceptions of enjoyment and autonomy are vital aspects of explaining users' post-adoption behavior of a 360-degree video experience seen as a distinct and prominent virtual space. As shown by the support for hypothesis 1, perceived enjoyment significantly affects VR satisfaction. Thus, we conjecture that users generally consider 360-degree VR videos to be entertaining. It has been proven in research on the acceptance of AR technology similar to VR that enjoyment, which demonstrates the pleasure of using specific systems, increases satisfaction when

using AR (Shin, 2019). In addition, the results of a study by Jung (2011) unveil that perception of autonomy significantly affects users' satisfaction with the social virtual environment use by confirming the expectation in their virtual life. The positive and significant effect of perceived enjoyment and autonomy on satisfaction can also be shown in behavioral intents to request additional information, recommend, and visit the destination, demonstrating that the virtual contents contribute to the promotion of the tourist destination.

Extrinsically driven people will continue to undertake an action even if the task is not inherently fulfilling. External rewards can be an effective and valuable strategy for keeping people motivated and on task. This is especially crucial when people are required to complete a task that they find challenging or unpleasant. Consistently, ease of use is a better indicator of consumer satisfaction than other determinants. Factors such as content clarity, speed, and consistency in the 360-degree video help consumers focus on what is essential and increase satisfaction when planning for the actual trip. It will allow consumers to engage with web services in a user-friendly virtual environment from anywhere. This finding contrasts with previous research (Davis et al., 1989; Karahanna et al., 1999), which indicated that ease of use has a variable effect on attitudes during the initial phases of IS usage.

The highly significant influence of perceived usefulness on satisfaction implies that tourists' experiences and behaviors are vitally shaped by their use of technology (Kaplanidou & Vogt, 2006). A tourist's attitude based on their virtual experience of a specific destination affects their expectations, which determines their behavioral outcome. Hence, helpful information in virtual videos like visual communication and the sense of the natural tourist destination, naturalistic components, and cultural

authenticity perceptions can increase consumers' satisfaction. This result is compatible with the study by Chung et al. (2018).

The purpose of this study was to determine whether there is a positive and significant association between satisfaction and behavioral involvement. To our knowledge, no empirical examination has measured this direct and significant relationship between satisfaction and behavioral involvement in the context of virtual tourism. The current article fills that void by developing the TAM framework to transfer virtual tourists' positive attitudes toward behavioral outcomes to the destination. This can help researchers become more specific in predicting one's behavior (Fu et al., 2016). As a result of a satisfying 360-degree experience, people will become behaviorally involved, actively seeking information about the destination from family, friends, the community, marketing campaigns, brochures, and other information sources.

Technology has altered tourism and destination marketing by personalizing and immersive campaigns for consumers and offering a more connected and targeted market. 360-degree video will be an advantage for DMOs when it comes to marketing their destinations, as its implementation will increase the efficacy of marketing campaigns. However, it is not enough to study technology adoption without first understanding the motivating factors that drive ICT adoption in tourism and travel. To effectively incorporate technology into the travel decision-making process, we conclude that it would be more helpful to strengthen the research hypotheses by integrating technology adoption and motivational models to more precisely investigate tourist behaviors after using technology.

The three links between behavioral involvement, visit, and eWOM intentions were investigated in this study. The results showed that the link between behavioral involvement and intentions was highly significant in terms of one's use of 360-degree video for travel purposes, lending support to prior studies on behavioral involvement and behavioral intentions (Fu et al., 2016). Additionally, the findings indicated that visit intention was a significant predictor of eWOM, which contradicts some tourist studies demonstrating that eWOM is an effective predictor of visit intention (e.g., Jalilvand et al., 2012). A possible explanation for this is that while planning a trip, travelers may search for more information about a destination via blogs, search engines, and reading other people's personal opinions to understand the destination better. 360-degree content as a new marketing technique (Beck et al., 2019) can have a significant impact on the information-gathering process by allowing potential tourists to access destination information much more precisely and reliably than traditional advertisements.

5.2 Contribution to Practice

Video marketing is the use of video strategies to promote a brand, product, or service. Although 360-degree videos are relatively new in tourism marketing, their popularity is advancing rapidly due to their content versatility and high levels of user engagement. The advancement of smart devices and internet infrastructure and the ease of access to content have attracted millions of users to watch these videos. Moreover, the release of these videos, particularly on social networking sites, offers a new front for destination marketers. These networks may also add new features to make 360-degree videos an even better alternative for marketers and viewers.

First, practitioners should raise tourists' perceptions of destination enjoyment. Immersive content in social media can assist tourism businesses in many ways. It gives consumers the perception that they are cutting-edge, making the destination a more desirable brand to acknowledge. It also enables DMOs to get their clients closer to tourist destinations. Immersive media allow the client to become involved in the destination brand attractively, credibly, and distinctly. Moreover, adopting it on social media encourages higher impulse purchases and sharing of content. These tools can assist DMOs in growing their audience, increasing consumer engagement, and eventually increasing revenue.

Practitioners should consider the value of implementing clear and valuable applications that appeal to consumers' satisfaction and different behaviors. In addition, they should consider the determinants of technology acceptance, such as perceived usefulness and ease of use, when creating a positive and beneficial immersive experience with 360-degree content to enhance the local tourism business.

Given that users found the 360-degree video of the destination to be autonomous and pleasant, DMOs should consider that nothing is more compelling than creating visually appealing content that inspires travelers to engage in virtual activities that can impact their satisfaction and subsequent behaviors. In doing so, they can provide consumers with a link to a 360-degree video of their destination, which features a few minutes of attractions and gets viewers on a virtual holiday. The personalized stories are highly compelling as they absorb the passions and generate an apparent reason to (re)visit a destination (Neuhofer et al., 2015). Thus, destination marketers must employ the stories within the destination to motivate tourists to move swiftly from search to obtain information.

Numerous developers place a strong emphasis on providing a sense of reality while developing 360-degree virtual content. People prefer 360-degree content because it allows them to discover an ideal place where they can have more than they can in the real world. Users, however, tend to have a feeling of being there rather than a sense of the real. Considering that positive emotions are reactions to the content of the 360-degree virtual tour, to maximize users' satisfaction and involvement, the 360-degree virtual experience should be designed to be more immersive, allowing participants to imagine themselves as tourists. In addition, content developers might collaborate with users to include their interests and enrich the 360-degree virtual trip content with audio, video, and even the smell of the natural environment.

By studying the travelers' involvement and interaction with the marketed content, tourism marketers can determine precisely what consumers are interested in and what entices them to return. Tourism marketers can utilize this information to strengthen their marketing plans and, as a result, increase conversions. In addition, they should be aware of the significance of consumer participation in shaping positive behavioral intentions. Their opinion-seeking behaviors may instantaneously and positively impact individuals who frequently seek further information on the Internet; they may also be more doubtful of the legitimacy of their sources. Hence, Communicating with visitors through multi-media and interactive communication platforms that allow them to immerse themselves in a virtual environment can help tourism marketers improve their visitors' positive attitudes, information searches, and intentions before their stay. DMOs can share 360-degree content and applications via social networking sites because anyone with a mobile device can access visual content. It is

especially beneficial for marketers who wish to communicate the destination's novel experience with visitors.

Undoubtedly, eWOM differs from WOM primarily in terms of the information transmission channel, underlining an element of anonymity in the interaction between consumers. Indeed, because of its anonymity and the lack of incentives, eWOM is more reliable than WOM (Abubakar, 2016). While prospective travelers rely on eWOM to help them make decisions, practitioners perceive eWOM as feedback to help them improve their goods and services. Tourism marketers can leverage this solution to improve the quality of products and services, plus new products' attributes to attain trust in customers' memories, increasing purchasing intentions.

Finally, the research findings mainly represent the responses of young potential adopters between the 18 and 25 age groups. Nowadays, they are the primary consumer group that uses and adopts social media and 360-degree content (Statista, 2019a, and 2019b). In adopting digital devices for travel purposes, a study by Aluri (2017) stated that Millennials are a valuable target market and mostly unexplored population for tourism destinations. The management of tourism businesses should consider that this generation is attracted to unique experiences and desires to share the experience digitally through social media. For these young consumers, experiences are especially worthy when they can gain social currency through it. 360-degree experiences do precisely that and provide them with such content to show off.

Given the research findings addressed above, for marketers, service developers, designers, and academics, the following guidelines were offered for the design and evaluation of 360-degree video viewing experiences:

- Recognize your target and link your message to your users to set up emotional links to the content. Offer them an experience they have not experienced before to evoke significant positive reactions.
- Determine how to get visitors' audience and encourage them throughout the experience to establish and maintain engagement. Leverage narrative or inventive filmmaking techniques, senses other than vision and sound, and, if possible, interactivity.
- Use sound or visual signals to draw the audience's attention to the most vital information. Provide viewers with the assurance that they are not missing anything and, at the very least, reduce their viewing stress.
- While presenting information, allow users to inspect or search at their own pace to support exploration. Encourage curiosity while remaining clear about the most significant issues of interest.
- Recognize the context in which the information will be presented. Consider cultural and social standards, as well as whether the users are inexperienced or experienced. Allow for specific viewing areas in public places using HMDs, or allow consumers to view directly on their smartphones.
- The production process focuses on technical faults like visible stitching lines, poor image quality, and varying camera heights that could damage viewers by disrupting immersion or presence.

5.3 Limitations and Future Research Directions

The current research is limited in many ways. Even though 360-degree virtual content is considered VR (Slater & Sanchez-Vives, 2016), it cannot provide users with a full range of interaction and movement. Therefore, developing a study on using a fully immersive VR system to examine similar or other significant cultural, social, or psychological predictors to explore more interactive VR influences on tourist intentions or different behavioral outcomes is strongly recommended. However, most consumers can still not afford the all-in expense of HMDs on the mass market (Kangpan, 2018). As a result, most tourists choose to view virtual content on their computers, smartphones, or other portable devices rather than making a trip to the destination for an on-the-spot evaluation of HMDs.

The study findings suggest that there is a significant association between the 360-degree virtual experience and behavioral intentions. A study of the relationship between virtual tour experience and behavioral intentions within a virtual tourism environment will contribute to the advancement of this research topic within the domain of virtual environments. Future development efforts are recommended to focus on establishing how these experiences are linked to specific behaviors. In addition, tourism literature highlights the significance of the concept of satisfaction in the trip experience. Future studies might, for example, examine the relationship between satisfaction with the virtual tourism experience and behavioral intentions and the effect on the on-site tourist experience at tourist sites.

Moreover, a single 360-degree destination video (Hong Kong) was provided in this study; the study was on a selected location. Therefore the findings cannot be

generalized over other tourist destinations. Further studies may carry out an experimental inquiry to explore the most beneficial consumer responses to various tourist destinations through a 360-degree video. Besides, a study that identifies and compares impacts on visitors' behavioral intentions using different approaches varying from traditional media to a more immersive and interactive medium of delivering promotional content on tourist destinations might prove a vital area for future research. Therefore, this research focuses mainly on the user experience and behavioral intention sets of potential user experience predictors in a virtual tourism context. Future investigations may explore other determinants in virtual tourism, such as decision comfort, possibly impacting visitor experience and intentions. Future research can also add value by including ICT as a moderator to the existing model.

The samples of novice and experienced users have not been divided in the present research. Examining the differences between these two groups of users concerning their experience of virtual tourism sites and behavioral outcomes is recommended for future investigation. It can help discover the differences that influence the users' 360-degree virtual experience and their behavioral intentions.

Furthermore, studies have found that previous knowledge of a destination or virtual world experience can influence the virtual experience in computer-mediated contexts. Thus, future research could examine how this prior experience with virtual environments or destination attributes influences virtual experiences.

This study suggests that 360-degree video is an adequate and effective tool for destination marketing based on the findings. However, there may be some possible

limitations to its use. Personal characteristics, such as a personality that values isolation or a lifestyle that avoids travel, and application quality limitations, such as technology failing to show the VR exhibition or limited ability to present VR to customers, are examples. These could be investigated further in future virtual tourism studies.

New technologies are hastening the competition for tourist visits among DMOs. Beyond traditional destination marketing methods such as tourist information centers, an increasing number of DMOs are employing diverse technologies to engage with new types of visitors. The primary struggle is shifting web-enabled tourism marketing and services to attract more tourists during their travel planning process. Due to the specific nature of user mobility, destination marketers must consider the mobile environment as a critical strategic extension of their online marketing techniques. Digital and social media marketing enable businesses to accomplish marketing goals at a reasonably affordable cost. The internet, social media, mobile applications, and other digital communications technologies have entered billions of people's daily lives. According to January 2020 statistics, 4.54 billion people are active internet users, accounting for 59% of the worldwide population (Dwivedi et al., 2021). Limitations such as a lack of financial resources and underdeveloped IT infrastructures, on the other hand, frequently prevent DMOs and small firms from implementing more beneficial mobile marketing strategies. Thus, future research must examine the various constraints and boosters and propose a combined business plan for destination marketing organizations and small companies.

Finally, since the majority of the study sample was young consumers, the study's findings may not be generalizable to other generations of travelers. Although there is evidence for the absence of a relationship between VR usage and age (Gibson & O'Rawe, 2018), future research on a more diverse respondent sample, acknowledging varieties of age, could provide a better comparison between age groups. Besides, future research may focus on the cross-sectional technique to compare various cultural backgrounds and implement longitudinal studies to show how people's motivations and technology acceptance alter over time concerning virtual technology. As virtual content are utilized increasingly for travel purposes, the level of motivation to use these technologies must be investigated as consumers' experiences with the technology develop over time.

5.4 Conclusion

This study has presented a conceptual model and its application that helps to explain the impact of emerging technology on travelers' decision-making. To maintain the connection between the 360-degree video adventure and the tourist destination, the association of the experience and a site must collectively influence travelers. The study evaluated if 360-degree videos could generate a more positive attitude and influence users' behavioral intentions towards a tourist destination by combining motivation and the TAM frameworks. The findings show that intrinsic and extrinsic motivators affect tourists' satisfaction with a 360-degree experience, indirectly influencing their visit and eWOM intentions through behavioral involvement. Therefore, a 360-degree video can be a valuable tool for attracting and shaping consumers' attitudes and future intentions.

By increasing interaction between tourism activities and clients, ICT advances provide new tools for tourism marketing and management that change the process of creating, managing, and marketing tourism goods and destinations. Information is usually the only way that the tourism product can be presented to the potential visitor. This information must be appropriate, reliable, and relevant, as consumers often rely on a wealth of information before deciding on a tourism destination.

Traditional sources of tourism information only offer brief and scant hints of tourism destinations for prospective visitors. Such sources also do not have adequate detail to enable a potential traveler to choose their tourist destination. They only provide a passive experience as they often hold no involvement on the part of the potential visitor, limiting the effectiveness of such sources in promoting a particular destination to potential travelers.

360-degree VR videos, on the other hand, enable users to experience each tourist destination in particular and provide them with sufficient information to make a well-informed decision. Instead of computer-generated visuals, 360-degree VR focuses on the real world, making it ideal for the tourism business. It is essential to show users the actual situation rather than a mockup or a simulation. VR within the tourism industry can offer visitors a view of an attraction and their engagement in the activities offered at the destination. The visitor transitions from being a passive observer to an active participant would be possible using this technology (Williams & Hobson 1994). Accordingly, VR applications help the sector create authentic experiences and perceptions about an expected destination and then offer additional information to prospective visitors to facilitate their decision-making process regarding a tourist destination.

Regarding the widespread use of digital content in the tourism industry, 360-degree video is quickly getting a standard for destination marketing as the technology becomes cheaper and support more readily accessible. As a result, people will be more persuaded of their desire to drive an experiment that generates awareness, excitement, and motion when it comes to real-life travel. This study proves the applicability of TAM with the incorporation of additional variables to model the adoption of 360-degree technology and its impact on users' behavioral intentions in a virtual tourism context.

Adopting the technology acceptance model produced various helpful conclusions, confirming the potential of 360-degree videos in promoting tourist destinations and giving information at the pre-visit stage of visitors' decision-making process. Generally, this study revealed that 360-degree videos are beneficial tools in tourism marketing, allowing DMOs to convince consumers of their choice of a tourism destination. Regardless of the demographic group, the technology was considered autonomous, pleasant, practical, and easy to use. Considering the ability of 360-degree videos in enhancing the possibility of visiting Hong Kong, respondents were like-minded, which can suggest exciting opportunities for destination marketers in an intense and competitive tourism aspect.

REFERENCES

Abou-Shouk, M., Megicks, P., & Lim, W. M. (2013). Perceived benefits and e-commerce adoption by SME travel agents in developing countries: Evidence from Egypt. *Journal of Hospitality & Tourism Research*, *37*(4), 490-515.

Abubakar, A. M. (2016). Does eWOM influence destination trust and travel intention: a medical tourism perspective. *Economic research-Ekonomska istraživanja*, *29*(1), 598-611.

Afzal, S., Chen, J., & Ramakrishnan, K. K. (2017, August). Characterization of 360-degree videos. In *Proceedings of the Workshop on Virtual Reality and Augmented Reality Network, Los Angeles, USA, 25 – 25 August 2017*, *ACM*, *New York*, (pp. 1-6).

Ahir, K., Govani, K., Gajera, R., & Shah, M. (2020). Application on virtual reality for enhanced education learning, military training and sports. *Augmented Human Research*, *5*(1), 1-9.

Alharahsheh, H. H., & Pius, A. (2020). A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences*, *2*(3), 39-43.

Allam, H., Bliemel, M., Spiteri, L., Blustein, J., & Ali-Hassan, H. (2019). Applying a multi-dimensional hedonic concept of intrinsic motivation on social tagging

tools: A theoretical model and empirical validation. *International Journal of Information Management*, *45*, 211-222.

Altinay, L., & Paraskevas, P. (2008). Data collection techniques. *Planning Research in Hospitality and Tourism*, 107-135.

Aluri, A. (2017). Mobile augmented reality (MAR) game as a travel guide: insights from Pokémon GO. *Journal of Hospitality and Tourism Technology*, 8(1), 55-72. https://doi.org/10.1108/JHTT-12-2016-0087

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin*, *103*(3), 411.

Anderson, P. L., & Molloy, A. (2020). Maximizing the impact of virtual reality exposure therapy for anxiety disorders. *Current opinion in psychology*.

Argyriou, L., Economou, D., & Bouki, V. (2020). Design methodology for 360 immersive video applications: the case study of a cultural heritage virtual tour. *Personal and Ubiquitous Computing*, 1-17.

Assaker, G. (2020). Age and gender differences in online travel reviews and user-generated-content (UGC) adoption: extending the technology acceptance model (TAM) with credibility theory. *Journal of Hospitality Marketing & Management*, *29*(4), 428-449.

Assaker, G., & O'Connor, P. (2021). eWOM platforms in moderating the relationships between political and terrorism risk, destination image, and travel intent: the case of Lebanon. *Journal of Travel Research*, *60*(3), 503-519.

Ayeh, J. K., Au, N., & Law, R. (2013). Predicting the intention to use consumer-generated media for travel planning. *Tourism management*, *35*, 132-143.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the academy of marketing science*, *16*(1), 74-94.

Basoglu, N., Ok, A. E., & Daim, T. U. (2017). What will it take to adopt smart glasses: A consumer choice based review?. *Technology in Society*, *50*, 50-56.

Batat, W., & Wohlfeil, M. (2009). Getting Lost" Into the Wild": Understanding Consumers' Movie Enjoyment Through a Narrative Transportation Approach. *ACR North American Advances*.

Beck, J., Rainoldi, M., & Egger, R. (2019). Virtual reality in tourism: a state-of-the-art review. *Tourism Review*, 74 (3) (2019), pp. 586-612.

Bell, R., & Marshall, D. W. (2003). The construct of food involvement in behavioral research: scale development and validation. *Appetite*, *40*(3), 235-244.

Benckendorff, P. J., Xiang, Z., & Sheldon, P. J. (2019). *Tourism information technology*. Cabi.

Bloch, P. H. (1982). Involvement beyond the purchase process: conceptual issues and empirical investigation. *Advances in Consumer Research*, 6, 191-19.

Bosque, I. R., & San Martín, H. (2008). Tourist satisfaction a cognitive-affective model. *Annals of tourism research*, *35*(2), 551-573.

Brief, A. P., & Aldag, R. J. (1977). The intrinsic-extrinsic dichotomy: Toward conceptual clarity. *Academy of Management review*, *2*(3), 496-500.

Buhalis, D. (1998). Strategic use of information technologies in the tourism industry. *Tourism management*, *19*(5), 409-421.

Buhalis, D. (2019). Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: a perspective article. *Tourism Review*.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism management*, *29*(4), 609-623.

Buonincontri, P., Morvillo, A., Okumus, F., & van Niekerk, M. (2017). Managing the experience co-creation process in tourism destinations: Empirical findings from Naples. *Tourism Management*, *62*, 264-277.

Cai, W., & McKenna, B. (2021). Knowledge creation in information technology and tourism research. *Journal of Travel Research*, *60*(4), 912-915.

Carrozzino, M., & Bergamasco, M. (2010). Beyond virtual museums: Experiencing immersive virtual reality in real museums. *Journal of Cultural Heritage*, *11*(4), 452-458.

Chang, Y., Hou, R. J., Wang, K., Cui, A. P., & Zhang, C. B. (2020). Effects of intrinsic and extrinsic motivation on social loafing in online travel communities. *Computers in Human Behavior*, 106360.

Checa, D., & Bustillo, A. (2020). A review of immersive virtual reality serious games to enhance learning and training. *Multimedia Tools and Applications*, *79*(9), 5501-5527.

Check, J., & Schutt, R. K. (2011). *Research methods in education*. Sage Publications. pp. 159–185.

Chen, Y. C., Li, R. H., & Chen, S. H. (2013). Relationships among adolescents' leisure motivation, leisure involvement, and leisure satisfaction: A structural equation model. *Social indicators research*, *110*(3), 1187-1199.

Chen, Y. C., Shang, R. A., & Li, M. J. (2014). The effects of perceived relevance of travel blogs' content on the behavioral intention to visit a tourist destination. *Computers in Human Behavior*, *30*, 787-799.

Cheng, K. H., & Tsai, C. C. (2019). A case study of immersive virtual field trips in an elementary classroom: Students' learning experience and teacher-student interaction behaviors. *Computers & Education*, *140*, 103600.

Cheong, R. (1995). The virtual threat to travel and tourism. *Tourism management*, *16*(6), 417-422.

Chia, S. K. S., Lo, M. C., Razak, Z. B., Wang, Y. C., & Mohamad, A. A. (2021). Impact of Destination Image on Tourist Satisfaction: The Moderating Effect of Information Technology (IT). *GeoJournal of Tourism and Geosites*, *34*(1), 88-93.

Cho, Y. H., Wang, Y., & Fesenmaier, D. R. (2002). Searching for experiences: The web-based virtual tour in tourism marketing. *Journal of Travel & Tourism Marketing*, *12*(4), 1-17.

Chung, J., Pagnini, F., & Langer, E. (2016). Mindful navigation for pedestrians: Improving engagement with augmented reality. *Technology in Society*, *45*, 29-33.

Chung, N., Han, H., & Joun, Y. (2015). Tourists' intention to visit a destination: The role of augmented reality (AR) application for a heritage site. *Computers in Human Behavior*, *50*, 588-599.

Chung, N., Lee, H., Kim, J. Y., & Koo, C. (2018). The role of augmented reality for experience-influenced environments: The case of cultural heritage tourism in Korea. *Journal of Travel Research*, *57*(5), 627-643.

Clement, J. (2019, July 31). Daily internet usage by age and device 2019. Retrieved July 17, 2020, from https://www.statista.com/statistics/416850/average-duration-of-internet-use-age-device/

Cliff, N. (1988). The eigenvalues-greater-than-one rule and the reliability of components. *Psychological bulletin*, *103*(2), 276.

Cohen, E. (1979). A phenomenology of tourist experiences. *Sociology*, *13*(2), 179-201.

Comrey, A. L., Backer, T. E., & Glaser, E. M. (1973). A sourcebook for mental health measures.

Connell, J. (2012). Film tourism–Evolution, progress and prospects. *Tourism management*, *33*(5), 1007-1029.

Corrêa, S. C. H., & Gosling, M. D. S. (2020). Travelers' Perception of Smart Tourism Experiences in Smart Tourism Destinations. *Tourism Planning & Development*, 1-20.

Cortina, J. M. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of applied psychology*, *78*(1), 98.

Cranford, M. (1996). The social trajectory of virtual reality: Substantive ethics in a world without constraints. *Technology in Society*, *18*(1), 79-92.

Creswell, J. W. (2002). *Educational research: Planning, conducting, and evaluating quantitative* (pp. 146-166). Upper Saddle River, NJ: Prentice Hall.

Crompton, J. (1992). Structure of vacation destination choice sets. *Annals of tourism research*, *19*(3), 420-434.

Darioshi, R., & Lahav, E. (2021) The impact of technology on the human decision-making process. *Human Behavior and Emerging Technologies*, 1-10. https://doi.org/10.1002/hbe2.257

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management science*, *35*(8), 982-1003.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace 1. *Journal of applied social psychology*, *22*(14), 1111-1132.

Davis, M. H., Hall, J. A., & Meyer, M. (2003). The first year: Influences on the satisfaction, involvement, and persistence of new community volunteers. *Personality and Social Psychology Bulletin*, *29*(2), 248-260.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of research in personality*, *19*(2), 109-134.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, *11*(4), 227-268.

Delone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of management information systems*, *19*(4), 9-30.

Devaraj, S., Fan, M., & Kohli, R. (2002). Antecedents of B2C channel satisfaction and preference: validating e-commerce metrics. *Information systems research*, *13*(3), 316-333.

Dholakia, U. M. (2006). How customer self-determination influences relational marketing outcomes: evidence from longitudinal field studies. *Journal of Marketing Research*, *43*(1), 109-120.

Drosos, D., Chalikias, M., Skordoulis, M., Kalantonis, P., & Papagrigoriou, A. (2017). The strategic role of information technology in tourism: The case of global distribution systems. In *Tourism, culture and heritage in a smart economy* (pp. 207-219). Springer, Cham.

Duan, H., Zhai, G., Min, X., Zhu, Y., Fang, Y., & Yang, X. (2018, May). Perceptual quality assessment of omnidirectional images. In *2018 IEEE international symposium on circuits and systems (ISCAS), Florence, Italy* (pp. 1-5). IEEE.

Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., ... & Wang, Y. (2021). Setting the future of digital and social media marketing research: Perspectives and research propositions. *International Journal of Information Management*, *59*, 102168.

Euromonitor International. (2018, December 18). Top 100 City Destinations 2018: Highlights. Retrieved December 21, 2018, from https://blog.euromonitor.com/top-100-city-destinations-2018-highlights/

Feng, Y. (2018). Facilitator or inhibitor? The use of 360-degree videos for immersive brand storytelling. *Journal of Interactive Advertising*, *18*(1), 28-42.

Feng, Y., Xie, Q., & Lou, C. (2019). The Key to 360-Degree Video Advertising: An Examination of the Degree of Narrative Structure. *Journal of Advertising*, *48*(2), 137-152.

Ferreira, M., Loureiro, S. M. C., & Pereira, H. (2021). Virtual Reality and Artificial Intelligence: Co-creation Process Between Consumers and Firms in an Area of Smart Cities. *Augmented Reality and Virtual Reality: New Trends in Immersive Technology*, 239.

Finn, A., Wang, L., & Frank, T. (2009). Attribute perceptions, customer satisfaction and intention to recommend e-services. *Journal of Interactive Marketing*, *23*(3), 209-220.

Fishbein, M., & Ajzen, I. (1977). Belief, attitude, intention, and behavior: An introduction to theory and research. Addison-Wesley, Reading.

Flavián, C., Ibáñez-Sánchez, S., & Orús, C. (2019). The impact of virtual, augmented and mixed reality technologies on the customer experience. *Journal of Business Research*, *100*, 547-560.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), 39-50.

Fu, H., Ye, B. H., & Xiang, J. (2016). Reality TV, audience travel intentions, and destination image. *Tourism Management*, *55*, 37-48.

Getz, D., Robinson, R., Andersson, T., & Vujicic, S. (2014). *Foodies and food tourism*. Oxford: Goodfellow Publishers.

Gibson, A., & O'Rawe, M. (2018). Virtual reality as a travel promotional tool: Insights from a consumer travel fair. In *Augmented reality and virtual reality* (pp. 93-107). Springer, Cham.

Gorman, W. M. (1957). Convex indifference curves and diminishing marginal utility. *Journal of Political Economy*, *65*(1), 40-50.

Gorman, W. M. (1980). A possible procedure for analysing quality differentials in the egg market. *The Review of Economic Studies*, *47*(5), 843-856.

Gounaris, S., Dimitriadis, S., & Stathakopoulos, V. (2010). An examination of the effects of service quality and satisfaction on customers' behavioral intentions in e-shopping. *Journal of services marketing* 24 (2): 142–56.

Guerrero-Rodríguez, R., Stepchenkova, S., & Kirilenko, A. (2020). Experimental investigation of the impact of a destination promotional video with physiological and self-reported measures. *Tourism Management Perspectives*, *33*, 100625.

Gursoy, D. (2019). A critical review of determinants of information search behavior and utilization of online reviews in decision making process (invited paper for 'luminaries' special issue of International Journal of Hospitality Management). *International Journal of Hospitality Management*, *76*, 53-60.

Gutierrez, M., Vexo, F., & Thalmann, D. (2008). Stepping into virtual reality. Springer Science & Business Media.

Guttentag, D. A. (2010). Virtual reality: Applications and implications for tourism. *Tourism management*, *31*(5), 637-651.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). *Multivariate data analysis* (Vol. 5, No. 3, pp. 207-219). Upper Saddle River, NJ: Prentice hall.

Hamilton, R., Ferraro, R., Haws, K. L., & Mukhopadhyay, A. (2021). Traveling with companions: the social customer journey. *Journal of Marketing*, *85*(1), 68-92.

Hassan, R. (2020). Digitality, virtual reality and the 'empathy machine'. *Digital Journalism*, *8*(2), 195-212.

Haugstvedt, A. C., & Krogstie, J. (2012, November). Mobile augmented reality for cultural heritage: A technology acceptance study. In *2012 IEEE international symposium on mixed and augmented reality (ISMAR), Atlanta, GA, USA* (pp. 247-255). IEEE.

Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist, 58*(1), 78–79. https://doi.org/10.1037/0003-066X.58.1.78

Hew, J. J., Leong, L. Y., Tan, G. W. H., Lee, V. H., & Ooi, K. B. (2018). Mobile social tourism shopping: A dual-stage analysis of a multi-mediation model. *Tourism Management*, *66*, 121-139.

Hoe, S. L. (2008). Issues and procedures in adopting structural equation modelling technique. *Journal of Quantitative Methods*, *3*(1), 76.

Horng, J. S., Liu, C. H., Chou, H. Y., & Tsai, C. Y. (2012). Understanding the impact of culinary brand equity and destination familiarity on travel intentions. *Tourism management*, *33*(4), 815-824.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Huang, T. L., & Liao, S. (2015). A model of acceptance of augmented-reality interactive technology: the moderating role of cognitive innovativeness. *Electronic Commerce Research*, *15*(2), 269-295.

Huang, T. L., & Tseng, C. H. (2015). Using augmented reality to reinforce vivid memories and produce a digital interactive experience. *Journal of Electronic Commerce Research*, *16*(4), 307.

Huang, Y. C., Backman, K. F., Backman, S. J., & Chang, L. L. (2016). Exploring the implications of virtual reality technology in tourism marketing: An integrated research framework. *International Journal of Tourism Research*, *18*(2), 116-128.

Huang, Y. C., Backman, S. J., & Backman, K. F. (2012). Exploring the impacts of involvement and flow experiences in Second Life on people's travel intentions. *Journal of Hospitality and Tourism Technology*.

Huang, Y. C., Backman, S. J., Backman, K. F., & Moore, D. (2013). Exploring user acceptance of 3D virtual worlds in travel and tourism marketing. *Tourism Management*, *36*, 490-501.

Hudson, S., Matson-Barkat, S., Pallamin, N., & Jegou, G. (2019). With or without you? Interaction and immersion in a virtual reality experience. *Journal of Business Research*, *100*, 459-468.

Hurley, A. E., Scandura, T. A., Schriesheim, C. A., Brannick, M. T., Seers, A., Vandenberg, R. J., & Williams, L. J. (1997). Exploratory and confirmatory factor analysis: Guidelines, issues, and alternatives. *Journal of organizational behavior*, 667-683.

Hwang, J., Park, S., & Woo, M. (2018). Understanding user experiences of online travel review websites for hotel booking behaviours: an investigation of a dual motivation theory. *Asia Pacific Journal of Tourism Research*, *23*(4), 359-372.

Hyun, M. Y., Lee, S., & Hu, C. (2009). Mobile-mediated virtual experience in tourism: concept, typology and applications. *Journal of Vacation Marketing*, *15*(2), 149-164.

IDC. (November 17, 2020). Investment in augmented and virtual reality (AR/VR) technology worldwide in 2024, by use case (in billion U.S. dollars) [Graph]. In *Statista*. Retrieved June 11, 2021, from https://www.statista.com/statistics/1098345/worldwide-ar-vr-investment-use-case/

Irani, F., & Rahimizhian, S. (2021). Exploring the Association among Intention to Study Abroad, Destination Brand Awareness, WOM, and Destination Choice of International Students of North Cyprus. *Co-Editors*.

Israel, K., Zerres, C., & Tscheulin, D. K. (2019). Presenting hotels in virtual reality: does it influence the booking intention?. *Journal of Hospitality and Tourism Technology*.

ITU. (2019). Daily internet usage by age and device 2019. Retrieved December 14, 2020, from https://www.statista.com/statistics/416850/average-duration-of-internet-use-age-device/

Ives, B., & Olson, M. H. (1984). User involvement and MIS success: A review of research. *Management science*, *30*(5), 586-603.

Jackson, C. M., Chow, S., & Leitch, R. A. (1997). Toward an understanding of the behavioral intention to use an information system. *Decision sciences*, *28*(2), 357-389.

Jalilvand, M. R., Samiei, N., Dini, B., & Manzari, P. Y. (2012). Examining the structural relationships of electronic word of mouth, destination image, tourist attitude toward destination and travel intention: An integrated approach. *Journal of Destination Marketing & Management*, *1*(1-2), 134-143.

Johnson, L. (2016). YouTube Takes on Facebook with 360-Degree Livestreaming for Brands and Creators. *Adweek*. Retrieved April 18, 2016, from

http://www.adweek.com/digital/youtube-takesfacebook-360-degree-livesteaming-brands-and-creators170893/

Jovicic, D. Z. (2019). From the traditional understanding of tourism destination to the smart tourism destination. *Current Issues in Tourism*, *22*(3), 276-282.

Jung, T. H., & tom Dieck, M. C. (2017). Augmented reality, virtual reality and 3D printing for the co-creation of value for the visitor experience at cultural heritage places. *Journal of Place Management and Development.*

Jung, Y. (2011). Understanding the role of sense of presence and perceived autonomy in users' continued use of social virtual worlds. *Journal of Computer-Mediated Communication*, *16*(4), 492-510.

Kamal, S. A., Shafiq, M., & Kakria, P. (2020). Investigating acceptance of telemedicine services through an extended technology acceptance model (TAM). *Technology in Society*, *60*, 101212.

Kangpan, A. (2018, December 02). Bright spots in the VR market. Retrieved December 17, 2020, from https://techcrunch.com/2018/12/02/bright-spots-in-the-vr-market/

Kaplanidou, K., & Vogt, C. (2006). A structural analysis of destination travel intentions as a function of web site features. *Journal of Travel research*, *45*(2), 204-216.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS quarterly*, 183-213.

Kelling, C., Väätäjä, H., & Kauhanen, O. (2017, November). Impact of device, context of use, and content on viewing experience of 360-degree tourism video. In *Proceedings of the 16th International Conference on Mobile and Ubiquitous Multimedia* (pp. 211-222).

Kim, M. J., & Hall, C. M. (2019). A hedonic motivation model in virtual reality tourism: Comparing visitors and non-visitors. *International Journal of Information Management*, *46*, 236-249.

Kim, M. J., Chung, N., & Lee, C. K. (2011). The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea. *Tourism Management*, *32*(2), 256-265.

Kim, M. J., Chung, N., Lee, C. K., & Preis, M. W. (2015). Motivations and use context in mobile tourism shopping: Applying contingency and task–technology fit theories. *International Journal of Tourism Research*, *17*(1), 13-24.

Kim, M. J., Lee, C. K., & Bonn, M. (2017). Obtaining a better understanding about travel-related purchase intentions among senior users of mobile social network sites. *International Journal of Information Management*, *37*(5), 484-496.

Kim, M. J., Lee, C. K., & Preis, M. W. (2020). The impact of innovation and gratification on authentic experience, subjective well-being, and behavioral intention in tourism virtual reality: The moderating role of technology readiness. *Telematics and Informatics*, *49*, 101349.

Kim, S., & Kim, S. (2018). Perceived values of TV drama, audience involvement, and behavioral intention in film tourism. *Journal of Travel & Tourism Marketing*, *35*(3), 259-272.

Kim, S., Choe, J. Y., & Lee, S. (2018). How are food value video clips effective in promoting food tourism? Generation Y versus non–Generation Y. *Journal of Travel & Tourism Marketing*, *35*(3), 377-393.

Kislali, H., Kavaratzis, M., & Saren, M. (2020). Destination image formation: Towards a holistic approach. *International Journal of Tourism Research*, *22*(2), 266-276.

Kozak, M., & Baloglu, S. (2010). Managing and marketing tourist destinations: Strategies to gain a competitive edge. Routledge.

Labanauskaitė, D., Fiore, M., & Stašys, R. (2020). Use of E-marketing tools as communication management in the tourism industry. *Tourism Management Perspectives*, *34*, 100652.

Lancaster, K. (1971). Consumer Demand: a New Approach (New York: Columbia Univer.

Lancaster, K. J. (1966). A new approach to consumer theory. *Journal of political economy*, *74*(2), 132-157.

Lasica, J. D. (2007). The mobile generation. *Washington, DC: aspen institute communications and society program*.

Lee, H., Jung, T. H., tom Dieck, M. C., & Chung, N. (2020). Experiencing immersive virtual reality in museums. *Information & Management*, *57*(5), 103229.

Lee, S. Y., Petrick, J. F., & Crompton, J. (2007). The roles of quality and intermediary constructs in determining festival attendees' behavioral intention. *Journal of Travel Research*, *45*(4), 402-412.

Lee, T., & Jun, J. (2007). Contextual perceived value?: Investigating the role of contextual marketing for customer relationship management in a mobile commerce context. *Business Process Management Journal*, *13*(6), 798-814.

Lee, W., & Jeong, C. (2018). Effects of pro-environmental destination image and leisure sports mania on motivation and pro-environmental behavior of visitors to Korea's national parks. *Journal of Destination Marketing & Management*, *10*, 25-35.

Li, C. Y., & Fang, Y. H. (2019). Predicting continuance intention toward mobile branded apps through satisfaction and attachment. *Telematics and Informatics*, *43*, 101248.

Li, T., & Chen, Y. (2019). Will virtual reality be a double-edged sword? Exploring the moderation effects of the expected enjoyment of a destination on travel intention. *Journal of Destination Marketing & Management*, *12*, 15-26.

Lin, C. J., Abreham, B. T., & Woldegiorgis, B. H. (2019). Effects of displays on a direct reaching task: A comparative study of head mounted display and stereoscopic widescreen display. *International Journal of Industrial Ergonomics*, *72*, 372-379.

Lin, L. P. L., Huang, S. C. L., & Ho, Y. C. (2020). Could virtual reality effectively market slow travel in a heritage destination?. *Tourism Management*, *78*, 104027.

Litvin, S. W., Goldsmith, R. E., & Pan, B. (2008). Electronic word-of-mouth in hospitality and tourism management. *Tourism management*, *29*(3), 458-468.

Liu, X., Mehraliyev, F., Liu, C., & Schuckert, M. (2020). The roles of social media in tourists' choices of travel components. *Tourist Studies*, *20*(1), 27-48.

Lo, W. H., & Cheng, K. L. B. (2020). Does virtual reality attract visitors? The mediating effect of presence on consumer response in virtual reality tourism advertising. *Information Technology & Tourism*, 1-26.

Loureiro, S. M. C., Guerreiro, J., & Ali, F. (2020). 20 years of research on virtual reality and augmented reality in tourism context: A text-mining approach. *Tourism Management*, *77*, 104028.

Lu, L., Chi, C. G., & Liu, Y. (2015). Authenticity, involvement, and image: Evaluating tourist experiences at historic districts. *Tourism management*, *50*, 85-96.

Mania, K., & Chalmers, A. (2001). The effects of levels of immersion on memory and presence in virtual environments: A reality centered approach. *CyberPsychology & Behavior*, *4*(2), 247-264.

Mäntymäki, M., & Salo, J. (2011). Teenagers in social virtual worlds: Continuous use and purchasing behavior in Habbo Hotel. *Computers in Human Behavior*, *27*(6), 2088-2097.

Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management*, *34*(1), 1-13.

Masiero, L., & Qiu, R. T. (2018). Modeling reference experience in destination choice. *Annals of Tourism Research*, *72*, 58-74.

Maslow, A. H. (1943). A theory of human motivation. Psychological review, 50 (4), 370.

Meißner, M., Pfeiffer, J., Peukert, C., Dietrich, H., & Pfeiffer, T. (2020). How virtual reality affects consumer choice. *Journal of Business Research*, *117*, 219-231.

Montazemi, A. R., & Saremi, H. Q. (2013, January). Factors affecting Internet banking pre-usage expectation formation. In *2013 46th Hawaii International Conference on System Sciences, Wailea, USA* (pp. 4666-4675). IEEE.

Mortimer, J. T., & Lorence, J. (1989). Satisfaction and involvement: Disentangling a deceptively simple relationship. *Social Psychology Quarterly*, 249-265.

Mouratidis, K., & Hassan, R. (2020). Contemporary versus traditional styles in architecture and public space: A virtual reality study with 360-degree videos. *Cities*, *97*, 102499.

Neuhofer, B., Buhalis, D., & Ladkin, A. (2015). Smart technologies for personalized experiences: a case study in the hospitality domain. *Electronic Markets*, *25*(3), 243-254.

Novak, T. P., Hoffman, D. L., & Duhachek, A. (2003). The influence of goal-directed and experiential activities on online flow experiences. *Journal of consumer psychology*, *13*(1-2), 3-16.

Oh, J., Sudarshan, S., Jin, E., Nah, S., & Yu, N. (2020). How 360-Degree Video Influences Content Perceptions and Environmental Behavior: The Moderating Effect of Environmental Self-Efficacy. *Science Communication*, *42*(4), 423–453. https://doi.org/10.1177/1075547020932174

Oliver, R. L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of marketing research*, *17*(4), 460-469.

Orbitian Media. (2020, May 19). One Day In Hong Kong 360° VR Stock Video. Retrieved September 6, 2020, from https://orbitian.media/portfolio/one-day-in-hong-kong-360-vr-stock-video/

Pan, S., Santos, C., & Kim, S. (2017). Promoting tourism, projecting power: The role of television commercials. *Journal of Travel & Tourism Marketing*, *34*(2), 192-208.

Pantano, E. (2014). Innovation drivers in retail industry. *International Journal of Information Management*, *34*(3), 344-350.

Pasanen, K., Pesonen, J., Murphy, J., Heinonen, J., & Mikkonen, J. (2019). Comparing Tablet and Virtual Reality Glasses for Watching Nature Tourism Videos. In *Information and Communication Technologies in Tourism 2019* (pp. 120-131). Springer, Cham.

Pavel, A., Hartmann, B., & Agrawala, M. (2017, October). Shot orientation controls for interactive cinematography with 360 video. In *Proceedings of the 30th Annual ACM Symposium on User Interface Software and Technology* (pp. 289-297).

Peñarroja, V., Sánchez, J., Gamero, N., Orengo, V., & Zornoza, A. M. (2019). The influence of organisational facilitating conditions and technology acceptance factors on the effectiveness of virtual communities of practice. *Behaviour & Information Technology*, *38*(8), 845-857.

Pencarelli, T. (2020). The digital revolution in the travel and tourism industry. *Information Technology & Tourism*, *22*(3), 455-476.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of applied psychology*, *88*(5), 879.

Popper, B. (2016). YouTube introduces live 360 video, the gateway drug to virtual reality. *The Verge*. Retrieved April 18, 2016, from https://www.theverge.com/2016/4/18/11450484/youtubelive-360-degree-video-announced-neal-mohan-interview

PR Newswire. (December 5, 2019). Augmented reality (AR) and virtual reality (VR) market size in Europe in 2018 and 2026 (in billion U.S. dollars) [Graph]. In *Statista*. Retrieved June 11, 2021, from https://www.statista.com/statistics/1121370/european-augmented-virtual-reality-market-size/

Rahimizhian, S., & Irani, F. (2020). Contactless hospitality in a post-Covid-19 world. *International Hospitality Review*.

Rainoldi, M., Driescher, V., Lisnevska, A., Zvereva, D., Stavinska, A., Relota, J., & Egger, R. (2018). Virtual reality: an innovative tool in destinations' marketing. *The Gaze: Journal of Tourism and Hospitality*, *9*, 53-68.

Rese, A., Baier, D., Geyer-Schulz, A., & Schreiber, S. (2017). How augmented reality apps are accepted by consumers: A comparative analysis using scales and opinions. *Technological Forecasting and Social Change*, *124*, 306-319.

Revels, J., Tojib, D., & Tsarenko, Y. (2010). Understanding consumer intention to use mobile services. *Australasian Marketing Journal (AMJ)*, *18*(2), 74-80.

Roelens, I., Baecke, P., & Benoit, D. F. (2016). Identifying influencers in a social network: The value of real referral data. *Decision Support Systems*, *91*, 25-36.

Rothschild, M. L. (1984). Perspectives on involvement: current problems and future directions. *Advances in Consumer Research*, 11, 216-217.

Schaffer, B. S., & Riordan, C. M. (2003). A review of cross-cultural methodologies for organizational research: A best-practices approach. *Organizational research methods*, *6*(2), 169-215.

Selmanovic, E., Rizvic, S., Harvey, C., Boskovic, D., Hulusic, V., Chahin, M., & Sljivo, S. (2018). VR Video Storytelling for Intangible Cultural Heritage Preservation.

Sharples, S., Cobb, S., Moody, A., & Wilson, J. R. (2008). Virtual reality induced symptoms and effects (VRISE): Comparison of head mounted display (HMD), desktop and projection display systems. *Displays*, 29(2), 58-69.

Shaw, H., Ellis, D. A., & Ziegler, F. V. (2018). The Technology Integration Model (TIM). Predicting the continued use of technology. *Computers in Human Behavior*, *83*, 204-214.

Sheldon, K. M., Ryan, R., & Reis, H. T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and social psychology bulletin*, *22*(12), 1270-1279.

Shen, J., Wang, Y., Chen, C., Nelson, M. R., & Yao, M. Z. (2020). Using virtual reality to promote the university brand: When do telepresence and system immersion matter?. *Journal of Marketing Communications*, *26*(4), 362-393.

Shin, D. (2019). How does immersion work in augmented reality games? A user-centric view of immersion and engagement. *Information, Communication & Society*, *22*(9), 1212-1229.

Shin, Y., Van Thai, V., Grewal, D., & Kim, Y. (2017). Do corporate sustainable management activities improve customer satisfaction, word of mouth intention and repurchase intention? Empirical evidence from the shipping industry. *The International Journal of Logistics Management*.

Simone, L. K., Schultheis, M. T., Rebimbas, J., & Millis, S. R. (2006). Head-mounted displays for clinical virtual reality applications: pitfalls in understanding user behavior while using technology. *CyberPsychology & Behavior*, *9*(5), 591-602.

Slater, M., & Sanchez-Vives, M. V. (2016). Enhancing our lives with immersive virtual reality. *Frontiers in Robotics and AI*, *3*, 74.

Sreedhar, K. K., Aminlou, A., Hannuksela, M. M., & Gabbouj, M. (2016, December). Viewport-adaptive encoding and streaming of 360-degree video for virtual reality applications. In *2016 IEEE International Symposium on Multimedia (ISM), San Jose, CA, USA, 11-13 December 2016*, (pp. 583-586). IEEE.

Stankov, U., & Gretzel, U. (2020). Tourism 4.0 technologies and tourist experiences: a human-centered design perspective. *Information Technology & Tourism*, 1-12.

Statista. (2019a, July 31). Distribution of Facebook Users Worldwide as of July 2019, by Age and gender. Retrieved October 12, 2019, from https://www.statista.com/statistics/376128/facebook-global-user-age-distribution/

Statista. (2019b, July 31). Share of Respondents Intending to Purchase Virtual Reality Headmounts in the Next 12 Months in Western Europe in 2016, by Age. Retrieved October 12, 2019, from https://www.statista.com/statistics/671317/purchase-intention-of-vr-headmounts-in-western-europe-by-age/

Stone, R. N. (1984). The marketing characteristics of involvement. *Advances in Consumer Research*, 11, 210-215.

Sun, H. (2012). Understanding user revisions when using information system features: Adaptive system use and triggers. *MIS quarterly*, 453-478.

Sutherland, I. E. (1968, December). A head-mounted three dimensional display. In *Proceedings of the December 9-11, 1968, fall joint computer conference, part I* (pp. 757-764).

Tavakoli, R., & Mura, P. (2015). 'Journeys in Second Life'–Iranian Muslim women's behaviour in virtual tourist destinations. *Tourism Management*, *46*, 398-407.

Tavakoli, R., & Wijesinghe, S. N. (2019). The evolution of the web and netnography in tourism: A systematic review. *Tourism Management Perspectives*, *29*, 48-55.

Taylor, J. J., Bing, M., Reynolds, D., Davison, K., & Ruetzler, T. (2018). Motivation and personal involvement leading to wine consumption. *International Journal of Contemporary Hospitality Management*.

Tussyadiah, I. P., Wang, D., Jung, T. H., & tom Dieck, M. C. (2018). Virtual reality, presence, and attitude change: Empirical evidence from tourism. *Tourism Management*, *66*, 140-154.

Tussyadiah, I., Wang, D., & Jia, C. H. (2016). Exploring the persuasive power of virtual reality imagery for destination marketing. *Tourism Travel and Research Association: Advancing Tourism Research Globally*, 25, 1–8.

Ukpabi, D. C., & Karjaluoto, H. (2017). Consumers' acceptance of information and communications technology in tourism: A review. *Telematics and Informatics*, *34*(5), 618-644.

Urbinati, A., Chiaroni, D., Chiesa, V., & Frattini, F. (2020). The role of digital technologies in open innovation processes: an exploratory multiple case study analysis. *R&D Management*, *50*(1), 136-160.

Valduga, M. C., Breda, Z., & Costa, C. M. (2019). Perceptions of blended destination image: the case of Rio de Janeiro and Brazil. *Journal of Hospitality and Tourism Insights*.

Vallerand, R. J., & Blssonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of personality*, *60*(3), 599-620.

Van Damme, K., All, A., De Marez, L., & Van Leuven, S. (2019). 360 video journalism: Experimental study on the effect of immersion on news experience and distant suffering. *Journalism Studies*, *20*(14), 2053-2076.

Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS quarterly*, 695-704.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Vishwakarma, P., Mukherjee, S., & Datta, B. (2020). Travelers' intention to adopt virtual reality: A consumer value perspective. *Journal of Destination Marketing & Management*, *17*, 100456.

Viveiros, L. C., Pereira, A. I., Peroni, J. V., Fachada, I., & Gonçalves, E. (2021). Natureza Virtual: Enhancing Ecosystem Awareness by Using Virtual Reality in Educational Tourism. *Augmented Reality and Virtual Reality: New Trends in Immersive Technology*, 291.

Wan, C. S., Tsaur, S. H., Chiu, Y. L., & Chiou, W. B. (2007). Is the advertising effect of virtual experience always better or contingent on different travel destinations?. *Information Technology & Tourism*, *9*(1), 45-54.

Wang, C. Y. (2009). Investigating antecedents of consumers' recommend intentions and the moderating effect of switching barriers. *The Service Industries Journal*, *29*(9), 1231-1241.

Wang, G., Gu, W., & Suh, A. (2018, July). The effects of 360-degree VR videos on audience engagement: Evidence from the New York Times. In *International Conference on HCI in Business, Government, and Organizations* (pp. 217-235). Springer, Cham.

Wang, Y., & Chen, H. (2019). The influence of dialogic engagement and prominence on visual product placement in virtual reality videos. *Journal of Business Research*, *100*, 493-502.

Willems, K., Brengman, M., & Van Kerrebroeck, H. (2019). The impact of representation media on customer engagement in tourism marketing among millennials. *European Journal of Marketing*, 53(9), 1988-2017. https://doi.org/10.1108/EJM-10-2017-0793

Williams, P., & Hobson, J. P. (1995). Virtual reality and tourism: fact or fantasy?. *Tourism Management*, *16*(6), 423-427.

Wilson, J. (2014). *Essentials of business research: A guide to doing your research project*. Sage.

World Economic Forum. (2021). *Augmented and virtual reality: the promise and peril of immersive technologies*. [online] Retrieved June 7, 2021 from: https://www.weforum.org/agenda/2017/09/augmented-and-virtual-reality-will-change-how-we-create-and-consume-and-bring-new-risks/

Wright, K. B. (2005). Researching Internet-based populations: Advantages and disadvantages of online survey research, online questionnaire authoring software packages, and web survey services. *Journal of computer-mediated communication*, *10*(3), JCMC1034.

Wu, D. Y., & Lin, J. H. T. (2018). Ways of Seeing Matter: The Impact of a Naturally Mapped Perceptual System on the Persuasive Effects of Immersive Virtual Reality Advertising. *Communication Research Reports*, *35*(5), 434-444.

Wu, J., & Lu, X. (2013). Effects of extrinsic and intrinsic motivators on using utilitarian, hedonic, and dual-purposed information systems: A meta-analysis. *Journal of the Association for Information Systems*, *14*(3), 1.

Wu, L., Zhang, J., & Fujiwara, A. (2011). Representing tourists' heterogeneous choices of destination and travel party with an integrated latent class and nested logit model. *Tourism Management*, *32*(6), 1407-1413.

Xiang, Z., Magnini, V. P., & Fesenmaier, D. R. (2015). Information technology and consumer behavior in travel and tourism: Insights from travel planning using the internet. *Journal of retailing and consumer services*, *22*, 244-249.

Xu, F., & Fox, D. (2014). Modelling attitudes to nature, tourism and sustainable development in national parks: A survey of visitors in China and the UK. *Tourism Management*, *45*, 142-158.

Yung, R., & Khoo-Lattimore, C. (2019). New realities: a systematic literature review on virtual reality and augmented reality in tourism research. *Current Issues in Tourism*, *22*(17), 2056-2081.

Yung, R., Khoo-Lattimore, C., Prayag, G., & Surovaya, E. (2020). Around the world in less than a day: virtual reality, destination image and perceived destination choice risk in family tourism. *Tourism Recreation Research*, 1-16.

Zeng, G., Cao, X., Lin, Z., & Xiao, S. H. (2020). When online reviews meet virtual reality: Effects on consumer hotel booking. *Annals of Tourism Research*, *81*, 102860.

Zhang, T., Wei, W., Fu, X., Hua, N., & Wang, Y. (2019). Exploring the roles of technology, people, and organization in building a tourism destination experience: Insights from the 2nd USA-China tourism research summit and Industry Dialogue. *Journal of Destination Marketing & Management*, *12*, 130-135.

APPENDIX

Questionnaire Items in the Main Survey

Scale Item	Scale Code
Behavioral Involvement *(Bell and Marshall, 2003; Getz et al., 2014)*	
After watching the 360-degree video, I would like to read news or articles about Hong Kong City on the internet.	Inv1
After watching the 360-degree video, I would like to search for responses about visiting Hong Kong on the internet.	Inv2
After watching the 360-degree video, I would like to speak with people who have traveled to and visited Hong Kong.	Inv3
After watching the 360-degree video, I became interested in the attractions of Hong Kong.	Inv4
After watching the 360-degree video, I would like to speak with individuals about their desire to visit Hong Kong.	Inv5
Ease of Use *(Haugstvedt and Krogstie, 2012; Venkatesh et al., 2003)*	
The interaction with the app is clear and understandable.	Eou1
Interaction with the app does not require much effort.	Eou2
I find the app easy for me.	Eou3
The app makes it simple for me to find the information I am seeking.	Eou4
Usefulness *(Haugstvedt and Krogstie, 2012; Venkatesh et al., 2003)*	
Using VR can help me obtain more trip information.	Use1
Using VR can enhance my travel information gathering productivity.	Use2
Using VR can enhance my travel information gathering effectiveness.	Use3
I find using VR useful.	Use4

Enjoyment *(Van der Heijden, 2004)*	
It's enjoyable for me to get information by interacting with this app.	Enj1
Using this app provides me with a great deal of enjoyment.	Enj2
I enjoy using VR app.	Enj3
Using VR app does not bore me.	Enj4
Autonomy *(Sheldon et al., 1996)*	
While I was watching VR video, I could choose freely what I wanted to do.	Aut1
I felt that I had a lot of control over my visiting experience in VR.	Aut2
While I was watching VR video, my actions decided the kind of experiences I got.	Aut3
Satisfaction *(Chung et al., 2018)*	
I am satisfied with the VR's information quality.	Sat1
I am satisfied with the VR's system abilities and speed.	Sat2
I am satisfied with the visual interface design (such as graphic) of the VR.	Sat3
Overall, I am satisfied with the VR.	Sat4
Visit Intention *(Horng et al., 2012)*	
I may visit Hong Kong in the future.	Vint1
I plan to visit Hong Kong in the future.	Vint2
I hope to visit Hong Kong in the future.	Vint3
E-WOM Intention *(Wang, 2009)*	

I would say positive things about the destination offered in this video.	Eint1
I would recommend the destination offered in this video.	Eint2
I would encourage others to check out this page.	Eint3

Note: Each item used a 5-point Likert-type scale from 1 (strongly disagree) to 5 (strongly agree).